

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

TRANSMITTAL

REC'D
HAZMAT
94 MAR 14 PM 3:01

TO: Mr. Scott Seery
Alameda County Health
Care Services Agency
80 Swan Way, Room 200
Oakland, California 94612

DATE: March 8, 1994
PROJECT NUMBER: 69034.12
SUBJECT: ARCO Station 601

FROM: Erin D. Krueger

WE ARE SENDING YOU:

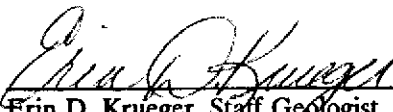
COPIES DATED	DESCRIPTION
1 03/08/94	Letter to Mr. John Sullivan including Laboratory Analytical Results of Fourth Quarter 1993 Groundwater Samples at Chateau Manor Apartments, 724 Lewelling Boulevard, San Leandro, California.

THESE ARE TRANSMITTED as checked below:

☐ For review and comment	☐ Approved as submitted	☐ Resubmit ___ copies for approval
☒ As requested	☐ Approved as noted	☐ Submit ___ copies for distribution
☐ For approval	☐ Return for corrections	☐ Return ___ corrected prints
☒ For your files	☒ Regular Mail	☐ Certified Mail

REMARKS:

Copies: 1 to RESNA project file no. 69034.12


Erin D. Krueger, Staff Geologist

cc: Mr. Michael Whelan, ARCO
Mr. John Meck, ARCO
Mr. Gary Grimm, RWQCB
Mr. John Jang, RWQCB
Mr. John Sullivan

ALCO
HAZMAT

RESNA
Working To Restore Nature

94 MAR 10 AM 10:47

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

TRANSMITTAL

TO: Mr. Scott Seery
Alameda County Health
Care Services Agency
80 Swan Way, Room 200
Oakland, California 94621

DATE: March 7, 1994
PROJECT NUMBER: 69034.12
SUBJECT: ARCO Station 601

FROM: Erin D. Krueger

WE ARE SENDING YOU:

COPIES	DATED	DESCRIPTION
1	03/07/94	Letter Report, Quarterly Groundwater Monitoring, Fourth Quarter 1993 at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California.

THESE ARE TRANSMITTED as checked below:

☐ For review and comment	☐ Approved as submitted	☐ Resubmit ___ copies for approval
☒ As requested	☐ Approved as noted	☐ Submit ___ copies for distribution
☐ For approval	☐ Return for corrections	☐ Return ___ corrected prints
☒ For your files	☐ Regular Mail	☒ Certified Mail

REMARKS:

Copies: 1 to RESNA project file no. 69034.12


Erin D. Krueger, Staff Geologist

cc: Mr. Mike Bakaldin, San Leandro Fire Dept.
Mr. Michael Whelan, ARCO
Mr. John Jang, RWQCB

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

March 8, 1994

Mr. John Sullivan
17760 Sweetbriar Place
Castro Valley, California 94546

Subject: Laboratory Analytical Results of Fourth Quarter 1993 Groundwater Samples
Chateau Manor Apartments
724 Lewelling Boulevard, San Leandro, California.

Mr. Sullivan:

Enclosed please find copies of laboratory analytical results for groundwater samples collected from wells MW-9 and MW-10, located at Chateau Manor Apartments, 724 Lewelling Boulevard, San Leandro, California. The groundwater samples were collected during quarterly sampling of ARCO Station 601, located at 712 Lewelling Boulevard in San Leandro, California, on November 8, 1993. The laboratory analytical results indicate that concentrations of total petroleum hydrocarbons as gasoline, and the gasoline constituents benzene, toluene, ethylbenzene, and total xylenes were not detected.

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

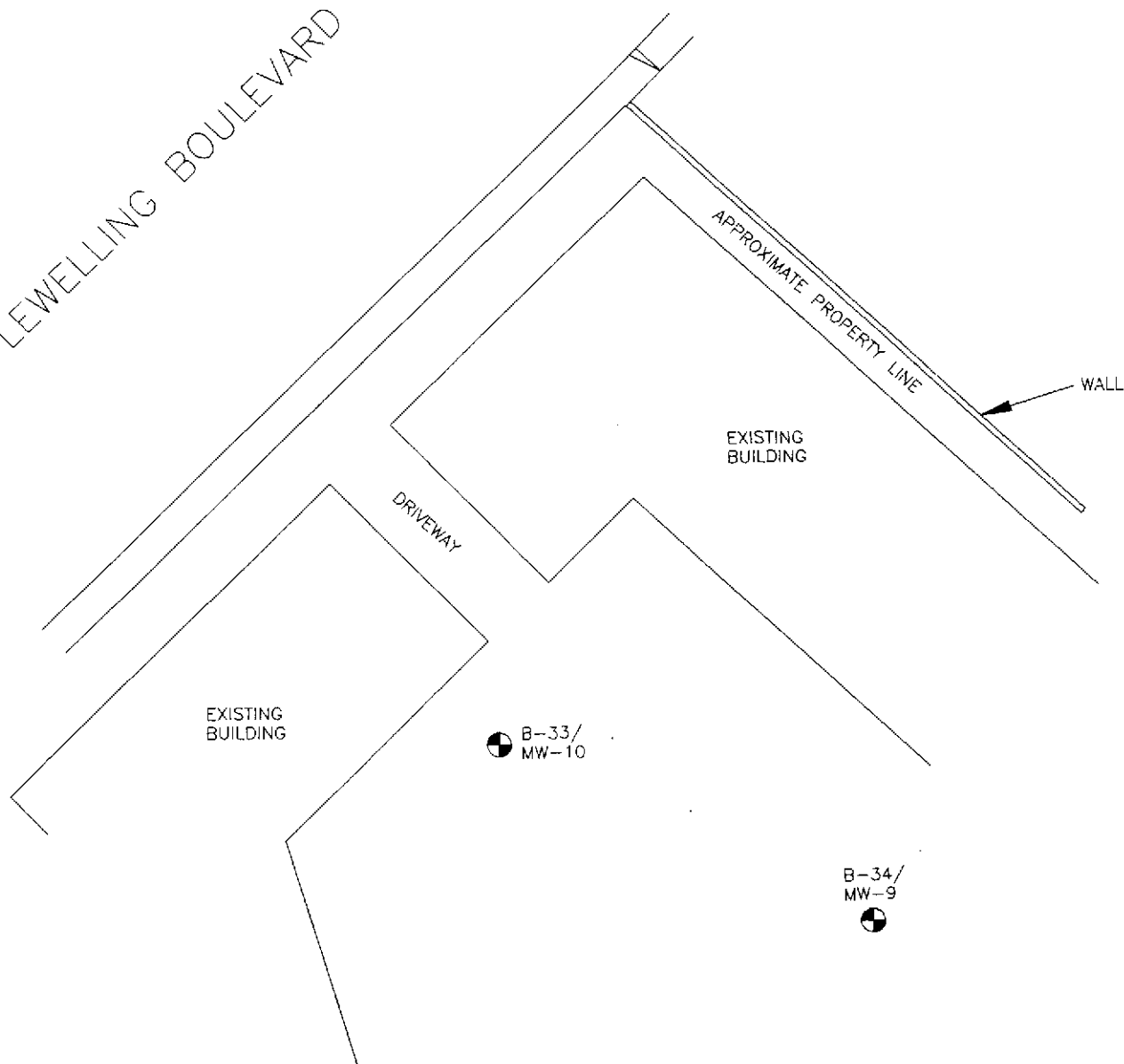
Sincerely,
RESNA Industries Inc.


Erin D. Krueger
Staff Geologist

Enclosures: Plate 1, Generalized Site Plan
Copy of Laboratory Analytical Results of Groundwater Samples
for wells MW-9 and MW-10

cc: Mike Whelan, ARCO Products Company
John Meck, ARCO Products Company
Gary Grimm, RWQCB
John Jang, RWQCB
Scott Seery, ACHCSA

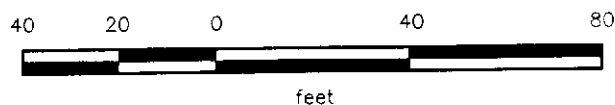
LEWELLING BOULEVARD



EXPLANATION

B-33/
MW-10  = Vapor extraction/groundwater monitoring well

Approximate Scale



Source: Surveyed by Ron Archer, Civil Engineer Inc.
modified by John Koch Land Surveyor.

RESNA
Working to Restore Nature

PROJECT 69034.12

6903412G

GENERALIZED SITE PLAN
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE

1

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON Associates
Project: EMCON Project No. 0G70-007.01
ARCO Facility No. 601

Date Received: 11/08/93
Service Request No.: SJ93-1373
Sample Matrix: Water

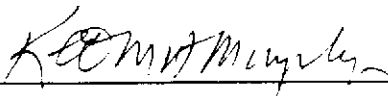
BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method
 $\mu\text{g/L}$ (ppb)

Sample Name:	MW-9 (19)	MW-10 (16)	Method Blank
Date Analyzed:	11/18/93 *	11/18/93 *	11/18/93

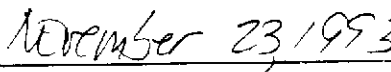
Analyte	MRL			
Benzene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND
TPH as Gasoline	50	ND	ND	ND

* This sample was part of the analytical batch started on November 18, 1993. However, it was analyzed after midnight so the actual date analyzed is November 19, 1993.

Approved by:



Date:



Division of Atlantic Richfield Company

Task Order No.

EMC-935

Chain of Custody

Distribution: White copy -- Laboratory; Canary copy -- ARCO Environmental Engineering; Pink copy

Consultant

26 8307 8210, TPHD, METALS

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

LETTER REPORT
QUARTERLY GROUNDWATER MONITORING
Fourth Quarter 1993
at
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

69034.12

3/7/94

ALCO
HAZMAT
94 MAR 10 AM 10:47

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

March 7, 1994

Mr. Michael Whelan
ARCO Products Company
Post Office Box 5811
San Mateo, California 94402

Subject: Letter Report, Quarterly Groundwater Monitoring
Fourth Quarter 1993
ARCO Station 601
712 Lewelling Boulevard, San Leandro, California.

Mr. Whelan:

As requested by ARCO Products Company (ARCO), RESNA Industries Inc. (RESNA) presents this letter report summarizing the results of fourth quarter 1993 groundwater monitoring performed by EMCON Associates (EMCON) of San Jose, California at the above-referenced site (Plates 1 and 2). RESNA's scope of work was to interpret field and laboratory analytical data, which included evaluating trends in hydrocarbon concentrations in the local groundwater, the groundwater gradient, and direction of groundwater flow beneath the site. Evaluation and warrant of field procedures, field data, and field protocols, performed by EMCON, is beyond RESNA's scope of work. Previous environmental work at the site is summarized in RESNA reports cited in the Reference section.

GROUNDWATER MONITORING

Field Work

EMCON field personnel were onsite November 8, 1993, to measure depth to water (DTW) levels, perform subjective analysis for the presence of product in groundwater, and perform quarterly sampling of wells MW-1 through MW-15.

Laboratory Analyses

Water samples were analyzed by Columbia Analytical Services, Inc., located in San Jose, California (Hazardous Waste Testing Laboratory Certification #1426) for benzene, toluene, ethylbenzene, and total xylenes (BTEX), and total petroleum hydrocarbons as gasoline (TPHg) using Environmental Protection Agency (EPA) Methods 5030/8020/California DHS LUFT Method. In addition, water samples from MW-8, the well located closest to and roughly downgradient of the former waste-oil underground storage tank (UST), were also analyzed for total metals using EPA Method 6010, lead using EPA Method 7421, Halogenated Volatile Organic Compounds (VOCs) using EPA Methods 5030/601, Base Neutral/Acid Semivolatile Organic Compounds (BNAs) using EPA Methods 3510/8270, total petroleum hydrocarbons as diesel (TPHd) using EPA Method 3510/California DHS LUFT Method, and Total Recoverable Petroleum Hydrocarbons (TRPH) using EPA Method 418.1. These analyses of the MW-8 samples were performed at the request of Mr. Scott Seery of the Alameda County Health Care Services Agency. (If during future monitoring events, monitoring well MW-1 does not contain floating product, samples will be collected from MW-1 and analyzed for waste-oil constituents instead of samples from MW-8.) The Chain of Custody Records and Laboratory Analysis Reports are included in Appendix A.

Results of Groundwater Monitoring

Groundwater elevations fell an average of about 0.35 foot in wells MW-2, MW-3, MW-5, and MW-8 through MW-15, and rose about 0.41 foot in well MW-1 since the last quarter. Wells MW-4, MW-6 and MW-7 either contained residual water or were dry. Floating product (0.01 foot) was noted in well MW-1. Evidence of floating product or product sheen was not noted in any other wells during this quarter. Based on November 8, 1993, DTW data, groundwater is interpreted to flow toward the southwest with a gradient of approximately 0.004 ft/ft (Plate 3). Groundwater monitoring data from this and previous quarters is presented in Table 1. The results of EMCON's field work on the site, are presented in Appendix A.

The following trends in hydrocarbon concentrations have been identified since the last quarter: concentrations of TPHg and BTEX have generally decreased in wells MW-4 and MW-11; remained the same order of magnitude in wells MW-5 and MW-8; remained not detected in wells MW-12, MW-13, MW-14, and MW-15; and, floating product or product sheen continued to be noted in well MW-1. Monitoring wells MW-4, MW-6, and MW-7 were dry and therefore not sampled. Offsite wells MW-9 and MW-10, located on Mr. John Sullivans' property at 724 Lewelling Boulevard, continued to have nondetectable concentrations of TPHg and BTEX. The analytical results for MW-8 indicated an increase

in total oil and grease (TOG), increase in metals, decrease in BNAs, VOCs remained nondetectable, and TPHd was not detected.

Product Removal

Floating product is checked monthly in wells MW-1 and MW-3 and removed if present. A Horner EZY Product Skimmer was previously installed in well MW-3 on December 24, 1991, as a means of interim remediation. No floating product was removed in 1993. Quantities of floating product and water removed since 1991 are presented on Table 3.

Previous and Future Work

Fourth Quarter 1993

- Submitted Letter Report, Quarterly Groundwater Monitoring, Third Quarter 1993 to ARCO and regulatory agencies.
- Performed Fourth Quarter Groundwater Monitoring.
- Performed Monthly Product Removal.

First Quarter 1994

- Submit Letter Report, Quarterly Groundwater Monitoring, Fourth Quarter 1993 to ARCO and regulatory agencies.
- Performed First Quarter Groundwater Monitoring.
- Performed Monthly Product Removal.
- Continue discussion with the ACHCSA and the CRWQCB regarding implementation of the Alternative Points of Compliance Policy at this site.

Reporting Requirements

RESNA also recommends that copies of this report be forwarded to:

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

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

Mr. Mike Bakaldin
San Leandro Fire Department
835 East 14th Street
San Leandro, California 94577

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

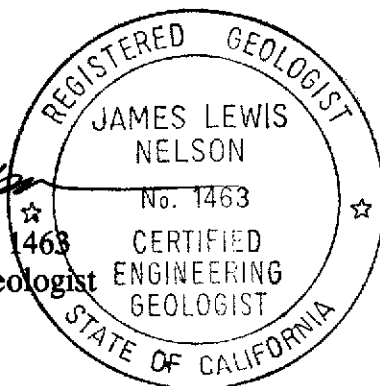
Sincerely,
RESNA Industries Inc.

