SECOR

SECOR INTERNATIONAL INCORPORATED

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Date: April 15, 2005

ARCO QUARTERLY GROUNDWATER MONITORING REPORT

Facility No.: 1919 Address:	660 Via de la Valle, Solana Beach, CA
ARCO Environmental Engineer :	Roy Thun
Consulting Co./Contact Person:	SECOR/Marci J. Richards and Bradley Eisenberg
SECOR Project No.:	08BP.U1919.04
Primary Agency/Regulatory ID No.:	County of San Diego, Departmental of Environmental Health (DEH), Land and Water Quality Division, Site Assessment and Mitigation Program (SAM), Danny Martinez/H05166-002

WORK PERFORMED THIS QUARTER [First - 2005]:

1. Conducted first quarter 2005 groundwater monitoring and sampling.
2. Submitted the fourth quarter 2004 groundwater monitoring report.

WORK PROPOSED FOR NEXT QUARTER [Second - 2005]:

1. Conduct second quarter 2005 groundwater monitoring and sampling.
2. Submit first quarter 2005 groundwater monitoring report.

REGISTERED GEOLOGIST
BRADLEY G EISENBERG
No. 6872
Exp 11/05
STATE OF CALIFORNIA

Current Phase of Project:	Monitoring	(Assessment, Remed., etc.)
Frequency of Sampling:	Quarterly (Well reduction 2nd, 3rd, 4th Quarters)	(Quarterly, etc.)
Frequency of Monitoring:	Quarterly	(Monthly, etc.)
Are Liquid Phase Hydrocarbons Present On-Site:	No	(Yes/No)
Cumulative LPH Recovered to Date:	180	(gallons)
LPH recovered This Quarter:	None	(gallons)
Bulk Soil Removed to Date:	Unknown	(cubic yards)
Bulk Soil Removed This Quarter:	None	(cubic yards)
Water Wells or Surface Waters within a 2000' Radius & Their Respective Directions:	None	(Distance and Direction)
Current Remediation Techniques:	None	(SVES, LPH Removal, etc.)
Permits for Discharge:	APCD	(NPDES, POTW, etc.)

Date: April 15, 2005

ARCO QUARTERLY GROUNDWATER MONITORING REPORT (Cont'd)
ARCO Facility #1919

Approximate Depth to Groundwater	1.99 to 23.19	(Measured Feet)
Groundwater Gradient:	Southwest	(Direction)
	0.003	(Magnitude)
Groundwater Beneficial Use	No (Exempt as Source of Drinking Water)	(Yes/ No)

DISCUSSION: On March 7 and 8, 2004 SECOR personnel gauged, purged and sample, the 18 groundwater monitoring wells associated with the site (Figure 1). Field data was documented on the attached monitoring well gauging log and well purging/sampling logs. The depth to water ranged between 1.99 feet below ground surface (bgs) in MW-25 to 23.19 feet bgs in MW-26. Groundwater elevations ranged between 5.15 and 6.63 feet above mean sea level (MSL). Estimated groundwater flow direction was to the southwest at an approximate gradient of 0.003 (Figure 2). No liquid phase hydrocarbons (LPH) were observed in the wells during the monitoring and sampling event.

In accordance with the attached sampling procedures, SECOR purged and sampled the groundwater monitoring wells. The samples collected from monitoring wells MW-15 and MW-16 were not analyzed because an inadequate volume of groundwater was purged from the wells. The remaining groundwater samples were analyzed for gasoline-range organics (C_6-C_{12}; GRO); for benzene, toluene, ethylbenzene, and total xylenes (BTEX); and for the fuel oxygenates methyl tert-butyl ether (MTBE), ethyl tert-butyl ether (ETBE), di-isopropyl ether (DIPE), tert-amyl methyl ether (TAME), tert-butyl alcohol (TBA), and ethanol. Analytical results are summarized in Tables 2 and 3, and TPHg, benzene, and MTBE concentration distribution is shown on Figure 3. Figure 4 depicts a dissolved benzene and MTBE isoconcentration map. Hydrographs showing changes in groundwater elevation and benzene and MTBE concentrations with time are also attached.

CONCLUSIONS AND RECOMMENDATIONS: Groundwater elevations were generally approximately one foot higher than the previous quarter. Groundwater sample analytical results were generally consistent with previous quarters. SECOR recommends the periodic groundwater monitoring and sampling program be changed to semi-annual.

SUMMARY OF UNUSUAL ACTIVITIES: None

AGENCY DIRECTIVE REQUIREMENTS: Conduct purge groundwater sampling.

ATTACHED:

- Site Location Map (Figure 1)
- Site Plan (Figure 2)
- Groundwater Elevation Contour Map, March 7-8, 2005 (Figure 3)
- GRO, Benzene, and MTBE Concentrations in Groundwater, March 7-8, 2005 (Figure 4)
- Benzene and MTBE Isoconcentration Map, March 7-8, 2005 (Figure 5)
- Summary of Groundwater Elevations, 2002 to Present (Table 1)
- Summary of Groundwater Sample Analytical Results, 2002 to Present (Table 2)
- Summary of Additional Oxygenates Analytical Results, 2002 to Present (Table 3)

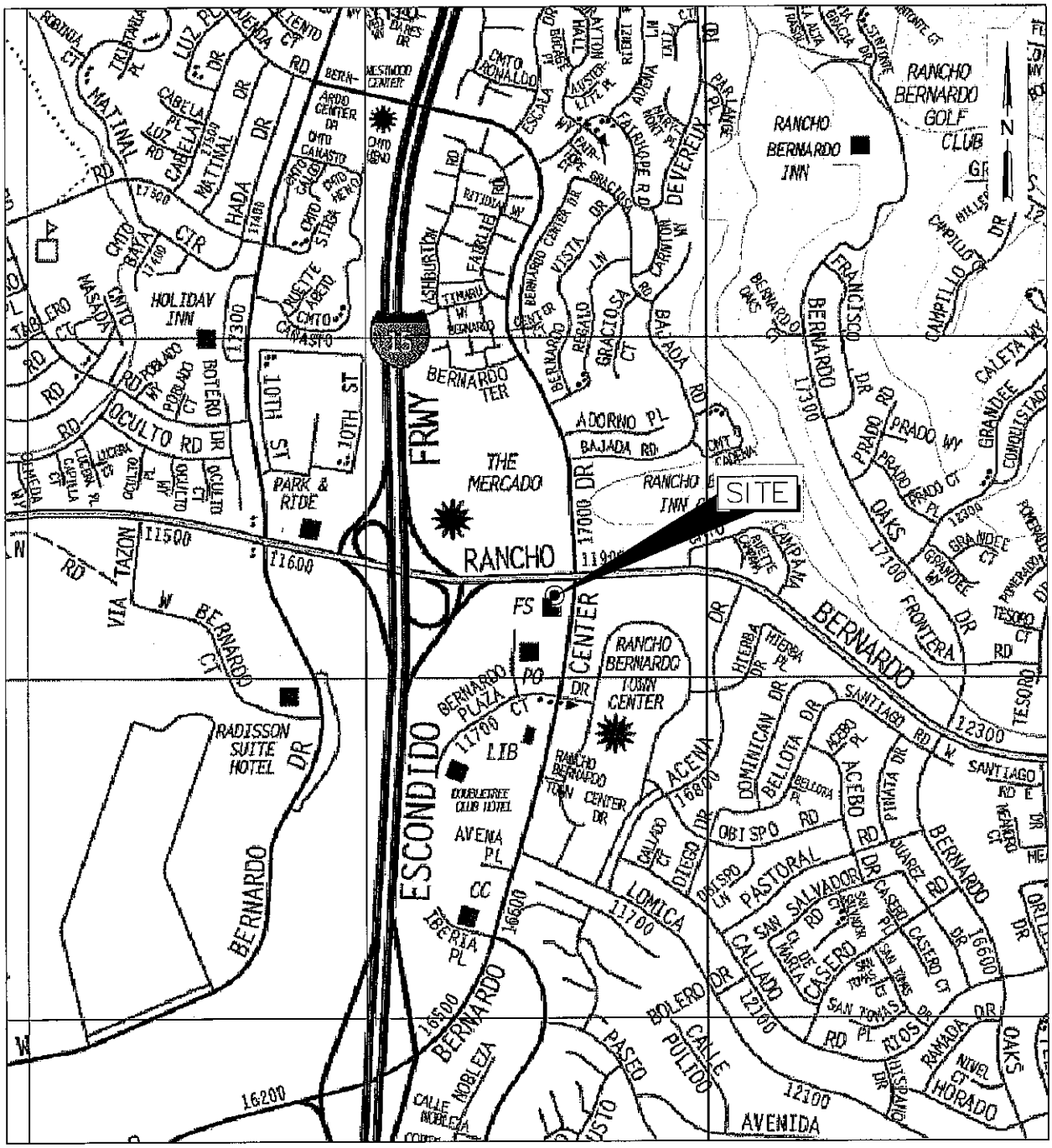
Date: April 15, 2005

ARCO QUARTERLY GROUNDWATER MONITORING REPORT (Cont'd)
ARCO Facility #1919

ATTACHED (Continued):

- Hydrographs
- Monitoring Well Purging and Sampling Procedures – San Diego County
- Monitoring Well Gauging Log
- Well Purging and Sampling Logs
- Laboratory Report and Chain-of-Custody Documentation

cc: Roy Thun, Atlantic Richfield
Larry Bauman, Del Mar Fairgrounds
Lyntonia Staton, Paclantic Properties, LLC



REFERENCE: THOMAS GUIDE CD-ROM, PAGE & GRID 1170 A2.

0 1320 2640

APPROXIMATE SCALE IN FEET

SECOR 2655 Camino Del Rio North, Suite 302 San Diego, California	FOR: ARCO FACILITY #1995 11891 Rancho Bernardo San Diego, California		SITE LOCATION MAP		FIGURE: 1
	JOB NUMBER: 08BP.01995.04.0146	DRAWN BY: RJO	CHECKED BY:	APPROVED BY:	DATE: 1/6/05

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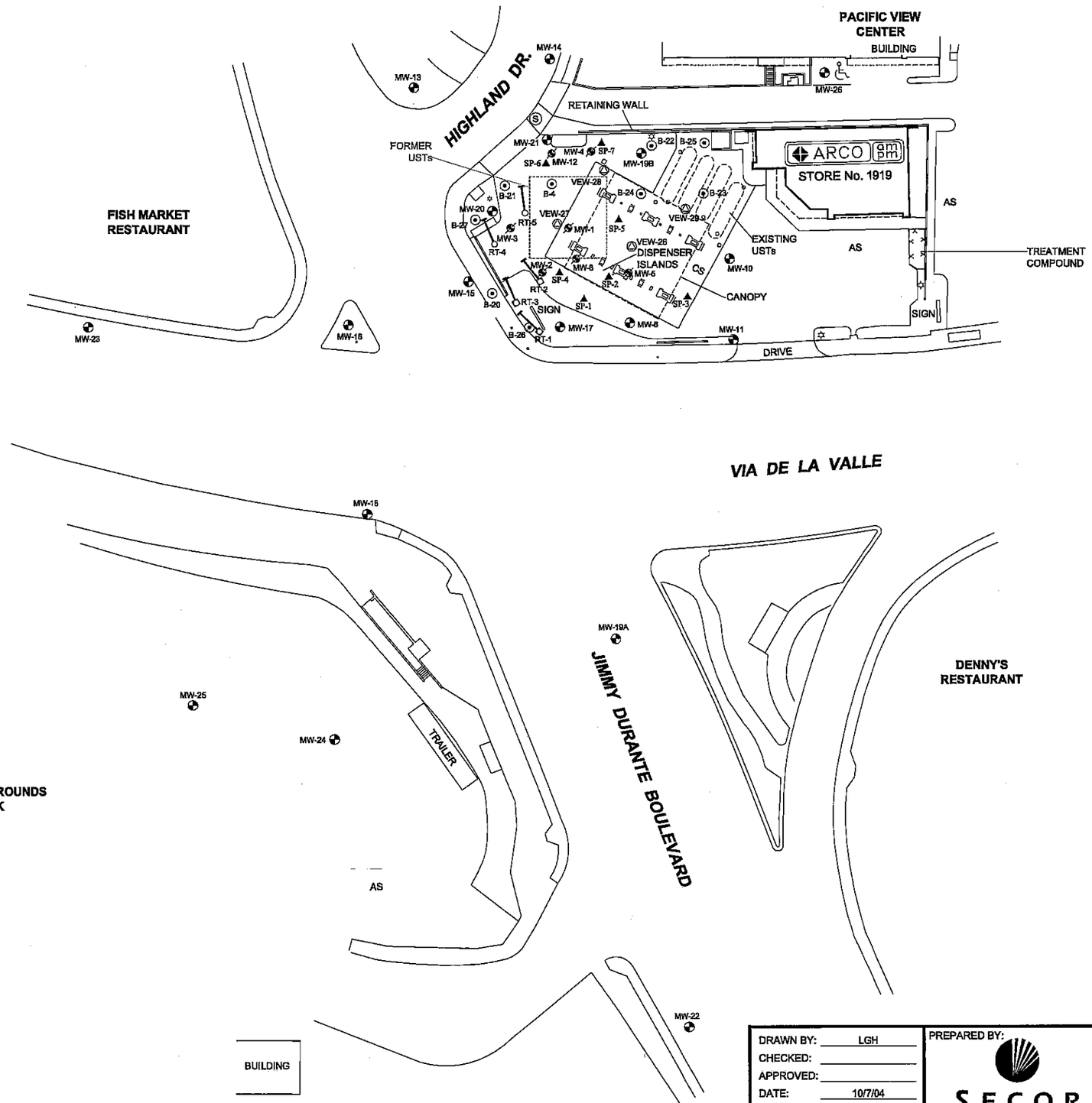

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LEGEND:

MW-26	GROUNDWATER MONITORING WELL
MW-12	DESTROYED MONITORING WELL
R-3	HORIZONTAL VAPOR EXTRACTION TRENCH
VEW-29	VAPOR EXTRACTION WELL
SP-6	SPARGE WELL
B-22	SOIL BOREHOLE
	STORM DRAIN
	LIGHT POLE
AS	ASPHALT SURFACE
CS	CONCRETE SURFACE
USTs	UNDERGROUND STORAGE TANKS

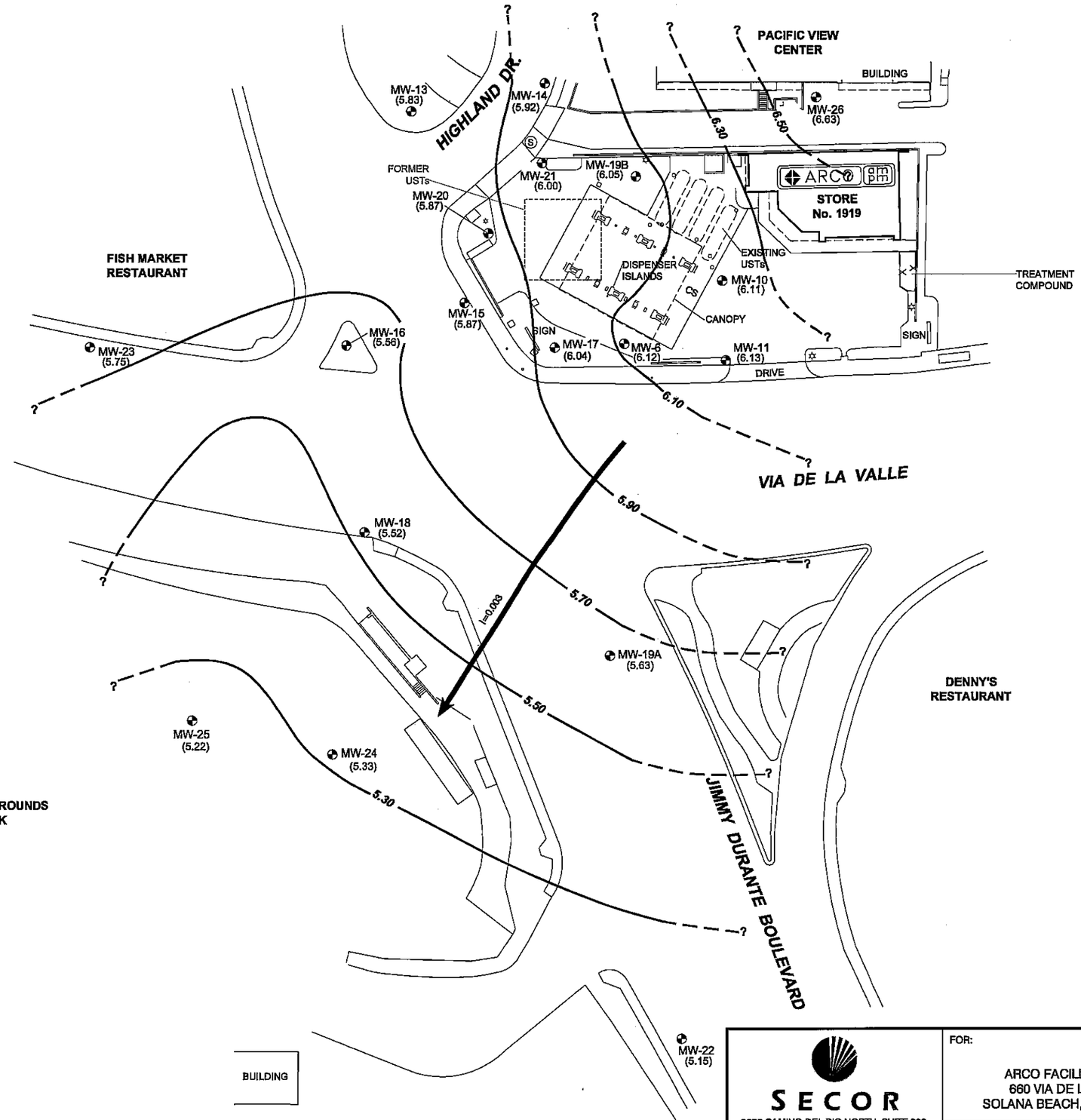
0 60 120

APPROXIMATE SCALE (FEET)

SOURCE: SOUTHERN CALIFORNIA SURVEY, SEPTEMBER 26, 2003

DRAWN BY: LGH CHECKED: APPROVED: DATE: 10/7/04 JOB No.: 08BP.U1919.04 CAD FILE: 1919SP10-04	PREPARED BY: SECOR 2655 Camino del Rio North, Suite 302 San Diego, California	PREPARED FOR: ARCO FACILITY #1919 660 VIA DE LA VALLE SOLANA BEACH, CALIFORNIA	FIGURE: 2 **SITE PLAN**

P:\CAD\ALLPROJECTS2004DWGS\ARCO 2004\1919-2K4\1919SP10-04.DWG MODIFIED BY LHUNTER ON MAR 23, 2005 - 10:31



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LEGEND:

MW-26	GROUNDWATER MONITORING WELL
(S)	STORM DRAIN
☆	LIGHT POLE
AS	ASPHALT SURFACE
CS	CONCRETE SURFACE
USTs	UNDERGROUND STORAGE TANKS
(5.89)	GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (MSL)
?--5.00—	INTERPRETED RELATIVE GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MSL. DASHED WHERE INFERRED. QUERIED WHERE UNKNOWN.
I=0.004	INTERPRETED GROUNDWATER FLOW DIRECTION AND HYDRAULIC GRADIENT (I)
UST	UNDERGROUND STORAGE TANK
[NM]	GROUNDWATER ELEVATION NOT MEASURED- INACCESSIBLE

0 60 120

APPROXIMATE SCALE (FEET)

REFERENCE:
SOUTHERN CALIFORNIA SURVEY, REPORT DATED SEPTEMBER 26, 2003

SECOR
2655 CAMINO DEL RIO NORTH, SUITE 302
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FOR:
ARCO FACILITY #1919
660 VIA DE LA VALLE
SOLANA BEACH, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP, MARCH 7-8, 2005

FIGURE: 3

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
08BP.U1919.05	ARA	SM		4/8/05

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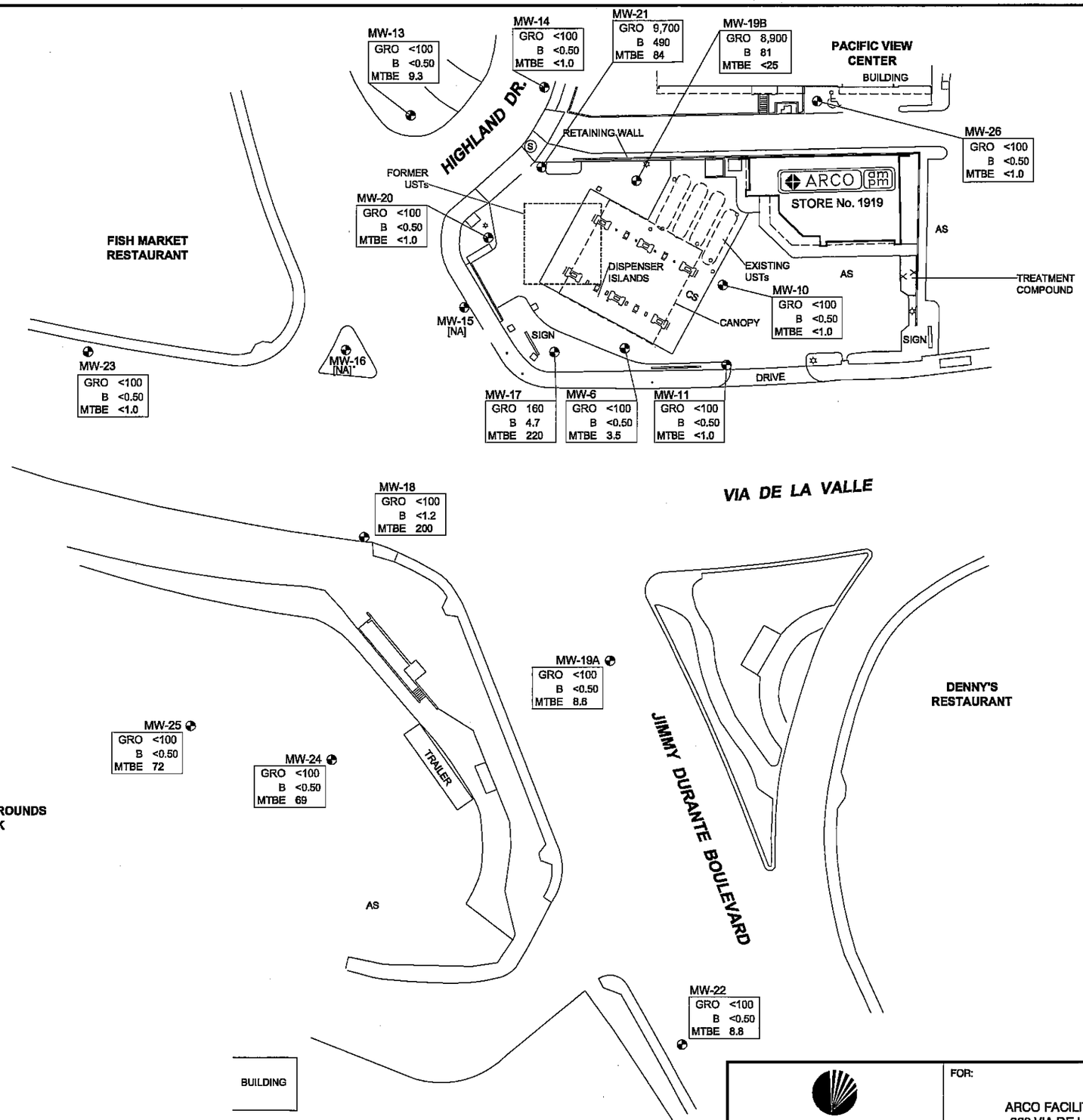
1919GW3-05



LEGEND:

MW-26	GROUNDWATER MONITORING WELL
Ⓢ	STORM DRAIN
☼	LIGHT POLE
AS	ASPHALT SURFACE
CS	CONCRETE SURFACE
USTs	UNDERGROUND STORAGE TANKS
GRO <100 B <0.50 MTBE <1.0	NO PURGE AND PURGE GROUNDWATER SAMPLE ANALYTICAL CONCENTRATION IN MICROGRAMS PER LITER (μg/L), RESPECTIVELY
GRO	GASOLINE-RANGE ORGANICS C6-C12
B	BENZENE
MTBE	METHYL TERT-BUTYL ETHER
<	BELOW LABORATORY REPORTING LIMIT SHOWN
[NA]	NOT ANALYZED - SUSPECT SAMPLE

REFERENCE:
SOUTHERN CALIFORNIA SURVEY, REPORT DATED SEPTEMBER 26, 2003

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PHONE: (619) 296-6195/296-6199 (FAX)

FOR:
ARCO FACILITY #1919
660 VIA DE LA VALLE
SOLANA BEACH, CALIFORNIA

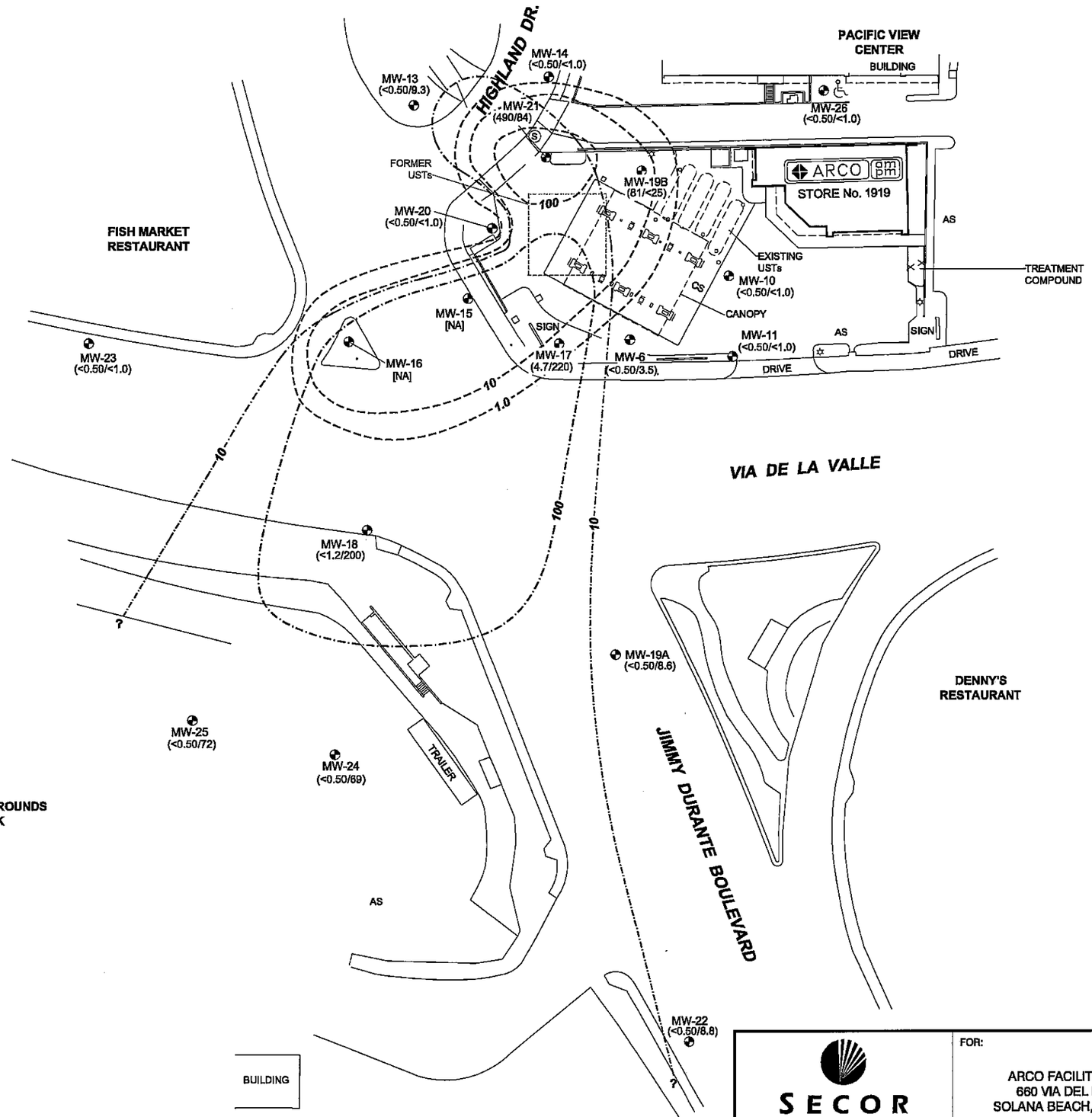
GRO, BENZENE, AND MTBE CONCENTRATIONS IN GROUNDWATER MARCH 7-8, 2005

FIGURE: 4

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
08BP.U1919.05	LGH			4/8/05

FILEPATH:P:\CAD\ALLPROJECTS2005DWGS\ARCO 2005\1919-2K5\1919CON3-05.DWG|LHUNTER|APR 18, 2005 AT 11:01|LAYOUT: MODEL

1919CON3-05



N

LEGEND:

MW-26	GROUNDWATER MONITORING WELL
Ⓢ	STORM DRAIN
☼	LIGHT POLE
AS	ASPHALT SURFACE
CS	CONCRETE SURFACE
USTs	UNDERGROUND STORAGE TANKS
(<1.0/130)	BENZENE AND MTBE CONCENTRATIONS IN MICROGRAMS PER LITER (mg/L)
10 ?	ESTIMATED BENZENE ISOCONCENTRATION CONTOUR IN μg/L, QUERIED WHERE UNKNOWN
10 ?	ESTIMATED MTBE ISOCONCENTRATION CONTOUR IN μg/L, QUERIED WHERE UNKNOWN
MTBE	METHYL TERT-BUTYL ETHER
<	BELOW LABORATORY REPORTING LIMIT
[NA]	NOT ANALYZED - SUSPECT SAMPLE

0 60 120

APPROXIMATE SCALE (FEET)

REFERENCE:
SOUTHERN CALIFORNIA SURVEY, REPORT DATED SEPTEMBER 26, 2003

SECOR
2655 CAMINO DEL RIO NORTH, SUITE 302
SAN DIEGO, CALIFORNIA
PHONE: (619) 296-6195/296-6199 (FAX)

FOR:
ARCO FACILITY No. 1919
660 VIA DEL LA VALLE
SOLANA BEACH, CALIFORNIA

BENZENE AND MTBE ISOCONCENTRATION MAP
MARCH 7-8, 2005

FIGURE: 5

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
08BP.U1919.05	ARA/LGH	WW		4/8/05

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1919ISO3-05

TABLE 1

SUMMARY OF GROUNDWATER ELEVATIONS, 2002 TO PRESENT

ARCO Facility #1919

Well Identification / Surveyed Well Elevation[1] (Feet MSL)	Date Measured	Depth to Water (Feet)	LPH Thickness (Feet)	Groundwater Elevation[2] (Feet MSL)
MW-1	01/14/93	7.69	0.01	6.33
14.02	02/20/93	7.69	Sheen	6.30
	03/16/93	7.77	Sheen	6.25
	04/14/93	7.64	Sheen	6.38
	05/10/93	7.99	0.03	6.05 [3]
	09/02/93	8.13	0.05	5.93 [3]
	10/01/93	Well Destroyed		
MW-2	01/14/93	6.98	Sheen	5.95
12.93	02/20/93	6.77	Sheen	6.16
	03/16/93	6.72	Sheen	6.21
	04/14/93	6.80	Sheen	6.13
	05/10/93	6.90	Sheen	6.03
	09/02/93	7.08	Sheen	5.85
	10/01/93	Well Destroyed		
MW-3	01/14/93	6.38	0.00	4.17
12.55	04/14/93	6.94	0.00	5.61
	09/02/93	6.99	0.00	5.56
	10/01/93	Well Destroyed		
MW-4	01/14/93	7.28	Sheen	6.06
13.34	02/20/93	7.01	Sheen	6.33
	03/16/93	7.12	Sheen	6.22
	04/14/93	7.14	Sheen	6.20
	05/10/93	7.29	0.00	6.05
	09/02/93	7.37	0.00	5.97
	10/01/93	Well Destroyed		
MW-5	01/14/93	8.56	0.01	5.99 [3]
14.54	02/20/93	8.16	Sheen	6.38
	03/16/93	8.31	0.02	6.25 [3]
	04/14/93	8.47	0.09	6.14 [3]
	05/10/93	8.64	0.16	6.02 [3]
	09/02/93	8.88	0.30	5.88 [3]
	10/01/93	Well Destroyed		
MW-6	01/28/02	10.13	0.00	5.98
16.11	04/17/02	10.10	0.00	6.01
	07/09/02	10.17	0.00	5.94
	10/21/02	10.44	0.00	5.67
	02/21/03	10.27	0.00	5.84
	05/08/03	10.47	0.00	5.64
	07/25/03	10.39	0.00	5.72
15.96	11/21/03	10.66	0.00	5.30
	02/25/04	10.52	0.00	5.44
	06/21/04	10.55	0.00	5.41
	09/13/04	10.78	0.00	5.18
	12/20/04	10.62	0.00	5.34
	03/07/05	9.84	0.00	6.12

