RESNA
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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
80 Swan Way, Room 200
Oakland, California 94621

DATE: March 19, 1993
PROJECT NUMBER: 61026.02
SUBJECT: Site Status Updates

FROM: Joel Coffman
TITLE: Project Geologist

WE ARE SENDING YOU:

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

March 19, 1993
0318SSRY.601
61026.02

Mr. Scott Seery
Alameda County Health Care Services Agency
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94624

Subject: Site Status Update for ARCO Station 601, 712 Lewelling Blvd., San Leandro, California.

Dear Mr. Seery:

This letter provides an update on investigation and remedial activities conducted for the above-referenced site. This update covers site activities performed during February 1993, and site activities anticipated for the month of March 1993.

February 1993 Activities

- Performed groundwater monitoring and monthly removal of product sheen from wells MW-1, MW-3, and MW-5.
- Based upon assumed aquifer characteristics at the site and nondetectable concentrations of gasoline hydrocarbons in offsite monitoring well, will initiate preparation of a work plan for aquifer testing for evaluation of the feasibility of interim groundwater remediation system.
- Completed preparation of draft Additional Subsurface Investigation Report including onsite and offsite borings and wells.
- Received verbal approval of letter request for offsite monitoring well location from Mr. John Jang at the RWQCB. Began encroachment permitting process with the City of San Leandro for installation of additional offsite monitoring well.

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Site Status Update
ARCO Station 601, San Leandro, California

March 19, 1993
61026.02

Work Anticipated for March 1993

- Submit final Additional Subsurface Investigation report to ARCO and appropriate regulatory agencies.
- Continue monthly groundwater monitoring.
- Schedule meeting with ACHCSA and the RWQCB to discuss the remedial alternatives for the site as required in the Cleanup and Abatement Order (CAO 92-147) issued by the RWQCB for the site.
- Upon gaining encroachment permit, schedule and install additional offsite groundwater monitoring well.
- Submit addendum to work plan proposing aquifer testing at the site and schedule and perform aquifer tests.
- Monthly removal of floating product sheen (if present) will continue.

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

Sincerely,
RESNA Industries Inc.

Joel Coffman
Project Manager

cc: Michael Whelan, ARCO Products Company
John Meck, ARCO Legal
John Jang, Regional Water Quality Control Board
Mark Thomson, Alameda County District Attorney's Office

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LETTER REPORT
QUARTERLY GROUNDWATER MONITORING
Fourth Quarter 1992
at
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

69034.12

4/1/93

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3315 Almaden Expressway, Suite 34
San Jose, CA 95118
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March 1, 1993
0114MWHE
69034.12

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

Subject: Fourth Quarter 1992 Groundwater Monitoring Report for ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California.

Mr. Whelan:

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

The operating ARCO Station 601 is located on the southwestern corner of Lewelling Boulevard and Washington Avenue in San Leandro, California, as shown on the Site Vicinity Map, Plate 1. Results of previous environmental investigations at the site are presented in the reports listed in the references section. Locations of the groundwater

monitoring wells and pertinent site features are shown on the Generalized Site Plan, Plate 2.

Groundwater Sampling and Gradient Evaluation

Depth to water measurements (DTW) were taken by EMCON field personnel on October 28, November 16, and December 16, 1992. Quarterly sampling was performed by EMCON field personnel on November 16, 1992. The results of EMCON's field work on the site, including DTW measurements and subjective analysis for the presence of product in the groundwater in wells MW-1 through MW-8 and MW-14 in October 1992, and wells MW-1 through MW-8 and MW-11 through MW-14 in November and December 1992, are presented on EMCON's Field Reports and Water Sample Field Data Sheets. These data are included in Appendix A.

The DTW measurements, depth of wells, wellhead elevations, groundwater elevations, and subjective observations for the presence of product in groundwater monitoring wells MW-1 through MW-8 and MW-11 through MW-14, for previous quarterly groundwater monitoring at the site are summarized in Table 1, Cumulative Groundwater Monitoring Data. According to EMCON's Field Reports, no evidence of floating product was observed in monitoring wells MW-1 through MW-8, and MW-14 during the October 28, 1992, monitoring. Approximately 0.02 feet of floating product was measured in well MW-1, and an unmeasured amount of product was present in the skimmer in well MW-1 on November 16, 1992. The skimmer in well MW-1 contained approximately 6 ml of product on December 16, 1992. Based on EMCON's DTW levels, the groundwater gradients and flow directions for October, November, and December 1992 are shown on the Groundwater Elevation Maps, Plates 3 through 5. The groundwater gradient interpreted from these data ranged from nearly flat to 0.016, and the groundwater flow direction ranged from west-northwest to south. These interpretations are generally consistent with previously interpreted gradients. The relatively low slope and shallow depth of the groundwater surface make it more susceptible to change by infiltration, seasonal variation, or local subsurface activities.

Groundwater monitoring wells MW-2, MW-5, MW-8, and MW-11 through MW-14 were purged and sampled by EMCON field personnel on November 16, 1992. Because subjective analysis indicated petroleum product was present in MW-1, the skimmer in MW-3 contained product, and wells MW-4, MW-6, and MW-7 were dry, groundwater samples were not taken from these wells for laboratory analyses. EMCON's Water Sample Field Data sheets, Field Reports, and Summary of Groundwater Monitoring Data, are included in Appendix A. The purge water was removed from the site by a licensed hazardous waste hauler; the Monitoring Well Purge Water Transport Form is also included in Appendix A.

Laboratory Methods and Analyses

Under the direction of EMCON, groundwater samples collected from wells MW-2, MW-5, MW-8, and MW-11 through MW-14 were analyzed by Columbia Analytical Services, Inc. located in San Jose, California (Hazardous Waste Testing Laboratory Certification No. 1426). The water samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene, and total xylenes (BTEX) using Environmental Protection Agency (EPA) Methods 5030/8020/DHS LUFT Method. In addition, water samples from MW-8, the well not containing floating product and located closest to and downgradient of the former waste-oil UST, were also analyzed for total metals by EPA Method 6010, lead by EPA Method 7421, Halogenated Volatile Organic Compounds by EPA Methods 5030/601, Semi-volatile Organic Compounds by EPA Methods 3510/8270, TPH as Diesel by EPA Method 3510/California DHS LUFT Method, and Total Recoverable Petroleum Hydrocarbons by EPA Methods 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. **(During future monitoring events when monitoring well MW-1 does not contain floating product, samples will be collected from MW-1 and analyzed for waste-oil constituents in place of the analyses on samples from MW-8.)** Results of these and previous water analyses are summarized in Table 2, Cumulative Results of Laboratory Analyses of Groundwater. Concentrations of TPHg and benzene in the groundwater are shown on Plate 6, TPHg/Benzene Concentrations in Groundwater. The Chain of Custody Records and Laboratory Analysis Reports are included in Appendix A.

NO!

The following general trends were noted in reported hydrocarbon concentrations in groundwater from the monitoring wells since the last quarterly monitoring at the site. **Monitoring wells MW-1 and MW-3 continue to contain floating product or product sheen.** Groundwater monitoring wells MW-4, MW-6, and MW-7 continue to contain only residual water or to be dry, and therefore no trends have been established for these wells. **Concentrations of TPHg and BTEX in monitoring wells MW-5 and MW-8 generally decreased since the third quarter; and concentrations remained generally similar in well MW-2.** The analytical results for MW-8 indicated a small concentration (1,200 ppb) of TOG, concentrations of metals below the State Maximum Contaminant Levels (MCLs), nondetectable VOCs, near nondetectable BNAs, and a nontypical fingerprint for the hydrocarbons classified as diesel. **If these trends are unchanged during the first quarter 1993 sampling, we propose that MW-8 or MW-1 not be analyzed for metals, VOCs, BNAs, and diesel, but for TPHg, BTEX, and TOG.**

Hmm...

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. Quantities of floating product and water removed are presented on Table 3, Approximate Cumulative Product Recovered. The total product recovered at the site is 3.45 gallons.

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

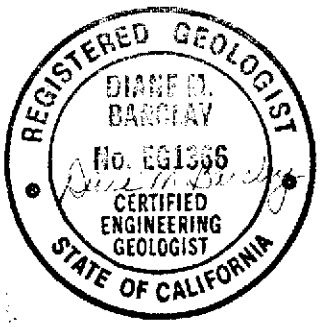
Mr. John Jang
California Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, California 94612

Mr. Guy Telham
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 McLucas
Staff Geologist



Diane M. Barclay
Certified Engineering
Geologist No. 1366

Enclosures:

References

Plate 1, Site Vicinity Map
Plate 2, Generalized Site Plan
Plate 3, Groundwater Elevation Map, October 28, 1992
Plate 4, Groundwater Elevation Map, November 16, 1992
Plate 5, Groundwater Elevation Map, December 16, 1992
Plate 6, TPHg Concentrations in Groundwater, November 16, 1992
Plate 7, Benzene Concentrations in Groundwater, December 16, 1992

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 Groundwater Monitoring Data, Laboratory Reports, Chain of Custody Records, and Monitoring Well Purge Water Transport Form

REFERENCES

Alameda County Health Care Services. December 26, 1991, Letter Regarding CAL-EPA Regional Hydrogeology and Contamination Study, Central San Leandro.

Applied GeoSystems, November 9, 1989, Limited Environmental Site Assessment at ARCO Service Station No. 601, San Leandro, California. AGS Report 69034-1.

Applied GeoSystems, November 30, 1990, Letter Report Quarterly Ground-Water Monitoring Fourth Quarter 1990. AGS Report 69034-3.

Applied GeoSystems, December 14, 1990, Subsurface Environmental Assessment at ARCO Station 601, San Leandro, California. AGS Report 69034-2.

Applied GeoSystems, March 24, 1991, Letter Report Quarterly Ground-Water Monitoring First Quarter 1991. (Letter Report 0130ccar, AGS 69034-3).

Applied GeoSystems, July 3, 1991, Letter Report Quarterly Ground-Water Monitoring, Second Quarter 1991. AGS 69034.03.

California Department of Health Services, Office of Drinking Water, October 18, 1990, Summary of Maximum contaminant Level (MCL) and Action Levels (AL).

GeoStrategies, Inc., June 29, 1990, Tank Replacement Report, ARCO Service Station #601, San Leandro, California. GSI Report 7918-2.

GeoStrategies, Inc, November 14, 1989, Proposed Scope of Work, ARCO Service Station #601, San Leandro, California. GSI Report 7918-1.

RESNA Industries, October 17,1991, Subsurface Environmental Assessment and Vapor Extraction Test at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California. RESNA 69034.04.

RESNA Industries, November 22, 1991, Letter Report Quarterly Groundwater Monitoring, Third Quarter 1991 at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California. RESNA 69034.03.

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(Continued)

RESNA Industries, March 21, 1991, Work Plan for Subsurface Investigation and Remediation at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California. RESNA 69034-4W.

RESNA Industries, March 21, 1991, Addendum One to Work Plan at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California. RESNA 69034-4W.

RESNA Industries, May 15, 1991, Addendum Two to Work Plan for Interim Product Recovery at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California. RESNA 69034-04.

RESNA Industries, March 6, 1992, Addendum Three to Work Plan Additional Subsurface Investigation at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California. RESNA 69034.08

RESNA Industries, March 6, 1992, Addendum Four to Work Plan for Interim Groundwater Remediation at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California. RESNA 69034.07

RESNA Industries, April 9, 1992, Letter Report Quarterly Groundwater Monitoring, Fourth Quarter 1991, at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California. RESNA 69034.06.