Erin D. Krueger

Erin D. Krueger
Staff Geologist

James L. Nelson

James L. Nelson, C.E.G. 1463
Certified Engineering Geologist



Enclosures:

References

Plate 1, Site Vicinity Map
Plate 2, Generalized Site Plan
Plate 3, Groundwater Gradient Map, November 8, 1993
Plate 4, TPHg/Benzene Concentrations in Groundwater, November 8, 1993

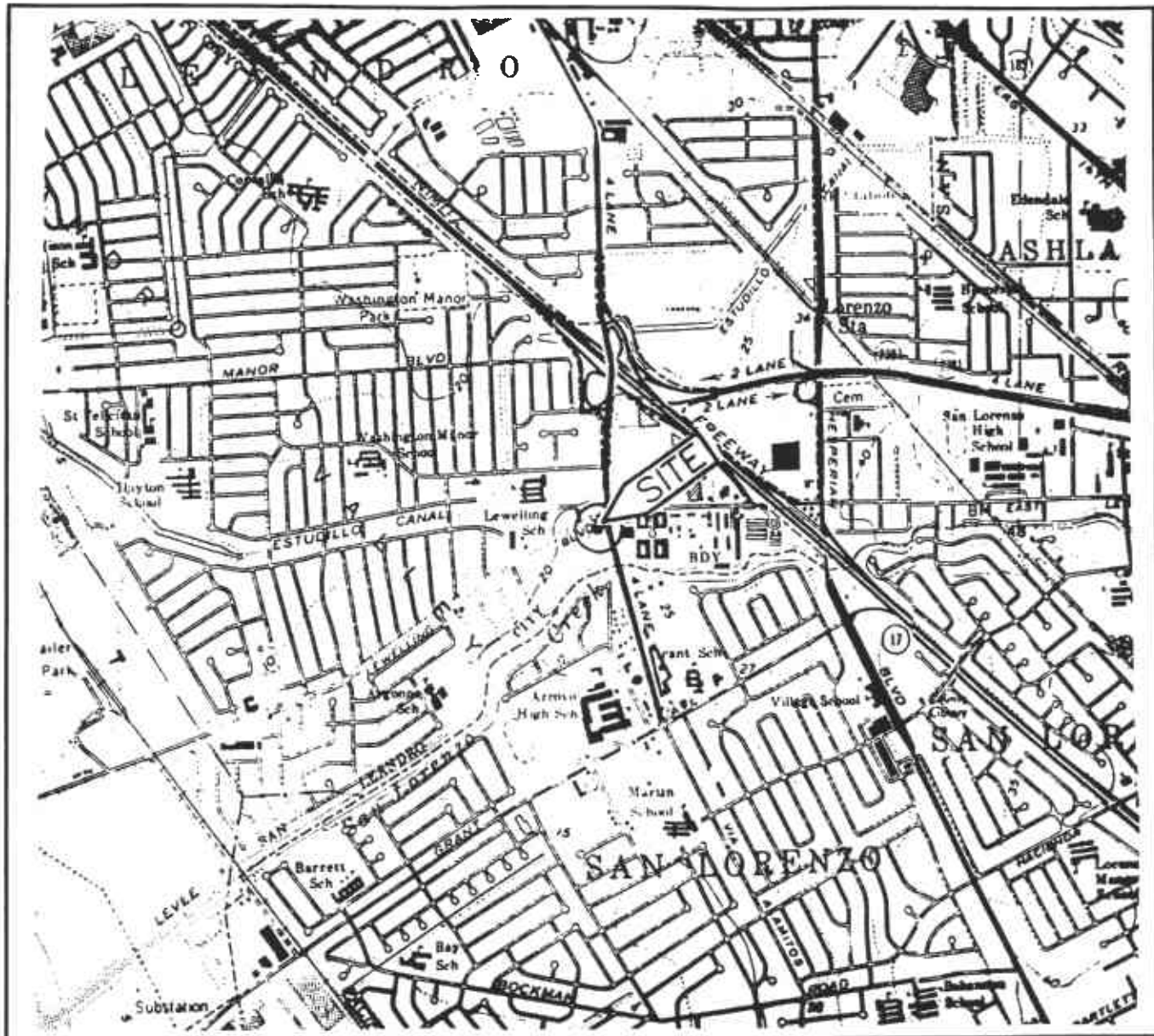
Table 1, Cumulative Groundwater Monitoring Data
Table 2, Cumulative Results of Laboratory Analyses of Groundwater Samples
Table 3, Approximate Cumulative Product Recovered

Appendix A: EMCON's Water Sample Field Data Sheets, Field Reports, Summary of Groundwater Monitoring Data, and Chain of Custody Records

REFERENCES

RESNA Industries, March 3, 1993, Additional Subsurface Investigation at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California. RESNA 69034.10

RESNA Industries, December 29, 1993, Letter Report Quarterly Groundwater Monitoring, Third Quarter 1993, at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California. RESNA 69034.12



Base: U.S. Geological Survey
7.5-Minute Quadrangles
Hayward/San Leandro, California.
Photorevised 1984

LEGEND

● = Site Location



Approximate Scale



RESNA
Working to Restore Nature

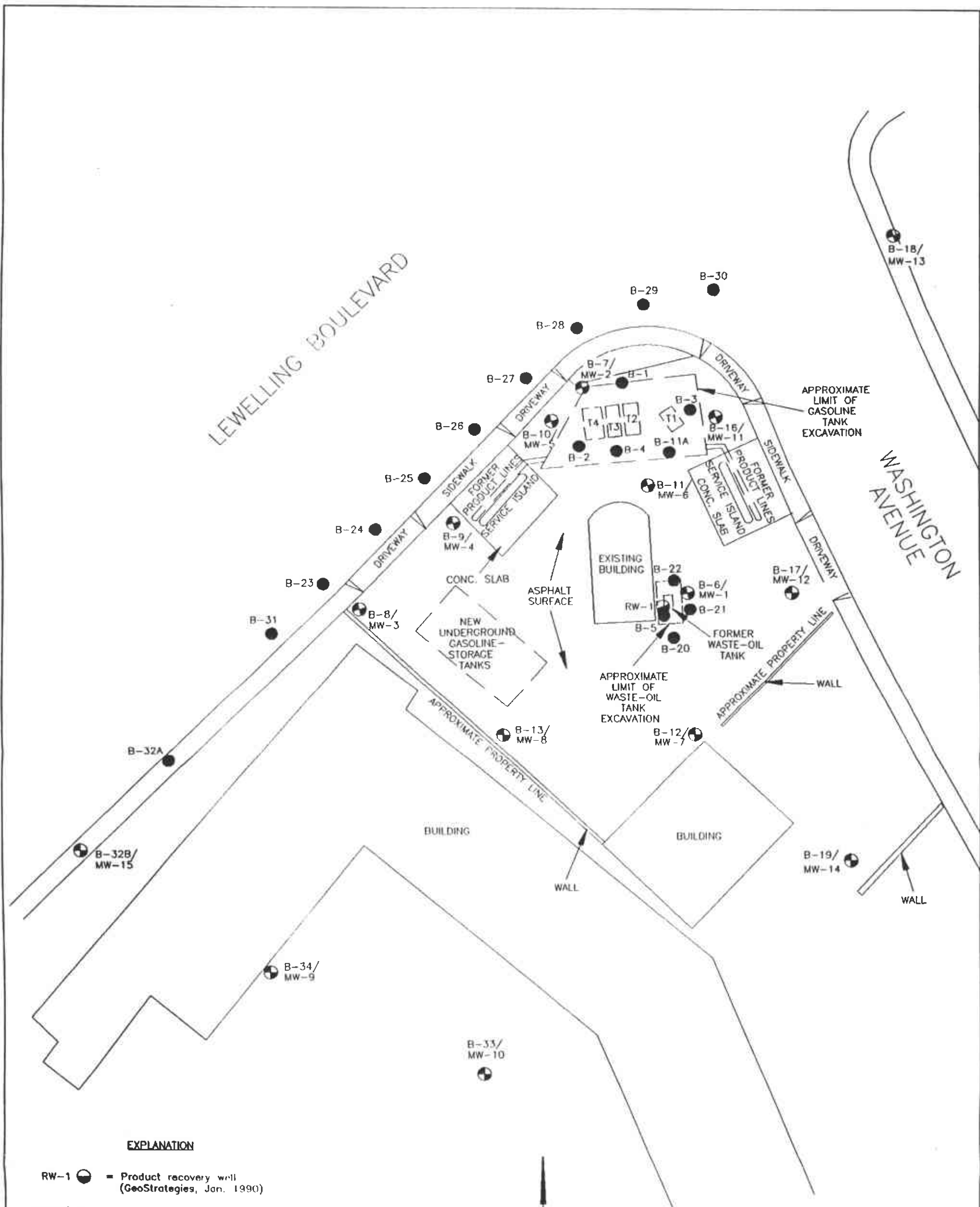
PROJECT

69034.12

SITE VICINITY MAP
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

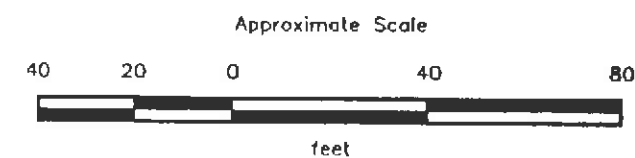
PLATE

1



EXPLANATION

- RW-1  = Product recovery well
(GeoStrategies, Jan. 1990)
- B-33/
MW-10  = Groundwater monitoring well
(RESNA/Applied GeoSystems, June 1990 through May 1993)
- B-31  = Soil boring
(RESNA/Applied GeoSystems, August 1989 through May 1993)
- [T4]  = Former gasoline underground storage tanks



Source: Surveyed by Ron Archer, Civil Engineer Inc.
modified by John Koch Land Surveyor.

RESNA
Working to Restore Nature

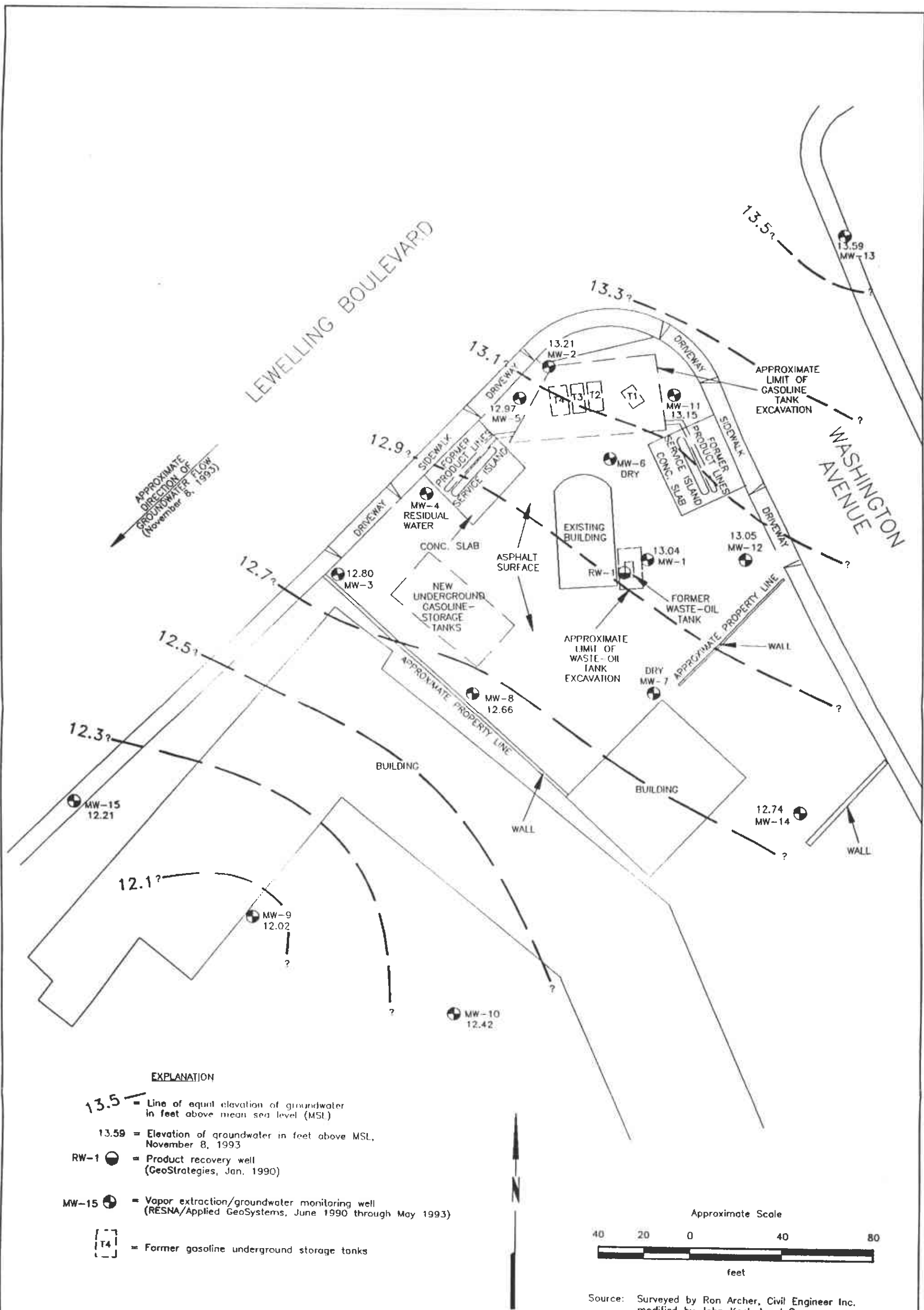
PROJECT 69034.12

69034-12

GENERALIZED SITE PLAN
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE

2



RESNA
Working to Restore Nature

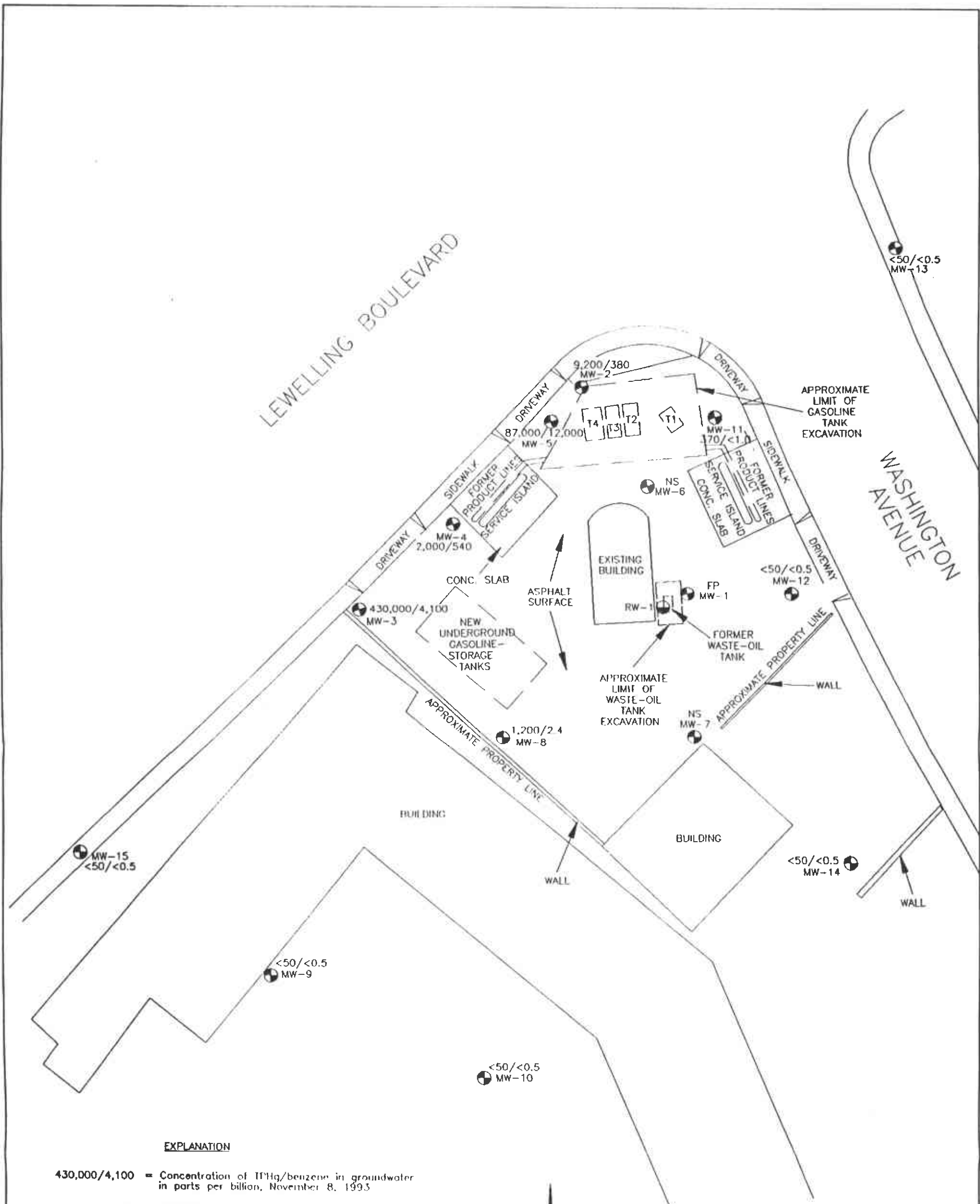
PROJECT 69034.12

90341704

GROUNDWATER GRADIENT MAP
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

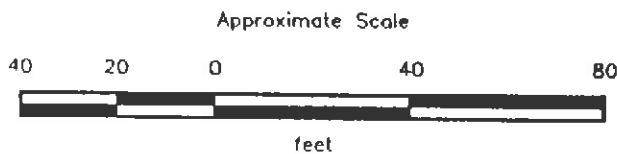
PLATE

3



EXPLANATION

- 430,000/4,100 = Concentration of TPHg/benzene in groundwater in parts per billion, November 8, 1993
- FP = Floating product
- RW-1 = Product recovery well (GeoStrategies, Jan. 1990)
- MW-15 = Vapor extraction/groundwater monitoring well (RESNA/Applied GeoSystems, June 1990 through May 1993)
- [T4] = Former gasoline underground storage tanks
- NS = Not sampled due to insufficient water



Source: Surveyed by Ron Archer, Civil Engineer Inc. modified by John Koch Land Surveyor.