TABLE 1

SUMMARY OF GROUNDWATER ELEVATIONS, 2002 TO PRESENT

ARCO Facility #1919

Well Identification / Surveyed Well Elevation[1] (Feet MSL)	Date Measured	Depth to Water (Feet)	LPH Thickness (Feet)	Groundwater Elevation[2] (Feet MSL)
MW-7	01/14/93	7.00	Sheen	5.47
12.47	02/20/93	6.61	0.29	6.08 [3]
	03/16/93	6.83	0.02	5.66 [3]
	04/14/93	6.88	0.14	5.70 [3]
	05/10/93	6.95	0.03	5.54 [3]
	09/02/93	7.03	Sheen	5.44
	10/01/93	Well Destroyed		
MW-8	01/14/93	7.80	0.01	6.04 [3]
13.83	02/20/93	7.51	Sheen	6.32
	03/16/93	7.61	Sheen	6.22
	04/14/93	7.70	0.02	6.15 [3]
	05/10/93	7.86	0.07	6.02 [3]
	09/02/93	7.99	0.08	5.90 [3]
	10/01/93	Well Destroyed		
MW-10	01/28/02	10.70	0.00	6.04
16.74	04/17/02	10.67	0.00	6.07
	07/09/02	10.73	0.00	6.01
	10/21/02	11.03	0.00	5.71
	02/21/03	10.87	0.00	5.87
	05/08/03	11.04	0.00	5.70
	07/25/03	11.02	0.00	5.72
16.59	11/21/03	11.16	0.00	5.43
	02/25/04	11.16	0.00	5.43
	06/21/04	11.21	0.00	5.38
	09/13/04	11.38	0.00	5.21
	12/20/04	11.21	0.00	5.38
	03/07/05	10.48	0.00	6.11
MW-11	01/28/02	7.62	0.00	5.95
13.57	04/17/02	7.55	0.00	6.02
	07/09/02	7.65	0.00	5.92
	10/21/02	7.96	0.00	5.61
	02/21/03	7.78	0.00	5.79
	05/08/03	7.87	0.00	5.70
	07/25/03	7.85	0.00	5.72
13.40	11/21/03	8.17	0.00	5.23
	02/25/04	7.95	0.00	5.45
	06/21/04	7.98	0.00	5.42
	09/13/04	8.22	0.00	5.18
	12/20/04	8.00	0.00	5.40
	03/07/05	7.27	0.00	6.13
MW-12	01/14/93	8.20	0.00	6.07
14.27	04/14/93	8.20	0.00	6.07
	09/02/93	8.27	0.00	6.00
	10/01/93	Well Destroyed		
MW-13	01/28/02	6.97	0.00	5.96

TABLE 1

SUMMARY OF GROUNDWATER ELEVATIONS, 2002 TO PRESENT

ARCO Facility #1919

Well Identification / Surveyed Well Elevation[1] (Feet MSL)	Date Measured	Depth to Water (Feet)	LPH Thickness (Feet)	Groundwater Elevation[2](Feet MSL)
12.93	04/17/02	6.95	0.00	5.98
MW-13	07/09/02	6.97	0.00	5.96
Cont'd	10/21/02	7.37	0.00	5.56
	02/21/03	7.28	0.00	5.65
	05/08/03	7.36	0.00	5.57
	07/25/03	7.32	0.00	5.61
12.79	11/21/03	7.63	0.00	5.16
	02/25/04	7.54	0.00	5.25
	06/21/04	7.66	0.00	5.13
	09/13/04	7.67	0.00	5.12
	12/20/04	7.52	0.00	5.27
	03/07/05	6.96	0.00	5.83
MW-14	01/28/02	8.14	0.00	6.45
14.59	04/17/02	8.73	0.00	5.86
	07/09/02	8.72	0.00	5.87
	10/21/02	Not Measured - Not Accessible		
	02/21/03	9.08	0.00	5.51
	05/08/03	9.31	0.00	5.28
	07/25/03	9.13	0.00	5.46
14.62	11/21/03	9.31	0.00	5.31
	02/25/04	9.31	0.00	5.31
	06/21/04	9.40	0.00	5.22
	09/13/04	9.47	0.00	5.15
	12/20/04	9.23	0.00	5.39
	03/07/05	8.70	0.00	5.92
MW-15	01/28/02	5.88	0.00	5.79
11.67	04/17/02	5.61	0.00	6.06
	07/09/02	5.90	0.00	5.77
	10/21/02	Not Measured - Not Accessible		
	02/21/03	Not Measured - Not Accessible		
	05/08/03	Not Measured - Not Accessible		
	07/25/03	Not Measured - Not Accessible		
11.30	11/21/03	7.05	Sheen	4.25
	02/25/04	6.25	0.00	5.05
	06/21/04	6.40	0.00	4.90
	09/13/04	6.60	0.00	4.70
	12/20/04	6.47	0.00	4.83
	03/07/05	5.43	0.00	5.87
MW-16	01/28/02	7.92	0.00	5.19
13.11	04/17/02	7.69	0.00	5.42
	07/09/02	7.96	0.00	5.15
	10/21/02	8.41	0.00	4.70
	02/21/03	7.91	0.00	5.20
	05/08/03	8.08	0.00	5.03
	07/25/03	8.01	0.00	5.10

TABLE 1

SUMMARY OF GROUNDWATER ELEVATIONS, 2002 TO PRESENT

ARCO Facility #1919

Well Identification / Surveyed Well Elevation[1] (Feet MSL)	Date Measured	Depth to Water (Feet)	LPH Thickness (Feet)	Groundwater Elevation[2](Feet MSL)
MW-16	11/21/03	8.50	0.00	4.58
Cont'd	02/25/04	8.28	0.00	4.80
	06/21/04	8.34	0.00	4.74
	09/13/04	8.56	0.00	4.52
13.08	12/20/04	8.48	0.00	4.60
	03/07/05	7.52	0.00	5.56
MW-17	01/28/02	9.30	0.00	5.88
15.18	04/17/02	9.21	0.00	5.97
	07/09/02	9.32	0.00	5.86
	10/21/02	9.60	0.00	5.58
	02/21/03	9.39	0.00	5.79
	05/08/03	9.57	0.00	5.61
	07/25/03	9.43	0.00	5.75
15.00	11/21/03	9.96	0.00	5.04
	02/25/04	9.60	0.00	5.40
	06/21/04	9.70	0.00	5.30
	09/13/04	9.91	0.00	5.09
	12/20/04	9.78	0.00	5.22
	03/07/05	8.96	0.00	6.04
MW-18	01/28/02	8.73	0.00	5.02
13.75	04/17/02	8.55	0.00	5.20
	07/09/02	8.85	0.00	4.90
	10/21/02	9.24	0.00	4.51
	02/21/03	8.74	0.00	5.01
	05/08/03	8.91	0.00	4.84
	07/25/03	8.78	0.00	4.97
13.74	11/21/03	9.36	0.00	4.38
	02/25/04	9.03	0.00	4.71
	06/21/04	9.18	0.00	4.56
	09/13/04	9.37	0.00	4.37
	12/20/04	9.32	0.00	4.42
	03/07/05	8.22	0.00	5.52
*MW-19A	01/28/02	8.27	0.00	5.15
13.42	04/17/02	8.08	0.00	5.34
	07/09/02	8.35	0.00	5.07
	10/21/02	8.68	0.00	4.74
	02/21/03	8.24	0.00	5.18
	05/08/03	8.39	0.00	5.03
	07/25/03	8.25	0.00	5.17
	11/21/03	8.79	0.00	4.60
13.39	02/25/04	8.45	0.00	4.94
	06/21/04	8.54	0.00	4.85
	09/13/04	8.91	0.00	4.48
	12/20/04	8.76	0.00	4.63
	03/07/05	7.76	0.00	5.63

TABLE 1

SUMMARY OF GROUNDWATER ELEVATIONS, 2002 TO PRESENT

ARCO Facility #1919

Well Identification / Surveyed Well Elevation[1] (Feet MSL)	Date Measured	Depth to Water (Feet)	LPH Thickness (Feet)	Groundwater Elevation[2](Feet MSL)
MW-19B	01/28/02	10.76	0.00	6.06
16.82	04/17/02	10.74	0.00	6.08
	07/09/02	10.78	0.00	6.04
	10/21/02	11.14	0.00	5.68
	02/21/03	10.99	0.00	5.83
	05/08/03	11.15	0.00	5.67
	07/25/03	11.08	0.00	5.74
16.67	11/21/03	11.42	0.00	5.25
	02/25/04	11.28	0.00	5.39
	06/21/04	11.36	0.00	5.31
	09/13/04	11.48	0.00	5.19
	12/20/04	11.30	0.00	5.37
	03/07/05	10.62	0.00	6.05
MW-20	01/28/02	7.50	0.00	5.88
13.38	04/17/02	7.48	0.00	5.90
	07/09/02	7.59	0.00	5.79
	10/21/02	7.95	0.00	5.43
	02/21/03	7.74	0.00	5.64
	05/08/03	7.87	0.00	5.51
	07/25/03	7.74	0.00	5.64
13.26	11/21/03	8.35	0.00	4.91
	02/25/04	8.12	0.00	5.14
	06/21/04	8.15	0.00	5.11
	09/13/04	8.36	0.00	4.90
	12/20/04	8.19	0.00	5.07
	03/07/05	7.39	0.00	5.87
MW-21	01/28/02	7.63	0.00	6.14
13.77	04/17/02	7.62	0.00	6.15
	07/09/02	7.65	0.00	6.12
	10/21/02	8.04	0.00	5.73
	02/21/03	7.89	0.00	5.88
	05/08/03	8.03	0.00	5.74
	07/25/03	8.00	0.00	5.77
13.52	11/21/03	8.32	0.00	5.20
	02/25/04	8.16	0.00	5.36
	06/21/04	8.28	0.00	5.24
	09/13/04	8.40	0.00	5.12
	12/20/04	8.20	0.00	5.32
	03/07/05	7.52	0.00	6.00
MW-22	01/28/02	5.36	0.00	4.45
9.81	04/17/02	5.07	0.00	4.74
	07/09/02	5.24	0.00	4.57
	10/21/02	5.55	0.00	4.26
	02/21/03	5.27	0.00	4.54
	05/08/03	5.25	0.00	4.56

TABLE 1

SUMMARY OF GROUNDWATER ELEVATIONS, 2002 TO PRESENT

ARCO Facility #1919

Well Identification / Surveyed Well Elevation[1] (Feet MSL)	Date Measured	Depth to Water (Feet)	LPH Thickness (Feet)	Groundwater Elevation[2](Feet MSL)
MW-22	07/25/03	5.05	0.00	4.76
9.78	11/21/03	5.65	0.00	4.13
Cont'd	02/25/04	5.49	0.00	4.29
	06/21/04	5.61	0.00	4.17
	09/13/04	5.91	0.00	3.87
	12/20/04	5.77	0.00	4.01
	03/07/05	4.63	0.00	5.15
MW-23	01/28/02	7.23	0.00	5.22
12.45	04/17/02	6.99	0.00	5.46
	07/09/02	7.28	0.00	5.17
	10/21/02	7.80	0.00	4.65
	02/21/03	7.13	0.00	5.32
	05/08/03	7.44	0.00	5.01
	07/25/03	7.39	0.00	5.06
12.42	11/21/03	7.98	0.00	4.44
	02/25/04	7.73	0.00	4.69
	06/21/04	7.81	0.00	4.61
	09/13/04	7.99	0.00	4.43
	12/20/04	7.94	0.00	4.48
	03/07/05	6.67	0.00	5.75
MW-24	11/21/03	4.64	0.00	4.19
8.83	02/25/04	4.28	0.00	4.55
	06/21/04	4.49	0.00	4.34
	09/13/04	4.78	0.00	4.05
	12/20/04	4.55	0.00	4.28
	03/07/05	3.50	0.00	5.33
MW-25	11/21/03	3.21	0.00	4.00
7.21	02/25/04	2.83	0.00	4.38
	06/21/04	Not Measured - Inaccessible		
	09/13/04	3.24	0.00	3.97
	12/20/04	3.09	0.00	4.12
	03/07/05	1.99	0.00	5.22
MW-26	11/21/03	23.93	0.00	5.89
29.82	02/25/04	23.79	0.00	6.03
	06/21/04	23.83	0.00	5.99
	09/13/04	24.14	0.00	5.68
	12/20/04	23.93	0.00	5.89
	03/07/05	23.19	0.00	6.63

Survey elevation and depth to water measurements prior to 9/28/94 summarized from Alton Geoscience Reports.

Notes:

[1] = Elevations are in feet above mean sea level (MSL).

[2] = Groundwater elevation in feet MSL = Surveyed Well Elevation - Depth to Water

[3] = Elevations adjusted by adding (0.75 x LPH thickness) to measured water elevations.

LPH = Liquid - Phase Hydrocarbons

* MW-19 was renamed MW-19A after the installation of another MW-19 (now MW-19B).

TABLE 2

SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS, 2002 TO PRESENT
ARCO Facility #1919

All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	GRO	B	T	E	X	MTBE
MW-1	01/14/93	Not Sampled - Measured LPH Thickness					
	02/20/93	Not Sampled - LPH Sheen					
	03/16/93	Not Sampled - LPH Sheen					
	04/14/93	Not Sampled - LPH Sheen					
	05/10/93	Not Sampled - Measured LPH Thickness					
	09/02/93	Not Sampled - Measured LPH Thickness					
	10/01/93	Well Destroyed					
MW-2	01/14/93	Not Sampled - LPH Sheen					
	02/20/93	Not Sampled - LPH Sheen					
	03/16/93	Not Sampled - LPH Sheen					
	04/14/93	Not Sampled - LPH Sheen					
	05/10/93	Not Sampled - LPH Sheen					
	09/02/93	Not Sampled - LPH Sheen					
	10/01/93	Well Destroyed					
MW-3	01/14/93	Not Sampled					
	01/14/93	Not Sampled					
	04/14/93	Not Sampled					
	09/02/93	Not Sampled					
	10/01/93	Well Destroyed					
MW-4	01/14/93	Not Sampled - LPH Sheen					
	02/20/93	Not Sampled - LPH Sheen					
	03/16/93	Not Sampled - LPH Sheen					
	04/14/93	Not Sampled - LPH Sheen					
	05/10/93	Not Sampled					
	09/02/93	Not Sampled					
	10/01/93	Well Destroyed					
MW-5	01/14/93	Not Sampled - Measured LPH Thickness					
	02/20/93	Not Sampled - LPH Sheen					
	03/16/93	Not Sampled - Measured LPH Thickness					
	04/14/93	Not Sampled - Measured LPH Thickness					
	05/10/93	Not Sampled - Measured LPH Thickness					
	09/02/93	Not Sampled - Measured LPH Thickness					
	10/01/93	Well Destroyed					
MW-6	01/28/02 NP	1,400	110	0.52	96	2.2	150
	04/17/02 NP	2,400	370	1.4	820	4.7	150
	07/09/02	Not Sampled - Well Reduction Program					
	10/21/02 NP	3,500	750	<5.0	630	<15	110
	02/21/03 NP	<500	0.56	<0.50	2.7	<1.5	62
	05/08/03	Not Sampled - Well Reduction Program					
	07/25/03 NP	740	47	0.83	79	<1.5	120
	11/21/03 NP	820	30	<0.50	32	<1.5	94
	11/21/03	670	110	<0.50	140	<1.5	200
	02/25/04	<500	<0.50	<0.50	<0.50	<1.5	59
	06/21/04	Not Sampled - Well Reduction Program					
	09/13/04	Not Sampled - Well Reduction Program					
	12/20/04	Not Sampled - Well Reduction Program					
	03/08/05	<100	<0.50	<0.50	<0.50	<1.0	3.5

TABLE 2

SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS, 2002 TO PRESENT
ARCO Facility #1919

All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	GRO	B	T	E	X	MTBE
MW-7	01/14/93	Not Sampled - LPH Sheen					
	02/20/93	Not Sampled - Measured LPH Thickness					
	03/16/93	Not Sampled - Measured LPH Thickness					
	04/14/93	Not Sampled - Measured LPH Thickness					
	05/10/93	Not Sampled - Measured LPH Thickness					
	09/02/93	Not Sampled - LPH Sheen					
	10/01/93	Well Destroyed					
MW-8	01/14/93	Not Sampled - Measured LPH Thickness					
	02/20/93	Not Sampled - LPH Sheen					
	03/16/93	Not Sampled - LPH Sheen					
	04/14/93	Not Sampled - Measured LPH Thickness					
	05/10/93	Not Sampled - Measured LPH Thickness					
	09/02/93	Not Sampled - Measured LPH Thickness					
	10/01/93	Well Destroyed					
MW-10	01/28/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	04/17/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	07/09/02	Not Sampled - Well Reduction Program					
	10/21/02 NP	<500	<0.50	<0.50	<0.50	<1.50	<1.0
	02/21/03 NP	<500	<0.50	<0.50	<0.50	<1.5	1.1
	05/08/03	Not Sampled - Well Reduction Program					
	07/25/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	11/21/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	11/21/03	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	02/25/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	06/21/04	Not Sampled - Well Reduction Program					
	09/13/04	Not Sampled - Well Reduction Program					
	12/20/04	Not Sampled - Well Reduction Program					
	03/08/05	<100	<0.50	<0.50	<0.50	<1.0	<1.0
MW-11	01/28/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	04/17/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	07/09/02	Not Sampled - Well Reduction Program					
	10/21/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	02/21/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	05/08/03	Not Sampled - Well Reduction Program					
	07/25/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	11/21/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	11/21/03	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	02/25/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	06/21/04	Not Sampled - Well Reduction Program					
	09/13/04	Not Sampled - Well Reduction Program					
	12/20/04	Not Sampled - Well Reduction Program					
	03/08/05	<100	<0.50	<0.50	<0.50	<1.0	<1.0
MW-12	01/14/93	94,962	3,463	6,161	3,397	17,783	--
	04/14/93	48,000	2,500	3,500	1,600	7,500	--
	09/02/93	54,000	4,100	5,500	2,500	13,000	--
	10/01/93	Well Destroyed					

TABLE 2

SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS, 2002 TO PRESENT
ARCO Facility #1919

All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	GRO	B	T	E	X	MTBE
MW-13	01/28/02 NP	<500	<0.50	<0.50	<0.50	<1.5	1.1
	04/17/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	07/09/02 NP	Not Sampled - Well Reduction Program					
	10/21/02 NP	<500	<0.50	<0.50	<0.50	<1.5	1.8
	02/21/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	05/08/03	Not Sampled - Well Reduction Program					
	07/25/03	Not Sampled - Well Reduction Program					
	11/21/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	11/21/03	<500	<0.50	<0.50	<0.50	<1.5	18
	02/25/04	<500	<0.50	<0.50	<0.50	<1.5	17
	06/21/04	Not Sampled - Well Reduction Program					
	09/13/04	Not Sampled - Well Reduction Program					
	12/20/04	Not Sampled - Well Reduction Program					
	03/08/05	<100	<0.50	<0.50	<0.50	<1.0	9.3
MW-14	01/28/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	04/17/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	07/09/02	Not Sampled - Well Reduction Program					
	10/21/02	Not Sampled - Well Reduction Program					
	02/21/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	05/08/03	Not Sampled - Well Reduction Program					
	07/25/03	Not Sampled - Well Reduction Program					
	11/21/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	11/21/03	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	02/25/04	<500	<0.50	<0.50	<0.50	<1.5	2.0
	06/21/04	Not Sampled - Well Reduction Program					
	09/13/04	Not Sampled - Well Reduction Program					
	12/20/04	Not Sampled - Well Reduction Program					
	03/07/05	<100	<0.50	<2.0	<0.50	<1.0	<1.0
MW-15	01/28/02 NP	4,000	1,300	<62	390	<190	24,000
	04/17/02 NP	1,700	540	<100	180	<300	7,400
	07/09/02	Not Sampled - Well Reduction Program					
	10/21/02	Not Sampled - Well Not Accessible					
	02/21/03	Not Sampled - Well Not Accessible					
	05/08/03	Not Sampled - Well Not Accessible					
	07/25/03	Not Sampled - Well Not Accessible					
	11/21/03	Not Sampled - LPH Sheen					
	02/25/04	2,400	910	<200	<200	<600	51,000
	06/21/04	Not Sampled - Well Reduction Program					
	09/13/04	Not Sampled - Well Reduction Program					
	12/20/04	Not Sampled - Well Reduction Program					
	03/08/05	Not Analyzed - Suspect Sample					
MW-16	01/28/02 NP	<500	<40	<40	<40	<120	7,000
	04/17/02 NP	<500	<50	<50	<50	<150	5,000
	07/09/02	Not Sampled - Well Reduction Program					
	10/21/02 NP	<500	<50	<50	<50	<150	7,200
	02/21/03 NP	<500	<50	<50	<50	<150	5,600

TABLE 2

SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS, 2002 TO PRESENT
ARCO Facility #1919

All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	GRO	B	T	E	X	MTBE
MW-16 Cont'd	05/08/03	Not Sampled - Well Reduction Program					
	07/25/03	Not Sampled - Well Reduction Program					
	11/21/03 NP	<500	<25	<25	<25	<75	6,300
	11/21/03	<500	<50	<50	<50	<150	6,000
	02/25/04	<500	<50	<50	<50	<150	5,900
	06/21/04	Not Sampled - Well Reduction Program					
	09/13/04	Not Sampled - Well Reduction Program					
	12/20/04	Not Sampled - Well Reduction Program					
	03/08/05	Not Analyzed - Suspect Sample					
MW-17	01/28/02 NP	13,000	6,300	<40	1,500	<120	760
	04/17/02 NP	7,900	4,100	<25	1,200	<75	520
	07/09/02	Not Sampled - Well Reduction Program					
	10/21/02 NP	2,800	600	<5.0	610	<15	13
	02/21/03 NP	3,900	860	<5.0	1,200	<15	110
	05/08/03	Not Sampled - Well Reduction Program					
	07/25/03 NP	700	1,600	16	1,100	46	56
	11/21/03 NP	5,700	2,600	<20	1,200	<60	47
	11/21/03	510	150	<5.0	80	<15	1,300
	02/25/04	<500	21	<5.0	42	<15	620
	06/21/04	Not Sampled - Well Reduction Program					
	09/13/04	Not Sampled - Well Reduction Program					
	12/20/04	Not Sampled - Well Reduction Program					
	03/08/05	160	4.7	<2.5	4.3	<5.0	220
MW-18	01/28/02 NP	<500	<40	<40	<40	<120	5,600
	04/17/02 NP	<500	<25	<25	<25	<75	6,500
	07/09/02 NP	<500	<25	<25	<25	<75	7,800
	10/21/02 NP	<500	<50	<50	<50	<150	9,100
	02/21/03 NP	<500	<20	<20	<20	<60	6,000
	05/08/03 NP	<500	<0.500	<0.500	<0.500	<1.50	3,840
	07/25/03 NP	<500	<200	<200	<200	<600	73,000
	11/21/03 NP	<500	<20	<20	<20	<60	2,800
	11/21/03	<500	<25	<25	<25	<75	6,100
	02/25/04	<500	<50	<50	<50	<150	9,100
	06/21/04	<500	<50	<50	<50	<150	8,200
	09/13/04	<500	<50	<50	<50	<150	6,100
	12/20/04	1,300	<50	<50	<50	<50	2,900
	03/07/05	<100	<1.2	<1.2	<1.2	<2.5	200
MW-19A*	01/28/02 NP	<500	<0.50	<0.50	<0.50	<1.5	4.3
	04/17/02 NP	<500	<0.50	<0.50	<0.50	<1.5	1.4
	07/09/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	10/21/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	02/21/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	05/08/03 NP	<500	<0.500	<0.500	<0.500	<1.50	<1.00
	07/25/03 NP	<500	<0.50	<0.50	<0.50	<1.5	1.0
	11/21/03 NP	<500	<0.50	<0.50	<0.50	<1.5	1.8
	11/21/03	<500	<0.50	<0.50	<0.50	<1.5	16
	02/25/04	<500	<0.50	<0.50	<0.50	<1.5	10

TABLE 2

SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS, 2002 TO PRESENT
ARCO Facility #1919

All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	GRO	B	T	E	X	MTBE
MW-19A* cont'd	06/21/04	<500	<0.50	<0.50	<0.50	<1.5	14
	09/13/04	<500	<0.50	<0.50	<0.50	<1.5	6.3
	12/20/04	<100	<1.0	<1.0	<1.0	<1.0	3.2
	03/07/05	<100	<0.50	<0.50	<0.50	<1.0	8.6
MW-19B*	01/28/02 NP	3,800	280	40	470	150	<4.0
	04/17/02 NP	4,000	250	23	530	300	<5.0
	07/09/02 NP	6,800	380	18	630	330	<5.0
	10/21/02 NP	3,900	450	<5.0	1,100	19	<10
	02/21/03 NP	1,400	77	<5.0	410	<15	<10
	05/08/03 NP	7,100	302	9.67	1,690	91.1	<1.00
	07/25/03 NP	3,200	180	<5.0	950	<15	12
	11/21/03 NP	4,600	150	<5.0	1,000	22	63
	11/21/03	6,800	190	160	1,400	550	290
	02/25/04	7,600	170	340	1,800	1,100	180
	06/21/04	7,100	75	110	1,100	440	29
	09/13/04	8,300	68	180	1,200	810	<20
	12/20/04	2,100	20	35	280	140	<5.0
	03/08/05	8,900	81	840	1,800	2,200	<25
MW-20	01/28/02 NP	550	20	1.1	56	7.2	<1.0
	04/17/02 NP	4,200	28	26	610	130	<1.0
	07/09/02	Not Sampled - Well Reduction Program					
	10/21/02 NP	510	4.8	<0.5	14	<1.5	<1.0
	02/21/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	05/08/03	Not Sampled - Well Reduction Program					
	07/25/03 NP	<500	1.3	<0.50	1.1	<1.5	<1.0
	11/21/03 NP	<500	2.8	<0.50	5.2	<1.5	<1.0
	11/21/03	<500	1.2	<0.50	0.83	<1.5	<1.0
	02/25/04	<500	<0.50	<0.50	1.2	<1.5	<1.0
	06/21/04	Not Sampled - Well Reduction Program					
	09/13/04	Not Sampled - Well Reduction Program					
	12/20/04	Not Sampled - Well Reduction Program					
	03/08/05	<100	<0.50	<0.50	13.0	5.4	<1.0
MW-21	01/28/02 NP	2,200	19	18	510	38	<10
	04/17/02 NP	6,300	69	100	1,300	460	<5.0
	07/09/02	Not Sampled - Well Reduction Program					
	10/21/02 NP	3,700	50	7.8	1,200	<15	<10
	02/21/03 NP	<500	20	<2.5	320	<7.5	<5.0
	05/08/03	Not Sampled - Well Reduction Program					
	07/25/03 NP	1,700	40	<2.5	540	150	<5.0
	11/21/03 NP	1,600	110	<5.0	550	30	<10
	11/21/03	4,900	170	80	720	1,000	<10
	02/25/04	6,000	240	160	1,000	1,800	<10
	06/21/04	Not Sampled - Well Reduction Program					
	09/13/04	Not Sampled - Well Reduction Program					
	12/20/04	Not Sampled - Well Reduction Program					
	03/08/05	9,700	490	490	1,700	4,500	84
MW-22	01/28/02 NP	<500	<0.50	<0.50	<0.50	<1.5	44

TABLE 2

SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS, 2002 TO PRESENT
ARCO Facility #1919

All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	GRO	B	T	E	X	MTBE
MW-22 cont'd	04/17/02 NP	<500	<0.50	<0.50	<0.50	<1.5	21
	07/09/02 NP	<500	<0.50	<0.50	<0.50	<1.5	13
	10/21/02 NP	<500	<0.50	<0.50	<0.50	<1.50	17
	02/21/03 NP	<500	<0.50	<0.50	<0.50	<1.5	27
	05/08/03 NP	<500	<0.500	<0.500	<0.500	<1.50	7.9
	07/25/03 NP	<500	<0.50	<0.50	<0.50	<1.5	7.7
	11/21/03 NP	<500	<0.50	<0.50	<0.50	<1.5	8.9
	11/21/03	<500	<0.50	<0.50	<0.50	<1.5	33
	02/25/04	<500	<0.50	<0.50	<0.50	<1.5	29
	06/21/04	<500	<0.50	<0.50	<0.50	<1.5	47
	09/13/04	<500	<0.50	<0.50	<0.50	<1.5	72
	12/20/04	<100	<1.0	<1.0	<1.0	<1.0	38
	03/07/05	<100	<0.50	1.1	<0.5	<1.0	8.8
MW-23	01/28/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	04/17/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	07/09/02	Not Sampled - Well Reduction Program					
	10/21/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	02/21/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	05/08/03	Not Sampled - Well Reduction Program					
	07/25/03	Not Sampled - Well Reduction Program					
	11/21/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	11/21/03	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	02/25/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	06/21/04	Not Sampled - Well Reduction Program					
	09/13/04	Not Sampled - Well Reduction Program					
	12/20/04	Not Sampled - Well Reduction Program					
	03/07/05	<100	<0.50	<25	<0.50	<1.0	<1.0
MW-24	11/21/03 NP	<500	<5.0	<5.0	<5.0	<15	790
	11/21/03	<500	<2.5	<2.5	<2.5	<7.5	480
	02/25/04	<500	<2.5	<2.5	<2.5	<7.5	430
	06/21/04	<500	<2.5	<2.5	<2.5	<7.5	340
	09/13/04	<500	<2.5	<2.5	<2.5	<7.5	450
	12/20/04	<100	<2.5	<2.5	<2.5	<2.5	130
	03/08/05	<100	<0.50	<0.50	<0.50	<1.0	69
MW-25	11/21/03 NP	<500	<10	<10	<10	<30	2,400
	11/21/03	<500	<10	<10	<10	<30	2,000
	02/25/04	<500	<10	<10	<10	<30	2,200
	06/21/04	Not Sampled - Inaccessible					
	09/13/04	<500	<1.0	<1.0	<1.0	<3.0	140
	12/20/04	<100	<1.0	<1.0	<1.0	<1.0	82
	03/08/05	<100	<0.50	<0.50	<0.50	<1.0	72
MW-26	11/21/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	11/21/03	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	02/25/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	06/21/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0

TABLE 2

SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS, 2002 TO PRESENT
ARCO Facility #1919

All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	GRO	B	T	E	X	MTBE
MW-26 cont'd	09/13/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	12/20/04	<100	<1.0	<1.0	<1.0	<1.0	<1.0
	03/07/05	<100	<0.50	<0.50	<0.50	<1.0	<1.0

Data in the table prior to 9/28/94 summarized from Alton Geoscience Reports.

Notes:

GRO = Gasoline-range organics (C_6-C_{12}) (DHS Modified EPA Method 8015)
B = Benzene
T = Toluene
E = Ethylbenzene
X = Total Xylenes
BTEX = Analyzed by EPA Method 8260B.
MTBE = Methyl-tert-butyl ether analyzed by EPA Method 8260.
< = Less than indicated laboratory reporting limit
-- = Sample not analyzed
NP = Sample collected by no-purge sampling procedures
* MW-19 was renamed MW-19A after the installation of another well designated MW-19 (now MW-19B).