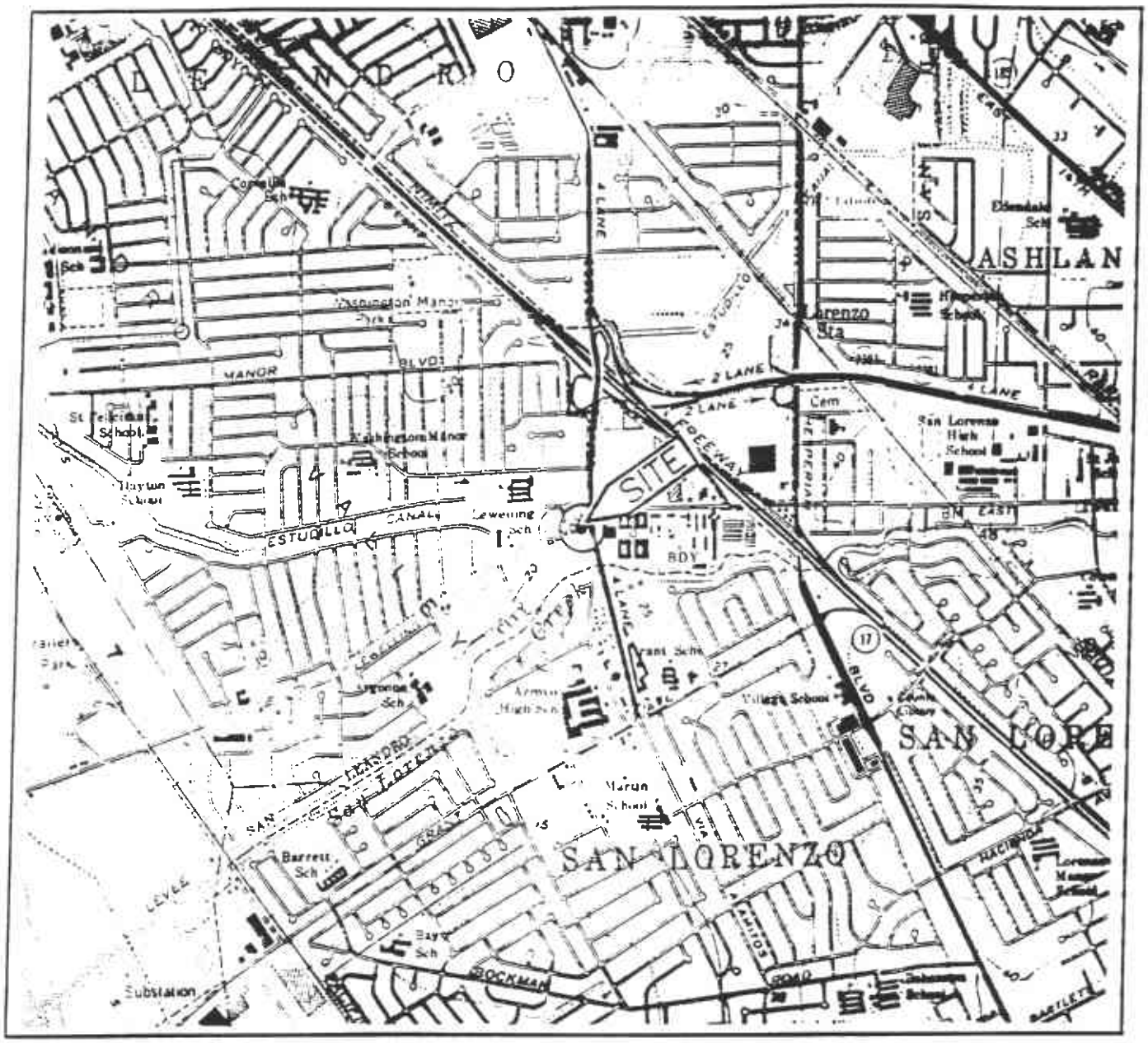
RESNA Industries, May 5, 1992, Letter Report Quarterly Groundwater Monitoring, First Quarter 1992, at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California. RESNA 69034.06.

RESNA Industries, September 24, 1992, Letter Report Quarterly Groundwater Monitoring, Second Quarter 1992, at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California. RESNA 69034.06.

RESNA Industries, September 14, 1992, Addendum Five to Work Plan, at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California. RESNA 69034.10.

REFERENCES
(Continued)

RESNA Industries, October 21, 1992, Work Plan for Offsite Subsurface Investigation at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California. RESNA 69034.11.



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

LEGEND

⊙ = Site Location

Approximate Scale

2000 1000 0 2000 4000

feet

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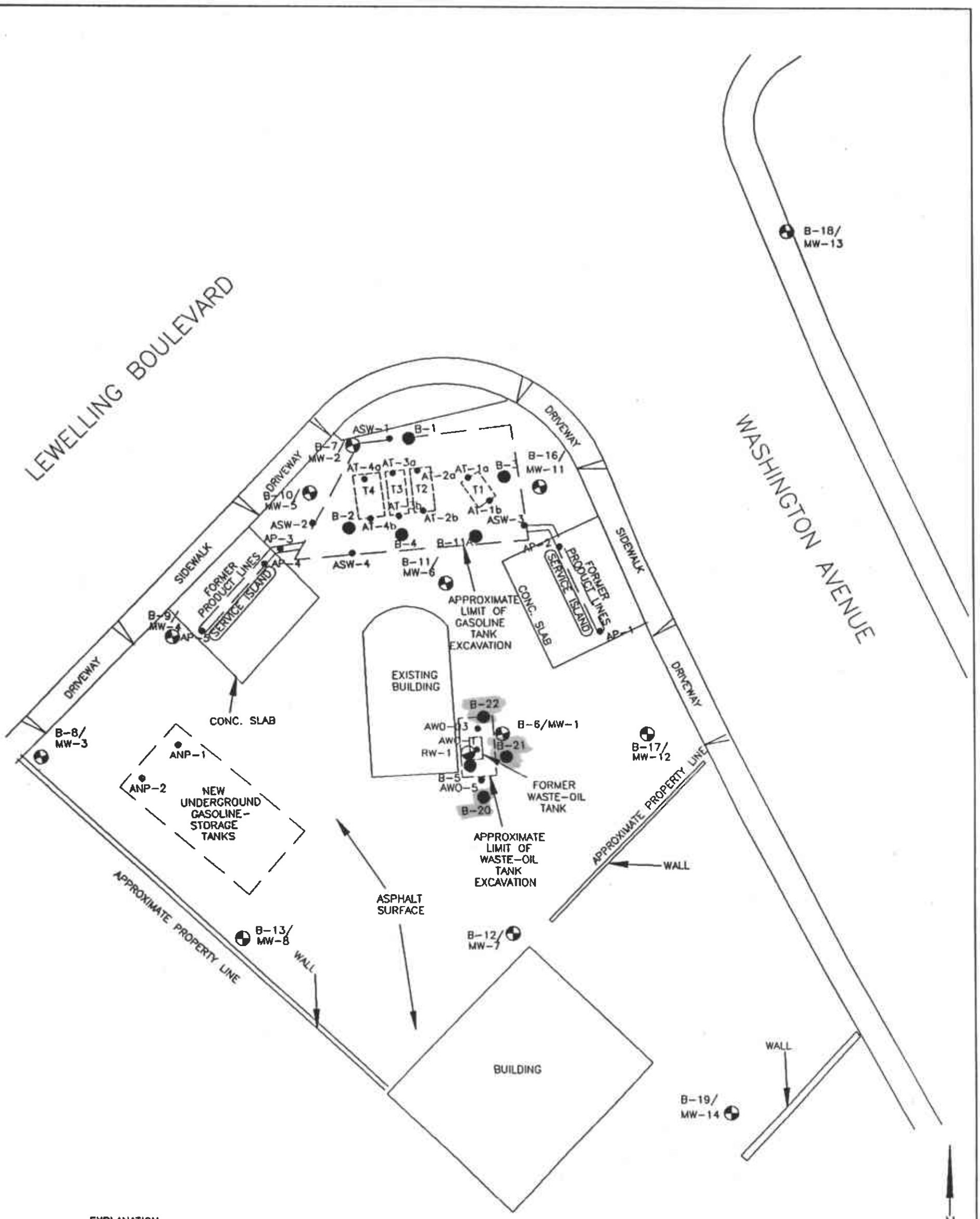
SITE VICINITY MAP
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE
1



EXPLANATION

- RW-1 = Product recovery well (GeoStrategies, Jan. 1990)
- AWO-5 = Soil sample (GeoStrategies, Jan. 1990)
- B-19/ MW-14 = Vapor extraction/ground-water monitoring well (RESNA/Applied GeoSystems, June 1990 through November 1992)
- = Soil boring (RESNA/Applied GeoSystems, August 1989 through October 1992)
- T4 = Former gasoline underground storage tanks

Approximate Scale

30 15 0 30 60

feet

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

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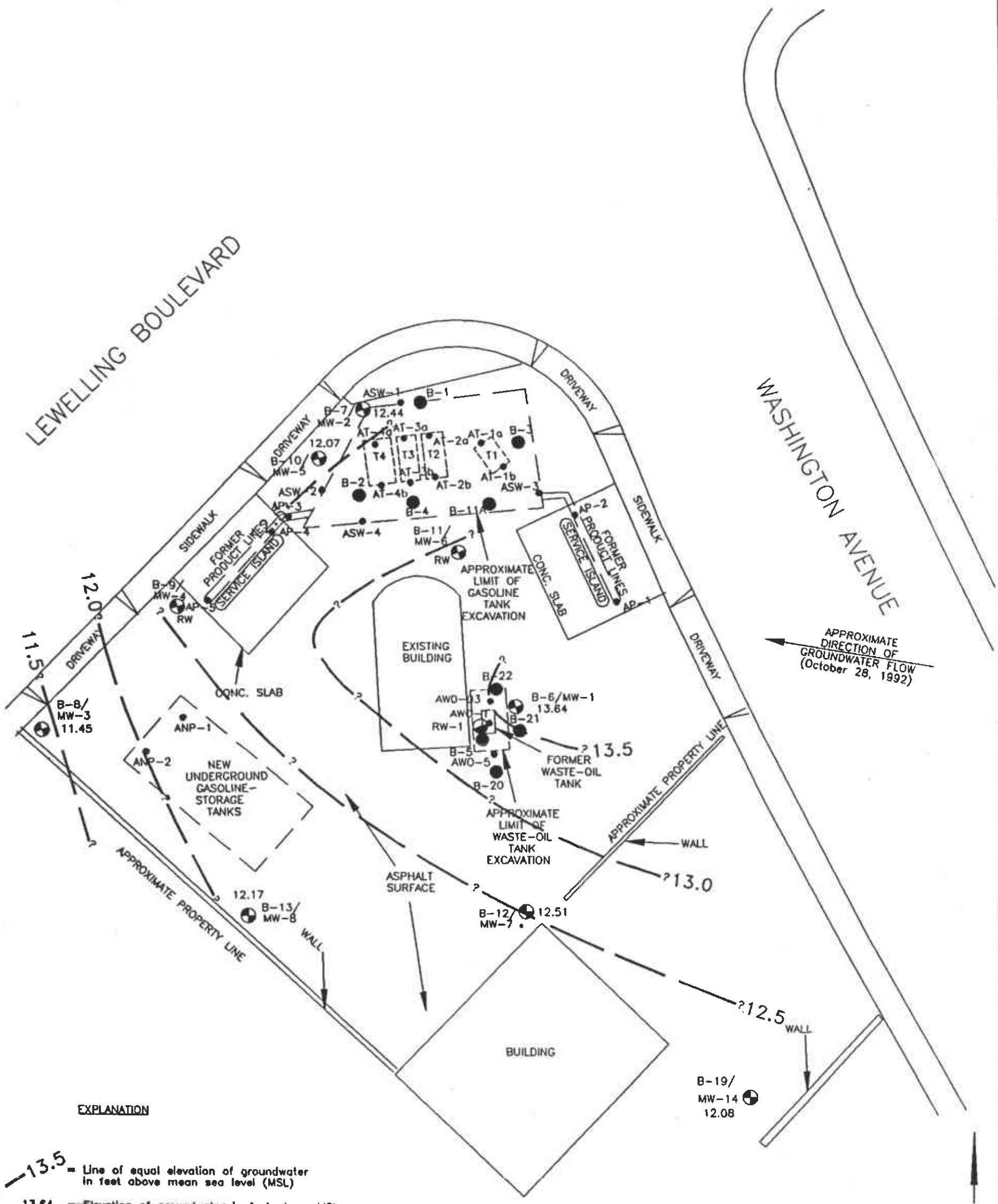
PROJECT 69034.12 96034-12

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

PLATE 2



EXPLANATION

- 13.5 = Line of equal elevation of groundwater in feet above mean sea level (MSL)
- 13.64 = Elevation of groundwater in feet above MSL October 28, 1992
- RW-1 = Product recovery well (GeoStrategies, Jan. 1990)
- AWO-5 = Soil sample (GeoStrategies, Jan. 1990)
- B-19/MW-14 = Vapor extraction/ground-water monitoring well (RESNA/Applied GeoSystems, June 1990 through November 1992)
- B-22 = Soil boring (RESNA/Applied GeoSystems, August 1989 through October 1992)
- T4 = Former gasoline underground storage tanks
- RW = Residual water
- * = Anomalous

