RESNA
Working to Restore Nature

42501 Albrae Street
Fremont, California 94538
Phone: (510) 440-3300
FAX: (510) 651-2233

TRANSMITTAL

Scott Seery

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

DATE: May 25, 1994
PROJECT NUMBER: 62019.06
SUBJECT: ARCO Station 2162

FROM: John C. Young

WE ARE SENDING YOU:

COPIES	DATED	DESCRIPTION
1	5/11/94	Letter Report, Quarterly Groundwater Monitoring First Quarter 1994 at ARCO Station 2162, 15135 Hesperian Boulevard, San Leandro, California.

THESE ARE TRANSMITTED as checked below:

[ ] For review and comment	[ ] Approved as submitted	[ ] Resubmit ___ copies for approval
[X] As requested	[ ] Approved as noted	[ ] Submit___ copies for distribution
[ ] For approval	[ ] Return for corrections	[ ] Return ___ corrected prints
[X] For your files	[ ] Regular Mail	[X] Certified Mail

REMARKS:
Copies: 1 to RESNA project file no. 62019.06

John C. Young

John C. Young, Project Manager

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

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

LETTER REPORT
QUARTERLY GROUNDWATER MONITORING
First Quarter 1994

ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California

62019.06

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

May 11, 1994

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

Subject: Letter Report, Quarterly Groundwater Monitoring
First Quarter 1994
ARCO Station 2162
15135 Hesperian Boulevard, San Leandro, California

Mr. Whelan:

As requested by ARCO Products Company (ARCO), RESNA Industries Inc. (RESNA) presents this letter report summarizing the results of First Quarter 1994 Groundwater Monitoring performed by Integrated Wastestream Management (IWM) of Milpitas, California at the above-referenced site (Plates 1 and 2). RESNA's scope of work was to interpret field and laboratory analytical data, which included evaluating trends in hydrocarbon concentrations in the local groundwater, the groundwater gradient, and direction of groundwater flow beneath the site. Evaluation and warrant of IWM's field procedures, field data, and field protocols, is beyond RESNA's scope of work. Previous environmental work at the site is summarized in RESNA reports cited in the References section.

GROUNDWATER MONITORING

Field Work

IWM field personnel were on site February 15, and March 18, 1994, to measure depth to water (DTW) levels and perform subjective analysis for the presence of product in groundwater in wells MW-1 through MW-4. Quarterly sampling was performed by IWM field personnel on February 15, 1994.

Laboratory Analyses

Water samples were analyzed by Columbia Analytical Services, Inc., located in San Jose, California (Hazardous Waste Testing Laboratory Certification #1426) for benzene, toluene, ethylbenzene, and total xylenes (BTEX), and total petroleum hydrocarbons as gasoline (TPHg) using Environmental Protection Agency (EPA) Methods 5030/8020/California DHS LUFT Method. Certified Analytical Reports with Chain of Custody Record are included in Appendix A.

Results of Groundwater Monitoring

Groundwater elevations rose an average of approximately 1.0 foot in wells MW-1 through MW-4 since last quarter (measured from sampling dates). Evidence of floating product or product sheen was not noted in any of the wells during this quarter. The average gradient during this quarter is approximately 0.01 ft/ft with a flow direction toward the southwest (Plates 3 and 4). Groundwater monitoring data from this and previous quarters are presented in Table 1. The results of IWM's field work on the site are presented in Appendix A.

The following trends in hydrocarbon concentrations have been identified since the last quarter: concentrations of TPHg and benzene have decreased an order of magnitude in wells MW-2 (TPHg only) and MW-4; remained the same order of magnitude in well MW-1; and, remained not detected in well MW-3. Cumulative analytical results of water samples are presented in Table 2.

Previous and Future Work

First Quarter 1994

- Submitted Letter Report, Quarterly Groundwater Monitoring, Fourth Quarter 1993 to ARCO and regulatory agencies.
- Performed First Quarter 1994 Groundwater Monitoring.

Second Quarter 1994

- **Upon receiving signed offsite access agreement, drill and install proposed wells.**
- Submit Letter Report, Quarterly Groundwater Monitoring, First Quarter 1994 to ARCO and regulatory agencies.
- Perform Second Quarter 1994 Groundwater Monitoring.

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Reporting Requirements

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

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

Sincerely,
RESNA Industries Inc.

Mary E. Rysdale
Geologic Technician

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

REGISTERED GEOLOGIST
JAMES LEWIS NELSON
No. 1463
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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Attachments:

References

Plate 1: Site Vicinity Map
Plate 2: Generalized Site Plan
Plate 3: Groundwater Gradient Map, February 15, 1994
Plate 4: Groundwater Gradient Map, March 18, 1994
Plate 5: TPHg/Benzene Concentrations in Groundwater, February 15, 1994

