

93 SEP 13 PM 2:42

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

TRANSMITTAL

TO: Scott Seery
Alameda County Health Care Services
80 Swan Way, Suite 200
Oakland, CA 94621

DATE: September 8, 1993
PROJECT NUMBER: 69034.10
SUBJECT: ARCO Station No. 601

FROM: Erin Krueger

WE ARE SENDING YOU:

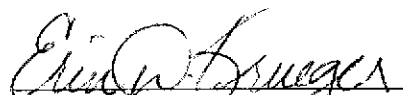
COPIES DATED	DESCRIPTION
1 9/8/93	Laboratory analytical results of samples collected from borings/wells located at 724 Lewelling Boulevard, installed in conjunction with an environmental assessment at ARCO Station No. 601, 712 Lewelling Boulevard, San Leandro, California.

THESE ARE TRANSMITTED as checked below:

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

REMARKS:

Copies: 1 to RESNA project file no. 69034.10


Erin D. Krueger, Staff Geologist

cc: Michael Whelan, ARCO
John Meck, ARCO Legal Dept.
Gary Grimm, RWQCB
John Jang, RWQCB



EMCON Associates

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

Date April 1, 1993
Project OG70-007.01

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

We are enclosing:

Copies	Description
<u>1</u>	<u>Depth To Water/Floating Product Survey Results</u>
<u> </u>	<u>March 1993 monthly water level survey, ARCO</u>
<u> </u>	<u>station 601, 712 Lewelling Blvd., San Leandro, CA</u>

For your: X Information Sent by: X Mail

Comments:

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

Reviewed by:



Jim Butera *JB*

Robert Porter
Robert Porter, Senior Project
Engineer.



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

September 8, 1993
jsulsampl
69034.10

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

Subject: Laboratory analytical results of samples collected from borings/wells located at 724 Lewelling Boulevard, installed in conjunction with an environmental assessment at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California.

Mr. Sullivan:

Enclosed please find copies of the laboratory analytical results from soil and groundwater samples collected from borings/wells (B-34/MW-9 and B-33/MW-10) drilled and installed on your property at 724 Lewelling Boulevard in San Leandro, California. The soil samples were collected during drilling operations performed in May 1993, and the groundwater samples were collected during groundwater sampling performed in June 1993. The laboratory analytical results indicated nondetectable concentrations of total petroleum hydrocarbons as gasoline, and the gasoline constituents benzene, toluene, ethylbenzene, and total xylenes in both the soil and groundwater samples collected at the subject site.

We will continue to monitor the wells periodically, and will notify the onsite manager prior to the monitoring events as agreed upon in the May 19, 1993, meeting at Chateau Manor Apartments. Those attending the meeting were Mr. Michael Whelan of ARCO, Mr. John C. Young of RESNA, Mr. John Jang of the Regional Water Quality Control Board and Mr. John Sullivan, property owner.



Working to Restore Nature

Laboratory Analytical Results
724 Lewelling Boulevard, San Leandro, California

September 8, 1993
69034.10

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

Sincerely,
RESNA Industries Inc.

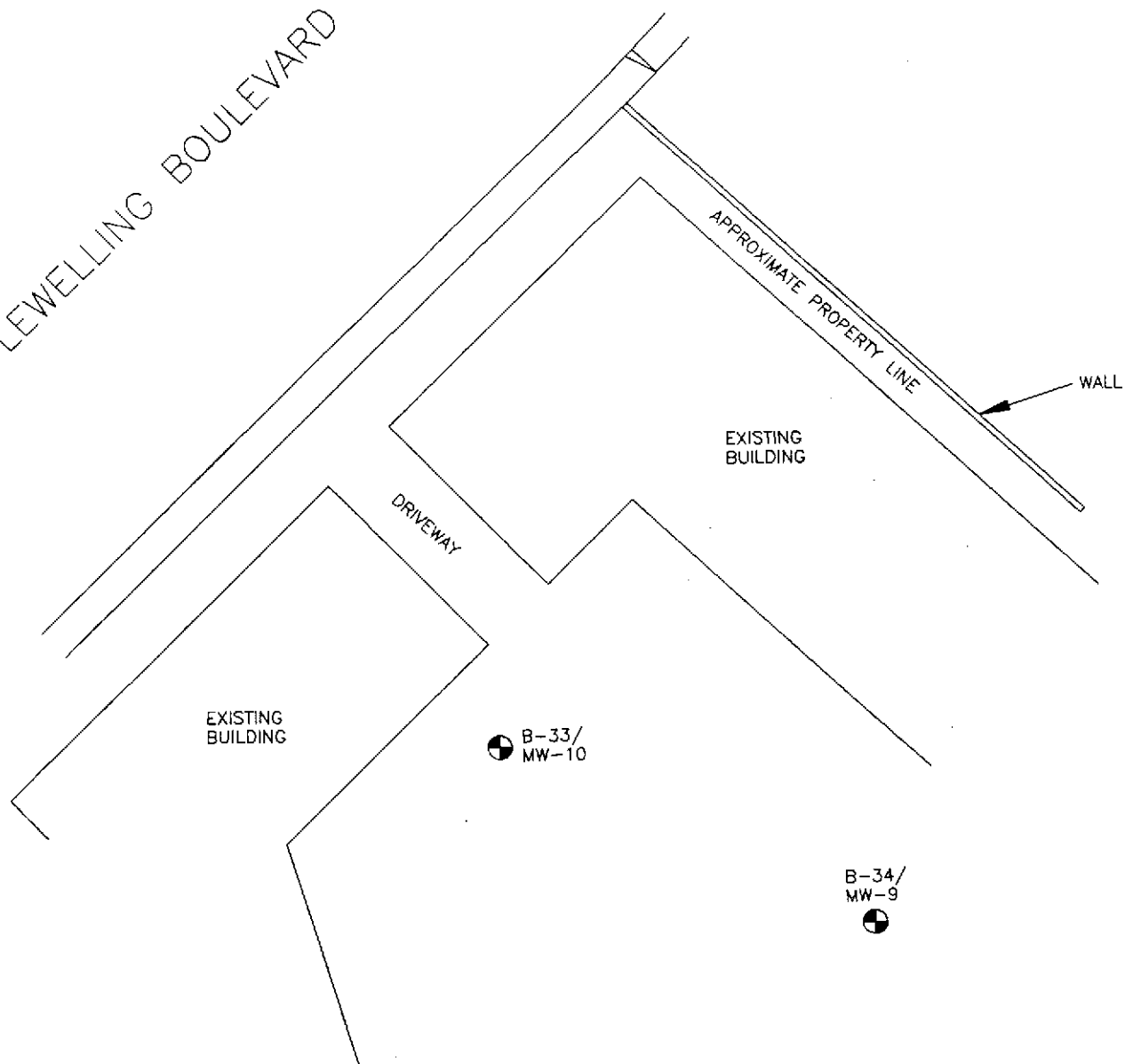
Erin D. Krueger
Staff Geologist

John C. Young
Project Manager

Enclosures: Plate 1, Generalized Site Plan
Plates 2 and 3, Logs of Borings
Copy of Soil Sample Analytical Results for
Borings B-33 and B-34
Copy of Groundwater Sample Analytical Results
for wells MW-9 and MW-10

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

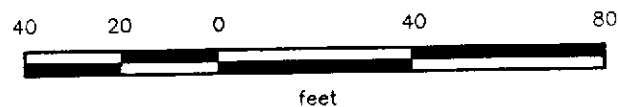
LEWELLING BOULEVARD



EXPLANATION

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

Approximate Scale



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

RESNA
Working to Restore Nature

PROJECT 69034.08

690346P1

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

PLATE

1

Depth of boring: 19-1/2 feet Diameter of boring: 8 inches Date drilled: 5/27/93
 Well depth: 19-1/2 feet Material type: SCH 40 PVC Casing diameter: 2 inches
 Screen interval: 6-1/2 to 19-1/2 feet Slot size: 0.020-inch
 Drilling Company: Exploration GeoServices Driller: John
 Method Used: Hollow-Stem Auger Field Geologist: Zbig Ignatowicz

Signature of Registered Professional: _____

Registration No.: CEG 1463 State: _____

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt over base course (sand and gravel).	
2				CL	Silty clay, very dark grayish-brown, moist, medium plasticity, very stiff, ~ 15% fine sand.	
4						
6	S-6	4 8 10	3.8	SM	Silty sand, fine sand, olive-brown, wet, medium dense.	
8						
10	S-11	7 10 15	2.8			
12						
14				ML	Clayey silt, very dark gray, wet, low plasticity, stiff; organic roots.	
16	S-16	4 5 7	2.2			
18				CH	Silty clay, very dark gray, damp, high plasticity, hard; organic roots.	
20		8 10 11			Total Depth = 19-1/2 feet.	

RESNA
 Working to Restore Nature

PROJECT: 69034.08

LOG OF BORING B-34/MW-9
 ARCO Station 601
 712 Lewelling Boulevard
 San Leandro, California

PLATE

2

Depth of boring: 16-1/2 feet Diameter of boring: 8 inches Date drilled: 5/27/93
 Well depth: 16-1/2 feet Material type: SCH 40 PVC Casing diameter: 2 inches
 Screen interval: 6-1/2 to 16-1/2 feet Slot size: 0.020-inch
 Drilling Company: Exploration GeoServices Driller: John
 Method Used: Hollow-Stem Auger Field Geologist: Zbig Ignatowicz

Signature of Registered Professional: _____

Registration No.: CEG 1463 State: _____

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt over base course (sand and gravel).	
2				CL	Silty clay, very dark grayish-brown, moist, medium plasticity, stiff, ~ 15% fine sand.	
4						
6	S-6	4 5 7	0	SM	Silty sand, dark brown and dark yellowish-brown, wet, medium dense.	
8						
10						
12	S-11	5 8 9	3.4			
14				CL/CH	Silty clay, very dark gray, damp, medium to high plasticity, stiff, ~ 5% fine sand, localized fine gravel, rootholes and roots present.	
16		15 22 31	3.5			
18					Total Depth = 16-1/2 feet.	
20						

RESNA
 Working to Restore Nature

PROJECT: 69034.08

LOG OF BORING B-33/MW-10
 ARCO Station 601
 712 Lewelling Boulevard
 San Leandro, California

PLATE

3



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

10034.08

RESNA

3315 Almaden Expwy., Suite 34

San Jose, CA 95118

Attention: John Young

Project: Arco 601

Enclosed are the results from 2 water samples received at Sequoia Analytical on June 11, 1993. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
3F54701	Water, MW-9	6/11/93	EPA 5030/8015/8020
3F54702	Water, MW-10	6/11/93	EPA 5030/8015/8020

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: John Young

Client Project ID: Arco 601
Sample Matrix: Water
Analysis Method: EPA 5030/8015/8020
First Sample #: 3F54701

Sampled: Jun 11, 1993
Received: Jun 11, 1993
Reported: Jun 14, 1993

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 3F54701 MW-9	Sample I.D. 3F54702 MW-10
Purgeable Hydrocarbons	50	N.D.	N.D.
Benzene	0.50	N.D.	N.D.
Toluene	0.50	N.D.	N.D.
Ethyl Benzene	0.50	N.D.	N.D.
Total Xylenes	0.50	N.D.	N.D.
Chromatogram Pattern:		--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0
Date Analyzed:	6/12/93	6/12/93
Instrument Identification:	GCHP-2	GCHP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	94	80

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager

3F54701.RES <1>



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: John Young

Client Project ID: Arco 601
Matrix: Water
QC Sample Group: 3F54701-2

Reported: Jun 14, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	A. MirafTab	A. MirafTab	A. MirafTab	A. MirafTab
Conc. Spiked:	10	10	10	30
Units:	µg/L	µg/L	µg/L	µg/L
LCS Batch#:	BLK061293	BLK061293	BLK061293	BLK061293
Date Prepared:	-	-	-	-
Date Analyzed:	6/12/93	6/12/93	6/12/93	6/12/93
Instrument I.D.#:	GCHP-2	GCHP-2	GCHP-2	GCHP-2
LCS % Recovery:	89	89	92	90
Control Limits:	80-120	80-120	80-120	80-120

MS/MSD Batch #:	3F32001	3F32001	3F32001	3F32001
Date Prepared:	-	-	-	-
Date Analyzed:	6/12/93	6/12/93	6/12/93	6/12/93
Instrument I.D.#:	GCHP-2	GCHP-2	GCHP-2	GCHP-2
Matrix Spike % Recovery:	86	86	87	87
Matrix Spike Duplicate % Recovery:	88	87	89	87
Relative % Difference:	2.3	1.2	2.3	0.0

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager

Please Note:

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

3F54701.RES <2>

Chain of Custody

Task Order No.

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



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

69034.08

RESNA	Client Project ID: 69034.08, Arco 601	Sampled: May 27, 1993
3315 Almaden Expwy., Suite 34	Sample Matrix: Soil	Received: May 28, 1993
San Jose, CA 95118	Analysis Method: EPA 5030/8015/8020	Reported: Jun 4, 1993
Attention: John Young	First Sample #: 3EC8101	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 3EC8101 S-6-B33	Sample I.D. 3EC8102 S-11-B33	Sample I.D. 3EC8103 S-6-B34	Sample I.D. 3EC8104 S-11-B34
Purgeable Hydrocarbons	1.0	N.D.	N.D.	N.D.	N.D.
Benzene	0.0050	N.D.	N.D.	N.D.	N.D.
Toluene	0.0050	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.0050	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.0050	N.D.	N.D.	N.D.	N.D.
Chromatogram Pattern:		--	--	--	--

Quality Control Data

Report Limit				
Multiplication Factor:	1.0	1.0	1.0	1.0
Date Analyzed:	6/3/93	6/3/93	6/3/93	6/3/93
Instrument Identification:	GCHP-7	GCHP-7	GCHP-7	GCHP-7
Surrogate Recovery, %: (QC Limits = 70-130%)	111	107	106	112

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

VMTague
Vickie Tague
Project Manager

3EC8101.RES <1>



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: John Young

Client Project ID: 69034.08, Arco 601
Matrix: Soil

QC Sample Group: 3EC8101-4

Reported: Jun 4, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	C. Donohue	C. Donohue	C. Donohue	C. Donohue
Conc. Spiked:	0.20	0.20	0.20	0.60
Units:	mg/kg	mg/kg	mg/kg	mg/kg
LCS Batch#:	BLK060393	BLK060393	BLK060393	BLK060393
Date Prepared:	6/3/93	6/3/93	6/3/93	6/3/93
Date Analyzed:	6/3/93	6/3/93	6/3/93	6/3/93
Instrument I.D.#:	GCHP-7	GCHP-7	GCHP-7	GCHP-7
LCS % Recovery:	100	100	100	100
Control Limits:	60-140	60-140	60-140	60-140
MS/MSD Batch #:	3EB9502	3EB9502	3EB9502	3EB9502
Date Prepared:	6/3/93	6/3/93	6/3/93	6/3/93
Date Analyzed:	6/3/93	6/3/93	6/3/93	6/3/93
Instrument I.D.#:	GCHP-7	GCHP-7	GCHP-7	GCHP-7
Matrix Spike % Recovery:	85	85	90	88
Matrix Spike Duplicate % Recovery:	85	85	90	87
Relative % Difference:	0.0	0.0	0.0	1.1

SEQUOIA ANALYTICAL

Vintage

Vickie Tague
Project Manager

Please Note:

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

3EC8101.RES <2>

ARCO Products Company

Division of AtlanticRichfieldCompany

Task Order No.