TPHg/BENZENE CONCENTRATIONS
IN GROUNDWATER
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE

4

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(page 1 of 9)

Date Well Measured	Total Depth	Well Elevation	Depth to Water	Water Elevation	Floating Product
<u>MW-1</u>					
07/17/90	11.20	22.98	9.03	13.95	Emulsion
08/07/90			9.19	13.79	None
10/15/90			9.85*	13.13	0.25
11/20/90			9.79*	13.19	0.46
12/21/90			9.18	13.80	Sheen
01/09/91			9.47*	13.51*	0.02
02/27/91			9.31*	13.67*	0.03
03/20/91			7.81**	15.17**	Sheen
04/16/91			6.12	16.86	Sheen
05/16/91			8.60*	13.66*	0.01
06/10/91		22.26	9.00	13.26	Sheen
07/18/91			9.33*	12.93*	0.01
08/22/91			9.49*	12.77*	0.04
09/18/91			9.63*	12.63*	0.04
10/10/91			9.73*	12.53*	0.04
11/21/91			8.40*	13.86*	0.01
12/24/91			9.68*	13.30*	0.13
01/19/92	11.10		8.84	13.42	None
02/20/92			7.22	15.04	None
03/23/92			7.40	14.86	Sheen
04/21/92			8.30	13.96	None
05/15/92			8.77*	13.49*	0.01
06/08/92			9.08*	13.18*	0.02
07/15/92			9.40	12.86	None
08/25/92			8.21	14.05	None
09/15/92			8.18*	14.08*	0.02
10/28/92			8.62	13.64	None
11/16/92		22.26	9.09*	13.17*	0.02
12/16/92			8.10*	14.16*	0.02
01/15/93	11.10		6.53	15.73	None
02/16/93			7.03*	15.23*	0.01
03/30/93			6.86	15.40	None
04/28/93			6.77*	15.49*	0.01
05/13/93			8.08*	14.18*	0.01
06/17/93			8.48*	13.78*	0.01
07/28/93			8.80*	13.46*	0.01
08/17/93			8.81*	13.45*	0.01
11/08/93			9.22*	13.04*	0.01

See notes on page 9 of 9

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(page 2 of 9)

Date Well Measured	Total Depth	Well Elevation	Depth to Water	Water Elevation	Floating Product
<u>MW-2</u>					
07/17/90	12.33	22.06	7.86	14.20	None
08/07/90			8.03	14.03	None
10/15/90			8.61	13.45	None
11/20/90			8.76	13.30	None
12/21/90			8.28	13.78	None
01/09/91			8.43	13.63	None
02/27/91			8.28	13.78	None
03/20/91			7.26**	14.80**	None
04/16/91			6.97	15.09	None
05/16/91			7.52	15.27	None
06/10/91		21.33	7.91	14.88	None
07/18/91			8.30	14.49	None
08/22/91			8.50	14.29	None
09/18/91			8.63	14.16	None
10/10/91			8.82	13.97	None
11/21/91			8.46	14.33	None
12/24/91			8.72	14.07	None
01/19/92	12.20		7.96	14.83	None
02/20/92			6.55	16.24	None
03/23/92			6.86	15.93	None
04/21/92			7.15	14.18	None
05/15/92			7.61	13.72	None
06/08/92			7.95	13.38	None
07/15/92			8.45	12.88	None
08/25/92			8.53	12.80	None
09/15/92			8.71	12.62	None
10/28/92			8.89	12.44	None
11/16/92		21.33	7.93	13.40	None
12/16/92			7.44	13.89	None
01/15/93	12.30		6.13	15.20	None
02/16/93			6.02	15.31	None
03/30/93			5.98	15.35	None
04/28/93			6.58	14.75	None
05/13/93			6.99	14.34	None
06/17/93			7.40	13.93	None
07/28/93			7.79	13.54	None
08/17/93			7.85	13.48	None
11/08/93			8.12	13.21	None
<u>MW-3</u>					
07/17/90	11.99	20.84	7.03	13.81	Sheen
08/07/90			7.21	13.63	None

See notes on page 9 of 9

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(page 3 of 9)

Date Well Measured	Total Depth	Well Elevation	Depth to Water	Water Elevation	Floating Product
<u>MW-3 (cont.)</u>					
10/15/90			8.19*	12.65*	0.75
11/20/90			7.98*	12.85*	1.08
12/21/90			7.22*	13.62*	0.01
01/09/91			7.46*	13.38*	0.30
02/27/91			7.37*	13.47*	0.02
03/20/91			5.79**	15.05**	Sheen
04/16/91			7.95	12.89	Sheen
05/16/91			7.50	12.61	None
06/10/91		20.11	7.14	12.97	Sheen
07/18/91			7.55	12.56	None
08/22/91			7.64	12.47	Sheen
09/18/91			7.89*	12.22*	0.12
10/10/91			7.82*	12.29*	0.26
11/21/91			7.59*	12.52*	0.04
12/24/91			8.74*	11.37*	0.01
01/19/92	11.94		6.98	13.13	0.01
02/20/92			5.05	15.06	0.01
03/23/92			5.75	14.36	Sheen
04/21/92			6.55	13.56	None
05/15/92			7.11*	13.00*	0.03
06/08/92			7.52*	12.59*	0.02
07/15/92			7.92	12.19	None
08/25/92			8.00	12.11	None
09/15/92			8.01*	12.10*	0.02
10/28/92			8.66	11.45	None
11/16/92		20.11	7.11	13.00	Sheen
12/16/92			6.62	13.49	None
01/15/93	11.9		4.44	15.67	None
02/16/93			5.93*	14.18*	0.01
03/30/93	12.0		5.48	14.63	None
04/28/93			6.02*	14.09*	0.01
05/13/93			6.37*	13.74*	0.01
06/17/93			6.52*	13.59*	0.01
07/28/93			6.95	13.16	None
08/17/93			7.00*	13.11*	0.01
11/08/93			7.31	12.80	None
<u>MW-4</u>					
06/10/91	8.30	20.75	Dry		None
07/18/91			7.86	12.89	None
08/22/91			7.85	12.90	None
09/18/91			7.84	12.91	None

See notes on page 9 of 9

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(page 4 of 9)

Date Well Measured	Total Depth	Well Elevation	Depth to Water	Water Elevation	Floating Product
<u>MW-4 (cont.)</u>					
10/10/91			Dry		None
11/21/91			Dry		None
12/24/91			Dry		None
01/19/92	12.02		8.20	Residual Water	None
02/20/92	8.50		8.13	Residual Water	None
03/23/92			7.94	Residual Water	None
04/21/92			8.20	Residual Water	None
05/15/92			8.16	Residual Water	None
06/08/92			8.12	Residual Water	None
07/15/92	8.90		8.81	Residual Water	None
08/25/92			8.39	Residual Water	None
09/15/92			Dry		None
10/28/92	8.4		8.23	Residual Water	None
11/16/92	8.5	20.75	8.29	Residual Water	None
12/16/92	8.5		8.18	Residual Water	None
01/15/93			7.48	13.27	None
02/16/93			7.10	13.65	None
03/30/93			7.51	13.24	None
04/28/93			7.10	13.65	None
05/13/93			7.02	13.73	None
06/17/93			7.98	12.77	None
07/28/93			7.90	12.85	None
08/17/93			7.85	12.90	None
11/08/93			8.20	Residual Water	None
<u>MW-5</u>					
06/10/91	9.88	20.90	7.58	13.32	None
07/18/91			7.97	12.93	None
08/22/91			8.18	12.72	None
09/18/91			8.31	12.59	None
10/10/91			8.51	12.39	Sheen
11/21/91			8.13	12.77	None
12/24/91			8.32	12.58	None
01/19/92	10.10		7.50	13.40	None
02/20/92			5.97	14.93	None
03/23/92			6.06	14.84	None
04/21/92			6.90	14.00	None
05/15/92			7.32	13.58	None
06/08/92			7.66	13.24	None
07/15/92			8.34	12.56	None
08/25/92			8.18	12.72	None
09/15/92			8.40	12.50	0.02+

See notes on page 9 of 9

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(page 5 of 9)

Date Well Measured	Total Depth	Well Elevation	Depth to Water	Water Elevation	Floating Product
<u>MW-5 (cont.)</u>					
10/28/92			8.83	12.07	None
11/16/92		20.90	7.70	13.20	None
12/16/92			6.92	13.98	None
01/15/93	10.1		5.52	15.38	None
02/16/93			5.64	15.26	None
03/30/93			5.56	15.34	None
04/28/93			6.28	14.62	None
05/13/93			6.68	14.22	None
06/17/93			7.07	13.83	None
07/28/93			7.41	13.49	None
08/17/93			7.49	13.41	None
11/08/93			7.93	12.97	None
<u>MW-6</u>					
06/10/91	8.40	22.08	Dry		None
07/18/91			Dry		None
08/22/91			Dry		None
09/18/91			Dry		None
10/10/91			Dry		None
11/21/91			Dry		None
12/24/91			Dry		None
01/19/92	8.60		8.58	Residual water	None
02/20/92			7.28	14.80	None
03/23/92			7.45	14.63	None
04/21/92			7.74	14.34	None
05/15/92			8.50	Residual Water	None
06/08/92			Dry		None
07/15/92			8.81	Residual Water	None
08/25/92			8.42	Residual Water	None
09/15/92			Dry		None
10/28/92	8.75		8.75	Residual Water	None
11/16/92	8.6	22.08	8.57	Residual Water	None
12/16/92	8.6		8.10	Residual Water	None
01/15/93			7.22	14.86	None
02/16/93			6.79	15.29	None
03/30/93			6.68	15.40	None
04/28/93			7.28	14.80	None
05/13/93			7.73	14.35	None
06/17/93			8.15	13.93	None
07/28/93			8.55	Residual Water	None
08/17/93			Dry		None
11/08/93			Dry		None

See notes on page 9 of 9

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(page 6 of 9)

Date Well Measured	Total Depth	Well Elevation	Depth to Water	Water Elevation	Floating Product
<u>MW-7</u>					
06/10/91	9.36	22.89	Dry		None
07/18/91			Dry		None
08/22/91			Dry		None
09/18/91			Dry		None
10/10/91			Dry		None
11/21/91			Dry		None
12/24/91			Dry		None
01/19/92	9.55		Dry		None
02/20/92			8.74	14.15	None
03/23/92			8.20	14.69	None
04/21/92			8.86	14.03	None
05/15/92			9.29	Residual Water	None
06/08/92			9.52	Residual Water	None
07/15/92			9.78	Residual Water	None
08/25/92			9.33	Residual Water	None
09/15/92			Dry		None
10/28/92	11.7**		10.38**	12.51	None
11/16/92	9.6	22.89	9.53	Residual Water	None
12/16/92	9.6		9.21	Residual Water	None
01/15/93			8.37	14.52	None
02/16/93			7.84	15.05	None
03/30/93			8.03	14.86	None
04/28/93			8.33	14.56	None
05/13/93			8.56	14.33	None
06/17/93			9.30	13.59	None
07/28/93			9.57	Residual Water	None
08/17/93			Dry		None
11/08/93			Dry		None
<u>MW-8</u>					
06/10/91	10.00	20.97	7.80	13.17	None
07/18/91			8.36	12.61	None
08/22/91			8.53	12.44	None
09/18/91			8.68	12.29	None
10/10/91			8.87	12.10	None
11/21/91			8.43	12.54	None
12/24/91			8.68	12.29	None
01/19/92	10.15		7.73	13.24	None
02/20/92			5.57	15.40	None
03/23/92			5.81	15.16	None
04/21/92			7.05	13.92	None
05/15/92			7.79	13.18	None

See notes on page 9 of 9

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(page 7 of 9)

Date Well Measured	Total Depth	Well Elevation	Depth to Water	Water Elevation	Floating Product
<u>MW-8 (cont.)</u>					
06/08/92			8.01	12.96	None
07/15/92			8.46	12.51	None
08/25/92			8.64	12.33	None
09/15/92			8.80	12.17	None
10/28/92			8.80	12.17	None
11/16/92		20.97	8.19	12.78	None
12/16/92			6.66	14.31	None
01/15/93			5.18	15.79	None
02/16/93			5.84	15.13	None
03/30/93	10.2		4.98	15.99	None
04/28/93			6.17	14.80	None
05/13/93			6.93	14.04	None
06/17/93			7.36	13.61	None
07/28/93			7.80	13.17	None
08/17/93			7.87	13.10	None
11/08/93			8.31	12.66	
<u>MW-9</u>					
06/11/93	19.17	20.89	8.15	12.74	None
07/28/93			8.49	12.40	None
08/17/93			8.53	12.36	None
11/08/93			8.87	12.02	None
<u>MW-10</u>					
06/11/93	16.08	21.12	8.14	12.98	None
07/28/93			8.43	12.69	None
08/17/93			8.54	12.58	None
11/08/93			8.70	12.42	None
<u>MW-11</u>					
11/16/92	11.9	22.38	9.02	13.36	None
12/16/92			8.48	13.90	None
01/15/93			7.14	15.24	None
02/16/93			7.11	15.27	None
03/30/93			7.01	15.37	None
04/28/93			7.62	14.76	None
05/13/93			8.04	14.34	None
06/17/93			8.44	13.94	None
07/28/93			8.80	13.58	None
08/17/93			8.78	13.60	None
11/08/93			9.23	13.15	None

See notes on page 9 of 9

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(page 8 of 9)

Date Well Measured	Total Depth	Well Elevation	Depth to Water	Water Elevation	Floating Product
<u>MW-12</u>					
11/16/92	11.6	22.77	9.65	13.12	None
12/16/92			8.71	14.06	None
01/15/93			7.19	15.58	None
02/16/93			7.88	14.89	None
03/30/93			7.43	15.34	None
04/28/93			8.22	14.55	None
05/13/93			8.63	14.14	None
06/17/93			8.98	13.79	None
07/28/93			9.32	13.45	None
08/17/93			9.30	13.47	None
11/08/93			9.72	13.05	None
<u>MW-13</u>					
11/16/92	13.0	22.45	9.02	13.43	None
12/16/92			8.23	14.22	None
01/15/93			6.89	15.56	None
02/16/93			7.14	15.31	None
03/30/93			7.01	15.44	None
04/28/93			7.57	14.88	None
05/13/93			7.95	14.50	None
06/17/93			8.32	14.13	None
07/28/93			8.59	13.86	None
08/17/93			8.57	13.88	None
11/08/93			8.86	13.59	None
<u>MW-14</u>					
09/15/92	13.0	22.99	10.66	12.33	None
10/28/92			10.91	12.08	None
11/16/92			10.33	12.66	None
12/16/92			9.20	13.79	None
01/15/93			7.06	15.93	None
02/16/93			8.18	14.81	None
03/30/93			7.97	14.93	None
04/28/93			8.63	14.36	None
05/13/93			9.05	13.94	None
06/17/93			9.55	13.44	None
07/28/93			9.89	13.10	None
08/17/93			9.90	13.09	None
11/08/93			10.25	12.74	None

See notes on page 9 of 9

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(page 9 of 9)

Date Well Measured	Total Depth	Well Elevation	Depth to Water	Water Elevation	Floating Product
MW-15					
04/28/93	10.1	19.19	5.51	13.68	None
05/13/93			5.91	13.28	None
06/17/93			6.18	13.01	None
07/28/93			6.45	12.74	None
08/17/93			6.54	12.65	None
11/08/93			6.98	12.21	None

Measurements in feet.

Datum mean sea level.

Depth-to-Water measured in feet below top of casing.

*The recorded thickness of the floating product was multiplied by 0.80 to obtain an approximate value for the displacement of water by the floating product. This approximate displacement value was then subtracted from the measured depth to water to obtain a calculated depth to water.

** = Anomalous data.

+ Floating Product entered well during purging, therefore DTW was not affected.

Residual Water = less than 4 inches of water trapped within the cap at the base of the well.

