

93 NOV -8 PM 1:49

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

TRANSMITTAL

TO: Mr. Rob Weston
Alameda County Health
Care Services Agency
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

DATE: November 2, 1993
PROJECT NUMBER: 62019.04
SUBJECT: ARCO Station 2162

FROM: Erin D. Krueger

WE ARE SENDING YOU:

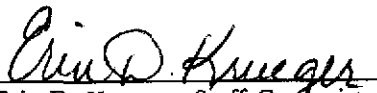
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1 11/02/93	Letter Report, Quarterly Groundwater Monitoring, Third Quarter 1993 at ARCO Station 2162, 15135 Hesperian Boulevard, San Leandro, California.

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REMARKS:

Copies: 1 to RESNA project file no. 62019.04


Erin D. Krueger, Staff Geologist

cc: Mr. John Jang, RWQCB
Mr. Michael Whelan, ARCO
Mr. Mike Bakaldin, COSLFD

3315 Almaden Expressway, Suite 34
San Jose, CA 95118
Phone: (408) 264-7723
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LETTER REPORT
QUARTERLY GROUNDWATER MONITORING
Third Quarter 1993
at
ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California

62019.04

93 NOV -8 PM 1:49

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

November 2, 1993
3rdqtrqm
62019.04

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

Subject: Letter Report, Quarterly Groundwater Monitoring, Third Quarter 1993 at
ARCO Station 2162, 15135 Hesperian Boulevard, San Leandro, California.

Mr. Whelan:

As requested by ARCO Products Company (ARCO), RESNA Industries Inc. (RESNA) prepared this letter report which summarizes the results of the third quarter 1993 groundwater monitoring performed by ARCO's contractor, EMCON Associates (EMCON) of San Jose, at the above-referenced site. The objectives of this quarterly groundwater monitoring event are to evaluate changes in the groundwater flow direction and gradient, and changes in concentrations of gasoline hydrocarbons in the local groundwater associated with former gasoline underground-storage tanks 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 water, subjectively analyzing groundwater for the presence of petroleum product, collecting groundwater samples from the wells for laboratory analyses, and directing a State-certified laboratory to analyze the groundwater samples. Field procedures and acquisition of field data were performed under the direction of EMCON; warrant of their field data and evaluation of their field protocols are beyond RESNA's scope of work. RESNA's scope of work was limited to interpretation of field and laboratory analyses data, which included evaluating trends in reported hydrocarbon concentrations in the local groundwater, the groundwater gradient, and direction of groundwater flow beneath the site.

ARCO Station 2162 is an operating auto repair and self-service gasoline station located in a residential area on the southwestern corner of the intersection of Hesperian Boulevard and Ruth Court in San Leandro, California. The location of the site is shown on the Site Vicinity Map, Plate 1. The results of previous environmental investigations at the site are presented in the reports listed in the references section. The locations of the groundwater

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

Groundwater Sampling and Gradient Evaluation

Depth-to-water (DTW) levels were measured and groundwater was sampled by EMCON field personnel on August 11, 1993. DTW measurements and subjective analysis for product were performed by EMCON on July 28, and September 28, 1993. The results of EMCON's field work at the site, EMCON's Field Reports, are included in Appendix A.

The DTW levels, wellhead elevations, groundwater elevations, and subjective observations for product in the groundwater from MW-1 through MW-4 for this quarter and previous quarterly groundwater monitoring at the site are summarized in Table 1, Cumulative Groundwater Monitoring Data. Evidence of product or sheen was not reported on EMCON's Field Reports during this quarter (see Appendix A). EMCON's DTW measurements were used to evaluate groundwater elevations. The groundwater gradients interpreted from the July, August, and September 1993 groundwater monitoring events are shown on Plates 3 through 5, Groundwater Gradient Maps. The interpreted average groundwater gradient and flow direction for this quarter was approximately 0.01 ft/ft to the southwest. The groundwater gradient and flow direction are generally consistent with previously evaluated gradients and flow directions at the site.

EMCON's Water Sample Field Data Sheets, Field Reports, and Summary of Groundwater Monitoring Data are included in Appendix A. Purge water generated during purging and sampling of the monitoring wells was transported to Gibson Environmental in Redwood City, California for recycling.

Laboratory Methods and Analyses

Under the direction of EMCON, water samples collected from the wells were analyzed by Columbia Analytical Services, Inc. located in San Jose, California (Hazardous Waste Testing Laboratory Certification No. 1426). The water samples from MW-1 through MW-4 were analyzed for total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene, and total xylenes (BTEX) using modified Environmental Protection Agency (EPA) Methods 5030/California DHS LUFT/8020. 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. Results of these and previous water analyses are summarized in Table 2, Cumulative Results of Laboratory Analyses of Groundwater Samples.

Quarterly Groundwater Monitoring Report
ARCO Station 2162, San Leandro, California

November 2, 1993
62019.04

Since last quarter, **gasoline hydrocarbon concentrations increased in monitoring well MW-1**, decreased in wells MW-3 and MW-4, and remained the same (TPHg) or decreased (BTEX) in well MW-2.

RESNA recommends that copies of this report be forwarded to:

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

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

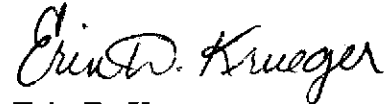
Mr. Mike Bakaldin
City of San Leandro Fire Department
Hazardous Materials Division
835 East 14th Street
San Leandro, California 94577

Quarterly Groundwater Monitoring Report
ARCO Station 2162, San Leandro, California

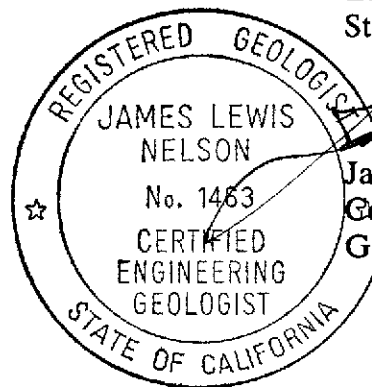
November 2, 1993
62019.04

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

Sincerely,
RESNA Industries Inc.



Erin D. Krueger
Staff Geologist



James L. Nelson
Certified Engineering
Geologist No. 1463

Enclosures: References
Plate 1, Site Vicinity Map
Plate 2, Generalized Site Plan
Plate 3, Groundwater Gradient Map, July 28, 1993
Plate 4, Groundwater Gradient Map, August 11, 1993
Plate 5, Groundwater Gradient Map, September 28, 1993
Plate 6, TPHg/Benzene Concentrations in Groundwater, August 11, 1993

Table 1, Cumulative Groundwater Monitoring Data
Table 2, Cumulative Results of Laboratory Analyses of Groundwater
Samples

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

REFERENCES

Department of Health Services, State of California. October 24, 1990. Summary of Drinking Water Standards.

