SECOR

SECOR INTERNATIONAL INCORPORATED

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2655 Camino Del Rio N. Suite 302
San Diego, CA 92108
619-296-6195 TEL
619-296-6199 FAX

DATE: January 14, 2004

ARCO QUARTERLY GROUNDWATER MONITORING REPORT

Facility No.: 1790 Address:	6110 Mission Gorge Road, San Diego, CA
ARCO Environmental Engineer:	Roy Thun
Consulting Co./Contact Person:	SECOR/Marci Richards and Brad Eisenberg
SECOR Project No.:	08BP.U1790.03
Primary Agency/Regulatory ID No:	County of San Diego, Land and Water Quality Division, Site Assessment and Mitigation Program (SAM), Danny Martinez/SAM Case #H05115-001

WORK PERFORMED THIS QUARTER [Fourth - 2004]:

1. Submitted third quarter 2004 site status report.
2. Performed fourth quarter groundwater monitoring and sampling.

WORK PROPOSED FOR NEXT QUARTER [First - 2005]:

1. Submit fourth quarter 2004 groundwater monitoring report.
2. Implement corrective action plan (CAP) addendum by destroying remaining wells pending acquisition of permits and access agreements and receipt of a "no further action" letter from the SAM.

Current Phase of Project:	Monitoring	(Assmnt, Remed., etc.)
Frequency of Sampling:	Semi-annual (2Q/4Q)	(Quarterly, etc.)
Frequency of Monitoring:	Semi-annual (2Q/4Q)	(Monthly, etc.)
Are Liquid Phase Hydrocarbons (LPH) Present On-site:	No	(Yes/No)
Cumulative LPH Recovered to Date:	None	(gallons)
LPH recovered This Quarter:	0	(gallons)
Bulk Soil Removed to Date:	121	(cubic yards)
Bulk Soil Removed This Quarter:	None	(cubic yards)
Water Wells or Surface Waters Within a 2000' Radius and Respective Directions:	San Diego River, 1,500 feet to the west	(Distance and Direction)
Current Remediation Techniques:	Natural Attenuation	(SVE, LPH Removal, etc.)
Permits for Discharge:	None	(NPDES, POTW, etc.)

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

DATE: January 14, 2004

ARCO QUARTERLY GROUNDWATER MONITORING REPORT (Continued)

Approximate Depth to Groundwater:	15.21 to 20.27	(Measured Feet)
Groundwater Gradient:	West – Southwest	(Direction)
	0.004	(Magnitude)
Groundwater Beneficial Use:	Yes	(Yes/No)

DISCUSSION: On December 14, 2004, SECOR personnel gauged, purged and sampled the 13 groundwater monitoring wells associated with the site (Figure 1 and 2). Depth to groundwater ranged from 15.21 feet below ground surface (bgs) in MW-12 to 20.27 feet bgs in MW-3; groundwater elevations varied from 60.15 to 61.35 feet above mean sea level (MSL). Groundwater flow direction was to the west-southwest with an average hydraulic gradient of 0.004 (Figure 3). Except for a sheen noted during purging well MW-2, liquid-phase hydrocarbons (LPH) were not detected on groundwater in the wells. SECOR performed purge groundwater sampling in accordance with the attached procedures. Groundwater samples were analyzed for gasoline-range organics C_6-C_{12} (GRO); benzene, toluene, ethylbenzene and xylenes (BTEX); and the fuel oxygenates, methyl tert-butyl ether (MTBE), tert-butanol (TBA), di-isopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), and ethanol. Analytical results are summarized in Tables 2 and 3. GRO, benzene, and MTBE results are shown on Figure 4. MTBE and benzene isoconcentration contours are shown on Figure 5. Well hydrographs showing changes in groundwater elevations and benzene and MTBE concentrations with time are attached.