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

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

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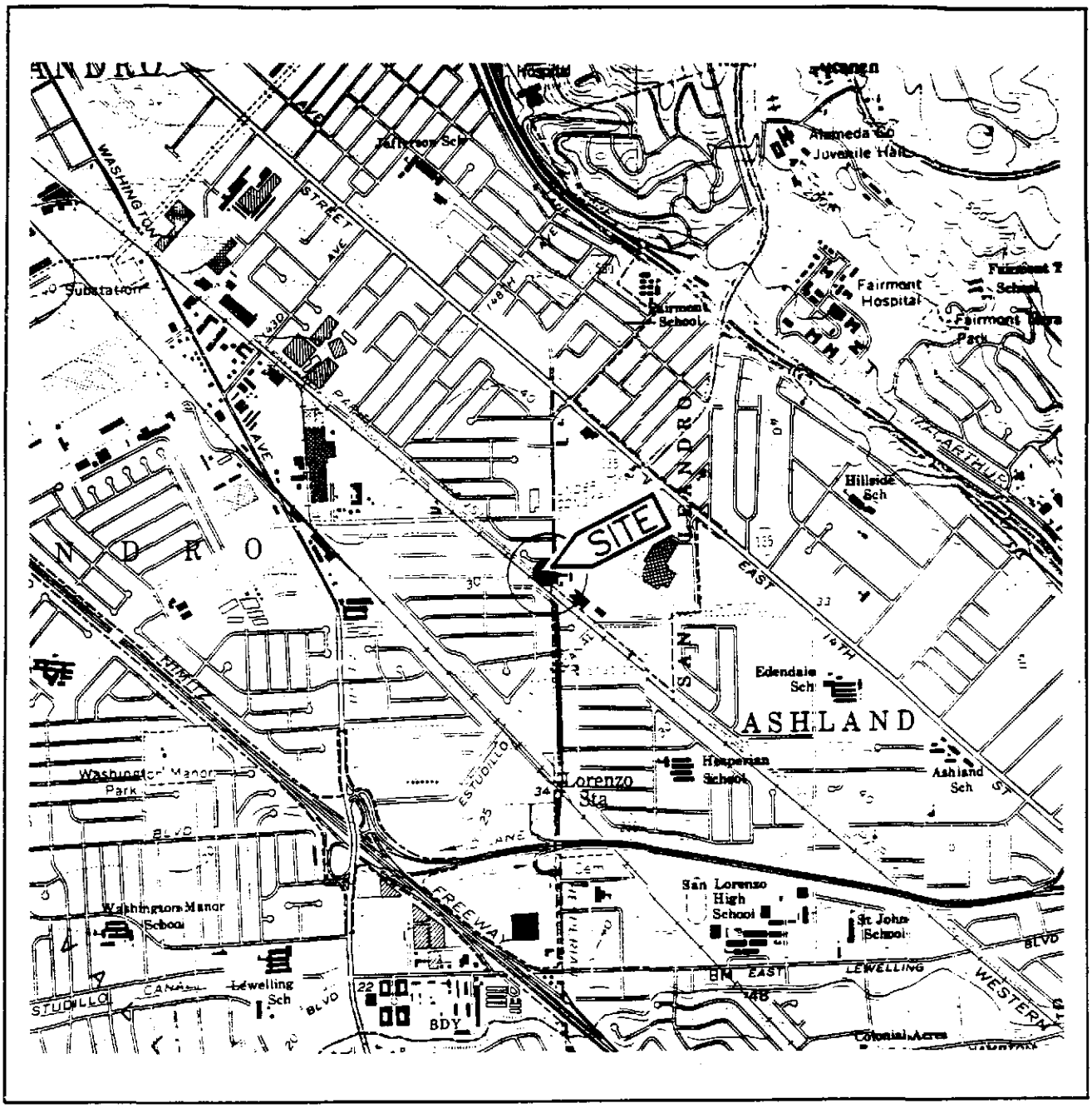
REFERENCES

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

RESNA. March 9, 1993. Letter Report Quarterly Groundwater Monitoring, Fourth Quarter 1993, at ARCO Station 2162, 15135 Hesperian Boulevard, San Leandro, California. 62019.04



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

Approximate Scale

2000 1000 0 2000

feet

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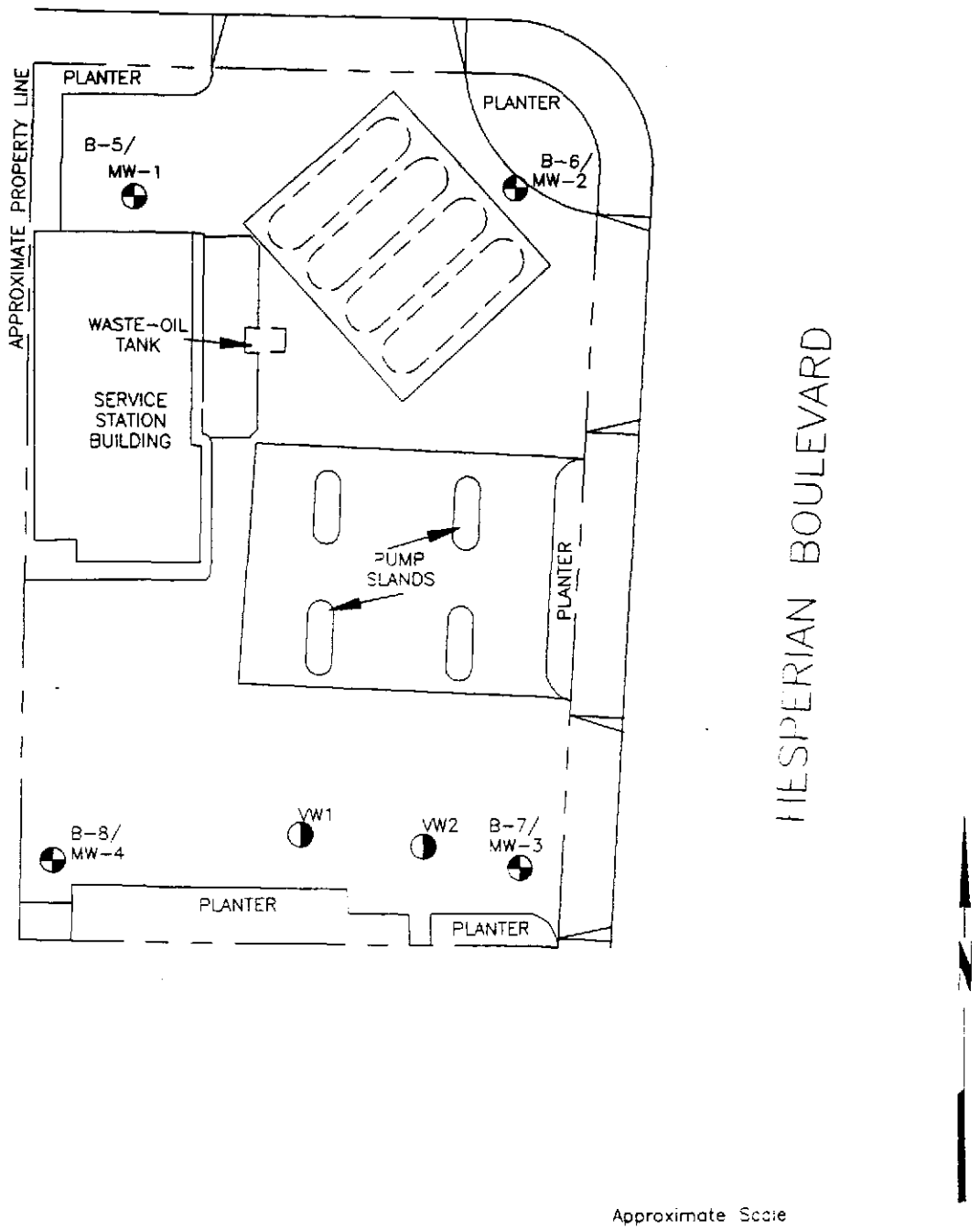
PROJECT 62019.06