Hickenbottom, Kelvin and Muir, Kenneth, June 1988. Geohydrology and Groundwater Quality Overview of the East Bay Plain Area, Alameda County, California. Alameda County Flood Control and Water Conservation District, Report 205 (j).

Maslonkowski, D.P. 1984. Groundwater in the San Leandro and San Lorenzo Alluvial Cones of the East Bay Plan of Alameda County. Alameda County Flood control and Water Conservation District, California

RESNA. July 7, 1992. Work Plan for Subsurface Investigation at ARCO Station 2162, 15135 Hesperian Boulevard, San Leandro, California. 62019.01

RESNA. September 6, 1992. Site Safety Plan Subsurface Environmental Investigation at ARCO Station 2162, 15135 Hesperian Boulevard, San Leandro, California. 62019.02

RESNA. February 4, 1993. Letter Report Quarterly Groundwater Monitoring, Fourth Quarter 1992, at ARCO Station 2162, 15135 Hesperian Boulevard, San Leandro, California. 62019.04

RESNA. March 10, 1993. Subsurface Investigation at ARCO 2162, 15135 Hesperian Boulevard, San Leandro, California. 62019.02

RESNA. April 30, 1993. Letter Report Quarterly Groundwater Monitoring, First Quarter 1993, at ARCO Station 2162, 15135 Hesperian Boulevard, San Leandro, California. 62019.04

RESNA. July 20, 1993. Letter Report Quarterly Groundwater Monitoring, Second Quarter 1993, at ARCO Station 2162, 15135 Hesperian Boulevard, San Leandro, California. 62019.04

Roux Associates, August 28, 1991. Letter Report - Limited Soil Performance Test, ARCO Facility No. 2162, 15135 Hesperian Boulevard, San Leandro, California. Doc #A101W02.1.1

Quarterly Groundwater Monitoring Report
ARCO Station 2162, San Leandro, California

November 2, 1993
62019.04

REFERENCES (con't)

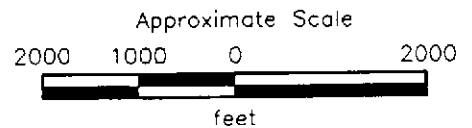
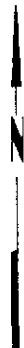
Roux Associates, August 28, 1991. Preliminary Tank Replacement Assessment, ARCO Facility No. 2162, 15135 Hesperian Boulevard, San Leandro, California. #A101W01.1.5

Roux Associates, August 28, 1991. Letter Report Limited Soil Performance Test, ARCO Facility No. 2162, 15135 Hesperian Boulevard, San Leandro, California. #A101W02.1.1

Roux Associates, July 7, 1992. Underground Storage Tank Replacement and Soil Sampling, ARCO Facility No. 2162, 15135 Hesperian Boulevard, San Leandro, California. #A117W01.1.8



Source: U.S. Geological Survey
 7.5-Minute Quadrangles
 San Leandro/Hayward, California
 Photorevised 1980



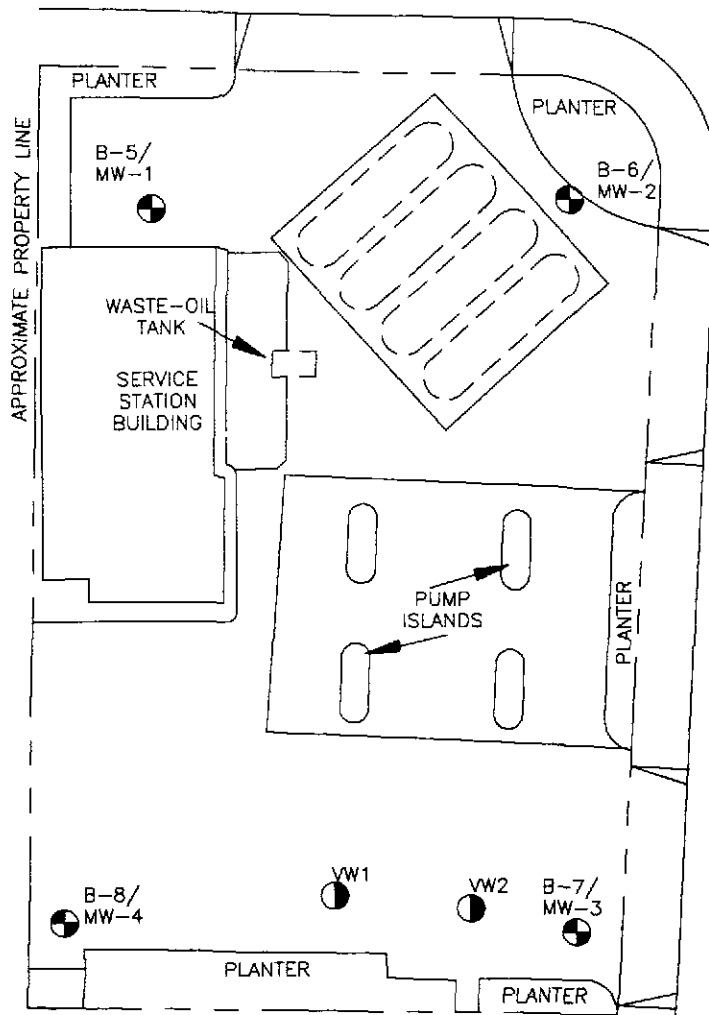
RESNA
 Working to Restore Nature

PROJECT 62019.04

SITE VICINITY MAP
 ARCO Station 2162
 15135 Hesperian Boulevard
 San Leandro, California



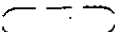
PLATE
 1

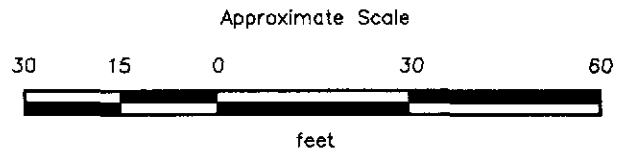
RUTH COURT



HESPERIAN BOULEVARD

EXPLANATION

- B-8/
MW-4  = Monitoring well RESNA September 1992
- VW2  = Vapor extraction well
(Roux Associates, Inc., 1991)
-  = Existing underground storage tank



