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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
Fourth Quarter 1993
at
ARCO Station 6041
7249 Village Parkway
Dublin, California

60006.06

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

March 3, 1994

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

Subject: Letter Report, Quarterly Groundwater Monitoring
Fourth Quarter 1993
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 fourth quarter 1993 groundwater monitoring performed by EMCON Associates (EMCON) of San Jose, 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 EMCON'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 Reference section.

GROUNDWATER MONITORING

Field Work

EMCON field personnel were onsite October 31, November 11, and December 15, 1993, to measure depth-to-water (DTW) levels, and perform subjective analysis for the presence of product in groundwater in wells MW-1 through MW-7. Quarterly sampling was

performed by EMCON field personnel on November 11, 1993, 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 0.22 foot in wells MW-1, MW-2, and MW-4, and fell an average of about 0.26 foot in wells MW-3, MW-5, and MW-6 since last quarter. Evidence of floating product or product sheen was not noted in any of the wells during this quarter. Based on October 31, 1993, DTW data, groundwater is interpreted to flow toward the south-southwest with a gradient of approximately 0.002 ft/ft; based on the November 11, and December 16, 1993, DTW data, no flow directions could be interpreted (Plates 3 through 5). Based on November 11, 1993, DTW data from ARCO, BP, former Shell, and Unocal stations, no flow direction or gradient could be evaluated for areal groundwater (Plate 6). Groundwater monitoring data from this and previous quarters is presented in Table 1. Groundwater monitoring data from wells at BP, former Shell, and Unocal Stations, are reported in Table 2. The results of EMCON'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 BTEX have generally decreased in wells MW-1 (except TPHg) and MW-2; have increased in well MW-3 (except benzene); and, have remained not detected in wells MW-4 through MW-6 (Plate 7). Cumulative analytical results of water samples are presented in Table 3.

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Previous and Future Work

Fourth Quarter 1993

- Drilled and installed two air sparging wells, and one vapor extraction well for use in an upcoming air sparge test.
- Submitted Letter Report, Quarterly Groundwater Monitoring, Third Quarter 1993, to ARCO and regulatory agencies.
- Performed Fourth Quarter 1993 Groundwater Monitoring.
- Performed monthly DTW measurements.

First Quarter 1994

- Submit Letter Report, Quarterly Groundwater Monitoring, Fourth Quarter 1993, to ARCO and regulatory agencies.
- Perform First Quarter 1994 Groundwater Monitoring.
- Perform monthly DTW measurements.

Reporting Requirements

It is recommended 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 (408) 264-7723.

Sincerely,
RESNA Industries Inc.

Erin D. Krueger
Staff Geologist

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

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

Enclosures: References

Plate 1, Site Vicinity Map
Plate 2, Generalized Site Plan
Plate 3, Groundwater Gradient Map, October 31, 1993
Plate 4, Groundwater Gradient Map, November 11, 1993
Plate 5, Groundwater Gradient Map, December 15, 1993
Plate 6, Areal Groundwater Gradient Map, November 11, 1993
Plate 7, TPHg/Benzene Concentrations in Groundwater, November 11, 1993

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: EMCON's Field Reports, Summary of Groundwater Monitoring Data, Certified Analytical Reports with Chain of Custody, Water Sample Field Data Sheets

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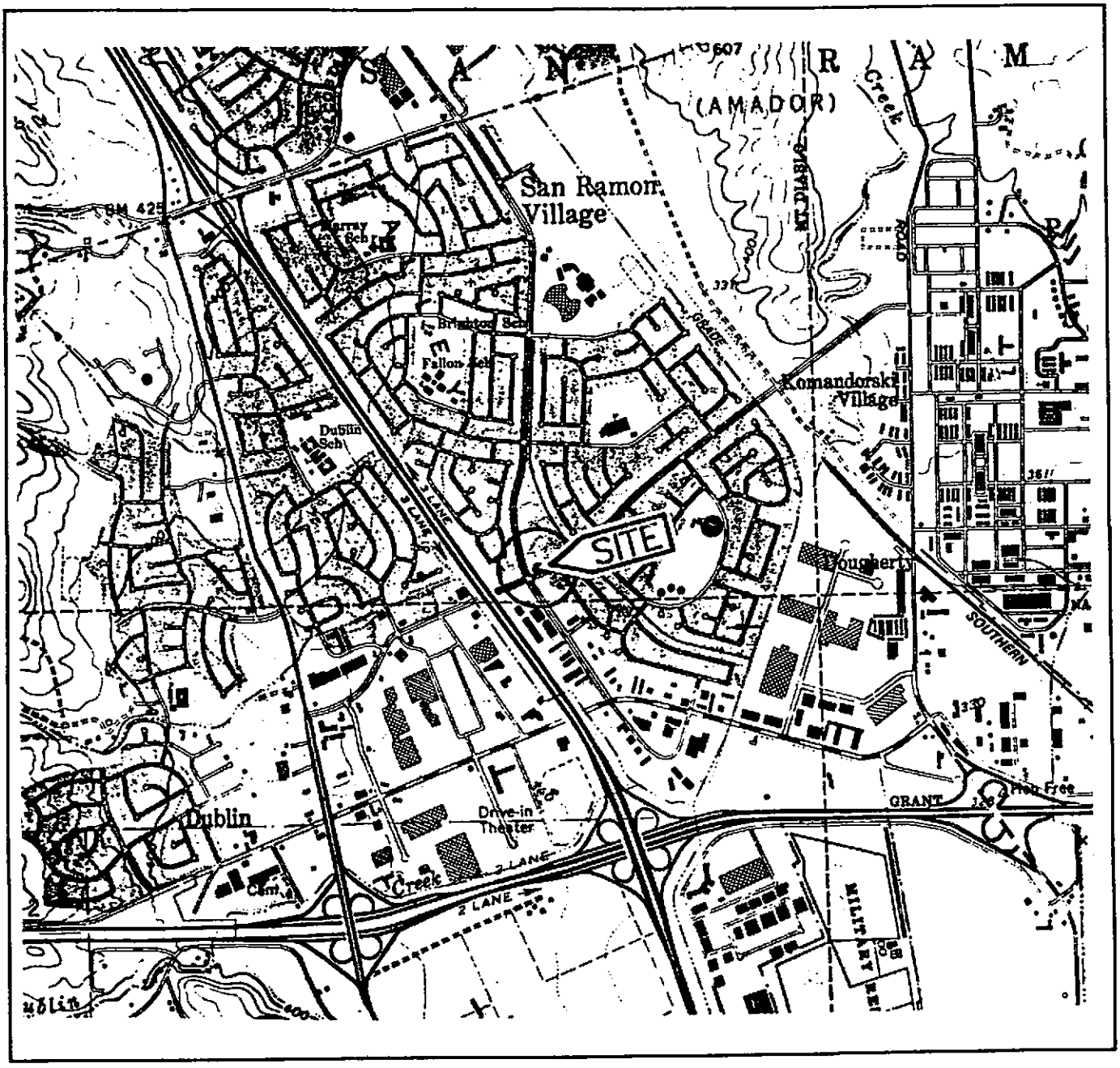
REFERENCES

