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42501 Albrae Street, Suite 100
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Phone: (510) 440-3300
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TRANSMITTAL

TO: Ms. Eva Chu
Alameda County Health Care Services
Agency, Dept of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

DATE: June 9, 1994
PROJECT NUMBER: 60006.07
SUBJECT: ARCO Station 6041
7249 Village Parkway, Dublin
California

FROM: Ms. Mary E. Rysdale
TITLE: Geologic Technician

WE ARE SENDING YOU:

COPIES	DATED		DESCRIPTION
1	06/07/94	60006.04	Letter Report, Quarterly Groundwater Monitoring, First Quarter 1994, at above subject site

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REMARKS:

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Mary E. Rysdale

Mary E. Rysdale, Geologic Technician

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LETTER REPORT
QUARTERLY GROUNDWATER MONITORING
First Quarter 1994

ARCO Station 6041
7249 Village Parkway
Dublin, California

60006.07

June 1994

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42501 Albrae Street, Suite 100
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June 7, 1994

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

Subject: Letter Report, Quarterly Groundwater Monitoring
First Quarter 1994
ARCO Station 6041
7249 Village Parkway, Dublin, 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 subject 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 are 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 onsite February 11, 1994, to measure depth-to-water (DTW), and perform subjective analysis for the presence of hydrocarbon product in groundwater in wells MW-1 through MW-6. Quarterly sampling was performed by IWM field personnel on February 11, 1994, in conjunction with three other consultants for three other gasoline stations at the intersection of Village Parkway and Amador Valley Boulevard.

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, total xylenes (BTEX) and total petroleum hydrocarbons as gasoline (TPHg) using Environmental Protection Agency (EPA) Methods 5030/8020/California DHS LUFT Method. The Chain of Custody Records and Laboratory Analysis Reports are included in Appendix A.

Results of Groundwater Monitoring

Groundwater elevations rose an average of about 0.46 foot in wells MW-1 through MW-6 since last quarter. Evidence of floating product or product sheen was not noted in the wells during this quarter. Based on February 11, 1994, DTW data, groundwater flows toward the south-southwest with a gradient of approximately 0.002 ft/ft. Based on the March 13, 1994, DTW data, groundwater flows toward the west with a gradient of approximately 0.004 ft/ft (Plates 3 and 4). Based on February 11, 1994, DTW data from ARCO, BP, former Shell, and Unocal stations, areal groundwater flows toward the south-southwest with an overall gradient varying from approximately 0.007 ft/ft to 0.01 ft/ft. However, there appears to be a groundwater depression in the vicinity of Unocal MW-5 and ARCO MW-3, and a groundwater mound in the vicinity of Shell MW-7 (Plate 5). These features may be attributed to the influence of subsurface utilities (sewer, storm drain, and water) on local groundwater. Groundwater monitoring data from this and previous quarters are presented in Table 1. Groundwater monitoring data from wells at BP, former Shell, and Unocal Stations are presented in Table 2. 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 remained the same order of magnitude, however, a slight decrease was seen in wells MW-1 (benzene decreased to below method detection limits), MW-2 (except benzene), and MW-3; and concentrations in wells MW-4 through MW-6 continued to be below detection limits (Plate 6). Cumulative analytical results of water samples are presented in Table 3.

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.
- Performed monthly DTW measurements.
- Conducted an air sparge pilot test at the site.

Second Quarter 1994

- Submit Letter Report, Quarterly Groundwater Monitoring, Second Quarter 1994, to ARCO and regulatory agencies.
- Perform Second Quarter 1994 Groundwater Monitoring.
- Perform monthly DTW measurements.
- Prepare a report of findings for the air sparge pilot test.

REPORTING REQUIREMENTS

We recommend that copies of this report be forwarded to:

Ms. Eva Chu
Alameda County Health Care Services Agency
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

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

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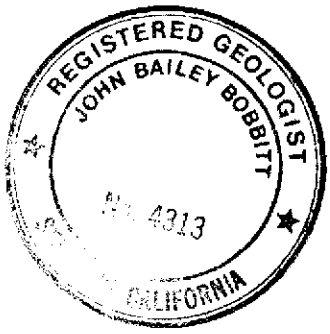
If you have any questions or comments, please call us at (510) 440-3300.

Sincerely,
RESNA Industries Inc.

Mary E. Rysdale
Geologic Technician

John B. Bobbitt, R.G. 4313
Senior Project Geologist



Attachments:

References

Plate 1:	Site Vicinity Map
Plate 2:	Generalized Site Plan
Plate 3:	Groundwater Gradient Map, February 11, 1994
Plate 4:	Groundwater Gradient Map, March 13, 1994
Plate 5:	Areal Groundwater Gradient Map, February 11, 1994
Plate 6:	TPHg/Benzene Concentrations in Groundwater, February 11, 1994
Table 1:	Cumulative Groundwater Monitoring Data
Table 2:	Cumulative Groundwater Monitoring Data; BP, Former Shell, and Unocal Stations
Table 3:	Cumulative Results of Laboratory Analyses of Groundwater Samples
Appendix A:	IWM's Summary of Ground Water Sample Analyses, Field Reports, Water Sample Field Data Sheets, and Certified Analytical Reports with Chain of Custody Record

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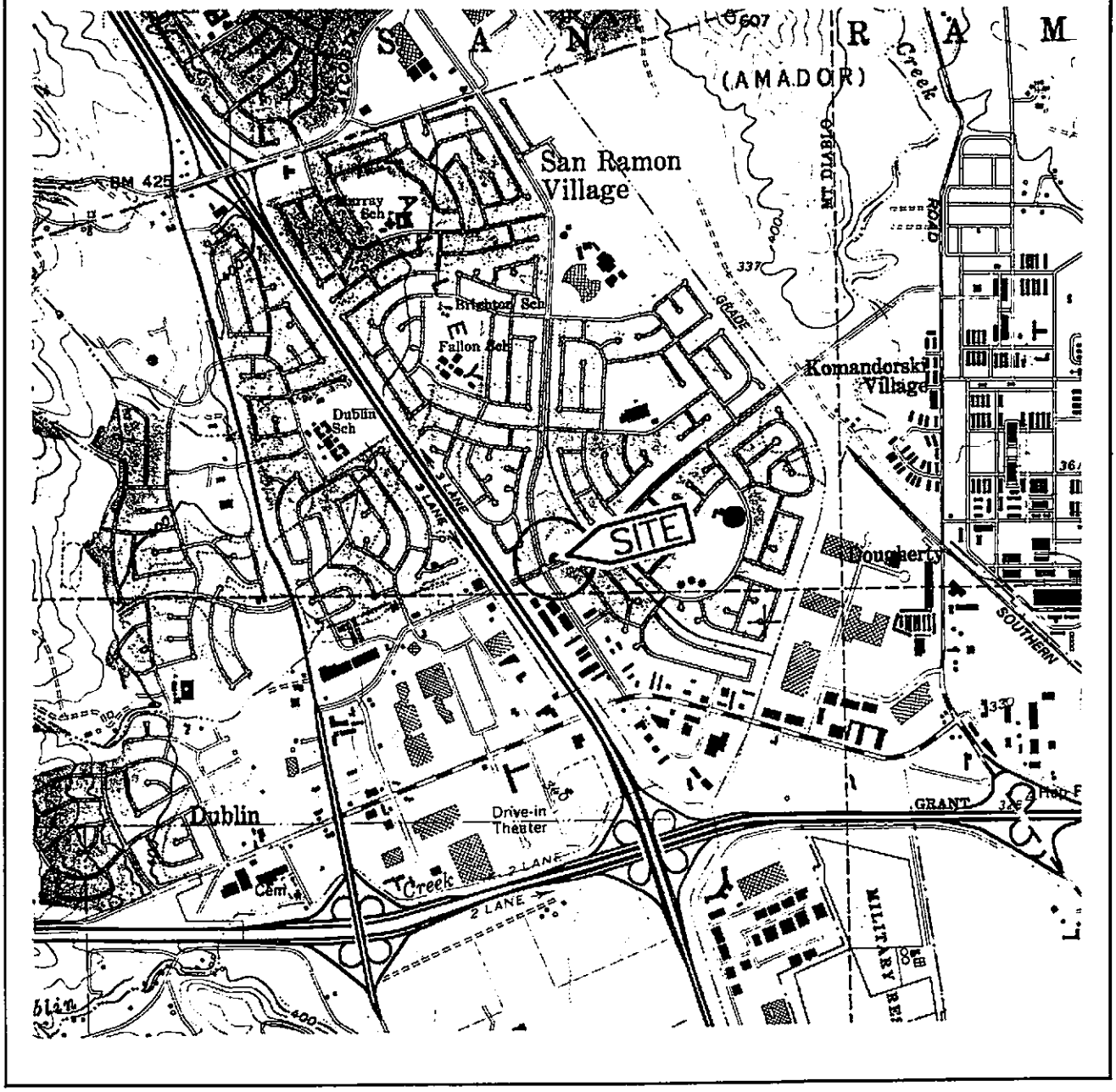
REFERENCES

RESNA Industries Inc. January 29, 1993. Additional Onsite Subsurface Investigation and Vapor Extraction Test at ARCO Station 6041, 7249 Village Parkway, Dublin, California. RESNA Project 60006.04.