Approximate Scale

30 15 0 30 60

feet

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

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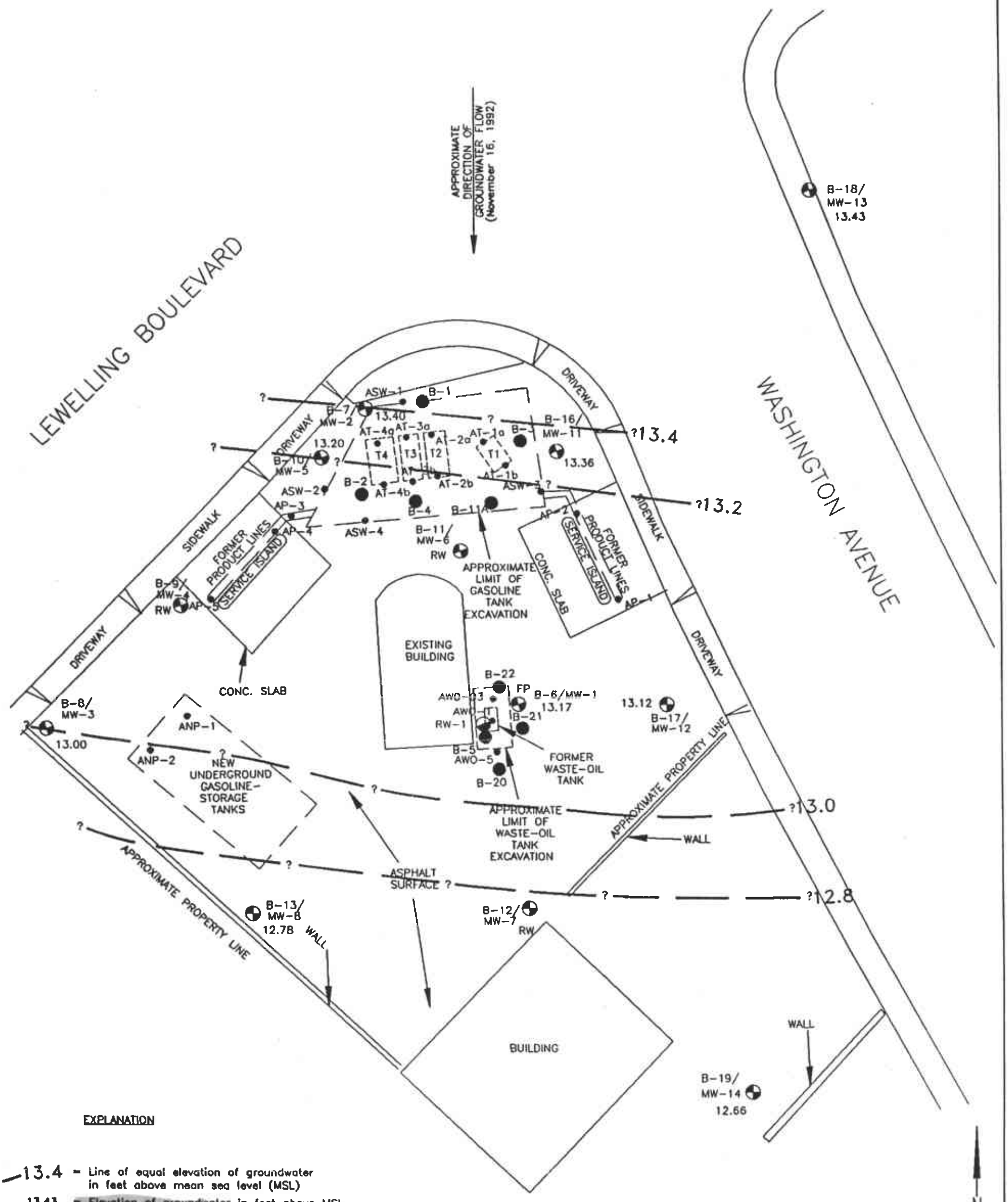
PROJECT 69034.12 90341210

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

PLATE 3



EXPLANATION

- 13.4 = Line of equal elevation of groundwater in feet above mean sea level (MSL)
- 13.43 = Elevation of groundwater in feet above MSL November 16, 1992
- RW-1 = Product recovery well (GeoStrategies, Jan. 1990)
- AWO-5 = Soil sample (GeoStrategies, Jan. 1990)
- B-19/MW-14 = Vapor extraction/ground-water monitoring well (RESNA/Applied GeoSystems, June 1990 through November 1992)
- B-22 = Soil boring (RESNA/Applied GeoSystems, August 1989 through October 1992)
- T4 = Former gasoline underground storage tanks
- RW = Residual water
- FP = Floating product

Approximate Scale

30 15 0 30 60

feet

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

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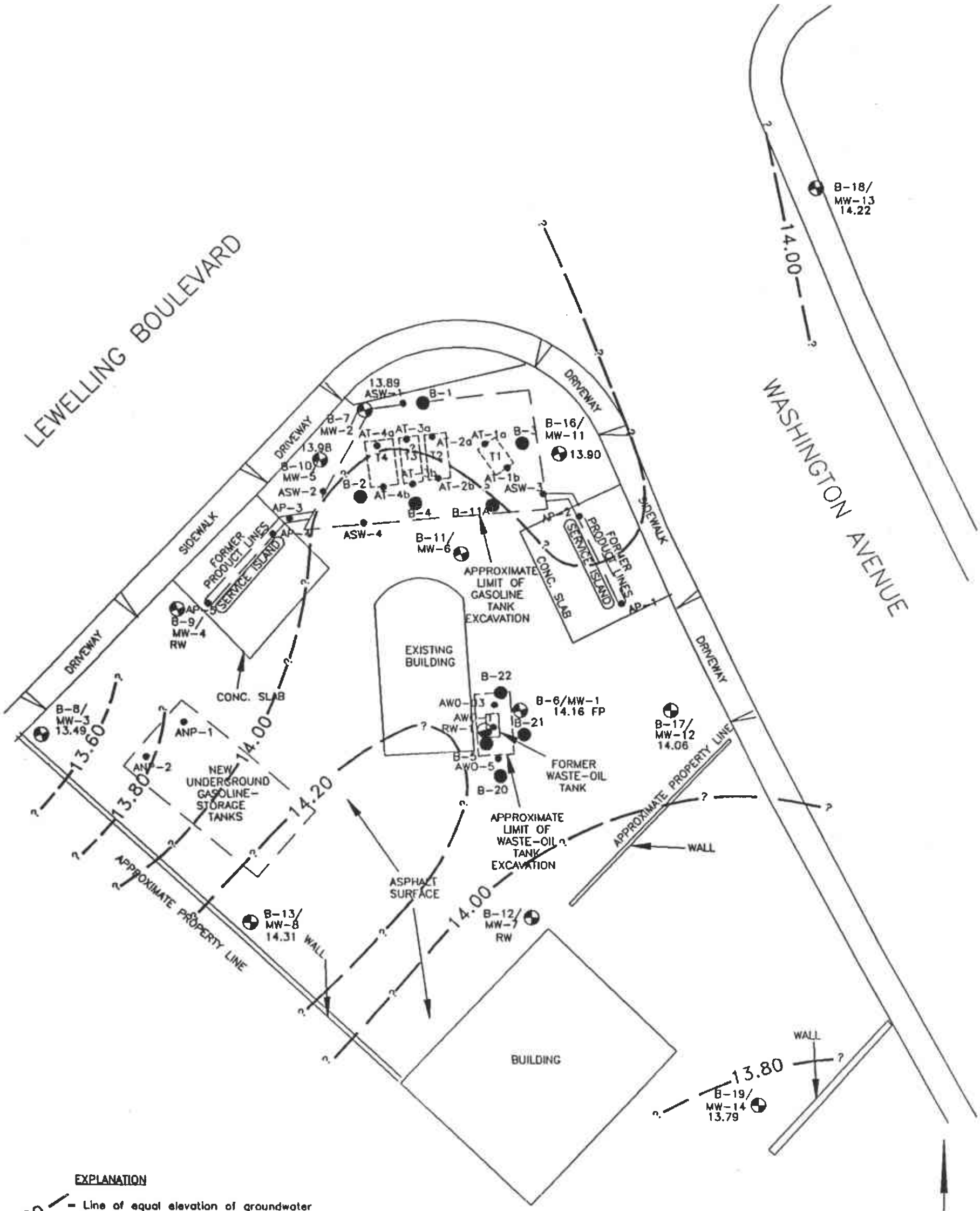
PROJECT 69034.12 96034-12

GROUNDWATER ELEVATION MAP

ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE 4



EXPLANATION

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

14.31 — Elevation of groundwater in feet above MSL December 16, 1992

RW-1 — Product recovery well (GeoStrategies, Jan. 1990)

AWO-5 — Soil sample (GeoStrategies, Jan. 1990)

B-19/ MW-14 — Vapor extraction/ground-water monitoring well (RESNA/Applied GeoSystems, June 1990 through November 1992)

B-22 — Soil boring (RESNA/Applied GeoSystems, August 1989 through October 1992)

T4 — Former gasoline underground storage tanks

FP — Floating product

RW — Residual water

Approximate Scale

30 15 0 30 60

feet

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

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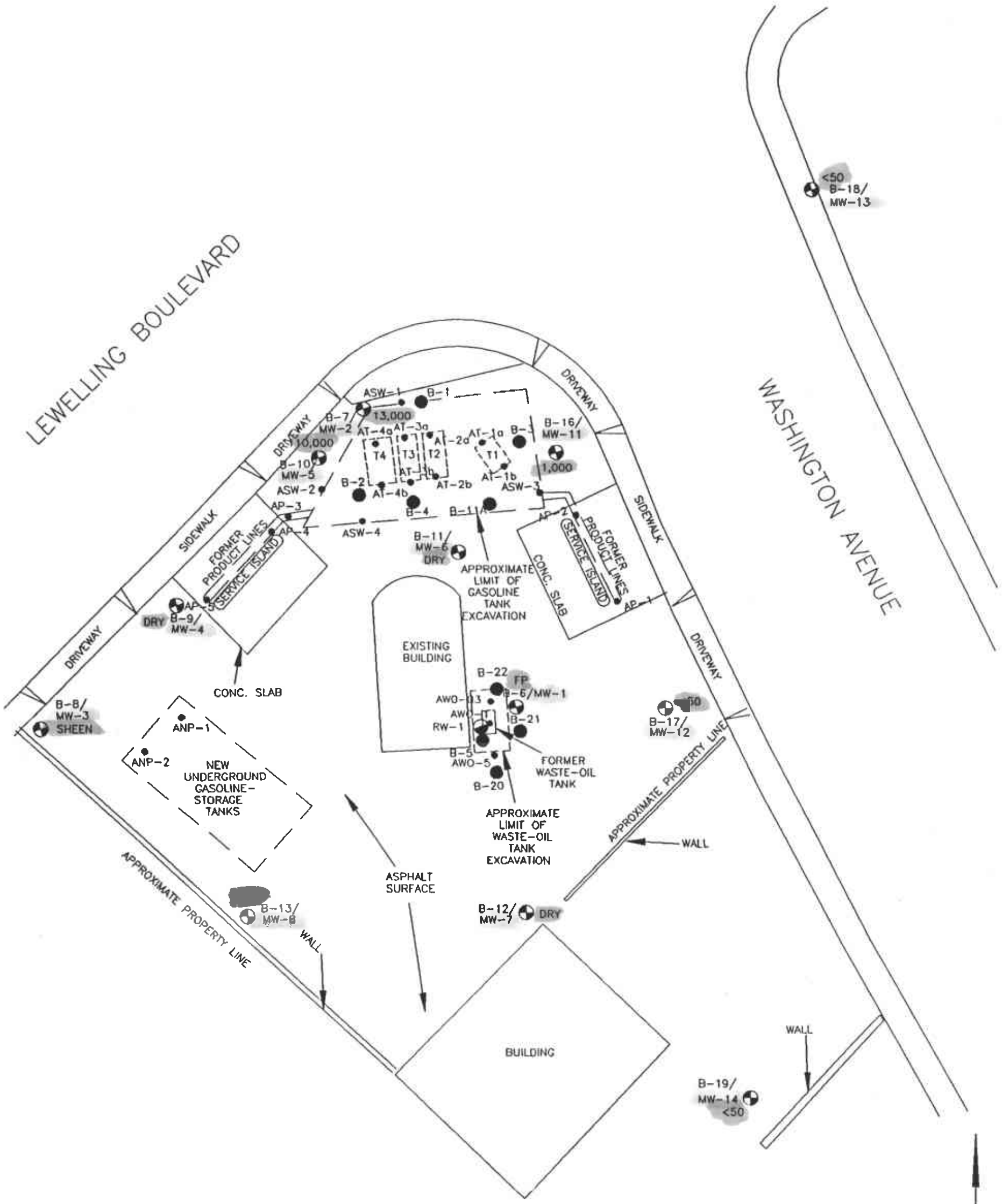
PROJECT 69034.12 90341212

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

PLATE 5



EXPLANATION

110,000 = Concentration of [redacted] in groundwater in ppb, November [redacted] 1992

RW-1 = Product recovery well (GeoStrategies, Jan. 1990)

AWO-5 = Soil sample (GeoStrategies, Jan. 1990)

B-19/ MW-14 = Vapor extraction/ground-water monitoring well (RESNA/Applied GeoSystems, June 1990 through November 1992)

B-22 = Soil boring (RESNA/Applied GeoSystems, August 1989 through October 1992)