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

RESNA. December 29, 1993. Letter Report, Quarterly Groundwater Monitoring, Third Quarter 1993 at ARCO Station, 6041, 7249 Village Parkway, Dublin, California. RESNA 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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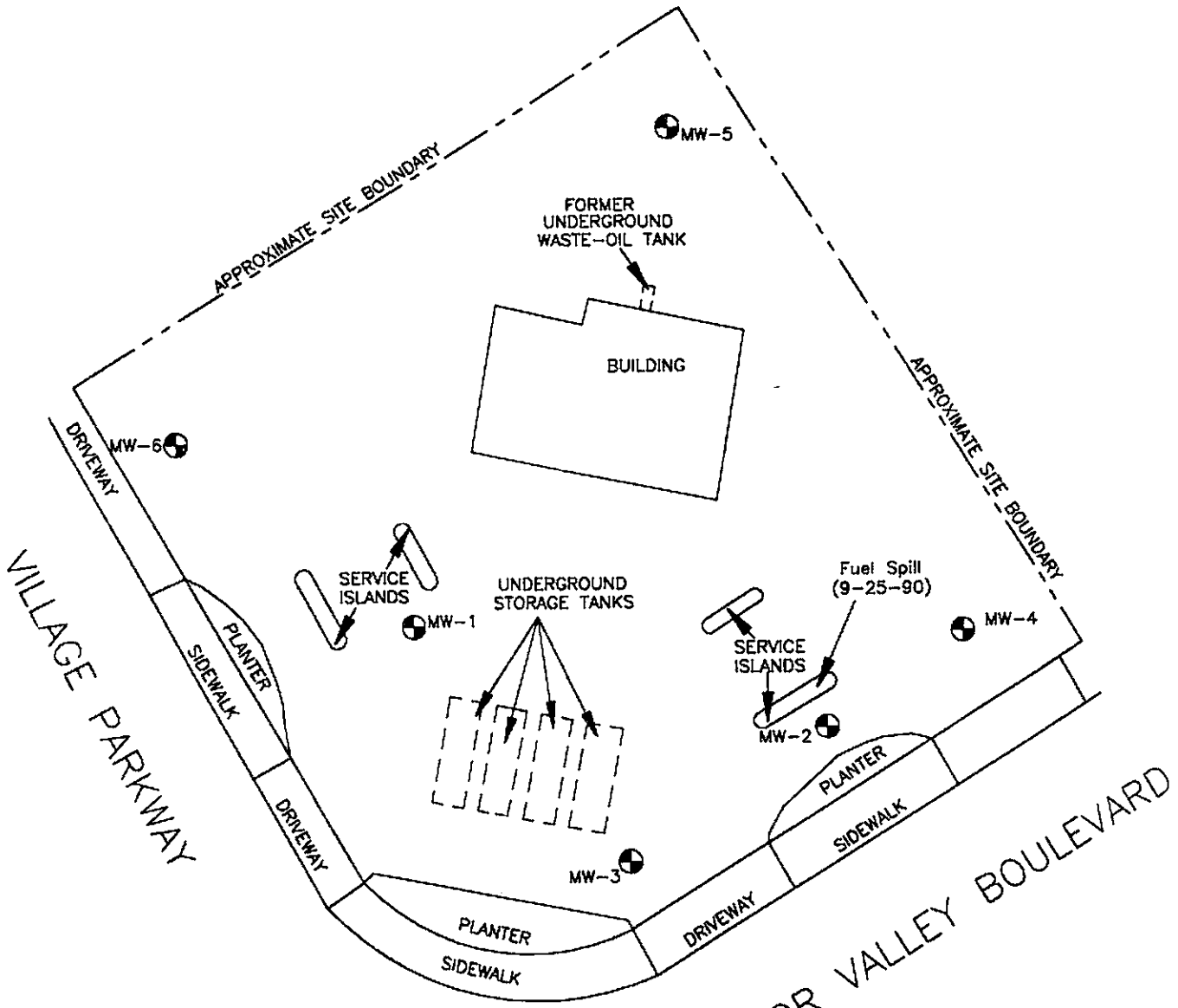
SITE VICINITY MAP
ARCO Station 6041
365 Jackson Street
Dublin, California

PLATE
1



Source: Modified from plan supplied by ARCO.

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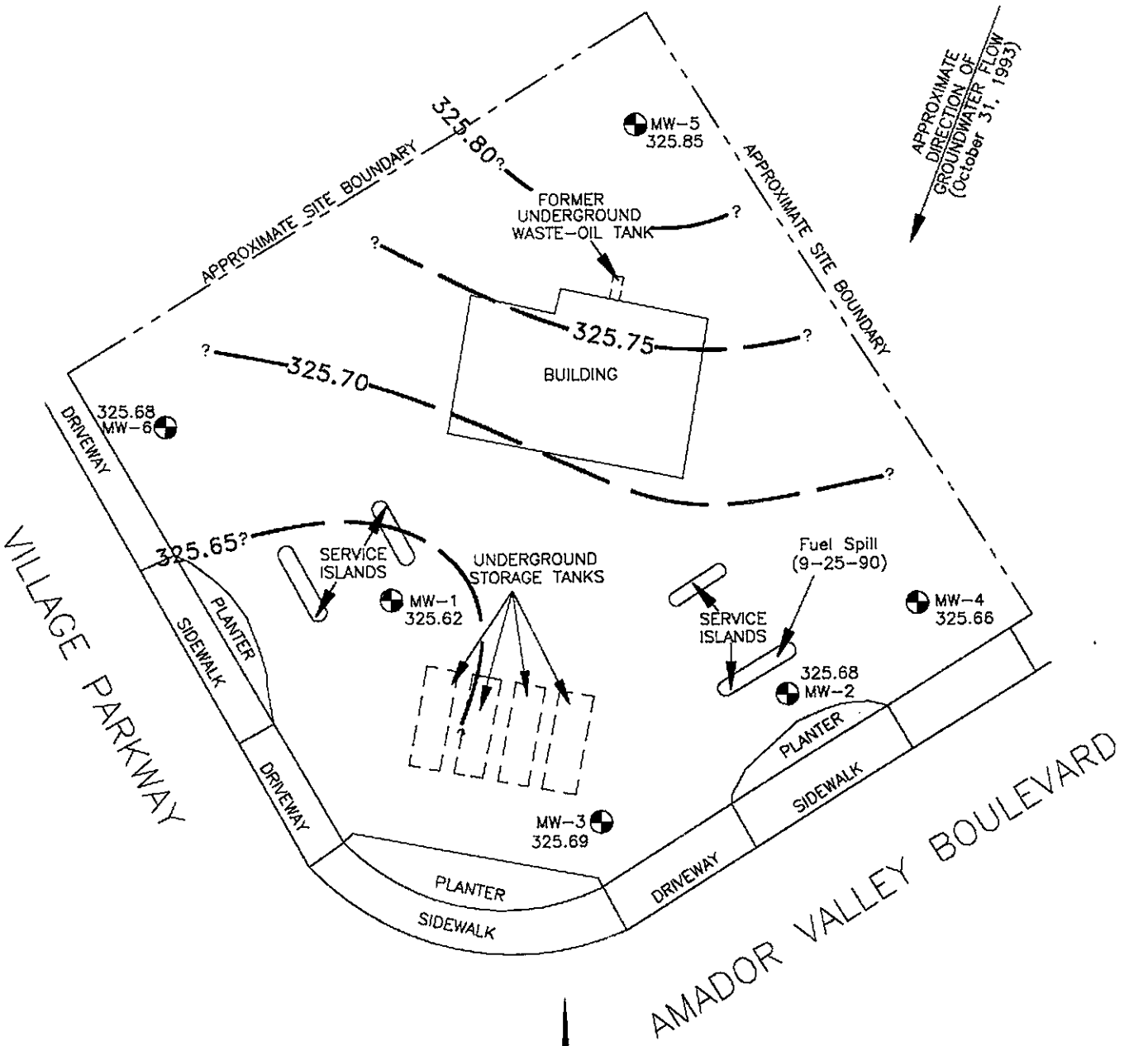
GENERALIZED SITE PLAN
ARCO Service Station 6041
7249 Village Parkway
Dublin, California