TABLE 3

SUMMARY OF ADDITIONAL OXYGENATES ANALYTICAL RESULTS, 2002 TO PRESENT
ARCO Facility #1919
All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	TBA	DIPE	ETBE	TAME	ETHANOL
MW-1	Well Destroyed 10/93					
MW-2	Well Destroyed 10/93					
MW-3	Well Destroyed 10/93					
MW-4	Well Destroyed 10/93					
MW-5	Well Destroyed 10/93					
MW-6	01/28/02 NP	<25	<5.0	<5.0	17	--
	04/17/02 NP	<25	<5.0	<5.0	24	--
	07/09/02	Not Sampled - Well Reduction Program				
	10/21/02 NP	<500	<50	<50	<50	--
	02/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	05/08/03	Not Sampled - Well Reduction Program				
	07/25/03 NP	<50	<5.0	<5.0	16	<150
	11/21/03 NP	<50	<5.0	<5.0	11	<150
	11/21/03	66	<5.0	<5.0	8.1	<150
	02/25/04	<50	<5.0	<5.0	<5.0	<150
	06/21/04	Not Sampled - Well Reduction Program				
	09/13/04	Not Sampled - Well Reduction Program				
	12/20/04	Not Sampled - Well Reduction Program				
	03/08/05	<25	<2.0	<2.0	<2.0	<500
MW-7	Well Destroyed 10/93					
MW-8	Well Destroyed 10/93					
MW-10	01/28/02 NP	<25	<5.0	<5.0	<5.0	--
	04/17/02 NP	<25	<5.0	<5.0	<5.0	--
	07/09/02	Not Sampled - Well Reduction Program				
	10/21/02 NP	<50	<5.0	<5.0	<5.0	--
	02/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	05/08/03	Not Sampled - Well Reduction Program				
	07/25/03 NP	<50	<5.0	<5.0	<5.0	<150
	11/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	11/21/03	<50	<5.0	<5.0	<5.0	<150
	02/25/04	<50	<5.0	<5.0	<5.0	<150
	06/21/04	Not Sampled - Well Reduction Program				
	09/13/04	Not Sampled - Well Reduction Program				
	12/20/04	Not Sampled - Well Reduction Program				
	03/08/05	<25	<2.0	<2.0	<2.0	<500
MW-11	01/28/02 NP	<25	<5.0	<5.0	<5.0	--
	07/09/02	Not Sampled - Well Reduction Program				
	10/21/02 NP	<50	<5.0	<5.0	<5.0	--
	02/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	05/08/03	Not Sampled - Well Reduction Program				
	07/25/03	<50	<0.50	<0.50	<0.50	<150
	11/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	11/21/03	<50	<5.0	<5.0	<5.0	<150
	02/25/04	<50	<5.0	<5.0	<5.0	<150
	06/21/04	Not Sampled - Well Reduction Program				
	09/13/04	Not Sampled - Well Reduction Program				

TABLE 3

SUMMARY OF ADDITIONAL OXYGENATES ANALYTICAL RESULTS, 2002 TO PRESENT
ARCO Facility #1919
All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	TBA	DIPE	ETBE	TAME	ETHANOL
MW-11	12/20/04	Not Sampled - Well Reduction Program				
cont'd	03/08/05	<25	<2.0	<2.0	<2.0	<500
MW-12	Well Destroyed 10/93					
MW-13	01/28/02 NP	<25	<5.0	<5.0	<5.0	--
	04/17/02 NP	<25	<5.0	<5.0	<5.0	--
	07/09/02	Not Sampled - Well Reduction Program				
	10/21/02 NP	<50	<5.0	<5.0	<5.0	--
	02/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	05/08/03	Not Sampled - Well Reduction Program				
	07/25/03	Not Sampled - Well Reduction Program				
	11/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	11/21/03	<50	<5.0	<5.0	<5.0	<150
	02/25/04	<50	<5.0	<5.0	<5.0	<150
	06/21/04	Not Sampled - Well Reduction Program				
	09/13/04	Not Sampled - Well Reduction Program				
	12/20/04	Not Sampled - Well Reduction Program				
	03/08/05	<25	<2.0	<2.0	<2.0	<500
MW-14	01/28/02 NP	<25	<5.0	<5.0	<5.0	--
	04/17/02 NP	<25	<5.0	<5.0	<5.0	--
	07/09/02	Not Sampled - Well Reduction Program				
	10/21/02	Not Sampled				
	02/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	05/08/03	Not Sampled - Well Reduction Program				
	07/25/03	Not Sampled - Well Reduction Program				
	11/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	11/21/03	<50	<5.0	<5.0	<5.0	<150
	02/25/04	<50	<5.0	<5.0	<5.0	<150
	06/21/04	Not Sampled - Well Reduction Program				
	09/13/04	Not Sampled - Well Reduction Program				
	12/20/04	Not Sampled - Well Reduction Program				
	03/07/05	<25	<2.0	<2.0	<2.0	<500
MW-15	01/28/02 NP	3,600	<620	<620	<620	--
	04/17/02 NP	<5,000	<1,000	<1,000	<1,000	--
	07/09/02	Not Sampled - Well Reduction Program				
	10/21/02	Not Sampled - Well Reduction Program				
	02/21/03	Not Sampled - Not Accessible				
	05/08/03	Not Sampled - Well Reduction Program				
	07/25/03	Not Sampled - Well Reduction Program				
	11/21/03	Not Sampled - LPH Sheen				
	02/25/04	51,000	<2,000	<2,000	<2,000	<60,000
	06/21/04	Not Sampled - Well Reduction Program				
	09/13/04	Not Sampled - Well Reduction Program				
	12/20/04	Not Sampled - Well Reduction Program				
	03/08/05	Not Analyzed - Suspect Sample				

TABLE 3

SUMMARY OF ADDITIONAL OXYGENATES ANALYTICAL RESULTS, 2002 TO PRESENT
ARCO Facility #1919

All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	TBA	DIPE	ETBE	TAME	ETHANOL
MW-16	01/28/02 NP	<2,000	<400	<400	<400	--
	04/17/02 NP	<2,500	<500	<500	<500	--
	07/09/02	Not Sampled - Well Reduction Program				
	10/21/02 NP	<5,000	<500	<500	<500	--
	02/21/03 NP	<5,000	<500	<500	<500	<15,000
	05/08/03	Not Sampled - Well Reduction Program				
	07/25/03	Not Sampled - Well Reduction Program				
	11/21/03 NP	<2,500	<250	<250	<250	<7,500
	11/21/03	<5,000	<500	<500	<500	<15,000
	02/25/04	<5,000	<500	<500	<500	<15,000
	06/21/04	Not Sampled - Well Reduction Program				
	09/13/04	Not Sampled - Well Reduction Program				
	12/20/04	Not Sampled - Well Reduction Program				
	03/08/05	Not Analyzed - Suspect Sample				
MW-17	01/28/02 NP	<2,000	<400	<400	<400	--
	04/17/02 NP	<1,200	<250	<250	<250	--
	07/09/02	Not Sampled - Well Reduction Program				
	10/21/02 NP	<500	<50	<50	<50	--
	02/21/03 NP	<500	<50	<50	<50	<1,500
	05/08/03	Not Sampled - Well Reduction Program				
	07/25/03 NP	<500	<50	<50	<50	<1,500
	11/21/03 NP	<2,000	<200	<200	<200	<6,000
	11/21/03	<500	<50	<50	<50	<1,500
	02/25/04	<500	<50	<50	<50	<1,500
	06/21/04	Not Sampled - Well Reduction Program				
	09/13/04	Not Sampled - Well Reduction Program				
	12/20/04	Not Sampled - Well Reduction Program				
	03/08/05	250	<10	<10	<10	<2500
MW-18	01/28/02 NP	<2,000	<400	<400	<400	--
	04/17/02 NP	<1,200	<250	<250	<250	--
	07/09/02 NP	1,700	<250	<250	<250	--
	10/21/02 NP	<5,000	<500	<500	<500	--
	02/21/03 NP	<2,000	<200	<200	<200	<6,000
	05/08/03 NP	78.7	<1.00	<1.00	15.6	<50.0
	07/25/03 NP	<20,000	<2,000	<2,000	<2,000	<60,000
	11/21/03 NP	<2,000	<200	<200	<200	<6,000
	11/21/03	<2,500	<250	<250	<250	<7,500
	02/25/04	<5,000	<500	<500	<500	<15,000
	06/21/04	<5,000	<500	<500	<500	<15,000
	09/13/04	<5,000	<500	<500	<500	<15,000
	12/20/04	2,300	<100	<100	<100	<25,000
	03/07/05	1,800	<5.0	<5.0	<5.0	<1200
MW-19A*	01/28/02 NP	<25	<5.0	<5.0	<5.0	--
	04/17/02 NP	<25	<5.0	<5.0	<5.0	--
	07/09/02 NP	<25	<5.0	<5.0	<5.0	--

TABLE 3

SUMMARY OF ADDITIONAL OXYGENATES ANALYTICAL RESULTS, 2002 TO PRESENT
ARCO Facility #1919
All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	TBA	DIPE	ETBE	TAME	ETHANOL
MW-19A* cont'd	10/21/02 NP	<50	<5.0	<5.0	<5.0	--
	02/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	05/08/03 NP	<25.0	<1.00	<1.00	<1.00	<50.0
	07/25/03 NP	<50	<5.0	<5.0	<5.0	<150
	11/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	11/21/03	<50	<5.0	<5.0	<5.0	<150
	02/25/04	<50	<5.0	<5.0	<5.0	<150
	06/21/04	<50	<5.0	<5.0	<5.0	<150
	09/13/04	<50	<5.0	<5.0	<5.0	<150
	12/20/04	<25	<2.0	<2.0	<2.0	<500
	03/07/05	<25	<2.0	<2.0	<2.0	<500
MW-19B*	01/28/02 NP	<100	<20	<20	<20	--
	04/17/02 NP	<120	<25	<25	<25	--
	07/09/02 NP	<120	<25	<25	<25	--
	10/21/02 NP	<500	<50	<50	<50	--
	02/21/03 NP	<500	<50	<50	<50	<1,500
	05/08/03 NP	<25.0	<1.00	<1.00	<1.00	<50.0
	07/25/03 NP	<500	<50	<50	<50	<1,500
	11/21/03 NP	<500	<50	<50	<50	<1,500
	11/21/03	<1,000	<100	<100	<100	<3,000
	02/25/04	<1,000	<100	<100	<100	<3,000
	06/21/04	<1,000	<100	<100	<100	<3,000
	09/13/04	<1,000	<100	<100	<100	<3,000
	12/20/04	<120	<10	<10	<10	<2,500
	03/08/05	<620	<50	<50	<50	<12000
MW-20	01/28/02 NP	<25	<5.0	<5.0	<5.0	--
	04/17/02 NP	<25	<5.0	<5.0	<5.0	--
	07/09/02	Not Sampled - Well Reduction Program				
	10/21/02 NP	<50	<5.0	<5.0	<5.0	--
	02/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	05/08/03	Not Sampled - Well Reduction Program				
	07/25/03 NP	<50	<5.0	<5.0	<5.0	<150
	11/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	11/21/03	<50	<5.0	<5.0	<5.0	<150
	02/25/04	<50	<5.0	<5.0	<5.0	<150
	06/21/04	Not Sampled - Well Reduction Program				
	09/13/04	Not Sampled - Well Reduction Program				
	12/20/04	Not Sampled - Well Reduction Program				
	03/08/05	<25	<2.0	<2.0	<2.0	<500
MW-21	01/28/02 NP	<250	<50	<50	<50	--
	04/17/02 NP	<120	<25	<25	<25	--
	07/09/02	Not Sampled - Well Reduction Program				
	10/21/02 NP	<500	<50	<50	<50	--
	02/21/03 NP	<250	<25	<25	<25	<750
	05/08/03	Not Sampled - Well Reduction Program				

TABLE 3

SUMMARY OF ADDITIONAL OXYGENATES ANALYTICAL RESULTS, 2002 TO PRESENT
ARCO Facility #1919
All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	TBA	DIPE	ETBE	TAME	ETHANOL
MW-21 cont'd	07/25/03 NP	<250	<25	<25	<25	<750
	11/21/03 NP	<500	<50	<50	<50	<1,500
	11/21/03	<500	<50	<50	<50	<1,500
	02/25/04	<500	<50	<50	<50	<1,500
	06/21/04	Not Sampled - Well Reduction Program				
	09/13/04	Not Sampled - Well Reduction Program				
	12/20/04	Not Sampled - Well Reduction Program				
	03/08/05	<620	<50	<50	<50	<12000
MW-22	01/28/02 NP	<25	<5.0	<5.0	<5.0	--
	04/17/02 NP	<25	<5.0	<5.0	<5.0	--
	07/09/02 NP	<25	<5.0	<5.0	<5.0	--
	10/21/02 NP	<50	<5.0	<5.0	<5.0	--
	02/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	05/08/03 NP	<25.0	<1.00	<1.00	<1.00	<50.0
	07/25/03 NP	<50	<5.0	<5.0	<5.0	<150
	11/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	11/21/03	170	<5.0	<5.0	<5.0	<150
	02/25/04	160	<5.0	<5.0	<5.0	<150
	06/21/04	91	<5.0	<5.0	<5.0	<150
	09/13/04	110	<5.0	<5.0	<5.0	<150
	12/20/04	150	<2.0	<2.0	<2.0	<500
	03/07/05	200	<2.0	<2.0	<2.0	<500
MW-23	01/28/02 NP	<25	<5.0	<5.0	<5.0	--
	04/17/02 NP	<25	<5.0	<5.0	<5.0	--
	07/09/02	Not Sampled - Well Reduction Program				
	10/21/02 NP	<50	<5.0	<5.0	<5.0	--
	02/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	05/08/03	Not Sampled - Well Reduction Program				
	07/25/03	Not Sampled - Well Reduction Program				
	11/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	11/21/03	<50	<5.0	<5.0	<5.0	<150
	02/25/04	<50	<5.0	<5.0	<5.0	<150
	06/21/04	Not Sampled - Well Reduction Program				
	09/13/04	Not Sampled - Well Reduction Program				
	12/20/04	Not Sampled - Well Reduction Program				
	03/07/05	<25	<2.0	<2.0	<2.0	<500
MW-24	11/21/03 NP	<500	<50	<50	<50	<1,500
	11/21/03	<250	<25	<25	<25	<750
	02/25/04	<250	<25	<25	<25	<750
	06/21/04	<250	<25	<25	<25	<750
	09/13/04	<250	<25	<25	<25	<750
	12/20/04	<62	<5.0	<5.0	<5.0	<1,200
	03/08/05	<25	<2.0	<2.0	<2.0	<500

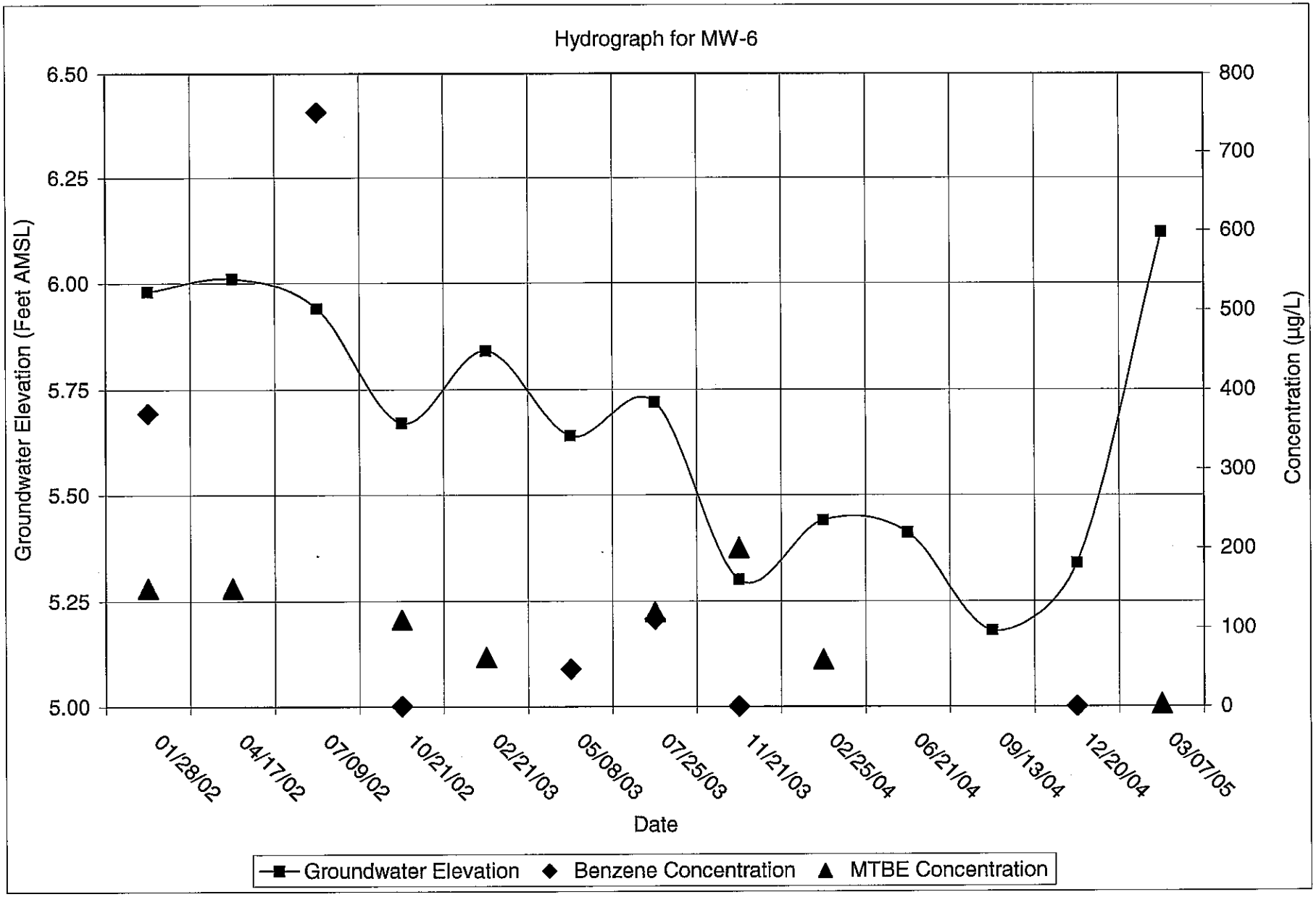
TABLE 3

SUMMARY OF ADDITIONAL OXYGENATES ANALYTICAL RESULTS, 2002 TO PRESENT
ARCO Facility #1919
All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	TBA	DIPE	ETBE	TAME	ETHANOL
MW-25	11/21/03 NP	<1,000	<100	<100	<100	<3,000
	11/21/03	<1,000	<100	<100	<100	<3,000
	02/25/04	<1,000	<100	<100	<100	<3,000
	06/21/04	Not Sampled - Inaccessible				
	09/13/04	310	<10	<10	<10	<300
	12/20/04	460	<2.0	<2.0	<2.0	<500
	03/08/05	330	<2.0	<2.0	<2.0	<500
MW-26	11/21/03 NP	<50	<5.0	<5.0	<5.0	<150
	11/21/03	<50	<5.0	<5.0	<5.0	<150
	02/25/04	<50	<5.0	<5.0	<5.0	<150
	06/21/04	<50	<5.0	<5.0	<5.0	<150
	09/13/04	<50	<5.0	<5.0	<5.0	<150
	12/20/04	<25	<2.0	<2.0	<2.0	<500
	03/07/05	<25	<2.0	<2.0	<2.0	<500

Notes:

TBA = Tert-butyl alcohol
DIPE = Di-isopropyl ether
ETBE = Ethyl tert-butyl ether
TAME = tert-Amyl methyl ether
Samples analyzed by EPA Method 8260B.
< = Less than indicated laboratory reporting limit
NP = Samples collected by no-purge procedures.
-- = Sample not analyzed.
* MW-19 was renamed MW-19A after the installation of another well designated MW-19 (now MW-19B).



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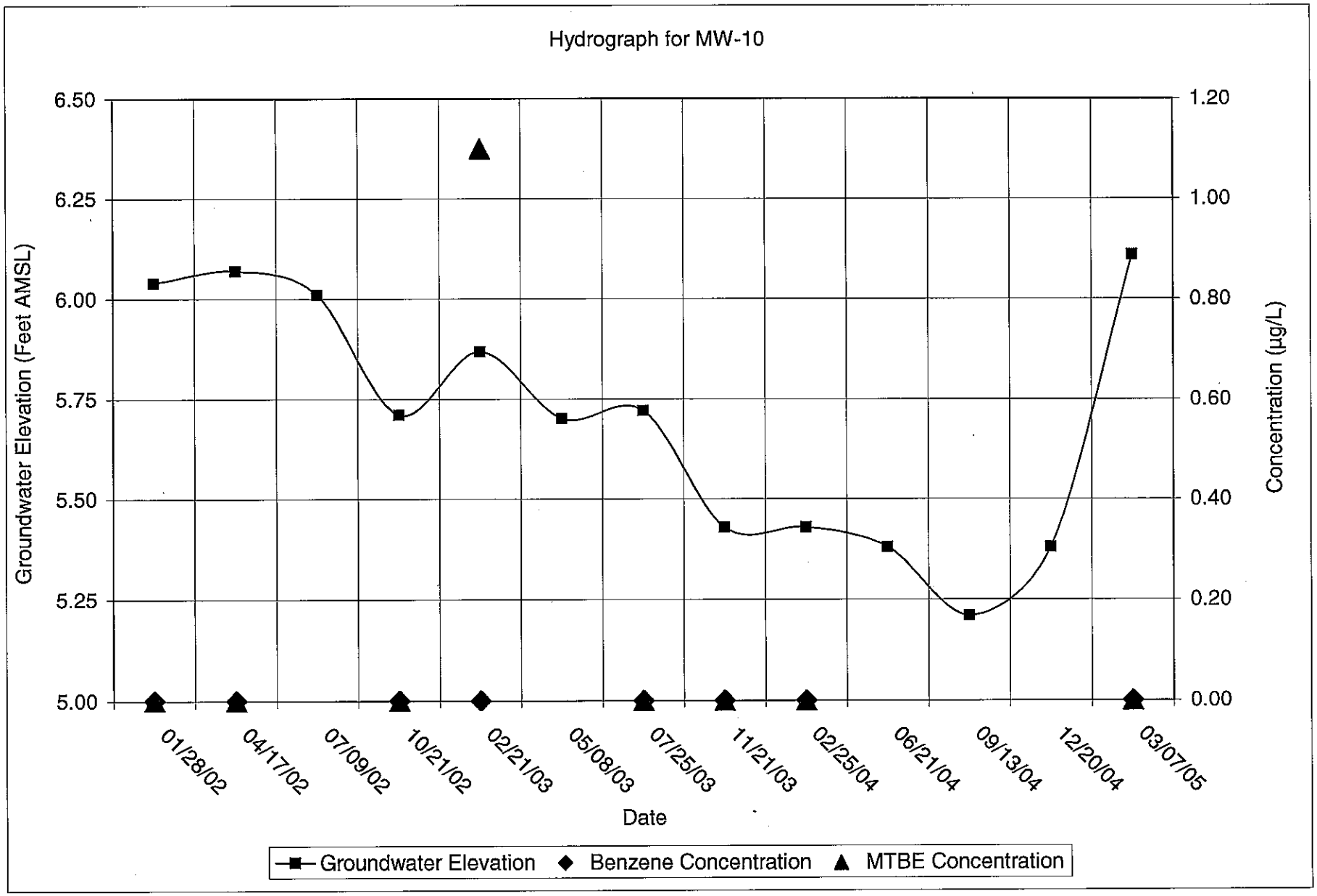

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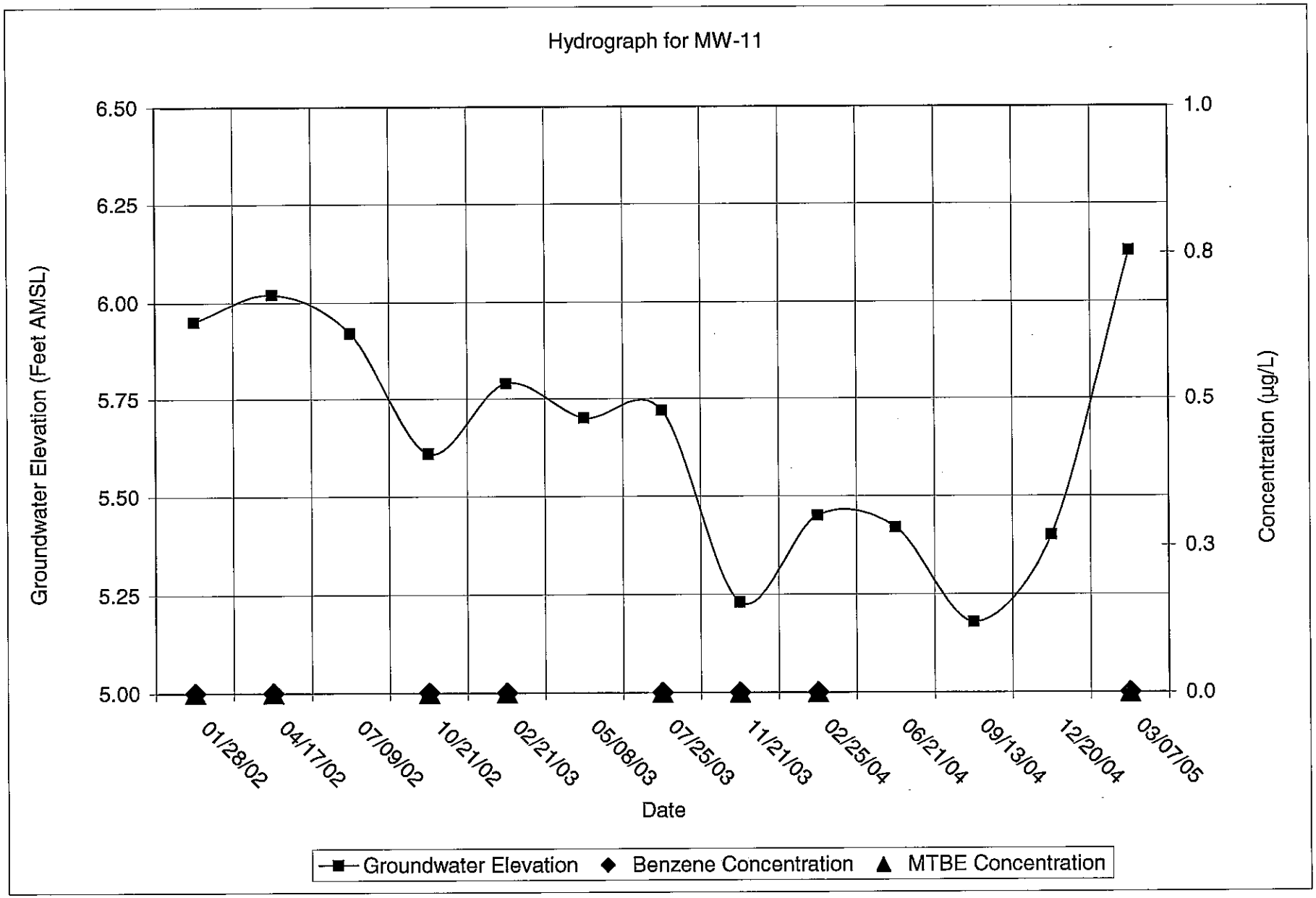

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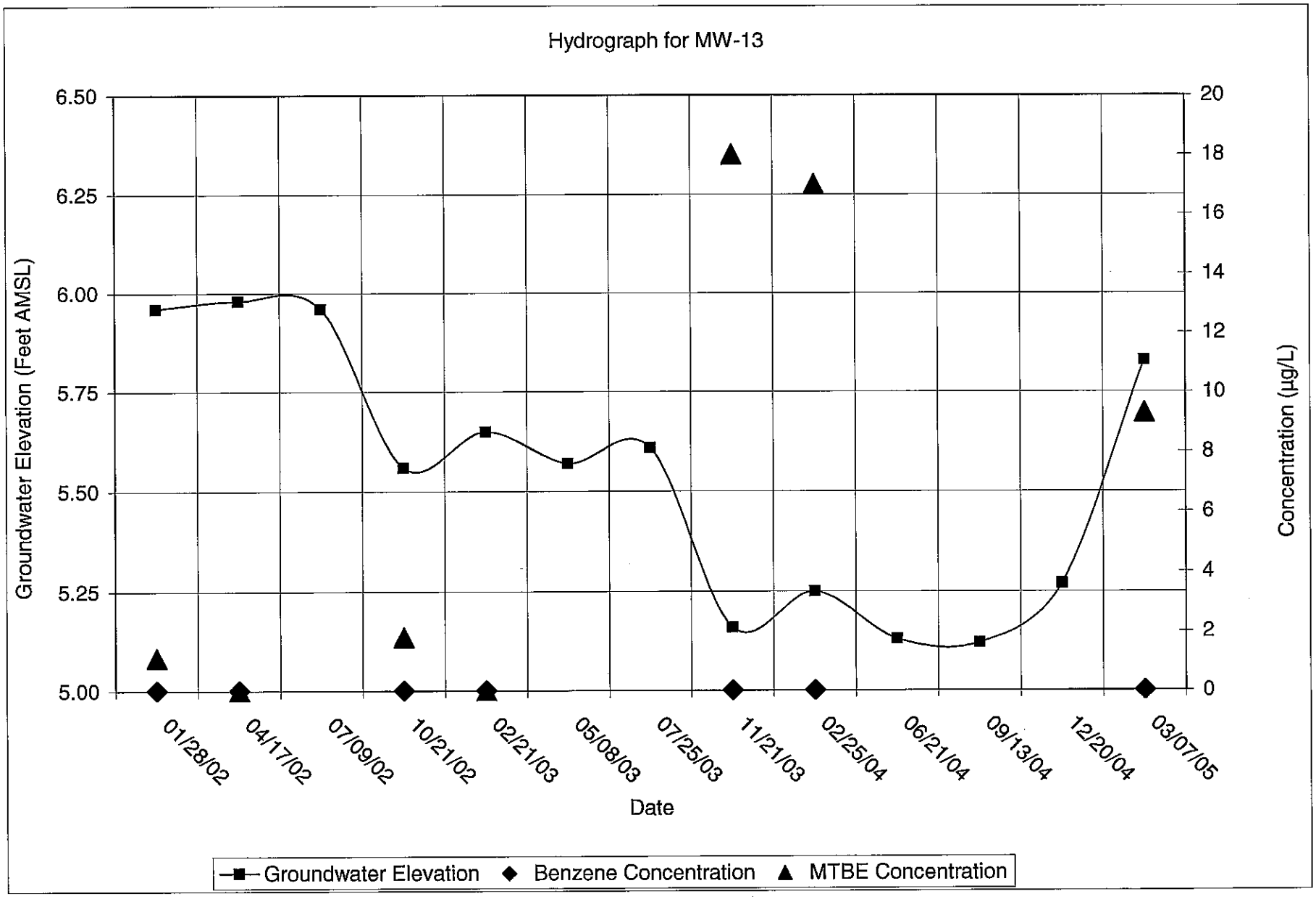

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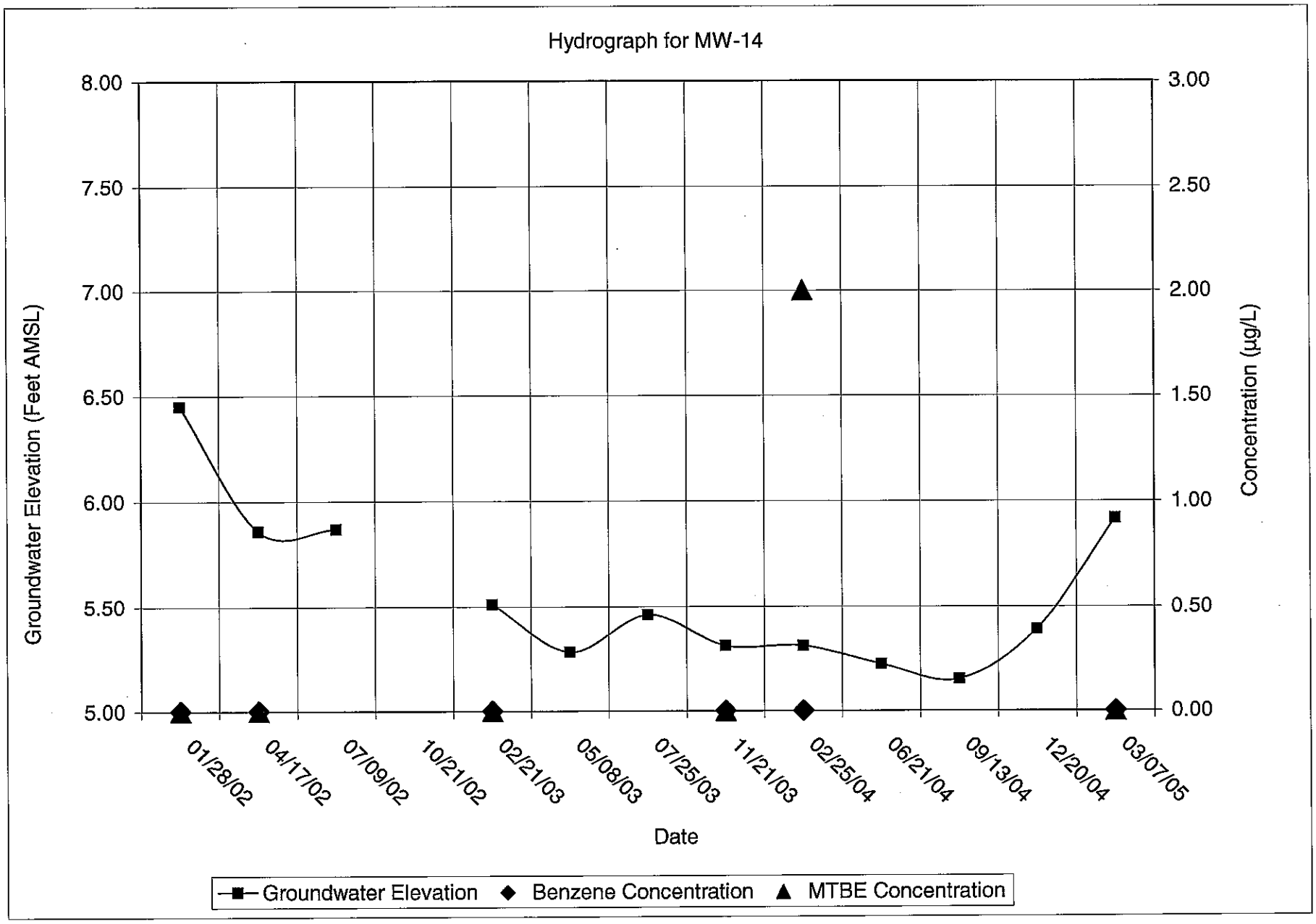

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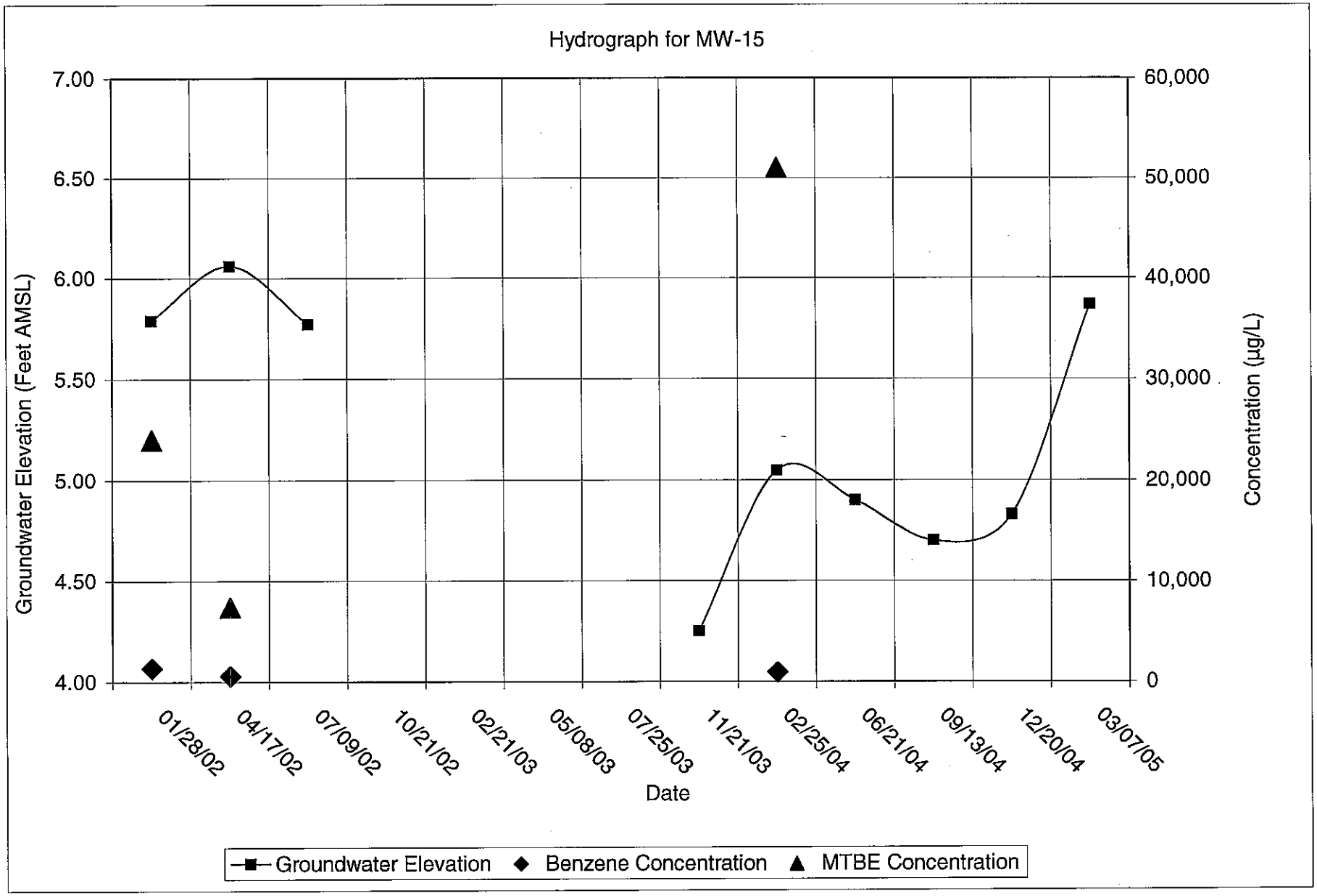