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

PLATE
1



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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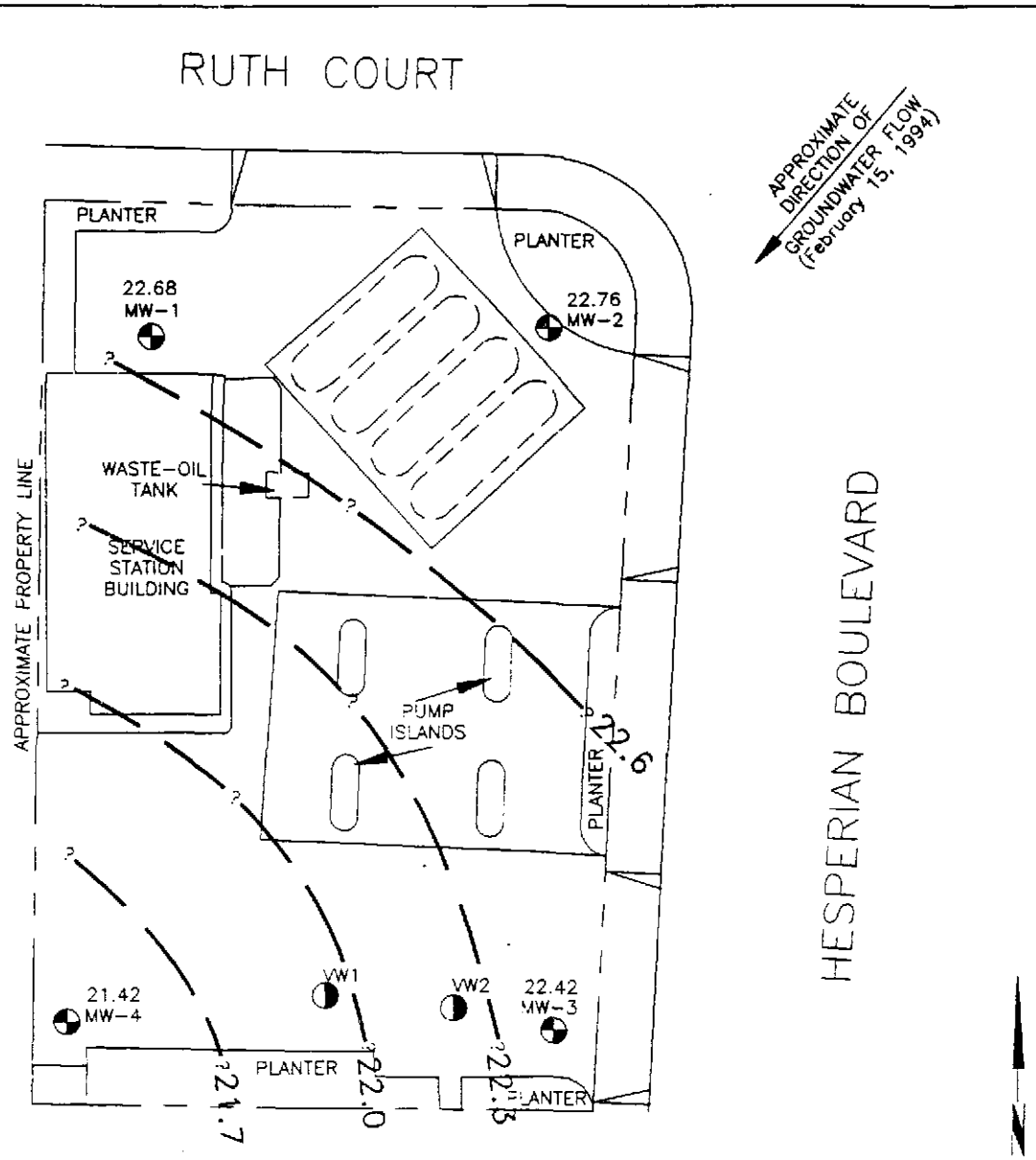
PROJECT 62019.06 62019-6G