PLATE 2



EXPLANATION

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

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

325.85 = Elevation of groundwater in feet above MSL, October 31, 1993

N

Approximate Scale

40 20 0 40 80

feet

Source: Modified from plan supplied by ARCO.

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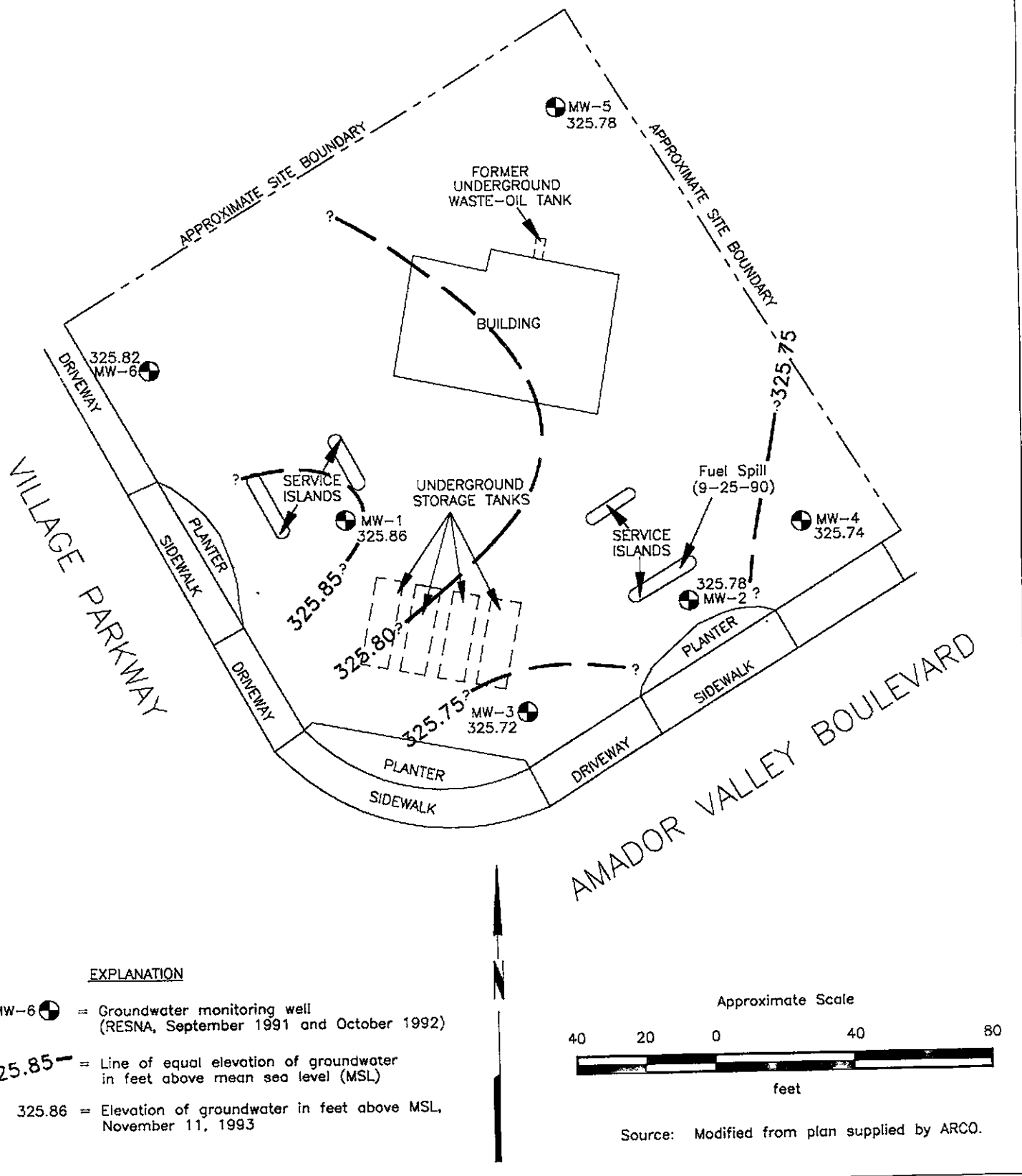
GROUNDWATER GRADIENT MAP
ARCO Service Station 6041
7249 Village Parkway
Dublin, California

PLATE 3



EXPLANATION

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

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

325.86 = Elevation of groundwater in feet above MSL, November 11, 1993

Source: Modified from plan supplied by ARCO.