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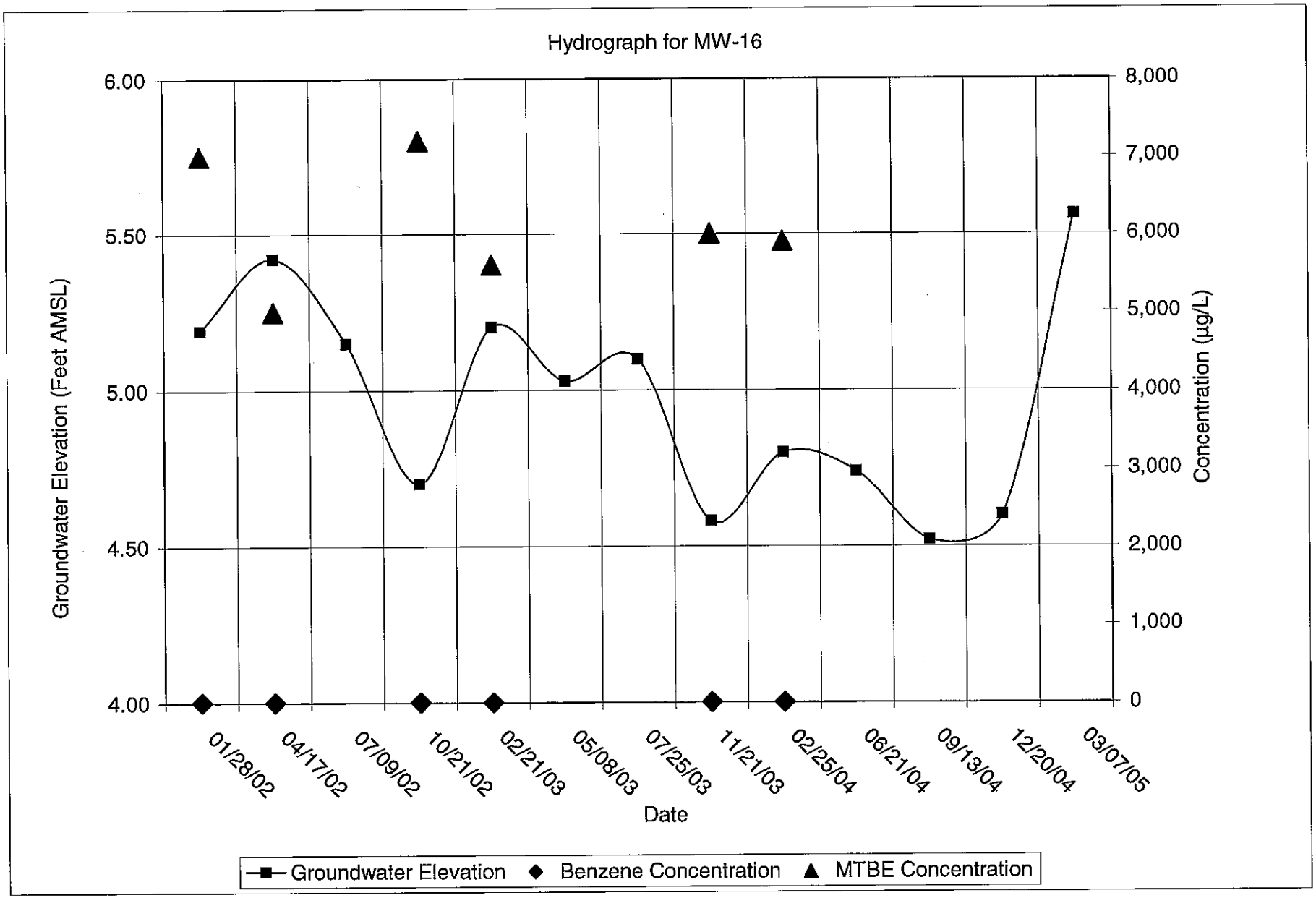

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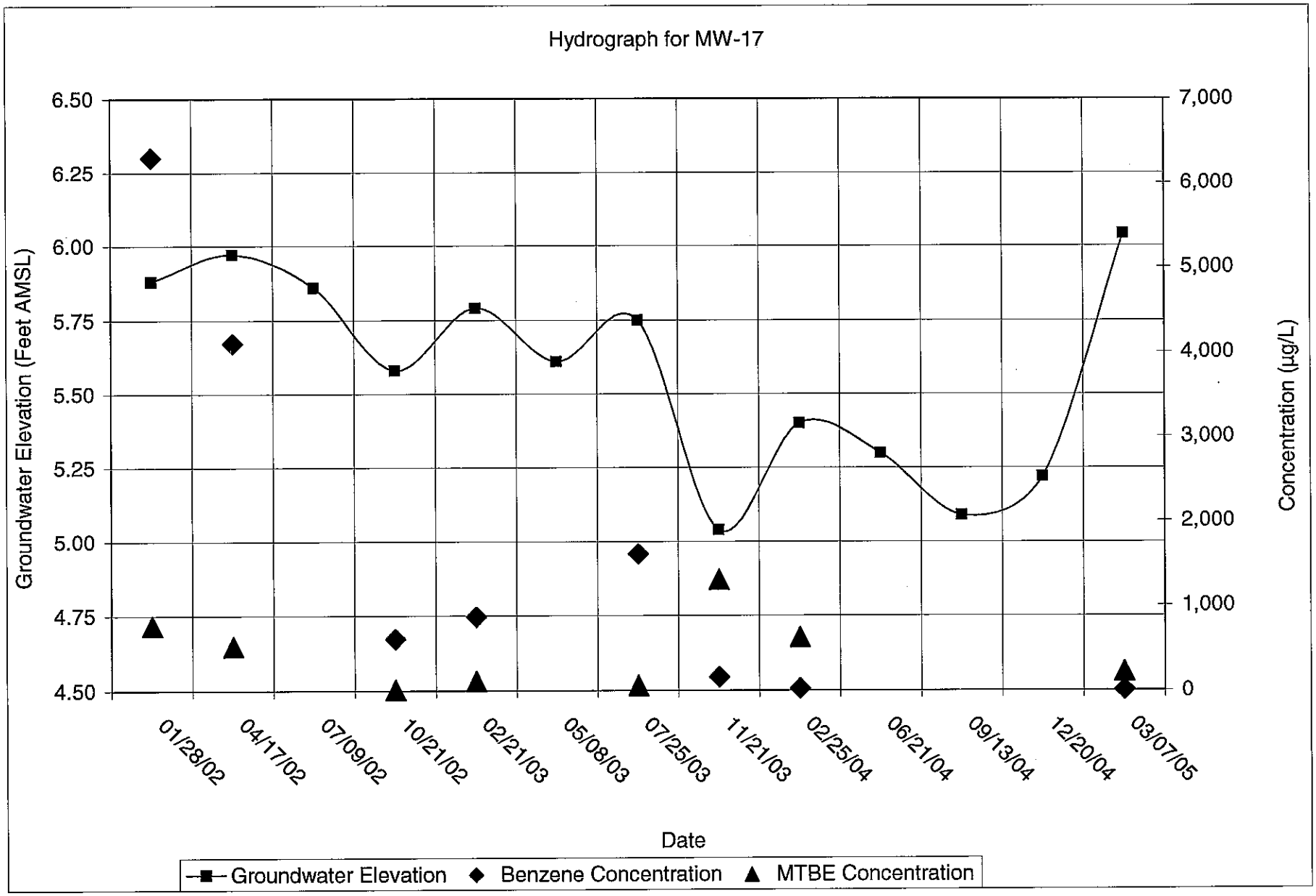
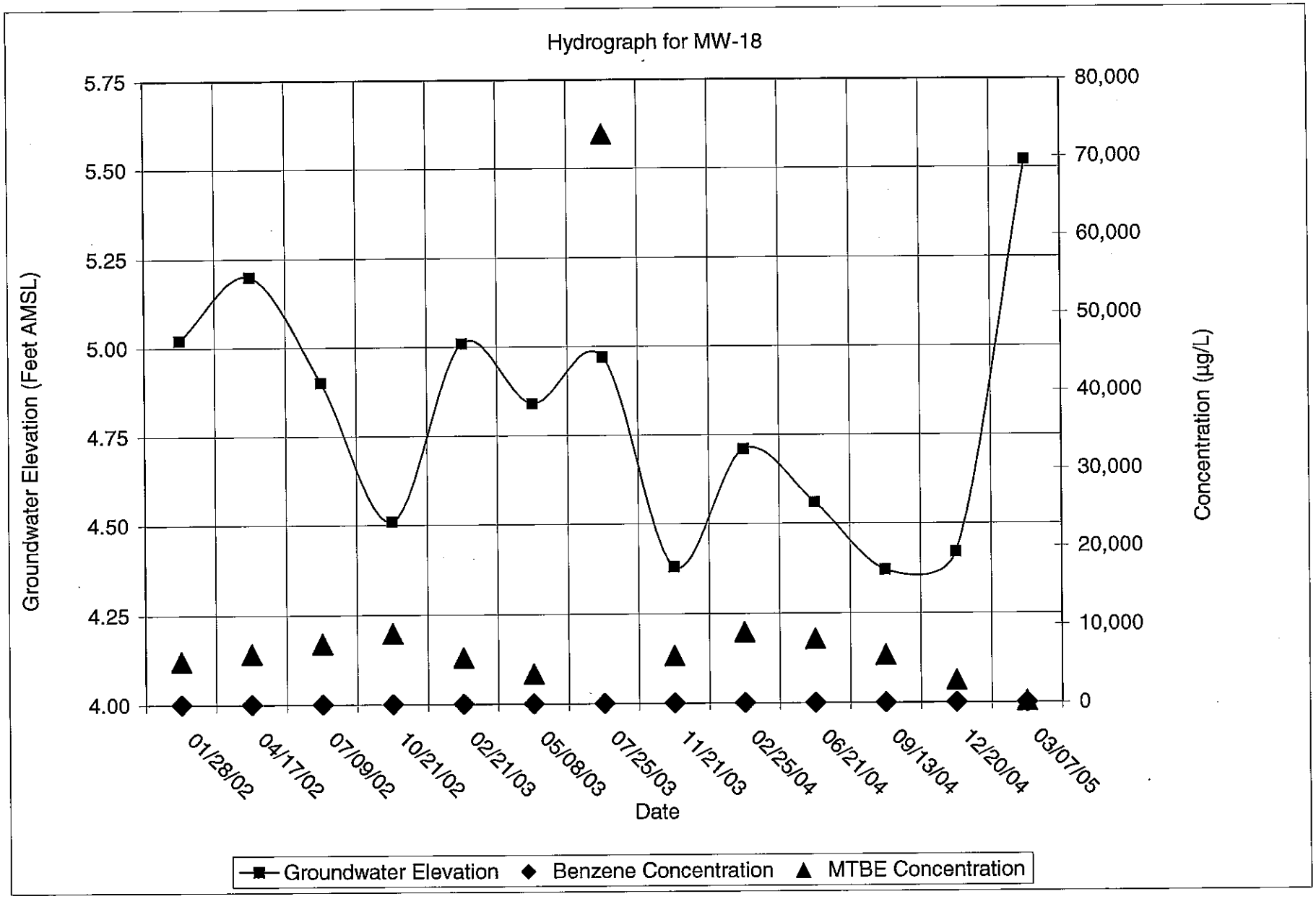
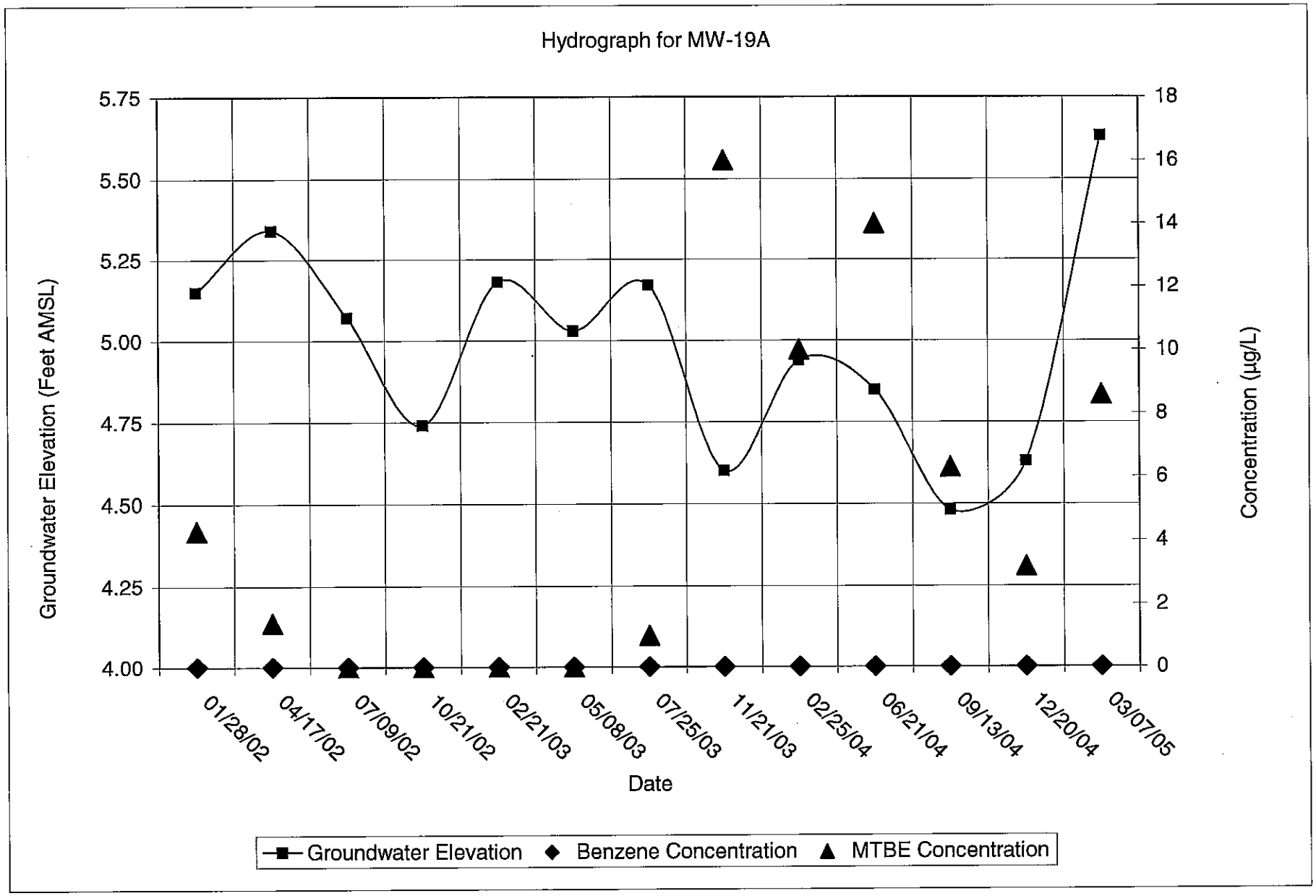

Hydrograph for MW-17
Groundwater Elevation (Feet AMSL)
6.50
6.25
6.00
5.75
5.50
5.25
5.00
4.75
4.50
Concentration (µg/L)
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
01/28/02
04/17/02
07/09/02
10/21/02
02/21/03
05/08/03
07/25/03
11/21/03
02/25/04
06/21/04
09/13/04
12/20/04
03/07/05
Date
Groundwater Elevation
Benzene Concentration
MTBE Concentration


Hydrograph for MW-18
Groundwater Elevation (Feet AMSL)
5.75
5.50
5.25
5.00
4.75
4.50
4.25
4.00
Concentration (µg/L)
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
01/28/02
04/17/02
07/09/02
10/21/02
02/21/03
05/08/03
07/25/03
11/21/03
02/25/04
06/21/04
09/13/04
12/20/04
03/07/05
Date
Groundwater Elevation
Benzene Concentration
MTBE Concentration



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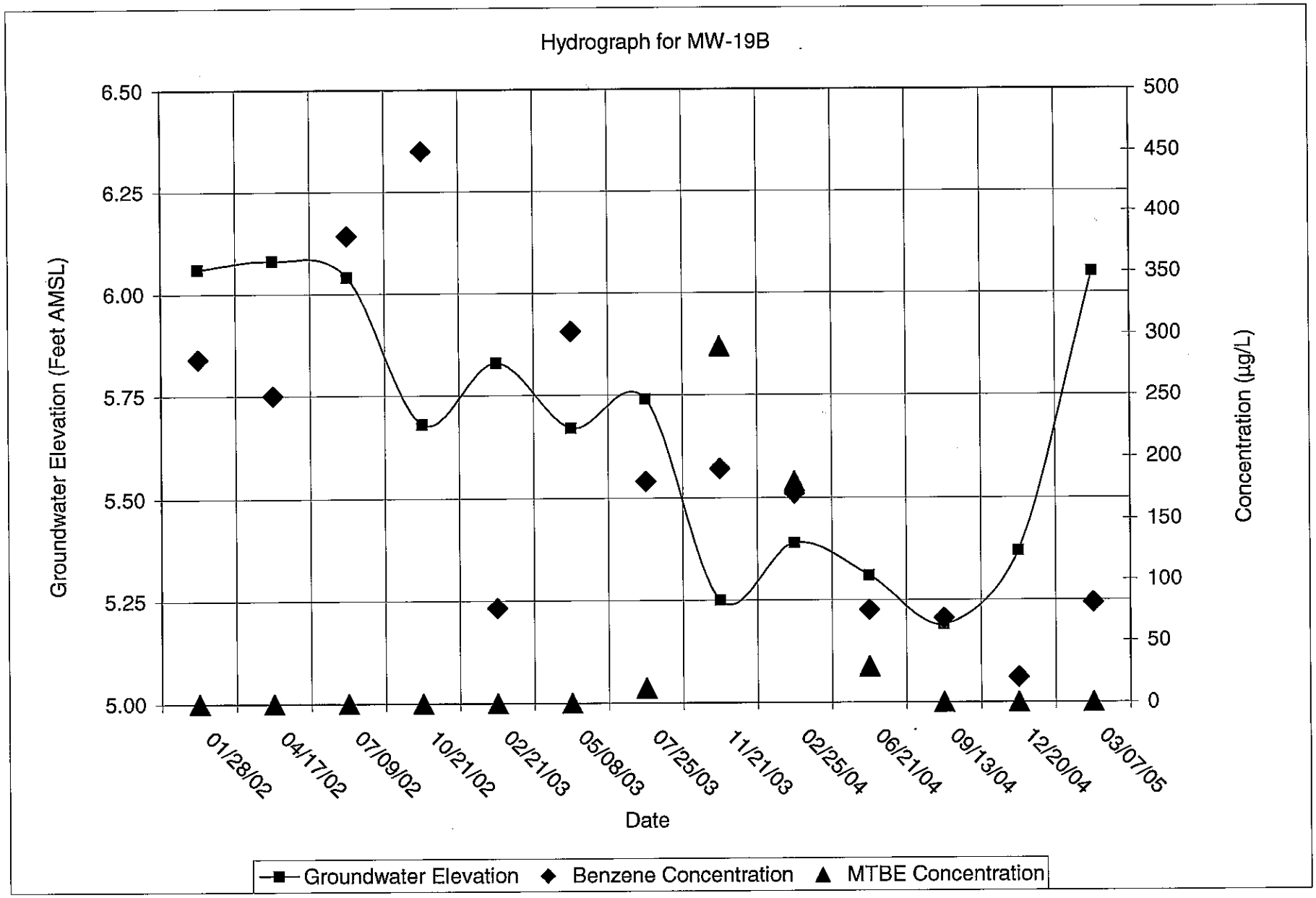

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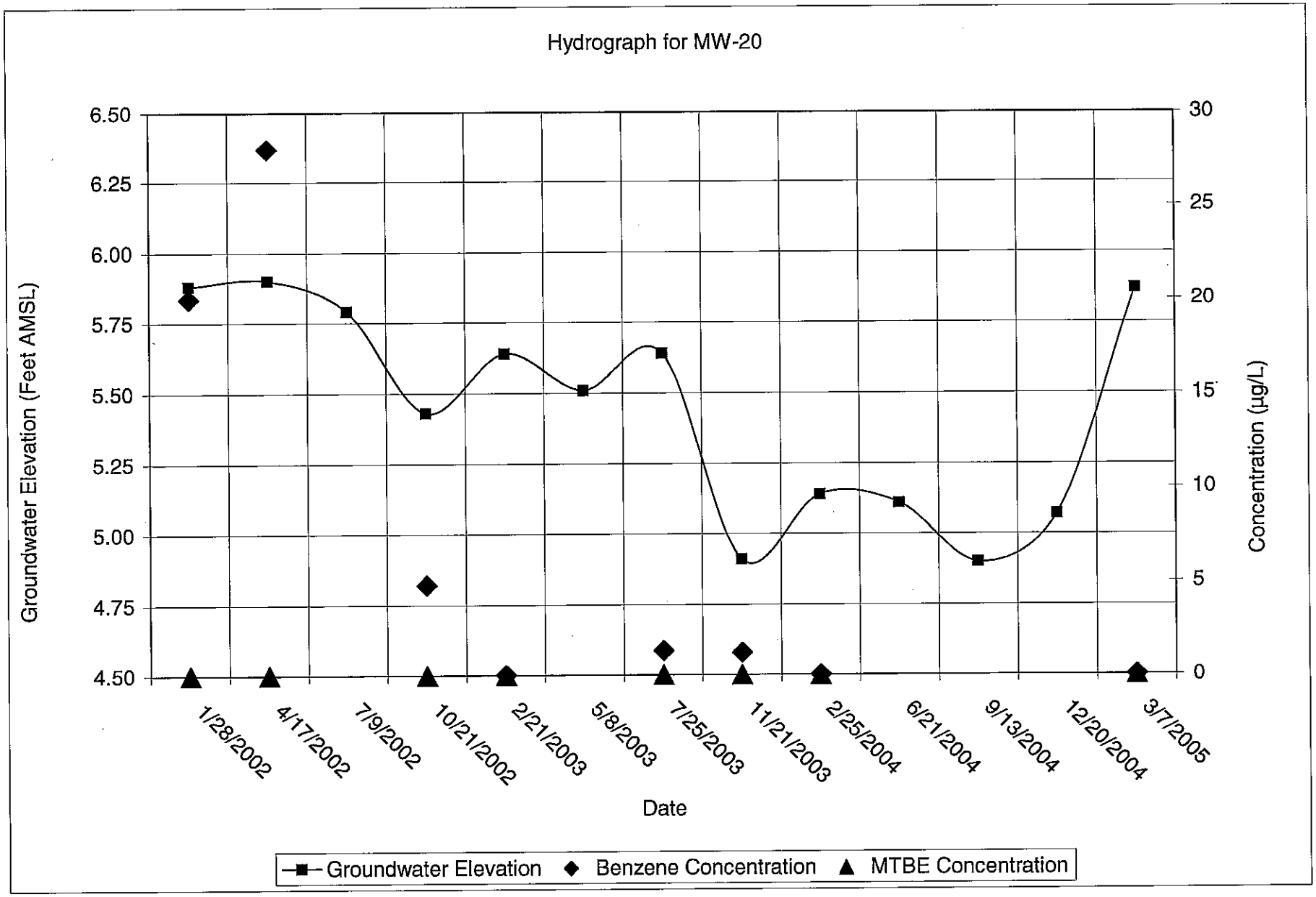

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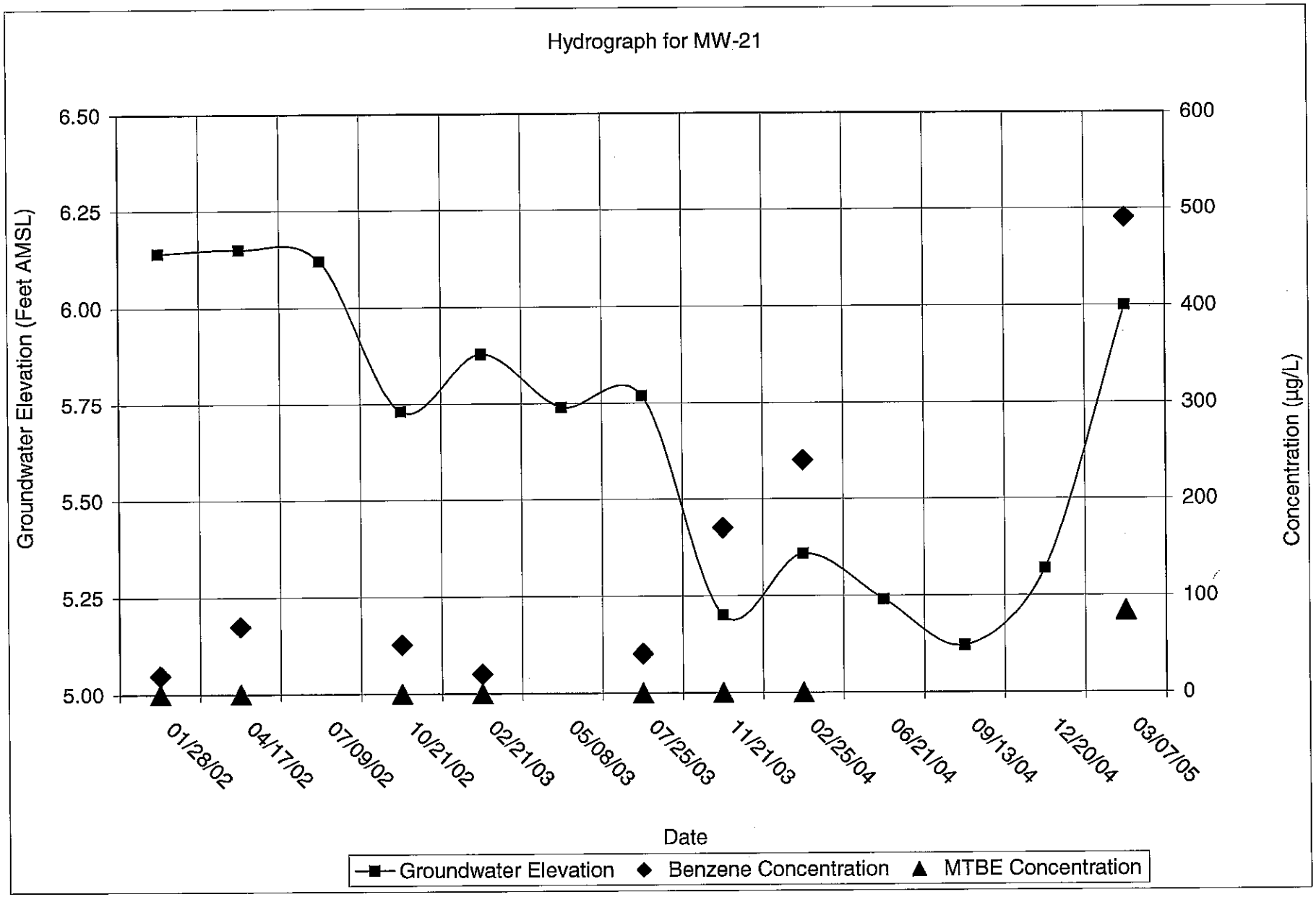

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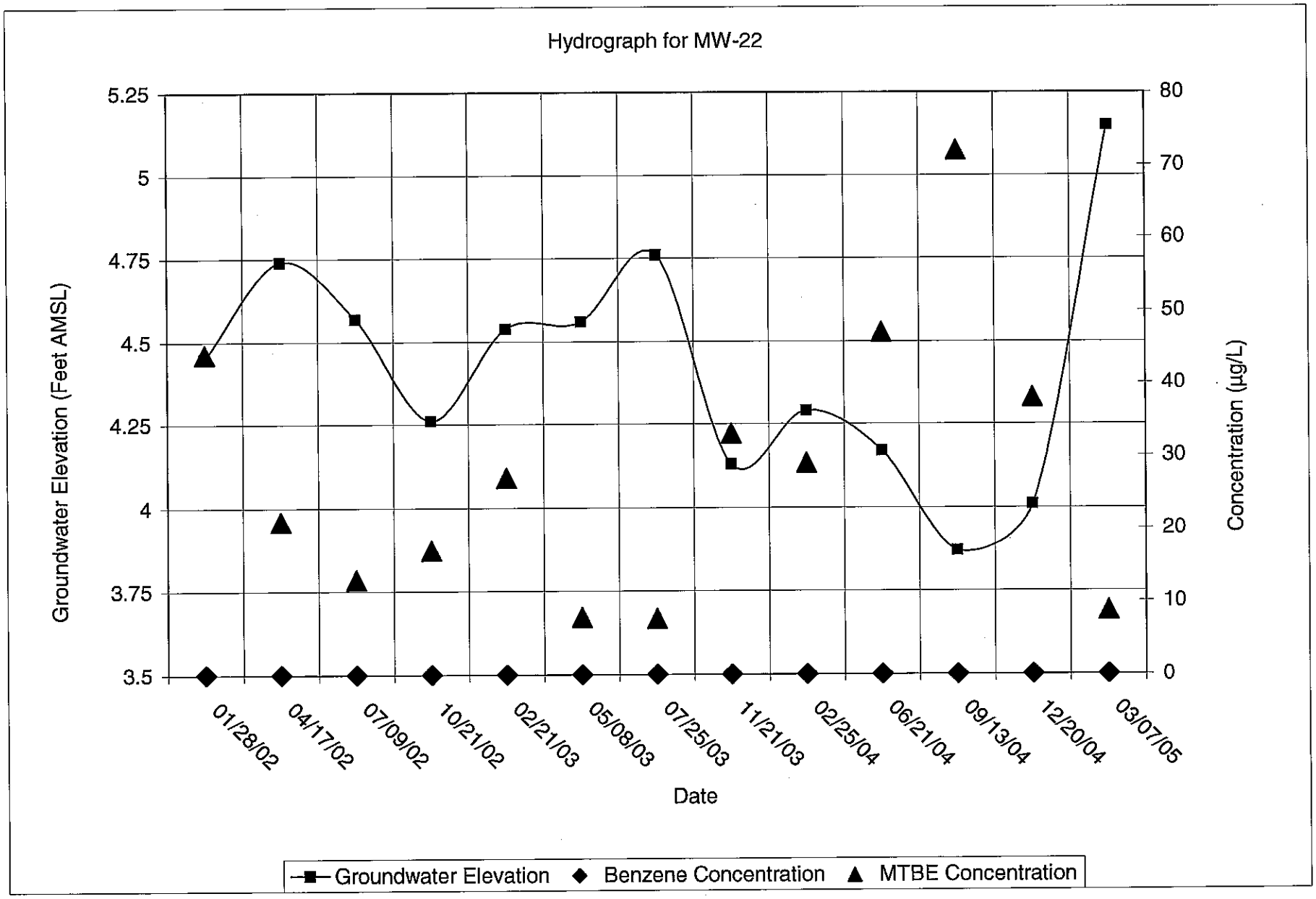