69034.08 601-91-2

Chain of Custody

ARCO Facility no. 601	City (Facility) 724 LEWELLING, Sealach	Project manager (Consultant) JOHN TOUNG
ARCO engineer MIKE WHELAN	Telephone no. (ARCO) (415) 571-2410	Telephone no. (Consultant) (408) 264-2435
Consultant name RESNA INDUSTRIES INC	Address (Consultant) 3315 ALMAREZ EXP., JOSE, CA 95118	

Laboratory name
SEQUOIA

Contract number
07-073

Sample I.D.	Lab no.	Container no.	Matrix			Preservation		Sampling date	Sampling time	BTEX EPA 8021EPA 8020	BTEX/TPH EPA 8020/8020/8015	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	TCMP Metals ☐ VOA ☐ VOA ☐	CAM Metals EPA 8010/7000 TCLC ☐ STL ☐	Lead Org./DHS ☐ Lead EPA ☐ 7420/7421 ☐	
			Soil	Water	Other	Ice	Acid														
56-B33		1	X			X		5-27-93		X		X									
5-11-B33		1	X			X				X		X									
5-6-B34		1	X			X				X		X									
5-11-B34		1	X			X				X		X									
5-16-B34		1	X			X															

Method of shipment

Special detection
Limit/reporting

Special QA/QC

ANALYZE

HOLD

CALL AFTER
PICKUP

Remarks

69034.08

Lab number

3EC8101

Turnaround time

Priority Rush
1 Business Day ☐

Rush
2 Business Days ☐

Expedited
5 Business Days ☐

Standard
10 Business Days ☒

Condition of sample:

good

Temperature received:

cool

Relinquished by sample

Date 5-28-93 Time 10:05

Received by

Jm

5/28/93 10:05

Relinquished by

Date 5/28/93 Time 11:45

Received by

Jm

Date 5-28-93 Time 11:45

Relinquished by

Date 5-28-93 Time 11:45

Received by laboratory

Jm

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

APPC-3292 (2-91)

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
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

DATE: June 11, 1993
PROJECT NUMBER: 69034.12
SUBJECT: ARCO Station No. 601

FROM: James L. Nelson

WE ARE SENDING YOU:

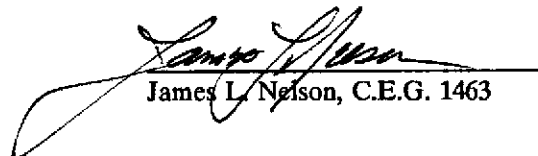
COPIES	DATED	DESCRIPTION
1	6/10/93	Final First Quarter 1993 Groundwater Monitoring Report for ARCO Station No. 601, 712 Lewelling Boulevard, San Leandro, California.

THESE ARE TRANSMITTED as checked below:

- ☐ For review and comment ☐ Approved as submitted ☐ Resubmit ___ copies for approval
☒ As requested ☐ Approved as noted ☐ Submit ___ copies for distribution
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☒ For your files

REMARKS:

Copies: 1 to RESNA project file no. 69034.12


James L. Nelson, C.E.G. 1463

RESNA

Working To Restore Nature

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

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

69034.12

6-10-93

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

June 10, 1993
0409MWHE
69034.12

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

Subject: First Quarter 1993 Groundwater Monitoring Report for ARCO Station 601,
712 Lewelling Boulevard, San Leandro, California.

Mr. Whelan:

As requested by ARCO Products Company (ARCO), RESNA Industries Inc. (RESNA) has prepared this letter report which summarizes the results of first quarter 1993 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'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

Quarterly Groundwater Monitoring
ARCO Station 601, San Leandro, California

June 10, 1993
69034.12

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 levels (DTW) were measured by EMCON field personnel on January 15, February 16, and March 30, 1993. Quarterly sampling was performed by EMCON field personnel on February 16, 1993. The results of EMCON's field work at 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-11 through MW-14 in February 1993, 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-11 through MW-14 during the January 15, and March 30, 1993, monitoring events. Approximately 0.01 feet of floating product was measured in wells MW-1, and MW-3 on February 16, 1993. Based on EMCON's DTW levels, the groundwater elevations for January, February, and March 1993 are shown on the Groundwater Elevation Maps, Plates 3 through 5. Groundwater gradients and flow directions interpreted from the January, February, and March DTW data indicated an average gradient of 0.01 with a flow direction to the north-northwest. 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-4 through MW-8, and MW-11 through MW-14 were purged and sampled by EMCON field personnel on February 16, 1992. Because subjective analysis indicated petroleum product was present in MW-1, and the skimmer in MW-3 contained product, 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.

Quarterly Groundwater Monitoring
ARCO Station 601, San Leandro, California

June 10, 1993
69034.12

Laboratory Methods and Analyses

Under the direction of EMCON, groundwater samples collected from wells MW-2, MW-4 through 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 located closest to and roughly downgradient of the former waste-oil UST, were also analyzed for total metals using EPA Method 6010, lead using EPA Method 7421, Halogenated Volatile Organic Compounds using EPA Methods 5030/601, Base Neutral Acid Semivolatile Organic Compounds (VOC) using EPA Methods 3510/8270, TPH as Diesel using EPA Method 3510/California DHS LUFT Method, and Total Recoverable Petroleum Hydrocarbons using 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 instead of 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.

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 were dry last quarter, and therefore no trends have been established for these wells. Concentrations of TPHg and BTEX in monitoring well MW-5 remained generally the same since last quarter; and concentrations generally increased in wells MW-2 and MW-8. The analytical results for MW-8 indicated an increased concentration of total oil and grease (TOG), concentrations of metals continued to be below the State Maximum Contaminant Levels (MCLs), VOCs remained nondetectable, BNAs remained low, and the hydrocarbons classified as diesel continued to have a nontypical diesel fingerprint, which may be indicative of weathered gasoline.

Quarterly Groundwater Monitoring
ARCO Station 601, San Leandro, California

June 10, 1993
69034.12

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

Quarterly Groundwater Monitoring
ARCO Station 601, San Leandro, California

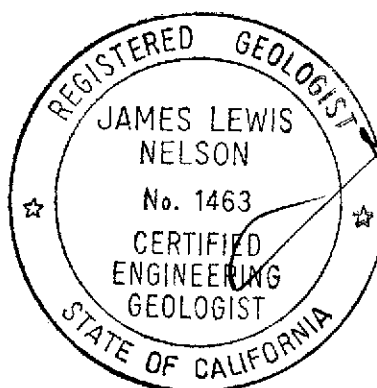
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If you have any questions or comments, please call us at (408) 264-7723.

Sincerely,
RESNA Industries Inc.



Erin McLucas
Staff Geologist



James L. Nelson
Certified Engineering
Geologist No. 1463

Enclosures:

References

Plate 1, Site Vicinity Map
Plate 2, Generalized Site Plan
Plate 3, Groundwater Gradient Map, January 15, 1993
Plate 4, Groundwater Gradient Map, February 16, 1993
Plate 5, Groundwater Gradient Map, March 30, 1993
Plate 6, TPHg Concentrations in Groundwater, February 16, 1993
Plate 7, Benzene Concentrations in Groundwater, February 16, 1993

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

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

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REFERENCES

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- 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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REFERENCES
(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.

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ARCO Station 601, San Leandro, California

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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.

RESNA Industries, December 7, 1992, Letter Report Quarterly Groundwater Monitoring, Third Quarter 1992, at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California. RESNA 69034.06

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
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Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
<u>MW-1</u>					
07/17/90	11.20	22.98	9.03	13.95	Emulsion
08/07/90			9.19	13.79	None
10/15/90			9.85*	13.13	0.25
11/20/90			9.79*	13.19	0.46
12/21/90			9.18	13.80	Sheen
01/09/91			9.47*	13.51*	0.02
02/27/91			9.31*	13.67*	0.03
03/20/91			7.81**	15.17**	Sheen
04/16/91			6.12	16.86	Sheen
05/16/91			8.60*	13.66*	0.01
06/10/91	22.26	9.00	13.26	Sheen	
07/18/91		9.33*	12.93*	0.01	
08/22/91		9.49*	12.77*	0.04	
09/18/91		9.63*	12.63*	0.04	
10/10/91		9.73*	12.53*	0.04	
11/21/91		8.40*	13.86*	0.01	
12/24/91		9.68*	13.30*	0.13	
01/19/92		11.10	8.84	13.42	None
02/20/92			7.22	15.04	None
03/23/92			7.40	14.86	Sheen
04/21/92	8.30		13.96	None	
05/15/92	8.77*		13.49*	0.01	
06/08/92	9.08*		13.18*	0.02	
07/15/92	9.40		12.86	None	
08/25/92	8.21		14.05	None	
09/15/92	8.18*		14.08*	0.02	
10/28/92	8.62		13.64	None	
11/16/92	22.26	9.09*	13.17*	0.02	
12/16/92		8.10*	14.16*	0.02	
01/15/93		11.10	6.53	15.73	None
02/16/93	7.03*		15.23*	0.01	
03/30/93	6.86		15.40	None	
<u>MW-2</u>					
07/17/90	12.33	22.06	7.86	14.20	None
08/07/90			8.03	14.03	None
10/15/90			8.61	13.45	None
11/20/90			8.76	13.30	None
12/21/90			8.28	13.78	None

See notes on page 7 of 7.

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
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Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
<u>MW-2</u>					
01/09/91			8.43	13.63	None
02/27/91			8.28	13.78	None
03/20/91			7.26**	14.80**	None
04/16/91			6.97	15.09	None
05/16/91			7.52	15.27	None
06/10/91		21.33	7.91	14.88	None
07/18/91			8.30	14.49	None
08/22/91			8.50	14.29	None
09/18/91			8.63	14.16	None
10/10/91			8.82	13.97	None
11/21/91			8.46	14.33	None
12/24/91			8.72	14.07	None
01/19/92	12.20		7.96	14.83	None
02/20/92			6.55	16.24	None
03/23/92			6.86	15.93	None
04/21/92			7.15	14.18	None
05/15/92			7.61	13.72	None
06/08/92			7.95	13.38	None
07/15/92			8.45	12.88	None
08/25/92			8.53	12.80	None
09/15/92			8.71	12.62	None
10/28/92			8.89	12.44	None
11/16/92		21.33	7.93	13.40	None
12/16/92			7.44	13.89	None
01/15/93	12.30		6.13	15.20	None
02/16/93			6.02	15.31	None
03/30/93			5.98	15.35	None
<u>MW-3</u>					
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

See notes on page 7 of 7.

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TABLE 1
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San Leandro, California
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Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
MW-3					
05/16/91		20.11	7.50	12.61	None
06/10/91			7.14	12.97	Sheen
07/18/91			7.55	12.56	None
08/22/91			7.64	12.47	Sheen
09/18/91			7.89*	12.22*	0.12
10/10/91			7.82*	12.29*	0.26
11/21/91			7.59*	12.52*	0.04
12/24/91			8.74*	11.37*	0.01
01/19/92	11.94		6.98	13.13	0.01
02/20/92			5.05	15.06	0.01
03/23/92			5.75	14.36	Sheen
04/21/92			6.55	13.56	None
05/15/92			7.11*	13.00*	0.03
06/08/92			7.52*	12.59*	0.02
07/15/92			7.92	12.19	None
08/25/92			8.00	12.11	None
09/15/92			8.01*	12.10*	0.02
10/28/92			8.66	11.45	None
11/16/92		20.11	7.11	13.00	Sheen
12/16/92			6.62	13.49	None
01/15/93	11.9		4.44	15.67	None
02/16/93			5.93*	14.18*	0.01
03/30/93	12.0		5.48	14.63	None
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

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
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Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
<u>MW-4</u>					
07/15/92	8.90		8.81	Residual Water	None
08/25/92			8.39	Residual Water	None
09/15/92			Dry		None
10/28/92	8.4		8.23	Residual Water	None
11/16/92	8.5	20.75	8.29	Residual Water	None
12/16/92	8.5		8.18	Residual Water	None
01/15/93			7.48	13.27	None
02/16/93			7.10	13.65	None
03/30/93			7.51	13.24	None
<u>MW-5</u>					
06/10/91	9.88	20.90	7.58	13.32	None
07/18/91			7.97	12.93	None
08/22/91			8.18	12.72	None
09/18/91			8.31	12.59	None
10/10/91			8.51	12.39	Sheen
11/21/91			8.13	12.77	None
12/24/91			8.32	12.58	None
01/19/92	10.10		7.50	13.40	None
02/20/92			5.97	14.93	None
03/23/92			6.06	14.84	None
04/21/92			6.90	14.00	None
05/15/92			7.32	13.58	None
06/08/92			7.66	13.24	None
07/15/92			8.34	12.56	None
08/25/92			8.18	12.72	None
09/15/92			8.40	12.50	0.02 +
10/28/92			8.83	12.07	None
11/16/92		20.90	7.70	13.20	None
12/16/92			6.92	13.98	None
01/15/93	10.1		5.52	15.38	None
02/16/93			5.64	15.26	None
03/30/93			5.56	15.34	None
<u>MW-6</u>					
06/10/91	8.40	22.08	Dry		None
07/18/91			Dry		None

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
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Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
<u>MW-6</u>					
08/22/91			Dry		None
09/18/91			Dry		None
10/10/91			Dry		None
11/21/91			Dry		None
12/24/91			Dry		None
01/19/92	8.60		8.58	Residual water	None
02/20/92			7.28	14.80	None
03/23/92			7.45	14.63	None
04/21/92			7.74	14.34	None
05/15/92			8.50	Residual Water	None
06/08/92			Dry		None
07/15/92			8.81	Residual Water	None
08/25/92			8.42	Residual Water	None
09/15/92			Dry		None
10/28/92	8.75		8.75	Residual Water	None
11/16/92	8.6	22.08	8.57	Residual Water	None
12/16/92	8.6		8.10	Residual Water	None
01/15/93			7.22	14.86	None
02/16/93			6.79	15.29	None
03/30/93			6.68	15.40	None
<u>MW-7</u>					
06/10/91	9.36	22.89	Dry		None
07/18/91			Dry		None
08/22/91			Dry		None
09/18/91			Dry		None
10/10/91			Dry		None
11/21/91			Dry		None
12/24/91			Dry		None
01/19/92	9.55		Dry		None
02/20/92			8.74	14.15	None
03/23/92			8.20	14.69	None
04/21/92			8.86	14.03	None
05/15/92			9.29	Residual Water	None
06/08/92			9.52	Residual Water	None
07/15/92			9.78	Residual Water	None

See notes on page 7 of 7.

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
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Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
<u>MW-7</u>					
08/25/92			9.33	Residual Water	None
09/15/92			Dry		None
10/28/92	11.7**		10.38**	12.51	None
11/16/92	9.6	22.89	9.53	Residual Water	None
12/16/92	9.6		9.21	Residual Water	None
01/15/93			8.37	14.52	None
02/16/93			7.84	15.05	None
03/30/93			8.03	14.86	None
<u>MW-8</u>					
06/10/91	10.00	20.97	7.80	13.17	None
07/18/91			8.36	12.61	None
08/22/91			8.53	12.44	None
09/18/91			8.68	12.29	None
10/10/91			8.87	12.10	None
11/21/91			8.43	12.54	None
12/24/91			8.68	12.29	None
01/19/92	10.15		7.73	13.24	None
02/20/92			5.57	15.40	None
03/23/92			5.81	15.16	None
04/21/92			7.05	13.92	None
05/15/92			7.79	13.18	None
06/08/92			8.01	12.96	None
07/15/92			8.46	12.51	None
08/25/92			8.64	12.33	None
09/15/92			8.80	12.17	None
10/28/92			8.80	12.17	None
11/16/92		20.97	8.19	12.78	None
12/16/92			6.66	14.31	None
01/15/93			5.18	15.79	None
02/16/93			5.84	15.13	None
03/30/93	10.2		4.98	15.99	None
<u>MW-11</u>					
11/16/92	11.9	22.38	9.02	13.36	None
12/16/92			8.48	13.90	None
01/15/93			7.14	15.24	None
02/16/93			7.11	15.27	None
03/30/93			7.01	15.37	None

See notes on page 7 of 7.