RESNA Industries Inc. March 3, 1994. Letter Report, Quarterly Groundwater Monitoring, Fourth Quarter 1993 at ARCO Station 6041, 7249 Village Parkway, Dublin, California. RESNA Project 60006.06.



Source: U.S. Geological Survey
7.5-Minute Quadrangle
Dublin, California
Photorevised 1980

N

Approximate Scale
2000 1000 0 2000
feet

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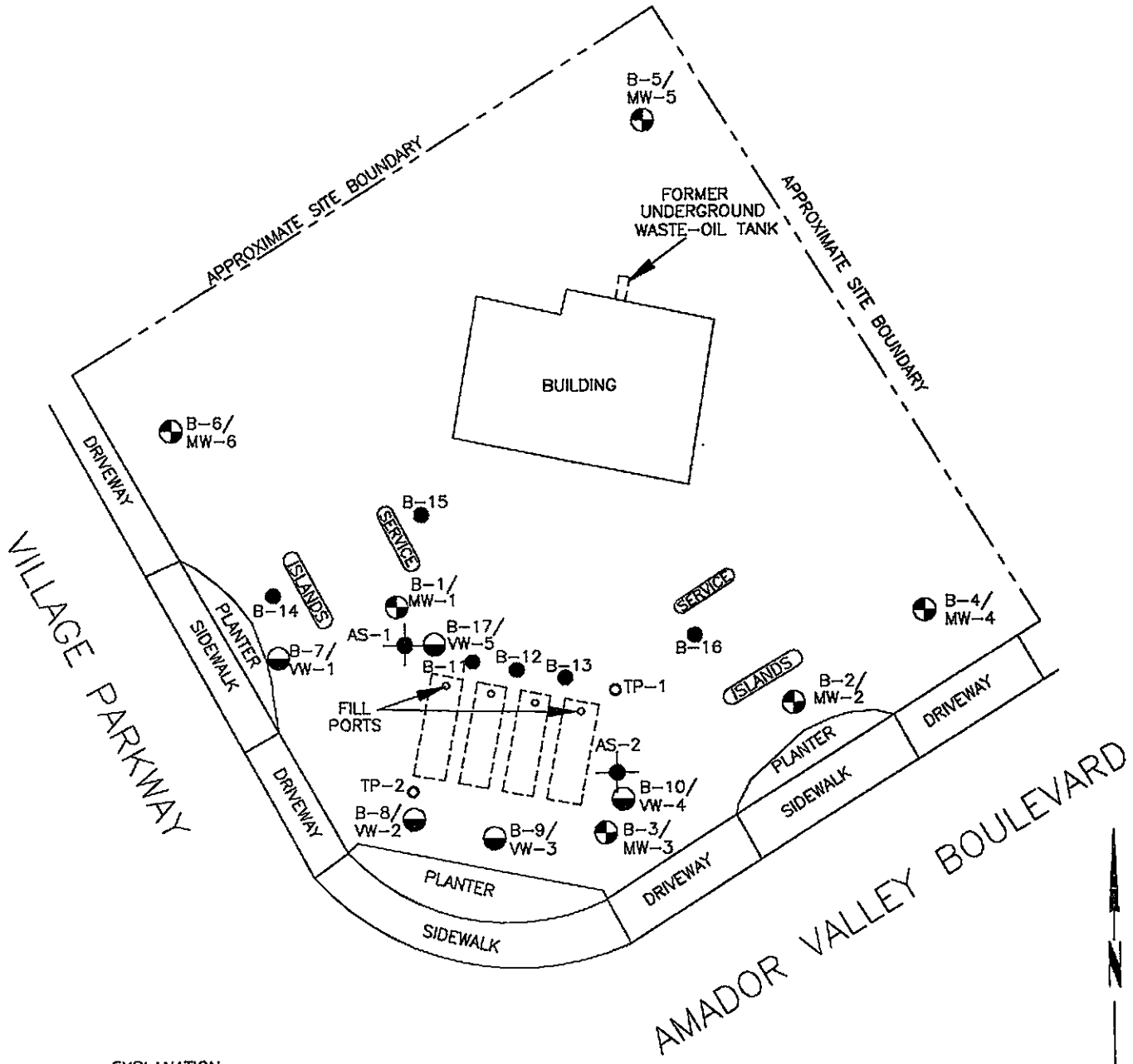
PROJECT 60006.07

SITE VICINITY MAP
ARCO Station 6041
365 Jackson Street
Dublin, California

PLATE
1



EXPLANATION

= Former tank pit

B-17/VW-5 = Boring/vapor extraction well (RESNA, October 1992)

B-6/MW-6 = Boring/groundwater monitoring well (RESNA, September 1991 and October 1992)

TP-2 = Tank pit observation well

B-16 = Soil borings (RESNA, August 1993)

AS-2 = Air-sparging well

Approximate Scale

40 20 0 40 80

feet

Source: Modified from plan supplied by ARCO.

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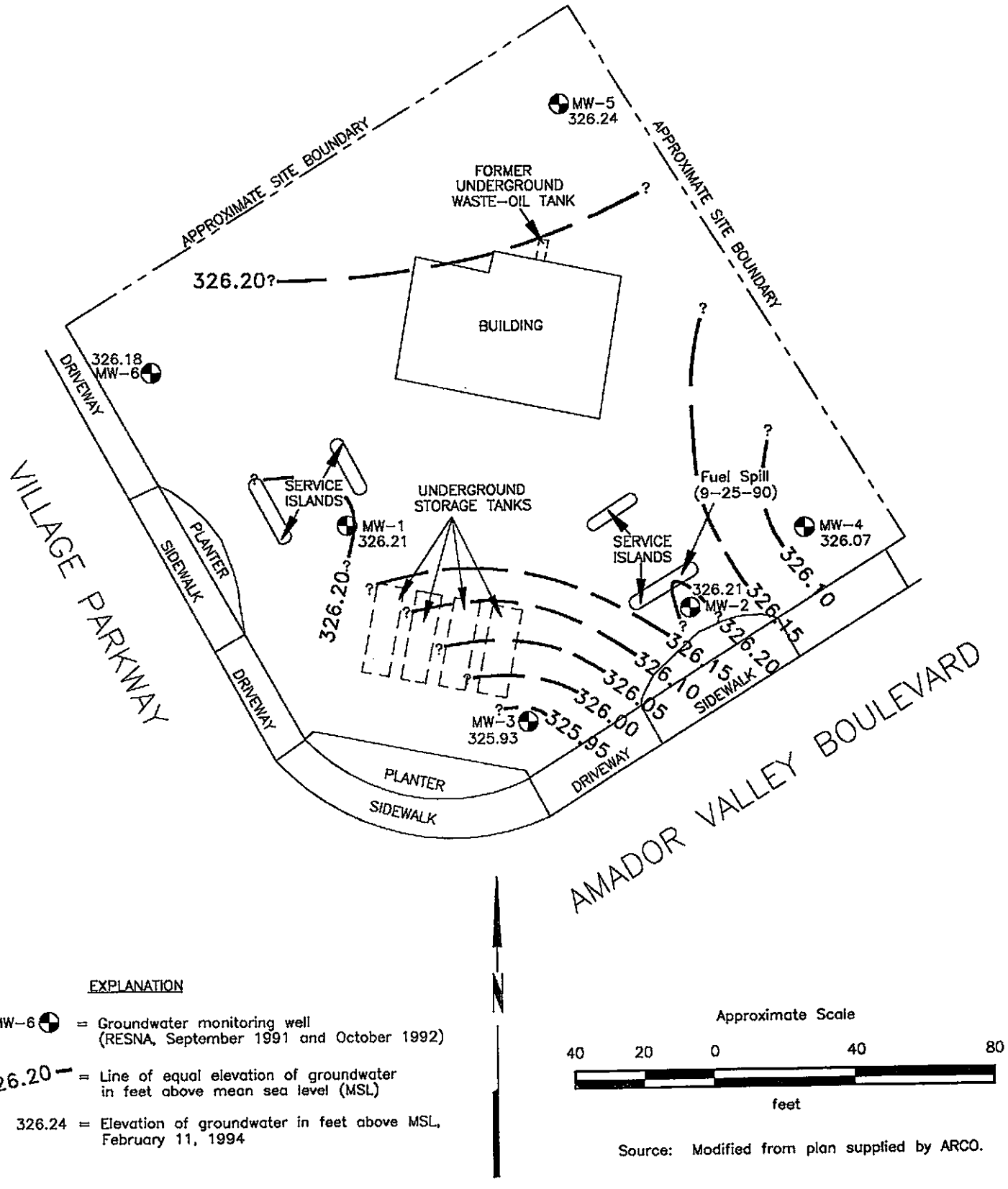
GENERALIZED SITE PLAN
ARCO Service Station 6041
7249 Village Parkway
Dublin, California