Source: Modified from site plan provided by Roux Associates.
and survey data from John Koch, licensed
land surveyor (9/16/92)

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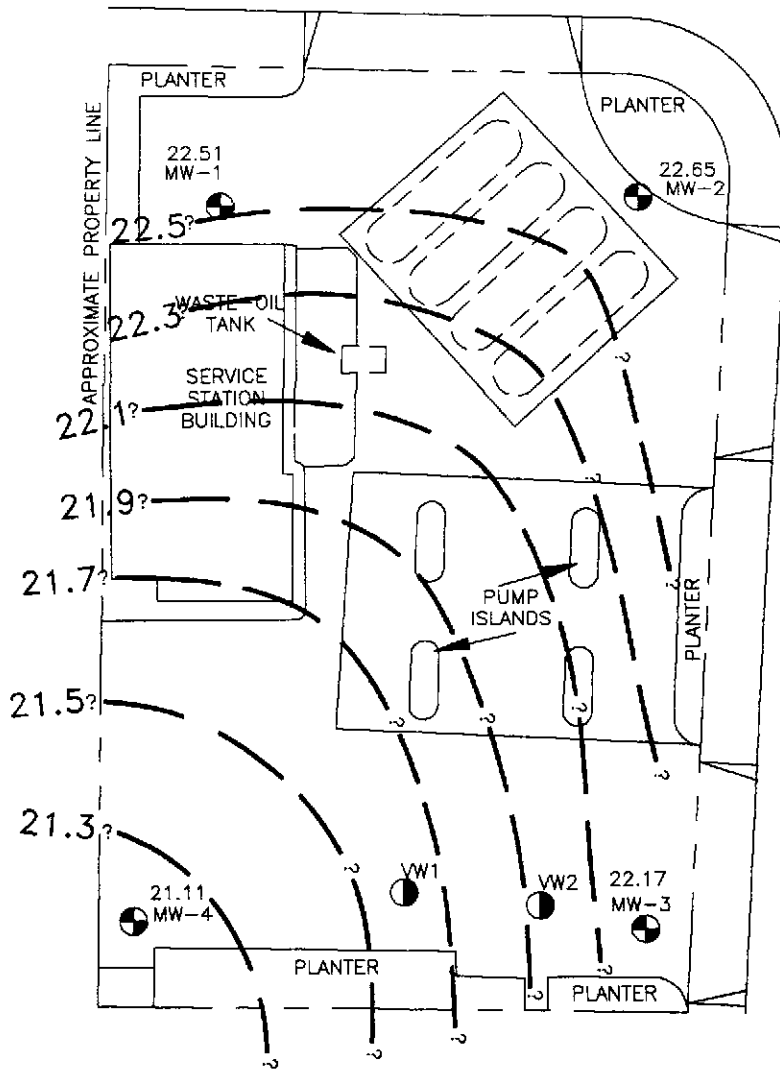
GENERALIZED SITE PLAN
ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California

PLATE
2

PROJECT 62019.04

RUTH COURT

APPROXIMATE
DIRECTION OF
GROUNDWATER FLOW
(July 28, 1993)



HESPERIAN BOULEVARD

EXPLANATION

MW-4 = Monitoring well (RESNA September 1992)

VW2 = Vapor extraction well
(Roux Associates, Inc., 1991)

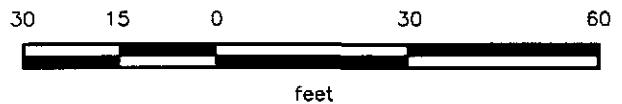
= Existing underground storage tank

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

22.65 = Elevation of groundwater in feet above MSL,
July 28, 1993



Approximate Scale



Source: Modified from site plan provided by Roux Associates.
and survey data from John Koch, licensed
land surveyor (9/16/92)

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GROUNDWATER GRADIENT MAP

ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California

PLATE

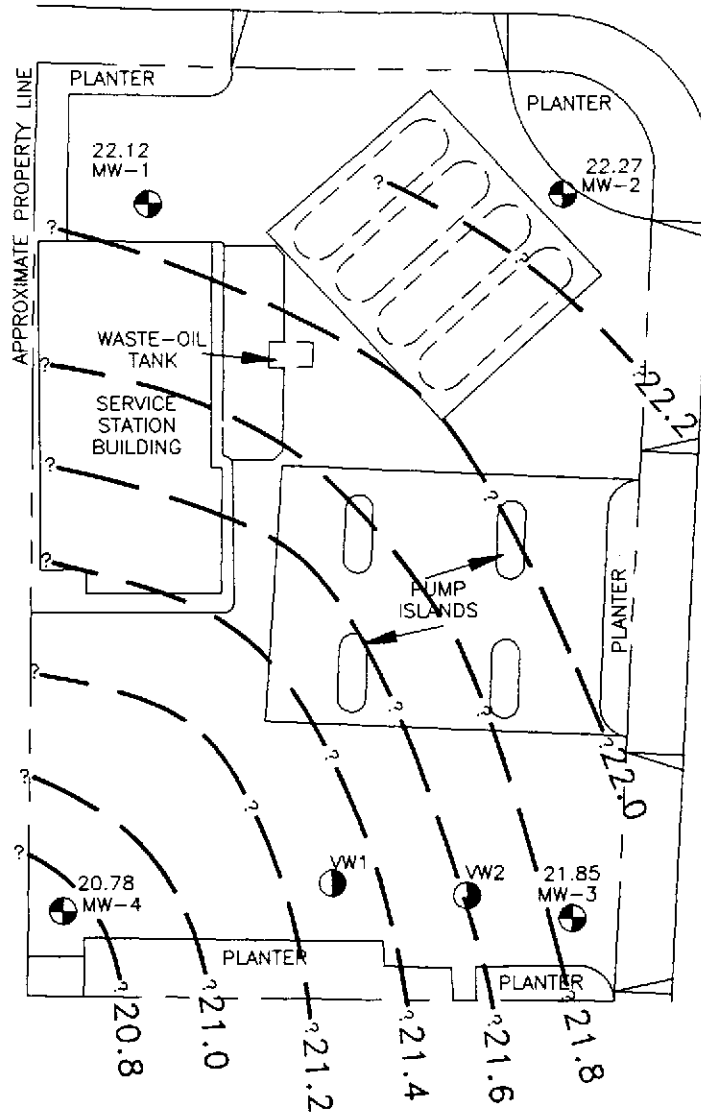
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62019.04