TABLE 2
CUMULATIVE LABORATORY ANALYTICAL RESULTS OF GROUNDWATER SAMPLES
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California
(page 1 of 5)

Sample	TPHg	TPHd	B	T	E	X	TOG	BNAs	VOCs	Cd	Cr	Pb	Ni	Zn
<u>MW-1</u>														
07/18/90														Not sampled--sheen
10/15/90														Not sampled--floating product
01/09/91														Not sampled--floating product
04/16/91														Not sampled--sheen
06/10/91														Not sampled--sheen
10/10/91														Not sampled--floating product
03/23/92														Not sampled--sheen
06/08/92														Not sampled--floating product
09/15/92														Not sampled--floating product
11/16/92														Not sampled--floating product
02/16/93														Not sampled--floating product
05/13/93														Not sampled--floating product
08/17/93														Not sampled--floating product
11/08/93														Not sampled--floating product
<u>MW-2</u>														
07/18/90	35,000	850*	3,800 (3,200)	2,900 (2,400)	690 (270)	3,600 (2,900)	<5,000	340* 170*	39*	<20	50	50	NA	120
10/15/90	6,400	NA	650	290	110	560	NA	NA	18*	NA	NA	NA	NA	NA
01/09/91	13,000	NA	1500 (1700)	970 (1200)	390 (370)	1500 (2400)	NA	NA	6.5*	NA	NA	NA	NA	NA
04/16/91	54,000	NA	5,200	9,000	1,500	7,700	NA	NA	NA	NA	NA	NA	NA	NA
06/10/91	26,000	NA	3,000	2,500	880	4,200	NA	NA	NA	NA	NA	NA	NA	NA
10/10/91	10,000	NA	1,600	910	280	1,400	<5,000	NA	1.7*	<10	<10	11	72	91
03/23/92	33,000	NA	4,100	5,000	1,100	5,300	NA	NA	NA	NA	NA	NA	NA	NA
06/08/92	18,000	NA	1,200	980	330	1,800	NA	NA	NA	NA	NA	NA	NA	NA
09/15/92	13,000	NA	430	500	340	1,800	NA	NA	NA	NA	NA	NA	NA	NA
11/16/92	13,000	NA	900	940	300	1,400	NA	NA	NA	NA	NA	NA	NA	NA
02/16/93	20,000	NA	1,800	1,200	530	2,700	NA	NA	NA	NA	NA	NA	NA	NA
05/13/93	13,000	NA	1,000	470	370	1,900	NA	NA	NA	NA	NA	NA	NA	NA
08/17/93	9,100	NA	770	160	310	1,500	NA	NA	NA	NA	NA	NA	NA	NA
11/08/93	9,200	NA	380	62	130	630	NA	NA	NA	NA	NA	NA	NA	NA
<u>MW-3</u>														
07/18/90	NA	NA	NA	NA	NA	NA	<5,000	NA	NA	NA	NA	NA	NA	NA
10/15/90														Not sampled--floating product
01/09/91														Not sampled--floating product
04/16/91														Not sampled--sheen
06/10/91														Not sampled--sheen
10/10/91														Not sampled--floating product

See notes on page 15 of 15

69034/4-93QM

TABLE 2
CUMULATIVE LABORATORY ANALYTICAL RESULTS OF GROUNDWATER SAMPLES
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California
(page 2 of 5)

Sample	TPHg	TPHd	B	T	E	X	TOG	BNAs	VOCs	Cd	Cr	Pb	Ni	Zn
MW-3 (cont.)														
03/23/92														
06/08/92														
09/15/92														
11/16/92														
02/16/93														
05/13/93														
08/17/93														
11/08/93	430,000	NA	4,100	14,000	6,400	37,000	NA	NA	NA	NA	NA	NA	NA	NA
MW-4														
06/10/91														
10/10/91	15,000	NA	5,300	1,500	470	1,300	NA	NA	NA	NA	NA	NA	NA	NA
03/23/92	24,000	NA	5,600	4,000	580	3,100	NA	NA	NA	NA	NA	NA	NA	NA
06/08/92	5,700	NA	2,000	170	92	270	NA	NA	NA	NA	NA	NA	NA	NA
09/15/92														
11/16/92														
02/16/93	12,000	NA	920	1,100	130	750	NA	NA	NA	NA	NA	NA	NA	NA
05/13/93	19,000	NA	2,900	2,800	360	1,900	NA	NA	NA	NA	NA	NA	NA	NA
08/17/93	8,100	NA	1,600	1,300	170	730	NA	NA	NA	NA	NA	NA	NA	NA
11/08/93	2,000	NA	540	110	10	240	NA	NA	NA	NA	NA	NA	NA	NA
MW-5														
06/10/91	100,000	NA	25,000	20,000	2,600	12,000	NA	NA	NA	NA	NA	NA	NA	NA
10/10/91														
03/23/92	150,000	NA	24,000	31,000	4,400	23,000	NA	NA	NA	NA	NA	28	NA	NA
06/08/92	120,000	NA	17,000	13,000	2,400	11,000	NA	NA	NA	NA	NA	NA	NA	NA
09/15/92														
11/16/92	110,000	NA	16,000	16,000	3,200	18,000	NA	NA	NA	NA	NA	NA	NA	NA
02/16/93	150,000	NA	12,000	15,000	3,000	17,000	NA	NA	NA	NA	NA	NA	NA	NA
05/13/93														
08/17/93	87,000	NA	15,000	8,500	1,900	11,000	NA	NA	NA	NA	NA	NA	NA	NA
11/08/93	87,000	NA	12,000	8,300	2,000	12,000	NA	NA	NA	NA	NA	NA	NA	NA
MW-6														
06/10/91														
10/10/91														
03/23/92	75,000	NA	19,000	10,000	1,600	8,600	NA	NA	NA	NA	NA	NA	NA	NA
06/08/92														
09/15/92														
11/16/92														

See notes on page 15 of 15

TABLE 2
CUMULATIVE LABORATORY ANALYTICAL RESULTS OF GROUNDWATER SAMPLES
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California
(page 3 of 5)

Sample	TPHg	TPHd	B	T	E	X	TOG	BNAs	VOCs	Cd	Cr	Pb	Ni	Zn
<u>MW-6 (con't)</u>														
02/16/93	65,000	NA	14,000	3,500	1,300	6,100	NA	NA	NA	NA	NA	NA	NA	NA
05/13/93	36,000	NA	8,200	870	1,000	5,200	NA	NA	NA	NA	NA	NA	NA	NA
08/17/93														
11/08/93														
<u>MW-7</u>														
06/10/91														
10/10/91														
03/23/92	270	NA	10	0.5	3.0	13	NA	NA	NA	NA	NA	NA	NA	NA
06/08/92														
09/15/92														
11/16/92														
02/16/93	120	NA	3.6	<0.5	<0.5	1.2	NA	NA	NA	NA	NA	NA	NA	NA
05/13/93	<50	NA	0.8	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
08/17/93														
11/08/93														
<u>MW-8</u>														
06/10/91	5,800	NA	73	7.2	150	21	<5,000	NA	NA	NA	NA	NA	NA	NA
10/10/91	2,800	NA	31	6.1	4.5	3.9	NA	NA	NA	NA	NA	NA	NA	NA
03/23/92	8,000	NA	18	<5.0**	320	42	NA	NA	ND	NA	NA	NA	NA	NA
			(23**)	(<5.0**)	(450**)	(23**)								
06/08/92	4,000	NA	<10**	<10**	110	<10**	NA	NA	NA	NA	NA	NA	NA	NA
09/15/92	4,200	460***	6.4	<5*	120	<5*	NA	6*	ND	ND	59	18	78	128
11/16/92	2,600	1,100***	4.0	<2.5**	21	5.2	1,200	32*	ND	7	42	20	69	123
02/16/93	8,700	5,300***	<5**	<5**	200	<5**	150,000	730*	ND	<3	7	4	24	54
								130 ^b						
05/13/93	2,300	2,300***	<5**	<5**	42	<5**	2,000	97*	ND	<3	17	10	31	49
								20 ^b						
08/17/93	1,700	1,000***	1.8	<1.3****	16	1.2	1,200	26*	ND	<5	16	7	<40	180
11/08/93	1,200	<1000	2.4	<1**	19	2.3	4,200	20*	ND	<5	50	25	60	100
								19*						
<u>MW-9</u>														
06/11/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
08/17/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
11/08/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA

See notes on page 15 of 15

TABLE 2
CUMULATIVE LABORATORY ANALYTICAL RESULTS OF GROUNDWATER SAMPLES
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California
(page 4 of 5)

Sample	TPHg	TPHd	B	T	E	X	TOG	BNAs	VOCs	Cd	Cr	Pb	Ni	Zn
<u>MW-10</u>														
06/11/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
08/17/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
11/08/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
<u>MW-11</u>														
11/16/92	7,000	NA	21	<10**	18	230	NA	NA	NA	NA	NA	NA	NA	NA
02/16/93	2,200	NA	<10**	<10**	11	<10**	NA	NA	NA	NA	NA	NA	NA	NA
05/13/93	1,600	NA	<2.5**	<2.5**	41	6.8	NA	NA	NA	NA	NA	NA	NA	NA
08/17/93	830	NA	1.4	<1.0**	25	15	NA	NA	NA	NA	NA	NA	NA	NA
11/08/93	370	NA	<1.0**	<1.0**	2.5	2.1	NA	NA	NA	NA	NA	NA	NA	NA
<u>MW-12</u>														
11/16/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
02/16/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
05/13/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
08/17/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
11/08/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
<u>MW-13</u>														
11/16/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
02/16/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
05/13/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
08/17/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
11/08/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
<u>MW-14</u>														
09/15/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
11/16/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
02/16/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
05/13/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
08/17/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
11/08/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA

See notes on page 15 of 15

TABLE 2
CUMULATIVE LABORATORY ANALYTICAL RESULTS OF GROUNDWATER SAMPLES
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California
(page 5 of 5)

Sample	TPHg	TPHd	B	T	E	X	TOG	BNAs	VOCs	Cd	Cr	Pb	Ni	Zn
<u>MW-15</u>														
05/13/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
08/17/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
11/08/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA

Results in micrograms per liter (ug/L) = parts per billion (ppb).

NA:	Not analyzed.
<:	Results reported as less than the detection limit.
*:	Applied analytical laboratories reports that the chromatograph resembled gasoline not diesel.
**:	Laboratory reported raised maximum reporting limit due to high analyte concentration requiring sample dilution.
***:	Sample contains a lower boiling point hydrocarbon mixture quantitated as diesel. The chromatogram does not match the typical diesel fingerprint.
****:	Laboratory reported raised MRL due to matrix interference.
():	BTEX results analyzed as VOCs.
TPHg:	Total petroleum hydrocarbons as gasoline using EPA method 8015.
TPHd:	Total petroleum hydrocarbons as diesel using EPA method 3550/3510.
	B: Benzene, T: Toluene, E: Ethylbenzene, X: Total Xylene isomers.
BTEX:	Measured using EPA method 8020/602.
TOG:	Total oil and grease measured using Standard Method 503A/E or EPA Method 418.1.
BNAs:	Base neutral and acid extractables including polynuclear aromatics concentrations are below laboratory reporting limits for respective compounds except as indicated. (* = naphthalene, * = 2-methylnaphthalene, * = Bis (2-ethylhexyl) Phthalate)
VOCs:	volatile organics except for BTEX concentrations are below laboratory reporting limits for respective compounds except as indicated. (* = methylene chloride, * = 1,2-Dichloroethane)
Cd:	Cadmium (using EPA Method 6010)
Cr:	Chromium (using EPA Method 6010)
Pb:	Lead (using EPA Method 7421)
Ni:	Nickel (using EPA Method 6010)
Zn:	Zinc (using EPA Method 6010)
ND:	Below detection limits. Detection limits for VOCs varied according to analyte.
DWAL:	California Department of Health Services recommended drinking water action levels (October 1990).
MCLs:	Maximum Contaminant Level in ppb (October 1990).

TABLE 3
APPROXIMATE CUMULATIVE PRODUCT RECOVERED
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

Year	Floating Product Recovered (gallons)
1991	TOTAL: 3.43
1992	TOTAL: 0.02
1993	TOTAL: 0
1991 + 1992 + 1993	TOTAL: 3.45

* = No product removed as the storage drum for product had been removed from the site.
(0.01) = 0.01 feet of product present

APPENDIX A

**EMCON'S WATER SAMPLE FIELD DATA SHEETS, FIELD REPORTS,
SUMMARY OF GROUNDWATER MONITORING DATA, AND CHAIN OF
CUSTODY RECORDS**



EMCON Associates

1921 Ringwood Avenue • San Jose, California 95131-1721 • (408) 453-7300 • Fax (408) 437-9526

RECEIVED

DEC 1 1993

RESNA
6/1/95

Date November 30, 1993

Project 0G70-007.01

To:

Mr. John Young

RESNA

3315 Almaden Expressway, Suite 34

San Jose, California 95050

We are enclosing:

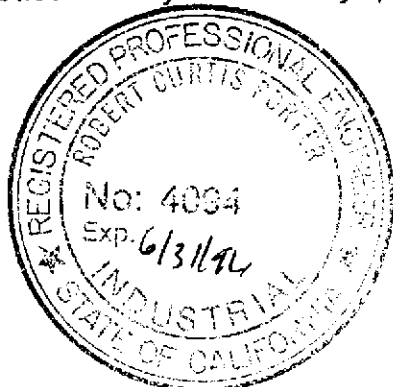
Copies	Description
<u>1</u>	<u>Depth To Water / Floating Product Survey Results</u>
<u>1</u>	<u>Summary of Groundwater Monitoring Data</u>
<u>1</u>	<u>Certified Analytical Reports with Chain-of-Custody</u>
<u>13</u>	<u>Water Sample Field Data Sheets</u>

For your: X Information Sent by: X Mail

Comments:

Enclosed are the data from the fourth quarter 1993 monitoring event at ARCO service station 601, 712 Lewelling Boulevard, San Leandro, CA. Groundwater monitoring is conducted consistent with applicable regulatory guidelines. Please call if you have any questions: (408) 453-7300.

Reviewed by:



Jim Butera *JB*

Robert Porter
Robert Porter, Senior Project Engineer.



FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 0G70-007.01

STATION ADDRESS : 712 Lewelling Blvd. San Leandro

DATE : 11-8-93

ARCO STATION # : 601

FIELD TECHNICIAN : K REICHELDERFER / I GRAHAM

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-9	OK	15/16	OK	3259 Dolphin	OK	8.87	8.87	ND	NA	19.2	Δ LOCK TO 3259
2	MW-10	OK	15/16	OK	3259 Dolphin	OK	8.70	8.70	ND	NA	16.2	Δ LOCK TO 3259
3	MW-15	OK	15/16	OK	3259	OK	6.98	6.98	ND	NA	10.1	—
4	MW-14	OK	15/16	OK	3259	OK	10.25	10.25	ND	NA	13.0	—
5	MW-13	OK	15/16	OK	3259	OK	8.86	8.86	ND	NA	13.0	—
6	MW-12	OK	15/16	OK	3259	OK	9.72	9.72	ND	NA	11.6	—
7	MW-7	OK	15/16	OK	3259	OK	9.56	DRY	NA	NA	9.6	WELL IS DRY
8	MW-6	OK	15/16	OK	3259	OK	DRY	DRY	NA	NA	8.6	— ↓
9	MW-11	OK	15/16	OK	3259	OK	9.23	9.23	ND	NA	11.9	—
10	MW-8	OK	15/16	OK	3259	OK	8.31	8.31	ND	NA	10.2	—
11	MW-4	OK	15/16	OK	3259	OK	8.20	8.20	ND	NA	8.5	—
12	MW-2	OK	15/16	OK	3259	OK	8.12	8.12	ND	NA	12.3	STRONG ODOR
13	MW-5	OK	15/16	OK	3259	OK	7.93	7.93	ND	NA	10.1	STRONG ODOR
14	MW-1	OK	hex	OK	3259	OK	9.23	9.23	ND*	NA	11.1	* 0.01' OF PRODUCT IN BAILER
15	MW-3	OK	hex	OK	3259	OK	7.31	7.31	ND	NA	11.9	SKIMMER ISN'T SET PROPERLY - ONLY THE TIP OF THE VALVE WAS WET

SURVEY POINTS ARE TOP OF WELL CASINGS

THE SCREEN IS ~ 2.5-3.0 FEET

ABOVE THE WATER LEVEL

- NO PRODUCT DETECTED WITH BAILER

Summary of Groundwater Monitoring Data
Fourth Quarter 1993
ARCO Service Station 601
712 Lewelling Boulevard, San Leandro, 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)	TRPH ² (ppb)	TPH Diesel (ppm)
MW-1	11/08/93	9.23	0.01	FP, ³	FP.	FP.	FP.	FP.	FP.	FP.
MW-2(12)	11/08/93	8.12	ND. ⁴	9,200.	380.	62.	130.	630.	NR. ⁵	NR.
MW-3(11)	11/08/93	7.31	ND.	430,000.	4,100.	14,000.	6,400.	37,000.	NR.	NR.
MW-4(8)	11/08/93	8.20	ND.	2,000.	540.	110.	10.	240.	NR.	NR.
MW-5(10)	11/08/93	7.93	ND.	87,000.	12,000.	8,300.	2,000.	12,000.	NR.	NR.
MW-6	11/08/93	Dry	NA. ⁶	NA.	NA.	NA.	NA.	NA.	NA.	NA.
MW-7	11/08/93	Dry	NA.	NA.	NA.	NA.	NA.	NA.	NA.	NA.
MW-8(10)	11/08/93	8.31	ND.	1,200.	2.4	<1.	19.	2.3	4,200.*	<1.0
MW-9(19)	11/08/93	8.87	ND.	<50.	<0.5	<0.5	<0.5	<0.5	NR.	NR.
MW-10(16)	11/08/93	8.70	ND.	<50.	<0.5	<0.5	<0.5	<0.5	NR.	NR.
MW-11(11)	11/08/93	9.23	ND.	370.	<1.	<1.	2.5	2.1	NR.	NR.
MW-12(11)	11/08/93	9.72	ND.	<50.	<0.5	<0.5	<0.5	<0.5	NR.	NR.
MW-13(13)	11/08/93	8.86	ND.	<50.	<0.5	<0.5	<0.5	<0.5	NR.	NR.
MW-14(13)	11/08/93	10.25	ND.	<50.	<0.5	<0.5	<0.5	<0.5	NR.	NR.
MW-15(10)	11/08/93	6.98	ND.	<50.	<0.5	<0.5	<0.5	<0.5	NR.	NR.
FB-1 ⁷	11/08/93	NA.	NA.	<50	<0.5	<0.5	<0.5	<0.5	NR.	NR.