T4 = Former gasoline underground storage tanks

FP = Floating product

Approximate Scale

30 15 0 30 60

feet

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

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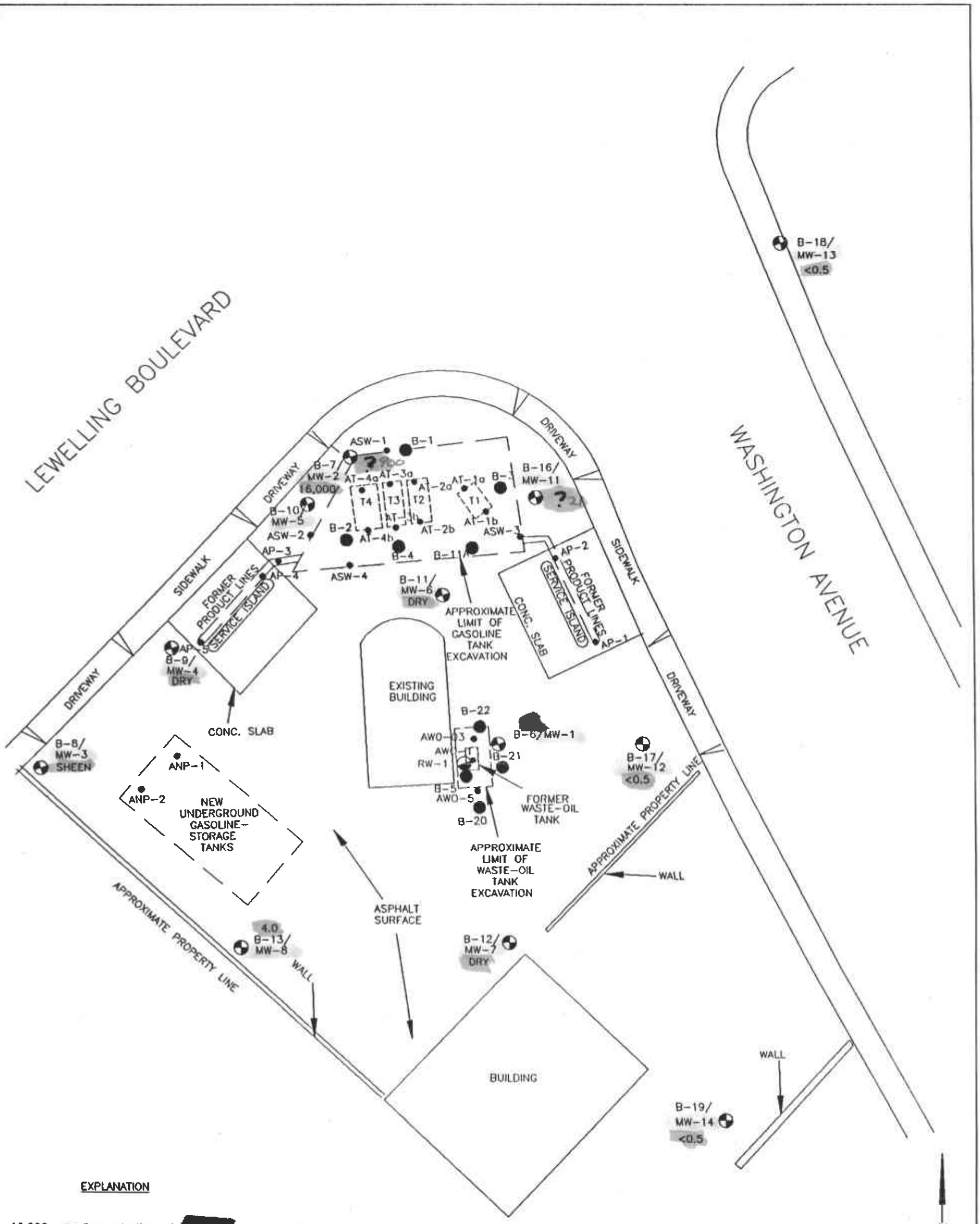
PROJECT 69034.12 69034127

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

PLATE 6



EXPLANATION

16,000 = Concentration of [redacted] in groundwater, in ppb, December [redacted]

FP = Floating product

RW-1 = Product recovery well (GeoStrategies, Jan. 1990)

AWO-5 = Soil sample (GeoStrategies, Jan. 1990)

B-19/MW-14 = Vapor extraction/ground-water monitoring well (RESNA/Applied GeoSystems, June 1990 through November 1992)

B-22 = Soil boring (RESNA/Applied GeoSystems, August 1989 through October 1992)

T4 = Former gasoline underground storage tanks

Approximate Scale

30 15 0 30 60

feet

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

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

PLATE
7

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Quarterly Groundwater Monitoring
ARCO Station 601, San Leandro, California

March 1, 1993
69034.12

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

Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
MW-1					
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
MW-2					
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

See notes on page 6 of 6.

Quarterly Groundwater Monitoring
ARCO Station 601, San Leandro, California

March 1, 1993
69034.12

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(Page 2 of 6)

Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
MW-2					
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
MW-3					
07/17/90	11.99	20.84	7.03	13.81	Sheen
08/07/90			7.21	13.63	None
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

See notes on page 6 of 6.

Quarterly Groundwater Monitoring
ARCO Station 601, San Leandro, California

March 1, 1993
69034.12

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(Page 3 of 6)

Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
MW-3					
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
MW-4					
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
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
MW-5					
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

See notes on page 6 of 6.

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(Page 4 of 6)

Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
MW-5					
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+
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
MW-6					
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
MW-7					
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

See notes on page 6 of 6.

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(Page 5 of 6)

Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
MW-7					
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
MW-8					
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
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
MW-11					
11/16/92	11.9	22.38	9.02	13.36	None
12/16/92			8.48	13.90	None
MW-12					
11/16/92	11.6	22.77	9.65	13.12	None
12/16/92			8.71	14.06	None
MW-13					
11/16/92	13.0	22.45	9.02	13.43	None
12/16/92			8.23	14.22	None

See notes on page 6 of 6.

Quarterly Groundwater Monitoring
ARCO Station 601, San Leandro, California

March 1, 1993
69034.12

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

Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
MW-14					
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

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.

Quarterly Groundwater Monitoring
ARCO Station 601, San Leandro, California

March 1, 1993
69034.12

TABLE 2
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUNDWATER SAMPLES
ARCO Station 601
San Leandro, California
(Page 1 of 3)

Sample	TPHg	TPHd	B	T	E	X	TOG	BNAs	VOCs	Cd	Cr	Pb	Ni	Zn
MW-1														
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													
MW-2														
07/18/90	35,000	850[a]	3,800 (3,200)	2,900 (2,400)	690 (270)	3,600 (2,900)	<5,000	340[a] 170[b]	39[c]	<20	50	50	NA	120
10/15/90	6,400	NA	650	290	110	560	NA	NA	18[c]	NA	NA	NA	NA	NA
01/09/91	13,000	NA	1500 (1700)	970 (1200)	390 (370)	1500 (2400)	NA	NA	6.5[d]	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[d]	<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	380	1,400	NA	NA	NA	NA	NA	NA	NA	NA
MW-3														
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													
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--sheen													
MW-4														
06/10/91	Not sampled--dry													
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

See Notes on page 2 of 3.

TABLE 2
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUNDWATER SAMPLES
ARCO Station 601
San Leandro, California
(Page 2 of 3)

Sample	TPHg	TPHd	B	T	E	X	TOG	BNAs	VOCs	Cd	Cr	Pb	Ni	Zn
MW-4														
06/08/92	5,700	NA	2,000	170	92	270	NA	NA	NA	NA	NA	NA	NA	NA
09/15/92	Not sampled--dry													
11/16/92	Not sampled--dry													
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	Not sampled--sheen													
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	Not sampled--floating product													
11/16/92	110,000	NA	16,000	16,000	3,200	18,000	NA	NA	NA	NA	NA	NA	NA	NA
MW-6														
06/10/91	Not sampled--dry													
10/10/91	Not sampled--dry													
03/23/92	75,000	NA	19,000	10,000	1,600	8,600	NA	NA	NA	NA	NA	NA	NA	NA
06/08/93	Not sampled--dry													
09/15/92	Not sampled--dry													
11/16/92	Not sampled--dry													
MW-7														
06/10/91	Not sampled--dry													
10/10/91	Not sampled--dry													
03/23/92	270	NA	10	0.5	3.0	13	NA	NA	NA	NA	NA	NA	NA	NA
06/08/92	Not sampled--residual water													
09/15/92	Not sampled--dry													
11/16/92	Not sampled--dry													
MW-8														
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 (23**)	<5.0 (<5.0)	320 (450**)	42 (23**)	NA	NA	ND	NA	NA	NA	NA	NA
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
MW-11														
11/16/92	7,000	NA	21	<10**	18	230	NA	NA	NA	NA	NA	NA	NA	NA
MW-12														
11/16/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on page 2 of 3.

RESNA
Working To Restore Nature

Quarterly Groundwater Monitoring
ARCO Station 601, San Leandro, California

March 1, 1993
69034.12

TABLE 2
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUNDWATER SAMPLES
ARCO Station 601
San Leandro, California
(Page 3 of 3)

Sample	TPHg	TPHd	B	T	E	X	TOG	BNAs	VOCs	Cd	Cr	Pb	Ni	Zn
MW-13														
11/16/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
MW-14														
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
DWAL:	—	—	—	100	—	—	—	—	—	—	—	—	—	—
MCLs:	—	—	1	NA	680	1,750	—	—	—	10	50	50	—	5,000

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, possibly reflecting weathered gasoline.**
( ): BTEX results analyzed as VOCs.
TPHg: Total petroleum hydrocarbons as gasoline by EPA method 8015.
TPHd: Total petroleum hydrocarbons as diesel by EPA method 3550/3510.
B: Benzene, T: Toluene, E: Ethylbenzene, X: Total Xylene isomers.
BTEX: Measured by EPA method 8020/602.
TOG: Total oil and grease measured by 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. (**[a] = naphthalene, [b] = 2-methylnaphthalene, [c] = Bis (2-ethylhexyl) Phthalate**)
VOCs: volatile organics except for BTEX concentrations are below laboratory reporting limits for respective compounds except as indicated. ([c] = methylene chloride, [d] = 1,2-Dichloroethane)
Cd: Cadmium (By EPA Method 6010)
Cr: Chromium (By EPA Method 6010)
Pb: Lead (By EPA Method 7421)
Ni: Nickel (By EPA Method 6010)
Zn: Zinc (By 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).

Quarterly Groundwater Monitoring
ARCO Station 601, San Leandro, California

March 1, 1993
69034.12

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

Year	Floating Product Removed (gallons)
1991	TOTAL: 3.43
1992	
MW-1	
01/29/92	None present
02/28/92	None present
03/25/92	None present
06/08/92	0.02
09/15/92	None removed*
MW-3	
01/29/92	None present
02/28/92	None present
03/25/92	None present
06/08/92	None present
09/15/92	None removed*
	TOTAL: 0.02
1991 + 1992	TOTAL: 3.45

* = No product removed as the storage drum for product had been removed from the site.

APPENDIX A

EMCON's GROUNDWATER MONITORING DATA, LABORATORY REPORTS, CHAIN OF CUSTODY RECORDS, AND MONITORING WELL PURGE WATER TRANSPORT FORM

1934.12

RECEIVED
JAN - - 1993
RESNA

EMCON ASSOCIATES
Consultants in Wastes Management and Environmental Control

Date December 18, 1992
Project 0G70-007.01

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

We are enclosing:

Copies	Description
1	Depth To Water/Floating Product Survey Results
	December 1992 monthly water level survey, ARCO
	station 601, 712 Lewelling Blvd., San Leandro, CA

For your: X Information Sent by: X Mail

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

Jim Butera JB

Reviewed by:

REGISTERED PROFESSIONAL ENGINEER
ROBERT CURTIS PORTER
No: 4004
Exp. 4/30/96
INDUSTRIAL
STATE OF CALIFORNIA

Robert Porter, Senior Project Engineer.

1938 Junction Avenue, San Jose, California 95131-2102, (408) 453-0719, Fax (408) 453-0452

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 0G70-007.01 STATION ADDRESS : 712 Lewelling Blvd. San Leandro DATE : 12-16-92

ARCO STATION # : 601 FIELD TECHNICIAN : L. RATH DAY : WEDNESDAY

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-14**	OK	Yes	OK	3259	OK	9.20	9.21	ND	ND	13.0	—
2	**MW-13**	OK	Yes	OK	3259	OK	8.23	8.23	ND	ND	13.0	—
3	**MW-12**	OK	Yes	OK	3259	OK	8.71	8.71	ND	ND	11.5	—
4	**MW-11**	OK	Yes	OK	3251	OK	8.48	8.48	ND	ND	11.9	—
5	**MW-7**	OK	Yes	OK	3259	OK	9.21	9.22	ND	ND	9.6	—
6	**MW-4**	OK	Yes	OK	3259	OK	8.18	8.17	ND	ND	8.5	—
7	**MW-6**	OK	Yes	OK	3259	OK	8.10	8.10	ND	ND	8.6	—
8	**MW-8**	OK	Yes	OK	3259	OK	6.66	6.66	ND	ND	10.2	—
9	**MW-2**	OK	Yes	OK	3259	OK	7.414	7.414	ND	ND	12.3	—
10	**MW-5**	OK	Yes	OK	3259	OK	6.92	6.92	ND	ND	10.2	—
11	**MW-1**	OK	Yes	OK	3259	OK	8.12	8.12	ND	ND	11.1	3259 Lock need replacing
12	**MW-3**	OK	Yes	OK	3259	Broken	6.62	6.62	ND	ND	11.9	Skimmer in well / Skimmer contains LWC is Broken / 6 ml of Product

SURVEY POINTS ARE TOP OF WELL CASINGS

EMCON
ASSOCIATES
Consultants in Wastes
Management and
Environmental Control

Date December 10, 1992
Project 0G70-007.01

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

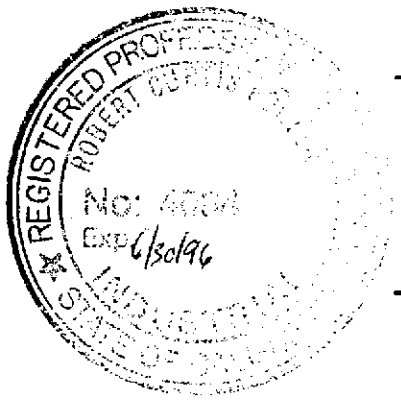
We are enclosing:

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

For your: X Information Sent by: X Mail

Comments:
Enclosed are the data from the fourth quarter 1992 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) 453-2266.