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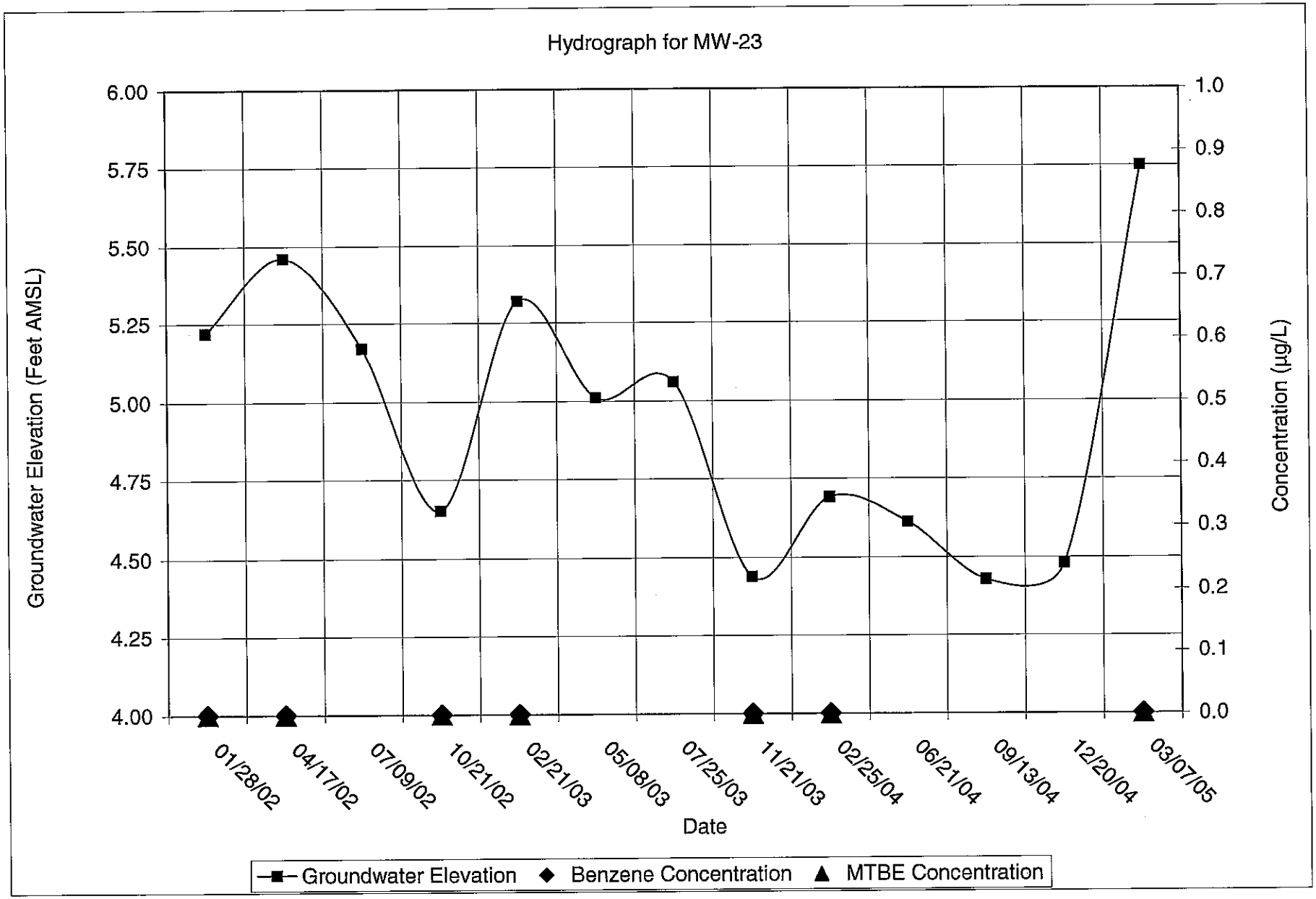

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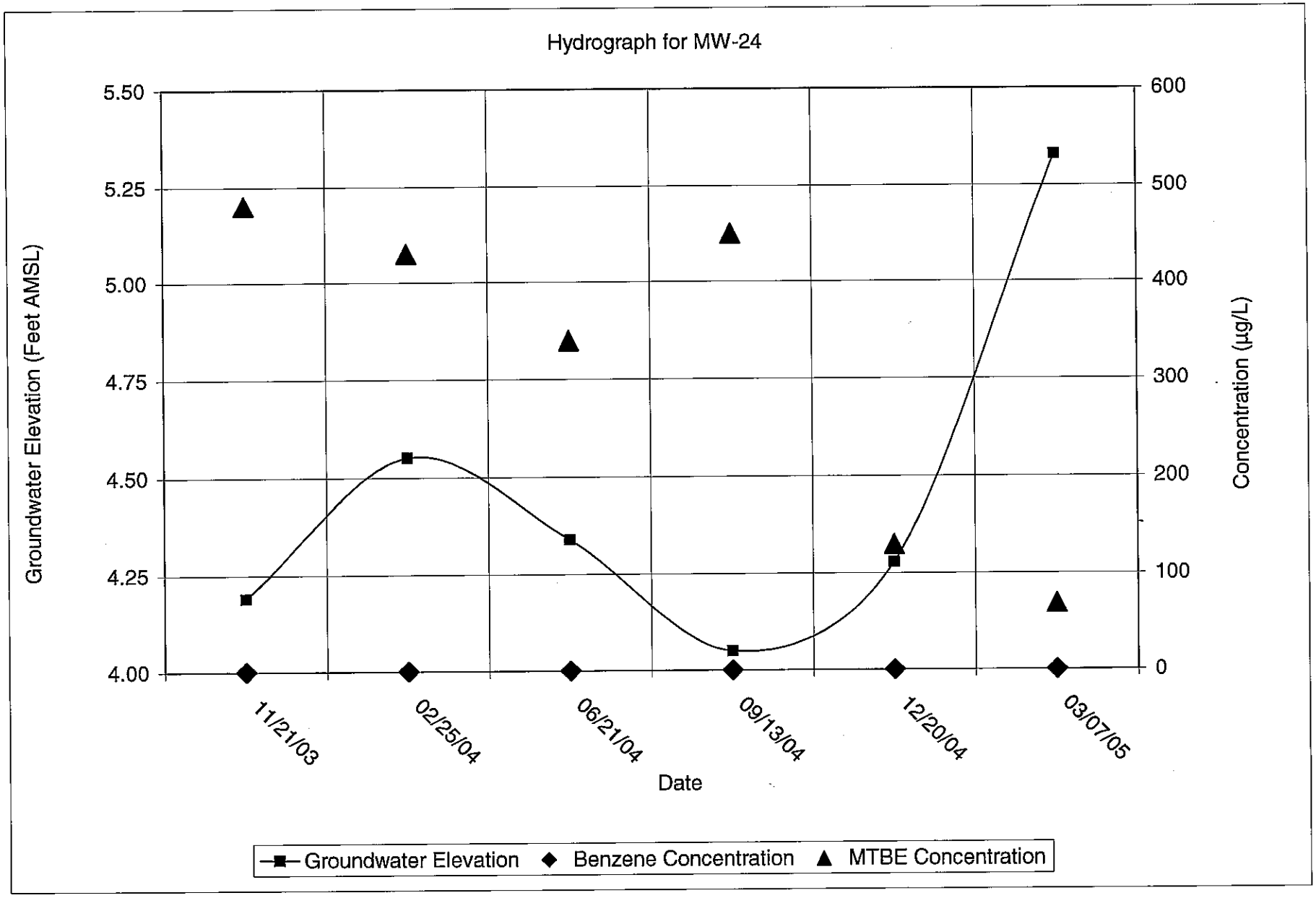

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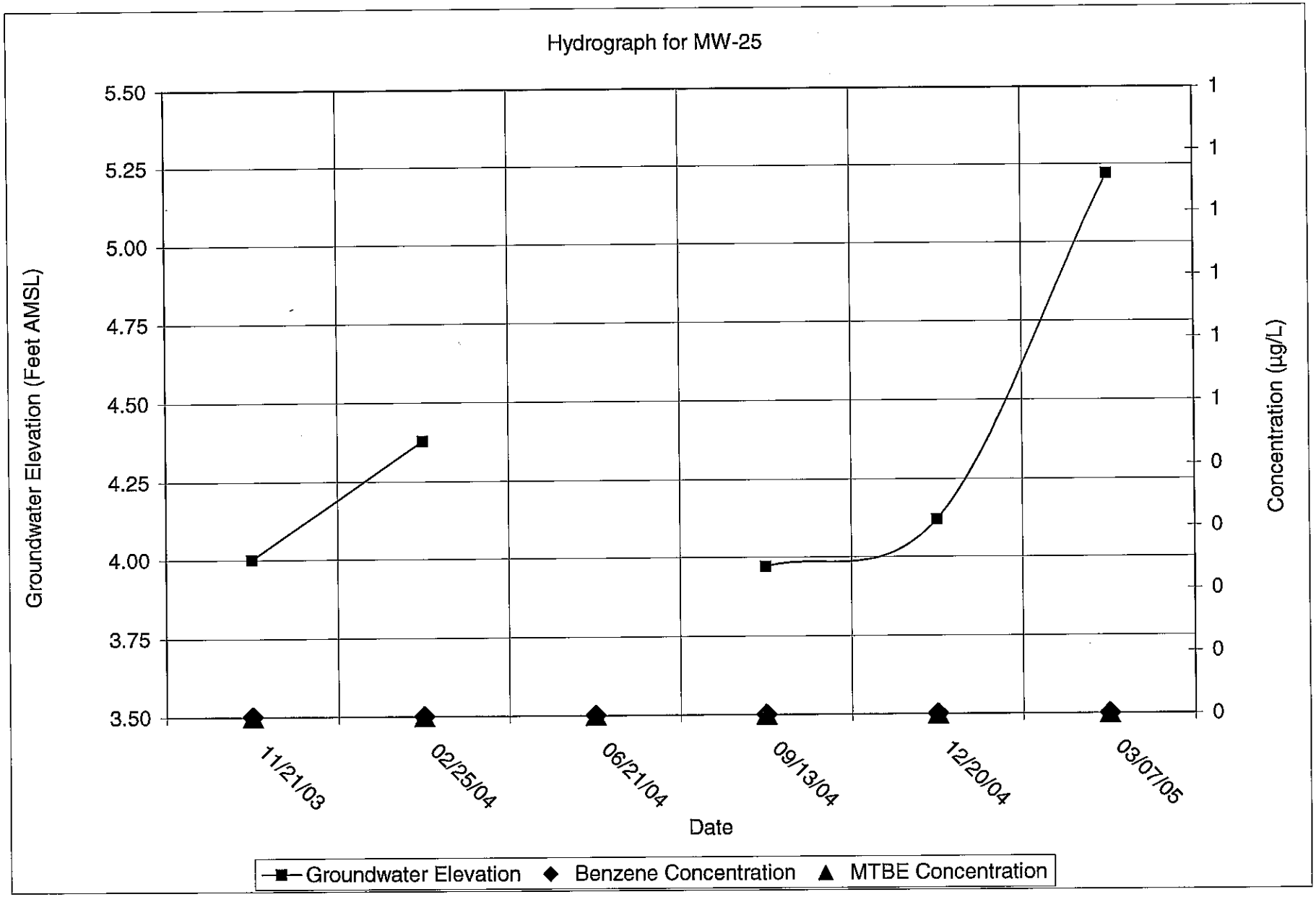

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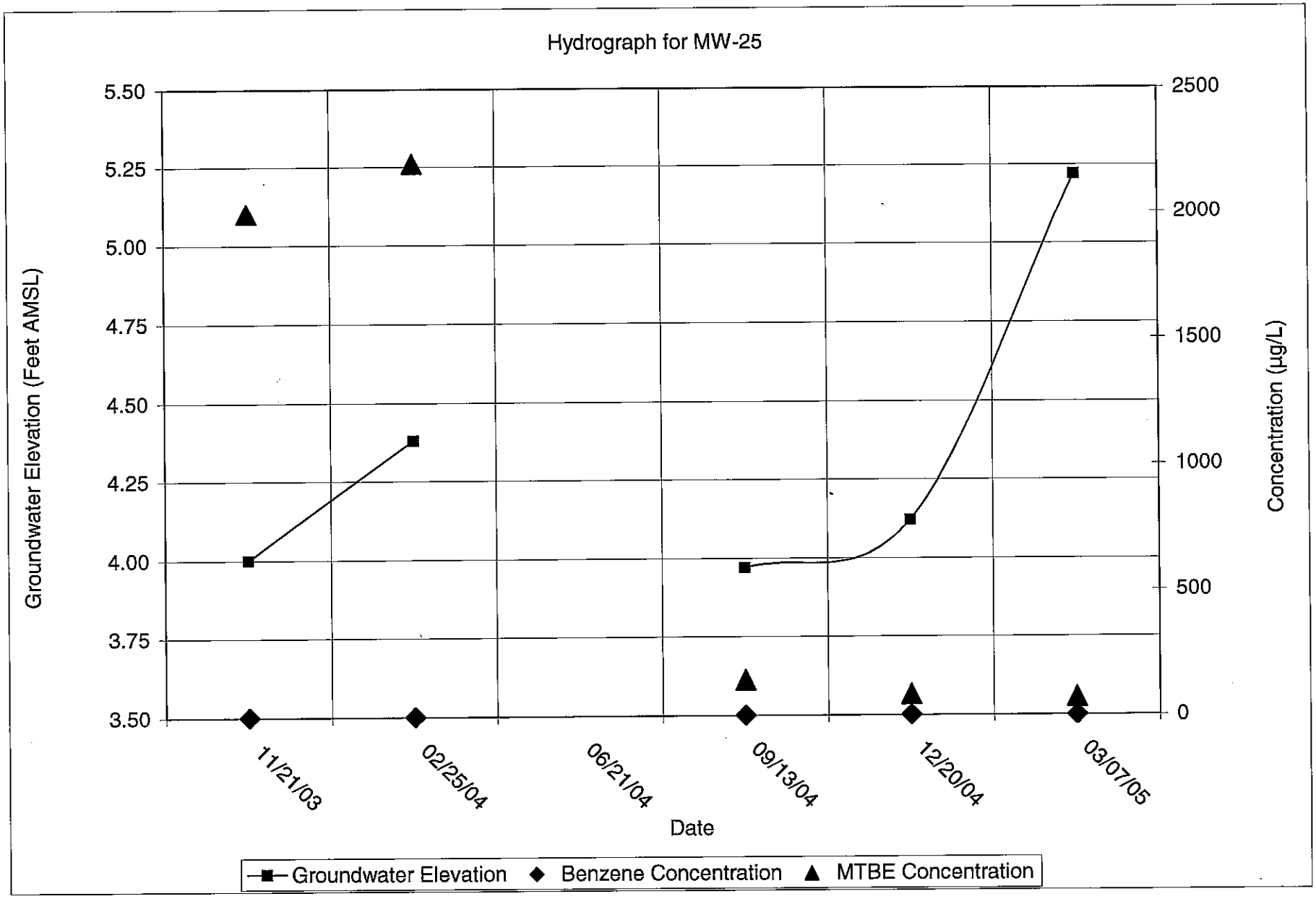

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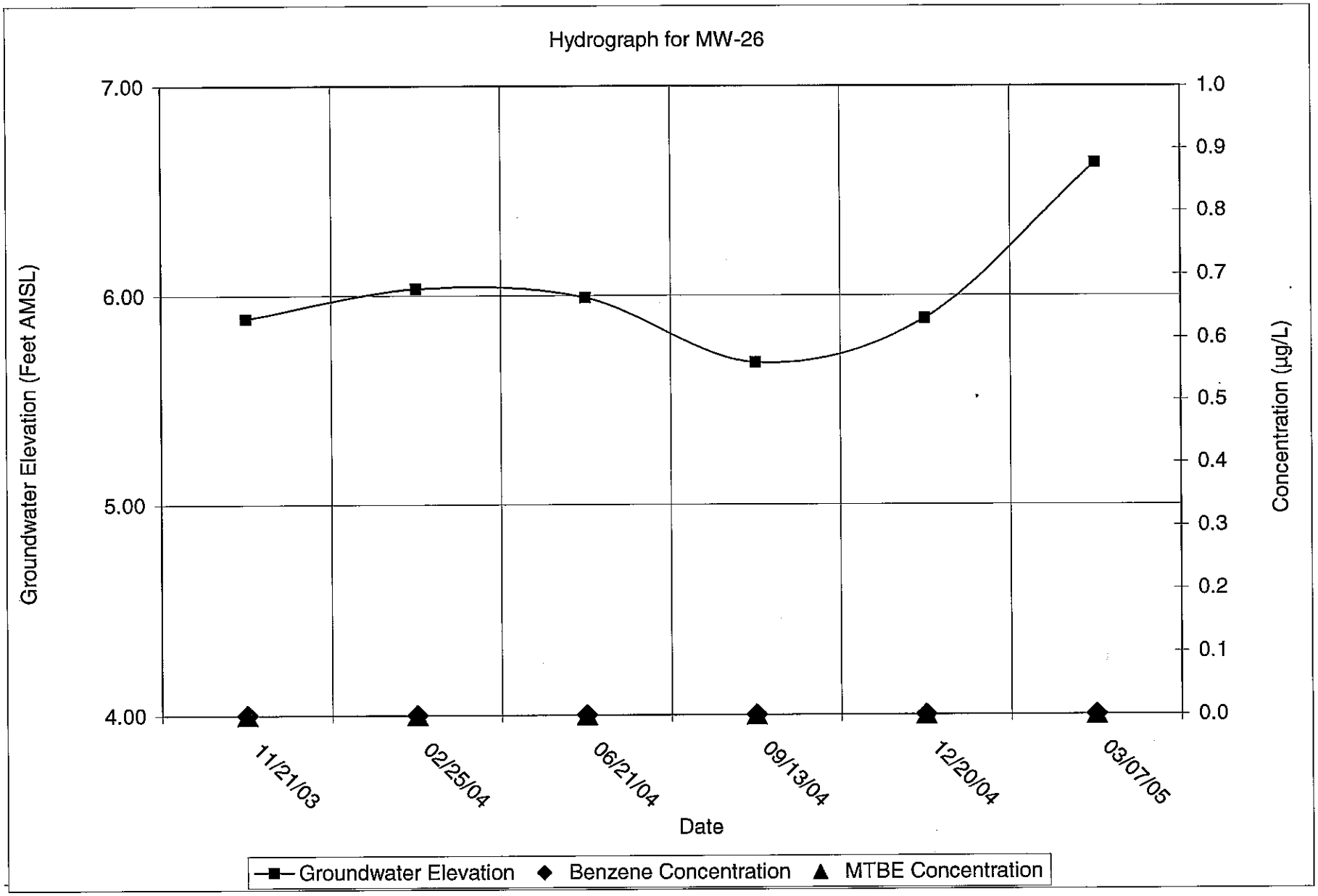

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MONITORING WELL PURGING AND SAMPLING PROCEDURES

SAN DIEGO COUNTY

Fast recovering well: A well is considered to be fast recovering if recovery to 80 percent or more of its static condition occurs within 2 hours when using the high-flow purging method.

Slow recovering well: A well is considered to be slow recovering if recovery to 80 percent of its static water level takes longer than 2 hours when using the high-flow purging and sampling method.

Purging and Sampling Methods: The following method is currently approved by SAM.

High-flow Purging and Sampling: Purging using a pumping rate greater than 1 liter per minute (lpm) or 0.26 gallon per minute (gpm) (Barcelona and Puls, 1996). Traditionally, the high-flow purging method has been widely used. This method typically involves the removal of up to 3 borehole volumes prior to sampling. Samples are most often collected with a bailer or other device after completion of purging. This methodology provides a composite of the contaminant concentration within the well and will likely not be suitable for low yield wells.

1. High-flow Purging and Sampling Method

This method is widely used and involves the removal of water from the well at a rate in excess of 1 lpm (0.26 gpm) by a variety of methods, including pumps, bailers, etc. The following steps are necessary to collect representative samples. Well purging to "dryness" should be avoided.

a. Measure for NAPL

LNAPL and DNAPL may be present in groundwater monitoring wells. If NAPL exists, the well sampling procedure described in this section will typically not apply. Special considerations may be necessary and should be discussed with the SAM project manager on a case-by-case basis.

b. Measure Water Level

The groundwater level in the monitoring well should be measured to an accuracy of 0.01 foot prior to purging and sampling activities.

c. Placement of Pump

The pump should be placed in the lower one-third of the well screen.

d. Calculation of Borehole Volume

f. Parameter Stability

It is assumed that parameter stability is achieved when the difference between successive measurements is less than 10 percent. Generally, measurements are made after one borehole volume is removed and then at one-half borehole

volume intervals. Commonly, the measurement of temperature, specific conductance, and pH are used exclusively, but it has been found these parameters are less sensitive to field conditions. It is recommended that dissolved oxygen, turbidity, specific conductance, and temperature be monitored.

g. Purge Well

The well must be purged with a device that does not compromise the sample by cross-contamination, aeration, or other negative effects

(1) Fast Recovering Wells

DEH considers the following two options acceptable methods for properly purging fast recovering wells:

(a) Option I
i. Remove 3 borehole volumes of water.
ii. Allow the well to recover to 80% of its static condition prior to collecting the sample.

(b) Option II
i. Remove 1 borehole volume of water.
ii. Conduct field water-quality measurements (dissolved oxygen, turbidity, specific conductance, and temperature).
iii. Remove an additional ½ borehole volume of water. Conduct field water quality measurements again. If the first and second measurements vary by less than 10%, purging is considered adequate. Proceed to step (v.) below.
iv. Repeat step (iii) until the measurements vary by less than 10% or until 3 borehole volumes of water have been removed.
v. Allow the well to recover to 80% of its static condition before collecting the sample.

(2) Slow Recovering Wells

(a) Remove 1 borehole volume of water.

(b) The well should be allowed to recover for 2 hours after purging has stopped. Then the well should be sampled as soon after 2 hours as possible. Note that if the well recovers to greater than 80% in less than 2 hours, it is a fast recovering well. If so, follow the steps in Option I or II above.

h. Collect Samples

After the monitoring well has been properly purged, the guidelines below for groundwater sample collection should be followed.

(1) In the case of a fast recovering well, samples should be collected when the well has recovered to 80%. In the case of a slow recovering well, samples should be collected as soon as possible after 2 hours have elapsed.

(2) Collect groundwater samples from wells with sampling equipment. Sampling equipment must be compatible with the contaminant being analyzed.

(3) Sampling equipment should be decontaminated before use.

(4) Samples requiring organic analyses should not be filtered.

(5) Samples should be transferred from the sampling device to a container in a manner that minimizes aeration.

(6) Samples should be collected in approved sample containers appropriate for the type of analysis to be performed.

(7) Samples should not be transferred from one sample container to another.

(8) Headspace in sample containers should be avoided.

(9) EPA SW-846 sample preservation and holding times for specific analyses should be followed.

Appropriate sample chain-of-custody procedures must be followed.

SECOR

MONITORING WELL GAUGING LOG

Site Name & Facility No: **ARCO 1919** Date: 3/7/05

Project Number: 08BP.U1919.05 / 4142 Field Representative(s): SM, Adrian, Andrew

Checked by: de

Well No.	Previous QTR DTW	Gauging Time	Depth to Floating Product	Depth to Water (ft) B	Floating Product Thickness	Total Casing Depth (ft)	Casing Elevation[1] A	Groundwater Elevation[1] C	Corrected Groundwater Elevation[1]*	Comments
MW-6	10.62	1000		~~9.84~~		15.63	~~15.96~~ ~~10.11~~ 15.96	~~6.12~~ ~~6.27~~ 6.12		
MW-10	11.21	942		10.48		16.40	16.59	6.11		~~offsite~~
MW-11	8.00	952		7.27		16.47	13.40	6.13		~~offsite~~
MW-13	7.52	1011		6.96		17.25	12.79	5.83		offsite
MW-14	9.23	1014		8.70		17.60	14.62	5.92		offsite
MW-15	6.47	1038		5.43		17.18	11.30	5.87		offsite
MW-16	8.48	1026		7.52		16.18	13.08	5.56		offsite
MW-17	9.78	1027		8.96		21.90	15.00	6.04		
MW-18	9.32	1340		8.22		19.85	13.74	5.52		offsite
MW-19A	8.76	1130		7.76		19.70	13.39	5.63		offsite
MW-19B	11.30	937		10.62		14.34	16.67	6.05		
MW-20	8.19	935		7.39		18.83	13.26	5.87		

Notes:
1 = feet above mean sea level unless noted otherwise
* = elevation adjusted by adding (.75 x product thickness) to measured water elevation
\- = not measured due to the presence of liquid-phase hydrocarbons

Sheen = discontinuous, non-measurable thickness of LPH
Trace = continuous, non-measurable thickness of LPH
ND = Not detected
NM = Not measured

SECOR

MONITORING WELL GAUGING LOG

Site Name & Facility No: **ARCO 1919** Date: 3/7/05

Project Number: 08BP.U1919.05 / 4142 Field Representative(s): SM, Adrian, Andrew

Checked by: [illegible]

Well No.	Previous QTR DTW	Gauging Time	Depth to Floating Product	Depth to Water (ft)	Floating Product Thickness	Total Casing Depth (ft)	Casing Elevation[1]	Groundwater Elevation[1]	Corrected Groundwater Elevation[1]*	Comments
MW-21	8.20	930		~~7.52~~		11.78	13.52	6.00		~~offsite~~
MW-22	5.77	1220		4.03		18.10	9.78	5.15		offsite
MW-23	7.94	0940		6.67		20.30	12.42	5.75		offsite
MW-24	4.55	1205		3.50		16.73	8.83	5.33		offsite
MW-25	3.09	1200		1.99		17.35	7.21	5.22		offsite
MW-26	23.93	1110		23.19		34.65	29.82	6.63		offsite
~~AW-8~~		~~1000~~		9.85						

Notes:
1 = feet above mean sea level unless noted otherwise
* = elevation adjusted by adding (.75 x product thickness) to measured water elevation
\- = not measured due to the presence of liquid-phase hydrocarbons

Sheen = discontinuous, non-measurable thickness of LPH
Trace = continuous, non-measurable thickness of LPH
ND = Not detected
NM = Not measured

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 6
	Project Name: ARCO 1919		Date: 3/8/05
	Project Number: 08BP.U1919.05 / 4142		Sample Time: 1144
	SECOR Rep: EG, AF	Checked by:	Sample No: MW- 6

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 2	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: ___ Vac Truck X Bailer ___ Submersible Pump ___ Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID: 1	Depth to Water (DTW_1) (ft): 9.84	
Sampling Method: ___ Teflon Bailer X Disposable Bailer ___ Other:	Total Well Depth (DTB) (ft): 15.63	Water Column: 5.79
Decontamination Method: ___ Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___ Other:	Floating Product: —	Thickness (in): —
	Borehole Volume (gal): 8.69	1.5 Borehole Volumes (gal): 13.02

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
11:20	Started Purging					Brown
11:24	10.24	9	6.97	21.5	1477	Green, yellow, no odor
11:28	10.70	14	6.99	21.6	1453	
1144	9.90	Sample				

Maximum Drawdown (DTW_2) (ft) = 10.70

H_2O Removal Rate (GPM) = 1.75

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1144

Depth to Water at time of sampling (DTW_3): 9.90

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 ($DTB-DTW_1$)
2	10	1.14 ($DTB-DTW_1$)
4	10	1.50 ($DTB-DTW_1$)
4	12	1.95 ($DTB-DTW_1$)
6	10	2.11 ($DTB-DTW_1$)

Notes:

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(9.84) - (9.90)}{(9.84) - (10.70)} = \frac{-0.06}{-0.86} = 93\%$$

80% Recharge = 10.61

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG	Well No: MW- 10
	Project Name: ARCO 1919	Date: 3/8/05
	Project Number: 08BP.U1919.05 / 4142	Sample Time: 0939
	SECOR Rep: EL / Andrew — Checked by: (JC)	Sample No: MW- 10

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 2	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: ___ Vac Truck, X Bailer, ___ Submersible Pump, ___ Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID: 1	Depth to Water (DTW_1) (ft): 10.48	
Sampling Method: ___ Teflon Bailer, X Disposable Bailer, ___ Other:	Total Well Depth (DTB) (ft): 16.40	Water Column: 5.92
Decontamination Method: ___ Steam / High Pressure Wash, X 3 Stage (Alconox, Tap & DI rinse), ___ Other:	Floating Product: —	Thickness (in): —
	Borehole Volume (gal): 8.88	1.5 Borehole Volumes (gal): 13.32

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
0915	Started Purging					
0924	10.81	9	7.29	23.3	2310	brown, silty, low odor
0929	10.70	13.5	7.20	23.4	2440	" " "
0939	10.48	Sample				

Maximum Drawdown (DTW_2) (ft) = 10.81

H_2O Removal Rate (GPM) = ~~100.08~~ 0.96

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 0939

Depth to Water at time of sampling (DTW_3): 10.48

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 ($DTB-DTW_1$)
2	10	1.14 ($DTB-DTW_1$)
4	10	1.50 ($DTB-DTW_1$)
4	12	1.95 ($DTB-DTW_1$)
6	10	2.11 ($DTB-DTW_1$)

Notes:

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(10.48)(10.48)}{(10.48)-(10.81)} = \frac{0}{-0.33} = 100\%$$

80% Recharge = 10.55

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 11
	Project Name: ARCO 1919		Date: 3/8/05
	Project Number: 08BP.U1919.05 / 4142		Sample Time: 1000
	SECOR Rep: Andrew Lee	Checked by:	Sample No: MW- 11

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 3	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: ___Vac Truck X Bailer ___Submersible Pump ___Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID: 1	Depth to Water (DTW_1) (ft): 7.27	
Sampling Method: ___Teflon Bailer X Disposable Bailer ___Other:	Total Well Depth (DTB) (ft): 16.47	Water Column: 9.20
Decontamination Method: ___Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___Other:	Floating Product: —	Thickness (in): —
	Borehole Volume (gal): 13.80	1.5 Borehole Volumes (gal): 20.70

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
0933	Started Purging					
9:40	13.91	14	7.36	22.4	1745	tan, silty, no odor
9:46	12.81	21	7.28	23.0	1820	" " "
1000	7.85	Small				

Maximum Drawdown (DTW_2) (ft) = 13.91

H_2O Removal Rate (GPM) = 1.62

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1000

Depth to Water at time of sampling (DTW_3): 7.85

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 ($DTB-DTW_1$)
2	10	1.14 ($DTB-DTW_1$)
4	10	1.50 ($DTB-DTW_1$)
4	12	1.95 ($DTB-DTW_1$)
6	10	2.11 ($DTB-DTW_1$)

Notes:

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(7.27) - (7.85)}{(7.27) - (13.91)} = \frac{-0.58}{-6.64} = 91\%$$

80% Recharge = 8.60

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 13
	Project Name: ARCO 1919		Date: 3/8
	Project Number: 08BP.U1919.05 / 4142		Sample Time: 1215
	SECOR Rep: Adrian Campos	Checked by:	Sample No: MW- 13

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 5	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: ___ Vac Truck, X Bailer, ___ Submersible Pump, ___ Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID: /	Depth to Water (DTW_1) (ft): 6.92	
Sampling Method: ___ Teflon Bailer, X Disposable Bailer, ___ Other:	Total Well Depth (DTB) (ft): 17.25	Water Column: 10.33
Decontamination Method: ___ Steam / High Pressure Wash, 1 3 Stage (Alconox, Tap & DI rinse), ___ Other:	Floating Product: —	Thickness (in): —
	Borehole Volume (gal): 15.50	1.5 Borehole Volumes (gal): 23.24

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1124	Started Purging					
1130	13.60	15.5	7.15	21.6	1770	None, Moderate, BRN
1144	16.30	24	7.24	21.7	1761	None, Moderate, BRN
1215	8.79	Sample				

Maximum Drawdown (DTW_2) (ft) = 16.30

H_2O Removal Rate (GPM) = ~~3.5~~ 1.20

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1215

Depth to Water at time of sampling (DTW_3): 8.79

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 ($DTB-DTW_1$)
2	10	1.14 ($DTB-DTW_1$)
4	10	1.50 ($DTB-DTW_1$)
4	12	1.95 ($DTB-DTW_1$)
6	10	2.11 ($DTB-DTW_1$)

Notes:

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(6.92) - (8.80)}{(6.92) - (16.30)} = \frac{1.88}{9.38} = 80\%$$

80% Recharge = 8.80

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 14
	Project Name: ARCO 1919		Date: 3/7/05
	Project Number: 08BP.U1919.05 / 4142		Sample Time: 1530
	SECOR Rep: S. Martin	Checked by:	Sample No: MW- 14

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 1	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: ___Vac Truck ___Submersible Pump X Bailer ___Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID: 6	Depth to Water (DTW_1) (ft): 8.70	
Sampling Method: ___Teflon Bailer X Disposable Bailer ___Other:	Total Well Depth (DTB) (ft): 17.60	Water Column: 8.90
Decontamination Method: ___Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___Other:	Floating Product:	Thickness (in):
	Borehole Volume (gal): 13.35	1.5 Borehole Volumes (gal): 20.02

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1515 ~~1450~~	Started Purging					
1517	10.40	13.5	7.46	19.1	3970	None, silty, tan
1523	9.90	20.5	7.62	18.8	3670	" " "
1530	8.80	Sample				

Maximum Drawdown (DTW_2) (ft) = 10.40

H_2O Removal Rate (GPM) = 1.71

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1530

Depth to Water at time of sampling (DTW_3): 8.80

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 ($DTB-DTW_1$)
2	10	1.14 ($DTB-DTW_1$)
4	10	1.50 ($DTB-DTW_1$)
4	12	1.95 ($DTB-DTW_1$)
6	10	2.11 ($DTB-DTW_1$)

Notes:

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(8.70) - (8.80)}{(8.70) - (10.40)}$$

-0.10

-1.70

$= 94\%$

80% Recharge = 9.04

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 15
	Project Name: ARCO 1919		Date: 3-7-05
	Project Number: 08BP.U1919.05 / 4142		Sample Time: 1701
	SECOR Rep: Adrian Campos	Checked by:	Sample No: MW- 15

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 5	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: ___Vac Truck ___Submersible Pump X Bailer ___Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID: 4	Depth to Water (DTW_1) (ft): 5.49	
Sampling Method: ___Teflon Bailer X Disposable Bailer ___Other:	Total Well Depth (DTB) (ft): 17.18	Water Column: 11.69
	Floating Product: —	Thickness (in): —
Decontamination Method: ___Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___Other:	Borehole Volume (gal): 11.69	1.5 Borehole Volumes (gal): 17.53

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1518	Started Purging					
1528	15.71	12	7.33	21.8	541	slight, ~~[illegible]~~ light, BLK
1544	16.73	18 1/2	7.25	21.9	550	strong, light, BLK
1731	7.73	Sample				

Maximum Drawdown (DTW_2) (ft) = 16.73

H_2O Removal Rate (GPM) = 3.5

X Fast Recharging Well

X Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1701

Depth to Water at time of sampling (DTW_3): 7.73

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 ($DTB-DTW_1$)
2	10	1.14 ($DTB-DTW_1$)
4	10	1.50 ($DTB-DTW_1$)
4	12	1.95 ($DTB-DTW_1$)
6	10	2.11 ($DTB-DTW_1$)

Notes: Slow Recharge.