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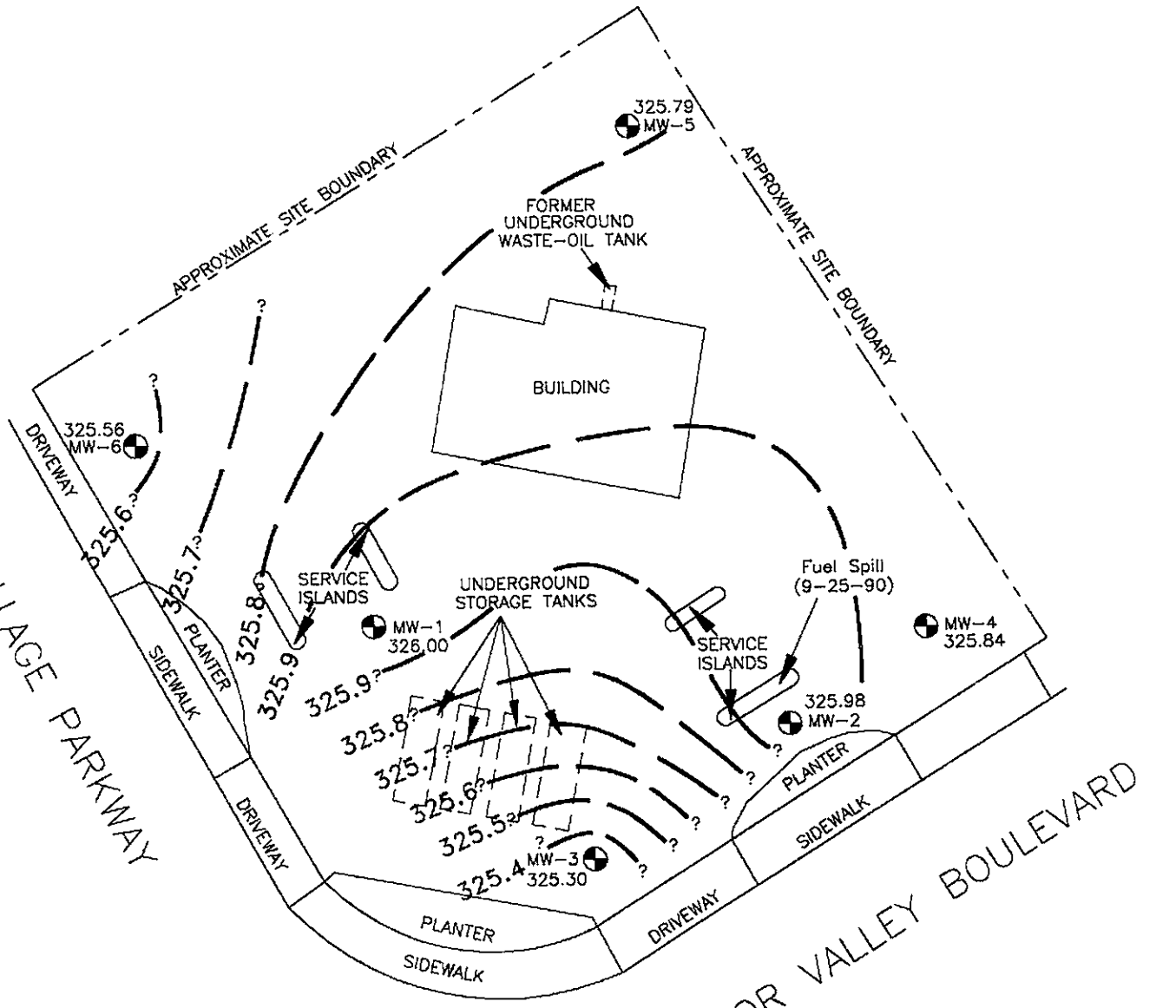
GROUNDWATER GRADIENT MAP
ARCO Service Station 6041
7249 Village Parkway
Dublin, California

PLATE 4



EXPLANATION

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

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

326.00 = Elevation of groundwater in feet above MSL, December 15, 1993

Approximate Scale

40 20 0 40 80

feet

Source: Modified from plan supplied by ARCO.

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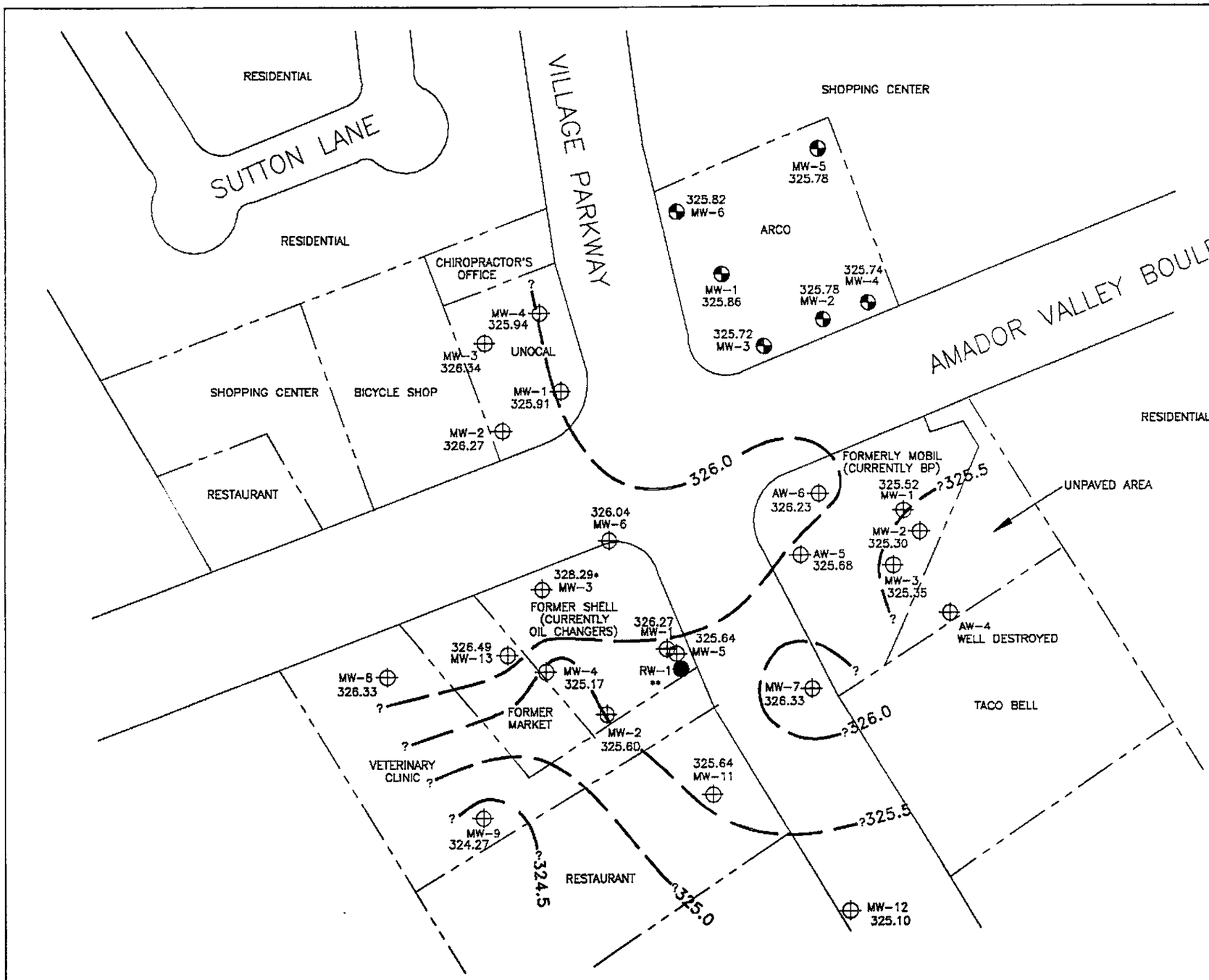
GROUNDWATER GRADIENT MAP
ARCO Service Station 6041
7249 Village Parkway
Dublin, California