PLATE 2



EXPLANATION

MW-6 ⊕ = Groundwater monitoring well (RESNA, September 1991 and October 1992)

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

326.24 = Elevation of groundwater in feet above MSL, February 11, 1994

Approximate Scale

40 20 0 40 80

feet

Source: Modified from plan supplied by ARCO.

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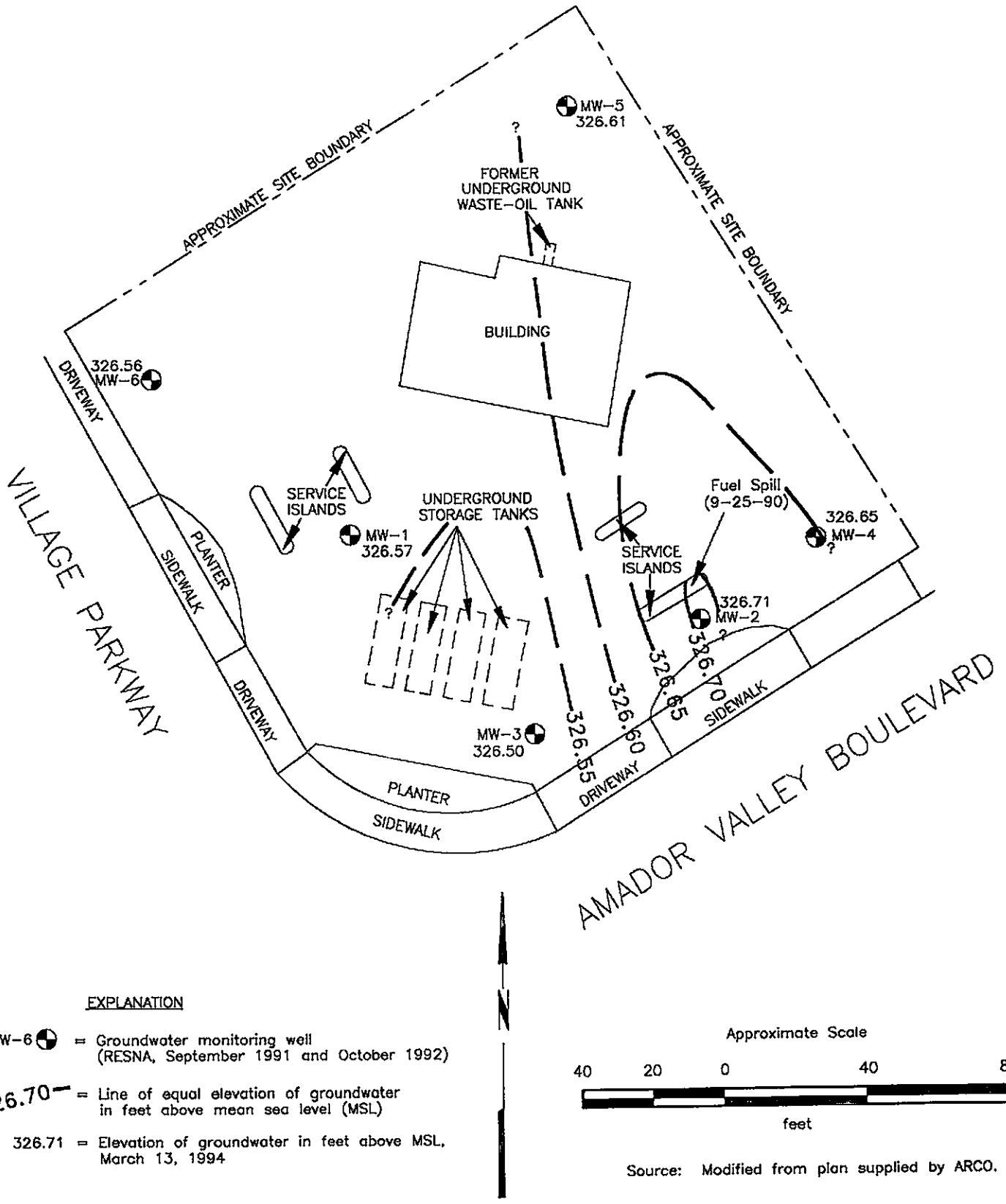
GROUNDWATER GRADIENT MAP
February 11, 1994
ARCO Service Station 6041
7249 Village Parkway
Dublin, California

PLATE 3



EXPLANATION

MW-6 ⊕ = Groundwater monitoring well (RESNA, September 1991 and October 1992)

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

326.71 = Elevation of groundwater in feet above MSL, March 13, 1994

Source: Modified from plan supplied by ARCO.

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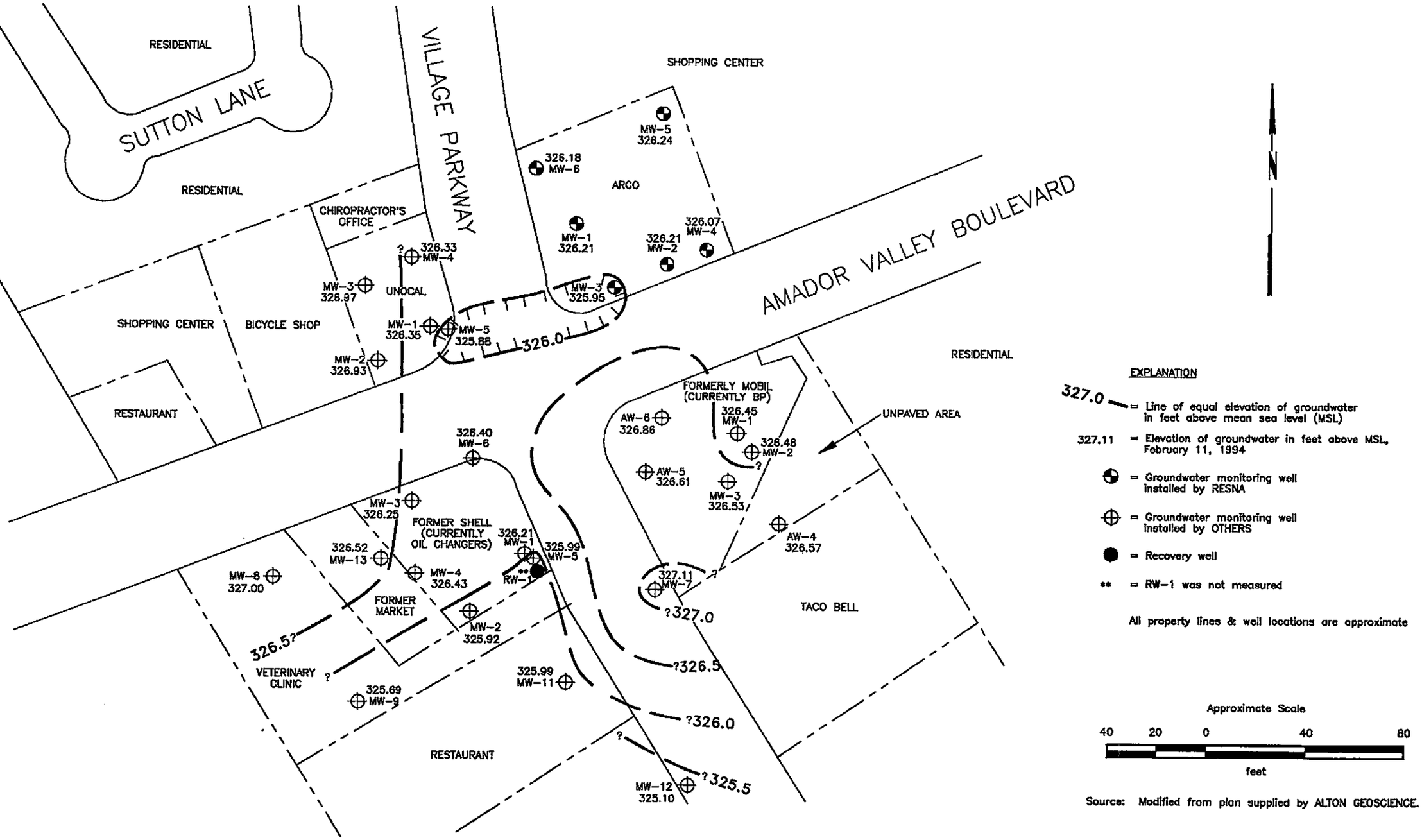
GROUNDWATER GRADIENT MAP
March 13, 1994
ARCO Service Station 6041
7249 Village Parkway
Dublin, California