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(5.49) - (7.73)}{(5.49) - (16.73)} = \frac{1.84}{11.24} = 80\%$$

80% Recharge = 7.73

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 16
	Project Name: ARCO 1919		Date: 3/7/05
	Project Number: 08BP.U1919.05 / 4142		Sample Time: 15:55
	SECOR Rep: Andrew	Checked by:	Sample No: MW- 16

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 9	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: ___Vac Truck ✓ Bailer ___Submersible Pump ___Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID:	Depth to Water (DTW_1) (ft): 7.45	
Sampling Method: ___Teflon Bailer ✓ Disposable Bailer ___Other:	Total Well Depth (DTB) (ft): 16.18	Water Column: 8.73
Decontamination Method: ___Steam / High Pressure Wash ✓ 3 Stage (Alconox, Tap & DI rinse) ___Other:	Floating Product:	Thickness (in):
	Borehole Volume (gal): 13.10 11.18	1.5 Borehole Volumes (gal): 19.64 16.76

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (~~µ~~m mhos)	Water Description (odor, turbidity, color)
14:50	Started Purging					
15:20	8.92	11.50	~~8.39~~ 6.95	21.9	~~2.17~~ 4.95	slight odor, high, dk. gray discharging
15:35	9.02	17	6.88	21.4	4.88	slight odor, high, dk. gray
15:55	7.68	Sample				

Maximum Drawdown (DTW_2) (ft) = 9.02

H_2O Removal Rate (GPM) = 0.38

X Fast Recharging Well

___Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1555

Depth to Water at time of sampling (DTW_3): 7.68

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 (DTB-DTW_1)
2	10	1.14 (DTB-DTW_1)
4	10	1.50 (DTB-DTW_1)
4	12	1.95 (DTB-DTW_1)
6	10	2.11 (DTB-DTW_1)

Notes:

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(7.45) - (7.68)}{(7.45) - (8.92)} = \frac{-.23}{-1.47} = \frac{-1.57}{} = 84\% \quad 85\%$$

80% Recharge = 7.74 7.76

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG	Well No: MW- 17
	Project Name: ARCO 1919	Date: 3/8/05
	Project Number: 08BP.U1919.05 / 4142	Sample Time: 1310
	SECOR Rep: FL/AF — Checked by: JE	Sample No: MW- 17

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 2	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: ___Vac Truck X Bailer ___Submersible Pump ___Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID: 1	Depth to Water (DTW_1) (ft): 8.93	
Sampling Method: ___Teflon Bailer X Disposable Bailer ___Other:	Total Well Depth (DTB) (ft): 21.90	Water Column: 12.97
Decontamination Method: ___Steam / High Pressure Wash X Stage (Alconox, Tap & DI rinse) ___Other:	Floating Product:	Thickness (in):
	Borehole Volume (gal): 19.45	1.5 Borehole Volumes (gal): 29.18

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
11:40	Started Purging					
11:51	18.15	20	6.84	21.7	1422	Slg. G, HC odor
12:01	20.75	30	6.89	21.9	1483	" " "
1310	11.29	Sample				

Maximum Drawdown (DTW_2) (ft) = 20.75

H_2O Removal Rate (GPM) = 1.43

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1310

Depth to Water at time of sampling (DTW_3): 11.29

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 (DTB-DTW_1)
2	10	1.14 (DTB-DTW_1)
4	10	1.50 (DTB-DTW_1)
4	12	1.95 (DTB-DTW_1)
6	10	2.11 (DTB-DTW_1)

Notes:

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(8.93) - (11.29)}{(8.93) - (20.75)}$$

-2.36

-11.82

$= 80\%$

80% Recharge = 11.29

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 18
	Project Name: ARCO 1919		Date: 3/7/05
	Project Number: 08BP.U1919.05 / 4142		Sample Time: 1355
	SECOR Rep: SM/Andre	Checked by:	Sample No: MW- 18

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 81	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: ___Vac Truck ___Bailer X Submersible Pump ___Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID:	Depth to Water (DTW_1) (ft): 8.22	
Sampling Method: ___Teflon Bailer X Disposable Bailer ___Other:	Total Well Depth (DTB) (ft): 19.85	Water Column: 11.63
Decontamination Method: ___Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___Other:	Floating Product:	Thickness (in):
	Borehole Volume (gal): 17.44	1.5 Borehole Volumes (gal): 26.17

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
13:42	Started Purging					
13:48	11.02	17.50	7.43	22.3	5240	Slight HC, clear
13:51	8.76	26.50	7.32	22.5	4906	" "
13.55	8.38	Sample				

Maximum Drawdown (DTW_2) (ft) = 11.02

H_2O Removal Rate (GPM) = 2.94

X Fast Recharging Well

___Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1355

Depth to Water at time of sampling (DTW_3): 8.38

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 ($DTB-DTW_1$)
2	10	1.14 ($DTB-DTW_1$)
4	10	1.50 ($DTB-DTW_1$)
4	12	1.95 ($DTB-DTW_1$)
6	10	2.11 ($DTB-DTW_1$)

Notes:

RECOVERY CALCULATIONS

$$\%\ of\ Recovery = 1 - \frac{(DTW_1)-(DTW_3)}{(DTW_1)-(DTW_2)} \times 100$$

$$\%\ of\ Recovery = 1 - \frac{(8.22)-(8.38)}{(8.22)-(11.02)} = \frac{-0.16}{-2.80} = 94\ \%$$

80% Recharge = 8.78

SECOR

INTERNATIONAL INCORPORATED

WELL PURGING / SAMPLING LOG

Project Name:	ARCO 1919	Well No:	MW- 19A
Project Number:	08BP.U1919.05 / 4142	Date:	3/7/05
SECOR Rep:	S. Martin	Sample Time:	1150
Checked by:		Sample No:	MW- 19A

PURGING & SAMPLING EQUIPMENT / METHOD

Water Level Meter Type & ID: Solinist # 8

Purging Equipment / Method: ✓ ___Vac Truck ___Bailer ✗ Submersible Pump ___Other

pH Temp/Conductivity Meter Type / ID: 6

Sampling Method: ___Teflon Bailer ✗ Disposable Bailer ___Other:

Decontamination Method: ___Steam / High Pressure Wash ✗ 3 Stage (Alconox, Tap & DI rinse) ___Other:

WELL SPECIFICATIONS & MEASUREMENTS

Borehole Diameter (in): 8 (10) 12

Casing Diameter (in): 2 (4)

Depth to Water (DTW_1) (ft): 7.76

Total Well Depth (DTB) (ft): 19.70

Water Column: 11.94

Floating Product:

Thickness (in):

Borehole Volume (gal): 17.91

1.5 Borehole Volumes (gal): 26.87

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1133	Started Purging					
1138	9.82	18	7.61	22.5	3290	none, clear
1141	10.19	27	7.07	23.6	3330	" "
1150	7.86	Sample				

Maximum Drawdown (DTW_2) (ft) = 10.19

H_2O Removal Rate (GPM) = 3.38

✗ Fast Recharging Well

___Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1150

Depth to Water at time of sampling (DTW_3): 7.86

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 (DTB-DTW_1)
2	10	1.14 (DTB-DTW_1)
4	10	1.50 (DTB-DTW_1)
4	12	1.95 (DTB-DTW_1)
6	10	2.11 (DTB-DTW_1)

Notes:

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(7.76) - (7.86)}{(7.76) - (10.19)} = \frac{-0.10}{-2.43} = 96\%$$

80% Recharge = 8.24

SECOR International Inc

Client Sample ID: MW-23

GC/MS Volatiles

Lot-Sample #...:	E5C090392-007	Work Order #...:	G5WDW1AA	Matrix.....:	W
Date Sampled...:	03/07/05 10:51	Date Received..:	03/09/05 12:25	MS Run #.....:	5080327
Prep Date.....:	03/17/05	Analysis Date..:	03/18/05		
Prep Batch #...:	5077441	Analysis Time..:	04:33		
Dilution Factor:	1				
Analyst ID.....:	004648	Instrument ID..:	MSN		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diisopropyl Ether (DIPE)	ND	2.0	ug/L
Benzene	ND	0.50	ug/L
Ethanol	ND IO	500	ug/L
Ethylbenzene	ND	0.50	ug/L
tert-Butyl alcohol	ND	25	ug/L
Toluene	ND	0.50	ug/L
o-Xylene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether (MTBE)	ND	1.0	ug/L
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L
Tert-amyl methyl ether (TAME)	ND	2.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	93	(75 - 120)
1,2-Dichloroethane-d4	107	(65 - 130)
Toluene-d8	99	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-23

GC Volatiles

Lot-Sample #...:	E5C090392-007	Work Order #...:	G5WDW1AC	Matrix.....:	W
Date Sampled...:	03/07/05 10:51	Date Received..:	03/09/05 12:25	MS Run #.....:	5073280
Prep Date.....:	03/10/05	Analysis Date..:	03/11/05		
Prep Batch #...:	5073404	Analysis Time..:	00:20		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	94	(70 - 130)

SECOR International Inc

Client Sample ID: MW-26

GC/MS Volatiles

Lot-Sample #...:	E5C090392-008	**Work Order #...:**	G5WDX1AA	**Matrix.....:**	W
Date Sampled...:	03/07/05 11:59	**Date Received..:**	03/09/05 12:25	**MS Run #.....:**	5080224
Prep Date.....:	03/18/05	**Analysis Date..:**	03/18/05		
Prep Batch #...:	5080375	**Analysis Time..:**	16:34		
Dilution Factor:	1				
Analyst ID.....:	004648	**Instrument ID..:**	MSN		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diisopropyl Ether (DIPE)	ND	2.0	ug/L
Benzene	ND	0.50	ug/L
Ethanol	ND IO	500	ug/L
Ethylbenzene	ND	0.50	ug/L
tert-Butyl alcohol	ND	25	ug/L
Toluene	ND	0.50	ug/L
o-Xylene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether (MTBE)	ND	1.0	ug/L
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L
Tert-amyl methyl ether (TAME)	ND	2.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	88	(75 - 120)
1,2-Dichloroethane-d4	147 AZ	(65 - 130)
Toluene-d8	99	(80 - 130)

NOTE(S):

Surrogate recovery is outside stated control limits.

AZ Surr. recovery outside of acceptance limits due to matrix interf.

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-26

GC Volatiles

Lot-Sample #...:	E5C090392-008	Work Order #...:	G5WDX1AC	Matrix.....:	W
Date Sampled...:	03/07/05 11:59	Date Received..:	03/09/05 12:25	MS Run #.....:	5073280
Prep Date.....:	03/10/05	Analysis Date..:	03/11/05		
Prep Batch #...:	5073404	Analysis Time..:	00:48		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	96	(70 - 130)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: E5C090392
MB Lot-Sample #: E5C180000-441

Analysis Date..: 03/17/05
Dilution Factor: 1

Work Order #...: G6NXL1AA

Prep Date.....: 03/17/05
Prep Batch #...: 5077441

Analyst ID.....: 004648

Matrix.....: WATER

Analysis Time..: 22:48
Instrument ID..: MSN

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	0.50	ug/L	SW846 8260B
Ethanol	ND IO	500	ug/L	SW846 8260B
Ethylbenzene	ND	0.50	ug/L	SW846 8260B
tert-Butyl alcohol	ND	25	ug/L	SW846 8260B
Toluene	**0.65**	**0.50**	**ug/L**	**SW846 8260B**
o-Xylene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	1.0	ug/L	SW846 8260B
m-Xylene & p-Xylene	ND	1.0	ug/L	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	1.0	ug/L	SW846 8260B
Diisopropyl Ether (DIPE)	ND	2.0	ug/L	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	ND	2.0	ug/L	SW846 8260B
Tert-amyl methyl ether (T	ND	2.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	95	(75 - 120)
1,2-Dichloroethane-d4	103	(65 - 130)
Toluene-d8	102	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IO Contract limits originate from BP-GCLN Technical Requirements

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: E5C090392
MB Lot-Sample #: E5C210000-375
Analysis Date..: 03/18/05
Dilution Factor: 1

Work Order #...: G6NAM1AA
Prep Date.....: 03/18/05
Prep Batch #...: 5080375
Analyst ID.....: 004648

Matrix.....: WATER
Analysis Time..: 13:54
Instrument ID..: MSN

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	0.50	ug/L	SW846 8260B
Ethanol	ND IO	500	ug/L	SW846 8260B
Ethylbenzene	ND	0.50	ug/L	SW846 8260B
tert-Butyl alcohol	ND	25	ug/L	SW846 8260B
Toluene	ND	0.50	ug/L	SW846 8260B
o-Xylene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	1.0	ug/L	SW846 8260B
m-Xylene & p-Xylene	ND	1.0	ug/L	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	1.0	ug/L	SW846 8260B
Diisopropyl Ether (DIPE)	ND	2.0	ug/L	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	ND	2.0	ug/L	SW846 8260B
Tert-amyl methyl ether (T	ND	2.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	89	(75 - 120)
1,2-Dichloroethane-d4	102	(65 - 130)
Toluene-d8	99	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IO Contract limits originate from BP-GCLN Technical Requirements

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: E5C090392
MB Lot-Sample #: E5C140000-404

Analysis Date..: 03/10/05
Dilution Factor: 1

Work Order #...: G568C1AA

Prep Date.....: 03/10/05
Prep Batch #...: 5073404

Analyst ID.....: 001464

Matrix.....: WATER

Analysis Time..: 13:02
Instrument ID..: G13

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
GRO (C6 - C12)	ND	100	ug/L	SW846 8015B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	99	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E5C090392 Work Order #...: G6NXL1AC Matrix.....: WATER
LCS Lot-Sample#: E5C180000-441
Prep Date.....: 03/17/05 Analysis Date..: 03/17/05
Prep Batch #...: 5077441 Analysis Time..: 22:25
Dilution Factor: 1 Instrument ID..: MSN
Analyst ID.....: 004648

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	10.0	9.94	ug/L	99	SW846 8260B
tert-Butyl alcohol	50.0	52.1	ug/L	104	SW846 8260B
Ethanol	2000	1920 IO	ug/L	96	SW846 8260B
Tert-amyl methyl ether (T	10.0	9.31	ug/L	93	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	10.0	9.16	ug/L	92	SW846 8260B
Ethylbenzene	10.0	10.5	ug/L	105	SW846 8260B
Diisopropyl Ether (DIPE)	10.0	10.4	ug/L	104	SW846 8260B
Methyl tert-butyl ether (MTBE)	10.0	9.25	ug/L	92	SW846 8260B
Toluene	10.0	10.5	ug/L	105	SW846 8260B
m-Xylene & p-Xylene	20.0	19.6	ug/L	98	SW846 8260B
o-Xylene	10.0	10.2	ug/L	102	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	89	(75 - 120)
1,2-Dichloroethane-d4	89	(65 - 130)
Toluene-d8	95	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

IO Contract limits originate from BP-GCLN Technical Requirements

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E5C090392 Work Order #...: G6NAM1AC Matrix.....: WATER
LCS Lot-Sample#: E5C210000-375
Prep Date.....: 03/18/05 Analysis Date..: 03/18/05
Prep Batch #...: 5080375 Analysis Time..: 13:32
Dilution Factor: 1 Instrument ID..: MSN
Analyst ID.....: 004648

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	10.0	9.95	ug/L	100	SW846 8260B
tert-Butyl alcohol	50.0	42.8	ug/L	86	SW846 8260B
Ethanol	2000	1840 IO	ug/L	92	SW846 8260B
Tert-amyl methyl ether (T	10.0	9.99	ug/L	100	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	10.0	9.95	ug/L	100	SW846 8260B
Ethylbenzene	10.0	10.0	ug/L	100	SW846 8260B
Diisopropyl Ether (DIPE)	10.0	10.8	ug/L	108	SW846 8260B
Methyl tert-butyl ether (MTBE)	10.0	9.63	ug/L	96	SW846 8260B
Toluene	10.0	9.87	ug/L	99	SW846 8260B
m-Xylene & p-Xylene	20.0	19.0	ug/L	95	SW846 8260B
o-Xylene	10.0	9.98	ug/L	100	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	98	(75 - 120)
1,2-Dichloroethane-d4	95	(65 - 130)
Toluene-d8	102	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

IO Contract limits originate from BP-GCLN Technical Requirements

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: E5C090392 Work Order #...: G568C1AC Matrix.....: WATER
LCS Lot-Sample#: E5C140000-404
Prep Date.....: 03/10/05 Analysis Date..: 03/10/05
Prep Batch #...: 5073404 Analysis Time..: 13:30
Dilution Factor: 1 Instrument ID..: G13
Analyst ID.....: 001464

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
GRO (C6 - C12)	**1000**	**958**	**ug/L**	**96**	**SW846 8015B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	123	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E5C090392 Work Order #...: G6NXK1AC-MS Matrix.....: WATER
MS Lot-Sample #: E5B180344-004 G6NXK1AD-MSD
Date Sampled...: 03/09/05 02:22 Date Received..: 03/09/05 12:25 MS Run #.....: 5080327
Prep Date.....: 03/17/05 Analysis Date..: 03/18/05
Prep Batch #...: 5077441 Analysis Time..: 07:54
Dilution Factor: 25 Analyst ID.....: 004648 Instrument ID..: MSN

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzene	ND	250	274	ug/L	109		SW846 8260B
	ND	250	262	ug/L	105	4.6	SW846 8260B
tert-Butyl alcohol	ND	1250	1400	ug/L	112		SW846 8260B
	ND	1250	1180	ug/L	94	17	SW846 8260B
Ethanol	ND	50000	49100	ug/L	98 IO		SW846 8260B
	ND	50000	52100	ug/L	104 IO	5.9	SW846 8260B
Tert-amyl methyl ether (T	ND	250	274	ug/L	110		SW846 8260B
	ND	250	260	ug/L	104	5.5	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	ND	250	270	ug/L	108		SW846 8260B
	ND	250	257	ug/L	103	4.9	SW846 8260B
Ethylbenzene	ND	250	263	ug/L	105		SW846 8260B
	ND	250	239	ug/L	96	9.2	SW846 8260B
Diisopropyl Ether (DIPE)	ND	250	310	ug/L	124		SW846 8260B
	ND	250	284	ug/L	113	8.8	SW846 8260B
Methyl tert-butyl ether (MTBE)	530	250	839	ug/L	125		SW846 8260B
	530	250	793	ug/L	107	5.6	SW846 8260B
Toluene	ND	250	255	ug/L	102		SW846 8260B
	ND	250	246	ug/L	98	3.6	SW846 8260B
m-Xylene & p-Xylene	ND	500	501	ug/L	100		SW846 8260B
	ND	500	479	ug/L	96	4.6	SW846 8260B
o-Xylene	ND	250	257	ug/L	103		SW846 8260B
	ND	250	252	ug/L	101	1.6	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	99	(75 - 120)
	95	(75 - 120)
1,2-Dichloroethane-d4	105	(65 - 130)
	109	(65 - 130)
Toluene-d8	100	(80 - 130)
	98	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

IO Contract limits originate from BP-GCLN Technical Requirements

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E5C090392 Work Order #...: G538V1AD-MS Matrix.....: WATER
MS Lot-Sample #: E5C110353-001 G538V1AE-MSD
Date Sampled...: 03/09/05 17:00 Date Received..: 03/11/05 12:10 MS Run #.....: 5080224
Prep Date.....: 03/18/05 Analysis Date..: 03/18/05
Prep Batch #...: 5080375 Analysis Time..: 18:29
Dilution Factor: 50 Analyst ID.....: 004648 Instrument ID..: MSN

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzene	2200	500	3010	ug/L	159 BB		SW846 8260B
	2200	500	3070	ug/L	172 BB	2.2	SW846 8260B
tert-Butyl alcohol	ND	2500	2390	ug/L	81		SW846 8260B
	ND	2500	3440	ug/L	123 BA	36	SW846 8260B
Ethanol	ND	100000	106000	ug/L	106 IO		SW846 8260B
	ND	100000	97800	ug/L	98 IO	8.2	SW846 8260B
Tert-amyl methyl ether (T	ND	500	571	ug/L	114		SW846 8260B
	ND	500	590	ug/L	118	3.2	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	ND	500	547	ug/L	109		SW846 8260B
	ND	500	598	ug/L	120	8.8	SW846 8260B
Ethylbenzene	310	500	825	ug/L	104		SW846 8260B
	310	500	886	ug/L	116	7.2	SW846 8260B
Diisopropyl Ether (DIPE)	ND	500	626	ug/L	125		SW846 8260B
	ND	500	681	ug/L	136 LM	8.4	SW846 8260B
Methyl tert-butyl ether (MTBE)	64	500	604	ug/L	108		SW846 8260B
	64	500	671	ug/L	121	10	SW846 8260B
Toluene	2800	500	3230	ug/L	95		SW846 8260B
	2800	500	3460	ug/L	141 BB	6.9	SW846 8260B
m-Xylene & p-Xylene	1400	1000	2390	ug/L	103		SW846 8260B
	1400	1000	2600	ug/L	125	8.7	SW846 8260B
o-Xylene	920	500	1500	ug/L	115		SW846 8260B
	920	500	1630	ug/L	141 LM	8.4	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	101	(75 - 120)
	106	(75 - 120)
1,2-Dichloroethane-d4	96	(65 - 130)
	95	(65 - 130)
Toluene-d8	95	(80 - 130)
	96	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Spiked analyte recovery is outside stated control limits.

BB Sample > 4X spike concentration

BA Relative percent difference out of control

IO Contract limits originate from BP-GCLN Technical Requirements

LM MS and/or MSD above acceptance limits. See Blank Spike (LCS).

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: E5C090392 Work Order #...: G5WDW1AD-MS Matrix.....: W
MS Lot-Sample #: E5C090392-007 G5WDW1AE-MSD
Date Sampled...: 03/07/05 10:51 Date Received..: 03/09/05 12:25 MS Run #.....: 5073280
Prep Date.....: 03/10/05 Analysis Date..: 03/10/05
Prep Batch #...: 5073404 Analysis Time..: 17:49
Dilution Factor: 1 Analyst ID.....: 001464 Instrument ID..: G13

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
GRO (C6 - C12)	**ND**	**1000**	**945**	**ug/L**	**95**		**SW846 8015B**
	ND	**1000**	**949**	**ug/L**	**95**	**0.45**	**SW846 8015B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	118	(70 - 130)
	117	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

SEVERN TRENT STL

STL Los Angeles
1721 South Grand Avenue
Santa Ana, CA 92705

Tel: 714 258 8610 Fax: 714 258 0921
www.stl-inc.com

March 21, 2005

STL LOT NUMBER: **E5C090382**
PO/CONTRACT: GEM-6-21909

BRAD EISENBERG
SECOR International Inc
2655 Camino Del Rio North
Suite 302
San Diego, CA 92108-1633

Dear BRAD EISENBERG,

This report contains the analytical results for the 12 samples received under chain of custody by STL Los Angeles on March 9, 2005. These samples are associated with your ARCO #1919 project.

STL Los Angeles certifies that the test results provided in this report meet all the requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of the report. NELAP Certification Number for STL Los Angeles is 01118CA/E87652.

Any matrix related anomaly is footnoted within the report. A cooler receipt temperature between 2-6 degrees Celsius is within EPA acceptance criteria. The temperature(s) of the coolers received for this project can be found on the Project Receipt Checklist.

This report shall not be reproduced except in full, without the written approval of the laboratory.

000041

This report contains _____ pages.

CASE NARRATIVE

Historical control limits for the LCS are used to define the estimate of uncertainty for a method.

All applicable quality control procedures met method-specified acceptance criteria.

If you have any questions, please feel free to call me at 714.258.8610.

Sincerely,

Sabina Sudoko
Project Manager
CC: Project File

ESC090382

Chain of Custody Record

Project Name: ARCO 1919 Groundwater Monitoring
BP BU/AR Region/Enfos Segment: Retail
State or Lead Regulatory Agency: County of San Diego. DEH
Requested Due Date (mm/dd/yy): Standard TAT

On-site Time:	Temp:
Off-site Time:	Temp:
Sky Conditions:	
Meteorological Events:	
Wind Speed:	Direction:

Lab Name:	STL Los Angeles	BP/AR Facility No.:	1919	Consultant/Contractor:	SECOR International, Inc.
Address:	1721 Grand Ave.	BP/AR Facility Address:	660 Via de la Valle, Solana Beach, CA	Address:	2655 Camino Del Rio North, Suite 302
	Santa Ana, CA 92705-4808	Site Lat/Long:			San Diego, CA 92108
Lab PM:	Sabina Sudoko	California Global ID No.:	T0607301584	Consultant/Contractor Project No.:	08BP.01919.07/0427
Tele/Fax:	714.258.8610	Enfos Project No.:	G0BQ4-0001	Consultant/Contractor PM:	Brad Eisenberg
BP/AR PM Contact:	Roy Thun	Provision or RCOP:	Provision	Tele/Fax:	619.296.6195/6199
Address:	4 Centerpointe Dr.	Phase/WBS:	Monitoring (04)	Report Type & QC Level:	Normal
	La Palma, CA 90623	Sub Phase/Task:	Analytical	E-mail EDD To:	beisenberg@secor.com
Tele/Fax:	661.287.3855/222-2349	Cost Element:	Subcontracted Cost	Invoice to:	Atlantic Richfield Co.

Lab Bottle Order No:

Item No.	Sample Description	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No.	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: Methanol	Requested Analysis: EPA 8015M GRO C6-C12	Requested Analysis: EPA 8260B BTEX, Oxys, MTBE, EtOH	Sample Point Lat/Long and Comment
1	MW-6	1144	3/8/05		X			6				X		X	X	
2	MW-10	0939			X											
3	MW-11	1000			X											
4	MW-13	1215			X											
5	MW-17	1310			X											
6	MW-19B	1127			X											
7	MW-20	1045			X			12								
8	MW-21	1042			X			6								
9	MW-24	1042			X			6								
10	MW-25	0948			X			8								

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: E. Lughorey	Michelle Bossell	3/9/05	1046	Vinit Padilla	3/9/05	1040
Sampler's Company: SECOR	Vinit Padilla	3/9/05	1225	[illegible]	03/09/05	[illegible]
Shipment Date:						
Shipment Method:						
Shipment Tracking No:						

Special Instructions: Oxy's = TBA, DIPE, TAME, ETBE

Custody Seals In Place Yes No Temp Blank Yes No Cooler Temperature on Receipt °F/C Trip Blank Yes No

Distribution: White Copy - Laboratory / Yellow Copy - BP/Atlantic Richfield Co. / Pink Copy - Consultant/Contractor

BP COC Rev. 4 10/1/04

ARCO SITE #1919

ESC090382

Chain of Custody Record

Project Name: ARCO 1919 Groundwater Monitoring
BP BU/AR Region/Enfos Segment: Retail
State or Lead Regulatory Agency: County of San Diego, DEH
Requested Due Date (mm/dd/yy): Standard TAT

On-site Time:	Temp:
Off-site Time:	Temp:
Sky Conditions:	
Meteorological Events:	
Wind Speed:	Direction:

Lab Name:	STL Los Angeles	BP/AR Facility No.:	1919	Consultant/Contractor:	SECOR International, Inc.
Address:	1721 Grand Ave.	BP/AR Facility Address:	660 Via de la Valle, Solana Beach, CA	Address:	2655 Camino Del Rio North, Suite 302
	Santa Ana, CA 92705-4808	Site Lat/Long:			San Diego, CA 92108
Lab PM:	Sabina Sudoko	California Global ID No.:	T0607301584	Consultant/Contractor Project No.:	08BP.01919.07/0427
Tele/Fax:	714.258.8610	Enfos Project No.:	G0BQ4-0001	Consultant/Contractor PM:	Brad Eisenberg
BP/AR PM Contact:	Roy Thun	Provision or RCOP:	Provision	Tele/Fax:	619.296.6195/6199
Address:	4 Centerpointe Dr.	Phase/WBS:	Monitoring (04)	Report Type & QC Level:	Normal
	La Palma, CA 90623	Sub Phase/Task:	Analytical	E-mail EDD To:	beisenberg@secor.com
Tele/Fax:	661.287.3855/222-2349	Cost Element:	Subcontracted Cost	Invoice to:	Atlantic Richfield Co.

Lab Bottle Order No:

Item No.	Sample Description	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No.	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: Methanol	Requested Analysis: EPA 8015M GRO C6-C12	Requested Analysis: EPA 8260B BTEX, Oxys, MTBE, EtOH	Sample Point Lat/Long and Comment
1	TB-1919-2005 0308	—	3/3/05		X			6				X				HOLD
2	EB-1919-2005 0308	1130	↓		X			6				X				HOLD
3																
4																
5																
6																
7																
8																
9																
10																

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: E. Gudorek	Michele Rosvall	3/9/05	1040	[illegible]	3/9/05	1040
Sampler's Company: Secor	Vincent Pardell	3/9/05	1225	[illegible]	03/09/05	1225
Shipment Date:						
Shipment Method:						
Shipment Tracking No:						

Special Instructions: Oxy's = TBA, DIPE, TAME, ETBE

Custody Seals In Place Yes ___ No ___ Temp Blank Yes ___ No ___ Cooler Temperature on Receipt ___ °F/C Trip Blank Yes ___ No ___

Distribution: White Copy - Laboratory / Yellow Copy - BP/Atlantic Richfield Co. / Pink Copy - Consultant/Contractor

BP COC Rev. 4 10/1/04

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ESC090382

STL LOS ANGELES - PROJECT RECEIPT CHECKLIST Date: 03/09/05

LIMS Lot #: ESC090382 Quote #: 62428

Client Name: Secor S/D Project: ARCO 1919

Received by: BM Date/Time Received: 03/09/05 @ 1005

Delivered by : ☐ Client ☒ STL ☐ DHL ☐ Fed Ex ☐ UPS ☐ Other

****

	Initial / Date
Custody Seal Status Cooler: ☐Intact ☐Broken ☒None	BM 03/09/05
Custody Seal Status Samples: ☐Intact ☐Broken ☒None	
Custody Seal #(s): ☒No Seal #	
Sampler Signature on COC ☐ Yes ☐No ☒N/A	
IR Gun # ____ Correction Factor ____°C IR passed daily verification ☒ Yes ☐No	
Temperature - BLANK 4.2 °C +/-0.1 CF = 4.1 °C	U.P. 3/9/05
Temperature – COOLER (____°C ____°C ____°C ____°C) = ____ avg °C +/- ____ CF = ____°C	BM 03/09/05
Samples outside temperature criteria but received within 6 hours of final sampling ☐ Yes ☒N/A	BM 03/09/05
Sample Container(s): ☒STL-LA ☐ Client	
One COC/Multiple coolers: ☐ Yes- # coolers ____ All within temp criteria ☐ Yes ☐No ☒N/A	
One or more coolers with an anomaly: ☐ Yes – (fill out PRC for each) ☒N/A	
Samples: ☒Intact ☐Broken ☐Other	
pH measured: ☐ Yes ☐ Anomaly (if checked, notify lab and file NCM) ☒N/A	
Anomalies: ☒No ☐Yes – complete CUR and Create NCM NCM #	
Complete shipment received in good condition with correct temperatures, containers, labels, volumes preservatives and within method specified holding times. ☒ Yes ☐ N/A	
Labeled by: BM Labeling checked BM	

****

Turn Around Time: ☐RUSH–24HR ☐RUSH–48HR ☐RUSH–72HR ☒NORMAL

Short-Hold Notification: ☐ pH ☐Wet Chem ☐Metals (Filter/Pres) ☐Encore ☐ >1/2 HT expired...

Outside Analysis(es) (Test/Lab/Date Sent Out) :

_____

_____

_____

********** LEAVE NO BLANK SPACES ; USE N/A **********

Headspace Anomaly ☒N/A BM 03/09/05

Lab ID	Container(s) #	Headspace	Lab ID	Container(s) #	Headspace
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm

LIMS Lot # CS C070306

PROJECT RECEIPT CHECKLIST Cont'd

Fraction	1-6	7	8-12											
VOAH/ *	6	12	0											

* VOA with headspace/bubbles < 6mm

H: HCL, S: H2SO4, N: HNO3, V: VOA, SL, Sleeve, E: Encore, PB: Poly Bottle, CGB: Clear Glass Bottle, AGJ: Amber Glass Jar, T: Terracore
AGB: Amber Glass Bottle, n/f/l:HNO3-Lab filtered, n/f:HNO3-Field filtered, znna: Zinc Acetate/Sodium Hydroxide, Na2s2o3: sodium thiosulfate

Condition Upon Receipt Anomaly Form

☒ N/A 03/09/05

- **COOLERS**
  - ☐ Not Received (received COC only)
  - ☐ Leaking
  - ☐ Other:
- **TEMPERATURE (SPECS 4 ± 2°C)**
  - ☐ Cooler Temp(s)
  - ☐ Temperature Blank(s)
- **CONTAINERS**
  - ☐ Leaking ☐ Voa Vials with Bubbles > 6mm
  - ☐ Broken
  - ☐ Extra
  - ☐ Without Labels
  - ☐ Other:
- **SAMPLES**
  - ☐ Samples NOT RECEIVED but listed on COC
  - ☐ Samples received but NOT LISTED on COC
  - ☐ Logged based on Label Information
  - ☐ Logged based on info from other samples on COC
  - ☐ Logged according to Work Plan
  - ☐ Logged on HOLD UNTIL FURTHER NOTICE
- **CUSTODY SEALS (COOLER(S)**
  - ☐ None
  - ☐ Not Intact
  - ☐ Other

CONTAINER(S)
- ☐ None
- ☐ Not Intact
- ☐ Other

- **CHAIN OF CUSTODY (COC)**
  - ☐ Not relinquished by Client; No date/time relinquished
  - ☐ Incomplete information provided
  - ☐ Other ☐ COC not received – notify PM
- **LABELS**
  - ☐ Not the same ID/info as in COC
  - ☐ Incomplete Information
  - ☐ Markings/Info illegible
  - ☐ Torn
- ☐ Will be noted on COC--Client to send samples with new COC
- ☐ Mislabeled as to tests, preservatives, etc.
- ☐ Holding time expired – list sample ID and test
- ☐ Improper container used
- ☐ Not preserved/Improper preservative used
- ☐ Improper pH _____ Lab to preserve sample and document
- ☐ Insufficient quantities for analysis ☐ Other

Comments:

☐ Corrective Action Implemented:

☐ Client Informed: verbally on _____ By: _____ ☐ In writing on _____ By: _____

☐ Sample(s) on hold until: _____ ☐ Sample(s) processed "as is."