1. TPH = Total petroleum hydrocarbons

2. TRPH = Total recoverable petroleum hydrocarbons

3. FP. = Not sampled; well was not sampled due to detection of floating product

4. ND. = Not detected

5. NR. = Not required, well not sampled for listed parameter

6. NA. = Not applicable

7. FB. = Field blank

* = Reported in CAR as parts per million, converted to ppb in summary.

Summary of Analytical Results
Base Neutral / Acid Semivolatile Organic Compounds by EPA¹ Methods 3510/8270
Fourth Quarter 1993
ARCO Service Station 601
712 Lewelling Boulevard, San Leandro, California
micrograms per liter (µg/l) or parts per billion (ppb)

Well ID and Sample Depth	Sampling Date	Naphthalene (ppb)	Bis (2-ethylhexyl) Phthalate (ppb)
MW-8(10)	11/08/93	20.	19.

1. EPA = United States Environmental Protection Agency.

Summary of Analytical Results
Total Metals by EPA¹ Method 6010 and 7421
Fourth Quarter 1993
ARCO Service Station 601
712 Lewelling Blvd. San Leandro, California
milligrams per liter (mg/l) or parts per million (ppm)

Well ID and Sample Depth	Sampling Date	Cadmium (ppm)	Chromium (ppm)	Lead (ppm)	Nickle (ppm)	Zinc (ppm)
MW-8(10)	11/08/93	<0.005	0.05	0.025	0.06	0.10

1. EPA = United States Environmental Protection Agency



November 23, 1993

Service Request No. SJ93-1373

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

Re: EMCON Project No. 0G70-007.01
ARCO Facility No. 601

Dear Mr. Butera:

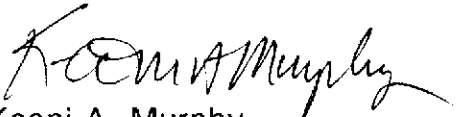
Attached are the results of the water samples submitted to our lab on November 8, 1993. For your reference, these analyses have been assigned our service request number SJ93-1373.

All analyses were performed consistent with our laboratory's quality assurance program. All results are intended to be considered in their entirety, and CAS is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions.

Respectfully submitted:

COLUMBIA ANALYTICAL SERVICES, INC.


Keoni A. Murphy
Laboratory Manager


Annelise J. Bazar
Regional QA Coordinator

KAM/kmh

COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

ASTM	American Society for Testing and Materials
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MRL	Method Reporting Limit
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected at or above the MRL
NR	Not Requested
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
VPH	Volatile Petroleum Hydrocarbons

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON Associates
Project: ARCO Project No. 0G70-007.01
ARCO Facility No. 601

Date Received: 11/08/93
Service Request No.: SJ93-1373
Sample Matrix: Water

Total Recoverable Petroleum Hydrocarbons
EPA Method 418.1¹
mg/L (ppm)

<u>Sample Name</u>	<u>Date Sampled</u>	<u>Result</u>
MW-8 (10)	11/08/93	4.2
Method Blank		ND
MRL		0.5

¹ Unless otherwise noted, all analyses were performed within EPA recommended maximum holding times specified in *Test Methods for Evaluating Solid Waste*, (SW-846, 3rd Edition) and *Methods for Chemical Analysis of Water and Waste* (EPA-600/4-79-020, Revised March 1983).

Approved by:

Keen A. Murphy

Date:

November 23, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON Associates
 Project: EMCON Project No. 0G70-007.01
 ARCO Facility No. 601

Date Received: 11/08/93
 Service Request No.: SJ93-1373
 Sample Matrix: Water

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

Sample Name: MW-2 (12) MW-3 (11) MW-4 (8)
 Date Analyzed: 11/18/93 11/18/93 * 11/19/93

Analyte	MRL			
Benzene	0.5	380.	4,100.	540.
Toluene	0.5	62.	14,000.	110.
Ethylbenzene	0.5	130.	6,400.	10.
Total Xylenes	0.5	630.	37,000.	240.
TPH as Gasoline	50	9,200.	430,000.	2,000.

Sample Name: MW-5 (10) MW-8 (10) MW-11 (11)
 Date Analyzed: 11/19/93 11/18/93 * 11/18/93 *

Analyte	MRL			
Benzene	0.5	12,000.	2.4	<1. **
Toluene	0.5	8,300.	<1. **	<1. **
Ethylbenzene	0.5	2,000.	19.	2.5
Total Xylenes	0.5	12,000.	2.3	2.1
TPH as Gasoline	50	87,000.	1,200.	370.

* This sample was part of the analytical batch started on November 18, 1993. However, it was analyzed after midnight so the actual date analyzed is November 19, 1993.

** Raised MRL due to high analyte concentration requiring sample dilution.

Approved by: Keon Murphy

Date: November 23, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON Associates
Project: EMCON Project No. 0G70-007.01
ARCO Facility No. 601

Date Received: 11/08/93
Service Request No.: SJ93-1373
Sample Matrix: Water

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

Sample Name: MW-12 (11) MW-13 (13) MW-14 (13)
Date Analyzed: 11/18/93 * 11/18/93 * 11/18/93 *

<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

Sample Name: MW-15 (10) FB-1 Method Blank
Date Analyzed: 11/18/93 * 11/18/93 * 11/18/93

<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

* This sample was part of the analytical batch started on November 18, 1993. However, it was analyzed after midnight so the actual date analyzed is November 19, 1993.

Approved by: *Kenneth Murphy*Date: November 23/1993

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON Associates
Project: EMCON Project No. 0G70-007.01
ARCO Facility No. 601

Date Received: 11/08/93
Service Request No.: SJ93-1373
Sample Matrix: Water

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

Sample Name: Date Analyzed:		<u>MW-9 (19)</u> 11/18/93 *	<u>MW-10 (16)</u> 11/18/93 *	<u>Method Blank</u> 11/18/93
<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

* This sample was part of the analytical batch started on November 18, 1993. However, it was analyzed after midnight so the actual date analyzed is November 19, 1993.

Approved by: KEOM MungkyDate: November 23, 1993

Analytical Report

Date Received: 11/08/93
Service Request No.: SJ93-1373
Sample Matrix: Water

Sample Name:
Date Analyzed:

Method Blank
11/09/93

Analyte	MRL		
Dichlorodifluoromethane (Freon 12)	1	ND	ND
Chloromethane	1	ND	ND
Vinyl Chloride	0.5	ND	ND
Bromomethane	0.5	ND	ND
Chloroethane	0.5	ND	ND
Trichlorofluoromethane (Freon 11)	0.5	ND	ND
1,1-Dichloroethene	0.5	ND	ND
Trichlorotrifluoroethane (Freon 113)	0.5	ND	ND
Methylene Chloride	0.5	ND	ND
<i>trans</i> -1,2-Dichloroethene	0.5	ND	ND
<i>cis</i> -1,2-Dichloroethene	0.5	ND	ND
1,1-Dichloroethane	0.5	ND	ND
Chloroform	0.5	ND	ND
1,1,1-Trichloroethane (TCA)	0.5	ND	ND
Carbon Tetrachloride	0.5	ND	ND
1,2-Dichloroethane	0.5	ND	ND
Trichloroethene (TCE)	0.5	ND	ND
1,2-Dichloropropane	0.5	ND	ND
Bromodichloromethane	0.5	ND	ND
2-Chloroethyl Vinyl Ether	5	ND	ND
<i>trans</i> -1,3-Dichloropropene	0.5	ND	ND
<i>cis</i> -1,3-Dichloropropene	0.5	ND	ND
1,1,2-Trichloroethane	0.5	ND	ND
Tetrachloroethene (PCE)	0.5	ND	ND
Dibromochloromethane	0.5	ND	ND
Chlorobenzene	0.5	ND	ND
Bromoform	0.5	ND	ND
1,1,2,2-Tetrachloroethane	0.5	ND	ND
1,3-Dichlorobenzene	1	ND	ND
1,4-Dichlorobenzene	1	ND	ND
1,2-Dichlorobenzene	1	ND	ND

Approved by:

Date:

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

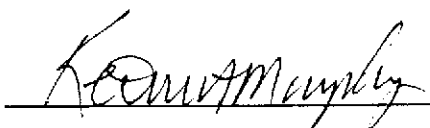
Client: EMCON Associates
Project: EMCON Project No. OG70-007.01
ARCO Facility No. 601

Date Received: 11/08/93
Service Request No.: SJ93-1373
Sample Matrix: Water

Continuing Calibration Summary
Inorganics
EPA Method 418.1
mg/L

<u>Analyte</u>	<u>True Value</u>	<u>Result</u>	<u>Percent Recovery</u>	<u>CAS Percent Recovery Acceptance Criteria</u>
Hydrocarbon Mix	40.	36.6	92.	90-110

Approved by:



Date:



COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
 Project: EMCON Project No. 0G70-007.01
 ARCO Facility No. 601

Date Received: 11/08/93
 Service Request No.: SJ93-1373
 Sample Matrix: Water

Matrix Spike/Duplicate Matrix Spike Summary
 Total Recoverable Petroleum Hydrocarbons
 EPA Method 418.1
 mg/L (ppm)

Analyte	Spike Level	Sample Result	Percent Recovery				CAS Acceptance Criteria
			Spike Result				
			MS	DMS	MS	DMS	
Hydrocarbon Mix	8.0	ND	7.74	8.70	97.	109.	56-151

Approved by: Kenneth Murphy

Date: November 23, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: EMCON Project No. 0G70-007.01
ARCO Facility No. 601

Date Received: 11/08/93
Service Request No.: SJ93-1373
Sample Matrix: Water

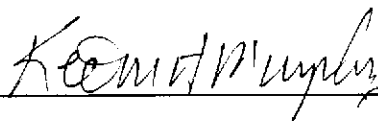
Surrogate Recovery Summary
BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method

<u>Sample Name</u>	<u>Date Analyzed</u>	<u>Percent Recovery</u> <u>α,α,α-Trifluorotoluene</u>
MW-2 (12)	11/18/93	83.
MW-3 (11)	11/18/93	93.
MW-4 (8)	11/19/93	85.
MW-5 (10)	11/19/93	86.
MW-8 (10)	11/18/93	93.
MW-9 (19)	11/18/93	76.
MW-10 (16)	11/18/93	74.
MW-11 (11)	11/18/93	76.
MW-12 (11)	11/18/93	79.
MW-13 (13)	11/18/93	80.
MW-14 (13)	11/18/93	78.
MW-15 (10)	11/18/93	77.
FB-1	11/18/93	78.
MW-2 (12) MS	11/18/93	90.
MW-2 (12) DMS	11/18/93	89.
Method Blank	11/18/93	82.

CAS Acceptance Criteria

70-130

Approved by:



Date:



COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: EMCON Project No. OG70-007.01
ARCO Facility No. 601

Date Received: 11/08/93
Service Request No.: SJ93-1373

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

Date Analyzed: 11/18/93

<u>Analyte</u>	<u>True Value</u>	<u>Result</u>	<u>Percent Recovery</u>	<u>CAS Percent Recovery Acceptance Criteria</u>
Benzene	25.	26.9	108.	85-115
Toluene	25.	26.8	107.	85-115
Ethylbenzene	25.	26.9	108.	85-115
Total Xylenes	75.	81.7	109.	85-115
TPH as Gasoline	250.	234.	93.	90-110

Approved by:

Kem Murphy

Date:

November 23, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: EMCON Project No. 0G70-007.01
ARCO Facility No. 601

Date Received: 11/08/93
Service Request No.: SJ93-1373
Sample Matrix: Water

Matrix Spike/Duplicate Matrix Spike Summary
TPH as Gasoline
EPA Methods 5030/California DHS LUFT Method
 $\mu\text{g/L}$ (ppb)

Sample Name: MW-2 (12)
Date Analyzed: 11/18/93

Percent Recovery

<u>Analyte</u>	<u>Spike Level</u>	<u>Sample Result</u>	<u>Spike Result</u>		<u>Percent Recovery</u>		<u>CAS Acceptance Criteria</u>
			<u>MS</u>	<u>DMS</u>	<u>MS</u>	<u>DMS</u>	
TPH as Gasoline	25,000.	9,160.	33,000.	32,600.	95.	94.	76-130

Approved by:

Date:

November 23, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: EMCON Project No. 0G70-007.01
ARCO Facility No. 601

Date Received: 11/08/93
Service Request No.: SJ93-1373
Sample Matrix: Water

Surrogate Recovery Summary
Halogenated Volatile Organic Compounds
EPA Methods 5030/601

<u>Sample Name</u>	<u>Date Analyzed</u>	<u>Percent Recovery</u> 4-Bromofluorobenzene
MW-8 (10)	11/09/93	106.
MW-8 (10) MS	11/09/93	100.
MW-8 (10) DMS	11/09/93	107.
Method Blank	11/09/93	96.

CAS Acceptance Criteria

70-130

Approved by:

Kenneth Murphy

Date:

November 23, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
 Project: EMCON Project No. 0G70-007.01
 ARCO Facility No. 601

Date Received: 11/08/93
 Service Request No.: SJ93-1373

Initial Calibration Verification
 Halogenated Volatile Organic Compounds
 EPA Methods 5030/601
 Nanograms

Date Analyzed: 11/09/93

Analyte	True Value	Result	Percent Recovery	EPA Percent Recovery Acceptance Criteria
Chloromethane	100	181.	181.	D-193
Vinyl Chloride	100	104.	104.	28-163
Bromomethane	100	157. *	157. *	D-144
Chloroethane	100	109.	109.	46-137
Trichlorofluoromethane (Freon 11)	100	101.	101.	21-156
1,1-Dichloroethene	100	60.	60.	28-167
Methylene Chloride	100	65.	65.	25-162
trans-1,2-Dichloroethene	100	77.	77.	38-155
1,1-Dichloroethane	100	87.	87.	47-132
Chloroform	100	103.	103.	49-133
1,1,1-Trichloroethane (TCA)	100	110.	110.	41-138
Carbon Tetrachloride	100	113.	113.	43-143
1,2-Dichloroethane	100	81.	81.	51-147
Trichloroethene (TCE)	100	77.	77.	35-146
1,2-Dichloropropane	100	92.	92.	44-156
Bromodichloromethane	100	91.	91.	42-172
trans-1,3-Dichloropropene	100	113.	113.	22-178
cis-1,3-Dichloropropene	100	105.	105.	22-178
1,1,2-Trichloroethane	100	65.	65.	39-136
Tetrachloroethene (PCE)	100	102.	102.	26-162
Dibromochloromethane	100	74.	74.	24-191
Chlorobenzene	100	96.	96.	38-150
Bromoform	100	49.	49.	13-159
1,1,2,2-Tetrachloroethane	100	72.	72.	8-184
1,3-Dichlorobenzene	100	82.	82.	7-187
1,4-Dichlorobenzene	100	86.	86.	42-143
1,2-Dichlorobenzene	100	75.	75.	D-208

* The recovery of bromomethane is above the acceptance criteria. No bromomethane was detected in the samples. We do not believe the data is significantly affected.

Approved by: Kevin Murphy

Date: November 23, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: EMCON Project No. 0G70-007.01
ARCO Facility No. 601

Date Received: 11/08/93
Service Request No.: SJ93-1373
Sample Matrix: Water

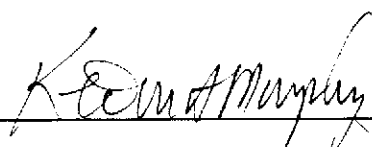
Matrix Spike/Duplicate Matrix Spike Summary
Halogenated Volatile Organic Compounds
EPA Methods 5030/601
 $\mu\text{g/L}$ (ppb)

Sample Name: MW-8 (10)
Date Analyzed: 11/09/93

Percent Recovery

Analyte	Spike Level	Sample Result	Spike Result		MS	DMS	CAS Acceptance Criteria
			MS	DMS			
1,1-Dichloroethene	10.	ND	9.84	9.78	98.	98.	59-145
Trichloroethene	10.	ND	8.77	8.45	88.	85.	66-156
Tetrachloroethene	10.	ND	11.7	11.1	117.	111.	77-146

Approved by:



Date:

November 23, 1993

ARCO Products Company

Division of AtlanticRichfield Company

Task Order No.