PLATE 5



EXPLANATION

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

326.49 = Elevation of groundwater in feet above MSL, November 11, 1993

= Groundwater monitoring well installed by RESNA

= Groundwater monitoring well installed by OTHERS

= Recovery well

* = Groundwater elevation for MW-3 was not used due to an anomalous water level reading

** = RW-1 was not measured

All property lines & well locations are approximate

Approximate Scale

40 20 0 40 80

feet

Source: Modified from plan supplied by ALTON GEOSCIENCE.

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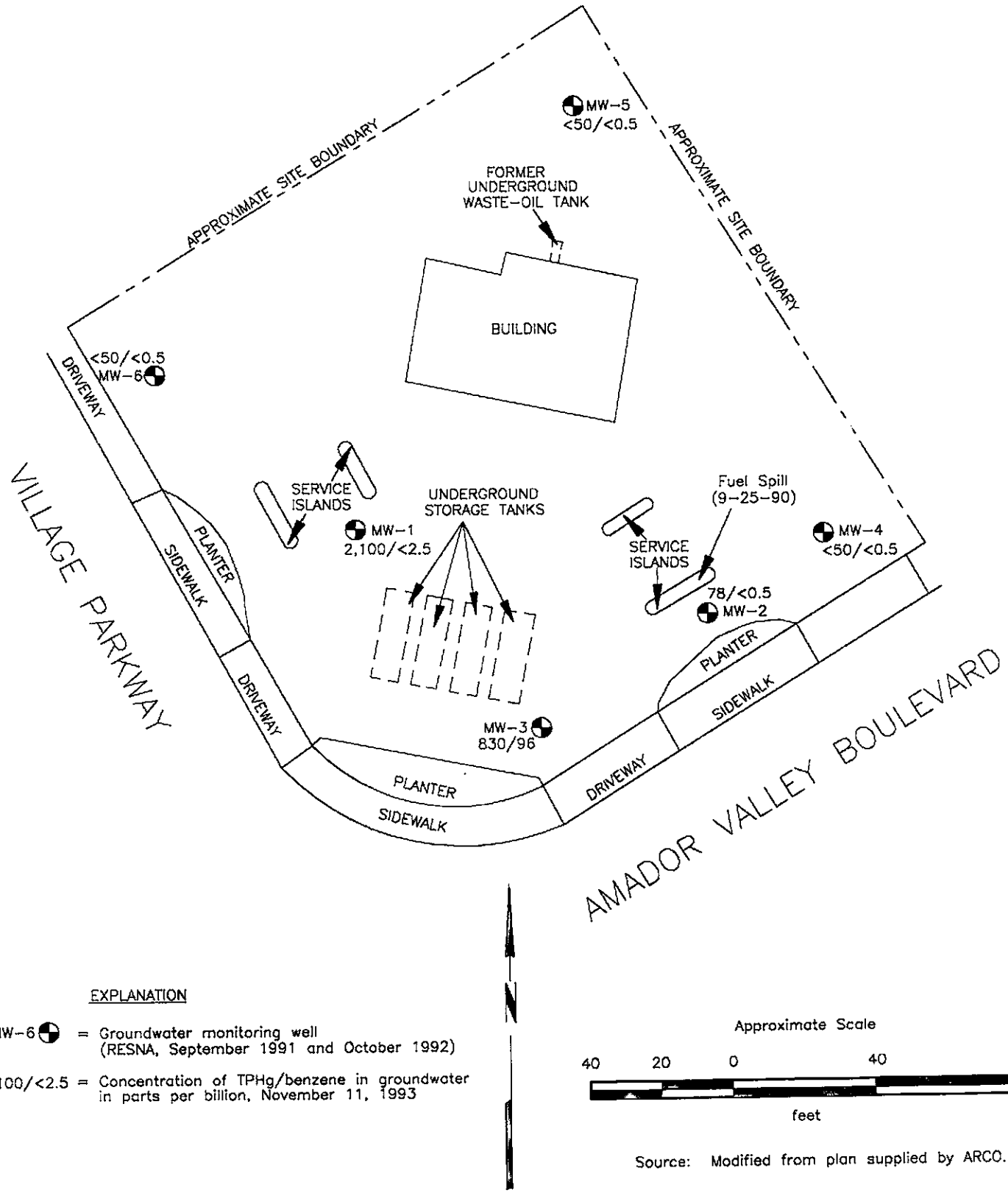
AREAL GROUNDWATER GRADIENT MAP
ARCO Service Station 6041
7249 Village Parkway
Dublin, California

PLATE
6



EXPLANATION

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

2,100/<2.5 = Concentration of TPHg/benzene in groundwater in parts per billion, November 11, 1993

Approximate Scale

40 20 0 40 80

feet

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 7

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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				
09-20-91	336.56	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
MW-2				
09-20-91	334.80	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
05-15-92		8.62	326.18	None
06-09-92		8.88	325.92	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.)				
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
MW-3				
09-20-91	335.53	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
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

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.)				
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
MW-4				
11-10-92	334.22	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
MW-5				
11-10-92	335.87	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
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

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-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

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 is City of Dublin = (USGS)

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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
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
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
AW-4			
11-10-92	333.41	9.10	324.31
02-10-93		Well destroyed	
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
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

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
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
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
MW-3			
11-10-92	338.93	11.84	327.09
02-10-93		8.82	330.11
05-10-93		10.88	328.05
08-12-93		10.36	328.57
11-11-93		10.64	328.29
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
11-11-93		11.97	325.17
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

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-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
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
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
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
08-12-93		8.25	326.32
11-11-93		10.30	324.27
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

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
Former Shell Station (cont.)			
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
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
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
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
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

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
(Page 5 of 5)

Date Measured	Well Elevation	Depth-to -Water	Water Elevation
UNOCAL (cont.)			
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

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
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
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*
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

See notes on Page 2 of 2

RESNA
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-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
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
MCL	—	1	—	680	1,750
DWAL	—	—	100	—	—

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.