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

PLATE
2



EXPLANATION

MW-4 = Monitoring well (RESNA September 1992)

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

= Existing underground storage tank

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

22.76 = Elevation of groundwater in feet above MSL, February 15, 1994

Approximate Scale

30 15 0 30 60

feet

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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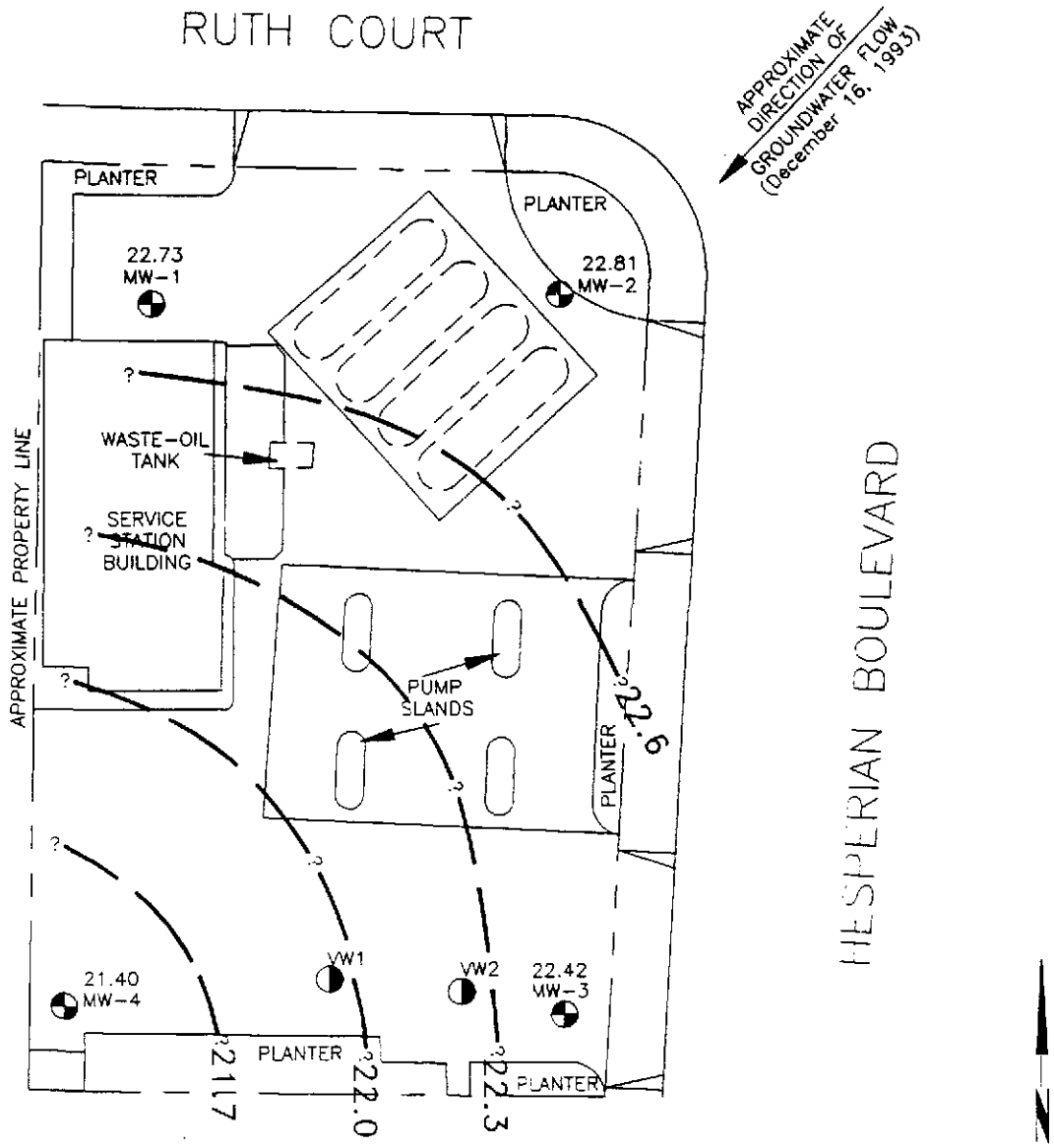
PROJECT 62019.06 62019601

GROUNDWATER GRADIENT MAP
February 15, 1994
ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California

PLATE 3



EXPLANATION

MW-4 = Monitoring well (RESNA September 1992)