Reviewed by:



Jim Butera JB

Robert Porter, Senior Project Engineer.

1938 Junction Avenue, San Jose, California 95131-2102, (408) 453-0719, Fax (408) 453-0452

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 0G70-007.01 STATION ADDRESS : 712 Lewelling Blvd. San Leandro DATE : 11-16-92

ARCO STATION # : 601 FIELD TECHNICIAN : M. Miller 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-14	O/C	Yes	OK	3259	OK	10.33	10.34	ND	ND	13.0	—
2	MW-13	OK	Yes	OK	0909	OK	9.02	9.02	ND	ND	13.0	—
3	MW-12	OK	Yes	OK	0909	OK	9.65	9.65	ND	ND	11.6	—
4	MW-11	OK	Yes	OK	0909	OK	9.02	9.02	ND	ND	11.9	—
5	MW-7	OK	Yes	OK	3259	OK	9.53	9.53	ND	ND	9.6	T.D. = 9.56
6	MW-4	OK	Yes	OK	3259	OK	8.29	8.29	ND	ND	8.5	—
7	MW-6	OK	Yes	OK	3259	OK	8.57	8.57	ND	ND	8.6	—
8	MW-8	OK	Yes	OK	3259	OK	8.19	8.19	ND	ND	10.2	—
9	MW-2	OK	Yes	OK	3259	OK	7.93	7.93	ND	ND	12.3	—
10	MW-5	OK	Yes	OK	3259	OK	7.78	7.70	ND	ND	10.1	—
11	MW-1	OK	Yes	NO	3259	OK	9.11	9.11	.02	.02	11.1	Sheen Water in box Strong odor
12	MW-3	OK	NO	NO	3259	OK	7.11	7.11	ND *	ND *	12.0	Bolts missing water in box Strong odor
												* Product in Skimmer

SURVEY POINTS ARE TOP OF WELL CASINGS

Summary of Groundwater Monitoring Data
Fourth Quarter 1992
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 (ppb)
MW-1	11/16/92	9.10	0.02	FP.[3]	FP.	FP.	FP.	FP.	FP.	FP.
MW-2(12)	11/16/92	7.93	ND.[4]	13,000.	900.	940.	300.	1,400.	NR.[5]	NR.
MW-3	11/16/92	7.11	FP.	FP.	FP.	FP.	FP.	FP.	FP.	FP.
MW-4	11/16/92	8.29	ND.	NS[6]	NS.	NS.	NS.	NS.	NS.	NS.
MW-5(10)	11/16/92	7.70	ND.	110,000.	16,000.	16,000.	3,200.	18,000.	FP.	FP.
MW-6	11/16/92	8.57	ND.	NS.	NS.	NS.	NS.	NS.	NS.	NS.
MW-7	11/16/92	9.53	ND.	NS.	NS.	NS.	NS.	NS.	NS.	NS.
MW-8(10)	11/16/92	8.19	ND.	2,600.	4.0	<2.5	21.	5.2	1,200.*	1,100.
MW-11(11)	11/16/92	9.02	ND.	7,000.	21.	<10.	18.	230.	NR.	NR.
MW-12(11)	11/16/92	9.65	ND.	<50.	<0.5	<0.5	<0.5	<0.5	NR.	NR.
MW-13(13)	11/16/92	9.02	ND.	<50.	<0.5	<0.5	<0.5	<0.5	NR.	NR.
MW-14(13)	11/16/92	10.33	ND.	<50.	<0.5	<0.5	<0.5	<0.5	NR.	NR.
FB-1[7]	11/16/92	NA.[8]	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. NS. = Not sampled due to insufficient amount of water for sample collection.
7. FB. = Field blank
8. NA. = Not applicable

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

EMCON ASSOCIATES
Consultants in Wastes Management and Environmental Control

Date November 3, 1992
Project 0G70-007.01

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

We are enclosing:

Copies	Description
1	Depth To Water/Floating Product Survey Results
	October 1992 monthly water level survey, ARCO
	station 601, 712 Lewelling Blvd., San Leandro, CA

For your: X Information Sent by: X Mail

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

Reviewed by: Jim Butera JB

Robert Porter, Senior Project Engineer.

1938 Junction Avenue, San Jose, California 95131-2102, (408) 453-0719, Fax (408) 453-0452

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 0G70-007.01 STATION ADDRESS : 712 Lewelling Blvd. San Leandro DATE : 10-28-93

ARCO STATION # : 601 FIELD TECHNICIAN : R Schaeffer DAY : WED

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-13	FINE	Yes	FINE	3259	Yes	10.91	10.91	N.D	N.D	13	-
2	MW-7	FINE	Yes	FINE	3259	Yes	10.38	10.38	N.D	N.D	11.7	-
3	MW-8	FINE	Yes	FINE	3259	Yes	8.80	8.80	N.D	N.D	10.1	-
4	MW-4	FINE	Yes	FINE	3259	Yes	8.23	8.23	N.D	N.D	8.4	-
5	MW-2	FINE	Yes	FINE	3259	Yes	8.89	8.89	N.D	N.D	12.3	-
6	MW-6	FINE	Yes	FINE	3259	Yes	8.75	8.75	N.D	N.D	8.75	-
7	MW-5	FINE	Yes	FINE	3259	Yes	8.83	8.83	N.D	N.D	10.1	-
8	MW-1	FINE	Yes	FINE	3259	Yes	8.62	8.62	N.D	N.D	11.1	-
9	MW-3	FINE	Yes	FINE	3259	Yes	8.66	8.66	N.D	N.D	11.9	-

SURVEY POINTS ARE TOP OF WELL CASINGS

Summary of Analytical Results
Total Metals by EPA[1] Method 6010 and 7421
Fourth Quarter 1992
ARCO Service Station 601
712 Lewelling Blvd. San Leandro, California
micrograms per liter (µg/l) or parts per billion (ppb)

Well ID and Sample Depth	Sampling Date	Cadmium (ppb)	Chromium (ppb)	Lead (ppb)	Nickle (ppb)	Zinc (ppb)
MW-8(10)	11/16/92	7.	42.	20.	69.	123.

1. EPA = United States Environmental Protection Agency

Columbia Analytical Services, Inc.

December 3, 1992

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:

Enclosed are the results of the water samples submitted to our lab on November 17, 1992. For your reference, our service request number for this work is SJ92-1446.

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

Please call if you have any questions.

Respectfully submitted:

COLUMBIA ANALYTICAL SERVICES, INC.

Carol J Klein for
Keoni A. Murphy
Laboratory Manager

Annelise Jade Bazar
Annelise J. Bazar
Regional QA Coordinator

KAM/kt

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

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

Date Received: 11/17/92
Work Order No.: SJ92-1446
Sample Matrix: Water

Inorganic Parameters[1]
mg/L (ppm)

Sample Name:			MW-8 (10)	Method Blank
Date Sampled:			11/16/92	
Analyte	**Method**	**MRL**		
Hydrocarbons, IR	418.1	0.5	1.2	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit
[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: Carol Klein Date: 12-3-92

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Received:**	11/17/92
Project:	EMCON Project No. 0G70-007.01	**Date Extracted:**	11/18/92
	ARCO Facility No. 601	**Date Analyzed:**	11/18/92
Sample Matrix:	Water	**Work Order No.:**	SJ92-1446

TPH as Diesel
EPA Method 3510/California DHS LUFT Method
µg/L (ppb)

Sample Name	MRL	TPH as Diesel
MW-8 (10)	50	1,100. *
Method Blank	50	ND

MRL Method Reporting Limit
TPH Total Petroleum Hydrocarbons
ND None Detected at or above the method reporting limit
***** The sample contains a lower boiling point hydrocarbon mixture quantitated as diesel. The chromatogram does not match the typical diesel fingerprint.

Approved by: Carol Klein Date: 12-3-92

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Received:**	11/17/92
Project:	EMCON Project No. 0G70-007.01	**Work Order No.:**	SJ92-1446
	ARCO Facility No. 601	**Sample Matrix:**	Water

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

Sample Name:		MW-2 (12)	MW-5 (10)	MW-8 (10)
Date Analyzed:		11/25/92 *	11/25/92 *	11/30/92
Analyte	**MRL**			
Benzene	0.5	900.	16,000.	4.0
Toluene	0.5	940.	16,000.	<2.5 **
Ethylbenzene	0.5	300.	3,200.	21.
Total Xylenes	0.5	1,400.	18,000.	5.2
TPH as Gasoline	50	13,000.	110,000.	2,600.

TPH Total Petroleum Hydrocarbons
MRL Method Reporting Limit
* This sample was part of the analytical batch started on November 25, 1992. However, it was analyzed after midnight so the actual date analyzed is November 26, 1992.
** Raised MRL due to high analyte concentration requiring sample dilution.

Approved by: Carol Klein Date: 12-3-92

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Received:**	11/17/92
Project:	EMCON Project No. 0G70-007.01	**Work Order No.:**	SJ92-1446
	ARCO Facility No. 601	**Sample Matrix:**	Water

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

Sample Name:		MW-11 (11)	MW-12 (11)	MW-13 (13)
Date Analyzed:		11/30/92	11/30/92	11/25/92
Analyte	**MRL**			
Benzene	0.5	21.	ND	ND
Toluene	0.5	<10. *	ND	ND
Ethylbenzene	0.5	18.	ND	ND
Total Xylenes	0.5	230.	ND	ND
TPH as Gasoline	50	7,000.	ND	ND

TPH Total Petroleum Hydrocarbons
MRL Method Reporting Limit
ND None Detected at or above the method reporting limit
* Raised MRL due to high analyte concentration requiring sample dilution.

Approved by: Carol Klein Date: 12-3-92

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Received:**	11/17/92
Project:	EMCON Project No. 0G70-007.01	**Work Order No.:**	SJ92-1446
	ARCO Facility No. 601	**Sample Matrix:**	Water

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

Sample Name:		MW-14 (13)	FB-1	Method Blank
Date Analyzed:		11/30/92	11/30/92	11/25/92
Analyte	**MRL**			
Benzene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND
TPH as Gasoline	50	ND	ND	ND

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

Approved by: Carol Klein Date: 12-3-92

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Received:**	11/17/92
Project:	EMCON Project No. 0G70-007.01	**Work Order No.:**	SJ92-1446
	ARCO Facility No. 601	**Sample Matrix:**	Water

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

Sample Name:		Method Blank
Date Analyzed:		11/30/92
Analyte	**MRL**	
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Total Xylenes	0.5	ND
TPH as Gasoline	50	ND

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

Approved by: Carol Klein Date: 12-3-92

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

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

Date Received: 11/17/92
Work Order No.: SJ92-1446
Sample Matrix: Water

Halogenated Volatile Organic Compounds
EPA Methods 5030/601
µg/L (ppb)

Sample Name:		MW-8 (10)	Method Blank
Date Analyzed:		11/17/92	11/17/92
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	1	ND	ND
trans-1,2-Dichloroethene	0.5	ND	ND
cis-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
trans-1,3-Dichloropropene	0.5	ND	ND
cis-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

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

Approved by: Carol Klein Date: 12-3-92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 11/17/92
Work Order No.: SJ92-1446
Sample Matrix: Water

Continuing Calibration Summary
Inorganics
EPA Method 418.1
mg/L

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
TRPH	100.	105.	105.	90-110

TRPH Total Recoverable Petroleum Hydrocarbons

Approved by: Carol Klein Date: 12-3-92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 11/17/92
Work Order No.: SJ92-1446
Sample Matrix: Water

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

Sample Name	Spike Level	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Criteria
MW-8 (10)	6.15	1.18	5.65	6.12	73.	80.	56-106

Approved by: Carol Klein Date: 12-3-92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 11/17/92
Work Order No.: SJ92-1446
Sample Matrix: Water

Initial Calibration Verification
TPH as Diesel
EPA Methods 3510/DHS LUFT Method
mg/L (ppm)

Date Analyzed: 11/18/92

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
TPH as Diesel	1,000.	1,065	107.	90-110

TPH Total Petroleum Hydrocarbons

Approved by: Carol Klein Date: 12-3-92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 11/17/92
Work Order No.: SJ92-1446
Sample Matrix: Water

Surrogate Recovery Summary
TPH as Diesel
EPA Method 3510/DHS LUFT Method

Sample Name	Date Analyzed	Percent Recovery P-Terphenyl
MW-8 (10)	11/18/92	89.
MS	11/18/92	90.
DMS	11/18/92	92.
Method Blank	11/18/92	101.
	CAS Acceptance Criteria	46-133