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
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Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
<u>MW-12</u>					
11/16/92	11.6	22.77	9.65	13.12	None
12/16/92			8.71	14.06	None
01/15/93			7.19	15.58	None
02/16/93			7.88	14.89	None
03/30/93			7.43	15.34	None
<u>MW-13</u>					
11/16/92	13.0	22.45	9.02	13.43	None
12/16/92			8.23	14.22	None
01/15/93			6.89	15.56	None
02/16/93			7.14	15.31	None
03/30/93			7.01	15.44	None
<u>MW-14</u>					
09/15/92	13.0	22.99	10.66	12.33	None
10/28/92			10.91	12.08	None
11/16/92			10.33	12.66	None
12/16/92			9.20	13.79	None
01/15/93			7.06	15.93	None
02/16/93			8.18	14.81	None
03/30/93			7.97	14.93	None

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.

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TABLE 2
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUNDWATER SAMPLES
ARCO Station 601
San Leandro, California
(Page 1 of 4)

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

See Notes on page 4 of 4.

Quarterly Groundwater Monitoring
ARCO Station 601, San Leandro, California

June 10, 1993
69034.12

TABLE 2
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUNDWATER SAMPLES
ARCO Station 601
San Leandro, California
(Page 2 of 4)

Sample	TPHg	TPHd	B	T	E	X	TOG	BNAs	VOCs	Cd	Cr	Pb	Ni	Zn
<u>MW-4</u>														
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
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							
02/16/93	12,000	NA	920	1,100	130	750	NA	NA	NA	NA	NA	NA	NA	NA
<u>MW-5</u>														
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
02/16/93	150,000	NA	12,000	15,000	3,000	17,000	NA	NA	NA	NA	NA	NA	NA	NA
<u>MW-6</u>														
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							
02/16/93	65,000	NA	14,000	3,500	1,300	6,100	NA	NA	NA	NA	NA	NA	NA	NA
<u>MW-7</u>														
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							
02/16/93	120	NA	3.6	<0.5	<0.5	1.2	NA	NA	NA	NA	NA	NA	NA	NA
<u>MW-8</u>														
06/10/91	5,800	NA	73	7.2	150	21	<5,000	NA	NA	NA	NA	NA	NA	NA
10/10/91	2,800	NA	31	6.1	4.5	3.9	NA	NA	NA	NA	NA	NA	NA	NA
03/23/92	8,000	NA	18	<5.0**	320	42	NA	NA	ND	NA	NA	NA	NA	NA
			(23**)	(<5.0**)	(450**)	(23**)								

See Notes on page 4 of 4.

Quarterly Groundwater Monitoring
ARCO Station 601, San Leandro, California

June 10, 1993
69034.12

TABLE 2
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUNDWATER SAMPLES
ARCO Station 601
San Leandro, California
(Page 3 of 4)

Sample	TPHg	TPHd	B	T	E	X	TOG	BNAs	VOCs	Cd	Cr	Pb	Ni	Zn
<u>MW-8</u>														
06/08/92	4,000	NA	<10**	<10**	110	<10**	NA	NA	NA	NA	NA	NA	NA	NA
09/15/92	4,200	460***	6.4	<5*	120	<5*	NA	6*	ND	ND	59	18	78	128
11/16/92	2,600	1,100***	4.0	<2.5**	21	5.2	1,200	32*	ND	7	42	20	69	123
02/16/93	8,700	5,300***	<5**	<5**	200	<5**	150,000	730*	ND	<3	7	4	24	54
<u>MW-11</u>														
11/16/92	7,000	NA	21	<10**	18	230	NA	NA	NA	NA	NA	NA	NA	NA
02/16/93	2,200	NA	<10**	<10**	11	<10**	NA	NA	NA	NA	NA	NA	NA	NA
<u>MW-12</u>														
11/16/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
02/16/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
<u>MW-13</u>														
11/16/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
02/16/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
<u>MW-14</u>														
09/15/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
11/16/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
02/16/93	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
DWAL:	—	—	—	100	—	—	—	—	—	—	—	—	—	—
MCLs:	—	—	1	NA	680	1,750	—	—	—	10	50	50	—	5,000

See Notes on page 4 of 4.

Quarterly Groundwater Monitoring
ARCO Station 601, San Leandro, California

June 10, 1993
69034.12

TABLE 2
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUNDWATER SAMPLES
ARCO Station 601
San Leandro, California
(Page 4 of 4)

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.
():	BTEX results analyzed as VOCs.
TPHg:	Total petroleum hydrocarbons as gasoline using EPA method 8015.
TPHd:	Total petroleum hydrocarbons as diesel using EPA method 3550/3510.
	B: Benzene, T: Toluene, E: Ethylbenzene, X: Total Xylene isomers.
BTEX:	Measured using EPA method 8020/602.
TOG:	Total oil and grease measured using Standard Method 503A/E or EPA Method 418.1.
BNAs:	Base neutral and acid extractables including polynuclear aromatics concentrations are below laboratory reporting limits for respective compounds except as indicated. (* = naphthalene, ^b = 2-methylnaphthalene, ° = Bis (2-ethylhexyl) Phthalate)
VOCs:	volatile organics except for BTEX concentrations are below laboratory reporting limits for respective compounds except as indicated. (° = methylene chloride, ^a = 1,2-Dichloroethane)
Cd:	Cadmium (using EPA Method 6010)
Cr:	Chromium (using EPA Method 6010)
Pb:	Lead (using EPA Method 7421)
Ni:	Nickel (using EPA Method 6010)
Zn:	Zinc (using EPA Method 6010)
ND:	Below detection limits. Detection limits for VOCs varied according to analyte.
DWAL:	California Department of Health Services recommended drinking water action levels (October 1990).
MCLs:	Maximum Contaminant Level in ppb (October 1990).

Quarterly Groundwater Monitoring
ARCO Station 601, San Leandro, California

June 10, 1993
69034.12

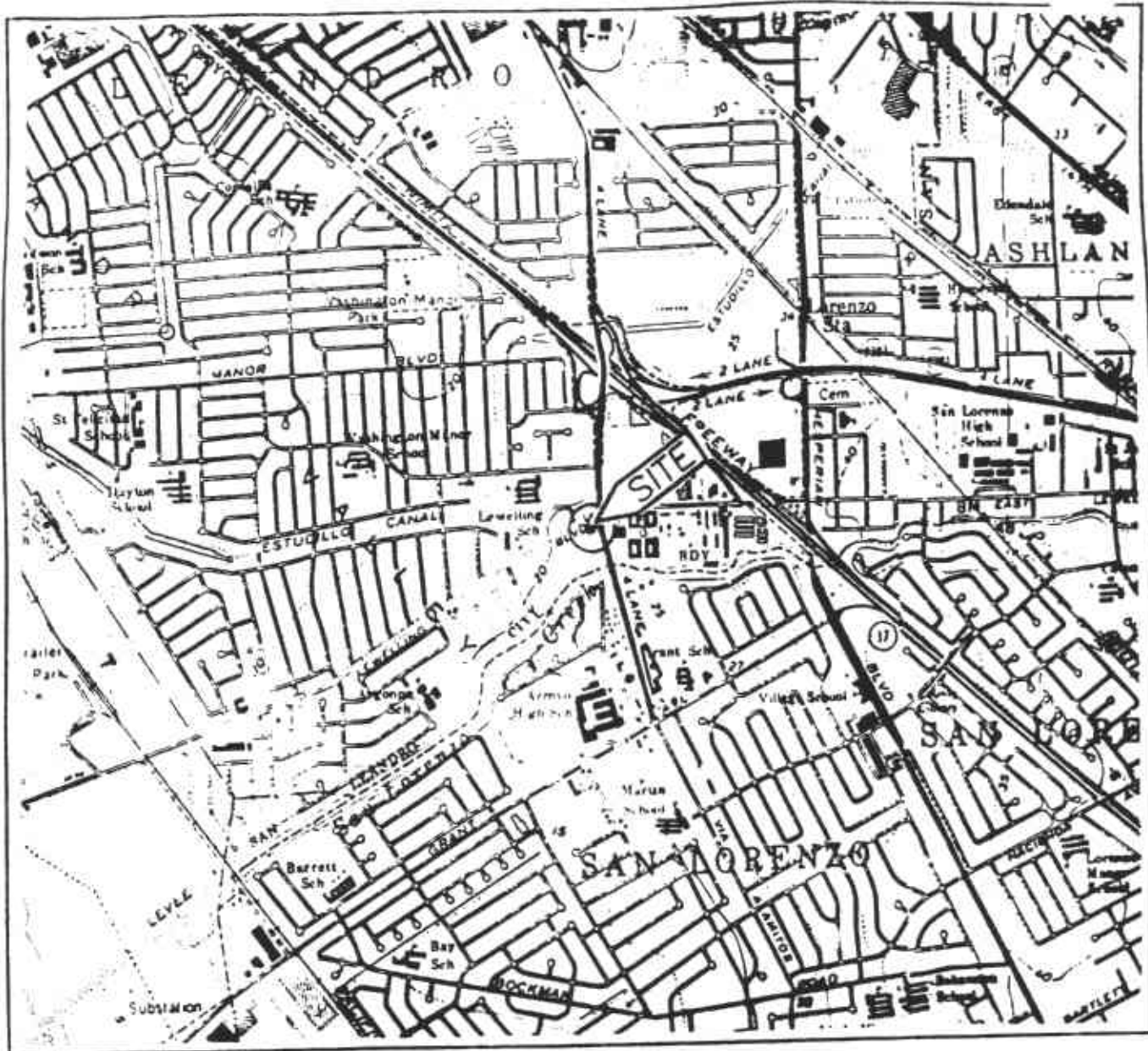
TABLE 3
APPROXIMATE CUMULATIVE PRODUCT RECOVERED
ARCO Station 601
San Leandro, California

Year	Floating Product Removed (gallons)
1991	TOTAL: 3.43
1992	
<u>MW-1</u>	
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*
<u>MW-3</u>	
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
1993	
<u>MW-1</u>	
02/26/93	None present
<u>MW-3</u>	
02/26/93	None present
	TOTAL: 0
1991 + 1992 + 1993	TOTAL: 3.45