Logged by/Date: 03/09/05

PM Review/Date: 3/10 SL

SECOR International Inc

Client Sample ID: MW-6

GC/MS Volatiles

Lot-Sample #...:	E5C090382-001	Work Order #...:	G5V881AA	Matrix.....:	W
Date Sampled...:	03/08/05 11:44	Date Received..:	03/09/05 12:25	MS Run #.....:	5075262
Prep Date.....:	03/14/05	Analysis Date..:	03/14/05		
Prep Batch #...:	5075486	Analysis Time..:	12:32		
Dilution Factor:	1				
Analyst ID.....:	004648	Instrument ID..:	MSN		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diisopropyl Ether (DIPE)	ND	2.0	ug/L
Benzene	ND	0.50	ug/L
Ethanol	ND IO	500	ug/L
Ethylbenzene	ND	0.50	ug/L
tert-Butyl alcohol	ND	25	ug/L
Toluene	ND	0.50	ug/L
o-Xylene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether (MTBE)	**3.5**	**1.0**	**ug/L**
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L
Tert-amyl methyl ether (TAME)	ND	2.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	86	(75 - 120)
1,2-Dichloroethane-d4	88	(65 - 130)
Toluene-d8	98	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-6

GC Volatiles

Lot-Sample #...:	E5C090382-001	Work Order #...:	G5V881AC	Matrix.....:	W
Date Sampled...:	03/08/05 11:44	Date Received..:	03/09/05 12:25	MS Run #.....:	5073283
Prep Date.....:	03/11/05	Analysis Date..:	03/11/05		
Prep Batch #...:	5073437	Analysis Time..:	16:09		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	94	(70 - 130)

SECOR International Inc

Client Sample ID: MW-10

GC/MS Volatiles

Lot-Sample #...:	E5C090382-002	Work Order #...:	G5V9E1AA	Matrix.....:	W
Date Sampled...:	03/08/05 09:39	Date Received..:	03/09/05 12:25	MS Run #.....:	5075264
Prep Date.....:	03/15/05	Analysis Date..:	03/15/05		
Prep Batch #...:	5075491	Analysis Time..:	15:16		
Dilution Factor:	1				
Analyst ID.....:	004648	Instrument ID..:	MSN		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diisopropyl Ether (DIPE)	ND	2.0	ug/L
Benzene	ND	0.50	ug/L
Ethanol	ND IO	500	ug/L
Ethylbenzene	ND	0.50	ug/L
tert-Butyl alcohol	ND	25	ug/L
Toluene	ND	0.50	ug/L
o-Xylene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether (MTBE)	ND	1.0	ug/L
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L
Tert-amyl methyl ether (TAME)	ND	2.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	92	(75 - 120)
1,2-Dichloroethane-d4	124	(65 - 130)
Toluene-d8	96	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-10

GC Volatiles

Lot-Sample #...:	E5C090382-002	Work Order #...:	G5V9E1AC	Matrix.....:	W
Date Sampled...:	03/08/05 09:39	Date Received..:	03/09/05 12:25	MS Run #.....:	5073283
Prep Date.....:	03/11/05	Analysis Date..:	03/11/05		
Prep Batch #...:	5073437	Analysis Time..:	16:37		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	94	(70 - 130)

SECOR International Inc

Client Sample ID: MW-11

GC/MS Volatiles

Lot-Sample #...:	E5C090382-003	Work Order #...:	G5V9F1AA	Matrix.....:	W
Date Sampled...:	03/08/05 10:00	Date Received..:	03/09/05 12:25	MS Run #.....:	5075262
Prep Date.....:	03/14/05	Analysis Date..:	03/14/05		
Prep Batch #...:	5075486	Analysis Time..:	13:27		
Dilution Factor:	1				
Analyst ID.....:	004648	Instrument ID..:	MSN		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diisopropyl Ether (DIPE)	ND	2.0	ug/L
Benzene	ND	0.50	ug/L
Ethanol	ND IO	500	ug/L
Ethylbenzene	ND	0.50	ug/L
tert-Butyl alcohol	ND	25	ug/L
Toluene	ND	0.50	ug/L
o-Xylene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether (MTBE)	ND	1.0	ug/L
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L
Tert-amyl methyl ether (TAME)	ND	2.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	87	(75 - 120)
1,2-Dichloroethane-d4	88	(65 - 130)
Toluene-d8	96	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-11

GC Volatiles

Lot-Sample #...:	E5C090382-003	Work Order #...:	G5V9F1AC	Matrix.....:	W
Date Sampled...:	03/08/05 10:00	Date Received..:	03/09/05 12:25	MS Run #.....:	5073283
Prep Date.....:	03/11/05	Analysis Date..:	03/11/05		
Prep Batch #...:	5073437	Analysis Time..:	17:07		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	94	(70 - 130)

SECOR International Inc

Client Sample ID: MW-13

GC/MS Volatiles

Lot-Sample #...:	E5C090382-004	Work Order #...:	G5V9G1AA	Matrix.....:	W
Date Sampled...:	03/08/05 12:15	Date Received..:	03/09/05 12:25	MS Run #.....:	5075262
Prep Date.....:	03/14/05	Analysis Date..:	03/14/05		
Prep Batch #...:	5075486	Analysis Time..:	13:49		
Dilution Factor:	1				
Analyst ID.....:	004648	Instrument ID..:	MSN		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diisopropyl Ether (DIPE)	ND	2.0	ug/L
Benzene	ND	0.50	ug/L
Ethanol	ND IO	500	ug/L
Ethylbenzene	ND	0.50	ug/L
tert-Butyl alcohol	ND	25	ug/L
Toluene	ND	0.50	ug/L
o-Xylene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether (MTBE)	**9.3**	**1.0**	**ug/L**
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L
Tert-amyl methyl ether (TAME)	ND	2.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	86	(75 - 120)
1,2-Dichloroethane-d4	83	(65 - 130)
Toluene-d8	95	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-13

GC Volatiles

Lot-Sample #...:	E5C090382-004	Work Order #...:	G5V9G1AC	Matrix.....:	W
Date Sampled...:	03/08/05 12:15	Date Received..:	03/09/05 12:25	MS Run #.....:	5073283
Prep Date.....:	03/11/05	Analysis Date..:	03/11/05		
Prep Batch #...:	5073437	Analysis Time..:	17:35		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	92	(70 - 130)

SECOR International Inc

Client Sample ID: MW-17

GC/MS Volatiles

Lot-Sample #...:	E5C090382-005	Work Order #...:	G5V9H1AA	Matrix.....:	W
Date Sampled...:	03/08/05 13:10	Date Received..:	03/09/05 12:25	MS Run #.....:	5075262
Prep Date.....:	03/14/05	Analysis Date..:	03/14/05		
Prep Batch #...:	5075486	Analysis Time..:	17:06		
Dilution Factor:	5				
Analyst ID.....:	004648	Instrument ID..:	MSN		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diisopropyl Ether (DIPE)	ND	10	ug/L
Benzene	**4.7**	**2.5**	**ug/L**
Ethanol	ND IO	2500	ug/L
Ethylbenzene	**4.3**	**2.5**	**ug/L**
tert-Butyl alcohol	**250**	**120**	**ug/L**
Toluene	ND	2.5	ug/L
o-Xylene	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L
m-Xylene & p-Xylene	ND	5.0	ug/L
Methyl tert-butyl ether (MTBE)	**220**	**5.0**	**ug/L**
Ethyl-t-Butyl Ether (ETBE)	ND	10	ug/L
Tert-amyl methyl ether (TAME)	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	93	(75 - 120)
1,2-Dichloroethane-d4	88	(65 - 130)
Toluene-d8	100	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-17

GC Volatiles

Lot-Sample #...:	E5C090382-005	Work Order #...:	G5V9H1AC	Matrix.....:	W
Date Sampled...:	03/08/05 13:10	Date Received..:	03/09/05 12:25	MS Run #.....:	5073283
Prep Date.....:	03/11/05	Analysis Date..:	03/11/05		
Prep Batch #...:	5073437	Analysis Time..:	18:03		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	160	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	107	(70 - 130)

SECOR International Inc

Client Sample ID: **MW-19B**

GC/MS Volatiles

Lot-Sample #...:	E5C090382-006	Work Order #...:	G5V9K1AA	Matrix.....:	W
Date Sampled...:	03/08/05 11:17	Date Received..:	03/09/05 12:25	MS Run #.....:	5077291
Prep Date.....:	03/16/05	Analysis Date..:	03/16/05		
Prep Batch #...:	5076360	Analysis Time..:	10:50		
Dilution Factor:	25				
Analyst ID.....:	004648	Instrument ID..:	MSN		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diisopropyl Ether (DIPE)	ND	50	ug/L
Benzene	**81**	**12**	**ug/L**
Ethanol	ND IO	12000	ug/L
Ethylbenzene	**1800**	**12**	**ug/L**
tert-Butyl alcohol	ND	620	ug/L
Toluene	**840**	**12**	**ug/L**
o-Xylene	**870**	**25**	**ug/L**
Xylenes (total)	**2200**	**25**	**ug/L**
m-Xylene & p-Xylene	**1300**	**25**	**ug/L**
Methyl tert-butyl ether (MTBE)	ND	25	ug/L
Ethyl-t-Butyl Ether (ETBE)	ND	50	ug/L
Tert-amyl methyl ether (TAME)	ND	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	99	(75 - 120)
1,2-Dichloroethane-d4	108	(65 - 130)
Toluene-d8	97	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-19B

GC Volatiles

Lot-Sample #...:	E5C090382-006	Work Order #...:	G5V9K1AC	Matrix.....:	W
Date Sampled...:	03/08/05 11:17	Date Received..:	03/09/05 12:25	MS Run #.....:	5073283
Prep Date.....:	03/11/05	Analysis Date..:	03/11/05		
Prep Batch #...:	5073437	Analysis Time..:	18:31		
Dilution Factor:	25				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846.8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	8900	2500	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	102	(70 - 130)

SECOR International Inc

Client Sample ID: MW-20

GC Volatiles

Lot-Sample #...:	E5C090382-007	Work Order #...:	G5V9M1AC	Matrix.....:	W
Date Sampled...:	03/08/05 10:45	Date Received..:	03/09/05 12:25	MS Run #.....:	5076208
Prep Date.....:	03/16/05	Analysis Date..:	03/16/05		
Prep Batch #...:	5076320	Analysis Time..:	13:21		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	95	(70 - 130)

SECOR International Inc

Client Sample ID: MW-21

GC/MS Volatiles

Lot-Sample #...:	E5C090382-008	Work Order #...:	G5V9P1AA	Matrix.....:	W
Date Sampled...:	03/08/05 10:43	Date Received..:	03/09/05 12:25	MS Run #.....:	5075262
Prep Date.....:	03/14/05	Analysis Date..:	03/14/05		
Prep Batch #...:	5075486	Analysis Time..:	17:51		
Dilution Factor:	25				
Analyst ID.....:	004648	Instrument ID..:	MSN		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diisopropyl Ether (DIPE)	ND	50	ug/L
Benzene	**490**	**12**	**ug/L**
Ethanol	ND IO	12000	ug/L
Ethylbenzene	**1700**	**12**	**ug/L**
tert-Butyl alcohol	ND	620	ug/L
Toluene	**490**	**12**	**ug/L**
o-Xylene	**1200**	**25**	**ug/L**
Xylenes (total)	**4500**	**25**	**ug/L**
m-Xylene & p-Xylene	**3300**	**25**	**ug/L**
Methyl tert-butyl ether (MTBE)	**84**	**25**	**ug/L**
Ethyl-t-Butyl Ether (ETBE)	ND	50	ug/L
Tert-amyl methyl ether (TAME)	ND	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	92	(75 - 120)
1,2-Dichloroethane-d4	88	(65 - 130)
Toluene-d8	91	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-21

GC Volatiles

Lot-Sample #...:	E5C090382-008	Work Order #...:	G5V9P1AC	Matrix.....:	W
Date Sampled...:	03/08/05 10:43	Date Received..:	03/09/05 12:25	MS Run #.....:	5073283
Prep Date.....:	03/11/05	Analysis Date..:	03/11/05		
Prep Batch #...:	5073437	Analysis Time..:	20:51		
Dilution Factor:	25				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	9700	2500	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	102	(70 - 130)

SECOR International Inc

Client Sample ID: MW-24

GC/MS Volatiles

Lot-Sample #...:	E5C090382-009	Work Order #...:	G5V9T1AA	Matrix.....:	W
Date Sampled...:	03/08/05 10:42	Date Received..:	03/09/05 12:25	MS Run #.....:	5075262
Prep Date.....:	03/14/05	Analysis Date..:	03/14/05		
Prep Batch #...:	5075486	Analysis Time..:	14:33		
Dilution Factor:	1				
Analyst ID.....:	004648	Instrument ID..:	MSN		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diisopropyl Ether (DIPE)	ND	2.0	ug/L
Benzene	ND	0.50	ug/L
Ethanol	ND IO	500	ug/L
Ethylbenzene	ND	0.50	ug/L
tert-Butyl alcohol	ND	25	ug/L
Toluene	ND	0.50	ug/L
o-Xylene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether (MTBE)	**69**	**1.0**	**ug/L**
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L
Tert-amyl methyl ether (TAME)	ND	2.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	90	(75 - 120)
1,2-Dichloroethane-d4	77	(65 - 130)
Toluene-d8	96	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-24

GC Volatiles

Lot-Sample #...:	E5C090382-009	Work Order #...:	G5V9T1AC	Matrix.....:	W
Date Sampled...:	03/08/05 10:42	Date Received..:	03/09/05 12:25	MS Run #.....:	5073283
Prep Date.....:	03/11/05	Analysis Date..:	03/11/05		
Prep Batch #...:	5073437	Analysis Time..:	21:19		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	92	(70 - 130)

SECOR International Inc

Client Sample ID: MW-25

GC/MS Volatiles

Lot-Sample #...:	E5C090382-010	Work Order #...:	G5V9W1AA	Matrix.....:	W
Date Sampled...:	03/08/05 09:48	Date Received..:	03/09/05 12:25	MS Run #.....:	5075262
Prep Date.....:	03/14/05	Analysis Date..:	03/14/05		
Prep Batch #...:	5075486	Analysis Time..:	14:55		
Dilution Factor:	1				
Analyst ID.....:	004648	Instrument ID..:	MSN		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diisopropyl Ether (DIPE)	ND	2.0	ug/L
Benzene	ND	0.50	ug/L
Ethanol	ND IO	500	ug/L
Ethylbenzene	ND	0.50	ug/L
tert-Butyl alcohol	**330**	**25**	**ug/L**
Toluene	ND	0.50	ug/L
o-Xylene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether (MTBE)	**72**	**1.0**	**ug/L**
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L
Tert-amyl methyl ether (TAME)	ND	2.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	90	(75 - 120)
1,2-Dichloroethane-d4	80	(65 - 130)
Toluene-d8	98	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-25

GC Volatiles

Lot-Sample #...:	E5C090382-010	Work Order #...:	G5V9W1AC	Matrix.....:	W
Date Sampled...:	03/08/05 09:48	Date Received..:	03/09/05 12:25	MS Run #.....:	5073283
Prep Date.....:	03/11/05	Analysis Date..:	03/11/05		
Prep Batch #...:	5073437	Analysis Time..:	21:47		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	90	(70 - 130)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: E5C090382
MB Lot-Sample #: E5C160000-486

Analysis Date..: 03/14/05
Dilution Factor: 1

Work Order #...: G6C931AA

Prep Date.....: 03/14/05
Prep Batch #...: 5075486

Analyst ID.....: 004648

Matrix.....: WATER

Analysis Time..: 09:26
Instrument ID..: MSN

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	0.50	ug/L	SW846 8260B
Ethanol	ND IO	500	ug/L	SW846 8260B
Ethylbenzene	ND	0.50	ug/L	SW846 8260B
tert-Butyl alcohol	ND	25	ug/L	SW846 8260B
Toluene	ND	0.50	ug/L	SW846 8260B
o-Xylene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	1.0	ug/L	SW846 8260B
m-Xylene & p-Xylene	ND	1.0	ug/L	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	1.0	ug/L	SW846 8260B
Diisopropyl Ether (DIPE)	ND	2.0	ug/L	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	ND	2.0	ug/L	SW846 8260B
Tert-amyl methyl ether (T	ND	2.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	90	(75 - 120)
1,2-Dichloroethane-d4	97	(65 - 130)
Toluene-d8	96	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IO Contract limits originate from BP-GCLN Technical Requirements

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: E5C090382
MB Lot-Sample #: E5C160000-491

Work Order #...: G6DAK1AA
Prep Date.....: 03/15/05
Prep Batch #...: 5075491
Analyst ID.....: 004648

Matrix.....: WATER
Analysis Time..: 12:44
Instrument ID..: MSN

Analysis Date..: 03/15/05
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	0.50	ug/L	SW846 8260B
Ethanol	ND IO	500	ug/L	SW846 8260B
Ethylbenzene	ND	0.50	ug/L	SW846 8260B
tert-Butyl alcohol	ND	25	ug/L	SW846 8260B
Toluene	ND	0.50	ug/L	SW846 8260B
o-Xylene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	1.0	ug/L	SW846 8260B
m-Xylene & p-Xylene	ND	1.0	ug/L	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	1.0	ug/L	SW846 8260B
Diisopropyl Ether (DIPE)	ND	2.0	ug/L	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	ND	2.0	ug/L	SW846 8260B
Tert-amyl methyl ether (T	ND	2.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	86	(75 - 120)
1,2-Dichloroethane-d4	90	(65 - 130)
Toluene-d8	95	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IO Contract limits originate from BP-GCLN Technical Requirements

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: E5C090382
MB Lot-Sample #: E5C170000-360
Analysis Date..: 03/16/05
Dilution Factor: 1

Work Order #...: G6GED1AA
Prep Date.....: 03/16/05
Prep Batch #...: 5076360
Analyst ID.....: 004648

Matrix.....: WATER
Analysis Time..: 07:40
Instrument ID..: MSN

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	0.50	ug/L	SW846 8260B
Ethanol	ND IO	500	ug/L	SW846 8260B
Ethylbenzene	ND	0.50	ug/L	SW846 8260B
tert-Butyl alcohol	ND	25	ug/L	SW846 8260B
Toluene	ND	0.50	ug/L	SW846 8260B
o-Xylene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	1.0	ug/L	SW846 8260B
m-Xylene & p-Xylene	ND	1.0	ug/L	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	1.0	ug/L	SW846 8260B
Diisopropyl Ether (DIPE)	ND	2.0	ug/L	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	ND	2.0	ug/L	SW846 8260B
Tert-amyl methyl ether (T	ND	2.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	92	(75 - 120)
1,2-Dichloroethane-d4	99	(65 - 130)
Toluene-d8	93	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IO Contract limits originate from BP-GCLN Technical Requirements

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: E5C090382
MB Lot-Sample #: E5C140000-437
Analysis Date..: 03/11/05
Dilution Factor: 1

Work Order #...: G568J1AA
Prep Date.....: 03/11/05
Prep Batch #...: 5073437
Analyst ID.....: 001464

Matrix.....: WATER
Analysis Time..: 15:13
Instrument ID..: G13

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
GRO (C6 - C12)	ND	100	ug/L	SW846 8015B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	96	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: E5C090382
MB Lot-Sample #: E5C170000-320

Analysis Date..: 03/16/05
Dilution Factor: 1

Work Order #...: G6F351AA

Prep Date.....: 03/16/05
Prep Batch #...: 5076320

Analyst ID.....: 001464

Matrix.....: WATER

Analysis Time..: 11:57
Instrument ID..: G13

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
GRO (C6 - C12)	ND	100	ug/L	SW846 8015B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	96	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E5C090382 **Work Order #...:** G6C931AC **Matrix.....:** WATER
LCS Lot-Sample#: E5C160000-486
Prep Date.....: 03/14/05 **Analysis Date..:** 03/14/05
Prep Batch #...: 5075486 **Analysis Time..:** 09:04
Dilution Factor: 1 **Instrument ID..:** MSN
Analyst ID.....: 004648

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	10.0	8.93	ug/L	89	SW846 8260B
tert-Butyl alcohol	50.0	35.2	ug/L	70	SW846 8260B
Ethanol	2000	1730 IO	ug/L	86	SW846 8260B
Tert-amyl methyl ether (T	10.0	11.0	ug/L	110	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	10.0	10.9	ug/L	109	SW846 8260B
Ethylbenzene	10.0	9.85	ug/L	98	SW846 8260B
Diisopropyl Ether (DIPE)	10.0	10.2	ug/L	102	SW846 8260B
Methyl tert-butyl ether (MTBE)	10.0	9.89	ug/L	99	SW846 8260B
Toluene	10.0	8.62	ug/L	86	SW846 8260B
m-Xylene & p-Xylene	20.0	20.6	ug/L	103	SW846 8260B
o-Xylene	10.0	10.4	ug/L	104	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	93	(75 - 120)
1,2-Dichloroethane-d4	91	(65 - 130)
Toluene-d8	97	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

IO Contract limits originate from BP-GCLN Technical Requirements

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E5C090382 Work Order #...: G6DAK1AC Matrix.....: WATER
LCS Lot-Sample#: E5C160000-491
Prep Date.....: 03/15/05 Analysis Date..: 03/15/05
Prep Batch #...: 5075491 Analysis Time..: 12:22
Dilution Factor: 1 Instrument ID..: MSN
Analyst ID.....: 004648

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	10.0	10.9	ug/L	109	SW846 8260B
tert-Butyl alcohol	50.0	46.4	ug/L	93	SW846 8260B
Ethanol	2000	2080 IO	ug/L	104	SW846 8260B
Tert-amyl methyl ether (T	10.0	11.1	ug/L	111	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	10.0	10.9	ug/L	109	SW846 8260B
Ethylbenzene	10.0	11.7	ug/L	117	SW846 8260B
Diisopropyl Ether (DIPE)	10.0	10.8	ug/L	108	SW846 8260B
Methyl tert-butyl ether (MTBE)	10.0	10.7	ug/L	107	SW846 8260B
Toluene	10.0	11.0	ug/L	110	SW846 8260B
m-Xylene & p-Xylene	20.0	22.1	ug/L	110	SW846 8260B
o-Xylene	10.0	11.4	ug/L	114	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	100	(75 - 120)
1,2-Dichloroethane-d4	96	(65 - 130)
Toluene-d8	102	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

IO Contract limits originate from BP-GCLN Technical Requirements

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E5C090382 Work Order #...: G6GED1AC Matrix.....: WATER
LCS Lot-Sample#: E5C170000-360
Prep Date.....: 03/16/05 Analysis Date..: 03/16/05
Prep Batch #...: 5076360 Analysis Time..: 07:18
Dilution Factor: 1 Instrument ID..: MSN
Analyst ID.....: 004648

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	10.0	11.3	ug/L	113	SW846 8260B
tert-Butyl alcohol	50.0	66.7	ug/L	133	SW846 8260B
Ethanol	2000	2100 IO	ug/L	105	SW846 8260B
Tert-amyl methyl ether (T	10.0	11.3	ug/L	113	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	10.0	10.8	ug/L	108	SW846 8260B
Ethylbenzene	10.0	12.3	ug/L	123	SW846 8260B
Diisopropyl Ether (DIPE)	10.0	11.5	ug/L	115	SW846 8260B
Methyl tert-butyl ether (MTBE)	10.0	11.1	ug/L	111	SW846 8260B
Toluene	10.0	11.6	ug/L	116	SW846 8260B
m-Xylene & p-Xylene	20.0	22.7	ug/L	114	SW846 8260B
o-Xylene	10.0	11.8	ug/L	118	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	104	(75 - 120)
1,2-Dichloroethane-d4	109	(65 - 130)
Toluene-d8	107	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

IO Contract limits originate from BP-GCLN Technical Requirements

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: E5C090382 Work Order #...: G568J1AC Matrix.....: WATER
LCS Lot-Sample#: E5C140000-437
Prep Date.....: 03/11/05 Analysis Date..: 03/11/05
Prep Batch #...: 5073437 Analysis Time..: 15:41
Dilution Factor: 1 Instrument ID..: G13
Analyst ID.....: 001464

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
GRO (C6 - C12)	**1000**	**945**	**ug/L**	**95**	**SW846 8015B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	121	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E5C090382 Work Order #...: G5L241AD-MS Matrix.....: WATER
MS Lot-Sample #: E5C040437-009 G5L241AE-MSD
Date Sampled...: 03/02/05 13:10 Date Received..: 03/04/05 18:30 MS Run #.....: 5075262
Prep Date.....: 03/14/05 Analysis Date..: 03/14/05
Prep Batch #...: 5075486 Analysis Time..: 18:13
Dilution Factor: 1 Analyst ID.....: 004648 Instrument ID..: MSN

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzene	ND	10.0	9.25	ug/L	92		SW846 8260B
	ND	10.0	9.50	ug/L	95	2.7	SW846 8260B
tert-Butyl alcohol	ND	50.0	113	ug/L	226		SW846 8260B
	ND	50.0	149	ug/L	297	27	SW846 8260B
Ethanol	ND	2000	1900	ug/L	95 IO		SW846 8260B
	ND	2000	1960	ug/L	98 IO	3.1	SW846 8260B
Tert-amyl methyl ether (T	ND	10.0	11.0	ug/L	110		SW846 8260B
	ND	10.0	11.2	ug/L	112	2.3	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	ND	10.0	10.7	ug/L	107		SW846 8260B
	ND	10.0	11.5	ug/L	115	7.1	SW846 8260B
Ethylbenzene	ND	10.0	10.6	ug/L	106		SW846 8260B
	ND	10.0	10.6	ug/L	106	0.18	SW846 8260B
Diisopropyl Ether (DIPE)	ND	10.0	12.6	ug/L	121		SW846 8260B
	ND	10.0	12.9	ug/L	124	2.6	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	10.0	10.2	ug/L	102		SW846 8260B
	ND	10.0	10.6	ug/L	106	4.0	SW846 8260B
Toluene	ND	10.0	9.08	ug/L	91		SW846 8260B
	ND	10.0	9.40	ug/L	94	3.5	SW846 8260B
m-Xylene & p-Xylene	ND	20.0	22.8	ug/L	114		SW846 8260B
	ND	20.0	22.5	ug/L	113	1.1	SW846 8260B
o-Xylene	ND	10.0	11.2	ug/L	112		SW846 8260B
	ND	10.0	11.6	ug/L	116	2.9	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	92	(75 - 120)
	93	(75 - 120)
1,2-Dichloroethane-d4	80	(65 - 130)
	80	(65 - 130)
Toluene-d8	100	(80 - 130)
	101	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Spiked analyte recovery is outside stated control limits.

IO Contract limits originate from BP-GCLN Technical Requirements

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E5C090382 Work Order #...: G5WAR1AD-MS Matrix.....: WATER
MS Lot-Sample #: E5C090386-012 G5WAR1AE-MSD
Date Sampled...: 03/09/05 02:43 Date Received..: 03/09/05 12:25 MS Run #.....: 5075264
Prep Date.....: 03/15/05 Analysis Date..: 03/15/05
Prep Batch #...: 5075491 Analysis Time..: 15:38
Dilution Factor: 1 Analyst ID.....: 004648 Instrument ID..: MSN

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzene	ND	10.0	11.2	ug/L	112		SW846 8260B
	ND	10.0	10.8	ug/L	108	4.4	SW846 8260B
tert-Butyl alcohol	ND	50.0	106	ug/L	213 LM		SW846 8260B
	ND	50.0	103	ug/L	205 LM	3.5	SW846 8260B
Ethanol	ND	2000	2590	ug/L	130 IO		SW846 8260B
	ND	2000	2570	ug/L	129	0.85	SW846 8260B
Tert-amyl methyl ether (T	ND	10.0	11.2	ug/L	112		SW846 8260B
	ND	10.0	10.4	ug/L	104	7.4	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	ND	10.0	10.3	ug/L	103		SW846 8260B
	ND	10.0	9.89	ug/L	99	4.2	SW846 8260B
Ethylbenzene	0.53	10.0	11.6	ug/L	111		SW846 8260B
	0.53	10.0	10.9	ug/L	104	6.4	SW846 8260B
Diisopropyl Ether (DIPE)	ND	10.0	11.2	ug/L	112		SW846 8260B
	ND	10.0	10.6	ug/L	106	5.5	SW846 8260B
Methyl tert-butyl ether (MTBE)	1.3	10.0	11.4	ug/L	101		SW846 8260B
	1.3	10.0	11.1	ug/L	98	2.6	SW846 8260B
Toluene	ND	10.0	11.3	ug/L	113		SW846 8260B
	ND	10.0	10.5	ug/L	105	7.4	SW846 8260B
m-Xylene & p-Xylene	ND	20.0	22.4	ug/L	112		SW846 8260B
	ND	20.0	20.3	ug/L	102	9.8	SW846 8260B
o-Xylene	ND	10.0	11.5	ug/L	112		SW846 8260B
	ND	10.0	10.6	ug/L	102	8.4	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	95	(75 - 120)
	93	(75 - 120)
1,2-Dichloroethane-d4	113	(65 - 130)
	126	(65 - 130)
Toluene-d8	96	(80 - 130)
	96	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Spiked analyte recovery is outside stated control limits.

LM MS and/or MSD above acceptance limits. See Blank Spike (LCS).