TPH Total Petroleum Hydrocarbons

Approved by: Carol Klein Date: 12-3-92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 11/17/92
Work Order No.: SJ92-1446
Sample Matrix: Water

Matrix Spike/Duplicate Matrix Spike Summary
Total Petroleum Hydrocarbons as Diesel
EPA Method 3510/DHS LUFT Method
µg/L (ppb)

Date Analyzed: 11/18/92

Parameter	Spike Level	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	Acceptance Criteria
Diesel	4,000.	ND	3,480.	3,840.	87.	96.	61-121

ND None Detected at or above the method reporting limit

Approved by: Carol Klein Date: 12-3-92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 11/17/92
Work Order No.: SJ92-1446

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

Date Analyzed: 11/25/92

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Benzene	250.	266.	106.	85-115
Toluene	250.	274.	110.	85-115
Ethylbenzene	250.	259.	103.	85-115
Total Xylenes	750.	742.	99.	85-115
TPH as Gasoline	2,500.	2,627.	105.	90-110

Date Analyzed: 11/30/92

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Benzene	250.	250.	100.	85-115
Toluene	250.	264.	105.	85-115
Ethylbenzene	250.	246.	98.	85-115
Total Xylenes	750.	725.	97.	85-115
TPH as Gasoline	2,500.	2,502.	100.	90-110

TPH Total Petroleum Hydrocarbons

Approved by: Carol Klein Date: 12-3-92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 11/17/92
Work Order No.: SJ92-1446
Sample Matrix: Water

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

Sample Name	Date Analyzed	Percent Recovery α,α,α-Trifluorotoluene
MW-2 (12)	11/25/92	111.
MW-5 (10)	11/25/92	106.
MW-8 (10)	11/30/92	116.
MW-11 (11)	11/30/92	108.
MW-12 (11)	11/30/92	105.
MW-13 (13)	11/25/92	106.
MW-14 (13)	11/30/92	107.
FB-1	11/30/92	99.
MW-13 (13) MS	11/25/92	116.
MW-13 (13) DMS	11/25/92	118.
Method Blank	11/25/92	105.
Method Blank	11/30/92	100.
CAS Acceptance Criteria		70-130

TPH Total Petroleum Hydrocarbons

Approved by: Carol Klein Date: 12-3-92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Associates	**Date Received:**	11/17/92
Project:	EMCON Project No. 0G70-007.01	**Work Order No.:**	SJ92-1446
Sample Matrix:	Water		

Matrix Spike Summary
TPH as Gasoline
EPA Methods 5030/California DHS LUFT Method
µg/L (ppb)

Sample Name: MW-13 (13)
Date Analyzed: 11/25/92

			Spike Result		Percent Recovery		CAS Acceptance
Analyte	Spike Level	Sample Result	MS	DMS	MS	DMS	Criteria
TPH as Gasoline	250.	ND	271.	275.	108.	110.	70-130

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

Approved by: Carol Klein Date: 12-3-92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 11/17/92
Work Order #: SJ92-1446

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

Date Analyzed: 11/17/92

Analyte	True Value	Result	Percent Recovery	EPA Percent Recovery Acceptance Criteria
Chloromethane	50	21.	42.	D-193
Vinyl Chloride	50	50.	100.	28-163
Bromomethane	50	44.	88.	D-144
Chloroethane	50	51.	102.	46-137
Trichlorofluoromethane (Freon 11)	50	50.	100.	21-156
1,1-Dichloroethene	50	47.	94.	28-167
Methylene Chloride	50	49.	98.	25-162
trans-1,2-Dichloroethene	50	53.	106.	38-155
1,1-Dichloroethane	50	54.	108.	47-132
Chloroform	50	51.	102.	49-133
1,1,1-Trichloroethane (TCA)	50	54.	108.	41-138
Carbon Tetrachloride	50	57.	114.	43-143
1,2-Dichloroethane	50	61.	122.	51-147
Trichloroethene (TCE)	50	56.	112.	35-146
1,2-Dichloropropane	50	59.	118.	44-156
Bromodichloromethane	50	57.	114.	42-172
trans-1,3-Dichloropropene	50	73.	146.	22-178
cis-1,3-Dichloropropene	50	61.	122.	22-178
1,1,2-Trichloroethane	50	57.	114.	39-136
Tetrachloroethene (PCE)	50	59.	118.	26-162
Dibromochloromethane	50	57.	114.	24-191
Chlorobenzene	50	55.	110.	38-150
Bromoform	50	51.	102.	13-159
1,1,2,2-Tetrachloroethane	50	49.	98.	8-184
1,3-Dichlorobenzene	50	52.	104.	7-187
1,4-Dichlorobenzene	50	59.	118.	42-143
1,2-Dichlorobenzene	50	56.	112.	D-208

D Detected

Approved by: Carol Klein Date: 12-3-92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Associates	**Date Received:**	11/17/92
Project:	EMCON Project No. 0G70-007.01	**Work Order No.:**	SJ92-1446
	ARCO Facility No. 601	**Sample Matrix:**	Water

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

Sample Name	Date Analyzed	Percent Recovery 4-Bromofluorobenzene
MW-8 (10)	11/17/92	102.
MW-8 (10) MS	11/17/92	121.
MW-8 (10) DMS	11/17/92	119.
Method Blank	11/17/92	103.
	CAS Acceptance Criteria	70-130

Approved by: Carol Klein Date: 12-3-92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 11/17/92
Work Order No.: SJ92-1446
Sample Matrix: Water

Matrix Spike/Duplicate Matrix Spike Summary
Halogenated Volatile Organic Compounds
EPA Methods 5030/601
µg/L (ppb)

Sample Name: MW-8 (10)
Date Analyzed: 11/17/92

Analyte	Spike Level	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	EPA Acceptance Criteria
1,1-Dichloroethene	10.	ND	10.5	10.5	105.	105.	28-167
Trichloroethene	10.	ND	11.3	10.9	113.	109.	35-146
Tetrachloroethene	10.	ND	11.5	11.2	115.	112.	26-162

ND None Detected at or above the method reporting limit

Approved by: Carol Klein Date: 12-3-92

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. EMCGC-92-1

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) 571-2434	Telephone no. (Consultant) 453-0719	Fax no. (Consultant) 453-0452
Consultant name EMCON Associates	Address (Consultant) 1938 Junction Ave San Jose		Contract number 07077

Method of shipment: Sampler will deliver

Special detection Limit/reporting: Lowest Possible

Special QA/QC: As Normal

Remarks: 2-40 ml HCl VOA's

0670-007.01

Lab number: 3942-1446

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH GAS EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☐	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Metals ☐ Semi VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐
MW-1		2		X		X	HCl				X		No	Sample			product in well			
MW-2 (12)	1-2	2						11-16-92	1406		X									
MW-3		2									X		No	Sample			product in skimmer			
MW-4		2									X		No	Sample			Insufficient water			
MW-5 (10)	3-4	2						11-16-92	1427		X									
MW-6		2									X		No	Sample			Insufficient water			
MW-7		2									X		No	Sample			Insufficient water			
MW-8 (10)	5-6	2						11-16-92	1448		X									
MW-9 (11)	7-8	2						11-16-92	1214		X									
MW-10 (11)	9-10	2						11-16-92	1151		X									
MW-13 (13)	11-12	2						11-16-92	1238		X									
FB-1	13-14	2						11-16-92	1608		X									
MW-14 (13)	15-16	2						11-16-92	1124		X									

Condition of sample: OK

Temperature received: cool

Relinquished by sampler: M Adler	Date: 11-17-92	Time: 0846	Received by:
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by laboratory:	Date: 11-17-92	Time: 0840

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

APPC-3292 (2-91)

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. EMCGC-92-1

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) 571-2434	Telephone no. (Consultant) 453-0719	Fax no. (Consultant) 453-0512	Contract number 7077
Consultant name EMCON Associates	Address (Consultant) 1935 Junction Ave San Jose		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 602/EPA 8020	BTEX/TPH EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☑	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1 SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Metals ☐ Semi VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐	TOTAL METALS Cd, Cr, Pb, Zn Ni
MW-8 (1c)	17-13	4					NP	11-16-92	1448			X					X				
MW-8 (1c)	14-22	4					HCl	↓	1448					X	X						
MW-8 (1d)		1					HNO_3	↓	1448											X	X

Special detection Limit/reporting: Lowest Possible

Special QA/QC: 4c Normal

Remarks:
4-liter GLASS NP
2-liter Glass HCl
2-40ml VOA's HCl
1-500ml HNO_3 PLASTIC

Lab number: 5J92-1446

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

Condition of sample: OK

Temperature received: 0°C

	Date	Time
Relinquished by sampler: M Adler	11-17-92	0840
Relinquished by:		
Relinquished by:		

Received by: M Adler 11-17-92 0840

Received by laboratory: Ruth Clauson — Date: 11-18-92 — Time: 0930

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

APPC-3292 (2-91)

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. EMCGC-92-1

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) 571-2434	Telephone no. (Consultant) 453-0719	Fax no. (Consultant) 453-0512
Consultant name EMCON Associates	Address (Consultant) 1935 Junction Ave San Jose		Contract number 07077

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☑	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Metals ☐ VOA ☐ Semi VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐	TOTAL METALS Cd, Cr, Pb, Zn, Ni.	
MW-8 (10)	17-18	4					NP	11-16-92	1448			X					X					
MW-8 (10)	19-22	4					HCl	↓	1448					X	X							
MW-8 (10)		1					HNO_3	↓	1448											X	X	

Method of shipment: Sampler will deliver

Special detection Limit/reporting: Lowest Possible

Special QA/QC: As Normal

Remarks:
4-liter Glass NP
2-liter Glass HCl
2-40ml VOA's HCl
1-500ml HNO_3 Plastic

Lab number: SJ92-1446

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

Condition of sample: OK			Temperature received: cool		
Relinquished by sampler MAdler	Date 11-17-92	Time 0840	Received by		
Relinquished by	Date	Time	Received by [signature] 11-17-92 0840		
Relinquished by	Date	Time	Received by laboratory	Date	Time

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

Columbia Analytical Services, Inc.

December 4, 1992

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

Re: **ARCO #601 - San Leandro/Project #0G70-007.01/SJ921446**

Dear Jim:

Enclosed are the results of the sample submitted to our laboratory on November 17, 1992. Preliminary results were transmitted via facsimile on December 3, 1992. For your reference, these analyses have been assigned our work order number K927279C.

High relative percent differences (RPD) were observed in the matrix spike and the duplicate matrix spike for pentachlorophenol and 4-nitrophenol by EPA Method 8270. Since neither of these compounds were detected in the sample, it is not expected that the high RPD affected the final results.

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

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Colin B. Elliott
Senior Project Chemist

Columbia Analytical Services, Inc.

Kevin DeWhitt
Quality Assurance Coordinator

CBE/td

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Received:**	11/17/92
Project:	ARCO #601 - San Leandro	**Work Order No.:**	K927279C
Sample Matrix:	Water		

Total Metals
µg/L (ppb)

	Sample Name:		MW-8	Method Blank
	Lab Code:		K7279-1	K7279-MB
Analyte	**EPA Method**	**MRL**		
Cadmium	6010	3	7	ND
Chromium	6010	5	42	ND
Lead	7421	2	20	ND
Nickel	6010	20	69	ND
Zinc	6010	10	123	ND

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

Approved by Glen E Clutt Date 12/7/92

00001

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Received:**	**11/17/92**
Project:	ARCO #601 - San Leandro	**Date Extracted:**	11/23/92
Sample Matrix:	Water	**Date Analyzed:**	11/30/92
		Work Order No.:	K927279C

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

Sample Name: **MW-8**
Lab Code: K7279-1

Base Neutral Analyte	MRL	Result	Base Neutral Analyte	MRL	Result
N-Nitrosodimethylamine	5	ND	2,6-Dinitrotoluene	5	ND
Aniline	20	ND	Diethyl Phthalate	5	ND
Bis(2-chloroethyl) Ether	5	ND	4-Chlorophenyl Phenyl Ether	5	ND
1,2-Dichlorobenzene	5	ND	Fluorene	5	ND
1,3-Dichlorobenzene	5	ND	4-Nitroaniline	20	ND
1,4-Dichlorobenzene	5	ND	N-Nitrosodiphenylamine	5	ND
Bis(2-chloroisopropyl) Ether	5	ND	4-Bromophenyl Phenyl Ether	5	ND
N-Nitrosodi-n-propylamine	5	ND	Hexachlorobenzene	5	ND
Hexachloroethane	5	ND	Phenanthrene	5	ND
Nitrobenzene	5	ND	Anthracene	5	ND
Isophorone	5	ND	Di-n-butyl Phthalate	5	ND
Bis(2-chloroethoxy)methane	5	ND	Fluoranthene	5	ND
1,2,4-Trichlorobenzene	5	ND	Pyrene	5	ND
Naphthalene	5	**32**	Butylbenzyl Phthalate	5	ND
4-Chloroaniline	5	ND	3,3'-Dichlorobenzidine	20	ND
Hexachlorobutadiene	5	ND	Benz(a)anthracene	5	ND
2-Methylnaphthalene	5	ND	Bis(2-ethylhexyl) Phthalate	5	ND
Hexachlorocyclopentadiene	10	ND	Chrysene	5	ND
2-Chloronaphthalene	5	ND	Di-n-octyl Phthalate	5	ND
2-Nitroaniline	20	ND	Benzo(b)fluoranthene	5	ND
Dimethyl Phthalate	5	ND	Benzo(k)fluoranthene	5	ND
Acenaphthylene	5	ND	Benzo(a)pyrene	5	ND
3-Nitroaniline	20	ND	Indeno(1,2,3-c,d)pyrene	5	ND
Acenaphthene	5	ND	Dibenz(a,h)anthracene	5	ND
Dibenzofuran	5	ND	Benzo(g,h,i)perylene	5	ND
2,4-Dinitrotoluene	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	5	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 Colin Elliott Date 12/7/92