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

APPENDIX A

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



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

LEGEND

● = Site Location

Approximate Scale



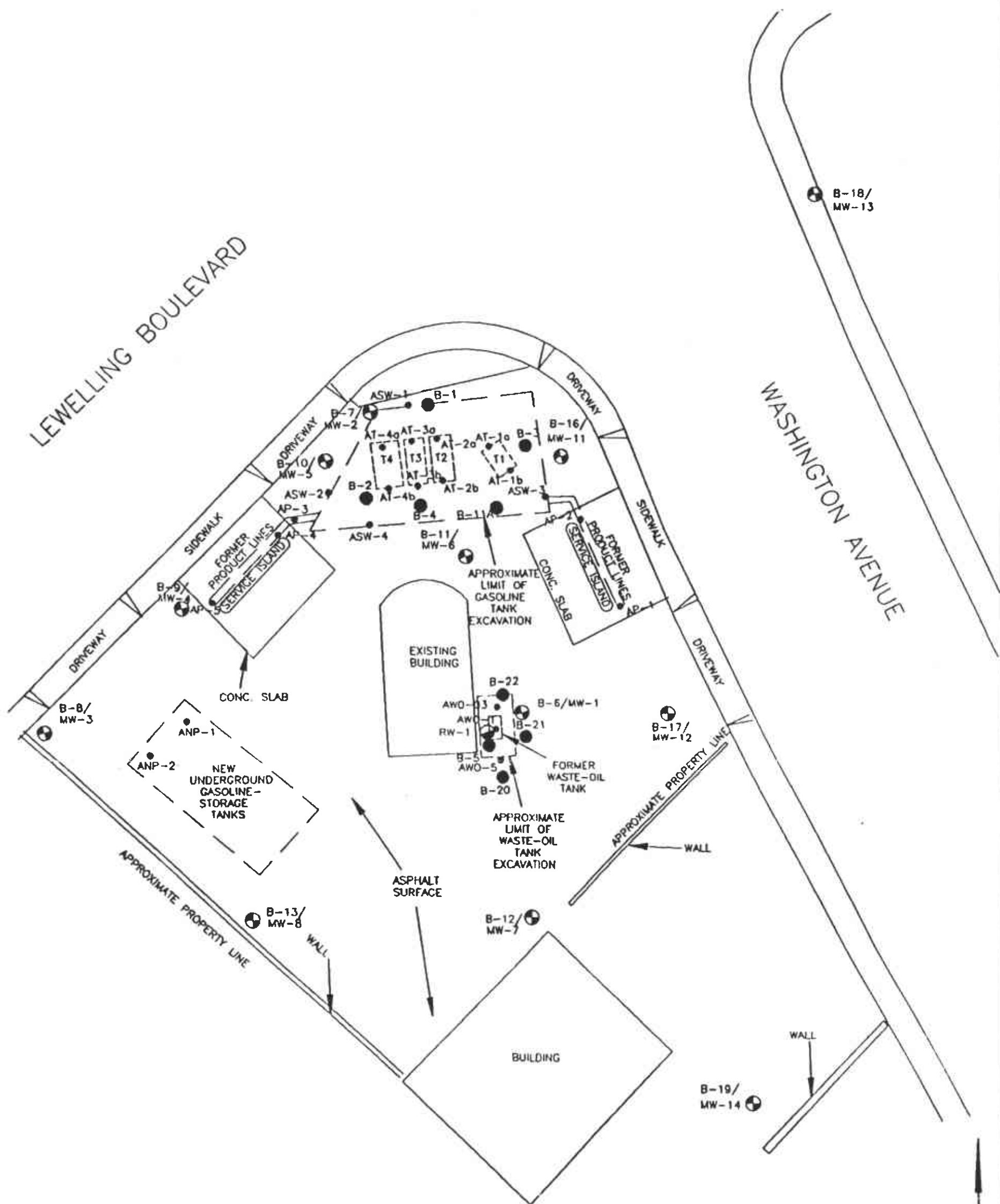
RESNA
Working to Restore Nature

PROJECT 69034.12

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

PLATE

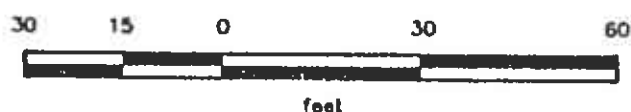
1



EXPLANATION

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



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

RESNA
Working to Restore Nature

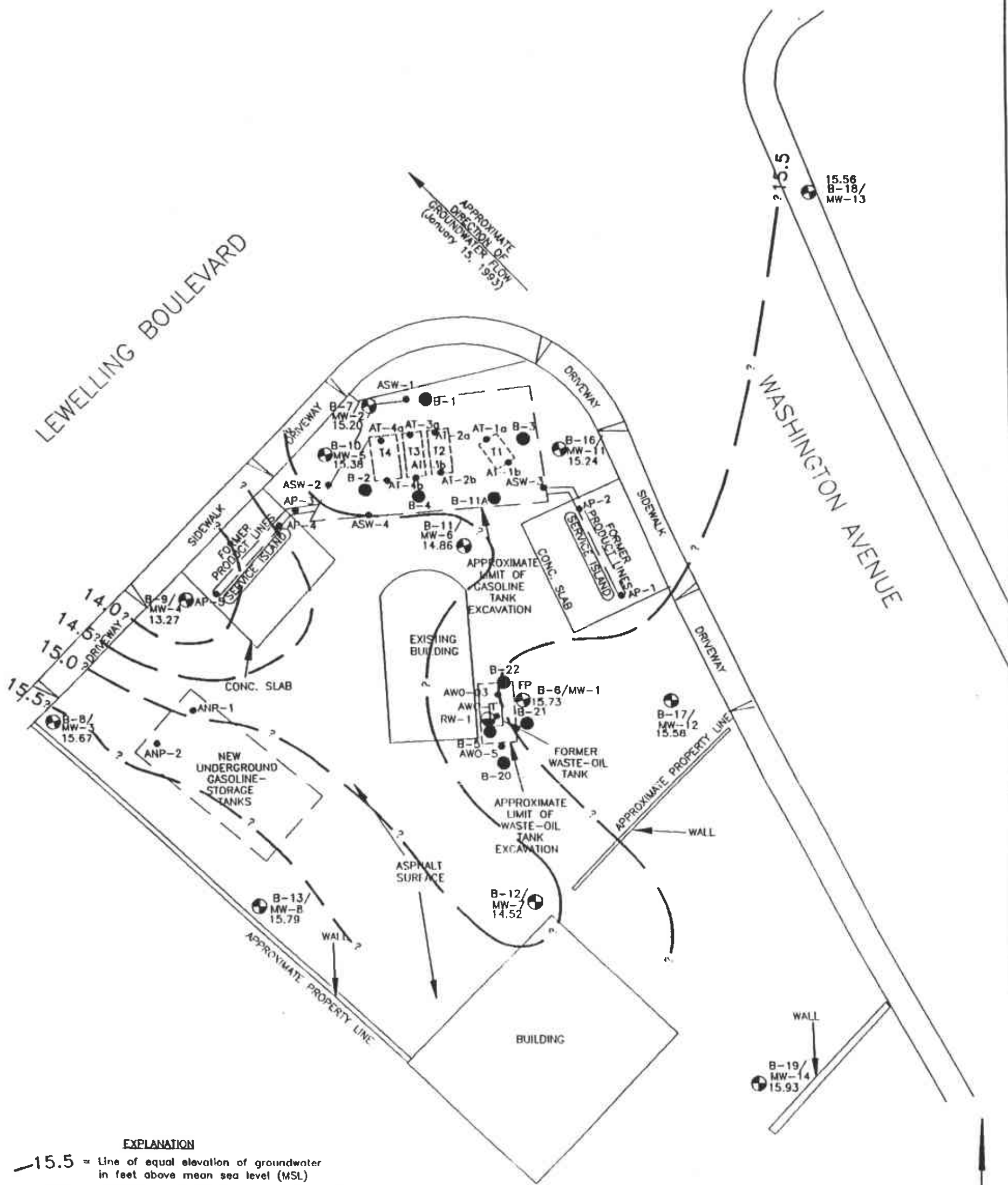
PROJECT 69034.12

98034-12

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

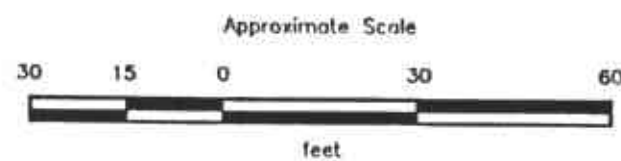
PLATE

2



EXPLANATION

- 15.5 = Line of equal elevation of groundwater in feet above mean sea level (MSL)
- 15.93 = Elevation of groundwater in feet above MSL January 15, 1993
- 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



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

RESNA
Working to Restore Nature

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

PLATE

3

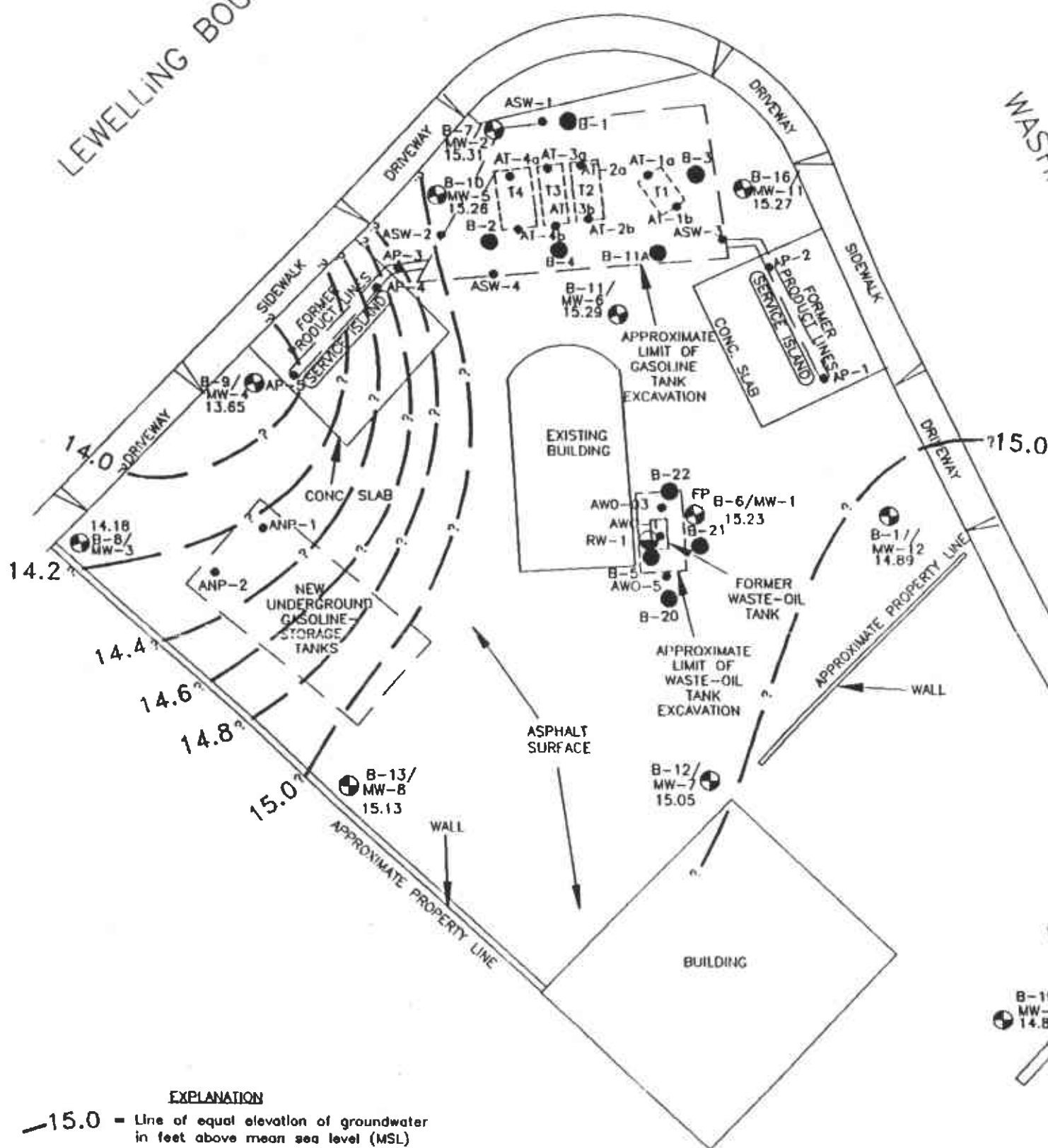
PROJECT 89034.12

98034.107

APPROXIMATE
DIRECTION OF
GROUNDWATER FLOW
(February 16, 1993)

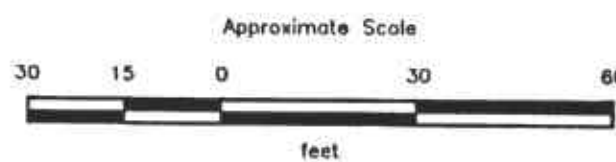
LEWELLING BOULEVARD

WASHINGTON AVENUE



EXPLANATION

- 15.0 - Line of equal elevation of groundwater in feet above mean sea level (MSL)
- 15.31 - Elevation of groundwater in feet above MSL February 16, 1993
- 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



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

RESNA
Working to Restore Nature

GROUNDWATER GRADIENT MAP

ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE

4

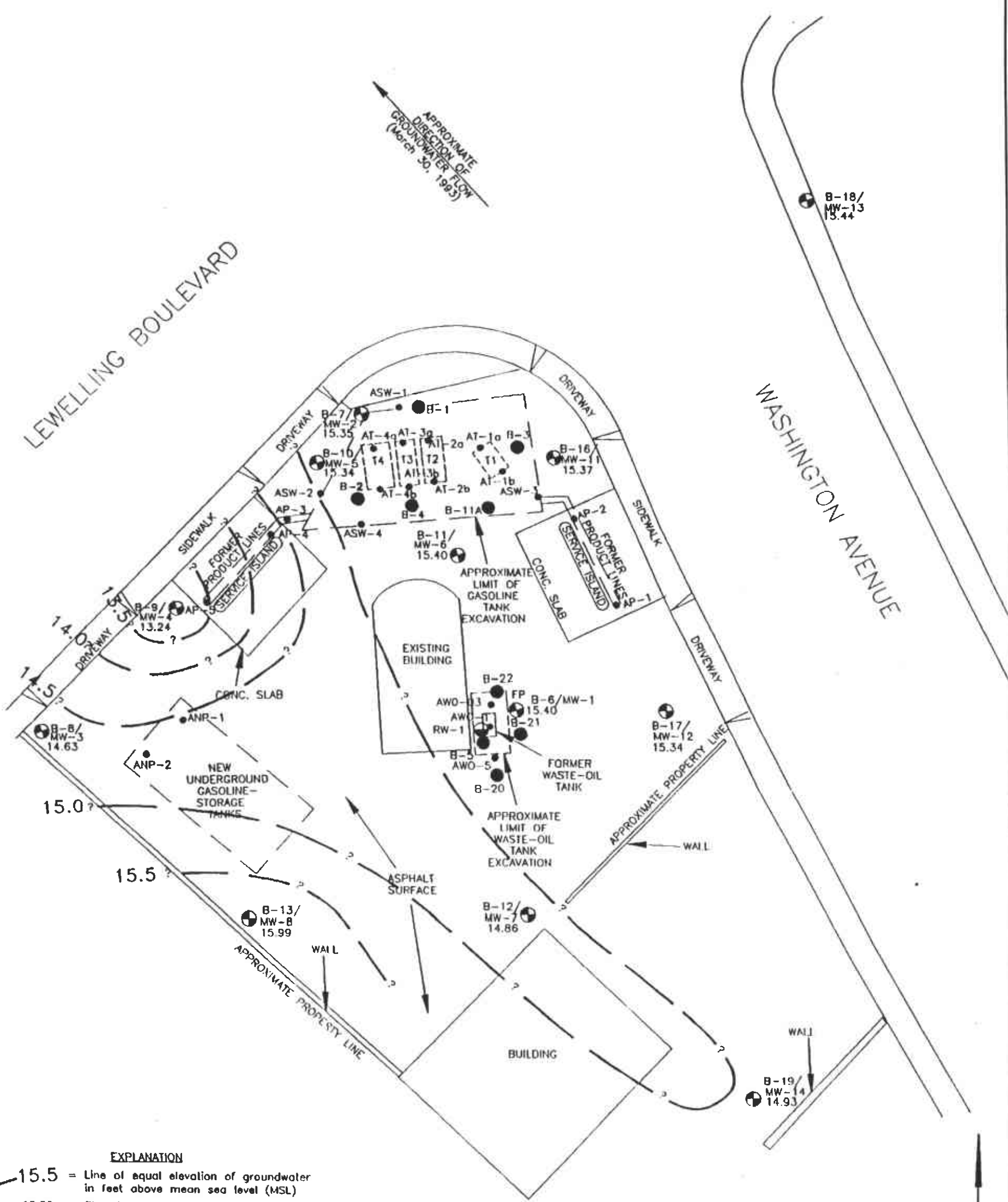
PROJECT 69034.12

99034101

APPROXIMATE
DIRECTION OF
GROUNDWATER FLOW
(March 30, 1993)

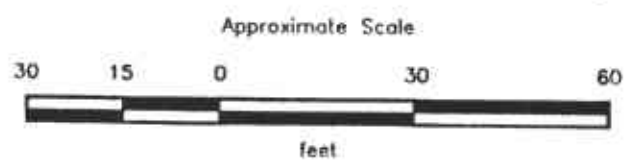
LEWELLING BOULEVARD

WASHINGTON AVENUE



EXPLANATION

- 15.5 = Line of equal elevation of groundwater in feet above mean sea level (MSL)
- 15.99 = Elevation of groundwater in feet above MSL March 30, 1993
- 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