APPENDIX A

EMCON'S FIELD REPORTS, SUMMARY OF GROUNDWATER MONITORING DATA, CERTIFIED ANALYTICAL REPORTS WITH CHAIN OF CUSTODY, WATER SAMPLE FIELD DATA SHEETS

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

Date November 10, 1993
Project 0G70-035.01

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

We are enclosing:

Copies	Description
1	Depth To Water/Floating Product Survey Results
	October 1993 monthly water level survey, ARCO
	station 6041, 7249 Village Parkway, Dublin, CA

For your: X Information Sent by: X Mail

Comments:
Monthly water level data for the above mentioned site are attached. Please call if you have any questions: (408) 453-7300.

Reviewed by: Jim Butera JB

Exp: 6/30/96

Robert Porter, Senior Project Engineer.

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 0G70-035.01 STATION ADDRESS : 7249 Village Parkway, Dublin, CA DATE : 10-31-93

ARCO STATION # : 6041 FIELD TECHNICIAN : S Gilmore DAY : SUNDAY

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-4**	OK	15/16	OK	3259	OK	8.56	8.56	ND	ND	14.6	—
2	**MW-5**	OK	15/16	OK	3259	OK	10.02	10.02	ND	ND	17.5	—
3	**MW-6**	BAD	15/16	BAD	3259	OK	10.16	10.16	ND	ND	15.9	WATER IN BOX
4	**MW-3**	OK	15/16	OK	3259	OK	9.84	9.84	ND	ND	14.7	—
5	**MW-2**	BAD	15/16	BAD	3616	OK	9.12	9.12	ND	ND	14.1	WATER IN BOX
6	**MW-1**	OK	15/16	OK	3259	OK	10.94	10.94	ND	ND	17.6	—

SURVEY POINTS ARE TOP OF WELL CASINGS

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

Date November 30, 1993
Project 0G70-035.01

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

We are enclosing:

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

For your: X Information Sent by: X Mail

Comments:

Enclosed are the data from the fourth quarter 1993 monitoring event at ARCO service station 6041, 7249 Village Parkway, Dublin, California. Groundwater monitoring is conducted consistent with applicable regulatory guidelines. Please call if you have any questions: (408) 453-7300.

Reviewed by

Jim Butera JB

Robert Porter, Senior Project Engineer.

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 0G70-035.01 STATION ADDRESS : 7249 Village Parkway, Dublin, CA DATE : 11-11-93

ARCO STATION # : 6041 FIELD TECHNICIAN : Joe Williams DAY : Thursday

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-4	OK	15/16	OK	3259	OK	8.48	8.48	ND	ND	14.5	—
2	MW-5	OK	15/16	OK	3259	OK	10.09	10.09	ND	ND	17.5	—
3	MW-6	BAD	15/16	BAD	3259	OK	10.02	10.02	ND	ND	15.8	WATER IN BOX
4	MW-2	BAD	15/16	BAD	3616	BAD	9.02	9.02	ND	ND	14.1	NEED locking CAP / WATER & Product IN BOX
5	MW-3	OK	15/16	OK	3259	OK	9.81	9.81	ND	ND	14.7	—
6	MW-1	OK	15/16	OK	3259	OK	10.70	10.70	ND	ND	17.6	—

SURVEY POINTS ARE TOP OF WELL CASINGS

Summary of Groundwater Monitoring Data
Fourth Quarter 1993
ARCO Service Station 6041
7249 Village Parkway, Dublin, California
micrograms per liter (µg/l) or parts per billion (ppb)

Well ID and Sample Depth	Sampling Date	Depth To Water (feet)	Floating Product Thickness (feet)	TPH[1] as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)
MW-1(17)	11/11/93	10.70	ND.[2]	2,100.	<2.5	<2.5	66.	20.
MW-2(14)	11/11/93	9.02	ND.	78.	<0.5	2.8	0.7	5.9
MW-3(15)	11/11/93	9.81	ND.	830.	96.	<2.5	25.	<2.5
MW-4(14)	11/11/93	8.48	ND.	<50.	<0.5	<0.5	<0.5	<0.5
MW-5(14)	11/11/93	10.09	ND.	<50.	<0.5	<0.5	<0.5	<0.5
MW-6(15)	11/11/93	10.02	ND.	<50.	<0.5	<0.5	<0.5	<0.5
FB-1[3]	11/11/93	NA.[4]	NA.	<50.	<0.5	<0.5	<0.5	<0.5

1. TPH. = Total petroleum hydrocarbons
2. ND. = Not detected
3. FB. = Field blank
4. NA. = Not applicable

Columbia Analytical Services, Inc.

November 29, 1993

Service Request No. SJ93-1390

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

Re: **EMCON Project No. 0G70-035.01**
ARCO Facility No. 6041

Dear Mr. Butera:

Attached are the results of the water samples submitted to our lab on November 11, 1993. For your reference, these analyses have been assigned our service request number SJ93-1390.

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: EMCON Associates
Project: EMCON Project No. 0G70-035.01
ARCO Facility No. 6041

Date Received: 11/11/93
Service Request No.: SJ93-1390
Sample Matrix: Water

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

Sample Name:		MW-1 (17)	MW-2 (14)	MW-3 (15)
Date Analyzed:		11/23/93	11/23/93	11/22/93
Analyte	**MRL**			
Benzene	0.5	<2.5 *	ND	96.
Toluene	0.5	<2.5 *	2.8	<2.5 *
Ethylbenzene	0.5	66.	0.7	25.
Total Xylenes	0.5	20.	5.9	<2.5 *
TPH as Gasoline	50	2,100.	78.	830.

Sample Name:		MW-4 (14)	MW-5 (14)	MW-6 (15)
Date Analyzed:		11/22/93 **	11/22/93 **	11/22/93 **
Analyte	**MRL**			
Benzene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND
TPH as Gasoline	50	ND	ND	ND

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

** This sample was part of the analytical batch started on November 22, 1993. However, it was analyzed after midnight so the actual date analyzed is November 23, 1993.

Approved by: Kevin Murphy Date: November 29, 1993

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Received:**	11/11/93
Project:	EMCON Project No. 0G70-035.01	**Service Request No.:**	SJ93-1390
	ARCO Facility No. 6041	**Sample Matrix:**	Water

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

Sample Name:		FB-1	Method Blank	Method Blank
Date Analyzed:		11/22/93 *	11/22/93	11/23/93
Analyte	**MRL**			
Benzene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND
TPH as Gasoline	50	ND	ND	ND

* This sample was part of the analytical batch started on November 22, 1993. However, it was analyzed after midnight so the actual date analyzed is November 23, 1993.