RUTH COURT

APPROXIMATE
DIRECTION OF
GROUNDWATER FLOW
(August 11, 1993)



HESPERIAN BOULEVARD

EXPLANATION

MW-4 = Monitoring well (RESNA September 1992)

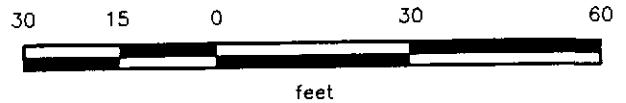
VW2 = Vapor extraction well (Roux Associates, Inc., 1991)

= Existing underground storage tank

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

22.27 = Elevation of groundwater in feet above MSL August 11, 1993

Approximate Scale



Source: Modified from site plan provided by Roux Associates and survey data from John Koch, licensed land surveyor (9/16/92)

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GROUNDWATER GRADIENT MAP
ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California

PLATE

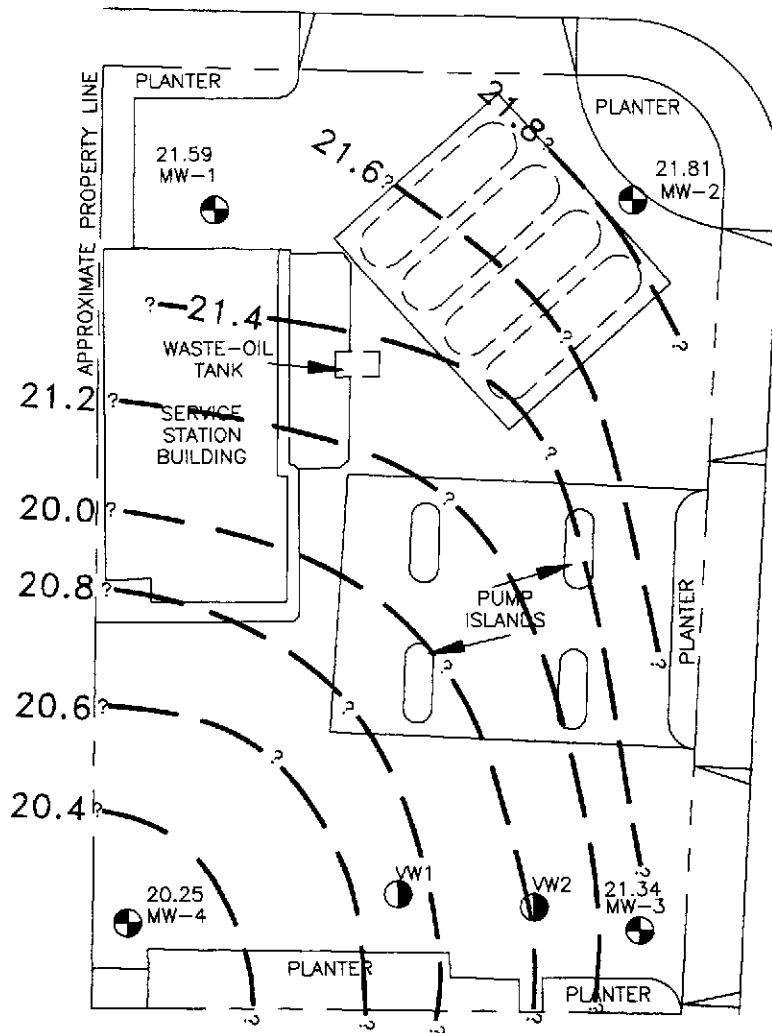
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RUTH COURT

APPROXIMATE
DIRECTION OF
GROUNDWATER FLOW
(September 28, 1993)



HESPERIAN BOULEVARD

EXPLANATION

MW-4 = Monitoring well (RESNA September 1992)

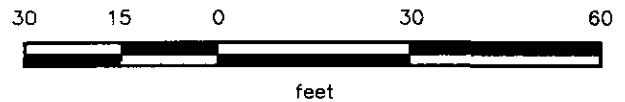
VW2 = Vapor extraction well
(Roux Associates, Inc., 1991)

= Existing underground storage tank

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

21.81 = Elevation of groundwater in feet above MSL
September 28, 1993

Approximate Scale



Source: Modified from site plan provided by Roux Associates.
and survey data from John Koch, licensed
land surveyor (9/16/92)