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

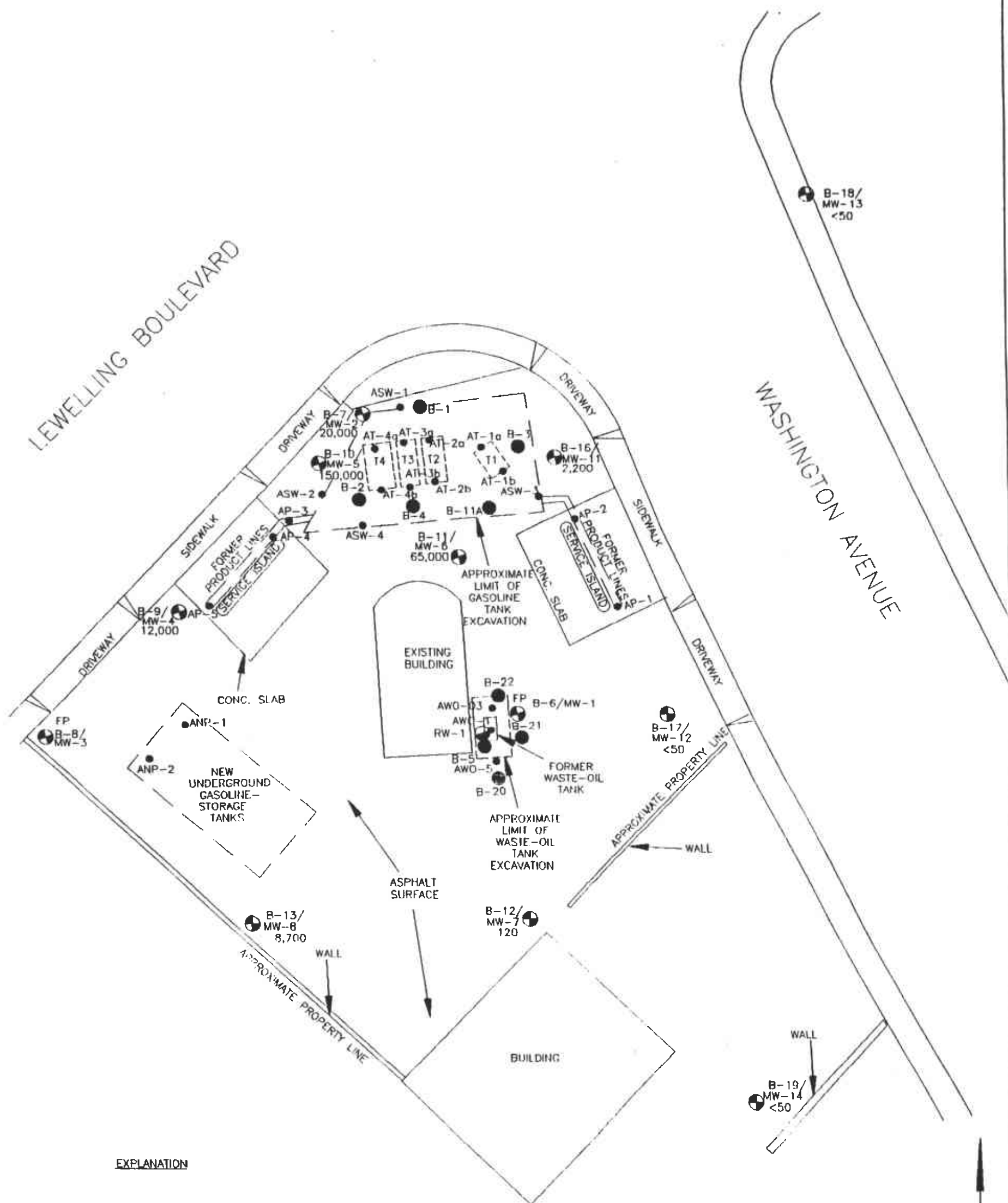
RESNA
Working to Restore Nature

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

PLATE

5

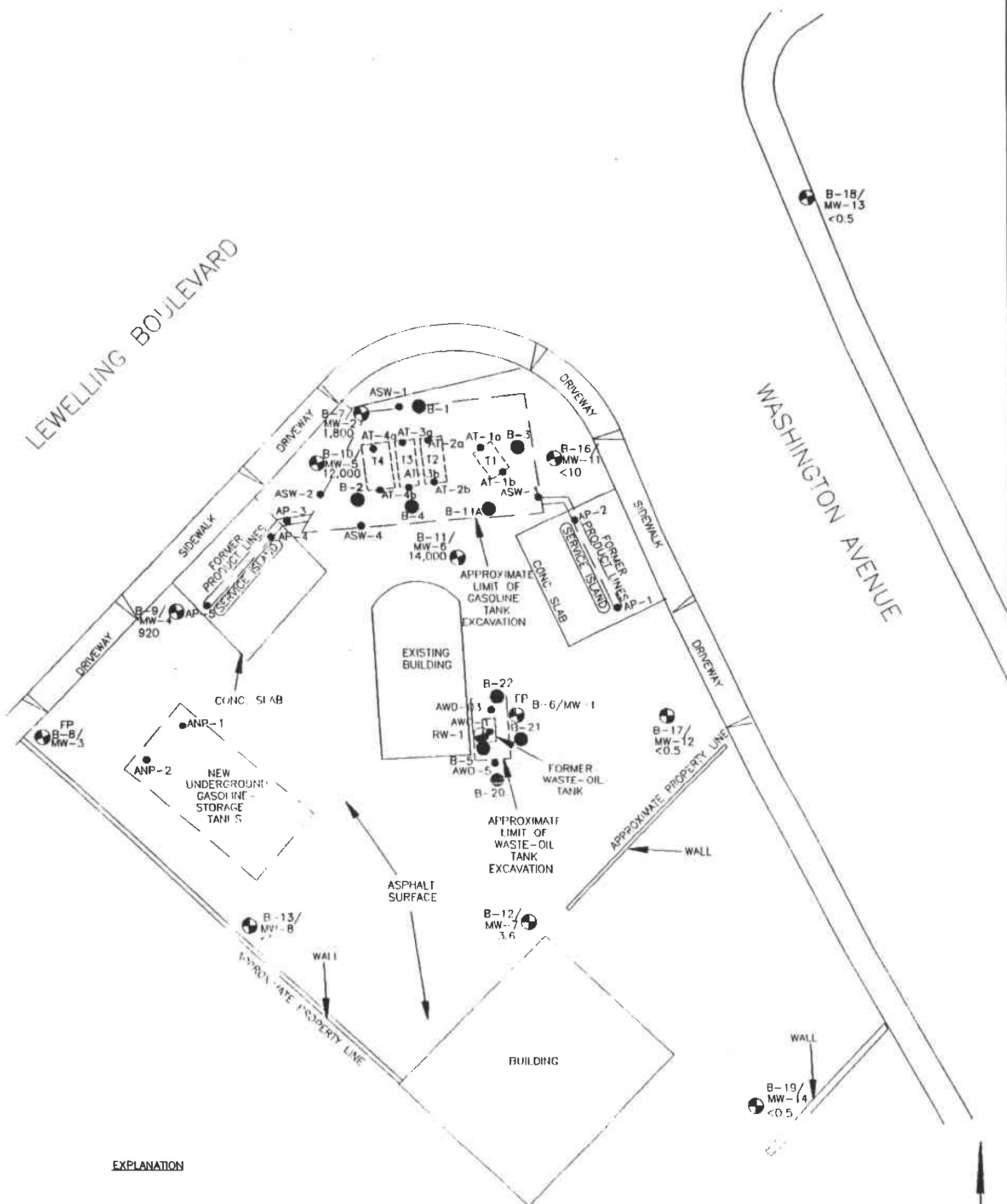
PROJECT 69034.12



EXPLANATION

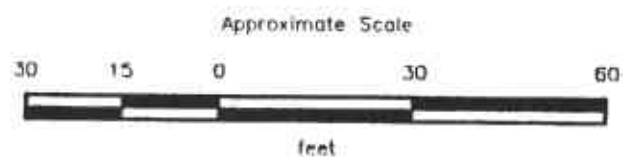
- 150,000 = Concentration of TPHig in groundwater in parts per billion, January 15, 1993
- RW-1  = Product recovery well (GeoStrategies, Jan. 1990)
- AWO-5  = Soil sample (GeoStrategies, Jan. 1990)
- B-19/
MW-14  = Vapor extraction/ground-water monitoring well (RESNA/Applied GeoSystems, June 1990 through November 1992)
- B-22  = Soil boring (RESNA/Applied GeoSystems, August 1989 through October 1992)
- [T4] = Former gasoline underground storage tanks
- FP = Floating product

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



EXPLANATION

- 14,000 = Concentration of benzene in groundwater in parts per billion, January 15, 1993
- RW-1  = Product recovery well (GeoStrategies, Jan. 1990)
- AWO-5  = Soil sample (GeoStrategies, Jan. 1990)
- B-19/MW-14  = Vapor extraction/groundwater monitoring well (RESNA/Applied GeoSystems, June 1990 through November 1992)
- B-22  = Soil boring (RESNA/Applied GeoSystems, August 1989 through October 1992)
-  = Former gasoline underground storage tanks
- FP = Floating product



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

APPENDIX A

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



emcon
ASSOCIATES

Consultants in Wastes
Management and
Environmental Control

FEB 1 1993

Date January 25, 1993
Project OG70-007.01

To:

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

We are enclosing:

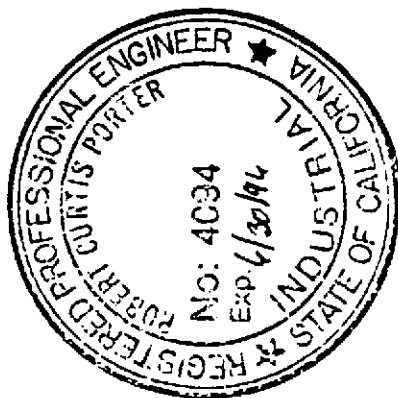
Copies	Description
<u>1</u>	<u>Depth To Water/Floating Product Survey Results</u>
<u> </u>	<u>Janaury 1993 monthly water level survey, ARCO</u>
<u> </u>	<u>station 601, 712 Lewelling Blvd., San Leandro, CA</u>

For your: X Information Sent by: X Mail

Comments:

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

Reviewed by:



Jim Butera *JB*

Robert Porter
Robert Porter, Senior Project
Engineer.



FIELD REPORT **DEPTH TO WATER/FLOATING PRODUCT SURVEY**

PROJECT #: OG70-007.01

STATION ADDRESS : 712 Lewelling Blvd. San Leandro

DATE : 1-15-93

ARCO STATION #: 601

FIELD TECHNICIAN : REICHELDERFER / ADLER

DAY : FRIDAY

DTW Order	WELL ID	Well Box Seal	Well Lid Secure	Gasket	Lock	Locking Well Cap	FIRST DEPTH TO WATER (feet)	SECOND DEPTH TO WATER (feet)	DEPTH TO FLOATING PRODUCT (feet)	FLOATING PRODUCT THICKNESS (feet)	WELL TOTAL DEPTH (feet)	COMMENTS
1	MW-14	OK	YES	OK	3259	OK	7.06	7.06	ND	ND	13.0	—
2	MW-13	OK	YES	OK	3259	OK	6.89	6.89	ND	NA	13.0	WATER IN SKIMMER / FULL OF WATER?
3	MW-12	OK	YES*	OK	3259	OK	7.19	7.19	ND	NA	11.6	BOLTS WERE LOOSE / 4.0" WELL (HAND-TIGHT)
4	MW-11	OK	YES*	OK	3259	OK	7.14	7.14	ND	NA	11.8	CAP OFF OF CASING, BOLTS LOOSE (HAND TIGHT)
5	MW-7	OK	YES	OK	3259	OK	8.37	8.37	ND	NA	9.6	—
6	MW-4	OK	YES	OK	3259	OK	7.48	7.48	ND	NA	8.5	BOX COMPLETELY FULL OF WATER
7	MW-6	OK	YES	OK	3259	OK	7.22	7.22	ND	NA	8.6	—
8	MW-8	OK	YES	OK	3259	OK	5.18	5.18	ND	NA	10.2	MILD ODOR; WATER IN BOX, BELOW LWC
9	MW-2	OK	YES	OK	3259	OK	6.13	6.13	ND	NA	12.3	BOX COMPLETELY FULL OF WATER
10	MW-5	OK	YES	OK	3259	BAD	5.52	5.52	ND	NA	10.1	REPLACED LWC; MILD ODOR
11	MW-1	OK	YES	NO*	3259	OK	6.53	6.53	ND	NA	11.1	(LWC NOT LOCKED) PIPERS MET WELL HEAD BOLT
12	MW-3	OK	NO	NO	3259	BAD	4.44	4.44	ND	NA	11.9	LWC ATTACHED TO SKIMMER IS IN BAILER, STAINED OUTSIDE
												IS SHOT. LIQUID IN SKIMMER; REPLACED LWC & REPAIRED ATTACHMENT TO SKIMMER CHAIN; STROKER OK; SHEEN IN BAILER

SURVEY POINTS ARE TOP OF WELL CASINGS

MW-3



Emkon Associates

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

RECEIVED
MAR 16 1993

Date March 11, 1993
Project 0G70-007.01

To:

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

We are enclosing:

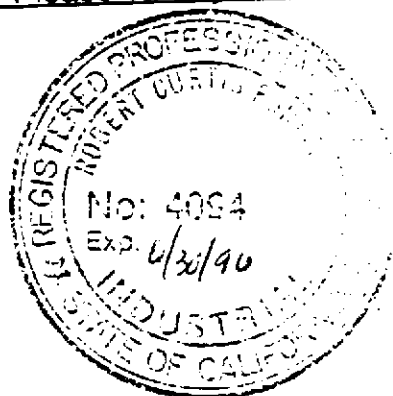
Copies	Description
<u>1</u>	<u>Depth To Water / Floating Product Survey Results</u>
<u>1</u>	<u>Summary of Groundwater Monitoring Data</u>
<u>1</u>	<u>Certified Analytical Reports with Chain-of-Custody</u>
<u>12</u>	<u>Water Sample Field Data Sheets</u>

For your: X Information Sent by: X Mail

Comments:

Enclosed are the data from the first quarter 1993 monitoring event at ARCO
service station 601, 712 Lewelling Boulevard, San Leandro, CA.
Groundwater monitoring is conducted consistent with applicable regulatory
guidelines. Please call if you have any questions: (408) 453-2266.

Reviewed by:



Jim Butera JB

Robert Porter
Robert Porter, Senior Project
Engineer.



FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 0G70-007.01

STATION ADDRESS : 712 Lewelling Blvd. San Leandro

DATE : 2-16-93

ARCO STATION # : 601

FIELD TECHNICIAN : Ian Graham

DAY : TUESDAY

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	YES	3259	OK	8.18	8.18	ND	NR	13.0	—
2	MW-13	OK	YES	YES	3259	OK	7.14	7.14	ND	NR	13.0	WATER IN BOX
3	MW-12	OK	YES	YES	3259	OK	7.88	7.88	ND	NR	11.6	—
4	MW-7	OK	YES	YES	3259	OK	7.84	7.84	ND	NR	9.6	—
5	MW-4	OK	YES	YES	3259	OK	7.10	7.10	ND	NR	8.5	WATER IN BOX
6	MW-11	OK	YES	YES	3259	OK	7.11	7.11	ND	NR	11.8	WATER IN BOX STRONG ODOR
7	MW-6	OK	YES	YES	3259	OK	6.79	6.79	ND	NR	8.6	WATER IN BOX STRONG ODOR
8	MW-8	OK	YES	YES	3259	OK	5.84	5.84	ND	NR	10.2	WATER IN BOX STRONG ODOR
9	MW-2	OK	YES	YES	3259	OK	6.02	6.02	ND	NR	12.3	WATER IN BOX STRONG ODOR (SHEEN ON H ₂ O)
10	MW-5	OK	YES	YES	3259	OK	5.64	5.64	ND	NR	10.1	STRONG ODOR (SHEEN ON H ₂ O)
11	MW-1	OK	YES	YES	3259	OK	7.04	7.04	7.03	.01'	11.1	STRONG ODOR (SHEEN ON H ₂ O (.01') ON OUTSIDE
12	MW-3	OK	YES	YE	3259	OK	5.94	5.94	5.93	.01'	12.0	STRONG ODOR (SHEEN ON H ₂ O (.01') ON OUTSIDE

SURVEY POINTS ARE TOP OF WELL CASINGS

Summary of Groundwater Monitoring Data
First Quarter 1993
ARCO Service Station 601
712 Lewelling Boulevard, San Leandro, California
micrograms per liter (µg/l) or parts per billion (ppb)

Well ID and Sample Depth	Sampling Date	Depth To Water (feet)	Floating Product Thickness (feet)	TPH ¹ as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	TRPH ² (ppb)	TPH Diesel (ppb)
MW-1	02/16/93	7.04	0.01	FP. ³	FP.	FP.	FP.	FP.	FP.	FP.
MW-2(11)	02/16/93	6.02	ND. ⁴	20,000.	1,800.	1,200.	530.	2,700.	NR. ⁵	NR.
MW-3	02/16/93	5.94	0.01	FP.	FP.	FP.	FP.	FP.	FP.	FP.
MW-4(7)	02/16/93	7.10	ND.	12,000.	920.	1,100.	130.	750.	NR.	NR.
MW-5(9)	02/16/93	5.64	ND.	150,000.	12,000.	15,000.	3,000.	17,000.	NR.	NR.
MW-6(7)	02/16/93	6.79	ND.	65,000.	14,000.	3,500.	1,300.	6,100.	NR.	NR.
MW-7(8)	02/16/93	7.84	ND.	120.	3.6	<0.5	<0.5	1.2	NR.	NR.
MW-8(9)	02/16/93	5.84	ND.	8,700.	<5.	<5.	200.	<5.	150,000.*	5,300.
MW-11(10)	02/16/93	7.11	ND.	2,200.	<10.	<10.	11.	<10.	NR.	NR.
MW-12(10)	02/16/93	7.88	ND.	<50.	<0.5	<0.5	<0.5	<0.5	NR.	NR.
MW-13(12)	02/16/93	7.14	ND.	<50.	<0.5	<0.5	<0.5	<0.5	NR.	NR.
MW-14(12)	02/16/93	8.18	ND.	<50.	<0.5	<0.5	<0.5	<0.5	NR.	NR.
FB-1 ⁶	02/16/93	NA. ⁷	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. FB. = Field blank

7. NA. = Not applicable

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

Summary of Analytical Results
Total Metals by EPA¹ Method 6010 and 7421
First Quarter 1993
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(9)	02/16/93	<3.	7.	4.	24.	54.