CONCLUSIONS AND RECOMMENDATIONS: Fourth quarter 2004 groundwater monitoring and sampling results were generally consistent with previous results. In general, groundwater elevations increased in the wells compared to the previous quarter. SECOR recommends implementing the CAP by destroying the groundwater monitoring wells, as directed by the SAM. SECOR plans to destroy the remaining wells pending receipt of access agreements from current property owners, permits, and a "no further action" letter from the SAM.

SUMMARY OF UNUSUAL ACTIVITY: None

AGENCY DIRECTIVE REQUIREMENTS: Conduct semi-annual groundwater monitoring.

ATTACHED:

- Figure 1 – Site Location Map
- Figure 2 – Site Plan
- Figure 3 – Groundwater Gradient Map, December 14, 2004
- Figure 4 – GRO, Benzene, And MTBE Concentrations In Groundwater, December 14, 2004
- Figure 5 – Benzene and MTBE Isoconcentration Map, December 14, 2004
- Table 1 – Summary of Groundwater Elevations, 2001 To Present
- Table 2 – Summary of Groundwater Sample Analytical Results, 2001 To Present
- Table 3 – Summary of Additional Oxygenates Analytical Data, 2001 to Present
- Hydrographs
- Monitoring Well Purging and Sampling Procedures

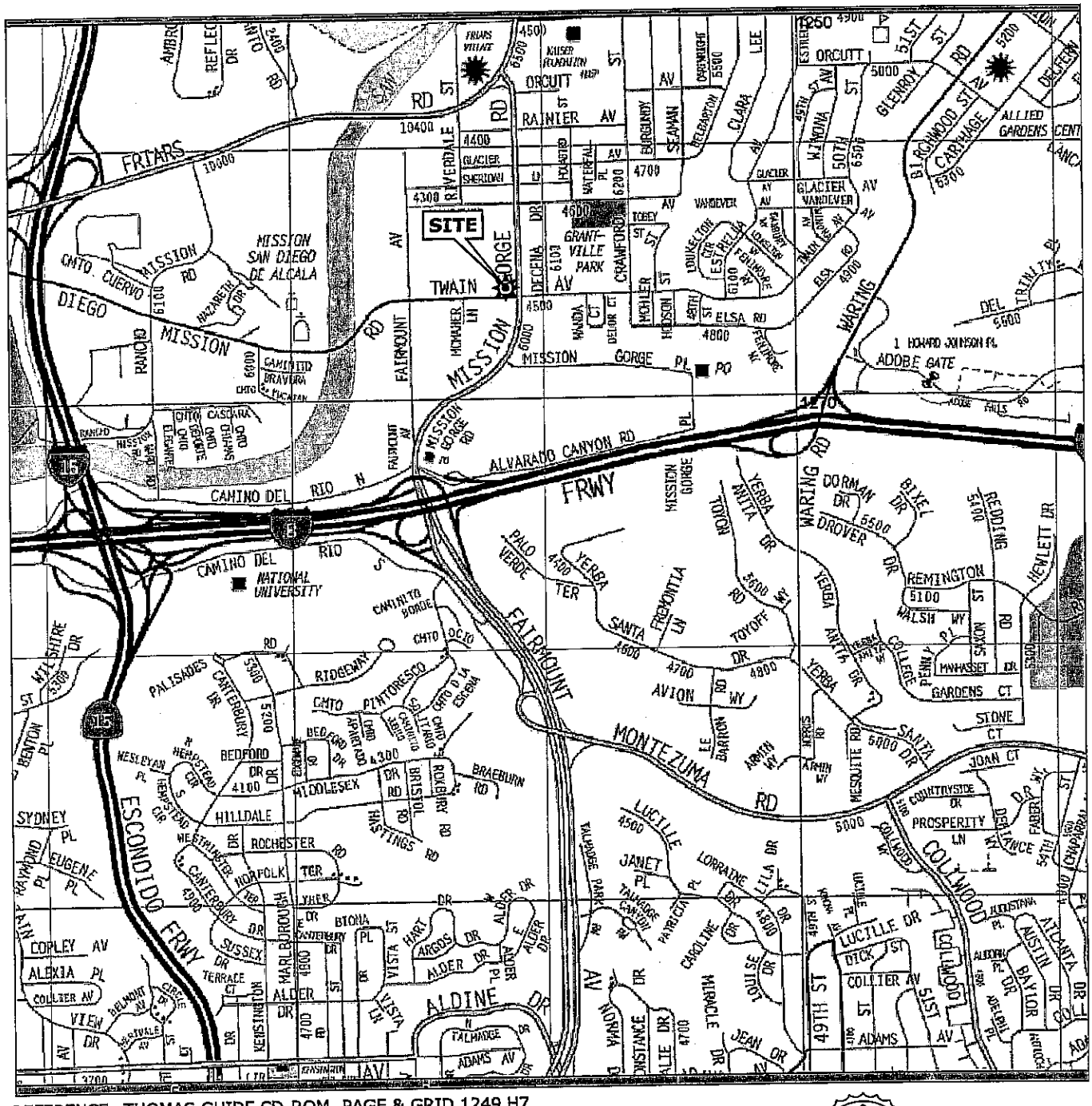
DATE: January 14, 2004

ARCO QUARTERLY GROUNDWATER MONITORING REPORT (Continued)

ATTACHED: (Continued)

- Well Purging/Sampling Logs
- Laboratory Report and Chain-of-Custody Documentation

cc: Roy Thun, Atlantic Richfield Company
Mark Jesperson, James A. Jesperson Trust
Anne Fothertingham, Cullen R&J Ltd. Family Partnership
Roy Clark, Mission Corporate Industrial Center L .P.



REFERENCE: THOMAS GUIDE CD-ROM, PAGE & GRID 1249 H7.

DRAWN BY: LGH CHECKED: APPROVED: DATE: 1/3/05 JOB No.: 08BP.U1790.04 CAD FILE: 1790SLOC	PREPARED BY: SECOR 2655 Camino del Rio North, Suite 302 San Diego, California	PREPARED FOR: ARCO FACILITY #1790 6110 MISSION GORGE ROAD SAN DIEGO, CALIFORNIA	FIGURE: 1 **SITE LOCATION MAP**