Approved by: Kevin Murphy Date: November 29, 1993

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: EMCON Project No. 0G70-035.01
ARCO Facility No. 6041

Date Received: 11/11/93
Service Request No.: SJ93-1390
Sample Matrix: Water

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

Sample Name	Date Analyzed	Percent Recovery α,α,α-Trifluorotoluene
MW-1 (17)	11/23/93	91.
MW-2 (14)	11/22/93	84.
MW-3 (15)	11/22/93	78.
MW-4 (14)	11/22/93	75.
MW-5 (14)	11/22/93	74.
MW-6 (15)	11/22/93	73.
FB-1	11/22/93	75.
MW-1 (17) MS	11/22/93	83.
MW-1 (17) DMS	11/23/93	84.
Method Blank	11/22/93	81.
Method Blank	11/23/93	73.
CAS Acceptance Criteria		70-130

Approved by: Keenan Murphy Date: November 29, 1993

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: EMCON Project No. 0G70-035.01
ARCO Facility No. 6041

Date Received: 11/11/93
Service Request No.: SJ93-1390

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

Date Analyzed: 11/22/93

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Benzene	25.	25.7	103.	85-115
Toluene	25.	24.6	98.	85-115
Ethylbenzene	25.	24.4	98.	85-115
Total Xylenes	75.	74.7	100.	85-115
TPH as Gasoline	250.	243.	97.	90-110

Approved by: Kevin Murphy Date: November 29, 1993

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: EMCON Project No. 0G70-035.01
ARCO Facility No. 6041

Date Received: 11/11/93
Service Request No.: SJ93-1390
Sample Matrix: Water

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

Sample Name: MW-1 (17)
Date Analyzed: 11/22/93

Analyte	Spike Level	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Criteria
Benzene	500.	ND	507.	522.	101.	104.	76-122
Toluene	500.	ND	496.	501.	99.	100.	75-127
Ethylbenzene	500.	65.6	551.	555.	97.	98.	70-135

Approved by: Kenneth Murphy Date: November 29, 1993

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ARCO Products Company
Division of AtlanticRichfieldCompany

Chain of Custody

Task Order No. EMC-93-5

ARCO Facility no. 6041	City (Facility) Dublin	Project manager (Consultant) JIM Butera	Laboratory name CAS
ARCO engineer Kyle Christie	Telephone no. (ARCO)	Telephone no. (Consultant) 453-7300	Fax no. (Consultant) 453-0452	Contract number 07077
Consultant name EMCON Associates	Address (Consultant) 1921 Ringwood Avenue San Jose		Method of shipment Sampler will deliver

Sample I.D	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 8020/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 ☐		
MW-1(17)	1-2	2		X		X	HCl	11-11-93	1510		X											
MW-2(14)	3-4	2						11-11-93	1436		X											
MW-3(15)	5-6	2						11-11-93	1530		X											
MW-4(14)	7-8	2						11-11-93	1233		X											
MW-5(14)	9-10	2						11-11-93	1312		X											
MW-6(15)	11-12	2						11-11-93	1342		X											
FB1	1314	2						11-11-93	1519		X											

Special detection Limit/reporting: lowest possible

Special QA/QC: AS Normal

Remarks: 2-40 ml HCl VOA's

Lab number: SJ93-1390

Turnaround time

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

Condition of sample: Okay		Temperature received: cool	
Relinquished by sampler: Chuck Williams	Date 11-11-93	Time 1730	Received by
Relinquished by	Date	Time	Received by
Relinquished by	Date	Time	Received by laboratory: John Juneau CAS/SJ — Date 11/11/93 — Time 1730

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

ARCO 4009 (6-91)

Rev. 2, 5/91

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-035-01 SAMPLE ID: MW-1 (17)

PURGED BY: J.Williams CLIENT NAME: ARCO 6041

SAMPLED BY: J.Williams LOCATION: 7249 Village Parkway Dublin, 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.):	4.11
DEPTH TO WATER (feet):	10.70	CALCULATED PURGE (gal.):	12.34
DEPTH OF WELL (feet):	17.0	ACTUAL PURGE VOL. (gal.):	10

DATE PURGED: 11-11-95 Start (2400 Hr) 1451 End (2400 Hr) 1503

DATE SAMPLED: 11-11-95 Start (2400 Hr) ✓ End (2400 Hr) 1510

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1456	4	6.66	2900	69.5	GREY	HEAVY
1501	8	6.72	2990	70.7	11	11
	DRIED	Time 1	23 10 GALLONS		~~GREY~~	~~HEAVY~~
1512	Recharge	6.78	2970	66.4	GREY	HEAVY

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

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

PURGING EQUIPMENT

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

SAMPLING EQUIPMENT

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

WELL INTEGRITY: OK LOCK #: 3258

REMARKS: ___

Meter Calibration: Date: 11-11-95 Time: 1145 Meter Serial #: 9010 Temperature °F: 67.5

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

Location of previous calibration: MW-4

Signature: Jon Williams Reviewed By: JB Page 1 of 6

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91 (141)

EMCON ASSOCIATES

PROJECT NO: OG70-035-01 SAMPLE ID: MW-2

PURGED BY: J Williams CLIENT NAME: ARCO 6041

SAMPLED BY: J Williams LOCATION: 7249 Village Parkway Dublin, 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.):	3.31
DEPTH TO WATER (feet):	9.02	CALCULATED PURGE (gal.):	9.95
DEPTH OF WELL (feet):	14.1	ACTUAL PURGE VOL. (gal.):	10

DATE PURGED: 11-11-93 Start (2400 Hr) 1422 End (2400 Hr) 1433

DATE SAMPLED: 11-11-93 Start (2400 Hr) ___ End (2400 Hr) 1436

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1426	3.5	6.58	3550	71	GREY	HEAVY
1430	7	6.53	3550	70.6	11	11
1433	10	6.57	3590	71.6	11	11

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

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

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

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

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: ___

Meter Calibration: Date: 11-11-93 Time: 1149 Meter Serial #: 9010 Temperature °F: 67.5

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

Location of previous calibration: MW-4

Signature: Joe Bratton Reviewed By: JB Page 2 of 6

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WATER SAMPLE FIELD DATA SHEET

(14)

EMCON ASSOCIATES

PROJECT NO: OG70-035-01 SAMPLE ID: MW-3

PURGED BY: J Williams CLIENT NAME: ARCO 6041

SAMPLED BY: J Williams LOCATION: 7245 Village Parkway Dublin, 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.): 3.19

DEPTH TO WATER (feet): 9.81 CALCULATED PURGE (gal.): 9.58

DEPTH OF WELL (feet): 14.7 ACTUAL PURGE VOL. (gal.): 5.5

DATE PURGED: 11-11-93 Start (2400 Hr) 1405 End (2400 Hr) 1410

DATE SAMPLED: 11-11-93 Start (2400 Hr) / End (2400 Hr) 1530

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1409	3.5	6.60	2640	71.0	GREY	HEAVY
	DRIED	Time 1410 5.5 GALLON >				
1533	Recharge	6.62	2660	66.8	GREY	HEAVY