00002

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Extracted:**	11/23/92
Project:	ARCO #601 - San Leandro	**Date Analyzed:**	11/25/92
Sample Matrix:	Water	**Work Order No.:**	K927279C

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

Sample Name: Method Blank
Lab Code: K7279-MB

Base Neutral Analyte	MRL	Result	Base Neutral Analyte	MRL	Result
N-Nitrosodimethylamine	5	ND	2,6-Dinitrotoluene	5	ND
Aniline	20	ND	Diethyl Phthalate	5	ND
Bis(2-chloroethyl) Ether	5	ND	4-Chlorophenyl Phenyl Ether	5	ND
1,2-Dichlorobenzene	5	ND	Fluorene	5	ND
1,3-Dichlorobenzene	5	ND	4-Nitroaniline	20	ND
1,4-Dichlorobenzene	5	ND	N-Nitrosodiphenylamine	5	ND
Bis(2-chloroisopropyl) Ether	5	ND	4-Bromophenyl Phenyl Ether	5	ND
N-Nitrosodi-n-propylamine	5	ND	Hexachlorobenzene	5	ND
Hexachloroethane	5	ND	Phenanthrene	5	ND
Nitrobenzene	5	ND	Anthracene	5	ND
Isophorone	5	ND	Di-n-butyl Phthalate	5	ND
Bis(2-chloroethoxy)methane	5	ND	Fluoranthene	5	ND
1,2,4-Trichlorobenzene	5	ND	Pyrene	5	ND
Naphthalene	5	ND	Butylbenzyl Phthalate	5	ND
4-Chloroaniline	5	ND	3,3'-Dichlorobenzidine	20	ND
Hexachlorobutadiene	5	ND	Benz(a)anthracene	5	ND
2-Methylnaphthalene	5	ND	Bis(2-ethylhexyl) Phthalate	5	ND
Hexachlorocyclopentadiene	10	ND	Chrysene	5	ND
2-Chloronaphthalene	5	ND	Di-n-octyl Phthalate	5	ND
2-Nitroaniline	20	ND	Benzo(b)fluoranthene	5	ND
Dimethyl Phthalate	5	ND	Benzo(k)fluoranthene	5	ND
Acenaphthylene	5	ND	Benzo(a)pyrene	5	ND
3-Nitroaniline	20	ND	Indeno(1,2,3-c,d)pyrene	5	ND
Acenaphthene	5	ND	Dibenz(a,h)anthracene	5	ND
Dibenzofuran	5	ND	Benzo(g,h,i)perylene	5	ND
2,4-Dinitrotoluene	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	5	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 Glenn E Elliott Date 12/7/92

APPENDIX A

LABORATORY QC RESULTS

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: ARCO #601 - San Leandro
Sample Matrix: Water

Date Received: 11/17/92
Work Order No.: K927279C

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

Sample Name: MW-8
Lab Code: K7279-1

						Percent Recovery			
Analyte	**MRL**	**Spike Level**	**Sample Result**	**Spiked Sample Result**	**Duplicate Spiked Sample Result**	Spiked Sample	Duplicate Spiked Sample	CAS Acceptance Criteria	**Relative Percent Difference**
Cadmium	3	50	7	55	57	96	100	75-125	4
Chromium	5	200	42	240	244	99	101	75-125	2
Lead	2	20	20	39	39	95	95	75-125	<1
Nickel	20	500	69	556	569	97	100	75-125	2
Zinc	10	500	123	596	599	95	95	75-125	<1

MRL Method Reporting Limit

Approved by Chris Elliott Date 12/17/92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: ARCO #601 - San Leandro

Date Analyzed: 11/28/92
Work Order No.: K927279C

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

Analyte	EPA Method	True Value	Result	Percent Recovery
Cadmium	6010	1,250	1,340	107
Chromium	6010	500	532	106
Lead	7421	98.4	102	104
Nickel	6010	1,250	1,340	107
Zinc	6010	1,250	1,300	104

ICV Source: EPA ICV

00006

Approved by Alan Elliott Date 12/7/92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Associates	**Date Received:**	11/17/92
Project:	ARCO #601 - San Leandro	**Date Extracted:**	11/23/92
Sample Matrix:	Water	**Date Analyzed:**	11/25/92
		Work Order No.:	K927279C

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

Sample Name	Lab Code	Percent Recovery					
		2FP	PHL	TBP	NBZ	FBP	TPH
Laboratory Control Sample	K7279-LCS	52	35	82	92	62	90
Method Blank	K7279-MB	54	38	88	96	62	103
EPA Acceptance Criteria		21-100	10-94	10-123	35-114	43-116	33-141

2FP 2-Fluorophenol
PHL Phenol-D_6
TBP 2,4,6-Tribromophenol
NBZ Nitrobenzene-D_5
FBP 2-Fluorobiphenyl
TPH Terphenyl-D_{14}

Approved by Glenn Elliott Date 12/7/92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Associates	**Date Received:**	11/17/92
Project:	ARCO #601 - San Leandro	**Date Extracted:**	11/23/92
Sample Matrix:	Water	**Date Analyzed:**	11/30 & 12/01/92
		Work Order No.:	K927279C

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

Sample Name	Lab Code	Percent Recovery					
		2FP	PHL	TBP	NBZ	FBP	TPH
MW-8	K7279-1	52	36	92	67	58	89
MW-8	K7279-1MS	70	51	93	81	68	90
MW-8	K7279-1DMS	63	46	62	74	66	82
EPA Acceptance Criteria		21-100	10-94	10-123	35-114	43-116	33-141

2FP 2-Fluorophenol
PHL Phenol-D_6
TBP 2,4,6-Tribromophenol
NBZ Nitrobenzene-D_5
FBP 2-Fluorobiphenyl
TPH Terphenyl-D_{14}

Approved by John E Elliott Date 12/7/92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Associates	**Date Extracted:**	11/23/92
Project:	ARCO #601 - San Leandro	**Date Analyzed:**	11/25/92
LCS Matrix:	Water	**Work Order No.:**	K927279C

Laboratory Control Sample Summary
Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3510/8270
µg/L (ppb)

Analyte	True Value	Result	Percent Recovery	EPA Percent Recovery Acceptance Criteria
Phenol	200	61	30	5-112
2-Chlorophenol	200	129	64	23-134
1,4-Dichlorobenzene	100	66	66	20-124
N-Nitrosodi-n-propylamine	100	97	97	D-230
1,2,4-Trichlorobenzene	100	68	68	44-142
4-Chloro-3-methylphenol	200	142	71	22-147
Acenaphthene	100	79	79	47-145
4-Nitrophenol	200	63	32	D-132
2,4-Dinitrotoluene	100	88	88	39-139
Pentachlorophenol	200	171	86	14-176
Pyrene	100	97	97	52-115

D Detected; result must be greater than zero.

Approved by Chris Elliott Date 12/7/92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: ARCO #601 - San Leandro
Sample Matrix: Water

Date Received: 11/07/92
Date Extracted: 11/23/92
Date Analyzed: 11/30&12/01/92
Work Order No.: K927279C

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

Sample Name: MW-8
Lab Code: K7279-1

Analyte	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	EPA Acceptance Criteria	Relative Percent Difference
Phenol	400	400	ND	143	128	36	32	12-89	12
2-Chlorophenol	400	400	ND	236	208	59	52	27-123	13
1,4-Dichlorobenzene	200	200	ND	140	134	70	67	36-97	4
N-Nitrosodi-n-propylamine	200	200	ND	200	168	100	84	41-116	17
1,2,4-Trichlorobenzene	200	200	ND	142	136	71	68	39-98	4
4-Chloro-3-methylphenol	400	400	ND	307	277	77	69	23-97	11
Acenaphthene	200	200	ND	164	148	82	74	46-118	10
4-Nitrophenol	400	400	ND	200	124	50	31	10-80	47
2,4-Dinitrotoluene	200	200	ND	161	148	80	74	24-96	8
Pentachlorophenol	400	400	ND	[a]413	133	103	33	9-103	103
Pyrene	200	200	ND	184	164	92	82	26-127	11

ND None Detected at or above the method reporting limit
[a] Analyte concentratiion is an estimatebecause the result was above instrument calibration range.

Approved by Adam Elliott Date 12/7/92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: ARCO #601 - San Leandro
Sample Matrix: Water

Date Received: 11/07/92
Date Extracted: 11/23/92
Date Analyzed: 11/30&12/01/92
Work Order No.: K927279C

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

Sample Name: MW-8
Lab Code: K7279-1

Analyte	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	EPA Acceptance Criteria	Relative Percent Difference
Phenol	400	400	ND	143	128	36	32	12-89	12
2-Chlorophenol	400	400	ND	236	208	59	52	27-123	13
1,4-Dichlorobenzene	200	200	ND	140	134	70	67	36-97	4
N-Nitrosodi-n-propylamine	200	200	ND	200	168	100	84	41-116	17
1,2,4-Trichlorobenzene	200	200	ND	142	136	71	68	39-98	4
4-Chloro-3-methylphenol	400	400	ND	307	277	77	69	23-97	11
Acenaphthene	200	200	ND	164	148	82	74	46-118	10
4-Nitrophenol	400	400	ND	200	124	50	31	10-80	47
2,4-Dinitrotoluene	200	200	ND	161	148	80	74	24-96	8
Pentachlorophenol	400	400	ND	[a]413	133	103	33	9-103	103
Pyrene	200	200	ND	184	164	92	82	26-127	11

ND None Detected at or above the method reporting limit
a Analyte concentration is an estimate because the result was above instrument calibration range.

Approved by Glen E Clatt Date 12/7/92

APPENDIX B

CHAIN OF CUSTODY INFORMATION

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO: 0670-007.01 SAMPLE ID: MW-1

PURGED BY: MAdler CLIENT NAME: Arco 601

SAMPLED BY: NA 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.): NR

DEPTH TO WATER (feet): 9.11 CALCULATED PURGE (gal.): /

DEPTH OF WELL (feet): 11.1 ACTUAL PURGE VOL. (gal.): /

DATE PURGED: 11-16-92 Start (2400 Hr) NA / End (2400 Hr) NA /

DATE SAMPLED: NA Start (2400 Hr) / End (2400 Hr) /

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
	No Sample - Product in well					

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

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

PURGING EQUIPMENT

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

SAMPLING EQUIPMENT

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

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: .02 heavy dark brown product in well - No Sample

Meter Calibration: Date: ___ Time: ___ Meter Serial #: ___ Temperature °F: ___

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

Location of previous calibration: ___

Signature: MAdler Reviewed By: JB Page 6 of 12

Rev. 2, 5/91

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-007.01 SAMPLE ID: MW-2 (12)

PURGED BY: MAdler CLIENT NAME: Arco 601

SAMPLED BY: MAdler 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): NA VOLUME IN CASING (gal.): 2.86

DEPTH TO WATER (feet): 7.93 CALCULATED PURGE (gal.): 14.33

DEPTH OF WELL (feet): 12.3 ACTUAL PURGE VOL. (gal.): 14.5

DATE PURGED: 11-16-92 Start (2400 Hr) 1348 End (2400 Hr) 1404

DATE SAMPLED: 11-16-92 Start (2400 Hr) 1406 End (2400 Hr) 1407

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1357	3.0	6.99	1854	69.1	grey	moderate
1355	6.0	6.91	1903	73.7	grey	moderate
1357	9.0	6.90	1893	73.8	TAN/grey	moderate
1401	12.0	6.92	1913	74.5	grey	heavy
1404	14.5	6.93	1907	74.5	grey	heavy

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

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

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: light sheen [redacted] on purge water

Meter Calibration: Date: 11-16-92 Time: 1053 Meter Serial #: 9112 Temperature °F: ___

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

Location of previous calibration: ___

Signature: MAdler Reviewed By: JB Page 2 of 12

Rev. 2, 5/91

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-007.01 SAMPLE ID: MW-3

PURGED BY: MAdler CLIENT NAME: Arco 601

SAMPLED BY: NA 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.): NR / ___

DEPTH TO WATER (feet): 7.11 CALCULATED PURGE (gal.): ___ / ___

DEPTH OF WELL (feet): 12.0 ACTUAL PURGE VOL. (gal.): ___ / ___

DATE PURGED: 11-16-92 Start (2400 Hr) NA / ___ End (2400 Hr) NA / ___

DATE SAMPLED: ___ Start (2400 Hr) ___ / ___ End (2400 Hr) ___ / ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
	Product in Skimmer - No Samples					