PLATE 4



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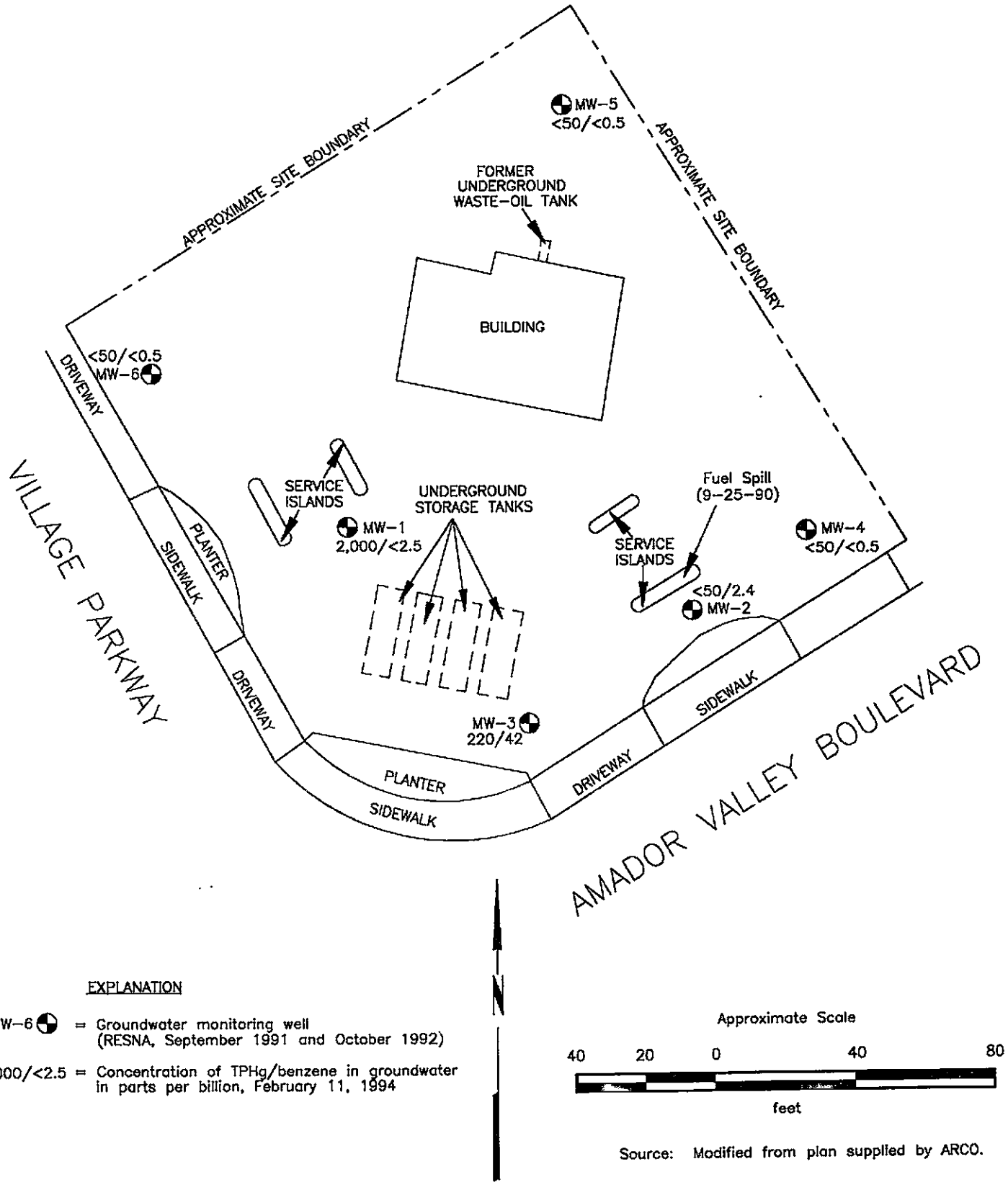
AREAL GROUNDWATER GRADIENT MAP, February 11, 1994
ARCO Service Station 6041
7249 Village Parkway
Dublin, California

PLATE
5



EXPLANATION

MW-6 = Groundwater monitoring well (RESNA, September 1991 and October 1992)

2,000/<2.5 = Concentration of TPHg/benzene in groundwater in parts per billion, February 11, 1994

Source: Modified from plan supplied by ARCO.

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TPHg/BENZENE CONCENTRATIONS
IN GROUNDWATER
ARCO Service Station 6041
7249 Village Parkway
Dublin, California

PLATE
6

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 6041
Dublin, California
(Page 1 of 4)

Date Measured	Well Elevation	Depth to Water	Water Elevation	Floating Product
MW-1	336.56			
09-20-91		11.20	325.36	None
10-22-91		11.48	325.08	None
11-27-91		11.27	325.29	None
12-16-91		11.55	325.01	None
01-18-92		11.37	325.19	None
02-21-92		9.13	327.43	None
03-16-92		9.70	326.86	None
04-24-92		10.20	326.36	None
05-15-92		10.46	326.10	None
06-09-92		10.73	325.83	None
07-28-92		11.04	325.52	None
08-24-92		11.32	325.24	None
09-09-92		11.54	325.02	None
10-26-92		11.80	324.76	None
11-10-92		11.74	324.84	None
12-14-92		10.77	325.79	None
01-15-93		8.88	327.68	None
02-10-93		9.66	326.90	None
03-29-93		8.31	328.25	None
04-27-93		9.03	328.25	None
05-10-93		9.50	327.06	None
06-18-93		10.16	326.40	None
07-28-93		10.68	325.88	None
08-30-93		10.59	325.97	None
09-28-93		10.82	325.74	None
10-31-93		10.94	325.62	None
11-11-93		10.70	325.86	None
12-15-93		10.56	326.00	None
02-11-94		10.35	326.21	None
03-13-94		9.99	326.57	None
MW-2	334.80			
09-20-91		9.22	325.58	None
10-22-91		9.66	325.14	None
11-27-91		9.48	325.32	None
12-16-91		9.76	325.04	None
01-18-92		9.47	325.33	None
02-21-92		7.62	327.18	None
03-16-92		7.84	326.96	None
04-24-92		8.34	326.46	None

See notes on page 4 of 4.