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

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

PURGING EQUIPMENT

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

SAMPLING EQUIPMENT

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

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: ___

Meter Calibration: Date: 11-11-93 Time: 1149 Meter Serial #: 9010 Temperature °F: 67.5

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

Location of previous calibration: MW-4

Signature: Jon Williams Reviewed By: JB Page 3 of 4

WATER SAMPLE FIELD DATA SHEET

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(14)

EMCON ASSOCIATES

PROJECT NO: 0670-035-01 SAMPLE ID: MW-4

PURGED BY: J. Williams CLIENT NAME: ARCO 6041

SAMPLED BY: J. Williams LOCATION: 7249 Village Parkway Dublin, CA

TYPE: Ground Water ✓ Surface Water ___ Treatment Effluent ___ Other ___

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

CASING ELEVATION (feet/MSL): WR VOLUME IN CASING (gal.): 3.93

DEPTH TO WATER (feet): 8.48 CALCULATED PURGE (gal.): 11.79

DEPTH OF WELL (feet): 14.5 ACTUAL PURGE VOL. (gal.): 12

DATE PURGED: 11-11-93 Start (2400 Hr) 1215 End (2400 Hr) 1229

DATE SAMPLED: 11-11-93 Start (2400 Hr) — End (2400 Hr) 1233

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1218	4	6.77	5720	67.5	BROWN	HEAVY
1223	8	6.84	5570	69.2	"	"
1229	14	6.90	5560	69.2	"	"

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

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

PURGING EQUIPMENT

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

SAMPLING EQUIPMENT

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

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: ___

Meter Calibration: Date: 11-11-93 Time: 1149 Meter Serial #: 9010 Temperature °F: 67.5

(EC 1000 992 / 1000) (DI ___) (pH 7 6.98 / 7.00) (pH 10 10.03 / 10.00) (pH 4 4.01 / ___)

Location of previous calibration: ___

Signature: Joe Williams Reviewed By: JB Page 4 of 6

WATER SAMPLE FIELD DATA SHEET

Rev. 2. 5/91

(17)

EMCON ASSOCIATES

PROJECT NO: 0670-035-01 SAMPLE ID: MW-5

PURGED BY: J. Williams CLIENT NAME: ARCO 6041

SAMPLED BY: J. Williams LOCATION: 7249 Village Parkway Dublin, 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.):	4.84
DEPTH TO WATER (feet):	10.09	CALCULATED PURGE (gal.):	14.52
DEPTH OF WELL (feet):	17.0	ACTUAL PURGE VOL. (gal.):	15

DATE PURGED: 11-11-93 Start (2400 Hr) 1249 End (2400 Hr) 1310

DATE SAMPLED: 11-11-93 Start (2400 Hr) — End (2400 Hr) 1312

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1253	5	6.93	4250	68.8	BROWN	HEAVY
1257	10	6.93	4280	69.7	"	"
1310	15	6.97	4290	69.1	"	"

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

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

PURGING EQUIPMENT

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

SAMPLING EQUIPMENT

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

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: ___

Meter Calibration: Date: 11-11-93 Time: 1149 Meter Serial #: 9010 Temperature °F: 67.5

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

Location of previous calibration: MW-4

Signature: Joe Williams Reviewed By: JB Page 5 of 6

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(15)

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-035-01 SAMPLE ID: MW-6

PURGED BY: J Williams CLIENT NAME: ARCO 6041

SAMPLED BY: J Williams LOCATION: 7249 Village Parkway Dublin, Ca

TYPE: Ground Water ✓ Surface Water ___ Treatment Effluent ___ Other ___

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

CASING ELEVATION (feet/MSL): N/C VOLUME IN CASING (gal.): 3.27

DEPTH TO WATER (feet): 10.07 CALCULATED PURGE (gal.): 11.32

DEPTH OF WELL (feet): 15.8 ACTUAL PURGE VOL. (gal.): 11.5

DATE PURGED: 11-11-93 Start (2400 Hr) 1329 End (2400 Hr) 1339

DATE SAMPLED: 11-11-93 Start (2400 Hr) ___ End (2400 Hr) 1342

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1333	4	6.79	6160	69.9	BROWN	HEAVY
1336	8	6.76	6130	71.6	"	"
1339	11.5	6.77	6180	72.1	"	"

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

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

PURGING EQUIPMENT

___ 2" Bladder Pump ___ Bailer (Teflon®)

___ Centrifugal Pump ✓ Bailer (PVC)

___ Submersible Pump ___ Bailer (Stainless Steel)

___ Well Wizard™ ___ Dedicated

Other: ___

SAMPLING EQUIPMENT

___ 2" Bladder Pump ✓ Bailer (Teflon®)

___ DDL Sampler ___ Bailer (Stainless Steel)

___ Dipper ___ Submersible Pump

___ Well Wizard™ ___ Dedicated

Other: ___

WELL INTEGRITY: OK LOCK #: 3259

REMARKS: ___

Meter Calibration: Date: 11-11-93 Time: 1149 Meter Serial #: 9010 Temperature °F: 67.5

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

Location of previous calibration: MW-4

Signature: Joe Williams Reviewed By: JB Page 6 of 6

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

Date December22, 1993
Project 0G70-035.01

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

We are enclosing:

Copies	Description
1	Depth To Water/Floating Product Survey Results
	December 1993 monthly water level survey, ARCO
	station 6041, 7249 Village Parkway, Dublin, CA

For your: X Information Sent by: X Mail

Comments:
Monthly water level data for the above mentioned site are attached. Please call if you have any questions: (408) 453-7300.

Reviewed by:

Jim Butera

Robert Porter, Senior Project Engineer.

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 0G70-035.01 STATION ADDRESS : 7249 Village Parkway, Dublin, CA DATE : 12/15/93

ARCO STATION # : 6041 FIELD TECHNICIAN : S. Connors 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-4	Good	15/16	Good	3259	Yes	8.38	8.38	ND	ND	19.5	—
2	MW-5	Good	15/16	Good	3259	Yes	10.08	10.08	ND	ND	17.5	—
3	MW-6	Bad	15/16	Good	3259	Yes	10.28	10.28	ND	ND	18.8	well box sunk and not even with pavement. Inside box, inner seal coming undone. water in box
4	MW-2	Bad	15/16	Good	3616	Yes	8.82	8.82	ND	ND	14.1	
5	MW-3	Good	15/16	Good	3259	Yes	10.23	10.23	ND	ND	14.7	water in box
6	MW-1	Good	15/16	Good	3259	Yes	10.52	10.56	ND	ND	17.6	water in box.
												MW-2: water in box. Box seal is bad, cement chipped away, box is not level with pavement inner seal is coming apart. Replace 4" well cap and lock 3259

SURVEY POINTS ARE TOP OF WELL CASINGS