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

= Existing underground storage tank

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

22.81 = Elevation of groundwater in feet above MSL March 18, 1994

Approximate Scale

30 15 0 30 60

feet

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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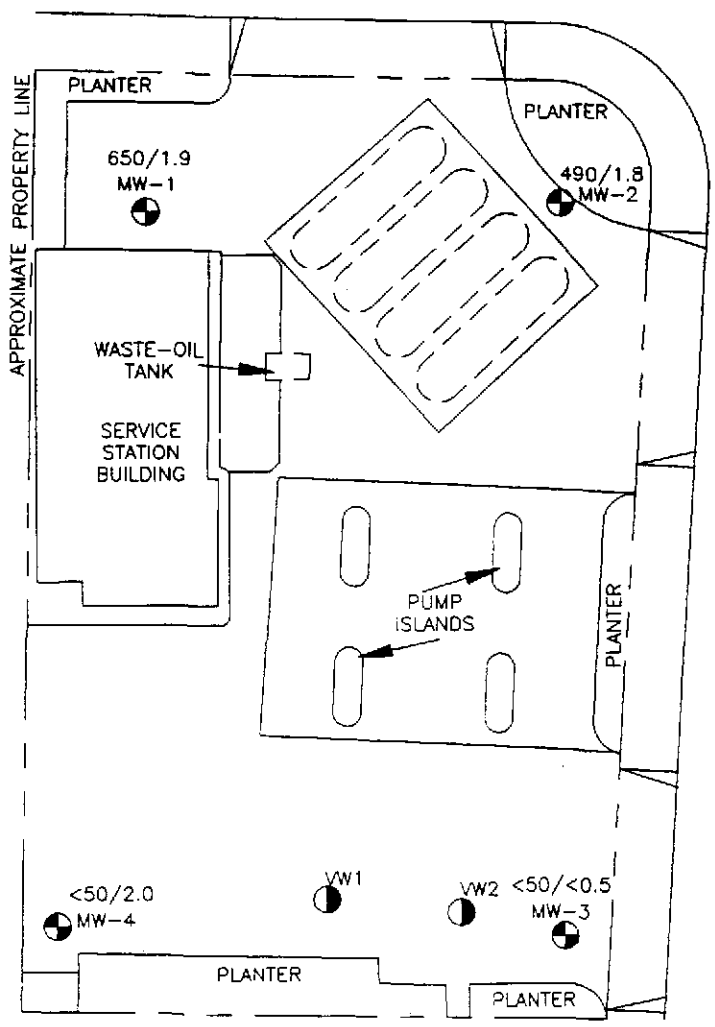
PROJECT 62019.06 62019601

GROUNDWATER GRADIENT MAP
March 18, 1994
ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California

PLATE 4



EXPLANATION

MW-4 = Monitoring well (RESNA September 1992)

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

= Existing underground storage tank

650/1.9 = Concentration of TPHg/Benzene in groundwater, in parts per billion, February 15, 1994

Approximate Scale

30 15 0 30 60

feet

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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PROJECT 62019.06 62019601

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

PLATE 5

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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
MW-1				
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
10/15/93		9.51	21.68	None
11/16/93		Not accessible -- car parked over well		
12/16/93		8.70	22.49	None
02/15/94		8.51	22.68	None
03/18/94		8.46	22.73	None
MW-2				
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
10/15/93		8.56	21.82	None
11/16/93		8.87	21.51	None
12/16/93		7.92	22.46	None
02/15/94		7.62	22.76	None
03/18/94		7.57	22.81	None
MW-3				
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

See notes on page 2 of 2

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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-3 (cont.)				
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
10/15/93		8.85	21.45	None
11/16/93		9.09	21.21	None
12/16/93		8.10	22.20	None
02/15/94		7.88	22.42	None
03/18/94		7.88	22.42	None
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
10/15/93		10.00	20.39	None
11/16/93		10.22	20.17	None
12/16/93		9.11	21.28	None
02/15/94		8.97	21.42	None
03/18/94		8.99	21.40	None

Notes:
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.

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TABLE 2
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUNDWATER SAMPLES
ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California
(page 1 of 2)

Well Date	TPHg	Benzene	Toluene	Ethyl- benzene	Total Xylenes
MW-1					
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**
10/15/93	620	0.7	<0.5	5.9	2.2
02/15/94	650	1.9	<0.5	4.5	4.9**
MW-2					
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
10/15/93	1,100	1.7	<1*	62	70
02/15/94	490	1.8	1.5	49	37
MW-3					
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
10/15/93	<50	<0.5	<0.5	<0.5	<0.5
02/15/94	<50	<0.5	<0.5	<0.5	<0.5
MW-4					
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
10/15/93	190	12	<0.5	<0.5	<0.5
02/15/94	<50	2.0	<0.5	<0.5	<0.5

See notes on page 2 of 2.

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

Well Date	TPHg	Benzene	Toluene	Ethyl- benzene	Total Xylenes
MCL:	—	1	—	680	1,750
DWAL:	—	—	100	—	—

Notes:

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).

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APPENDIX A

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

6201 9.06

I NTEGRATED
W ASTESTREAM
M ANAGEMENT, INC.

Mr 1994

March 7, 1994

Mr. John Young
RESNA Industries
3315 Almaden Expressway
Suite 34
San Jose, CA. 95118

Dear Mr. John Young:

Attached are the field data sheets and analytical results for quarterly ground water sampling at ARCO Facility No. A-2162 in San Leandro, California. Integrated Wastestream Management measured the depth to water and collected samples from wells at this site on February 15, 1994.

Sampling was carried out in accordance with the protocols described in the "Request for Bid for Quarterly Sampling at ARCO Facilities in Northern California".

Please call us if you have any questions.

Sincerely,
Integrated Wastestream Management

Tom DeLon
Project Manager

Walter H. Howe
Registered Geologist

950 AMES AVENUE **MILPITAS, CA. 95035** **(408) 942-8955**

I NTEGRATED
W ASTESTREAM
M ANAGEMENT

A2162QA4.XLS

Summary of Ground Water Sample Analyses ARCO Facility No. A-2162,San Leandro, California

WELL NUMBER	MW-1	MW-2	MW-3	MW-4
DATE SAMPLED	2/15/94	2/15/94	2/15/94	2/15/94
DEPTH TO WATER	8.51	7.62	7.88	8.97
SHEEN	NONE	NONE	NONE	NONE
PRODUCT THICKNESS	NA	NA	NA	NA
TPHg	650	490	ND	ND
BTEX				
BENZENE	1.9	1.8	ND	2.0
TOLUENE	ND	1.5	ND	ND
ETHLYBENZENE	4.5	49	ND	ND
XYLENES	<4.9	37	ND	ND

FOOTNOTES:

Concentrations reported in ug/L (ppb).