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 6041
Dublin, California
(Page 2 of 4)

Date Measured	Well Elevation	Depth to Water	Water Elevation	Floating Product
MW-2 cont.	334.80			
05-15-92		8.62	326.18	None
06-09-92		8.88	325.92	None
07-28-92		9.38	325.42	None
08-24-92		9.81	324.99	None
09-09-92		9.92	324.88	None
10-26-92		10.13	324.67	None
11-10-92		10.12	324.68	None
12-14-92		8.99	325.81	None
01-15-93		7.20	327.60	None
02-10-93		7.30	327.50	None
03-29-93		6.60	328.20	None
04-27-93		7.10	327.70	None
05-10-93		7.40	327.40	None
06-18-93		8.02	326.78	None
07-28-93		8.47	326.33	None
08-30-93		8.80	326.00	None
09-28-93		9.19	325.61	None
10-31-93		9.12	325.68	None
11-11-93		9.02	325.78	None
12-15-93		8.82	325.98	None
02-11-94		8.59	326.21	None
03-13-94		8.09	326.71	None
MW-3	335.53			
09-20-91		10.16	325.37	None
10-22-91		10.48	325.05	None
11-27-91		10.17	325.36	None
12-16-91		10.25	325.28	None
01-18-92		10.71	324.82	None
02-21-92		8.68	326.85	None
03-16-92		8.91	326.62	None
04-24-92		9.14	326.39	None
05-15-92		9.54	325.99	None
06-09-92		9.72	325.81	None
07-28-92		10.15	325.38	None
08-24-92		10.42	325.11	None
09-09-92		10.53	325.00	None
10-26-92		10.92	324.61	None
11-10-92		10.72	324.81	None
12-14-92		9.78	325.75	None

See notes on page 4 of 4.

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 6041
Dublin, California
(Page 3 of 4)

Date Measured	Well Elevation	Depth to Water	Water Elevation	Floating Product
MW-3 cont.	335.53			
01-15-93		7.66	327.87	None
02-10-93		7.87	327.66	None
03-29-93		7.35	328.18	None
04-27-93		7.70	327.83	None
05-10-93		8.46	327.07	None
06-18-93		9.13	326.40	None
07-28-93		9.49	326.04	None
08-30-93		9.62	325.91	None
09-28-93		9.80	325.73	None
10-31-93		9.84	325.69	None
11-11-93		9.81	325.72	None
12-15-93		10.23	325.30	None
02-11-94		9.60	325.93	None
03-13-94		9.03	326.50	None
MW-4	334.22			
11-10-92		9.58	324.64	None
12-14-92		8.72	325.50	None
01-15-93		7.27	326.95	None
02-10-93		6.80	327.42	None
03-29-93		6.29	327.93	None
04-27-93		6.33	327.59	None
05-10-93		6.68	327.54	None
06-18-93		7.05	327.17	None
07-28-93		7.77	326.45	None
08-30-93		8.09	326.13	None
09-28-93		8.40	325.82	None
10-31-93		8.56	325.66	None
11-11-93		8.48	325.74	None
12-15-93		8.38	325.84	None
02-11-94		8.15	326.07	None
03-13-94		7.57	326.65	None
MW-5	335.87			
11-10-92		11.02	324.85	None
12-14-92		10.17	325.70	None
01-15-93		8.14	327.73	None
02-10-93		8.00	327.87	None
03-29-93		7.52	328.35	None
04-27-93		8.26	327.61	None

See notes on page 4 of 4.

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TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 6041
Dublin, California
(Page 4 of 4)

Date Measured	Well Elevation	Depth to Water	Water Elevation	Floating Product
MW-5 cont.	335.87			
05-10-93		8.64	327.23	None
06-18-93		9.26	326.61	None
07-28-93		9.65	326.22	None
08-30-93		9.81	326.06	None
09-28-93		9.99	325.88	None
10-31-93		10.02	325.85	None
11-11-93		10.09	325.78	None
12-15-93		10.08	325.79	None
02-11-94		9.63	326.24	None
03-13-94		9.26	326.61	None
MW-6				
11-10-92	335.84	11.03	324.81	None
12-14-92		10.03	325.81	None
01-15-93		7.64	328.20	None
02-10-93		8.22	327.62	None
03-29-93		7.59	328.25	None
04-27-93		8.20	327.64	None
05-10-93		8.85	326.99	None
06-18-93		9.26	326.14	None
07-28-93		9.83	326.01	None
08-30-93		10.15	325.69	None
09-28-93		9.95	325.89	None
10-31-93		10.16	325.68	None
11-11-93		10.02	325.82	None
12-15-93		10.28	325.56	None
02-11-94		9.66	326.18	None
03-13-94		9.28	326.56	None

Notes:

Measurements in feet.
Wells MW-1 through MW-3 surveyed on October 11, 1991.
Wells MW-4 through MW-6 surveyed on November 12, 1992.
Datum from USGS, City of Dublin

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TABLE 2
CUMULATIVE GROUNDWATER MONITORING DATA
BP Station 1116, 7197 Village Parkway,
Former Shell Station, 7194 Amador Valley Boulevard,
and Unocal Station, 7375 Amador Valley Boulevard,
Dublin, California
(Page 1 of 5)

Date Measured	Well Elevation	Depth-to -Water	Water Elevation
BP Station 1116			
MW-1			
11-10-92	335.17	10.67	324.50
02-10-93		5.25	329.92
05-21-93		5.73	329.44
08-12-93		8.99	326.18
11-11-93		9.65	325.52
02-11-94		8.72	326.45
MW-2			
11-10-92	334.58	10.27	324.31
02-10-93		6.46	328.12
05-21-93		6.96	328.12
08-12-93		8.58	326.00
11-11-93		9.28	325.30
02-11-94		8.10	326.48
MW-3			
11-10-92	335.13	10.78	324.35
02-10-93		7.16	327.97
05-21-93		7.69	327.44
08-12-93		9.11	326.02
11-11-93		9.78	325.35
02-11-94		8.60	326.53
AW-4			
11-10-92	333.41	9.10	324.31
02-93 to 11-93	Well Not Accessible		
11-11-93		8.00	325.41
02-11-94		6.84	326.57
AW-5			
11-10-92	334.81	10.27	324.54
02-10-93		7.29	327.52
05-21-93		7.77	327.04
08-12-93		8.87	325.94
11-11-93		9.13	325.68
02-11-94		8.20	326.61

See notes on page 5 of 5.

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TABLE 2
CUMULATIVE GROUNDWATER MONITORING DATA
BP Station 1116, 7197 Village Parkway,
Former Shell Station, 7194 Amador Valley Boulevard,
and Unocal Station, 7375 Amador Valley Boulevard,
Dublin, California
(Page 2 of 5)

Date Measured	Well Elevation	Depth-to -Water	Water Elevation
AW-6			
11-10-92	334.90	10.10	324.80
02-10-93		7.13	327.77
05-21-93		7.64	327.26
08-12-93		8.64	326.26
11-11-93		8.67	326.23
02-11-94		8.04	326.86
Former Shell Station			
MW-1			
11-10-92	334.83	10.04	324.79
02-10-93		7.24	327.59
05-10-93		7.78	327.05
08-12-93		8.54	326.29
11-11-93		8.56	326.27
02-11-94		8.62	326.21
MW-2			
11-10-92	336.96	12.05	324.91
02-10-93		9.28	327.68
05-10-93		9.65	327.31
08-12-93		10.70	326.26
11-11-93		11.36	325.60
02-11-94		11.04	325.92
MW-3			
11-10-92	336.93	11.84	325.09
02-10-93		8.82	328.11
05-10-93		10.88	326.05
08-12-93		10.36	326.57
11-11-93		10.64	326.29
02-11-94		10.68	326.25
MW-4			
11-10-92	337.14	12.12	325.02
02-10-93		9.40	327.74
05-10-93		9.54	327.60
08-12-93		10.68	326.46

See notes on page 5 of 5.