RESNA
Working to Restore Nature

GROUNDWATER GRADIENT MAP

ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California

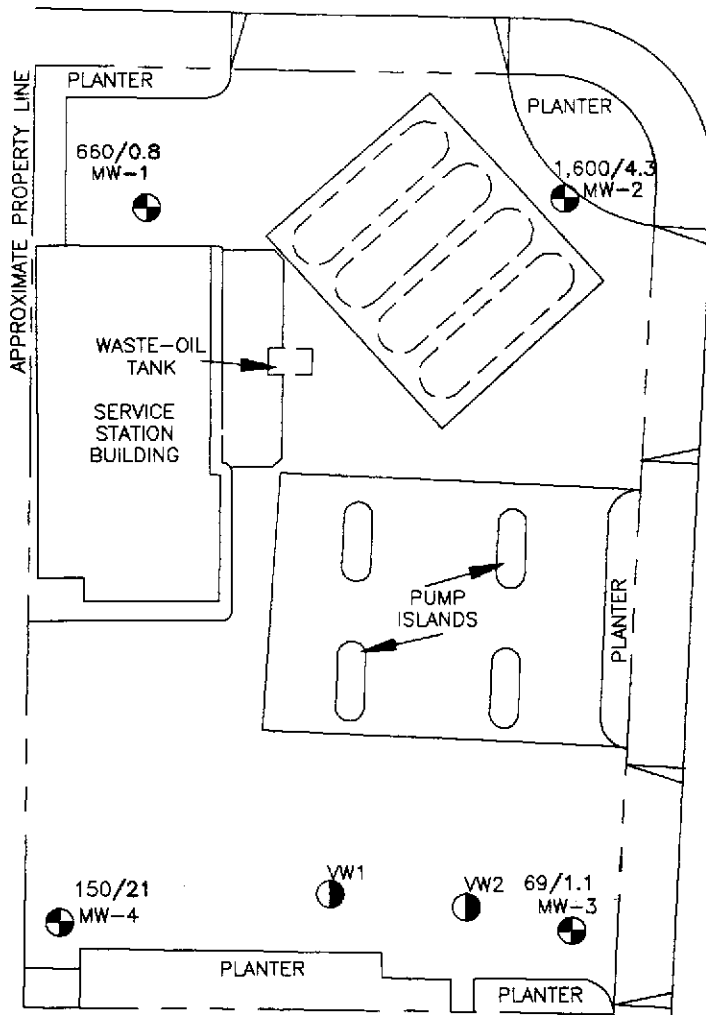
PLATE

5

PROJECT

62019.04

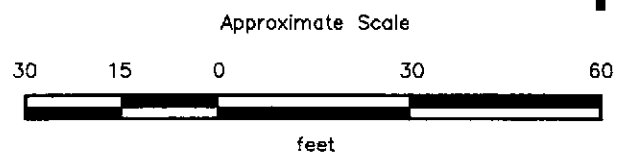
RUTH COURT



HESPERIAN BOULEVARD

EXPLANATION

- 1,600/4.3 = Concentration of TPHg/Benzene in groundwater in parts per billion, August 11, 1993
- MW-4 = Monitoring well (RESNA September 1992)
- VW2 = Vapor extraction well (Roux Associates, Inc., 1991)
- = Existing underground storage tank



Source: Modified from site plan provided by Roux Associates. and survey data from John Koch, licensed land surveyor (9/16/92)

	TPHg/BENZENE CONCENTRATIONS IN GROUNDWATER ARCO Station 2162 15135 Hesperian Boulevard San Leandro, California	PLATE 6
	PROJECT 62019.04	

Quarterly Groundwater Monitoring Report
ARCO Station 2162, San Leandro, California

November 2, 1993
62019.04

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California
(page 1 of 2)

Well Date	Well Elevation	Depth to Water	Water Elevation	Floating Product
<u>MW-1</u>				
09/30/92	31.19	10.68	20.51	None
10/16/92		10.83	20.36	None
01/14/93		7.25	23.94	None
02/24/93		7.23	23.96	None
03/30/93		7.58	23.61	None
04/14/93		7.96	23.23	None
05/19/93		8.26	22.93	None
06/17/93		8.42	22.77	None
07/28/93		8.68	22.51	None
08/11/93		9.07	22.12	None
09/28/93		9.60	21.59	None
<u>MW-2</u>				
09/30/92	30.38	9.74	20.64	None
10/16/92		9.91	20.47	None
01/14/93		6.56	23.82	None
02/24/93		6.67	23.71	None
03/30/93		6.76	23.62	None
04/14/93		7.10	23.28	None
05/19/93		7.40	22.98	None
06/17/93		7.51	22.87	None
07/28/93		7.73	22.65	None
08/11/93		8.11	22.27	None
09/28/93		8.57	21.81	None
<u>MW-3</u>				
09/30/92	30.30	9.93	20.37	None
10/16/92		10.13	20.17	None
01/14/93		6.71	23.59	None
02/24/93		6.82	23.48	None
03/30/93		7.07	23.23	None
04/14/93		7.41	22.89	None
05/19/93		7.72	22.58	None
06/17/93		7.86	22.44	None
07/28/93		8.13	22.17	None
08/11/93		8.45	21.85	None
09/28/93		8.96	21.34	None

See notes on page 2 of 2

Quarterly Groundwater Monitoring Report
ARCO Station 2162, San Leandro, California

November 2, 1993
62019.04

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California
(page 2 of 2)

Well Date	Well Elevation	Depth to Water	Water Elevation	Floating Product
MW-4				
09/30/92	30.39	11.15	19.24	None
10/16/92		11.33	19.06	None
01/14/93		7.49	22.90	None
02/24/93		7.57	22.82	None
03/30/93		8.06	22.33	None
04/14/93		8.48	21.91	Product entered during purge
05/19/93		7.80	22.59	None
06/17/93		8.94	21.45	None
07/28/93		9.28	21.11	None
08/11/93		9.61	20.78	None
09/28/93		10.14	20.25	None

All measurements in feet. Well elevation datum is top of casing (TOC) in feet above mean sea level (msl). Survey datum is City of San Leandro = 1973 Adjusted National Geodetic Vertical Datum.
Depth-to-water (DTW) = measured from top of casing.
Water elevation = TOC minus DTW.
Wells surveyed by John Koch, Licensed Surveyor, on 9/16/92.

Quarterly Groundwater Monitoring Report
ARCO Station 2162, San Leandro, California

November 2, 1993
62019.04

TABLE 2
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUNDWATER SAMPLES
ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California

Well Date	TPHg	Benzene	Toluene	Ethyl- benzene	Total Xylenes
<u>MW-1</u>					
09/30/92	1,100	6.2	<0.50	6.9	<0.50
10/16/92	790	3.0	0.8	5.6	2.9
01/14/93	660	1.2	<1*	15	4.6
04/14/93	310	<1*	<1*	<1*	
08/11/93	660	0.8	<0.7**	9.0	<1**
<u>MW-2</u>					
09/30/92	1,000	9.6	<0.50	45	110
10/16/92	630	8.0	<1.0*	37	64
01/14/93	7,800	33	5	340	920
04/14/93	1,600	7	<5*	220	520
08/11/93	1,600	4.3	<1*	80	120
<u>MW-3</u>					
09/30/92	<50	<0.50	<0.50	<0.50	<0.50
10/16/92	<50	<0.50	<0.50	<0.50	<0.50
01/14/93	52	<0.5	<0.5	<0.5	<0.5
04/14/93	360	86	2.1	5.1	4.0
08/11/93	69	1.1	<0.5	<0.5	<0.5
<u>MW-4</u>					
09/30/92	330	81	<0.50	<0.50	<0.50
10/16/92	250	44	<0.5	<0.5	0.7
01/14/93	260	29	0.6	<0.5	1.1
04/14/93		Not sampled—floating product entered well during purging			
08/11/93	150	21	<0.5	<0.5	<0.5
MCL:	---	1	---	680	1,750
DWAL:	---	---	100	---	---

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

TPHg: Total petroleum hydrocarbons as gasoline by EPA method 5030/California DHS LUFT.

BTEX: B: Benzene, T: Toluene, E: Ethylbenzene, X: Total Xylene isomers; measured by EPA method 5030/8020

<: Results reported as less than the detection limit.

*: Raised method reporting limit (MRL) due to high analyte concentration requiring sample dilution.

** : Raised method reporting limit (MRL) due to matrix interference.

MCL: State Maximum Contaminant Level (DHS October 1990).

DWAL: State recommended Drinking Water Action Level (DHS October 1990).