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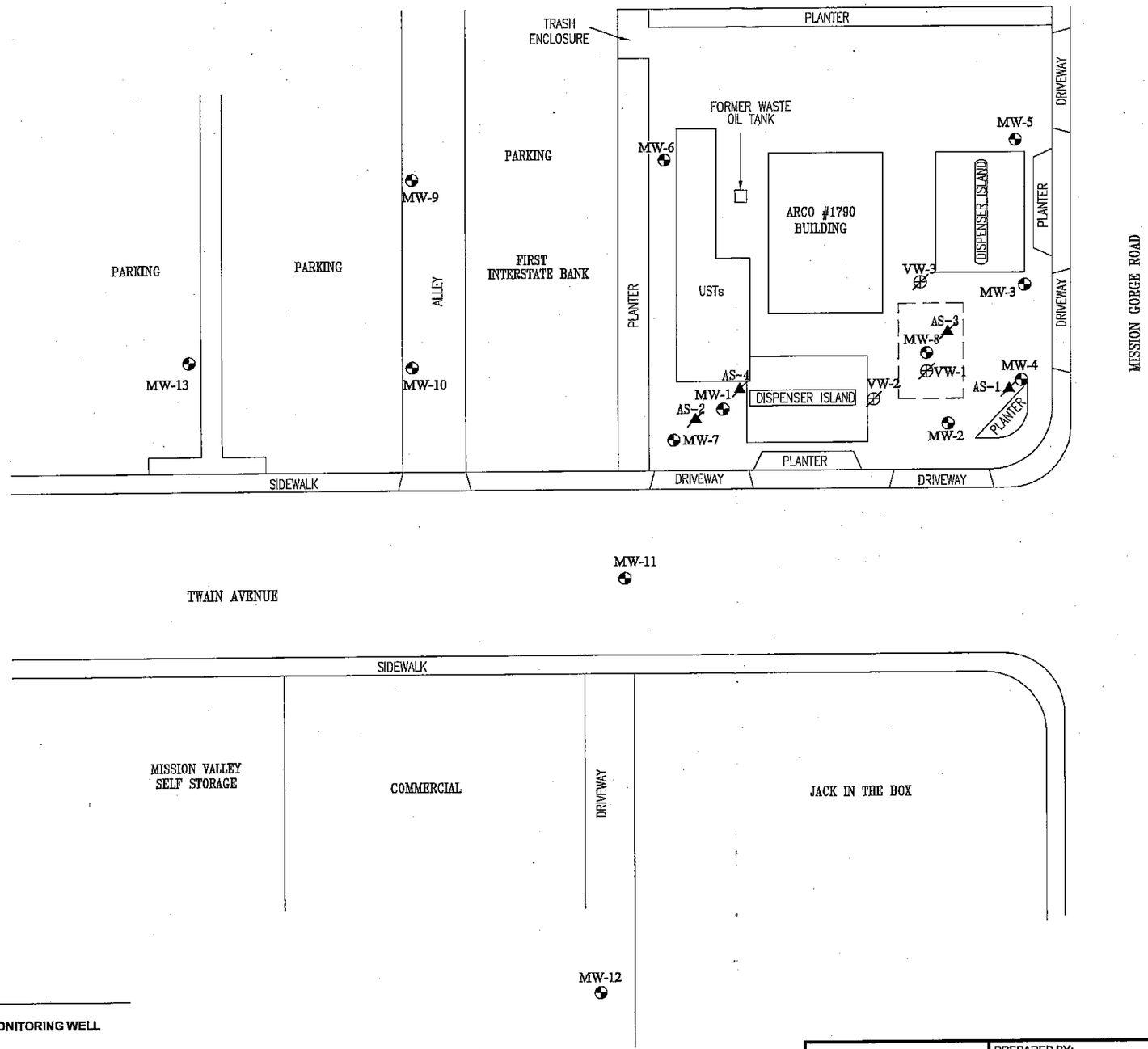

LEGEND:

MW-3	GROUNDWATER MONITORING WELL
VW-2	DESTROYED VAPOR EXTRACTION WELL
AS-2	DESTROYED AIR SPARGE WELL
	FORMER UNDERGROUND STORAGE TANK AREA

DRAWN BY: LGH CHECKED: APPROVED: DATE: 1/3/05 JOB No.: 08BP.U1790.04 CAD FILE: 1790SP4-04	PREPARED BY: SECOR 2655 Camino del Rio North, Suite 302 San Diego, California	PREPARED FOR: ARCO FACILITY #1790 6110 MISSION GORGE ROAD SAN DIEGO, CALIFORNIA	FIGURE: 2 **SITE PLAN**