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TABLE 2
CUMULATIVE GROUNDWATER MONITORING DATA
BP Station 1116, 7197 Village Parkway,
Former Shell Station, 7194 Amador Valley Boulevard,
and Unocal Station, 7375 Amador Valley Boulevard,
Dublin, California
(Page 3 of 5)

Date Measured	Well Elevation	Depth-to -Water	Water Elevation
MW-4 cont.			
11-11-93		11.97	325.17
02-11-94		10.71	326.43
MW-5			
11-10-92	334.96	9.65	325.31
02-10-93		7.97	326.99
05-10-93		—	—
08-12-93		8.75	326.21
11-11-93		9.32	325.64
02-11-94		8.97	325.99
MW-6			
11-10-92	335.42	10.56	324.86
02-10-93		7.65	327.77
05-10-93		8.10	327.32
08-12-93		9.18	326.24
11-11-93		9.38	326.04
02-11-94		9.02	326.40
MW-7			
11-10-92	333.23	8.82	324.41
02-10-93		6.06	327.17
05-10-93		6.68	326.55
08-12-93		6.83	326.40
11-11-93		6.90	326.33
02-11-94		6.12	327.11
MW-8			
11-10-92	335.80	10.41	325.39
02-10-93		7.35	328.45
05-10-93		8.00	327.80
08-12-93		9.00	326.80
11-11-93		9.47	326.33
02-11-94		8.80	327.00
MW-9			
11-10-92	334.57	9.61	324.96
02-10-93		7.20	327.37
05-10-93		7.56	327.01

See notes on page 5 of 5.

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TABLE 2
CUMULATIVE GROUNDWATER MONITORING DATA
BP Station 1116, 7197 Village Parkway,
Former Shell Station, 7194 Amador Valley Boulevard,
and Unocal Station, 7375 Amador Valley Boulevard,
Dublin, California
(Page 4 of 5)

Date Measured	Well Elevation	Depth-to -Water	Water Elevation
MW-9 cont.			
08-12-93		8.25	326.32
11-11-93		10.30	324.27
02-11-94		8.88	325.69
MW-11			
11-10-92	334.20	9.47	324.73
02-10-93		6.79	327.41
05-10-93		7.18	327.02
08-12-93		8.10	326.10
11-11-93		8.56	325.64
02-11-94		8.21	325.99
MW-12			
11-10-92	332.53	8.32	324.31
02-10-93		6.75	325.78
05-10-93		—	—
08-12-93		6.23	326.30
11-11-93		7.43	325.10
02-11-94		7.18	325.35
MW-13			
11-10-92	335.64	10.69	324.95
02-10-93		7.49	328.15
05-10-93		8.06	327.58
08-12-93		8.73	326.91
11-11-93		9.15	326.49
02-11-94		9.12	326.52
UNOCAL Station			
MW-1			
11-10-92	336.72	11.97	324.75
02-10-93		8.63	328.09
05-10-93		9.57	327.15
08-12-93	336.08*	9.91	326.17
11-11-93		10.17	325.91
02-11-94		9.72	326.35

See notes on page 5 of 5.

RESNA
Working to Restore Nature

TABLE 2
CUMULATIVE GROUNDWATER MONITORING DATA
BP Station 1116, 7197 Village Parkway,
Former Shell Station, 7194 Amador Valley Boulevard,
and Unocal Station, 7375 Amador Valley Boulevard,
Dublin, California

Date Measured	Well Elevation	Depth-to -Water	Water Elevation
MW-2			
11-10-92	337.36	12.15	325.21
02-10-93		8.81	328.55
05-10-93		9.75	327.61
08-12-93	336.78*	10.11	326.67
11-11-93		10.51	326.27
02-11-94		9.85	326.93
MW-3			
11-10-92	337.53	12.33	325.20
02-10-93		8.95	328.58
05-10-93		9.91	327.62
08-12-93	336.98*	10.34	326.64
11-11-93		10.64	326.34
02-11-94		10.01	326.97
MW-4			
11-10-92	337.00	12.32	324.68
02-10-93		8.94	328.06
05-10-93		9.90	327.10
08-12-93	336.42*	10.32	326.10
11-11-93		10.48	325.94
02-11-94		10.10	326.33
MW-5			
02-11-94	335.96	10.08	325.88

Notes:

Measurements in feet.
Depth-to-water and wellhead elevation data obtained from Alisto Engineering Group.
Datum is City of Dublin, USGS

* = Elevations of the tops of the well casing have been surveyed relative to Mean Sea Level as of August 1993. Previously the elevations of the well covers were used as datums.

— = No data available.

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TABLE 3
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUNDWATER SAMPLES
ARCO Station 6041
Dublin, California
(Page 1 of 2)

Well Date	TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes
MW-1					
09-20-91	410	28	36	4.3	89
12-16-91	840	50	50	3.9	12
03-16-92	780	22	12	45	22
06-09-92	700	8.8	15	16	18
09-09-92	400	5.4	8.4	4.6	6.7
11-10-92	2,800	93	56	190	390
02-10-93	9,700	180	100	450	740
05-10-93	6,400	120	12	410	300
08-30-93	2,000	2.5	<2.5*	110	61
11-11-93	2,100	<2.5*	<2.5*	66	20
02-11-94	2,000	<2.5*	<2.5*	25	5.7
MW-2					
09-20-91	130	6.6	0.96	1.4	1.5
12-16-91	83	0.96	<0.30	<0.30	<0.30
03-16-92	430	130	<2.5*	37	5.0
06-09-92	120	3.7	<0.5	5.7	<0.5
09-09-92	<50	<0.5	<0.5	<0.5	<0.5
11-10-92	<50	<0.5	<0.5	<0.5	<0.5
02-10-93	740	110	<5*	35	<5*
05-10-93	2,000	650	14	86	28
08-30-93	170	1.4	7.9	1.6	15
11-11-93	78	<0.5	2.8	0.7	5.9
02-11-94	<50	2.4	0.7	<0.5	<0.5
MW-3					
09-20-91	990	50	100	11	200
12-16-91	1,000	180	5.1	23	4.3
03-16-92	430	86	<1.0*	22	3.4
06-09-92	1,800	290	2.4	49	17
09-09-92	2,600	550	<5*	120	12
11-10-92	1,100	280	<5*	100	<5*
02-10-93	980	190	<5*	52	<5*
05-10-93	1,100	280	<2.5*	70	<2.5*
08-30-93	470	120	<1*	22	<1*
11-11-93	830	96	<2.5*	25	<2.5*
02-11-94	220	42	<1.0*	84	<1.0*

See notes on page 2 of 2.

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Working to Restore Nature

TABLE 3
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUNDWATER SAMPLES
ARCO Station 6041
Dublin, California
(Page 2 of 2)

Well Date	TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes
MW-4					
11-10-92	<50	<0.5	<0.5	<0.5	<0.5
02-10-93	<50	<0.5	<0.5	<0.5	<0.5
05-10-93	<50	<0.5	<0.5	<0.5	<0.5
08-30-93	<50	<0.5	<0.5	<0.5	<0.5
11-11-93	<50	<0.5	<0.5	<0.5	<0.5
02-11-94	<50	<0.5	<0.5	<0.5	<0.5
MW-5					
11-10-92	<50	<0.5	<0.5	<0.5	<0.5
02-10-93	<50	<0.5	<0.5	<0.5	<0.5
05-10-93	<50	<0.5	<0.5	<0.5	<0.5
08-30-93	<50	<0.5	<0.5	<0.5	<0.5
11-11-93	<50	<0.5	<0.5	<0.5	<0.5
02-11-94	<50	<0.5	<0.5	<0.5	<0.5
MW-6					
11-10-92	<50	<0.5	<0.5	<0.5	<0.5
02-10-93	<50	<0.5	<0.5	<0.5	<0.5
05-10-93	<50	<0.5	<0.5	<0.5	<0.5
08-30-93	<50	<0.5	<0.5	<0.5	<0.5
11-11-93	<50	<0.5	<0.5	<0.5	<0.5
02-11-94	<50	<0.5	<0.5	<0.5	<0.5
MCL	—	1	—	680	1,750
DWAL	—	—	100	—	—

Notes:

Results in parts per billion (ppb)
Benzene, toluene, ethylbenzene, and total xylenes analyzed by EPA Method 5030/8020/DHS LUFT Methods.

TPHg: Total petroleum hydrocarbons as gasoline (analyzed by EPA Method 5030/8020/DHS LUFT Methods).
MCL: Maximum contaminant level in drinking water (DHS, October 1990)
DWAL: Department of Health Services Recommended Drinking Water Action Level (DHS, October 1990).
*: Raised method reporting limit due to high analyte concentration requiring sample dilution, as reported by Columbia Analytical Services, Inc.