APPENDIX A

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



EMCON Associates

1938 Junction Avenue • San Jose, California 95131-2102 • (408) 453-0719 • Fax (408) 453-2452

Date August 5, 1993
Project 0G70-055.01

To:
Mr. John Young
RESNA
3315 Almaden Expressway, Suite 34
San Jose, California 95118

We are enclosing:

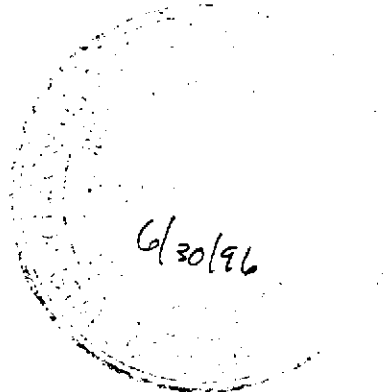
Copies	Description
<u>1</u>	<u>Depth To Water/Floating Product Survey Results</u>
<u> </u>	<u>July 1993 monthly water level survey, ARCO</u>
<u> </u>	<u>2162, 15135 Hesperian Blvd., San Leandro, CA</u>

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 C Porter
Robert Porter, Senior Project Engineer.



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

PROJECT # : OG70-055.01

STATION ADDRESS : 15135 Hesperian Blvd, San Leandro

DATE : 7-28-93

ARCO STATION # : 2162

FIELD TECHNICIAN : L. RATH

DAY : WEDNESDAY

DTW Order	WELL ID	Well Box Seal	Well Lid Secure	Gasket	Lock	Locking Well Cap	FIRST DEPTH TO WATER (feet)	SECOND DEPTH TO WATER (feet)	DEPTH TO FLOATING PRODUCT (feet)	FLOATING PRODUCT THICKNESS (feet)	WELL TOTAL DEPTH (feet)	COMMENTS
1	MW-1	OK	15/16	OK	3259	OK	8.68	8.68	ND	ND	16.0	— 26.57
2	MW-3	OK	15/16	OK	3259	OK	8.13	8.13	ND	ND	15.0	— 26.25
3	MW-2	OK	15/16	OK	3259	OK	7.73	7.73	ND	ND	16.0	— 26.57
4	MW-4	OK	15/16	OK	3259	OK	9.28	9.28	ND	ND	17.2	— 21.11

SURVEY POINTS ARE TOP OF WELL CASINGS



EMCON Associates

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

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SEP 3 1993

RESNA
SAN JOSE

Date September 2, 1993

Project OG70-055.01

To:

Mr. John Young

RESNA

3315 Almaden Expressway, Suite 34

San Jose, California 95118

We are enclosing:

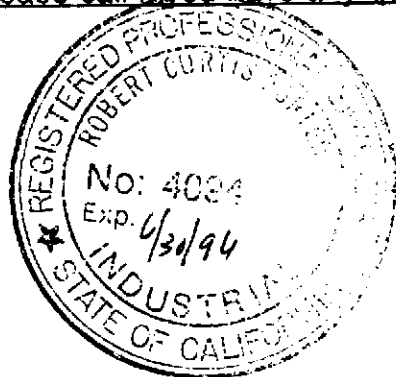
Copies	Description
<u>1</u>	<u>Depth To Water / Floating Product Survey Results</u>
<u>1</u>	<u>Summary of Groundwater Monitoring Data</u>
<u>1</u>	<u>Certified Analytical Reports with Chain-of-Custody</u>
<u>4</u>	<u>Water Sample Field Data Sheets</u>

For your: X Information Sent by: X Mail

Comments:

Enclosed are the data from the third quarter 1993 monitoring event at ARCO service station 2162, 15135 Hesperian Blvd, San Lorenzo, 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 # : OG70-055.01

STATION ADDRESS : 15135 Hesperian Blvd, San Leandro

DATE : 8-11-93

ARCO STATION # : 2162

FIELD TECHNICIAN : K REICHELDERFER

DAY : WEDNESDAY

DTW Order	WELL ID	Well Box Seal	Well Lid Secure	Gasket	Lock	Locking Well Cap	FIRST DEPTH TO WATER (feet)	SECOND DEPTH TO WATER (feet)	DEPTH TO FLOATING PRODUCT (feet)	FLOATING PRODUCT THICKNESS (feet)	WELL TOTAL DEPTH (feet)	COMMENTS
1	MW-1	OK	15/16	OK	3259	OK	9.07	9.06	ND	NA	16.0	MILD ODOR; HAIR LINE CRACKS IN SEAL
2	MW-3	OK	15/16	OK	3259	OK	8.45	8.45	ND	NA	15.0	---
3	MW-2	OK	15/16	OK	3259	OK	8.11	8.11	ND	NA	16.0	---
4	MW-4	OK	15/16	OK	3259	OK	9.61	9.61	ND	NA	17.1	---

SURVEY POINTS ARE TOP OF WELL CASINGS

Summary of Groundwater Monitoring Data
 Third Quarter 1993
 ARCO Service Station 2162
 15135 Hesperian Boulevard, San Leandro, California
 micrograms per liter ($\mu\text{g/l}$) or parts per billion (ppb)

Well ID and Sample Depth	Sampling Date	Depth To Water (feet)	Floating Product Thickness (feet)	TPH ¹ as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)
MW-1(16)	08/11/93	9.07	ND. ²	660.	0.8	<0.7	9.0	<1.
MW-2(16)	08/11/93	8.11	ND.	1,600.	4.3	<1.	80.	120.
MW-3(15)	08/11/93	8.45	ND.	69.	1.1	<0.5	<0.5	<0.5
MW-4(17)	08/11/93	9.61	ND.	150.	21.	<0.5	<0.5	<0.5

1. TPH. = Total petroleum hydrocarbons

2. ND. = Not detected

**Columbia
Analytical
Services^{INC.}**

August 25, 1993

Service Request No. SJ93-0997

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

Re: **EMCON Project No. 0G70-055.01**
ARCO Facility No. 2162

Dear Mr. Butera:

Attached are the results of the water samples submitted to our lab on August 11, 1993. For your reference, these analyses have been assigned our service request number SJ93-0997.


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

Please call if you have any questions.

Respectfully submitted:

COLUMBIA ANALYTICAL SERVICES, INC.