1. EPA = United States Environmental Protection Agency

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

Well ID and Sample Depth	Sampling Date	Naphthalene (ppb)	2-Methylnaphthalene (ppb)
MW-8(9)	02/16/93	730.	130.

1. EPA = United States Environmental Protection Agency.



March 5, 1993

Service Request No. SJ93-0218

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

Re: **EMCON Project No. OG70-007.01**
ARCO Facility No. 601

Dear Mr. Butera:

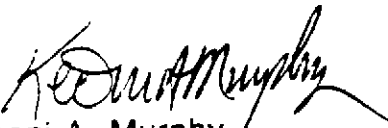
Attached are the results of the water samples submitted to our lab on February 17, 1993. For your reference, these analyses have been assigned our service request number SJ93-0218.

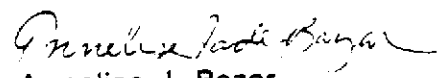
All analyses were performed consistent with our laboratory's quality assurance program. All results are intended to be considered in their entirety, and CAS is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions.

Respectfully submitted:

COLUMBIA ANALYTICAL SERVICES, INC.


Keoni A. Murphy
Laboratory Manager


Annelise J. Bazar
Regional QA Coordinator

KAM/kt

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

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

Date Received: 02/17/93
Service Request No.: SJ93-0218
Sample Matrix: Water

Total Recoverable Petroleum Hydrocarbons¹
mg/L (ppm)

Sample Name:
Date Sampled:

MW-8 (9)
02/16/93

Method Blank

AnalyteMethodMRL

TRPH

418.1

0.5

150.

ND

MRL
ND

Method Reporting Limit

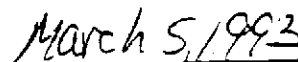
None Detected at or above the method reporting limit

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:



Date:



COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

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

Date Received: 02/17/93
Date Extracted: 03/02/93
Date Analyzed: 03/03/93
Service Request No.: SJ93-0218

Total Petroleum Hydrocarbons as Diesel
EPA Method 3510/California DHS LUFT Method
 $\mu\text{g/L}$ (ppb)

<u>Sample Name</u>	<u>MRL</u>	<u>TPH as Diesel</u>
MW-8 (9)	50	5,300. *
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:

K. O. Murphy

Date:

March 5, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

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

Date Received: 02/17/93
Service Request No.: SJ93-0218
Sample Matrix: Water

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

Sample Name:	<u>MW-2 (11)</u>	<u>MW-4 (7)</u>	<u>MW-5 (9)</u>
Date Analyzed:	02/25/93 *	03/02/93	03/02/93

<u>Analyte</u>	<u>MRL</u>			
Benzene	0.5	1,800.	920.	12,000.
Toluene	0.5	1,200.	1,100.	15,000.
Ethylbenzene	0.5	530.	130.	3,000.
Total Xylenes	0.5	2,700.	750.	17,000.
TPH as Gasoline	50	20,000.	12,000.	150,000.

TPH Total Petroleum Hydrocarbons

MRL Method Reporting Limit

ND None Detected at or above the method reporting limit

* This sample was part of the analytical batch started on February 25, 1993. However, it was analyzed after midnight so the actual date analyzed is February 26, 1993.

Approved by:

Kevin Murphy

Date:

March 5, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

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

Date Received: 02/17/93
Service Request No.: SJ93-0218
Sample Matrix: Water

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

Sample Name:	<u>MW-6 (7)</u>	<u>MW-7 (8)</u>	<u>MW-8 (9)</u>
Date Analyzed:	03/02/93	03/02/93	03/02/93

<u>Analyte</u>	<u>MRL</u>			
Benzene	0.5	14,000.	3.6	<5. *
Toluene	0.5	3,500.	ND	<5. *
Ethylbenzene	0.5	1,300.	ND	200.
Total Xylenes	0.5	6,100.	1.2	<5. *
TPH as Gasoline	50	65,000.	120.	8,700.

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:



Date:

March 5, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

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

Date Received: 02/17/93
Service Request No.: SJ93-0218
Sample Matrix: Water

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

Sample Name:	<u>MW-11 (10)</u>	<u>MW-12 (10)</u>	<u>MW-13 (12)</u>
Date Analyzed:	03/02/93	02/25/93 *	02/25/93 *

<u>Analyte</u>	<u>MRL</u>			
Benzene	0.5	<10. **	ND	ND
Toluene	0.5	<10. **	ND	ND
Ethylbenzene	0.5	11.	ND	ND
Total Xylenes	0.5	<10. **	ND	ND
TPH as Gasoline	50	2,200.	ND	ND

TPH Total Petroleum Hydrocarbons

MRL Method Reporting Limit

ND None Detected at or above the method reporting limit

* This sample was part of the analytical batch started on February 25, 1993. However, it was analyzed after midnight so the actual date analyzed is February 26, 1993.

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

Approved by:

Kenneth Murphy

Date:

March 5, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

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

Date Received: 02/17/93
Service Request No.: SJ93-0218
Sample Matrix: Water

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

Sample Name: MW-14 (12) FB-1 Method Blank
Date Analyzed: 02/25/93 * 02/25/93 * 02/25/93

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

TPH Total Petroleum Hydrocarbons

MRL Method Reporting Limit

ND None Detected at or above the method reporting limit

* This sample was part of the analytical batch started on February 25, 1993. However, it was analyzed after midnight so the actual date analyzed is February 26, 1993.

Approved by: K. Edmund Murphy

Date: March 5, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

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

Date Received: 02/17/93
Service Request No.: SJ93-0218
Sample Matrix: Water

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

Sample Name:
Date Analyzed:

Method Blank
03/02/93

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

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

Approved by:



Date:



COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

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

Date Received: 02/17/93
 Service Request No.: SJ93-0218
 Sample Matrix: Water

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

Sample Name:
 Date Analyzed:

MW-8 (9)
02/19/93

Method Blank
02/19/93

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

MRL Method Reporting Limit

ND None Detected at or above the method reporting limit

Approved by:

K. D. Murphy

Date:

March 5, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 02/17/93
 Service Request No.: SJ93-0218
 Sample Matrix: Water

Continuing Calibration Summary
 Inorganics
 EPA Method 418.1
 mg/L

<u>Analyte</u>	<u>True Value</u>	<u>Result</u>	<u>Percent Recovery</u>	<u>CAS Percent Recovery Acceptance Criteria</u>
TRPH	100.	110.	110.	90-110

TRPH Total Recoverable Petroleum Hydrocarbons

Approved by: Keon Amylin Date: March 5, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 02/17/93
Service Request No.: SJ93-0218
Sample Matrix: Water

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

Parameter	Spike Level	Sample Result	Percent Recovery				CAS Acceptance Criteria
			Spike Result				
			MS	DMS	MS	DMS	
TRPH	8.0	153.	160.	160.	73.	73.	56-151

TRPH Total Recoverable Petroleum Hydrocarbons

Approved by:

K. O. Murphy

Date:

March 5, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 02/17/93
Service Request No.: SJ93-0218
Sample Matrix: Water

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

Date Analyzed: 03/03/93

<u>Analyte</u>	<u>True Value</u>	<u>Result</u>	<u>Percent Recovery</u>	<u>CAS Percent Recovery Acceptance Criteria</u>
TPH as Diesel	500.	509.	102.	90-110

TPH Total Petroleum Hydrocarbons

Approved by: Keon M. Murphy Date: March 5, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 02/17/93
Service Request No.: SJ93-0218
Sample Matrix: Water

Surrogate Recovery Summary
Total Petroleum Hydrocarbons as Diesel
EPA Methods 3510/California DHS LUFT Method

<u>Sample Name</u>	<u>Date Analyzed</u>	<u>Percent Recovery</u> <u>p-Terphenyl</u>
MW-8 (9)	03/03/93	90.
MS	03/03/93	98.
DMS	03/03/93	106.
Method Blank	03/03/93	103.

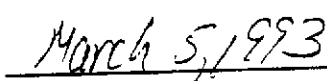
CAS Acceptance Criteria

46-133

Approved by:



Date:



COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 02/17/93
Service Request No.: SJ93-0218
Sample Matrix: Water

Matrix Spike/Duplicate Matrix Spike Summary
Total Petroleum Hydrocarbons as Diesel
EPA Method 3510/DHS LUFT Method
 $\mu\text{g/L}$ (ppb)

Date Analyzed: 03/03/93

Parameter	Spike Level	Sample Result	Percent Recovery					Acceptance Criteria
			Spike Result					
			MS	DMS	MS	DMS		
Diesel	4,000.	ND	4,210.	4,190.	105.	105.		61-121

ND None Detected at or above the method reporting limit

Approved by:

Kevin Murphy

Date:

March 5, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 02/17/93
Service Request No.: SJ93-0218

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

Date Analyzed: 02/25/93

<u>Analyte</u>	<u>True Value</u>	<u>Result</u>	<u>Percent Recovery</u>	<u>CAS Percent Recovery Acceptance Criteria</u>
Benzene	250.	239.	96.	85-115
Toluene	250.	251.	101.	85-115
Ethylbenzene	250.	250.	100.	85-115
Total Xylenes	750.	747.	100.	85-115
TPH as Gasoline	2,500.	2,569.	103.	90-110

Date Analyzed: 03/02/93

<u>Analyte</u>	<u>True Value</u>	<u>Result</u>	<u>Percent Recovery</u>	<u>CAS Percent Recovery Acceptance Criteria</u>
Benzene	250.	228.	91.	85-115
Toluene	250.	248.	99.	85-115
Ethylbenzene	250.	249.	100.	85-115
Total Xylenes	750.	755.	101.	85-115
TPH as Gasoline	2,500.	2,503.	100.	90-110

TPH Total Petroleum Hydrocarbons

Approved by:

K. O. Murphy

Date:

March 5, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 02/17/93
Service Request No.: SJ93-0218
Sample Matrix: Water

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

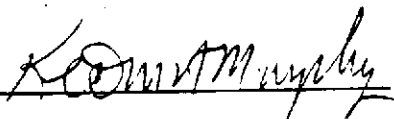
<u>Sample Name</u>	<u>Date Analyzed</u>	<u>Percent Recovery</u> <i>a,a,a</i> -Trifluorotoluene
MW-2 (11)	02/25/93	103.
MW-4 (7)	03/02/93	100.
MW-5 (9)	03/02/93	101.
MW-6 (7)	03/02/93	100.
MW-7 (8)	03/02/93	104.
MW-8 (9)	03/02/93	111.
MW-11 (10)	03/02/93	104.
MW-12 (10)	02/25/93	102.
MW-13 (12)	02/25/93	99.
MW-14 (12)	02/25/93	98.
FB-1	02/25/93	97.
MW-2 (11) MS	02/25/93	104.
MW-2 (11) DMS	02/25/93	103.
Method Blank	02/25/93	98.
Method Blank	03/02/93	98.

CAS Acceptance Criteria

70-130

TPH Total Petroleum Hydrocarbons

Approved by:



Date:

March 5, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 02/17/93
Service Request No.: SJ93-0218
Sample Matrix: Water

Matrix Spike/Duplicate Matrix Spike Summary
BTE
EPA Methods 5030/8020
 $\mu\text{g/L}$ (ppb)

Sample Name: MW-2 (11)
Date Analyzed: 02/25/93

Percent Recovery

Analyte	Spike Level	Sample Result	Spike Result		MS		CAS Acceptance Criteria
			MS	DMS	MS	DMS	
Benzene	1,000.	1,780.	2,720.	2,760.	94.	98.	39-150
Toluene	1,000.	1,190.	2,240.	2,250.	105.	106.	46-148
Ethylbenzene	1,000.	526.	1,630.	1,660.	110.	113.	32-160

Approved by:

K. O. Murphy

Date:

March 5, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 02/17/93
 Service Request No.: SJ93-0218

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

Date Analyzed: 02/19/93

Analyte	True Value	Result	Percent Recovery	EPA Percent Recovery Acceptance Criteria
Chloromethane	50	84.8	170.	D-193
Vinyl Chloride	50	77.0	154.	28-163
Bromomethane	50	61.9	124.	D-144
Chloroethane	50	70.1	140. *	46-137
Trichlorofluoromethane (Freon 11)	50	58.0	116.	21-156
1,1-Dichloroethene	50	52.8	106.	28-167
Methylene Chloride	50	47.3	95.	25-162
trans-1,2-Dichloroethene	50	50.9	102.	38-155
1,1-Dichloroethane	50	46.4	93.	47-132
Chloroform	50	44.5	89.	49-133
1,1,1-Trichloroethane (TCA)	50	53.5	107.	41-138
Carbon Tetrachloride	50	41.7	83.	43-143
1,2-Dichloroethane	50	48.5	97.	51-147
Trichloroethene (TCE)	50	50.5	101.	35-146
1,2-Dichloropropane	50	53.8	108.	44-156
Bromodichloromethane	50	56.8	114.	42-172
trans-1,3-Dichloropropene	50	72.1	144.	22-178
cis-1,3-Dichloropropene	50	59.8	120.	22-178
1,1,2-Trichloroethane	50	53.5	107.	39-136
Tetrachloroethene (PCE)	50	58.3	117.	26-162
Dibromochloromethane	50	52.9	106.	24-191
Chlorobenzene	50	51.4	103.	38-150
Bromoform	50	49.5	99.	13-159
1,1,2,2-Tetrachloroethane	50	55.7	111.	8-184
1,3-Dichlorobenzene	50	55.2	110.	7-187
1,4-Dichlorobenzene	50	60.7	121.	42-143
1,2-Dichlorobenzene	50	51.8	104.	D-208

D Detected

* The recovery of Chloroethane was greater than the EPA Acceptance Limit. No Chloroethane was reported from this day's data.

Approved by:

K. O. Murphy

Date:

March 5, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 02/17/93
Service Request No.: SJ93-0218
Sample Matrix: Water

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

<u>Sample Name</u>	<u>Date Analyzed</u>	<u>Percent Recovery</u> 4-Bromofluorobenzene
MW-8 (9)	02/19/93	94.
MW-8 (9) MS	02/19/93	107.
MW-8 (9) DMS	02/19/93	107.
Method Blank	02/19/93	92.

CAS Acceptance Criteria

70-130

Approved by:

Keon Murphy

Date:

March 5, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 02/17/93
Service Request No.: SJ93-0218
Sample Matrix: Water

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

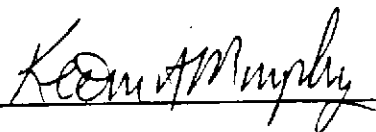
Sample Name: MW-8 (9)
Date Analyzed: 02/19/93

Percent Recovery

Analyte	Spike Level	Sample Result	Spike Result		MS		EPA Acceptance Criteria
			MS	DMS	MS	DMS	
1,1-Dichloroethene	10.	ND	8.89	9.22	89.	92.	28-167
Trichloroethene	10.	ND	11.0	11.1	110.	111.	35-146
Tetrachloroethene	10.	ND	12.1	12.6	121.	126.	26-162

ND None Detected at or above the method reporting limit

Approved by:



Date:

March 5, 1993

ARCO Products Company

Division of Atlantic Richfield Company

Task Order No. EMCGC-92-1

Chain of Custody

ARCO Facility no.

601

City

(Facility)

SAN LEANDRO

Project manager

(Consultant)

JIM BUTERA

ARCO engineer

KYLE CHRISTIE

Telephone no.