TPHg = Total Purgeable Petroleum Hydrocarbons (USEPA Method 8015 Modified)

BTEX Distinction (USEPA Method 8020)

PCE = Tetrachloroethene (USEPA Method 8010)

DCE = cis-1, 2-Dichloroethene (USEPA Method 8010)

TCE = Trichloroethene (USEAP Method 8010)

N.D. = Not Detected.

950 AMES AVENUE MILPITAS, CA 95035 (408) 942-8955

FIELD REPORT

DEPTH TO WATER / FLOATING PRODUCT SURVEY

SITE ARRIVAL TIME: 1730

SITE DEPARTURE TIME: 2005

WEATHER CONDITIONS: cloudy/cool

PROJECT NO.: _____ LOCATION: 15135 Hesperian Blvd DATE: Feb. 15 1994

CLIENT/STATION #: Arco 2162 FIELD TECHNICIAN: VINCE / FRANCISCO DAY OF WEEK: TUESDAY

DTW ORDER	WELL ID	SURFACE SEAL	LID SECURE	GASKET	LOCK	EXPANDING CAP	TOTAL DEPTH (Feet)	FIRST DEPTH TO WATER (Feet)	SECOND DEPTH TO WATER (Feet)	DEPTH TO FLOATING PRODUCT (Feet)	FLOATING PRODUCT THICKNESS (Feet)	SHEEN (Y=YES, N=NO)	COMMENTS	MATERIALS
3	MW-1	OK	YES	OK	OK	OK	16.0	8.21	8.21	N/A	N/A	N	"	
4	MW-2	OK	YES	OK	OK	OK	16.0	7.62	7.62	〃	〃	〃	"	
1	MW-3	OK	YES	OK	OK	OK	15.0	7.88+	7.88+	〃	〃	〃	"	
2	MW-4	OK	YES	OK	OK	OK	17.2	8.97	8.97	〃	〃	〃	"	

GROUND WATER SAMPLE FIELD DATA SHEET

PROJECT NO: _____ WELL ID: MW-3

CLIENT/STATION #: Arco 2162 ADDRESS: 15135 Hesperian Blvd. SL

CASING DIAMETER (inches): 2 | 3 | 4 | 6 | 8 | 12 | Other _____

GALLON/LINEAR FOOT: 0.17 | 0.38 | 0.66 | 1.5 | 2.6 | 5.8 | Other _____

TD 15C - DTW 7.86 X GALLON/LINEAR FT. 0.66 X CASING VOLUME 3 = CALCULATED PURGE 14.09 ACTUAL PURGE 15.0

DATE PURGED: 2-15-94 START (2400 Hr) 1531 END (2400 Hr) 1835

DATE SAMPLED: 2-15-94 START (2400 Hr) 1824 END (2400 Hr) 1824

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1532	3	7.54	0.66	65.9	clear	
1533	9	7.63	0.67	65.4	clear	
1535	15	7.62	0.70	65.0	clear	

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

PURGING EQUIPMENT

- ____ 2" Bladder Pump
- ✓ Centrifugal Pump
- ____ Submersible Pump
- ____ Dedicated
- ____ Bailer (Teflon®)
- ____ Bailer (PVC)
- ____ Bailer (Stainless Steel)

Other: _____

SAMPLING EQUIPMENT

- ____ 2" Bladder Pump
- ____ DDL Sampler
- ____ Dipper
- ✓ Bailer Disposable
- ____ Bailer (Teflon®)
- ____ Bailer (Stainless Steel)
- ____ Submersible Pump
- ____ Dedicated

Other: _____

REMARKS: _____

PRINT NAME: Vince Jaides

SIGNATURE: Vince Jaides

GROUND WATER SAMPLE FIELD DATA SHEET

PROJECT NO: _____ WELL ID: MW-4

CLIENT/STATION #: Arco 2162 ADDRESS: 15135 HESPERIAN BLVD

CASING DIAMETER (inches): 2 | 3 | 4 | 6 | 8 | 12 | Other _____

GALLON/LINEAR FOOT: 0.17 | 0.38 | 0.66 | 1.5 | 2.6 | 5.8 | Other _____

TD 17.2 - DTW 3.97 X GALLON/LINEAR FT. 0.66 X CASING VOLUME 3 = CALCULATED PURGE 15.29 ACTUAL PURGE 16.0

DATE PURGED: 2-15-94 START (2400 Hr) 1854 END (2400 Hr) 1900

DATE SAMPLED: 2-15-94 START (2400 Hr) 1905 END (2400 Hr) 1905

Dtw 9.0

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1855	(1855) 3	7.15	0.73	64.4	clear	
1857	7	7.12	0.74	64.1	clear	
1858	12	7.06	0.76	63.8	clear	
1900	16	7.02	0.76	63.6	clear	

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

PURGING EQUIPMENT

____ 2" Bladder Pump
____ Centrifugal Pump
____ Submersible Pump
____ Dedicated
____ Bailer (Teflon®)
____ Bailer (PVC)
____ Bailer (Stainless Steel)