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

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	___ Bailer (Teflon®)
___ Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: Did not sample - Product in Skimmer

Meter Calibration: Date: ___ Time: ___ Meter Serial #: ___ Temperature °F: ___

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

Location of previous calibration: ___

Signature: M Adler Reviewed By: JB

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-007.01 SAMPLE ID: MW-4

PURGED BY: MAdler CLIENT NAME: Arco 601

SAMPLED BY: NA 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.): .13

DEPTH TO WATER (feet): 8.29 CALCULATED PURGE (gal.): .68

DEPTH OF WELL (feet): 8.5 ACTUAL PURGE VOL. (gal.): NA

DATE PURGED: 11-16-92 Start (2400 Hr) 1315 End (2400 Hr) NA / ___

DATE SAMPLED: NA Start (2400 Hr) NA / ___ End (2400 Hr) ___ / ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
	Insufficient water - No Sample					

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

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

PURGING EQUIPMENT

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

SAMPLING EQUIPMENT

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

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: Insufficient water - No Samples

Meter Calibration: Date: 11-16-92 Time: 10:50 Meter Serial #: 9112 Temperature °F: ___

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

Location of previous calibration: MW-14 (13)

Signature: [signature] Reviewed By: JB Page 4 of 12

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-007.01 SAMPLE ID: MW-5 (10)

PURGED BY: MAdler CLIENT NAME: Arco 601

SAMPLED BY: M Adler 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.): 1.57

DEPTH TO WATER (feet): 7.70 CALCULATED PURGE (gal.): 7.87

DEPTH OF WELL (feet): 10.1 ACTUAL PURGE VOL. (gal.): 2.5

DATE PURGED: 11-16-92 Start (2400 Hr) 1422 End (2400 Hr) 1426

DATE SAMPLED: 11-16-92 Start (2400 Hr) 1427 End (2400 Hr) 1427

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1424	2.0	6.70	1641	72.4	grey	moderate
1426	2.5	Well dried				
1436	recharge	6.54	1812	71.4	grey	moderate

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

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): 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: light sheen [redacted] on purge water
Well dried @ 2.5 gallons at 1426 hrs.
recharge DTW 8.92

Meter Calibration: Date: 11-16-92 Time: 10:50 Meter Serial #: 9112 Temperature °F: ___

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

Location of previous calibration: MW-14 (13)

Signature: M Adler Reviewed By: JB Page 5 of 12

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO: 0670-007.01 SAMPLE ID: MW-6

PURGED BY: MAdler CLIENT NAME: Arco 601

SAMPLED BY: NA 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.): NA /

DEPTH TO WATER (feet): 8.57 CALCULATED PURGE (gal.): /

DEPTH OF WELL (feet): 8.6 ACTUAL PURGE VOL. (gal.): /

DATE PURGED: 11-16-92 Start (2400 Hr) NA / End (2400 Hr) NA /

DATE SAMPLED: NA Start (2400 Hr) / End (2400 Hr) /

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
	Insufficient water — No Sample					

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

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

PURGING EQUIPMENT

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

SAMPLING EQUIPMENT

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

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: Insufficient water — No Sample

Meter Calibration: Date: 11-16-92 Time: 10:50 Meter Serial #: 9112 Temperature °F: ___

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

Location of previous calibration: MW-14 (13)

Signature: MAdler Reviewed By: JB Page 6 of 12

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-007.01 SAMPLE ID: MW-7

PURGED BY: MAdler CLIENT NAME: Arco 601

SAMPLED BY: NA 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.): NA

DEPTH TO WATER (feet): 9.53 CALCULATED PURGE (gal.): ___

DEPTH OF WELL (feet): 9.56 ACTUAL PURGE VOL (gal.): ___

DATE PURGED: 11-16-92 Start (2400 Hr) NA End (2400 Hr) NA

DATE SAMPLED: NA Start (2400 Hr) ___ End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
	NO SAMPLE - Insufficient water					

D. O. (ppm): NR ODOR: Y (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 ___ Bailer (PVC)

___ Submersible Pump ___ Bailer (Stainless Steel)

___ Well Wizard™ ___ Dedicated

Other: ___

SAMPLING EQUIPMENT

___ 2" Bladder Pump ___ Bailer (Teflon®)

___ DDL Sampler ___ Bailer (Stainless Steel)

___ Dipper ___ Submersible Pump

___ Well Wizard™ ___ Dedicated

Other: ___

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: Insufficient water to sample - No Samples

Meter Calibration: Date: 11-16-92 Time: 10:50 Meter Serial #: 9112 Temperature °F: ___

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

Location of previous calibration: MW-14 (13)

Signature: MAdler Reviewed By: JB Page 7 of 12

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 06-70-007.01 | SAMPLE ID: MW-8 (10)

PURGED BY: MAdler | CLIENT NAME: Arco 601

SAMPLED BY: MAdler | 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.): 1.31

DEPTH TO WATER (feet): 8.19 | CALCULATED PURGE (gal.): 6.59

DEPTH OF WELL (feet): 10.2 | ACTUAL PURGE VOL. (gal.): 2.5

DATE PURGED: 11-16-92 | Start (2400 Hr) 1336 | End (2400 Hr) 1342

DATE SAMPLED: 11-16-92 | Start (2400 Hr) 1448 | End (2400 Hr) ~~1549~~ 1634

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1338	1.5	6.90	2040	67.1	TAN	light
1342	2.5 well dried					
1447	recharge	7.03	1926	67.7	TAN	moderate

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

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

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

WELL INTEGRITY: OK | LOCK #: 3259

REMARKS: Well dried @ 2.5 gallons at 1342

Left bailer in well to sample later to stay in order.

recharge DTW 8.59

Meter Calibration: Date: 11-16-92 Time: 1050 Meter Serial #: 9112 Temperature °F: ___

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

Location of previous calibration: MW-14(13)

Signature: [signature] | Reviewed By: JB | Page 8 of 12

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-007.01 SAMPLE ID: MW-11 (11)

PURGED BY: M Adler CLIENT NAME: Arco 601

SAMPLED BY: M Adler 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.): 1.88

DEPTH TO WATER (feet): 9.02 CALCULATED PURGE (gal.): 9.44

DEPTH OF WELL (feet): 11.9 ACTUAL PURGE VOL. (gal.): 5.5

DATE PURGED: 11-16-92 Start (2400 Hr) 1159 End (2400 Hr) 1206

DATE SAMPLED: 11-16-92 Start (2400 Hr) 1214 End (2400 Hr) 1214

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1201	2.0	7.09	2070	72.5	TAN	heavy
1203	4.0	7.04	2060	72.9	brown	heavy
1206	5.5	Well Dried				
1213	recharge	7.11	2010	71.8	brown	heavy

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

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

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

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

WELL INTEGRITY: OK LOCK #: 0909

REMARKS: Well dried @ 5.5 gallons at 1206 hrs.

recharge DTW 10.98

Meter Calibration: Date: 11-16-92 Time: 10:50 Meter Serial #: 9112 Temperature °F: ___

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

Location of previous calibration: MW-14 (13)

Signature: M Adler Reviewed By: JB Page 9 of 12

Rev. 2, 5/91

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-007.01 SAMPLE ID: MW-12 (11)

PURGED BY: MAdler CLIENT NAME: Arco 601

SAMPLED BY: MAdler 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.):	1.27
DEPTH TO WATER (feet):	9.65	CALCULATED PURGE (gal.):	6.39
DEPTH OF WELL (feet):	11.6	ACTUAL PURGE VOL (gal.):	4.0

DATE PURGED: 11-16-92 Start (2400 Hr) 1133 End (2400 Hr) 1146

DATE SAMPLED: 11-16-92 Start (2400 Hr) 1151 End (2400 Hr) 1152

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1135	1.5	6.99	2030	72.4	TAN	heavy
1137	3.0	7.06	2050	73.4	TAN	heavy
1140	4.0	Well dried				
1150	recharge	7.10	1949	72.5	brown	heavy

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

NR (COLOR: COBALT 0 - 100) NR (TURBIDITY: 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	X Bailer (Teflon®)
___ Centrifugal Pump	X Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: OK LOCK #: 0909

REMARKS: Well dried @ 4.0 gallons at 1140 hrs.

recharge DTW 10.58

Meter Calibration: Date: 11-16-92 Time: 10:50 Meter Serial #: 9112 Temperature °F: ___

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

Location of previous calibration: MW-14 (13)

Signature: MAdler Reviewed By: JB Page 10 of 10

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-007.01 SAMPLE ID: MW-13(17)

PURGED BY: MAdler CLIENT NAME: Arco 601

SAMPLED BY: MAdler 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.): .65

DEPTH TO WATER (feet): 9.02 CALCULATED PURGE (gal.): 3.26

DEPTH OF WELL (feet): 13.8 ACTUAL PURGE VOL. (gal.): 3.5

DATE PURGED: 11-16-92 Start (2400 Hr) 1226 End (2400 Hr) 1235

DATE SAMPLED: 11-16-92 Start (2400 Hr) 1238 End (2400 Hr) 1239

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1228	1.0	7.26	1722	69.1	TAN	moderate
1230	2.0	7.28	1813	70.3	TAN	moderate
1232	2.5	7.36	1860	70.8	brown	heavy
1233	3.0	7.45	1802	70.4	brown	heavy
1235	3.5	7.50	1775	69.9	brown	heavy

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

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

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

WELL INTEGRITY: OK LOCK #: 0909

REMARKS: ___

Meter Calibration: Date: 11-16-92 Time: 10:50 Meter Serial #: 9112 Temperature °F: ___

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

Location of previous calibration: MW-14(13)

Signature: MAdler Reviewed By: JB Page 11 of 12

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO: 0670-007.01 SAMPLE ID: MW-14

PURGED BY: MAdler CLIENT NAME: Arco 601

SAMPLED BY: MAdler 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.): .43

DEPTH TO WATER (feet): 10.33 CALCULATED PURGE (gal.): 2.18

DEPTH OF WELL (feet): 13.0 ACTUAL PURGE VOL. (gal.): 2.5

DATE PURGED: 11-16-92 Start (2400 Hr) 1111 End (2400 Hr) 1123

DATE SAMPLED: 11-16-92 Start (2400 Hr) 1124 End (2400 Hr) 1125

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1112	.5	6.90	2450	68.7	TAN	moderate
1116	1.0	6.96	1846	69.7	TAN	moderate
1119	1.5	6.95	1830	71.6	TAN	moderate
1121	2.0	6.98	1836	71.9	TAN	moderate
1123	2.5	6.98	1840	71.8		

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

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

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

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

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: ___

Meter Calibration: Date: 11-16-92 Time: 10:50 Meter Serial #: 9112 Temperature °F: 64.8

(EC 1000 927 / 1000) (DI 24.7) (pH 7 7.02 / 7.00) (pH 10 9.94 / 10.00) (pH 4 4.08 / ___)

Location of previous calibration: MW-14 (13)

Signature: MAdler Reviewed By: VB Page 12 of 12

TF1086-1}

TF NUMBER: 1086-1

GIB-92-084

MONITORING WELL PURGE WATER TRANSPORT FORM

GENERATOR INFORMATION

NAME: ARCO PRODUCTS

ADDRESS: P.O. BOX 5811

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

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

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

KYLE CHRISTIE Kyle Don Dalton 11/30/92

(Typed or printed full name & signature) (Date)

SITE INFORMATION

	STA #	JOB #	ADDRESS	GALS
1	A-6148	21314-DW	5131 SHATTUCK AVE., OAKLAND, CA	377
2	A-5387	21344-PW	20200 HESPERIAN BLVD., SAN LORENZO, CA	318
3	A-2096	21275-PW	2460 FLORIN RD., SACRAMENTO, CA	109
4	A-601	21333-PW	712 LEWELLING BLVD., SAN LEANDRO, CA	35
5	A-551	21276-PW	1391 FLORIN RD., SACRAMENTO, CA	40
6	A-707	21336-PW	988 SAN ANTONIO RD., LOS ALTOS, CA	158
7	A-2153	21282-DW	2800 HOMESTEAD RD., SANTA CLARA, CA	45
8	A-6001	21277-PW	886 COLUSA AVE., YUBA CITY, CA	192
9	A-1321	21236-PW	903 5TH AVE., MODESTO, CA	147
10	A-2143	21279-PW	5TH & "E" ST., WILLIAMS, CA	132
11	A-6044	21338-PW	3174 SENTER RD., SAN JOSE, CA	16
				1,569

TRANSPORTER INFORMATION

NAME: BALCH PETROLEUM

ADDRESS: 930 AMES AVE.

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

TRUCK ID #: 99 11-30-92

(Typed or printed full name & signature) (Date)

TSD FACILITY INFORMATION

NAME: GIBSON ENVIRONMENTAL

ADDRESS: 475 SEAPORT BLVD

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

RELEASE #: 11320 BILL LEDIN Bill Ledin 11-30-92

(Typed or printed full name & signature) (Date)