(ARCO)

571-2434

Telephone no.

(Consultant)

453-0719

Fax no.

(Consultant)

453-0452

Consultant name

EMCON ASSOCIATES

Address

(Consultant)

1938 JUNCTION AVE., SAN JOSE

Laboratory name

CAS

Contract number

07077

Method of shipment

SAMPLER
WELL
DELIVER

Special detection

Limit/reporting

LOWEST
POSSIBLE

Special QA/QC

AS
NORMAL

Remarks

240 ML VOA'S

0670-007.01

Lab number

5793-0218

Turnaround time

Priority Rush
1 Business DayRush
2 Business DaysExpedited
5 Business DaysStandard
10 Business Days

Condition of sample:

OK

Temperature received:

COOL

Relinquished by sampler

Date

Time

2-17-93/ 0830

Relinquished by

Date

Time

Relinquished by

Date

Time

Received by

Received by

Received by laboratory

Date

Time

2-17-93

8:35

ARCO Products Company

Division of Atlantic Richfield Company

Task Order No. EMCCG-92-1

Chain of Custody

ARCO Facility no. 601 City (Facility) San Leandro
 ARCO engineer Kyle Christie Telephone no. (ARCO) 571-2434 Project manager (Consultant) Jim Bulera Telephone no. (Consultant) 455-0719 Fax no. (Consultant) 455-0452
 Consultant name TRUON Associates Address (Consultant) 1935 Junction Avenue San Jose

Laboratory name

C A S

Contract number

07017

Method of shipment

Sampler will deliver

Special detection limit/reporting

Lowest possible

Special QA/QC

As Normal

Remarks

METALS

Cd, Cr, Pb, Zn, Ni

0670-007.01

Lab number

5593-0218

Turnaround time

Priority Rush

1 Business Day

Rush

2 Business Days

Expedited

5 Business Days

Standard

10 Business Days

Sample ID	Lab no.	Container no.	Matrix			Preservation		Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA M602/8020/8015	TPH Modified B015 Gas — Diesel — 413.1 — 413.2 —	TPH EPA 418.1/MS03E VOC EPA 601/01C	EPA 824/8240	EPA 625/6250	TCUP Metals — VOC — VOA — Set: — VOA — VOA —	CAN Metals EPA 6310/7000 TLC — STLC —	Lead Org (HHS) Lead EPA 7420/7421 —	TOTAL LEAD	TOTAL METALS
			Soil	Water	Other	Ice	Acid													
AW-8(9)	23	3A		X		X	NP	2-16-93	1710			X			X					
AW-8(9)	24	3		X		X	HCl	2-16-93	1710											
AW-8(9)	25	2		X		X	HCl	2-16-93	1710				X							
AW-8(9)	26	1		X		X	HNO ₃	2-16-93	1710									X	X	

Condition of sample.

Relinquished by sampler

Relinquished by

Relinquished by

Date

Date

Date

Time

Time

Time

Temperature received:

Received by

Received by

Received by laboratory

Date

Time



RECEIVED

MAR 04 1993

CAS S.J.

March 2, 1993

Service Request No.: K930875C

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

Re: ARCO - San Leandro/Task Order #EMCGO-92-1

Dear Jim:

Enclosed are the results of the sample submitted to our laboratory on February 18, 1993. Preliminary results were transmitted via facsimile on March 1, 1993. For your reference, these analyses have been assigned our service request number K930875C.

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

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

A handwritten signature of Joe Wiegel in dark ink.

Joe Wiegel
Project Chemist

JW/td

Columbia Analytical Services, Inc.

A handwritten signature of Kevin DeWhitt in dark ink.

Kevin DeWhitt
Quality Assurance Coordinator

Page 1 of

12

COLUMBIA ANALYTICAL SERVICES, INC.

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

Date Received: 02/18/93
Service Request No.: K930875C

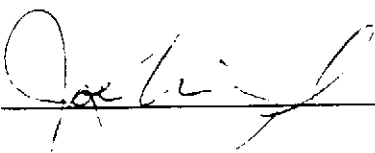
CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for sample(s) designated for Tier II data deliverables. When appropriate for the method, results of the analysis of a Method Blank (MB) have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control (QC) analyses reported herein include: Matrix Spike/Duplicate Matrix Spike (MS/DMS), and Laboratory Control Sample (LCS).

Matrix spike recoveries were outside of acceptance criteria for Method 8270 in the QC samples. Since LCS recoveries were acceptable, and since all surrogate recoveries were acceptable in the samples, no corrective action has been taken. The elevated recoveries have been flagged in the report.

No other problems or nonconformities were experienced during the analysis of this batch.

Approved by



Date

3/2/93

00002

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

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

Date Received: 02/18/93
Work Order No.: K930875C

Total Metals
 $\mu\text{g/L}$ (ppb)

Sample Name:
Lab Code:

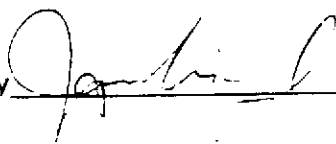
MW-8(9)
K0875-1

Method Blank
K0875-MB

Analyte	EPA Method	MRL		
Cadmium	6010	3	ND	ND
Chromium	6010	5	7	ND
Lead	7421	2	4	ND
Nickel	6010	20	24	ND
Zinc	6010	10	54	ND

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

Approved by



Date

3/2/93

00003

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

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

Date Received: 02/18/93
 Date Extracted: 02/20/93
 Date Analyzed: 02/23/93
 Work Order No.: K930875C

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

Sample Name: MW-8(9)
 Lab Code: K0875-1

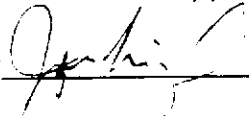
Base Neutral Analyte	MRL	Result	Base Neutral Analyte	MRL	Result
N-Nitrosodimethylamine	5	ND	2,6-Dinitrotoluene	5	ND
Aniline	20	ND	Diethyl Phthalate	5	ND
Bis(2-chloroethyl) Ether	5	ND	4-Chlorophenyl Phenyl Ether	5	ND
1,2-Dichlorobenzene	5	ND	Fluorene	5	ND
1,3-Dichlorobenzene	5	ND	4-Nitroaniline	20	ND
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	730	Butylbenzyl Phthalate	5	ND
4-Chloroaniline	5	ND	3,3'-Dichlorobenzidine	20	ND
Hexachlorobutadiene	5	ND	Benz(a)anthracene	5	ND
2-Methylnaphthalene	5	130	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 

Date 3/2/93

00004

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

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

Date Extracted: 02/20/93
 Date Analyzed: 02/23/93
 Work Order No.: K930875C

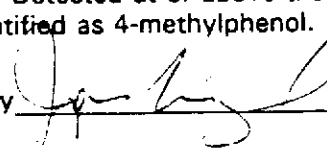
Base Neutral/Acid Semivolatile Organic Compounds
 EPA Methods 3510/8270
 $\mu\text{g/L}$ (ppb)

Sample Name: Method Blank
 Lab Code: K0875-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 

Date 3/2/93

00005

APPENDIX A
LABORATORY QC RESULTS

00000

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 02/18/93
Work Order No.: K930875C

Matrix Spike/Duplicate Matrix Spike Summary
Total Metals
 $\mu\text{g/L}$ (ppb)

Sample Name: MW-8(9)
Lab Code: K0875-1

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	ND	47	48	94	96	75-125	2
Chromium	5	200	7	203	197	98	95	75-125	2
Lead	2	20	4	24	23	100	95	75-125	4
Nickel	20	500	24	491	482	93	92	75-125	2
Zinc	10	500	54	528	523	95	94	75-125	<1

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

Approved by _____

Date 3/2/93

00007

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

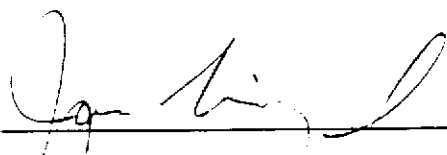
Date Received: 02/18/93
Date Extracted: 02/20/93
Date Analyzed: 02/23/93
Work Order No.: K930875C

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

Sample Name	Lab Code	P e r c e n t R e c o v e r y					TPH
		2FP	PHL	TBP	NBZ	FBP	
MW-8(9)	K0875-1	50	41	103	53	83	122
MW-8(9)	K0875-1MS	63	51	110	59	70	117
MW-8(9)	K0875-1DMS	62	50	108	59	77	130
Laboratory Control Sample	K0875-LCS	51	34	92	90	80	95
Method Blank	K0875-MB	46	38	87	82	78	107
EPA Acceptance Criteria		21-100	10-94	10-123	35-114	43-116	33-141

2FP 2-Fluorophenol
PHL Phenol-D₆
TBP 2,4,6-Tribromophenol
NBZ Nitrobenzene-D₅
FBP 2-Fluorobiphenyl
TPH Terphenyl-D₁₄

Approved by



Date

3/2/93

00008

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

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

Date Received: 02/18/93
 Date Extracted: 02/20/93
 Date Analyzed: 02/23/93
 Work Order No.: K930875C

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

Sample Name: MW-8(9)
 Lab Code: K0875-1

Percent Recovery

Analyte	Spike Level		Sample Result	Spike Result		MS		EPA Acceptance Criteria	Relative Percent Difference
	MS	DMS		MS	DMS				
Phenol	400	400	ND	187	185	47	46	12-89	2
2-Chlorophenol	400	400	ND	317	319	79	80	27-123	1
1,4-Dichlorobenzene	200	200	ND	146	138	73	69	36-97	6
N-Nitrosodi-n-propylamine	200	200	ND	166	162	83	81	41-116	2
1,2,4-Trichlorobenzene	200	200	ND	178	169	89	84	39-98	6
4-Chloro-3-methylphenol	400	400	ND	^a 353	^a 354	88	88	23-97	<1
Acenaphthene	200	200	ND	154	159	77	80	46-118	4
4-Nitrophenol	400	400	ND	226	238	56	60	10-80	7
2,4-Dinitrotoluene	200	200	ND	180	182	90	91	24-96	1
Pentachlorophenol	400	400	ND	^a 475	^a 492	^b 119	^b 123	9-103	3
Pyrene	200	200	ND	238	266	119	^b 133	26-127	11

ND None Detected at or above the method reporting limit
 a Estimated concentration due to result greater than instrument calibration range.
 b Outside of acceptance limits.

Approved by

Date

3/2/93

00009

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: ARCO - San Leandro
LCS Matrix: Water

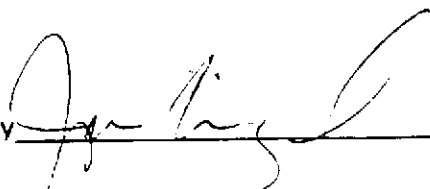
Date Extracted: 02/20/93
Date Analyzed: 02/23/93
Work Order No.: K930875C

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

Analyte	True Value	Result	Percent Recovery	EPA Percent Recovery Acceptance Criteria
Phenol	200	61	30	5-112
2-Chlorophenol	200	157	78	23-134
1,4-Dichlorobenzene	100	71	71	20-124
N-Nitrosodi-n-propylamine	100	87	87	D-230
1,2,4-Trichlorobenzene	100	68	68	44-142
4-Chloro-3-methylphenol	200	*163	82	22-147
Acenaphthene	100	82	82	47-145
4-Nitrophenol	200	77	38	D-132
2,4-Dinitrotoluene	100	91	91	39-139
Pentachlorophenol	200	*201	100	14-176
Pyrene	100	100	100	52-115

- D** Detected; result must be greater than zero.
a Estimated concentration due to result greater than instrument calibration range.

Approved by



Date

3/2/95

00010

APPENDIX B
CHAIN OF CUSTODY INFORMATION

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		Contract number 07077	
Consultant name EMCON ASSOCIATES		Address (Consultant) 1939 JUNCTION AVE, SAN JOSE		Fax no (Consultant) 453-0452		Method of shipment SAMPLER WELL DELIVER	

Sample I.D.	Lab no.	Container no.	Matrix			Preservation		Sampling date	Sampling time	BTEX EPA 8020	BTEX/TPH EPA 8022/8020/8015	TPH Modified BOLL Gas Diesel	Oil and Grease 413.1 413.2	TPH EPA 418.1/SM603E	EPA 801/8010	EPA 804/8040	EPA 805/8070	TCLP Metals VOA VOC	CERCLA Metals EPA 801/80700 TLG STLC	Lead Org/DHS Lead EPA 7420/7421
			Soil	Water	Other	Ice	Acid													
MW-2(11)	1-2	2		X		X	HCL	2-16-93	1735		X									
MW-4(7)	3-4	2		X		X			1530		X									
MW-5(9)	5-6	2		X		X			1815		X									
MW-6(7)	7-8	2		X		X			1640		X									
MW-7(8)	9-10	2		X		X			1500		X									
MW-8(9)	11-12	2		X		X			1710		X									
MW-11(10)	13-14	2		X		X			1600		X									
MW-12(10)	15-16	2		X		X			1435		X									
MW-13(12)	17-18	2		X		X			1405		X									
MW-14(13)	19-20	2		X		X			1335		X									
FB-1	21-22	2		X		X			1820		X									

Condition of sample: OK		Temperature received: Cool	
Relinquished by sampler Jim Graham	Date 2-17-93	Time 0830	Received by
Relinquished by	Date	Time	Received by
Relinquished by	Date	Time	Received by laboratory Jim Graham
	Date 2-17-93	Time 8.35	

Special detection Limit/reporting LOWEST POSSIBLE	
Special QA/QC AS NORMAL	
Remarks 240 MW. UOA'S	
Lab number ST93-0218	
Turnaround time	
Priority Rush 1 Business Day	☐
Rush 2 Business Days	☐
Expedited 5 Business Days	☐
Standard 10 Business Days	☒

EMCON
ASSOCIATES

SAMPLE ID: MW-1

CLIENT NAME: Arco 601

LOCATION: 712 Lewelling Blvd,
San Leandro, CA.

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

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

DEPTH OF WELL (feet): 11.1 ACTUAL PURGE VOL. (gal.): 1

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. (μ mhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
-------------------	------------------	---------------	----------------------------------	---------------------	-------------------	-----------------------

No Sample - Product in well

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

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

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 #: 2259

WELL INTEGRITY: OK LOG #:

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: Made Reviewed By: JB Page 1 of 12

EMCON
ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

PROJECT NO: 0670-007.01
 PURGED BY: M. Adler
 SAMPLED BY: M. Adler

SAMPLE ID: MW-2 (12)
 CLIENT NAME: Arco 601
 LOCATION: 712 Levee Bldg.
San Leandro, CA

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

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

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. ($\mu\text{mhos/cm @ } 25^\circ\text{C}$)	TEMPERATURE ($^\circ\text{F}$)	COLOR (visual)	TURBIDITY (visual)
DATE PURGED: <u>11-16-92</u>				Start (2400 Hr) <u>1348</u>	End (2400 Hr) <u>1404</u>	
DATE SAMPLED: <u>11-16-92</u>				Start (2400 Hr) <u>1406</u>	End (2400 Hr) <u>1407</u>	
<u>1357</u>	<u>3.0</u>	<u>6.99</u>	<u>1854</u>	<u>69.1</u>	<u>grey</u>	<u>moderate</u>
<u>1358</u>	<u>6.0</u>	<u>6.91</u>	<u>1903</u>	<u>73.3</u>	<u>grey</u>	<u>moderate</u>
<u>1357</u>	<u>9.0</u>	<u>6.90</u>	<u>1893</u>	<u>73.8</u>	<u>Tan/grey</u>	<u>moderate</u>
<u>1401</u>	<u>12.0</u>	<u>6.92</u>	<u>1903</u>	<u>74.5</u>	<u>grey</u>	<u>heavy</u>
<u>1404</u>	<u>14.5</u>	<u>6.93</u>	<u>1907</u>	<u>74.5</u>	<u>grey</u>	<u>heavy</u>
D. O. (ppm): <u>NR</u>			ODOR: <u>moderate/STEAK</u>		<u>NR</u>	<u>NR</u>
					(COBALT 0-100)	(NTU 0-200)

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

PURGING EQUIPMENT

☐ 2" Bladder Pump ☐ Bailer (Teflon®)
☐ Centrifugal Pump ☒ 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: light sheen on purge water

Meter Calibration: Date: 11-16-92 Time: 1053 Meter Serial #: 9112 Temperature $^\circ\text{F}$: _____
 (EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)
 Location of previous calibration: _____

Signature: M. Adler Reviewed By: JB Page 2 of 12



Rev. 2, 5/91

SAMPLE ID: MW-3

CLIENT NAME: Arco 601

LOCATION: 712 Lewelling Blvd
San Leandro, Ca.