Keoni A. Murphy
Laboratory Manager


Annelise J. Bazar
Regional QA Coordinator

KAM/kmh

COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

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

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON Associates
 Project: EMCON Project No. 0G70-055.01
 ARCO Facility No. 2162

Date Received: 08/11/93
 Service Request No.: SJ93-0997
 Sample Matrix: Water

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

Sample Name:	<u>MW-1 (16)</u>	<u>MW-2 (16)</u>	<u>MW-3 (15)</u>
Date Analyzed:	08/20/93	08/23/93	08/23/93

<u>Analyte</u>	<u>MRL</u>			
Benzene	0.5	0.8	4.3	1.1
Toluene	0.5	<0.7 *	<1. **	ND
Ethylbenzene	0.5	9.0	80.	ND
Total Xylenes	0.5	<1. *	120.	ND
TPH as Gasoline	50	660.	1,600.	69.

Sample Name:	<u>MW-4 (17)</u>	<u>Method Blank</u>	<u>Method Blank</u>
Date Analyzed:	08/20/93	08/20/93	08/23/93

<u>Analyte</u>	<u>MRL</u>			
Benzene	0.5	21.	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	150.	ND	ND

* Raised MRL due to matrix interference.

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

Approved by: KEWATH/Myly Date: August 25, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: EMCON Project No. OG70-055.01
ARCO Facility No. 2162

Date Received: 08/11/93
Service Request No.: SJ93-0997
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>α,α,α-Trifluorotoluene</i>
MW-1 (16)	08/20/93	111.
MW-2 (16)	08/23/93	103.
MW-3 (15)	08/23/93	99.
MW-4 (17)	08/20/93	98.
MS	08/20/93	98.
DMS	08/20/93	99.
Method Blank	08/20/93	94.
Method Blank	08/23/93	88.

CAS Acceptance Criteria 70-130

Approved by: Kenneth Mayberry Date: August 25, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: EMCON Project No. 0G70-055.01
ARCO Facility No. 2162

Date Received: 08/11/93
Service Request No.: SJ93-0997

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

Date Analyzed: 08/20/93

<u>Analyte</u>	<u>True Value</u>	<u>Result</u>	<u>Percent Recovery</u>	<u>CAS Percent Recovery Acceptance Criteria</u>
Benzene	25.	25.5	102.	85-115
Toluene	25.	25.7	103.	85-115
Ethylbenzene	25.	26.5	106.	85-115
Total Xylenes	75.	77.5	103.	85-115
TPH as Gasoline	250.	250.	100.	90-110

Approved by: _____

Kenneth M. [Signature]

Date: _____

August 25, 1993

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
 Project: EMCON Project No. 0G70-055.01
 ARCO Facility No. 2162

Date Received: 08/11/93
 Service Request No.: SJ93-0997
 Sample Matrix: Water

Matrix Spike/Duplicate Matrix Spike Summary
 BTE
 EPA Methods 5030/8020
 µg/L (ppb)

Date Analyzed: 08/20/93

Percent Recovery

Analyte	Spike Level	Sample Result	Spike Result		Percent Recovery		CAS Acceptance Criteria
			MS	DMS	MS	DMS	
Benzene	2,500.	1,180.	3,610.	3,610.	97.	97.	76-122
Toluene	2,500.	106.	2,850.	2,860.	110.	110.	75-127
Ethylbenzene	2,500.	390.	3,180.	3,220.	112.	113.	70-135

Approved by: Kenneth Mayhew Date: August 25, 1993

ARCO Products Company

Division of AtlanticRichfieldCompany

Task Order No. **EMUC-93-5**

Chain of Custody

ARCO Facility no. **2162** 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** Address (Consultant) _____

Laboratory name
CAS
 Contract number
07077

Sample ID	Lab no	Container no	Matrix			Preservation		Sampling date	Sampling time	BTEX 82 EPA 8020	BTEX 75M EPA MS2 8020 8015	TPH Vol % GC 8015 Gas Diesel	O and Grease 4131 4132	TPH EPA 418 15M 503E	EPA 801 8010	EPA 624 8240	EPA 625 8270	TC.P Metals VOA VOA	Sem. Metals VOA VOA	CAM Metals EPA 6010/7000 P.L.C. STLC	Leac Orig DMS Leac EPA 1480 7421
			Soil	Water	Other	Ice	Acid														
HW-1(16)1-2	2	2	X	X		X	HCl	8-11-13	1105	X											
HW-2(16)3-4	2	2	X	X		X	HCl		1220	X											
HW-3(15)5-6	2	2	X	X		X	HCl		1130	X											
HW-4(17)7-8	2	2	X	X		X	HCl		1302	X											

Method of shipment
Sampler will deliver

Special detection Limit/reporting
Lowest possible

Special QA/QC
AS Normal

Remarks
2-40ml HCl VOA's

Lab number
ST93-0997

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

Condition of sample: **ok** Temperature received: **cool**

Relinquished by sampler <i>[Signature]</i>	Date 8-11-13	Time 10:45	Received by <i>[Signature]</i>
Relinquished by	Date	Time	Received by
Relinquished by	Date	Time	Received by laboratory <i>[Signature]</i>

Date: **8-11-13** Time: **11:30**



EMCON ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: 0670-055.01

SAMPLE ID: MW-1 (16)

PURGED BY: K REICHELDERFER

CLIENT NAME: ARCO 2162

SAMPLED BY: ↓

LOCATION: 15135 HESPERIAN 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):	<u>NR</u>	VOLUME IN CASING (gal.):	<u>4.53</u>
DEPTH TO WATER (feet):	<u>9.06</u>	CALCULATED PURGE (gal.):	<u>13.60</u>
DEPTH OF WELL (feet):	<u>16.0</u>	ACTUAL PURGE VOL. (gal.):	<u>14.00</u>

DATE PURGED:	<u>8-11-93</u>	Start (2400 Hr)	<u>1045</u>	End (2400 Hr)	<u>1058</u>
DATE SAMPLED:	<u>8-11-93</u>	Start (2400 Hr)	<u>1105</u>	End (2400 Hr)	<u>1107</u>

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1048</u>	<u>5.00</u>	<u>6.69</u>	<u>897</u>	<u>70.9</u>	<u>GREY</u>	<u>MODERATE</u>
<u>1053</u>	<u>9.50</u>	<u>6.82</u>	<u>895</u>	<u>70.1</u>	<u>↓</u>	<u>↓</u>
<u>1058</u>	<u>14.00</u>	<u>6.91</u>	<u>897</u>	<u>70.2</u>	<u>↓</u>	<u>↓</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

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

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

PURGING EQUIPMENT

SAMPLING EQUIPMENT

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

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: HAIR-LINE CRACKS IN TITE WELL BOX SEAL