EMC-93-5

Chain of Custody

ARCO Facility no.

601

City
(Facility)

SAN LEANDRO

Project manager
(Consultant)

JIM BUTERA

ARCO engineer

KYLE CHRISTIE

Telephone no.
(ARCO)

571-2434

Telephone no.
(Consultant)

453-7300

Fax no.
(Consultant)

453-0452

Consultant name

EMCON ASSOCIATES

Address
(Consultant)

1921 PINGWOOD AVENUE SAN JOSE

Laboratory name

CAS

Contract number

07077

Method of shipment

SAMPLER

WILL
DELIVERSpecial detection
Limit/reportingLOWEST
POSSIBLE

Special QAVOC

MS
NOXMA L

Remarks

Sample I.D.	Lab no.	Container no.	Matrix			Preservation		Sampling date	Sampling time	BTEX EPA 8010	GAS BTEX/TPH EPA 8210/8015	TPH Modified 8015 Gas Diesel	Oil and Grease 413.1 413.2	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 824/8240	EPA 825/8270	TCMP Metals VOA VOA	Semi Metals VOA VOA	CAN Metals EPA 8210/7000 TLC STLC	Lead Org./DHS Lead EPA 7420/7421		
			Soil	Water	Other	Ice	Acid																
MM-1		2	X	X		X	HCL	11-8-93		X													
MM-2 (12)	1-2	2	X	X		X	HCL		1456	X													
MM-3 (11)	3-4	2							1524	X													
MM-4 (8)	5-6	2							1445	X													
MM-5 (10)	7-8	2							1509	X													
MM-6		2								X													
MM-7		2								X													
MM-8 (10)	9-10	2							1528	X													
MM-9 (19)	11-12	2							1252	X													
MM-10 (16)	13-14	2							1240	X													
MM-11 (11)	15-16	2							1403	X													
MM-12 (11)	17-18	2							1348	X													
MM-13 (13)	19-20	2							1333	X													
MM-14 (13)	21-22	2							1318	X													
MM-15 (10)	23-24	2							1307	X													
FB-1	25-26	2							1243	X													

Condition of sample:

OKAY

Temperature received:

COOL

Relinquished by sampler

Date

Time

Received by

Relinquished by

Date

Time

Received by

Relinquished by

Date

Time

Received by laboratory

Date

Time

Lab number

SJ93-1373

Turnaround time

Priority Rush

1 Business Day

Rush

2 Business Days

Expedited

5 Business Days

Standard

10 Business Days

ARCO Products Company

Division of AtlanticRichfieldCompany

Task Order No. EMC-93-5

Chain of Custody

ARCO Facility no. 601		City (Facility) San Leandro		Project manager (Consultant) JIM BUTERA		Laboratory name CAS	
ARCO engineer Kyle Christie		Telephone no. (ARCO) 371-2434		Telephone no. (Consultant) 453-0719		Fax no. (Consultant) 453-0432	
Consultant name EMCON		Address (Consultant) 1938 Junction Ave San Jose		Contract number 07077		Method of shipment Sampler will deliver	
Sample I.D.	Lab no.	Container no.	Matrix Soil Water Other	Preservation Ice Acid	Sampling date	Sampling time	BTEX EPA 8020 TPH TPH EPA M502/8020/8015 TPH Modified 8015 Gas Diesel Oil and Grease 413.1 413.2 TPH EPA 418.1/SM503E EPA 8010 EPA 824/8240 EPA 825/8270 TCLP Metals VOA VOA CAM Metals EPA 8010/7000 TTLC STLC Lead Drg/DHS Lead EPA 7420/7421 TOTAL METALS Cu, Cr, Pb, Zn, Ni
AR8(10)	22-24	1	X	X NP	11-8-93	1528	X
AR8(10)	22-24	1	X	X HCl	↓	↓	X X
AR8(10)		1	X	X HNO3	↓	↓	X X
Condition of sample: OKAY							Temperature received: 6002
Relinquished by [Signature]			Date 11-8-93	Time 1700	Received by		
Relinquished by			Date	Time	Received by		
Relinquished by			Date	Time	Received by laboratory [Signature] CAS/SJ		
			Date 11/8/93	Time 1700			
Special detection Limit/reporting Lowest possible							Special QA/QC AS Manual
Remarks 2-400ml HCl 2-Liter HCl 2-Liter NP 1-Liter 1-500ml HNO3							Lab number 8792-1373
Turnaround time							Priority Rush 1 Business Day ☐ Rush 2 Business Days ☐ Expedited 5 Business Days ☐ Standard 10 Business Days ☒

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

AS 3307; 8270, METAL, TPHD

RECEIVED NOV 22 1993


GOLDEN STATE/CAS
LABORATORIES, INC.

November 19, 1993

Jim Butera
EMCON Associates
1921 Ringwood Avenue
San Jose, CA 95161-0187

Re: **ARCO Facility #601-San Leandro/#0G70-007.01/SJ93-1373**

Dear Jim:

Enclosed are the results of the samples submitted to our lab on November 10, 1993. For your reference, these analyses have been assigned our service request number LA933248.

All analyses were performed in accordance with our laboratory's quality assurance program. Golden State / CAS is certified for environmental analyses by the California Department of Health Services (Certificate # 1296).

Please call if you have any questions.

Respectfully submitted,

Golden State / CAS Laboratories, Inc.



Dr. B. Gene Bennett
Laboratory Director



Gary Pechter
Quality Assurance Coordinator

GB/ib

GOLDEN STATE / CAS LABORATORIES, INC.

Analytical Report

Client: EMCON Associates
Project: ARCO Products Company/#0G70-007.01
Sample Matrix: Water

Date Collected: 11/08/93
Date Received: 11/10/93
Date Extracted: 11/17/93
Service Request No.: LA933248

**Total Petroleum Hydrocarbons as Diesel
Modified 8015/California DHS LUFT Method
mg/L (ppm)**

Sample Name	Lab Code	Date Analyzed	MRL	Diesel
MW8(10)	LA3248-1	11/19/93	1.0	ND
Method Blank	LA3248-MB	11/19/93	1.0	ND

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

Approved by *[Signature]*

Date 11-19-93

0000

GOLDEN STATE / CAS LABORATORIES, INC.

Analytical Report

Client: EMCON Associates
 Project: ARCO Products Company/#0G70-007.01
 Sample Matrix: Water

Date Collected: 11/08/93
 Date Received: 11/10/93
 Date Extracted: 11/11/93
 Date Analyzed: 11/12/93
 Service Request No.: LA933248

Base Neutral/Acid Semivolatile Organic Compounds
 EPA Methods 3510/8270
 $\mu\text{g/L}$ (ppb)

Sample Name: MW8(10)
 Lab Code: LA3248-1

Base Neutral Analyte	MRL	Result	Base Neutral Analyte	MRL	Result
N-Nitrosodimethylamine	5	ND	2,6-Dinitrotoluene	5	ND
Bis(2-chloroethyl) Ether	5	ND	Diethyl Phthalate	5	ND
1,2-Dichlorobenzene	5	ND	4-Chlorophenyl Phenyl Ether	5	ND
1,3-Dichlorobenzene	5	ND	Fluorene	5	ND
1,4-Dichlorobenzene	5	ND	4-Nitroaniline	20	ND
Bis(2-chloroisopropyl) Ether	5	ND	N-Nitrosodiphenylamine	5	ND
N-Nitrosodi-n-propylamine	5	ND	4-Bromophenyl Phenyl Ether	5	ND
Hexachloroethane	5	ND	Hexachlorobenzene	5	ND
Nitrobenzene	5	ND	Phenanthrene	5	ND
Isophorone	5	ND	Anthracene	5	ND
Bis(2-chloroethoxy) methane	5	ND	Di-n-butyl Phthalate	5	ND
1,2,4-Trichlorobenzene	5	ND	Fluoranthene	5	ND
Naphthalene	5	20	Pyrene	5	ND
4-Chloroaniline	5	ND	Butylbenzyl Phthalate	5	ND
Hexachlorobutadiene	5	ND	3,3'-Dichlorobenzidine	20	ND
2-Methylnaphthalene	5	ND	Benz(a)anthracene	5	ND
Hexachlorocyclopentadiene	10	ND	Bis(2-ethylhexyl) Phthalate	5	19
2-Chloronaphthalene	5	ND	Chrysene	5	ND
2-Nitroaniline	20	ND	Di-n-octyl Phthalate	5	ND
Dimethyl Phthalate	5	ND	Benzo(b)fluoranthene	5	ND
Acenaphthylene	5	ND	Benzo(k)fluoranthene	5	ND
3-Nitroaniline	20	ND	Benzo(a)pyrene	5	ND
Acenaphthene	5	ND	Indeno(1,2,3-c,d)pyrene	5	ND
Dibenzofuran	5	ND	Dibenz(a,h)anthracene	5	ND
2,4-Dinitrotoluene	5	ND	Benzo(g,h,i)perylene	5	ND
Aniline	5	ND			

Acid Analyte	MRL	Result	Acid Analyte	MRL	Result
Phenol	5	ND	2,4-Dichlorophenol	5	ND
2-Chlorophenol	5	ND	4-Chloro-3-methylphenol	5	ND
Benzyl Alcohol	10	ND	2,4,6-Trichlorophenol	5	ND
2-Methylphenol	5	ND	2,4,5-Trichlorophenol	5	ND
3- and 4-Methylphenol*	5	ND	2,4-Dinitrophenol	50	ND
2-Nitrophenol	5	ND	4-Nitrophenol	50	ND
2,4-Dimethylphenol	5	ND	2-Methyl-4,6-dinitrophenol	20	ND
Benzoic Acid	50	ND	Pentachlorophenol	30	ND

MRL Method Reporting Limit

ND None Detected at or above the method reporting limit

* Quantified as 4-methylphenol.

Approved by *Don W. Ben* Date 11-19-93

GOLDEN STATE / CAS LABORATORIES, INC.

Analytical Report

Client: EMCON Associates
 Project: ARCO Products Company/#OG70-007.01
 Sample Matrix: Water

Date Extracted: 11/11/93
 Date Analyzed: 11/12/93
 Service Request No.: LA933248

Base Neutral/Acid Semivolatile Organic Compounds
 EPA Methods 3510/8270
 $\mu\text{g/L}$ (ppb)

Sample Name: Method Blank
 Lab Code: LA3248-MB

Base Neutral Analyte	MRL	Result	Base Neutral Analyte	MRL	Result
N-Nitrosodimethylamine	5	ND	2,6-Dinitrotoluene	5	ND
Bis(2-chloroethyl) Ether	5	ND	Diethyl Phthalate	5	ND
1,2-Dichlorobenzene	5	ND	4-Chlorophenyl Phenyl Ether	5	ND
1,3-Dichlorobenzene	5	ND	Fluorene	5	ND
1,4-Dichlorobenzene	5	ND	4-Nitroaniline	20	ND
Bis(2-chloroisopropyl) Ether	5	ND	N-Nitrosodiphenylamine	5	ND
N-Nitrosodi-n-propylamine	5	ND	4-Bromophenyl Phenyl Ether	5	ND
Hexachloroethane	5	ND	Hexachlorobenzene	5	ND
Nitrobenzene	5	ND	Phenanthrene	5	ND
Isophorone	5	ND	Anthracene	5	ND
Bis(2-chloroethoxy) methane	5	ND	Di-n-butyl Phthalate	5	ND
1,2,4-Trichlorobenzene	5	ND	Fluoranthene	5	ND
Naphthalene	5	ND	Pyrene	5	ND
4-Chloroaniline	5	ND	Butylbenzyl Phthalate	5	ND
Hexachlorobutadiene	5	ND	3,3'-Dichlorobenzidine	20	ND
2-Methylnaphthalene	5	ND	Benz(a)anthracene	5	ND
Hexachlorocyclopentadiene	10	ND	Bis(2-ethylhexyl) Phthalate	5	ND
2-Chloronaphthalene	5	ND	Chrysene	5	ND
2-Nitroaniline	20	ND	Di-n-octyl Phthalate	5	ND
Dimethyl Phthalate	5	ND	Benzo(b)fluoranthene	5	ND
Acenaphthylene	5	ND	Benzo(k)fluoranthene	5	ND
3-Nitroaniline	20	ND	Benzo(a)pyrene	5	ND
Acenaphthene	5	ND	Indeno(1,2,3-c,d)pyrene	5	ND
Dibenzofuran	5	ND	Dibenz(a,h)anthracene	5	ND
2,4-Dinitrotoluene	5	ND	Benzo(g,h,i)perylene	5	ND
Aniline	5	ND			

Acid Analyte	MRL	Result	Acid Analyte	MRL	Result
Phenol	5	ND	2,4-Dichlorophenol	5	ND
2-Chlorophenol	5	ND	4-Chloro-3-methylphenol	5	ND
Benzyl Alcohol	10	ND	2,4,6-Trichlorophenol	5	ND
2-Methylphenol	5	ND	2,4,5-Trichlorophenol	5	ND
3- and 4-Methylphenol*	5	ND	2,4-Dinitrophenol	50	ND
2-Nitrophenol	5	ND	4-Nitrophenol	50	ND
2,4-Dimethylphenol	5	ND	2-Methyl-4,6-dinitrophenol	20	ND
Benzoic Acid	50	ND	Pentachlorophenol	30	ND

MRL Method Reporting Limit

ND None Detected at or above the method reporting limit

* Quantified as 4-methylphenol.

Approved by 

Date 11-14-93

GOLDEN STATE / CAS LABORATORIES, INC.

Analytical Report

Client: EMCON Associates
Project: ARCO Products Company/#0G70-007.01
Sample Matrix: Water

Date Collected: 11/08/93
Date Received: 11/10/93
Date Analyzed: 11/12-15/93
Service Request No.: LA933248

Total Metals
mg/L (ppm)

Sample Name:
Lab Code:

MW8(10)
LA3248-2

Method Blank
LA3248-MB

Analyte	EPA Method	MRL		
Cadmium	3010/6010	0.005	ND	ND
Chromium	3010/6010	0.01	0.05	ND
Lead	3020/7421	0.002	0.025	ND
Nickel	3010/6010	0.04	0.06	ND
Zinc	3010/6010	0.01	0.10	ND

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

Approved by *P. H. Reno* Date 11-19-93

50

GOLDEN STATE / CAS LABORATORIES, INC.

QA/QC Report

Client: EMCON Associates
Project: ARCO Products Company/#0G70-007.01
Sample Matrix: Water

Service Request No.: LA933248

Surrogate Recovery Summary
Total Petroleum Hydrocarbons as Diesel
Modified 8015/California DHS LUFT Method

Sample Name	Lab Code	Percent Recovery <i>p</i> -Terphenyl
MW8(10)	LA3248-1	96
Method Blank	LA3248-MB	109

CAS Acceptance Criteria 50-140

Approved by *Patricia Lema* Date 11-11-93

GOLDEN STATE / CAS LABORATORIES, INC.

QA/QC Report

Client: EMCON Associates
 Project: ARCO Products Company/#0G70-007.01
 Sample Matrix: Water

Service Request No.: LA933248

**Surrogate Recovery Summary
 Base Neutral/Acid Semivolatile Organic Compounds
 EPA Methods 3510/8270**

Sample Name	Lab Code	P e r c e n t R e c o v e r y					TPH
		2FP	PHL	TBP	NBZ	FBP	
MW8(10)	LA3248-1	40	24	79	75	81	89
Method Blank	LA3248-MB	57	35	87	90	88	96
EPA Acceptance Criteria		21-100	10-94	10-123	35-114	43-116	33-141

2FP 2-Fluorophenol
 PHL Phenol-D₈
 TBP 2,4,6-Tribromophenol
 NBZ Nitrobenzene-D₅
 FBP 2-Fluorobiphenyl
 TPH Terphenyl-D₁₄

Approved by *Dale Hene* Date 11-19-92

GOLDEN STATE / CAS LABORATORIES, INC.

QA/QC Report

Client: EMCON Associates
Project: ARCO Products Company/#0G70-007.01
Sample Matrix: Water

Date Extracted: 11/08/93
Date Analyzed: 11/09/93
Service Request No.: LA933248

Matrix Spike/Duplicate Matrix Spike Summary
Total Petroleum Hydrocarbons as Diesel
Modified 8015/California DHS LUFT Method
mg/L (ppm)

Lab Code: LA3206-7

Percent Recovery

Analyte	Spike Level		Sample Result	Spike Result		Percent Recovery		CAS Acceptance Criteria	Relative Percent Difference
	MS	DMS		MS	DMS	MS	DMS		
Diesel	20.0	20.0	ND	25.1	23.4	126	117	50-130	7

ND None Detected at or above the method reporting limit

Approved by *D. D. L. Dennis* Date 11-19-93

GOLDEN STATE / CAS LABORATORIES, INC.