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

VOLUME IN CASING (gal.): NR /

CALCULATED PURGE (gal.):

ACTUAL PURGE VOL. (gal.) :

Start (2400 Hr) NA

End (2400 Hr) NAStart (2400 Hr) End (2400 Hr)

TURBIDITY
(visual)

Product in Skimmer - NO Sample

ODOR: Strong

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

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

SAMPLING EQUIPMENT

_____ Bailer (Teflon®)

_____ Bailer (Stainless Steel)

— Submersible Pump

Dedicated

Other: _____

WELL INTEGRITY: OK LOCK #: 2854

REMARKS: Did not sample - Product in SKimmers

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

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

Location of previous calibration; _____

Signature: _____

Reviewed By: JB Page 3 of 12



WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: 0670-007.01
PURGED BY: MADLER
SAMPLED BY: NA

SAMPLE ID: MW-4
CLIENT NAME: Arco 601
LOCATION: 712 Jewelling Blvd.
San Leandro, CA.

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

CASING ELEVATION (feet/MSL): NK 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) NA

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (μ mhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
	<u>Insufficient water -</u>			<u>No Sample</u>		
D. O. (ppm):	<u>NK</u>		ODOR: <u>NA</u>		<u>NK</u> (COBALT 0 - 100)	<u>NK</u> (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 ☐ 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 4 of 12



WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: 0670-007.01
PURGED BY: M Adler
SAMPLED BY: M Adler

SAMPLE ID: MW-5 (10)
CLIENT NAME: Arco 601
LOCATION: 712 Leaveling 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. ($\mu\text{mhos/cm @ } 25^\circ\text{C}$)	TEMPERATURE ($^\circ\text{F}$)	COLOR (Visual)	TURBIDITY (Visual)
<u>1424</u>	<u>2.0</u>	<u>6.90</u>	<u>1641</u>	<u>72.4</u>	<u>grey</u>	<u>moderate</u>
<u>1426</u>	<u>2.5</u>	<u>Well dried</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>1436</u>	<u>recharge</u>	<u>6.34</u>	<u>1812</u>	<u>71.4</u>	<u>grey</u>	<u>moderate</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
D. O. (ppm): <u>NR</u>	ODOR: <u>STRONG</u>	<u>NR</u>	<u>NR</u>			

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

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

PURGING EQUIPMENT

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

SAMPLING EQUIPMENT

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

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: light sheen ~~on~~ present 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 $^\circ\text{F}$:
(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

PROJECT NO: 0670-007.01
PURGED BY: MAdler
SAMPLED BY: NA

SAMPLE ID: MW-6
CLIENT NAME: Arco 601
LOCATION: 712 Cowelling Blvd.
San Leandro, CA.

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): NA
DEPTH TO WATER (feet): 8.57 CALCULATED PURGE (gal.): NA
DEPTH OF WELL (feet): 8.6 ACTUAL PURGE VOL (gal.): NA

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

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
	Insufficient water - No Sample					
D. O. (ppm):	<u>NR</u>	ODOR:	<u>NR</u>		<u>NR</u> (COBALT 0 - 100)	<u>NR</u> (NTU 0 - 200)

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

PURGING EQUIPMENT

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

SAMPLING EQUIPMENT

☐ 2" Bladder Pump ☐ Bailor (Teflon®)
☐ DDL Sampler ☐ Bailor (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



EMCON
ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: 0670-007.01
PURGED BY: MADieu
SAMPLED BY: NA

SAMPLE ID: MW-7
CLIENT NAME: Arco 601
LOCATION: 712 Lewelling Blvd.
San Leandro, CA.

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

CASING ELEVATION (feet/MSL): NA 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. (umhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	<u>NO SAMPLE</u>	<u>Insufficient water</u>	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

D. O. (ppm): NA ODOR: 1
(COBALT 0 - 100) (NTU 0 - 200)

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

PURGING EQUIPMENT

SAMPLING EQUIPMENT

____ 2" Bladder Pump _____ Bailer (Teflon®)
____ Centrifugal Pump _____ Bailer (PVC)
____ Submersible Pump _____ Bailer (Stainless Steel)
____ Well Wizard™ _____ Dedicated
Other: _____ 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: MADieu Reviewed By: JB Page 7 of 12



WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: 0670-007.01SAMPLE ID: MW-8 (10)PURGED BY: M AdlerCLIENT NAME: Arco 601SAMPLED BY: M AdlerLOCATION: 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):	<u>N/R</u>	VOLUME IN CASING (gal.):	<u>1.31</u>
DEPTH TO WATER (feet):	<u>8.19</u>	CALCULATED PURGE (gal.):	<u>6.59</u>
DEPTH OF WELL (feet):	<u>10.2</u>	ACTUAL PURGE VOL (gal.):	<u>2.5</u>

DATE PURGED:	<u>11-16-92</u>	Start (2400 Hr)	<u>1336</u>	End (2400 Hr)	<u>1342</u>
DATE SAMPLED:	<u>11-16-92</u>	Start (2400 Hr)	<u>1448</u>	End (2400 Hr)	<u>1549</u> <u>1634</u>

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (μ mhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1338</u>	<u>1.5</u>	<u>6.90</u>	<u>2040</u>	<u>67.1</u>	<u>TAN</u>	<u>light</u>
<u>1342</u>	<u>2.5 well dried</u>					
<u>1449</u>	<u>recharge</u>	<u>7.03</u>	<u>1926</u>	<u>67.7</u>	<u>TAN</u>	<u>moderate</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
D. O. (ppm):	<u>N/R</u>	ODOR:	<u>moderate</u>		<u>N/R</u>	<u>N/R</u>
					(COBALT 0 - 100)	(NTU 0 - 200)

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

PURGING EQUIPMENT

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

SAMPLING EQUIPMENT

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

WELL INTEGRITY: OK LOCK #: 3259REMARKS: Well dried @ 2.5 gallons at 1342
Left bailer in well to sample later to
recharge DTW 8.59 stay in order.

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: M Adler Reviewed By: JB Page 8 of 12



WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: CG70-007.01
PURGED BY: M Adler
SAMPLED BY: M Adler

SAMPLE ID: MW-11 (11)
CLIENT NAME: Arco 601
LOCATION: 712 Lewelling Blvd.
San Leandro, CA.

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 1.88
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. ($\mu\text{mhos}/\text{cm} @ 25^\circ \text{C}$)	TEMPERATURE ($^\circ \text{F}$)	COLOR (visual)	TURBIDITY (visual)
<u>1201</u>	<u>2.0</u>	<u>7.09</u>	<u>2070</u>	<u>72.5</u>	<u>TAN</u>	<u>heavy</u>
<u>1203</u>	<u>4.0</u>	<u>7.04</u>	<u>2060</u>	<u>72.9</u>	<u>brown</u>	<u>heavy</u>
<u>1206</u>	<u>5.5</u>	<u>Well Dried</u>				
<u>1213</u>	<u>recharge</u>	<u>7.11</u>	<u>2010</u>	<u>71.8</u>	<u>brown</u>	<u>heavy</u>

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

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

PURGING EQUIPMENT

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

SAMPLING EQUIPMENT

____ 2" Bladder Pump X Bailor (Teflon®)
____ DDL Sampler _____ Bailor (Stainless Steel)
____ Dipper _____ Submersible Pump
____ Well Wizard™ _____ Dedicated
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 $^\circ \text{F}$: _____
(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



WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: 0670-007.01SAMPLE ID: MW-12 (11)PURGED BY: M AdlerCLIENT NAME: Arco 601SAMPLED BY: M AdlerLOCATION: 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):	<u>NR</u>	VOLUME IN CASING (gal.):	<u>1.27</u>
DEPTH TO WATER (feet):	<u>9.65</u>	CALCULATED PURGE (gal.):	<u>6.39</u>
DEPTH OF WELL (feet):	<u>11.6</u>	ACTUAL PURGE VOL (gal.):	<u>4.0</u>

DATE PURGED: 11-16-92Start (2400 Hr) 1133End (2400 Hr) 1146DATE SAMPLED: 11-16-92Start (2400 Hr) 1151End (2400 Hr) 1152

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (μ mhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1135</u>	<u>1.5</u>	<u>6.99</u>	<u>2030</u>	<u>72.4</u>	<u>TAN</u>	<u>heavy</u>
<u>1137</u>	<u>3.0</u>	<u>7.06</u>	<u>2050</u>	<u>73.4</u>	<u>TAN</u>	<u>heavy</u>
<u>1140</u>	<u>4.0</u>	<u>Well dried</u>		<u>8</u>		
<u>1150</u>	<u>recharge</u>	<u>7.10</u>	<u>1949</u>	<u>72.5</u>	<u>brown</u>	<u>heavy</u>

D. O. (ppm): NRODOR: NONENR
(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	☐ Bailor (Teflon®)
☐ Centrifugal Pump	☒ Bailor (PVC)
☐ Submersible Pump	☐ Bailor (Stainless Steel)
☐ Well Wizard™	☐ Dedicated

Other: _____

SAMPLING EQUIPMENT

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

Other: _____

WELL INTEGRITY: OK LOCK #: 0909REMARKS: Well dried @ 4.0 gallons at 1146 hrs
recharge DTW 10.58Meter 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 AdlerReviewed By: JB Page 10 of 12



WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: 0670-007.01
PURGED BY: MAdler
SAMPLED BY: MAdler

SAMPLE ID: MW-13(17)
CLIENT NAME: Arco 601
LOCATION: 712 Lewalling Blvd.
San Leandro, CA.

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

CASING ELEVATION (feet/MSL): NK 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. (μ mhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1228</u>	<u>1.0</u>	<u>7.26</u>	<u>1722</u>	<u>69.1</u>	<u>TAN</u>	<u>moderate</u>
<u>1230</u>	<u>2.0</u>	<u>7.28</u>	<u>1813</u>	<u>70.3</u>	<u>TAN</u>	<u>moderate</u>
<u>1232</u>	<u>2.5</u>	<u>7.36</u>	<u>1860</u>	<u>70.8</u>	<u>brown</u>	<u>heavy</u>
<u>1233</u>	<u>3.0</u>	<u>7.45</u>	<u>1802</u>	<u>70.4</u>	<u>brown</u>	<u>heavy</u>
<u>1235</u>	<u>3.5</u>	<u>7.50</u>	<u>1775</u>	<u>69.9</u>	<u>brown</u>	<u>heavy</u>

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

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

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 #: 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

PROJECT NO: 0670-007.01
PURGED BY: MAdler
SAMPLED BY: MAdler

SAMPLE ID: Too Leaking MW-14
CLIENT NAME: Arco 601
LOCATION: 712 Lewelling Blvd
San Leandro, CA.

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): .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. ($\mu\text{mhos/cm @ } 25^\circ\text{C}$)	TEMPERATURE ($^\circ\text{F}$)	COLOR (Visual)	TURBIDITY (Visual)
<u>1112</u>	<u>.5</u>	<u>6.90</u>	<u>2450</u>	<u>68.7</u>	<u>TAN</u>	<u>moderate</u>
<u>1116</u>	<u>1.0</u>	<u>6.96</u>	<u>1846</u>	<u>69.7</u>	<u>TAN</u>	<u>moderate</u>
<u>1119</u>	<u>1.5</u>	<u>6.95</u>	<u>1830</u>	<u>71.6</u>	<u>TAN</u>	<u>moderate</u>
<u>1121</u>	<u>2.0</u>	<u>6.98</u>	<u>1836</u>	<u>71.9</u>	<u>TAN</u>	<u>moderate</u>
<u>1123</u>	<u>2.5</u>	<u>6.98</u>	<u>1840</u>	<u>71.8</u>		
D. O. (ppm):	<u>NR</u>	ODOR:	<u>NONE</u>		<u>NR</u> (COBALT 0 - 100)	<u>NR</u> (NTU 0 - 200)

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

PURGING EQUIPMENT

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

SAMPLING EQUIPMENT

☐ 2" Bladder Pump ☒ Bailor (Teflon®)
☐ DDL Sampler ☐ Bailor (Stainless Steel)
☐ Dipper ☐ Submersible Pump
☐ Well Wizard™ ☐ Dedicated
Other: _____

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: _____

Meter Calibration: Date: 11-16-92 Time: 10:50 Meter Serial #: 9112 Temperature $^\circ\text{F}$: 64.8
(EC 1000 927 / 1000) (DI 24.7) (pH 7 7.02 / 7.00) (pH 10 9.94 / 10.00) (pH 4 4.88 / _____)
Location of previous calibration: MW-14 (13)

Signature: MAdler Reviewed By: VB Page 12 of 12

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 RINSEATE GENERATED DURING THE INSTALLATION OF MONITORING WELLS AT VARIOUS SITES.
THE WATER MAY CONTAIN DISSOLVED HYDROCARBONS.

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

KYLE CHRISTIE *Kyle Christie*
(Typed or printed full name & signature)

11/30/92
(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

James Y. K.
(Typed or printed full name & signature)

11-30-92
(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*
(Typed or printed full name & signature)

11-30-92
(Date)

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 0G70-007.01

STATION ADDRESS : 712 Lewelling Blvd. San Leandro

DATE : 3-30-92

ARCO STATION # : 601

FIELD TECHNICIAN : J. Williams

DAY : TUESDAY

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	7.97	7.97	ND	ND	13.0	-
2	MW-13	OK	YES	OK	3259	OK	7.01	7.01	ND	ND	13.0	-
3	MW-12	OK	YES	OK	3259	OK	7.43	7.43	ND	ND	11.6	-
4	✓ MW-7	OK	YES	OK	3259	OK	8.03	8.03	ND	ND	9.6	-
5	MW-4	OK	YES	OK	3259	OK	7.51	7.51	ND	ND	8.5	-
6	✓ MW-11	OK	YES	OK	3259	OK	7.01	7.01	ND	ND	11.9	-
7	✓ MW-6	OK	YES	OK	3259	OK	6.68	6.68	ND	ND	8.6	-
8	✓ MW-8	OK	YES	OK	3259	OK	4.98	4.98	ND	ND	10.2	-
9	MW-2	OK	YES	OK	3259	OK	5.98	5.98	ND	ND	12.3	NEED LOCKING CAP
10	MW-5	OK	YES	OK	3259	OK	5.56	5.56	ND	ND	10.1	-
11	✓ MW-1	OK	YES	OK	3259	OK	6.86	6.83	ND	ND	11.1	NEED LOCK
12	MW-3	OK	YES	OK	3259	OK	5.48	5.48	ND	ND	12.0	-

SURVEY POINTS ARE TOP OF WELL CASINGS