Meter Calibration: Date: 8-11-93 Time: 1043 Meter Serial #: 9203 Temperature °F: 71.3
 (EC 1000 989, 1000) (DI 5.80) (pH 7 6.99, 7.00) (pH 10 10.03, 10.00) (pH 4 3.91, _____)

Location of previous calibration: _____

Signature: Karen Reichelderfer Reviewed By: JB Page 1 of 4



EMCON ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

PROJECT NO: 0670-055,01

SAMPLE ID: MW-2 (16)

PURGED BY: K REICHELDERFER

CLIENT NAME: ARCO 2162

SAMPLED BY:

LOCATION: 15135 HESPERIAN 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):	<u>NR</u>	VOLUME IN CASING (gal.):	<u>5.14</u>
DEPTH TO WATER (feet):	<u>8.13</u>	CALCULATED PURGE (gal.):	<u>15.43</u>
DEPTH OF WELL (feet):	<u>16.0</u>	ACTUAL PURGE VOL. (gal.):	<u>15.50</u>

DATE PURGED: 8-11-93 Start (2400 Hr) 1200 End (2400 Hr) 1213
DATE SAMPLED: 8-11-93 Start (2400 Hr) 1220 End (2400 Hr) 1222

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1204</u>	<u>5.50</u>	<u>7.05</u>	<u>825</u>	<u>71.5</u>	<u>CLOUDY</u>	<u>LIGHT</u>
<u>1208</u>	<u>11.00</u>	<u>7.12</u>	<u>794</u>	<u>69.9</u>	↓	↓
<u>1213</u>	<u>15.50</u>	<u>7.18</u>	<u>787</u>	<u>69.6</u>	↓	↓
D. O. (ppm):	<u>NR</u>	ODOR:	<u>MODERATE</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
- Centrifugal Pump
- Submersible Pump
- Well Wizard™
- Other: _____
- Bailer (Teflon®)
- Bailer (PVC)
- Bailer (Stainless Steel)
- Dedicated

SAMPLING EQUIPMENT

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

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: 3-4 SPOTS OF SHEEN ON PURGE WATER IN BUCKETS

Meter Calibration: Date: 8-11-93 Time: 1043 Meter Serial #: 9203 Temperature °F: _____

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

Location of previous calibration: MW-1

Signature: Kevin Reichelderfer

Reviewed By: JB Page 2 of 4



EMCON
ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 2. 5/91

PROJECT NO: 0670-055.01 SAMPLE ID: MW-3 (15)
 PURGED BY: K REICHELDERFER CLIENT NAME: ARCO 2162
 SAMPLED BY: ↓ LOCATION: 15135 HESPERIAN BL.
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.): 4.29
 DEPTH TO WATER (feet): 8.44 CALCULATED PURGE (gal.): 12.86
 DEPTH OF WELL (feet): 15.0 ACTUAL PURGE VOL. (gal.): 13.00

DATE PURGED: 8-11-93 Start (2400 Hr) 1119 End (2400 Hr) 1131
 DATE SAMPLED: 8-11-93 Start (2400 Hr) 1136 End (2400 Hr) 1138

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1123</u>	<u>4.50</u>	<u>6.96</u>	<u>886</u>	<u>72.4</u>	<u>GREY/BROWN</u>	<u>MODERATE</u>
<u>1128</u>	<u>9.00</u>	<u>6.99</u>	<u>893</u>	<u>72.1</u>	<u>↓</u>	<u>↓</u>
<u>1131</u>	<u>13.00</u>	<u>7.04</u>	<u>889</u>	<u>71.9</u>	<u>↓</u>	<u>↓</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

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

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

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

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: _____

Meter Calibration: Date: 8-11-93 Time: 1043 Meter Serial #: 9203 Temperature °F: _____
 (EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)

Location of previous calibration: MW-1
 Signature: Karin Reichelderfer Reviewed By: JS Page 3 of 4



EMCON
ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

PROJECT NO: 0670-055.01
PURGED BY: K REICHELDERFER
SAMPLED BY:

SAMPLE ID: MW-4 (17)
CLIENT NAME: ARCO 2162
LOCATION: 15135 HESPERIAN BL.
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.): 4.89
DEPTH TO WATER (feet): 9.61 CALCULATED PURGE (gal.): 14.68
DEPTH OF WELL (feet): 17.1 ACTUAL PURGE VOL. (gal.): 15.00

DATE PURGED: 8-11-93 Start (2400 Hr) 1240 End (2400 Hr) 1255
DATE SAMPLED: 8-11-93 Start (2400 Hr) 1302 End (2400 Hr) 1304

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1245</u>	<u>5.00</u>	<u>7.14</u> <u>7.05</u>	<u>882</u>	<u>73.1</u>	<u>LT BROWN</u>	<u>MODERATE</u>
<u>1250</u>	<u>10.00</u>	<u>7.05</u> <u>7.14</u>	<u>908</u>	<u>72.3</u>	<u>↓</u>	<u>↓</u>
<u>1255</u>	<u>15.00</u>	<u>7.17</u>	<u>882</u>	<u>71.6</u>	<u>↓</u>	<u>↓</u>

D. O. (ppm): NR ODOR: STRONG 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

SAMPLING EQUIPMENT

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

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: SPOTS OF SHEEN ON PURGE WATER IN BUCKETS

Meter Calibration: Date: 8-11-93 Time: 1043 Meter Serial #: 9203 Temperature °F: _____

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

Location of previous calibration: MW-1

Signature: Kevin Reichelderfer Reviewed By: [Signature] Page 4 of 4



EMCON Associates

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

RECEIVED

OCT 4 1993

RESNA
SAN JOSE

Date September 30, 1993

Project OG70-055.01

To:
Mr. John Young
RESNA
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>September 1993 monthly water level survey, ARCO</u>
<u> </u>	<u>2162, 15135 Hesperian 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 # : 0G70-055.01

STATION ADDRESS : 15135 Hesperian Blvd, San Leandro

DATE : 9-28-92

ARCO STATION # : 2162

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-1	OK	15/16	OK	3259	OK	9.60	9.60	ND	NR	16.0	cap on well
2	MW-3	OK	15/16	OK	3259	OK	8.96	8.96	ND	NR	15.0	—
3	MW-2	OK	15/16	OK	3259	OK	8.57	8.57	ND	NR	16.0	—
4	MW-4	OK	15/16	OK	3259	OK	10.14	10.14	ND	NR	17.2	—

SURVEY POINTS ARE TOP OF WELL CASINGS