Other: _____

SAMPLING EQUIPMENT

____ 2" Bladder Pump
____ DDL Sampler
____ Dipper
✓ Bailer Disposable
____ Bailer (Teflon®)
____ Bailer (Stainless Steel)
____ Submersible Pump
____ Dedicated

Other: _____

REMARKS: _____

PRINT NAME: Vince Valdes

SIGNATURE: Vince Valdes

GROUND WATER SAMPLE FIELD DATA SHEET

PROJECT NO: ______ WELL ID: MW-1

CLIENT/STATION #: ARCO 2112 ADDRESS: 1531 HOSPERIAN BL'D

CASING DIAMETER (inches): 2 3 4 6 8 12 Other ____

GALLON/LINEAR FOOT: 0.17 0.38 0.66 1.5 2.6 5.8 Other ____

TD 16.0 - DTW 8.51 X GALLON/LINEAR FT. 0.66 X CASING VOLUME 3 = CALCULATED PURGE 14.83 ACTUAL PURGE 15.0

DATE PURGED: 2-15-94 START (2400 Hr) 1915 END (2400 Hr) 1920

DATE SAMPLED: 2-15-94 START (2400 Hr) 1928 END (2400 Hr) 1928

DO 8.5

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1916	2	7.21	0.65	65.6	clear	
1917	7	7.30	0.69	65.1	clear	
1919	11	7.19	0.70	65.0	clear	
1920	15	7.20	0.71	64.7	clear	

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

PURGING EQUIPMENT

- ___ 2" Bladder Pump
- ___ Centrifugal Pump
- ___ Submersible Pump
- ___ Dedicated
- ___ Bailer (Teflon®)
- ___ Bailer (PVC)
- ___ Bailer (Stainless Steel)

Other: ______

SAMPLING EQUIPMENT

- ___ 2" Bladder Pump
- ___ DDL Sampler
- ___ Dipper
- ✓ Bailer Disposable
- ___ Bailer (Teflon®)
- ___ Bailer (Stainless Steel)
- ___ Submersible Pump
- ___ Dedicated

Other: ______

REMARKS: ______

PRINT NAME: Vince Valdes

SIGNATURE: Vince Valdes

PAGE 4 OF 5

GROUND WATER SAMPLE FIELD DATA SHEET

PROJECT NO: _____ WELL ID: MW-2

CLIENT/STATION #: [illegible] ADDRESS: 15135 [illegible]

CASING DIAMETER (inches):	2	3	4	6	8	12	Other _____
GALLON/LINEAR FOOT:	0.17	0.38	0.66	1.5	2.6	5.8	Other _____

TD 16.0 - DTW 7.62 X GALLON/LINEAR FT. 0.66 X CASING VOLUME 3 = CALCULATED PURGE 16.59

ACTUAL PURGE 17.0

DATE PURGED: 2-15-94 START (2400 Hr) 1936 END (2400 Hr) 1941

DATE SAMPLED: 2-15-94 START (2400 Hr) 1949 END (2400 Hr) 1949

DTW 8.4

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1937	2	6.84	0.48	65.9	clear	
1938	5	6.87	0.50	65.4	clear	
1940	10	6.84	0.51	65.3	clear	
1941	17	6.74	0.52	64.9	clear	

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

PURGING EQUIPMENT

- ____ 2" Bladder Pump
- ____ Centrifugal Pump
- ____ Submersible Pump
- ____ Dedicated
- ____ Bailer (Teflon®)
- ____ Bailer (PVC)
- ____ Bailer (Stainless Steel)

Other: _____

SAMPLING EQUIPMENT

- ____ 2" Bladder Pump
- ____ DDL Sampler
- ____ Dipper
- ____ Bailer Disposable
- ____ Bailer (Teflon®)
- ____ Bailer (Stainless Steel)
- ____ Submersible Pump
- ____ Dedicated

Other: _____

REMARKS: _____

PRINT NAME: Vince Valdez

SIGNATURE: [signature]

Columbia Analytical Services, Inc.

February 28, 1994

Service Request No. SJ94-0209

Gina Austin
Tom DeLon
IWM
950 Ames Avenue
Milpitas, CA 95035

Re: **ARCO Facility No. A2162**

Dear Ms. Austin/Mr. DeLon:

Attached are the results of the water samples submitted to our lab on February 16, 1994. For your reference, these analyses have been assigned our service request number SJ94-0209.

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

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

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

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: IWM
Project: ARCO Facility No. A2162
Sample Matrix: Water

Dates Collected: 02/15/94
Date Received: 02/16/94
Date Extracted: N/A
Date Analyzed: 02/22. 23/94
Service Request: SJ94-0209

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

Analyte:		**Benzene**	**Toluene**	**Ethyl-benzene**	**Total Xylenes**	**TPH as Gasoline**
Units:		µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)
Method Reporting Limit:		0.5	0.5	0.5	0.5	50
Sample Name	**Date Analyzed**					
MW-1 (8.5)	02/22/94 (a)	1.9	ND	4.5	<4.9 (b)	650.
MW-2 (8.4)	02/23/94	1.8	1.5	49.	37.	490.
MW-3 (8.0)	02/22/94 (a)	ND	ND	ND	ND	ND
MW-4 (9.0)	02/22/94 (a)	2.0	ND	ND	ND	ND
Method Blank	02/22/94	ND	ND	ND	ND	ND
Method Blank	02/23/94	ND	ND	ND	ND	ND

(a) This sample was part of the analytical batch started on February 22. 1994. However. it was analyzed after midnight so the actual date analyzed is February 23, 1994.
(b) Raised MRL due to matrix interference.