QA/QC Report

Client: EMCON Associates
 Project: ARCO Products Company/#0G70-007.01
 Sample Matrix: Water

Date Extracted: 11/11/93
 Date Analyzed: 11/12/93
 Service Request No.: LA933248

Matrix Spike/Duplicate Matrix Spike Summary Base Neutral/Acid Semivolatile Organic Compounds EPA Methods 3510/8270 µg/L (ppb)

Lab Code: LA3255-4

Percent Recovery

Analyte	Spike Level		Sample Result	Spike Result				EPA Acceptance Criteria	Relative Percent Difference
	MS	DMS		MS	DMS	MS	DMS		
Phenol	50.0	50.0	ND	NA ¹	NA ¹	NA ²	NA ²	12-89	NA ²
2-Chlorophenol	50.0	50.0	ND	NA ¹	NA ¹	NA ²	NA ²	27-123	NA ²
1,4-Dichlorobenzene	50.0	50.0	ND	NA ¹	NA ¹	NA ²	NA ²	36-97	NA ²
N-Nitrosodi-n-propylamine	50.0	50.0	ND	NA ¹	NA ¹	NA ²	NA ²	41-116	NA ²
1,2,4-Trichlorobenzene	50.0	50.0	ND	NA ¹	NA ¹	NA ²	NA ²	39-98	NA ²
4-Chloro-3-methylphenol	50.0	50.0	ND	NA ¹	NA ¹	NA ²	NA ²	23-97	NA ²
Acenaphthene	50.0	50.0	ND	NA ¹	NA ¹	NA ²	NA ²	46-118	NA ²
4-Nitrophenol	50.0	50.0	ND	NA ¹	NA ¹	NA ²	NA ²	10-80	NA ²
2,4-Dinitrotoluene	50.0	50.0	ND	NA ¹	NA ¹	NA ²	NA ²	24-96	NA ²
Pentachlorophenol	50.0	50.0	ND	NA ¹	NA ¹	NA ²	NA ²	9-103	NA ²
Pyrene	50.0	50.0	ND	NA ¹	NA ¹	NA ²	NA ²	26-127	NA ²

ND None Detected at or above the method reporting limit

NA¹ Not Applicable because of the sample matrix. Analysis of this sample required a dilution such that the spike concentration was diluted below the MRL.

NA² Not Applicable

Approved by *D. W. K.*

Date 11-19-93

GOLDEN STATE / CAS LABORATORIES, INC.

QA/QC Report

Client: EMCON Associates
Project: ARCO Products Company/#0G70-007.01
LCS Matrix: Water

Date Analyzed: 11/19/93
Service Request No.: LA933248

Laboratory Control Sample Summary
Total Petroleum Hydrocarbons as Diesel
Modified 8015/California DHS LUFT Method
mg/L (ppm)

Analyte	True Value	Result	Percent Recovery	EPA Percent Recovery Acceptance Criteria
TPH as Diesel	200	210	105	70-140

TPH Total Petroleum Hydrocarbons

Approved by *[Signature]*

Date 11-19-93

GOLDEN STATE / CAS LABORATORIES, INC.

QA/QC Report

Client: EMCON Associates
Project: ARCO Products Company/#0G70-007.01
LCS Matrix: Water

Date Extracted: 11/11/93
Date Analyzed: 11/12/93
Service Request No.: LA933248

Laboratory Control Sample Summary
Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3510/8270
 $\mu\text{g/L}$ (ppb)

Analyte	True Value	Result	Percent Recovery	EPA Percent Recovery Acceptance Criteria
Phenol	50.0	20.9	42	5-112
2-Chlorophenol	50.0	42.2	84	23-134
1,4-Dichlorobenzene	50.0	44.6	90	20-124
N-Nitrosodi-n-propylamine	50.0	48.0	96	D-230
1,2,4-Trichlorobenzene	50.0	41.8	84	44-142
4-Chloro-3-methylphenol	50.0	44.8	90	22-147
Acenaphthene	50.0	48.8	98	47-145
4-Nitrophenol	50.0	18.8	38	D-132
2,4-Dinitrotoluene	50.0	49.5	99	39-139
Pentachlorophenol	50.0	43.5	87	14-176
Pyrene	50.0	48.9	98	52-115

D Detected; result must be greater than zero.

Approved by *[Signature]*

Date 11-11-93

GOLDEN STATE / CAS LABORATORIES, INC.

QA/QC Report

Client: EMCON Associates
Project: ARCO Products Company/#0G70-007.01
LCS Matrix: Water

Service Request No.: LA933248

Laboratory Control Sample Summary
Total Metals
mg/L (ppm)

Analyte	EPA Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Cadmium	6010	0.100	0.097	97	75-125
Chromium	6010	0.500	0.479	96	75-125
Lead	7421	0.0400	0.0410	103	75-125
Nickel	6010	0.500	0.514	103	75-125
Zinc	6010	0.500	0.475	95	75-125

Approved by *[Signature]*

Date 11-19-92

GOLDEN STATE / CAS LABORATORIES, INC.

QA/QC Report

Client: EMCON Associates
Project: ARCO Products Company/#OG70-007.01
Sample Matrix: Water

Date Analyzed: 11/12-15/93
Service Request No.: LA933248

Matrix Spike/Duplicate Matrix Spike Summary
Total Metals
mg/L (ppm)

Sample Name: L1071.01
Lab Code: LA3255-1 (LA3256-1 for Lead)

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	0.005	0.020	ND	0.024	0.024	120	120	75-125	< 1
Chromium	0.010	0.100	2.84	2.92	2.89	NC	NC	75-125	1
Lead	0.002	0.0400	0.0023	0.0408	0.0468	96	111	75-125	14
Nickel	0.04	0.100	1.56	1.66	1.66	NC	NC	75-125	< 1
Zinc	0.01	0.100	2.74	2.82	2.78	NC	NC	75-125	1

MRL Method Reporting Limit

ND None Detected at or above the method reporting limit

NC Spike recoveries were Not Calculated due to the relatively high concentration of sample analyte compared to the spike concentration.

Approved by *[Signature]*

Date 11-19-93



EMCON
ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: OG70-007.01

SAMPLE ID: MW-1 (11)

PURGED BY: IAN GRAHAM

CLIENT NAME: ARCO # 601

SAMPLED BY: IAN GRAHAM

LOCATION: SAN LEANDRO, CA.

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

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

CASING ELEVATION (feet/MSL):	<u>NR</u>	VOLUME IN CASING (gal.):	<u>N/A</u>
DEPTH TO WATER (feet):	<u>N/A</u>	CALCULATED PURGE (gal.):	<u>N/A</u>
DEPTH OF WELL (feet):	<u>N/A</u>	ACTUAL PURGE VOL (gal.):	<u>N/A</u>

DATE PURGED:	<u>11-8-93</u>	Start (2400 Hr)	<u>N/A</u>	End (2400 Hr)	<u>N/A</u>
DATE SAMPLED:	<u>11-8-93</u>	Start (2400 Hr)	<u>N/A</u>	End (2400 Hr)	<u>N/A</u>

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>* HAD (.01') PRODUCT THICKNESS, NO SAMPLE TAKEN *</u>						

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

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

PURGING EQUIPMENT

☐ 2" Bladder Pump	☐ Bailer (Teflon®)
☐ Centrifugal Pump	☒ Bailer (PVC)
☐ Submersible Pump	☐ Bailer (Stainless Steel)
☐ Well Wizard™ <u>N/A</u>	☐ Dedicated
Other: _____	

SAMPLING EQUIPMENT

☐ 2" Bladder Pump	☒ Bailer (Teflon®)
☐ ODL Sampler	☐ Bailer (Stainless Steel)
☐ Dipper	☐ Submersible Pump
☐ Well Wizard™ <u>N/A</u>	☐ Dedicated
Other: _____	

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: _____

Meter Calibration: Date: 11-8-93 Time: _____ Meter Serial #: 9105 Temperature °F: _____

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

Location of previous calibration: _____

Signature: [Signature] Reviewed By: [Signature] Page 1 of 15



EMCON
ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: OG70-007.01

SAMPLE ID: MW-2 (12)

PURGED BY: IAN GRAHAM

CLIENT NAME: ARCO # 601

SAMPLED BY: IAN GRAHAM

LOCATION: SAN LEANDRO, CA.

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

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

CASING ELEVATION (feet/MSL): <u>NR</u>	VOLUME IN CASING (gal.): <u>2.63</u>
DEPTH TO WATER (feet): <u>8.28</u>	CALCULATED PURGE (gal.): <u>7.88</u>
DEPTH OF WELL (feet): <u>12.3</u>	ACTUAL PURGE VOL (gal.): <u>8.00</u>

DATE PURGED: <u>11-8-93</u>	Start (2400 Hr) <u>1448</u>	End (2400 Hr) <u>1454</u>
DATE SAMPLED: <u>11-8-93</u>	Start (2400 Hr) <u>1456</u>	End (2400 Hr) <u>1458</u>

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1450</u>	<u>3.00</u>	<u>6.77</u>	<u>1670</u>	<u>70.7</u>	<u>GREY</u>	<u>LIGHT</u>
<u>1452</u>	<u>6.00</u>	<u>6.79</u>	<u>1684</u>	<u>71.1</u>	<u>↓</u>	<u>↓</u>
<u>1454</u>	<u>8.00</u>	<u>6.82</u>	<u>1702</u>	<u>70.8</u>	<u>↓</u>	<u>↓</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

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

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

PURGING EQUIPMENT

☐ 2" Bladder Pump
☐ Centrifugal Pump
☐ Submersible Pump
☐ Well Wizard™
 Other: _____

☐ Bailer (Teflon®)
☒ Bailer (PVC)
☐ Bailer (Stainless Steel)
☐ Dedicated

SAMPLING EQUIPMENT

☐ 2" Bladder Pump
☐ ODL Sampler
☐ Dipper
☐ Well Wizard™
 Other: _____

☒ Bailer (Teflon®)
☐ Bailer (Stainless Steel)
☐ Submersible Pump
☐ Dedicated

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: SHEEN ON PURGE WATER

Meter Calibration: Date: 11-8-93 Time: 1227 Meter Serial #: 9105 9203 Temperature °F: _____
 (EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)

Location of previous calibration: MW-10

Signature: [Signature] Reviewed By: [Signature] Page 2 of 15



EMCON
ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: OG-70-007.01
PURGED BY: IAN GRAHAM
SAMPLED BY: IAN GRAHAM

SAMPLE ID: MW-3 (11)
CLIENT NAME: ARCO # 601
LOCATION: SAN LEANDRO, CA.

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.): 2.99
DEPTH TO WATER (feet): 7.32 CALCULATED PURGE (gal.): 8.98
DEPTH OF WELL (feet): 11.9 ACTUAL PURGE VOL. (gal.): 9.00

DATE PURGED: 11-8-93 Start (2400 Hr) 1514 End (2400 Hr) 1520
DATE SAMPLED: 11-8-93 Start (2400 Hr) 1524 End (2400 Hr) 1526

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1516</u>	<u>3.00</u>	<u>6.89</u>	<u>800</u>	<u>67.9</u>	<u>DK GREY</u>	<u>HEAVY</u>
<u>1518</u>	<u>6.00</u>	<u>6.86</u>	<u>881</u>	<u>67.5</u>	<u>↓</u>	<u>↓</u>
<u>1520</u>	<u>9.00</u>	<u>6.88</u>	<u>941</u>	<u>67.7</u>	<u>↓</u>	<u>↓</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

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

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

PURGING EQUIPMENT

_____ 2" Bladder Pump _____ Bailer (Teflon®)
_____ Centrifugal Pump X 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: OK LOCK #: 3259

REMARKS: THE SCREEN ON THE SKIMMER SITS ~ 2.5-3.0 FEET
ABOVE THE WATER LEVEL
SCREEN ON PURGE WATER

Meter Calibration: Date: 11-8-93 Time: 1227 Meter Serial #: 9105 Temperature °F: _____

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

Location of previous calibration: MW-10

Signature: Barrie Kuchel Reviewed By: JP Page 3 of 15



EMCON
ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: OG70-007.01

SAMPLE ID: MW-4 (8)

PURGED BY: IAN GRAHAM

CLIENT NAME: ARCO # 601

SAMPLED BY: IAN GRAHAM

LOCATION: SAN LEANDRO, CA.

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

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

CASING ELEVATION (feet/MSL): <u>NR</u>	VOLUME IN CASING (gal.): <u>0.19</u>
DEPTH TO WATER (feet): <u>8.21</u>	CALCULATED PURGE (gal.): <u>0.57</u>
DEPTH OF WELL (feet): <u>8.5</u>	ACTUAL PURGE VOL (gal.): <u>0.50</u>

DATE PURGED: <u>11-8-93</u>	Start (2400 Hr) <u>1436</u>	End (2400 Hr) <u>1439</u>
DATE SAMPLED: <u>11-8-93</u>	Start (2400 Hr) <u>1445</u>	End (2400 Hr) <u>1446</u>

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1439</u>	<u>0.50</u>	<u>7.08</u>	<u>1771</u>	<u>68.9</u>	<u>CLOUDY</u>	<u>LIGHT</u>
<u>14</u>	<u>WELL DRIED @ 0.50</u>			<u>GALLON</u>		

<u>1444</u>	<u>RECHARGE</u>	<u>7.12</u>	<u>1669</u>	<u>68.7</u>	<u>CLOUDY</u>	<u>LIGHT</u>
D. O. (ppm): <u>NR</u>	ODOR: <u>MILD</u>				<u>NR</u>	<u>NR</u>
					(COBALT 0 - 100)	(NTU 0 - 200)

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

PURGING EQUIPMENT

SAMPLING EQUIPMENT

_____ 2" Bladder Pump	_____ Bailer (Teflon®)	_____ 2" Bladder Pump	<u>X</u> Bailer (Teflon®)
_____ Centrifugal Pump	<u>X</u> Bailer (PVC)	_____ ODL Sampler	_____ Bailer (Stainless Steel)
_____ Submersible Pump	_____ Bailer (Stainless Steel)	_____ Dipper	_____ Submersible Pump
_____ Well Wizard™	_____ Dedicated	_____ Well Wizard™	_____ Dedicated
Other: _____		Other: _____	

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: 1439 WELL DRIED @ 0.50 GALLON

Meter Calibration: Date: 11-8-93 Time: 1227 Meter Serial #: 9105-9203 Temperature °F: _____

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

Location of previous calibration: MW-10

Signature: [Signature] Reviewed By: [Signature] Page 4 of 15



EMCON
ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: OG70-007.01
PURGED BY: IAN GRAHAM
SAMPLED BY: IAN GRAHAM

SAMPLE ID: MW-5 (10)
CLIENT NAME: ARCO # 601
LOCATION: SAN LEANDRO, CA.

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.): 1.40
DEPTH TO WATER (feet): 7.95 CALCULATED PURGE (gal.): 4.21
DEPTH OF WELL (feet): 10.1 ACTUAL PURGE VOL. (gal.): 2.00

DATE PURGED: 11-8-93 Start (2400 Hr) 1501 End (2400 Hr) 1505
DATE SAMPLED: 11-8-93 Start (2400 Hr) 1509 End (2400 Hr) 1510

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1503</u>	<u>1.50</u>	<u>6.87</u>	<u>1875</u>	<u>68.6</u>	<u>GREY</u>	<u>MODERATE</u>
<u>1505</u>	<u>WELL</u>	<u>DRIED</u>	<u>@ 2.00 GALLONS</u>			
<u>1511</u>	<u>RECHARGE</u>	<u>6.93</u>	<u>1823</u>	<u>68.9</u>	<u>GREY</u>	<u>MODERATE</u>
	<u>NR</u>		<u>STRUNG</u>		<u>NR</u>	<u>NR</u>

D. O. (ppm): _____ ODCR: _____ (COBALT 0 - 100) (NTU 0 - 200)

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

PURGING EQUIPMENT

____ 2" Bladder Pump
____ Centrifugal Pump X
____ Submersible Pump
____ Well Wizard™
Other: _____

____ Bailor (Teflon®)
____ Bailor (PVC)
____ Bailor (Stainless Steel)
____ Dedicated

SAMPLING EQUIPMENT

____ 2" Bladder Pump X
____ ODL Sampler
____ Dipper
____ Well Wizard™
Other: _____

____ Bailor (Teflon®)
____ Bailor (Stainless Steel)
____ Submersible Pump
____ Dedicated

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: SHEEN ON PURGE WATER
1505 WELL DRIED @ 2.00 GALLONS

Meter Calibration: Date: 11-8-93 Time: 1227 Meter Serial #: 9105 Temperature °F: _____
(EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)

Location of previous calibration: MW-110
Signature: [Signature] Reviewed By: [Signature] Page 5 of 15



EMCON
ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: OG70-007.01
PURGED BY: IAN GRAHAM
SAMPLED BY: IAN GRAHAM

SAMPLE ID: MW-6 (8)
CLIENT NAME: ARCO # 601
LOCATION: SAN LEANDRO, CA.