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APPENDIX A

IWM'S SUMMARY OF GROUND WATER SAMPLE ANALYSES, FIELD REPORTS, WATER SAMPLE FIELD DATA SHEETS, AND CERTIFIED ANALYTICAL REPORTS WITH CHAIN OF CUSTODY RECORD

SITE ARRIVAL TIME: 1200

SITE DEPARTURE TIME: 1400

WEATHER CONDITIONS: Sunny Cool 60's

FIELD REPORT

DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT NO.: _____ LOCATION: 7249 Village Parkway DATE: March 13, 1994

CLIENT/STATION #: ARCO 6041 FIELD TECHNICIAN: Vince / Cisco DAY OF WEEK: Sunday

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

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
5	MW-1	OK	Yes	OK	OK	OK	N/A	9.99+	9.99+	N/A	N/A	N	4"	
4	MW-2	OK	Yes	OK	OK	OK	N/A	8.09+	8.09+	N/A	N/A	N	4" H2O in well	
6	MW-3	OK	Yes	OK	OK	OK	N/A	9.03+	9.03+	N/A	N/A	N	4"	
1	MW-4	OK	OK	OK	OK	OK	N/A	7.57+	7.57+	N/A	N/A	N	4"	
2	MW-5	OK	Yes	OK	OK	OK	N/A	9.26	9.26	N/A	N/A	N	4"	
3	MW-6	OK	Yes	OK	OK	OK	N/A	9.28	9.28	N/A	N/A	N	4" H2O in well	

6006.07

I NTEGRATED
W ASTESTREAM
M ANAGEMENT, INC.

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-6041 in Dublin, California. Integrated Wastestream Management measured the depth to water and collected samples from wells at this site on February 11, 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**

INTEGRATED
WASTESTREAM
MANAGEMENT

A6041QA4.XLS

Summary of Ground Water Sample Analyses ARCO Facility No. A-6041, Dublin, California

WELL NUMBER	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
DATE SAMPLED	2/11/94	2/11/94	2/11/94	2/11/94	2/11/94	2/11/94
DEPTH TO WATER	10.35	8.59	9.60	8.15	9.63	9.66
SHEEN	NONE	NONE	NONE	NONE	NONE	NONE
PRODUCT THICKNESS	N/A	N/A	N/A	N/A	N/A	N/A
TPHg	2,000	ND	220	ND	ND	ND
BTEX						
BENZENE	<2.5	2.4	42	ND	ND	ND
TOLUENE	<2.5	0.7	<1.0	ND	ND	ND
ETHLYBENZENE	25	ND	84	ND	ND	ND
XYLENES	5.7	ND	<1.0	ND	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: 815

SITE DEPARTURE TIME: 1330

WEATHER CONDITIONS: Sunny/Windy

PROJECT NO.: _____ LOCATION: 7249 Village Parkway Dublin DATE: 2-11-94

CLIENT/STATION #: Arco 6041 FIELD TECHNICIAN: Jose/Francisco DAY OF WEEK: Friday

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
5	MW-1	OK	YES	OK	OK	OK	17.6'	10.35'	10.35'	N/A	N/A	N	4"	
4	MW-2	OK	YES	OK	OK	OK	14.1	8.59'	8.59'			?	4" WELL BOX FILLED WITH WATER	
6	MW-3	OK	YES	OK	OK	OK	14.7	9.60'	9.60'				4"	
1	MW-4	OK	YES	OK	OK	OK	14.5	8.15'	8.15'				4"	
2	MW-5	OK	YES	OK	OK	OK	17.5	9.63	9.63				4"	
3	MW-6	OK	YES	OK	OK	OK	15.8	9.66	9.66				4" WELL BOX FILLED WITH WATER	

GROUND WATER SAMPLE FIELD DATA SHEET

PROJECT NO: _____ WELL ID: MW-4

CLIENT/STATION #: ARCO 6041 ADDRESS: 7249 VILLAGE PARKWAY/ DUBLIN

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 14.5 - DTW 8.15 X GALLON/LINEAR FT. 0.66 X CASING VOLUME 3 = CALCULATED PURGE 12.57 ACTUAL PURGE 13

DATE PURGED: 2-11-94 START (2400 HR) 1000 END (2400 HR) 1012
DATE SAMPLED: 2-11-94 START (2400 HR) 1025 END (2400 HR) 1035

TIME (2400 HR)	VOLUME (GAL.)	pH (UNITS)	E.C. (UMHOS/ CM@25 C)	TEMP. (F)	COLOR (VISUAL) PTU 120 =	TURBIDITY (VISUAL)
1006	2	7.05	427	659	clear	
1007	5	7.00	429	657	clear	
1009	9	6.98	429	654	clear	
1012	13	6.90	430	655	clear	

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

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (TEFLON)	___ 2" Bladder Pump	___ Bailer (TEFLON)
✓ Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Dedicated		✓ Bailer Disposable	___ Dedicated
Other: _____		Other: _____	

REMARKS: _____

PRINT NAME: Vince Vasquez

SIGNATURE: Vince Vasquez

GROUND WATER SAMPLE FIELD DATA SHEET

PROJECT NO: _____ WELL ID: MW-5

CLIENT/STATION #: ARCO 6041 ADDRESS: 7249 VILLAGE PARKWAY DUBLIN

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 17.5 - DTW 9.63 X GALLON/LINEAR FT. 0.66 X CASING VOLUME 3 = CALCULATED PURGE 15.58 ACTUAL PURGE 16.0

DATE PURGED: 2-11-94 START (2400 HR) 1038 END (2400 HR) 1051
DATE SAMPLED: 2-11-94 START (2400 HR) 1059 END (2400 HR) 1059

TIME (2400 HR)	VOLUME (GAL.)	pH (UNITS)	E.C. (UMHOS/ CM@25 C)	TEMP. (F)	COLOR (VISUAL)	TURBIDITY (VISUAL)
1042	3	6.86	335	65.4	clear	
1043	7	6.89	330	65.3	clear	
1045	11	6.90	345	65.1	clear	
1051	16	6.97	342	64.9	clear	

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

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (TEFLON)	___ 2" Bladder Pump	___ Bailer (TEFLON)
✓ Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Dedicated		✓ Bailer Disposable	___ Dedicated
Other: _____		Other: _____	

REMARKS: Well pumped dry at 11, and again at 16 gallons.

PRINT NAME: Vince Valdes

SIGNATURE: Vince Valdes

GROUND WATER SAMPLE FIELD DATA SHEET

PROJECT NO: _____ WELL ID: MW-6

CLIENT/STATION #: ARCO 6041 ADDRESS: 7249 VILLAGE PARKWAY, DUBLIN

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 15.8 - DTW 9.66 X GALLON/LINEAR FT. 0.66 X CASING VOLUME 3 = CALCULATED PURGE 12.15 ACTUAL PURGE 15

DATE PURGED: 2-11-94 START (2400 HR) 1105 END (2400 HR) 1115
DATE SAMPLED: 2-11-94 START (2400 HR) 1125 END (2400 HR) 1125

TIME (2400 HR)	VOLUME (GAL.)	pH (UNITS)	E.C. (UMHOS/ CM@25 C)	TEMP. (F)	COLOR (VISUAL)	DTW 10.9 TURBIDITY (VISUAL)
1112	3	6.97	423	65.1	clear	
1113	8	6.93	445	65.0	clear	
1115	13	6.90	479	64.9	clear	

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

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (TEFLON)	___ 2" Bladder Pump	___ Bailer (TEFLON)
✓ Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Dedicated		✓ Bailer Disposable	___ Dedicated
Other: _____		Other: _____	

REMARKS: _____

PRINT NAME: Vince Valdes

SIGNATURE: Vince Valdes

GROUND WATER SAMPLE FIELD DATA SHEET

PROJECT NO: _____ WELL ID: MW-1

CLIENT/STATION #: ARCO 6041 ADDRESS: 7249 VILLAGE PARKWAY Dublin

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.. - DTW 6.33 X GALLON/LINEAR FT. 0.66 X CASING VOLUME 3 = CALCULATED PURGE 4.35 ACTUAL PURGE 11.0