IO Contract limits originate from BP-GCLN Technical Requirements

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...:	E5C090382	Work Order #...:	G6KM21AC-MS	Matrix.....:	WATER
MS Lot-Sample #:	E5B180344-003		G6KM21AD-MSD		
Date Sampled...:	03/02/05 14:40	Date Received..:	03/04/05 18:30	MS Run #.....:	5077291
Prep Date.....:	03/16/05	Analysis Date..:	03/16/05		
Prep Batch #...:	5076360	Analysis Time..:	16:06		
Dilution Factor:	10	Analyst ID.....:	004648	Instrument ID..:	MSN

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzene	ND	100	107	ug/L	107		SW846 8260B
	ND	100	106	ug/L	106	1.0	SW846 8260B
tert-Butyl alcohol	ND	500	395	ug/L	79		SW846 8260B
	ND	500	439	ug/L	88	11	SW846 8260B
Ethanol	ND	20000	20800	ug/L	104 IO		SW846 8260B
	ND	20000	20200	ug/L	101 IO	2.7	SW846 8260B
Tert-amyl methyl ether (T	ND	100	109	ug/L	109		SW846 8260B
	ND	100	107	ug/L	107	1.5	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	ND	100	96.1	ug/L	96		SW846 8260B
	ND	100	101	ug/L	101	5.3	SW846 8260B
Ethylbenzene	ND	100	98.1	ug/L	98		SW846 8260B
	ND	100	109	ug/L	109	11	SW846 8260B
Diisopropyl Ether (DIPE)	ND	100	111	ug/L	111		SW846 8260B
	ND	100	112	ug/L	112	1.1	SW846 8260B
Methyl tert-butyl ether (MTBE)	620	100	742	ug/L	125		SW846 8260B
	620	100	737	ug/L	120	0.67	SW846 8260B
Toluene	ND	100	96.7	ug/L	97		SW846 8260B
	ND	100	106	ug/L	106	9.4	SW846 8260B
m-Xylene & p-Xylene	ND	200	188	ug/L	94		SW846 8260B
	ND	200	212	ug/L	106	12	SW846 8260B
o-Xylene	ND	100	96.2	ug/L	96		SW846 8260B
	ND	100	110	ug/L	110	14	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	87	(75 - 120)
	98	(75 - 120)
1,2-Dichloroethane-d4	93	(65 - 130)
	94	(65 - 130)
Toluene-d8	90	(80 - 130)
	98	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

IO Contract limits originate from BP-GCLN Technical Requirements

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...:	E5C090382	Work Order #...:	G531N1AD-MS	Matrix.....:	WATER
MS Lot-Sample #:	E5C110335-001		G531N1AE-MSD		
Date Sampled...:	03/09/05 11:00	Date Received..:	03/11/05 12:10	MS Run #.....:	5076208
Prep Date.....:	03/16/05	Analysis Date..:	03/17/05		
Prep Batch #...:	5076320	Analysis Time..:	00:07		
Dilution Factor:	1	Analyst ID.....:	001464	Instrument ID..:	G13

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
GRO (C6 - C12)	**ND**	**1000**	**939**	**ug/L**	**94**		**SW846 8015B**
	ND	**1000**	**924**	**ug/L**	**92**	**1.6**	**SW846 8015B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	125	(70 - 130)
	124	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 19B
	Project Name: ARCO 1919		Date: 3/8/05
	Project Number: 08BP.U1919.05 / 4142		Sample Time: 1127
	SECOR Rep: EG, AF	Checked by:	Sample No: MW- 19B

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 8	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: ___Vac Truck X Bailer ___Submersible Pump ___Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID: 1	Depth to Water (DTW_1) (ft): 10.58	
Sampling Method: ___Teflon Bailer X Disposable Bailer ___Other:	Total Well Depth (DTB) (ft): 14.34	Water Column: 3.76
Decontamination Method: ___Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___Other:	Floating Product: —	Thickness (in): —
	Borehole Volume (gal): 5.64	1.5 Borehole Volumes (gal): 8.46

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
10:48	Started Purging					
10:58	Dry	6	7.32	20.7	1884	Strong; high, dr. gray
11:09	Dry	9	7.30	20.7	1930	Strong, high, dr gray
1127	11.33	Sample				

Maximum Drawdown (DTW_2) (ft) = 14.34

H_2O Removal Rate (GPM) = 0.43

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1127

Depth to Water at time of sampling (DTW_3): 11.33

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 (DTB-DTW_1)
2	10	1.14 (DTB-DTW_1)
4	10	1.50 (DTB-DTW_1)
4	12	1.95 (DTB-DTW_1)
6	10	2.11 (DTB-DTW_1)

Notes:

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(10.58) - (11.33)}{(10.58) - (14.34)}$$

-0.75

-3.76

$= 80\%$

80% Recharge = 11.33

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG	Well No: MW- 20
	Project Name: ARCO 1919	Date: 3/8/05
	Project Number: 08BP.U1919.05 / 4142	Sample Time: 1045
	SECOR Rep: Andrew / EG — Checked by:	Sample No: MW- 20

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS
Water Level Meter Type & ID: Solinist # 2	Borehole Diameter (in): 8 (10) 12
Purging Equipment / Method: ___ Vac Truck ___ Submersible Pump X Bailer ___ Other	Casing Diameter (in): 2 (4)
pH Temp/Conductivity Meter Type / ID: 1	Depth to Water (DTW_1) (ft): 7.36
Sampling Method: ___ Teflon Bailer X Disposable Bailer ___ Other:	Total Well Depth (DTB) (ft): 18.83 — Water Column: 11.47
Decontamination Method: ___ Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___ Other:	Floating Product: — — Thickness (in): —
	Borehole Volume (gal): 17.21 — 1.5 Borehole Volumes (gal): 25.81

PURGING INFORMATION

Time (SS)	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
0955	Started Purging					
0958	15.79	17	7.18	21.3	2860	black, strong HC odor
1023	18.83	26	7.16	21.5	2860	" " "
1045	9.65	Sample				

Maximum Drawdown (DTW_2) (ft) = 18.83 / DRY

H_2O Removal Rate (GPM) = 0.93

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1045

Depth to Water at time of sampling (DTW_3): 9.65

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 (DTB-DTW_1)
2	10	1.14 (DTB-DTW_1)
4	10	1.50 (DTB-DTW_1)
4	12	1.95 (DTB-DTW_1)
6	10	2.11 (DTB-DTW_1)

Notes:

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(7.36) - (9.65)}{(7.36) - (18.83)} = \frac{-2.29}{-11.47} = 80\ \%$$

80% Recharge = 9.65

* 12 samples taken

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 21
	Project Name: ARCO 1919		Date: 3/8/05
	Project Number: 08BP.U1919.05 / 4142		Sample Time: 1043
	SECOR Rep: Andrew F / EG	Checked by:	Sample No: MW- 21

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 2	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: ___ Vac Truck ___ Submersible Pump X Bailer ___ Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID: 1	Depth to Water (DTW_1) (ft): 7.52	
Sampling Method: ___ Teflon Bailer X Disposable Bailer ___ Other:	Total Well Depth (DTB) (ft): 11.78	Water Column: 4.26
	Floating Product: —	Thickness (in): —
Decontamination Method: X Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___ Other:	Borehole Volume (gal): 6.39	1.5 Borehole Volumes (gal): 9.59

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1029	Started Purging					
1034	10.62	7	7.12	20.4	2210	Slag, HC odor
1037	9.35	10	7.20	20.5	2300	
1043	7.65	Sample				

Maximum Drawdown (DTW_2) (ft) = 10.62

H_2O Removal Rate (GPM) = 1.25

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1043

Depth to Water at time of sampling (DTW_3): 7.65

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 (DTB-DTW_1)
2	10	1.14 (DTB-DTW_1)
4	10	1.50 (DTB-DTW_1)
4	12	1.95 (DTB-DTW_1)
6	10	2.11 (DTB-DTW_1)

Notes:

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(7.52) - (7.65)}{(7.52) - (10.62)} = \frac{-0.13}{-3.1} = 96\%$$

80% Recharge = 8.14

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 22
	Project Name: ARCO 1919		Date: 3/7/05
	Project Number: 08BP.U1919.05 / 4142		Sample Time: 1241
	SECOR Rep: S. Martin	Checked by:	Sample No: MW- 22

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 8	Borehole Diameter (in): (8) 10 12	
Purging Equipment / Method: ___Vac Truck ___Bailer ✓ X Submersible Pump ___Other	Casing Diameter (in): (2) 4	
pH Temp/Conductivity Meter Type / ID:	Depth to Water (DTW_1) (ft): 4.63	
Sampling Method: ___Teflon Bailer ✓ Disposable Bailer ___Other:	Total Well Depth (DTB) (ft): 18.10	Water Column: 13.47
Decontamination Method: ___Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___Other:	Floating Product:	Thickness (in):
	Borehole Volume (gal): 10.37 (NLF) ~~20.25~~	1.5 Borehole Volumes (gal): 15.55

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1228	Started Purging					
1232	6.66	11	6.84	22.2	7830	None, silty grey
1235	6.30	16	6.89	22.1	8050	" "
1241	4.70	*Sample				

Maximum Drawdown (DTW_2) (ft) = 6.60

H_2O Removal Rate (GPM) = 2.29

✓ X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1241

Depth to Water at time of sampling (DTW_3): 4.70

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 (DTB-DTW_1)
2	10	1.14 (DTB-DTW_1)
4	10	1.50 (DTB-DTW_1)
4	12	1.95 (DTB-DTW_1)
6	10	2.11 (DTB-DTW_1)

Notes: * Roots in well; disturbed to avoid when sampling

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(4.63) - (4.70)}{(4.63) - (6.60)}$$

-.07
-1.97
= 96 %

80% Recharge = 5.02

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 23
	Project Name: ARCO 1919		Date: 3-7-05
	Project Number: 08BP.U1919.05 / 4142		Sample Time: 1051
	SECOR Rep: Adrian Campos	Checked by:	Sample No: MW- 23

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 5	Borehole Diameter (in): (8) 10 12	
Purging Equipment / Method: ___ Vac Truck ✓ Bailer ___ Submersible Pump ___ Other	Casing Diameter (in): (2) 4	
pH Temp/Conductivity Meter Type / ID: 4	Depth to Water (DTW_1) (ft): 6.67	
Sampling Method: ___ Teflon Bailer ✓ Disposable Bailer ___ Other:	Total Well Depth (DTB) (ft): 20.30	Water Column: 13.63
Decontamination Method: ___ Steam / High Pressure Wash ✓ 3 Stage (Alconox, Tap & DI rinse) ___ Other:	Floating Product: —	Thickness (in): —
	Borehole Volume (gal): 10.49	1.5 Borehole Volumes (gal): 15.74

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
0941	Started Purging					
0956	17.93	11	7.08	20.4	846	None, Mod, BRN
1014	18.52	16	6.97	20.8	855	None, Mod, BRN
1051	9.04	Sample				

Maximum Drawdown (DTW_2) (ft) = 18.52

H_2O Removal Rate (GPM) = ~~1.52~~ 0.48

✓ Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1051

Depth to Water at time of sampling (DTW_3): 9.04

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 (DTB-DTW_1)
2	10	1.14 (DTB-DTW_1)
4	10	1.50 (DTB-DTW_1)
4	12	1.95 (DTB-DTW_1)
6	10	2.11 (DTB-DTW_1)

Notes:

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(6.67) - (9.04)}{(6.67) - (18.52)} = \frac{2.37}{11.85} = 80\%$$

80% Recharge = 9.04

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 24
	Project Name: ARCO 1919		Date: 3-8-05
	Project Number: 08BP.U1919.05 / 4142		Sample Time: 1042
	SECOR Rep: Adrian Campos	Checked by:	Sample No: MW- 24

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 5	Borehole Diameter (in): (8) 10 12	
Purging Equipment / Method: ___ Vac Truck ___ Submersible Pump X Bailer ___ Other	Casing Diameter (in): (2) 4	
pH Temp/Conductivity Meter Type / ID: 1	Depth to Water (DTW_1) (ft): 3.54	
Sampling Method: ___ Teflon Bailer X Disposable Bailer ___ Other:	Total Well Depth (DTB) (ft): 16.73	Water Column: 13.19
Decontamination Method: ___ Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___ Other:	Floating Product: —	Thickness (in): —
	Borehole Volume (gal): 10.15	1.5 Borehole Volumes (gal): ~~1.5~~ 15.23

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1022	Started Purging					
1029	5.21	11	7.30	20.7	5.58m	Slight, Mod, BRN
1037	4.49	16	7.40	20.6	5.46 M	Mild, Mod, BRN
1042	3.87	Sample				

Maximum Drawdown (DTW_2) (ft) = 5.21

H_2O Removal Rate (GPM) = ~~8~~ 1.07

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1042

Depth to Water at time of sampling (DTW_3): 3.87

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 ($DTB-DTW_1$)
2	10	1.14 ($DTB-DTW_1$)
4	10	1.50 ($DTB-DTW_1$)
4	12	1.95 ($DTB-DTW_1$)
6	10	2.11 ($DTB-DTW_1$)

Notes:

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1)-(DTW_3)}{(DTW_1)-(DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(3.54)-(3.87)}{(3.54)-(5.21)} = \frac{.33}{1.67} = 80\%$$

80% Recharge = 3.87

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG	Well No: MW- 25
	Project Name: ARCO 1919	Date: 3-8-05
	Project Number: 08BP.U1919.05 / 4142	Sample Time: 0948
	SECOR Rep: Adrian Campos / Checked by:	Sample No: MW- 25

PURGING & SAMPLING EQUIPMENT / METHOD

Water Level Meter Type & ID: Solinist # 5

Purging Equipment / Method: ___ Vac Truck ___ Submersible Pump X Bailer ___ Other

pH Temp/Conductivity Meter Type / ID: 1

Sampling Method: ___ Teflon Bailer X Disposable Bailer ___ Other:

Decontamination Method: ___ Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___ Other:

WELL SPECIFICATIONS & MEASUREMENTS

Borehole Diameter (in): (8) 10 12

Casing Diameter (in): (2) 4

Depth to Water (DTW_1) (ft): 2.11

Total Well Depth (DTB) (ft): 17.35 — Water Column: 15.24

Floating Product: — — Thickness (in): —

Borehole Volume (gal): 11.73 — 1.5 Borehole Volumes (gal): 17.60

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
0912	Started Purging					
0922	2.16	12	7.13	21.7	4.21 m	None, Heavy, BRN
0945	2.21	18	7.09	21.6	4.25 m	None, Heavy, BRN
0948	2.13	Sample				

Maximum Drawdown (DTW_2) (ft) = 2.21

H_2O Removal Rate (GPM) = ~~2~~ 0.55

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 0948

Depth to Water at time of sampling (DTW_3): 2.13

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 (DTB-DTW_1)
2	10	1.14 (DTB-DTW_1)
4	10	1.50 (DTB-DTW_1)
4	12	1.95 (DTB-DTW_1)
6	10	2.11 (DTB-DTW_1)

Notes:

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(2.11) - (2.13)}{(2.11) - (2.21)} = \frac{.02}{.10} = 80\%$$

80% Recharge = 2.13

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG	Well No: MW- 26
	Project Name: ARCO 1919	Date: 3-7-05
	Project Number: 08BP.U1919.05 / 4142	Sample Time: 1159
	SECOR Rep: Adrian Campos / Checked by:	Sample No: MW- 26

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 5	Borehole Diameter (in): (8) 10 12	
Purging Equipment / Method: ___Vac Truck ___Submersible Pump X Bailer ___Other	Casing Diameter (in): (2) 4	
pH Temp/Conductivity Meter Type / ID: 4	Depth to Water (DTW_1) (ft): ~~23.19~~ AC 23.13	
Sampling Method: ___Teflon Bailer X Disposable Bailer ___Other:	Total Well Depth (DTB) (ft): 34.65	Water Column: 11.52
Decontamination Method: ___Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___Other:	Floating Product: —	Thickness (in): —
	Borehole Volume (gal): 8.87	1.5 Borehole Volumes (gal): 13.30

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1114	Started Purging					
1130	26.61	9	7.04	20.9	655	None, Mod, BRN
1142	26.86	14	7.00	20.6	643	None, Mod, BRN
1159	23.87	Sample				

Maximum Drawdown (DTW_2) (ft) = 26.86

H_2O Removal Rate (GPM) = ~~1~~ 0.5

X Fast Recharging Well

___Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1159

Depth to Water at time of sampling (DTW_3): 23.87

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
(6) x 40ml VOAs	(N)	HCL & ICE or NONE	GRO, BTEX, MTBE, (8015M, 8260B)
			DIPE, TAME, ETBE, TBA, Ethanol (8260B)

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 ($DTB-DTW_1$)
2	10	1.14 ($DTB-DTW_1$)
4	10	1.50 ($DTB-DTW_1$)
4	12	1.95 ($DTB-DTW_1$)
6	10	2.11 ($DTB-DTW_1$)

Notes:

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(23.13) - (23.87)}{(23.13) - (26.86)} = \frac{.75}{3.73} = 80\%$$

80% Recharge = 23.88

SEVERN TRENT STL

STL Los Angeles
1721 South Grand Avenue
Santa Ana, CA 92705

Tel: 714 258 8610 Fax: 714 258 0921
www.stl-inc.com

March 23, 2005

STL LOT NUMBER: **E5C090392**
PO/CONTRACT: GEM-6-21909

BRAD EISENBERG
SECOR International Inc
2655 Camino Del Rio North
Suite 302
San Diego, CA 92108-1633

Dear BRAD EISENBERG,

This report contains the analytical results for the 10 samples received under chain of custody by STL Los Angeles on March 9, 2005. These samples are associated with your ARCO #1919 project.

STL Los Angeles certifies that the test results provided in this report meet all the requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of the report. NELAP Certification Number for STL Los Angeles is 01118CA/E87652.

Any matrix related anomaly is footnoted within the report. A cooler receipt temperature between 2-6 degrees Celsius is within EPA acceptance criteria. The temperature(s) of the coolers received for this project can be found on the Project Receipt Checklist.

This report shall not be reproduced except in full, without the written approval of the laboratory.

000027

This report contains _____ pages.

CASE NARRATIVE

Historical control limits for the LCS are used to define the estimate of uncertainty for a method.

All applicable quality control procedures met method-specified acceptance criteria.

Please note that there was a hit for toluene in the method blank (5077441) for SW8260B analysis. The affected sample has been appropriately qualified.

If you have any questions, please feel free to call me at 714.258.8610.

Sincerely,

Sabina Sudoko
Project Manager
CC: Project File

ARCO SITE #1919

ESC090392 Page 1 of 2

Chain of Custody Record

Project Name: ARCO 1919 Groundwater Monitoring
BP BU/AR Region/Enfos Segment: Retail
State or Lead Regulatory Agency: County of San Diego, DEH
Requested Due Date (mm/dd/yy): Standard TAT

On-site Time:	Temp:
Off-site Time:	Temp:
Sky Conditions:	
Meteorological Events:	
Wind Speed:	Direction:

Lab Name:	STL Los Angeles	BP/AR Facility No.:	1919	Consultant/Contractor:	SECOR International, Inc.
Address:	1721 Grand Ave.	BP/AR Facility Address:	660 Via de la Valle, Solana Beach, CA	Address:	2655 Camino Del Rio North, Suite 302
	Santa Ana, CA 92705-4808	Site Lat/Long:			San Diego, CA 92108
Lab PM:	Sabina Sudoko	California Global ID No.:	T0607301584	Consultant/Contractor Project No.:	08BP.01919.07/0427
Tele/Fax:	714.258.8610	Enfos Project No.:	G0BQ4-0001	Consultant/Contractor PM:	Brad Eisenberg
BP/AR PM Contact:	Roy Thun	Provision or RCOP:	Provision	Tele/Fax:	619.296.6195/6199
Address:	4 Centerpointe Dr.	Phase/WBS:	Monitoring (04)	Report Type & QC Level:	Normal
	La Palma, CA 90623	Sub Phase/Task:	Analytical	E-mail EDD To:	beisenberg@secor.com
Tele/Fax:	661.287.3855/222-2349	Cost Element:	Subcontracted Cost	Invoice to:	Atlantic Richfield Co.

Lab Bottle Order No:

Item No.	Sample Description	Time	Date	Soil/Solid	Water/Liquid	Air	Laboratory No.	No. of Containers	Unpreserved	H_2SO_4	HNO_3	HCl	Methanol		EPA 8015M GRO C6-C12	EPA 8260B BTEX, Oxys, MTBE, EtOH								Sample Point Lat/Long and Comment
~~1~~	~~TB-1919-20050307~~		~~3/7/05~~		~~X~~			~~6~~				~~X~~												HOLD
~~2~~	~~EB-1919-2005 0307~~		~~3/7/05~~		~~X~~			~~6~~				~~X~~												~~HOLD~~
3	MW-14	15:30	3/7/05		X			6				X			X	X								
4	MW-15	17:01	3/7/05		X			6				X			~~X~~	~~X~~								HOLD
5	MW-16	15:55	3/7/05		X			12				X			~~X~~	~~X~~								HOLD
6	MW-18	13:55	3/7/05		X			6				X			X	X								
7	MW-19A	11:50	3/7/05		X			6				X			X	X								
8	MW-22	12:41	3/7/05		X			6				X			X	X								
9	MW-23	10:55	3/7/05		X			6				X			X	X								
10	MW-26	11:59	3/7/05		X			6				X			X	X								

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: Sean Martin	Sean Martin / Sampler	3/9/05	1615	Vincent Pallen	3/9/05	1615
Sampler's Company: Secor	Vincent Pallen	3/9/05	1225	[illegible]	03/09/05	[illegible]
Shipment Date:						
Shipment Method: Courier						
Shipment Tracking No:						

Special Instructions: Oxy's = TBA, DIPE, TAME, ETBE

Custody Seals In Place Yes No Temp Blank Yes No Cooler Temperature on Receipt ____ °F/C Trip Blank Yes No

Distribution: White Copy - Laboratory / Yellow Copy - BP/Atlantic Richfield Co. / Pink Copy - Consultant/Contractor

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ESC090392

ARCO SITE #1919

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Chain of Custody Record

Project Name: ARCO 1919 Groundwater Monitoring
BP BU/AR Region/Enfos Segment: Retail
State or Lead Regulatory Agency: County of San Diego, DEH
Requested Due Date (mm/dd/yy): Standard TAT

On-site Time:		Temp:	
Off-site Time:		Temp:	
Sky Conditions:			
Meteorological Events:			
Wind Speed:		Direction:	

Lab Name:	STL Los Angeles	BP/AR Facility No.:	1919	Consultant/Contractor:	SECOR International, Inc.
Address:	1721 Grand Ave.	BP/AR Facility Address:	660 Via de la Valle, Solana Beach, CA	Address:	2655 Camino Del Rio North, Suite 302
	Santa Ana, CA 92705-4808	Site Lat/Long:			San Diego, CA 92108
Lab PM:	Sabina Sudoko	California Global ID No.:	T0607301584	Consultant/Contractor Project No.:	08BP.01919.07/0427
Tele/Fax:	714.258.8610	Enfos Project No.:	G0BQ4-0001	Consultant/Contractor PM:	Brad Eisenberg
BP/AR PM Contact:	Roy Thun	Provision or RCOP:	Provision	Tele/Fax:	619.296.6195/6199
Address:	4 Centerpointe Dr.	Phase/WBS:	Monitoring (04)	Report Type & QC Level:	Normal
	La Palma, CA 90623	Sub Phase/Task:	Analytical	E-mail EDD To:	beisenberg@secor.com
Tele/Fax:	661.287.3855/222-2349	Cost Element:	Subcontracted Cost	Invoice to:	Atlantic Richfield Co.

Lab Bottle Order No:

Item No.	Sample Description	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No.	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: Methanol	Requested Analysis: EPA 8015M GRO C6-C12	Requested Analysis: EPA 8260B BTEX, Oxys, MTBE, EtOH	Sample Point Lat/Long and Comment
1	TB-1919-20050307		03/07/05		X			6				X				HOLD
2	EB-1919-20050307		3/7/05		X			6				X				HOLD
3																
4																
5																
6																
7																
8																
9																
10																

Sampler's Name:	Sean Martin	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date / Time
Sampler's Company:	Secor	Mitchell Rossell	3/9/05	1045	Unit Pacific	3/9/05 1045
Shipment Date:		Unit Pacific	3/9/05	1225		03/09/05 1225
Shipment Method:	courier					
Shipment Tracking No:						

Special Instructions: Oxy's = TBA, DIPE, TAME, ETBE

Custody Seals In Place Yes ___ No ___ Temp Blank Yes ___ No ___ Cooler Temperature on Receipt ___ °F/C Trip Blank Yes ___ No ___

Distribution: White Copy - Laboratory / Yellow Copy - BP/Atlantic Richfield Co. / Pink Copy - Consultant/Contractor

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ESC090392

STL LOS ANGELES - PROJECT RECEIPT CHECKLIST Date: 03/09/05

LIMS Lot #: E5C090392 Quote #: 624728

Client Name: STCOR Project: ARCO 1919

Received by: AB Date/Time Received: 03/09/05 @ 1225

Delivered by : ☐ Client ☒ STL ☐ DHL ☐ Fed Ex ☐ UPS ☐ Other _____

****

	Initial / Date
Custody Seal Status Cooler: ☐ Intact ☐ Broken ☒ None	AB 03/09/05
Custody Seal Status Samples: ☐ Intact ☐ Broken ☒ None	
Custody Seal #(s): _____ ☒ No Seal #	
Sampler Signature on COC ☐ Yes ☐ No ☒ N/A	
IR Gun # A Correction Factor -0.1 °C IR passed daily verification ☒ Yes ☐ No	
Temperature - BLANK 2.1 °C +/- 0.1 CF = 2.0 °C	
Temperature – COOLER (___ °C ___ °C ___ °C ___ °C) = ___ avg °C +/- ___ CF = ___ °C	
Samples outside temperature criteria but received within 6 hours of final sampling ☐ Yes ☒ N/A	
Sample Container(s): ☒ STL-LA ☐ Client	
One COC/Multiple coolers: ☐ Yes- # coolers ___ All within temp criteria ☐ Yes ☐ No ☒ N/A	
One or more coolers with an anomaly: ☐ Yes – (fill out PRC for each) ☒ N/A	
Samples: ☒ Intact ☐ Broken ☐ Other _____	
pH measured: ☐ Yes ☐ Anomaly (if checked, notify lab and file NCM) ☒ N/A	
Anomalies: ☒ No ☐ Yes – complete CUR and Create NCM NCM # _____	
Complete shipment received in good condition with correct temperatures, containers, labels, volumes preservatives and within method specified holding times. ☒ Yes ☐ N/A	
Labeled by: AB Labeling checked AB	

****

Turn Around Time: ☐ RUSH–24HR ☐ RUSH–48HR ☐ RUSH–72HR ☒ NORMAL	
Short-Hold Notification: ☐ pH ☐ Wet Chem ☐ Metals (Filter/Pres) ☐ Encore ☐ >1/2 HT expired…	✓

Outside Analysis(es) (Test/Lab/Date Sent Out) :

_____

_____

_____

********** LEAVE NO BLANK SPACES ; USE N/A **********

Headspace Anomaly ☒ N/A AB 03/09/05

Lab ID	Container(s) #	Headspace	Lab ID	Container(s) #	Headspace
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm

LIMS Lot # ~~E5C~~ 090391

PROJECT RECEIPT CHECKLIST Cont'd

Fraction	1, 2	3	4-9 12											
VOAH/ *	6	12	6											

* VOA with headspace/bubbles < 6mm

H: HCL, S: H2SO4, N: HNO3, V: VOA, SL, Sleeve, E: Encore, PB: Poly Bottle, CGB: Clear Glass Bottle, AGJ: Amber Glass Jar, T: Terracore AGB: Amber Glass Bottle, n/f/l:HNO3-Lab filtered, n/f:HNO3-Field filtered, znna: Zinc Acetate/Sodium Hydroxide, Na2s2o3: sodium thiosulfate

Condition Upon Receipt Anomaly Form

☒ N/A AB 03/09/05

- **COOLERS**
  - ☐ Not Received (received COC only)
  - ☐ Leaking
  - ☐ Other:
- **CUSTODY SEALS (COOLER(S)**
  - ☐ None
  - ☐ Not Intact
  - ☐ Other
- **CONTAINER(S)**
  - ☐ None
  - ☐ Not Intact
  - ☐ Other
- **TEMPERATURE (SPECS 4 ± 2°C)**
  - ☐ Cooler Temp(s)
  - ☐ Temperature Blank(s)
- **CHAIN OF CUSTODY (COC)**
  - ☐ Not relinquished by Client; No date/time relinquished
  - ☐ Incomplete information provided
  - ☐ Other ☐ COC not received – notify PM
- **CONTAINERS**
  - ☐ Leaking ☐ Voa Vials with Bubbles > 6mm
  - ☐ Broken
  - ☐ Extra
  - ☐ Without Labels
  - ☐ Other:
- **LABELS**
  - ☐ Not the same ID/info as in COC
  - ☐ Incomplete Information
  - ☐ Markings/Info illegible
  - ☐ Torn
- **SAMPLES**
  - ☐ Samples NOT RECEIVED but listed on COC
  - ☐ Samples received but NOT LISTED on COC
  - ☐ Logged based on Label Information
  - ☐ Logged based on info from other samples on COC
  - ☐ Logged according to Work Plan
  - ☐ Logged on HOLD UNTIL FURTHER NOTICE
  - ☐ Will be noted on COC--Client to send samples with new COC
  - ☐ Mislabeled as to tests, preservatives, etc.
  - ☐ Holding time expired – list sample ID and test
  - ☐ Improper container used
  - ☐ Not preserved/Improper preservative used
  - ☐ Improper pH _____ Lab to preserve sample and document
  - ☐ Insufficient quantities for analysis ☐ Other

Comments:

_____

_____

_____

_____

_____

☐ Corrective Action Implemented:

☐ Client Informed: verbally on _____ By: _____ ☐ In writing on _____ By: _____

☐ Sample(s) on hold until: _____ ☐ Sample(s) processed "as is."

Logged by/Date: AB 03/09/05

PM Review/Date: 3/10 SC

SECOR International Inc

Client Sample ID: MW-14

GC/MS Volatiles

Lot-Sample #...:	E5C090392-001	**Work Order #...:**	G5WC61AA	**Matrix.....:**	W
Date Sampled...:	03/07/05 15:30	**Date Received..:**	03/09/05 12:25	**MS Run #.....:**	5080224
Prep Date.....:	03/18/05	**Analysis Date..:**	03/18/05		
Prep Batch #...:	5080375	**Analysis Time..:**	15:49		
Dilution Factor:	1				
Analyst ID.....:	004648	**Instrument ID..:**	MSN		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L
Tert-amyl methyl ether (TAME)	ND	2.0	ug/L
Diisopropyl Ether (DIPE)	ND	2.0	ug/L
Benzene	ND	0.50	ug/L
Ethanol	ND IO	500	ug/L
Ethylbenzene	ND	0.50	ug/L
tert-Butyl alcohol	ND	25	ug/L
Toluene	ND	0.50	ug/L
o-Xylene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether (MTBE)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	94	(75 - 120)
1,2-Dichloroethane-d4	170	(65 - 130)
Toluene-d8	102	(80 - 130)

NOTE(S):

The surrogate recovery in the sample is outside control limits due to confirmed matrix effect.

Surrogate recovery is outside stated control limits.

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-14

GC Volatiles

Lot-Sample #...:	E5C090392-001	Work Order #...:	G5WC61AC	Matrix.....:	W
Date Sampled...:	03/07/05 15:30	Date Received..:	03/09/05 12:25	MS Run #.....:	5073280
Prep Date.....:	03/10/05	Analysis Date..:	03/10/05		
Prep Batch #...:	5073404	Analysis Time..:	21:04		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	95	(70 - 130)

SECOR International Inc

Client Sample ID: MW-18

GC/MS Volatiles

Lot-Sample #...:	E5C090392-004	Work Order #...:	G5WDR1AA	Matrix.....:	W
Date Sampled...:	03/07/05 13:55	Date Received..:	03/09/05 12:25	MS Run #.....:	5080224
Prep Date.....:	03/18/05	Analysis Date..:	03/18/05		
Prep Batch #...:	5080375	Analysis Time..:	19:38		
Dilution Factor:	2.5				
Analyst ID.....:	004648	Instrument ID..:	MSN		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diisopropyl Ether (DIPE)	ND	5.0	ug/L
Benzene	ND	1.2	ug/L
Ethanol	ND IO	1200	ug/L
Ethylbenzene	ND	1.2	ug/L
tert-Butyl alcohol	**1800**	**62**	**ug/L**
Toluene	ND	1.2	ug/L
o-Xylene	ND	2.5	ug/L
Xylenes (total)	ND	2.5	ug/L
m-Xylene & p-Xylene	ND	2.5	ug/L
Methyl tert-butyl ether (MTBE)	**200**	**2.5**	**ug/L**
Ethyl-t-Butyl Ether (ETBE)	ND	5.0	ug/L
Tert-amyl methyl ether (TAME)	ND	5.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	96	(75 - 120)
1,2-Dichloroethane-d4	87	(65 - 130)
Toluene-d8	98	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-18

GC Volatiles

Lot-Sample #...:	E5C090392-004	Work Order #...:	G5WDR1AC	Matrix.....:	W
Date Sampled...:	03/07/05 13:55	Date Received..:	03/09/05 12:25	MS Run #.....:	5073280
Prep Date.....:	03/10/05	Analysis Date..:	03/10/05		
Prep Batch #...:	5073404	Analysis Time..:	21:32		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	96	(70 - 130)

SECOR International Inc

Client Sample ID: MW-19A

GC/MS Volatiles

Lot-Sample #...:	E5C090392-005	**Work Order #...:**	G5WDT1AA	**Matrix.....:**	W
Date Sampled...:	03/07/05 11:50	**Date Received..:**	03/09/05 12:25	**MS Run #.....:**	5080224
Prep Date.....:	03/18/05	**Analysis Date..:**	03/18/05		
Prep Batch #...:	5080375	**Analysis Time..:**	16:11		
Dilution Factor:	1				
Analyst ID.....:	004648	**Instrument ID..:**	MSN		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diisopropyl Ether (DIPE)	ND	2.0	ug/L
Benzene	ND	0.50	ug/L
Ethanol	ND IO	500	ug/L
Ethylbenzene	ND	0.50	ug/L
tert-Butyl alcohol	ND	25	ug/L
Toluene	ND	0.50	ug/L
o-Xylene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether (MTBE)	**8.6**	**1.0**	**ug/L**
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L
Tert-amyl methyl ether (TAME)	ND	2.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	87	(75 - 120)
1,2-Dichloroethane-d4	126	(65 - 130)
Toluene-d8	97	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-19A

GC Volatiles

Lot-Sample #...:	E5C090392-005	Work Order #...:	G5WDT1AC	Matrix.....:	W
Date Sampled...:	03/07/05 11:50	Date Received..:	03/09/05 12:25	MS Run #.....:	5073280
Prep Date.....:	03/10/05	Analysis Date..:	03/10/05		
Prep Batch #...:	5073404	Analysis Time..:	22:00		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	94	(70 - 130)

SECOR International Inc

Client Sample ID: MW-22

GC/MS Volatiles

Lot-Sample #...:	E5C090392-006	Work Order #...:	G5WDV1AA	Matrix.....:	W
Date Sampled...:	03/07/05 12:41	Date Received..:	03/09/05 12:25	MS Run #.....:	5080327
Prep Date.....:	03/17/05	Analysis Date..:	03/18/05		
Prep Batch #...:	5077441	Analysis Time..:	04:11		
Dilution Factor:	1				
Analyst ID.....:	004648	Instrument ID..:	MSN		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diisopropyl Ether (DIPE)	ND	2.0	ug/L
Benzene	ND	0.50	ug/L
Ethanol	ND IO	500	ug/L
Ethylbenzene	ND	0.50	ug/L
tert-Butyl alcohol	**200**	**25**	**ug/L**
Toluene	**1.1 FX**	**0.50**	**ug/L**
o-Xylene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	1.0	ug/L
Methyl tert-butyl ether (MTBE)	**8.8**	**1.0**	**ug/L**
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L
Tert-amyl methyl ether (TAME)	ND	2.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	89	(75 - 120)
1,2-Dichloroethane-d4	96	(65 - 130)
Toluene-d8	99	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

FX This analyte is present in the associated method blank.

SECOR International Inc

Client Sample ID: MW-22

GC Volatiles

Lot-Sample #...:	E5C090392-006	Work Order #...:	G5WDV1AC	Matrix.....:	W
Date Sampled...:	03/07/05 12:41	Date Received..:	03/09/05 12:25	MS Run #.....:	5073280
Prep Date.....:	03/10/05	Analysis Date..:	03/10/05		
Prep Batch #...:	5073404	Analysis Time..:	22:28		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	93	(70 - 130)