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): N/A
DEPTH TO WATER (feet): N/A CALCULATED PURGE (gal.): N/A
DEPTH OF WELL (feet): N/A ACTUAL PURGE VOL. (gal.): N/A

DATE PURGED: 11-8-93 Start (2400 Hr) N/A End (2400 Hr) N/A
DATE SAMPLED: 11-8-93 Start (2400 Hr) N/A End (2400 Hr) N/A

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. µmhos/cm @ 25° C	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>* WELL WAS DRY</u>	<u>NO SAMPLE</u>	<u>TAKEN</u>			<u>*</u>	
D. O. (ppm): <u>NR</u>	ODOR: <u>ND</u>				<u>NR</u>	<u>NR</u>
					(COBALT 0 - 100)	(NTU 0 - 200)

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

PURGING EQUIPMENT

____ 2" Bladder Pump _____ Bailer (Teflon®)
____ Centrifugal Pump X Bailer (PVC)
____ Submersible Pump _____ Bailer (Stainless Steel)
____ Well Wizard™ N/A _____ Dedicated
Other: _____

SAMPLING EQUIPMENT

____ 2" Bladder Pump X Bailer (Teflon®)
____ DDL Sampler _____ Bailer (Stainless Steel)
____ Dipper _____ Submersible Pump
____ Well Wizard™ N/A _____ Dedicated
Other: _____

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: _____

Meter Calibration: Date: 11-8-93 Time: _____ Meter Serial #: 9105 Temperature °F: _____
(EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)

Location of previous calibration: _____

Signature: [Signature] Reviewed By: [Signature] Page 6 of 15



WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: OG70-007.01
PURGED BY: IAN GRAHAM
SAMPLED BY: IAN GRAHAM

SAMPLE ID: MW-7 (9)
CLIENT NAME: ARCO # 601
LOCATION: SAN LEANDRO, CA.

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.): N/A
DEPTH TO WATER (feet): N/A CALCULATED PURGE (gal.): N/A
DEPTH OF WELL (feet): N/A ACTUAL PURGE VOL (gal.): N/A

DATE PURGED: 11-8-93 Start (2400 Hr) N/A End (2400 Hr) N/A
DATE SAMPLED: 11-8-93 Start (2400 Hr) N/A End (2400 Hr) N/A

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>WELL WAS DRY, NO SAMPLE TAKEN</u>						
D. O. (ppm): <u>NR</u> ODOR: <u>ND</u> <u>NR</u> <u>NR</u> (COBALT 0 - 100) (NTU 0 - 200)						

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

PURGING EQUIPMENT

____ 2" Bladder Pump _____ Bailer (Teflon®)
____ Centrifugal Pump X Bailer (PVC)
____ Submersible Pump _____ Bailer (Stainless Steel)
____ Well Wizard™ N/A _____ Dedicated
Other: _____

SAMPLING EQUIPMENT

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

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: _____

Meter Calibration: Date: 11-8-93 Time: _____ Meter Serial #: 9105 Temperature °F: _____
(EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)
Location of previous calibration: _____

Signature: [Signature] Reviewed By: [Signature] Page 07 of 15



WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: 0670-007, 01
PURGED BY: K REICHELDERFER
SAMPLED BY: ↓

SAMPLE ID: MW-8(10)
CLIENT NAME: ARCO 601
LOCATION: 712 LEWELLING BLVD,
SAN LEANDRO, CA

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.): 1.21
DEPTH TO WATER (feet): 8.35 CALCULATED PURGE (gal.): 3.63
DEPTH OF WELL (feet): 10.2 ACTUAL PURGE VOL. (gal.): 2.00

DATE PURGED: 11-8-93 Start (2400 Hr) 1422 End (2400 Hr) 1428
DATE SAMPLED: 11-8-93 Start (2400 Hr) 1528 End (2400 Hr) 1556

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1425</u>	<u>1.50</u>	<u>6.81</u>	<u>1505</u>	<u>71.1</u>	<u>GREY</u>	<u>HEAVY</u>
<u>1428</u>	<u>WELL</u>	<u>DRIED</u>	<u>@ 2.00 GALLONS</u>			
<u>1457</u>	<u>RECHARGE</u>	<u>6.93</u>	<u>1607</u>	<u>70.1</u>	<u>GREY</u>	<u>MODERATE</u>
D. O. (ppm):	<u>NR</u>		ODOR: <u>STRONG</u>		<u>NR</u>	<u>NR</u>

(COBALT 0 - 100) (NTU 0 - 200)

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

PURGING EQUIPMENT

 2" Bladder Pump Bailer (Teflon®)
 Centrifugal Pump X 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: OK LOCK #: 3259

REMARKS: 1428 WELL DRIED @ 2.00 GALLONS
1526 DTW 9.39

Meter Calibration: Date: 11-8-93 Time: 1227 Meter Serial #: 9203 Temperature °F:
(EC 1000 /) (DI) (pH 7 /) (pH 10 /) (pH 4 /)

Location of previous calibration: MW-10

Signature: Kenn. Reichelderfer Reviewed By: JB Page 3 of 15



WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: 0670-007, 01
PURGED BY: K REICHELDERFER
SAMPLED BY: ↓

SAMPLE ID: MW-10(16)
CLIENT NAME: ARCO 601
LOCATION: 712 LEWELLING BLVD.
SAN LEANDRO, CA

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 1.23
DEPTH TO WATER (feet): 8.70 CALCULATED PURGE (gal.): 3.68
DEPTH OF WELL (feet): 16.2 ACTUAL PURGE VOL. (gal.): 4.00

DATE PURGED: 11-8-93 Start (2400 Hr) 1228 End (2400 Hr) 1235
DATE SAMPLED: 11-8-93 Start (2400 Hr) 1240 End (2400 Hr) 1242

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1231</u>	<u>1.50</u>	<u>6.72</u>	<u>1207</u>	<u>71.9</u>	<u>LT. BRN</u>	<u>LIGHT</u>
<u>1233</u>	<u>3.00</u>	<u>6.91</u>	<u>1210</u>	<u>70.1</u>	<u>↓</u>	<u>↓</u>
<u>1235</u>	<u>4.00</u>	<u>6.96</u>	<u>1215</u>	<u>69.9</u>	<u>↓</u>	<u>↓</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
D. O. (ppm): <u>NR</u>	ODOR: <u>NONE</u>	<u>NR</u>	<u>NR</u>	(COBALT 0 - 100)	(NTU 0 - 200)	

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): FB-1 @ 1243

PURGING EQUIPMENT

 2" Bladder Pump Bailer (Teflon®)
 Centrifugal Pump X 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: OK LOCK #: DOLPHIN (3259)

REMARKS: INSTALLED 3259 LOCK

Meter Calibration: Date: 11-8-93 Time: 1227 Meter Serial #: 9203 Temperature °F: 66.4
(EC 1000 956 / 1000) (DI 10.42) (pH 7 7.00 / 7.00) (pH 10 9.92 / 10.00) (pH 4 3.93 /)

Location of previous calibration:

Signature: Kevin Reichelderfer Reviewed By: JB Page 10 of 15



Rev. 2, 5/91

SAMPLE ID: MW-11 (11)

CLIENT NAME: ARCO 601

LOCATION: 712 LEWELLING BLVD.
SAN LEANDRO, CA

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

CASING ELEVATION (feet/MSL):	<u>NR</u>	VOLUME IN CASING (gal.):	<u>1.74</u>
DEPTH TO WATER (feet):	<u>9.23</u>	CALCULATED PURGE (gal.):	<u>5.23</u>
DEPTH OF WELL (feet):	<u>11.9</u>	ACTUAL PURGE VOL. (gal.):	<u>5.50</u>

DATE PURGED:	<u>11-8-93</u>	Start (2400 Hr)	<u>1353</u>	End (2400 Hr)	<u>1359</u>
DATE SAMPLED:	<u>11-8-93</u>	Start (2400 Hr)	<u>1403</u>	End (2400 Hr)	<u>1405</u>

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. ($\mu\text{mhos/cm} @ 25^\circ \text{C}$)	TEMPERATURE ($^\circ\text{F}$)	COLOR (visual)	TURBIDITY (visual)
1355	2.00	6.99	1619	73.6	GREY	HEAVY
1357	4.00	7.17	1640	73.0	↓	↓
1359	5.00	7.16	1648	72.1	↓	↓
D. O. (ppm):	NR		ODOR:	STRONG	NR	NR
					(COBALT 0 - 100)	(NTU 0 - 200)

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

SAMPLING EQUIPMENT

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

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

Other: _____

WELL INTEGRITY: OK LOCK #: 3259

REMARKS : _____

Meter Calibration: Date: 11-8-93 Time: 1227 Meter Serial #: 9203 Temperature °F: _____
(EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)

Location of previous calibration: MW-10

Location of previous calibration: None
Signature: Ken Reichel Reviewed By: JP Page 11 of 15



WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: 0670-007, 01
PURGED BY: K REICHELDERFER
SAMPLED BY: ↓

SAMPLE ID: MW-12(11)
CLIENT NAME: ARCO 601
LOCATION: 712 LEWELLING BLVD.
SAN LEANDRO, CA

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.): 1.22
DEPTH TO WATER (feet): 9.73 CALCULATED PURGE (gal.): 3.67
DEPTH OF WELL (feet): 11.6 ACTUAL PURGE VOL. (gal.): 4.00

DATE PURGED: 11-8-93 Start (2400 Hr) 1340 End (2400 Hr) 1345
DATE SAMPLED: 11-8-93 Start (2400 Hr) 1348 End (2400 Hr) 1350

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (μ mhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1342</u>	<u>1.50</u>	<u>6.93</u>	<u>1627</u>	<u>71.4</u>	<u>BROWN</u>	<u>MODERATE</u>
<u>1343</u>	<u>3.00</u>	<u>7.13</u>	<u>1624</u>	<u>71.1</u>	<u>↓</u>	<u>HEAVY</u>
<u>1345</u>	<u>4.00</u>	<u>7.21</u>	<u>1664</u>	<u>70.9</u>	<u>✓</u>	<u>↓</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
D. O. (ppm): <u>NR</u>	_____	_____	ODOR: <u>NONE</u>	_____	<u>NR</u> (COBALT 0 - 100)	<u>NR</u> (NTU 0 - 200)

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

PURGING EQUIPMENT

_____ 2" Bladder Pump _____ Bailer (Teflon®)
_____ Centrifugal Pump X 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: OK LOCK #: 3259

REMARKS: _____

Meter Calibration: Date: 11-8-93 Time: 1227 Meter Serial #: 9203 Temperature °F: _____
(EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)

Location of previous calibration: MW-10

Signature: Ken Reichelderfer Reviewed By: JB Page 12 of 15



WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: 0670-007, 01
PURGED BY: K REICHELDERFER
SAMPLED BY: ↓

SAMPLE ID: MW-13(13)
CLIENT NAME: ARCO 601
LOCATION: 712 LEWELLING BLVD.,
SAN LEANDRO, CA

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 0.66
DEPTH TO WATER (feet): 8.93 CALCULATED PURGE (gal.): 1.99
DEPTH OF WELL (feet): 13.0 ACTUAL PURGE VOL. (gal.): 2.00

DATE PURGED: 11-8-93 Start (2400 Hr) 1325 End (2400 Hr) 1330
DATE SAMPLED: 11-8-93 Start (2400 Hr) 1333 End (2400 Hr) 1335

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (μmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1327</u>	<u>1.00</u>	<u>7.01</u>	<u>1662</u>	<u>69.7</u>	<u>BROWN</u>	<u>MODERATE</u>
<u>1329</u>	<u>1.50</u>	<u>7.08</u>	<u>1668</u>	<u>69.5</u>	<u>↓</u>	<u>HEAVY</u>
<u>1330</u>	<u>2.00</u>	<u>7.16</u>	<u>1676</u>	<u>69.5</u>	<u>↓</u>	<u>↓</u>

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

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

PURGING EQUIPMENT

 2" Bladder Pump Bailer (Teflon®)
 Centrifugal Pump X 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: OK LOCK #: 3259

REMARKS:

Meter Calibration: Date: 11-8-93 Time: 1227 Meter Serial #: 9203 Temperature °F:
(EC 1000 /) (DI) (pH 7 /) (pH 10 /) (pH 4 /)

Location of previous calibration: MW-10

Signature: Kevin Reichelderfer Reviewed By: JB Page 13 of 15



WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: 0670-007.01SAMPLE ID: MW-14(13)PURGED BY: K REICHELDERFERCLIENT NAME: ARCO 601SAMPLED BY: ↓LOCATION: 712 LEWELLING BLVD.
SAN LEANDRO, CATYPE: Ground Water X Surface Water Treatment Effluent Other CASING DIAMETER (inches): 2 X 3 4 4.5 6 Other

CASING ELEVATION (feet/MSL):	<u>NR</u>	VOLUME IN CASING (gal.):	<u>0.45</u>
DEPTH TO WATER (feet):	<u>10.27</u>	CALCULATED PURGE (gal.):	<u>1.34</u>
DEPTH OF WELL (feet):	<u>13.0</u>	ACTUAL PURGE VOL. (gal.):	<u>1.50</u>

DATE PURGED:	<u>11-8-93</u>	Start (2400 Hr)	<u>1311</u>	End (2400 Hr)	<u>1316</u>
DATE SAMPLED:	<u>11-8-93</u>	Start (2400 Hr)	<u>1318</u>	End (2400 Hr)	<u>1320</u>

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (μmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1312</u>	<u>0.50</u>	<u>6.88</u>	<u>1788</u>	<u>70.3</u>	<u>BROWN</u>	<u>HEAVY</u>
<u>1314</u>	<u>1.00</u>	<u>6.93</u>	<u>1791</u>	<u>70.1</u>	<u>↓</u>	<u>↓</u>
<u>1316</u>	<u>1.50</u>	<u>6.96</u>	<u>1768</u>	<u>70.2</u>	<u>↓</u>	<u>↓</u>
D. O. (ppm):	<u>NR</u>	ODOR:	<u>NONE</u>		<u>NR</u> (COBALT 0 - 100)	<u>NR</u> (NTU 0 - 200)

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

PURGING EQUIPMENT

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

SAMPLING EQUIPMENT

<u> </u> 2" Bladder Pump	<u>X</u> Bailer (Teflon®)
<u> </u> DDL Sampler	<u> </u> Bailer (Stainless Steel)
<u> </u> Dipper	<u> </u> Submersible Pump
<u> </u> Well Wizard™	<u> </u> Dedicated
Other: <u> </u>	

WELL INTEGRITY: OK LOCK #: 3259REMARKS:

 Meter Calibration: Date: 11-8-93 Time: 1227 Meter Serial #: 9203 Temperature °F: (EC 1000 /) (DI) (pH 7 /) (pH 10 /) (pH 4 /)Location of previous calibration: MW-10Signature: Kevin ReichelderferReviewed By: JBPage 14 of 15



WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: 0670-007, 01
PURGED BY: K REICHELDERFER
SAMPLED BY: ↓

SAMPLE ID: MW-15(10)
CLIENT NAME: ARCO 601
LOCATION: 712 LEWELLING BLVD.,
SAN LEANDRO, CA

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

CASING ELEVATION (feet/VMSL): NR VOLUME IN CASING (gal.): 0.51
DEPTH TO WATER (feet): 6.99 CALCULATED PURGE (gal.): 1.52
DEPTH OF WELL (feet): 10.1 ACTUAL PURGE VOL. (gal.): 2.00

DATE PURGED: 11-8-93 Start (2400 Hr) 1258 End (2400 Hr) 1304
DATE SAMPLED: 11-8-93 Start (2400 Hr) 1307 End (2400 Hr) 1309

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1300</u>	<u>1.00</u>	<u>7.24</u>	<u>1023</u>	<u>66.4</u>	<u>BROWN</u>	<u>HEAVY</u>
<u>1302</u>	<u>1.50</u>	<u>7.38</u>	<u>1024</u>	<u>66.1</u>	<u>↓</u>	<u>↓</u>
<u>1304</u>	<u>2.00</u>	<u>7.43</u>	<u>1029</u>	<u>65.9</u>	<u>✓</u>	<u>✓</u>
D. O. (ppm):	<u>NR</u>				<u>NR</u> (COBALT 0 - 100)	<u>NR</u> (NTU 0 - 200)

ODOR: NONE

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

PURGING EQUIPMENT

___ 2' Bladder Pump ___ Bailer (Teflon®)
___ Centrifugal Pump X 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: OK LOCK #: 3259

REMARKS:

Meter Calibration: Date: 11-8-93 Time: 1227 Meter Serial #: 9203 Temperature °F:
(EC 1000 /) (DI) (pH 7 /) (pH 10 /) (pH 4 /)

Location of previous calibration: MW-10

Signature: Kevin Reichelderfer Reviewed By: JB Page 15 of 15