DATE PURGED: 2-11-94 START (2400 HR) 1135 END (2400 HR) 1149

DATE SAMPLED: 2-11-94 START (2400 HR) 1150 END (2400 HR) 1153

TIME (2400 HR)	VOLUME (GAL.)	pH (UNITS)	E.C. (UMHOS/ CM@25 C)	TEMP. (F)	COLOR (VISUAL) DTW 40	TURBIDITY (VISUAL)
1141	3	7.90	287	67.0	(illegible)	____
1143	7	7.05	2.30	66.9	(illegible)	____
1147	4	7.11	2.25	(illegible)	(illegible)	____
1149	11	7.12	2.24	(illegible)	(illegible)	____
____	____	____	____	____	____	____

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

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (TEFLON)	___ 2" Bladder Pump	___ Bailer (TEFLON)
___ Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Dedicated		✓ Bailer Disposable	___ Dedicated
Other: _____		Other: _____	

REMARKS: Well purged dry at 7 and 11 gallons

PRINT NAME: Vince Gallegos

SIGNATURE: Vince Gallegos

GROUND WATER SAMPLE FIELD DATA SHEET

PROJECT NO: _____ WELL ID: MW 3

CLIENT/STATION #: ARCO 6491 ADDRESS: 7219 VILLAGE PARKWAY, DUBLIN

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 41 - DTW 26.2 X GALLON/LINEAR FT. .66 X CASING VOLUME 3 = CALCULATED PURGE 10.09 ACTUAL PURGE 10.5

DATE PURGED: 2-11-04 START (2400 HR) 1245 END (2400 HR) 1255
DATE SAMPLED: 2-11-04 START (2400 HR) 1256 END (2400 HR) 1256

TIME (2400 HR)	VOLUME (GAL.)	pH (UNITS)	E.C. (UMHOS/ CM@25 C)	TEMP. (F)	COLOR (VISUAL)	TURBIDITY (VISUAL)
1247	3	6.96	1.60	67.5	CLEAR	_____
1245	7	6.93	1.51	673	CLEAR	_____
1252	9	6.82	1.43	671	CLEAR	_____
1255	10.5	6.79	1.47	674	CLEAR	_____
_____	_____	_____	_____	_____	_____	_____

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

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (TEFLON)	___ 2" Bladder Pump	___ Bailer (TEFLON)
___ Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Dedicated		✓ Bailer Disposable	___ Dedicated
Other: _____		Other: _____	

REMARKS: well pumped dry at 8 and again at 10.5 Gallons

PRINT NAME: FRANCISCO CABRERA

SIGNATURE: Francisco Cabrera

GROUND WATER SAMPLE FIELD DATA SHEET

PROJECT NO: _____ WELL ID: MW-2

CLIENT/STATION #: ARCO 6041 ADDRESS: 7249 VILLAGE PARKWAY, DUBLIN

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 14.1 - DTW 8.59 X GALLON/LINEAR FT. 0.66 X CASING VOLUME 3 = CALCULATED PURGE 10.90 ACTUAL PURGE 11

DATE PURGED: 2-11-94 START (2400 HR) 1140 END (2400 HR) 1146
DATE SAMPLED: 2-11-94 START (2400 HR) 1205 END (2400 HR) 1205

TIME (2400 HR)	VOLUME (GAL.)	pH (UNITS)	E.C. (UMHOS/ CM@25 C)	TEMP. (F)	COLOR (VISUAL) DTW 8.0	TURBIDITY (VISUAL)
1141	3	6.79	2.97	65.9	clear	
1143	6	6.71	2.65	65.4	clear	
1144	8	6.82	2.16	65.1	clear	
1146	11	6.93	2.72	64.9	clear	

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

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (TEFLON)	___ 2" Bladder Pump	___ Bailer (TEFLON)
___ Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Dedicated		✓ Bailer Disposable	___ Dedicated
Other: _____		Other: _____	

REMARKS: _____

PRINT NAME: Francisco Abungan

SIGNATURE: Francisco Abungan

Columbia Analytical Services, Inc.

February 28, 1994

Service Request No. SJ94-0194

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

Re: **ARCO Facility No. A6041**

Dear Ms. Austin/Mr. DeLon:

Attached are the results of the water samples submitted to our lab on February 11, 1994. For your reference, these analyses have been assigned our service request number SJ94-0194.

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

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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. A6041
Sample Matrix: Water

Dates Collected: 02/11/94
Date Received: 02/11/94
Date Extracted: N/A
Date Analyzed: 02/22/94
Service Request: SJ94-0194

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					
MW-1 (14.0)	<2.5 (a)	<2.5 (a)	25.	5.7	2,000.
MW-2 (8.0)	2.4	0.7	ND	ND	ND
MW-3 (14.0)	42.	<1.0 (a)	84.	<1.0 (a)	220.
MW-4 (12.0)	ND	ND	ND	ND	ND
MW-5 (15.0)	ND	ND	ND	ND	ND
MW-6 (10.0)	ND	ND	ND	ND	ND
Method Blank	ND	ND	ND	ND	ND

(a) Raised MRL due to high analyte concentration requiring sample dilution.

Approved By: Kevin Murphy Date: February 28, 1994

[940194.XLW]8020w1/2/28/94

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: IWM
Project: ARCO Facility No. A6041
Sample Matrix: Water

Dates Collected: 02/11/94
Date Received: 02/11/94
Date Extracted: N/A
Date Analyzed: 02/22/94
Service Request: SJ94-0194

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

Sample Name	Percent Recovery a.a.a-Trifluorotoluene
MW-1 (14.0)	103.
MW-2 (8.0)	95.
MW-3 (14.0)	93.
MW-4 (12.0)	86.
MW-5 (15.0)	87.
MW-6 (10.0)	90.
MW-4 (12.0) MS	92.
MW-4 (12.0) DMS	94.
Method Blank	89.

CAS Acceptance Limits: 62-112

Approved By: Kevin Murphy Date: February 28, 1994

[940194.XLW]8020sr1/2/28/94

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: IWM
Project: ARCO Facility No. A6041
Sample Matrix: Water

Dates Collected: 02/11/94
Date Received: 02/11/94
Date Extracted: N/A
Date Analyzed: 02/22/94
Service Request: SJ94-0194

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: Leonard Murphy Date: February 28, 1994

[940194.XLW]8020ccs/2/28/94

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: IWM
Project: ARCO Facility No. A6041
Sample Matrix: Water

Dates Collected: 02/11/94
Date Received: 02/11/94
Date Extracted: N/A
Date Analyzed: 02/22/94
Service Request: SJ94-0194

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

Sample Name: MW-4 (12.0)

Analyte	Spike Level	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance 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: Kevin A Murphy Date: February 26, 1994

[940194.XLW]8020items/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. A6041	City (Facility) Dublin	Project manager (Consultant) TOM De Lay	Laboratory name Columbia
ARCO engineer Kyle Christie	Telephone no. (ARCO)	Telephone no. (Consultant) 408/942-2455	Fax no. (Consultant) 408/942-1491
Consultant name TRC	Address (Consultant) 950 Ames Av Milpitas Ca.		Contract number 07077

Method of shipment: CAS COURIER

TW	Sample I.D.	Lab no.	Container no.	Matrix: Soil	Water	Other	Preservation: Ice	Acid HCl	Sampling date	Sampling time JW 8475	BTEX 602/EPA 8020	BTEX/TPH EPA M602/8020/8015	TPH Modified 8015 Gas ☒ Diesel ☐	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Metals ☐ Semi VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐		
	FB	1-2	2		✓		✓	✓	2-11-94	~~1100~~		✓	✓										
7.0	MW-1	3-4	2		✓		✓	✓		1158		✓	✓										
.0	MW-2	5-6	2		✓		✓	✓		1205		✓	✓										
4.0	MW-3	7-8	2		✓		✓	✓		1300		✓	✓										
2.0	MW-4	9-10	2		✓		✓	✓		1020		✓	✓										
5.0	MW-5	11-12	2		✓		✓	✓		1054		✓	✓										
3.0	MW-6	13-14	2		✓		✓	✓		1125		✓	✓										

Special detection Limit/reporting:

Special QA/QC:

Remarks: HOLD on FB

Lab number: 6J94-0194

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

Condition of sample: Good v cold		Temperature received: COOL	
Relinquished by sampler: Vince Caldera	Date 2-11-94 Time	Received by: CAS/SJ	2/11/94
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)