Approved By: Kevin A Murphy Date: February 25, 1994

[940209 XLW]8020w1/2/28/94

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: IWM
Project: ARCO Facility No. A2162
Sample Matrix: Water

Dates Collected: 02/15/94
Date Received: 02/16/94
Date Extracted: N/A
Date Analyzed: 02/22. 23/94
Service Request: SJ94-0209

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

Sample Name	Date Analyzed	Percent Recovery a.a.a-Trifluorotoluene
MW-1 (8.5)	02/22/94	104.
MW-2 (8.4)	02/23/94	70.
MW-3 (8.0)	02/22/94	85.
MW-4 (9.0)	02/22/94	80.
MS	02/22/94	92.
DMS	02/22/94	94.
Method Blank	02/22/94	89.
Method Blank	02/23/94	81.

CAS Acceptance Limits: 62-112

Approved By: Kevin Murphy Date: February 28, 1994

{940209.XLW}8020sr1/2/28/94

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	IWM	**Dates Collected:**	02/15/94
Project:	ARCO Facility No. A2162	**Date Received:**	02/16/94
Sample Matrix:	Water	**Date Extracted:**	N/A
		Date Analyzed:	02/22/94
		Service Request:	SJ94-0209

Initial Calibration Verification
BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method
Units: µg/L (ppb)

Analyte	True Value	Result	Percent Recovery	CAS Acceptance Criteria
Benzene	25.	24.4	98.	85-115
Toluene	25.	24.1	96.	85-115
Ethylbenzene	25.	23.3	93.	85-115
Total Xylenes	75.	70.4	94.	85-115
TPH as Gasoline	250.	257.	101.	90-110

Approved By: Kevin A Murphy Date: February 25, 1994

[940209.XLW]8020ccs/2/28/94

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	IWM	**Dates Collected:**	02/15/94
Project:	ARCO Facility No. A2162	**Date Received:**	02/16/94
Sample Matrix:	Water	**Date Extracted:**	N/A
		Date Analyzed:	02/22/94
		Service Request:	SJ94-0209

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

					Percent Recovery		
		Sample	Spike Result				CAS Acceptance
Analyte	**Spike Level**	**Result**	**MS**	**DMS**	**MS**	**DMS**	**Criteria**
Benzene	25.	ND	26.1	26.2	104.	105.	75-135
Toluene	25.	ND	26.3	26.3	105.	105.	73-136
Ethylbenzene	25.	ND	25.8	26.2	103.	105.	69-142

Approved By: Edward Murphy Date: February 28, 199

[940209.XLW]8020btems/2/28/94

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ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. IWM-94-5CC

Chain of Custody

ARCO Facility no. A 2162	City (Facility) San Leandro	Project manager (Consultant) TOM DeLon	Laboratory name Columbia
ARCO engineer Kyle Christie	Telephone no. (ARCO)	Telephone no. (Consultant) 408/942 8955	Fax no. (Consultant) 408/942 1499	Contract number 07077
Consultant name IWM	Address (Consultant) 950 Ames av. Milp Ca 95035		Method of shipment CAS COURIER

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid HCl	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA M602/8020/8015	TPH Modified 8015 Gas ☒ Diesel ☐	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Semi Metals ☐ VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐		
(DTW) FB	1-2	2		✓		✓	✓	2-15-94	1735		✓	✓										
8.5 MW-1	3-4	2		✓		✓	✓		1928		✓	✓										
8.4 MW-2	5-6	2		✓		✓	✓		1949		✓	✓										
8.0 MW-3	7-8	2		✓		✓	✓		1841		✓	✓										
9.0 MW-4	9-10	2		✓		✓	✓		1905		✓	✓										

Special detection Limit/reporting

Special QA/QC

Remarks

HOLD FB per Gina 2/17/94

Lab number SJ94-0209

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	Date 2-16-94	Time 1545	Received by CAS - SJ 2-16-94 15:45
Relinquished by	Date	Time	Received by
Relinquished by	Date	Time	Received by laboratory / Date / Time

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

SITE ARRIVAL TIME: 0705

SITE DEPARTURE TIME: 0758

WEATHER CONDITIONS: cloudy

FIELD REPORT

DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT NO.: _____ LOCATION: 15135 Hesperian Blvd. DATE: March 18, 1994

CLIENT/STATION #: A-2162 FIELD TECHNICIAN: Vince Valdes DAY OF WEEK: Friday

DTW FROM: WELL HEAD or WELL CASING (Circle One)

SEQUENCE DTW OBSD	WELL ID	SURFACE SEAL	LID SECURE	GASKET	LOCK	EXPANDING CAP	TOTAL DEPTH (Feet)	FIRST DEPTH TO WATER (Feet)	SECOND DEPTH TO WATER (Feet)	DEPTH TO FLOATING PRODUCT (Feet)	FLOATING PRODUCT THICKNESS (Feet)	SHEEN (Y = YES, N = NO)	COMMENTS	MATERIALS
3	MW-1	OK	Yes	OK	OK	OK	N/S	8.46	8.46	N/S	N/S	N		
4	MW-2	OK	Yes	OK	OK	OK	N/S	7.57	7.57	N/S	N/S	N		
1	MW-3	OK	Yes	OK	OK	OK	N/S	7.88	7.88	N/S	N/S	N		
2	MW-4	OK	Yes	OK	OK	OK	N/S	8.99	8.99	N/S	N/S	N		