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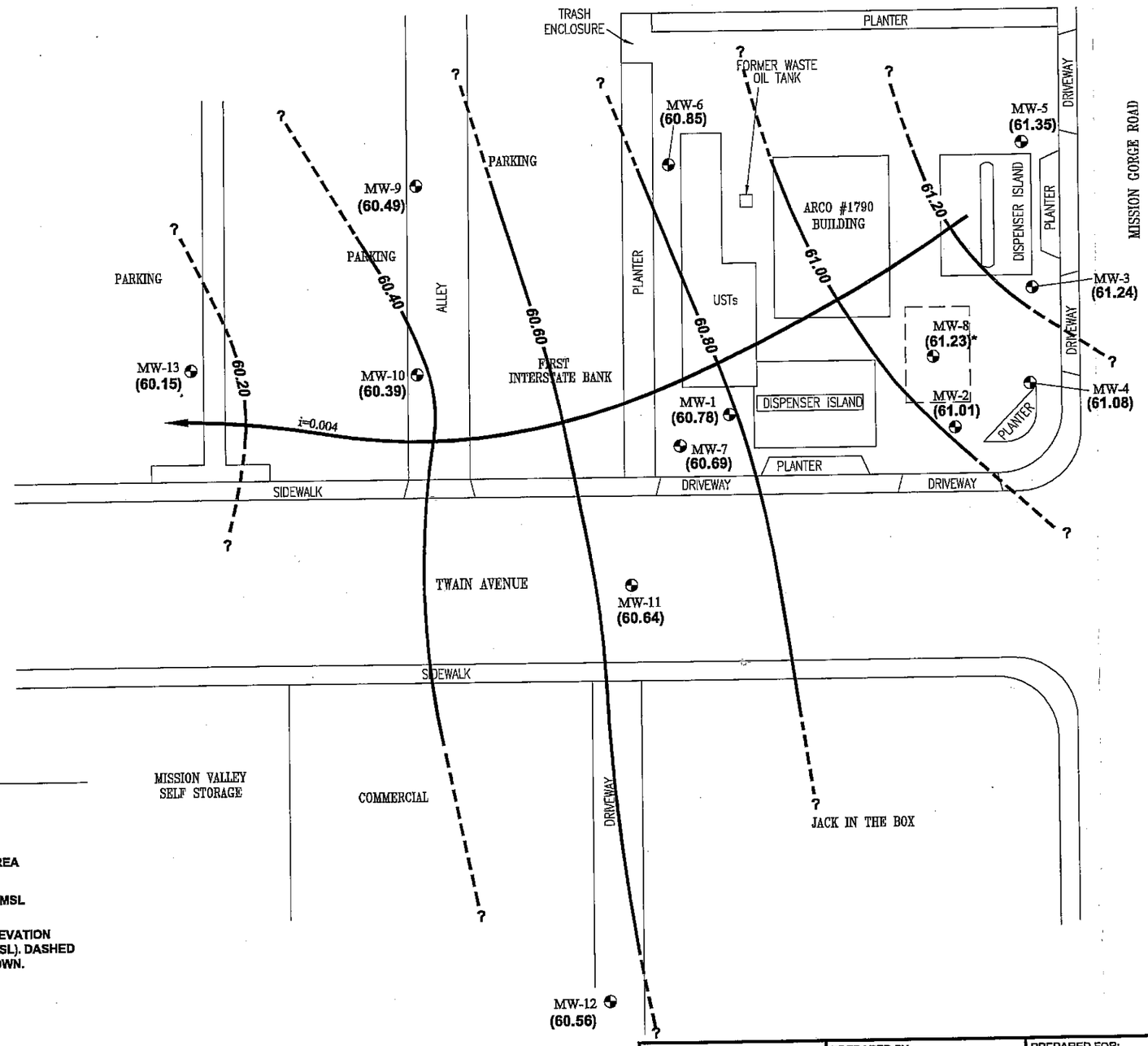

LEGEND:

MW-3 — GROUNDWATER MONITORING WELL

FORMER UNDERGROUND STORAGE TANK AREA

(60.49) — GROUNDWATER ELEVATION IN FEET ABOVE MSL

? — — 60.20 — INTERPRETED RELATIVE GROUNDWATER ELEVATION CONTOUR FEET ABOVE MEAN SEA LEVEL (MSL). DASHED WHERE INFERRED. QUERIED WHERE UNKNOWN.

i=0.004 — INTERPRETED GROUNDWATER FLOW DIRECTION AND HYDRAULIC GRADIENT (i)

* — DATA NOT USED IN CONTOUR

DRAWN BY: PD CHECKED: APPROVED: DATE: 1/10/05 JOB No.: 08BP.U1790.04 CAD FILE: 1790GGW12-04	PREPARED BY: SECOR 2655 Camino del Rio North, Suite 302 San Diego, California	PREPARED FOR: ARCO FACILITY # 1790 6110 MISSION GORGE ROAD SAN DIEGO, CALIFORNIA	FIGURE: 3 **GROUNDWATER GRADIENT MAP, DECEMBER 14, 2004**

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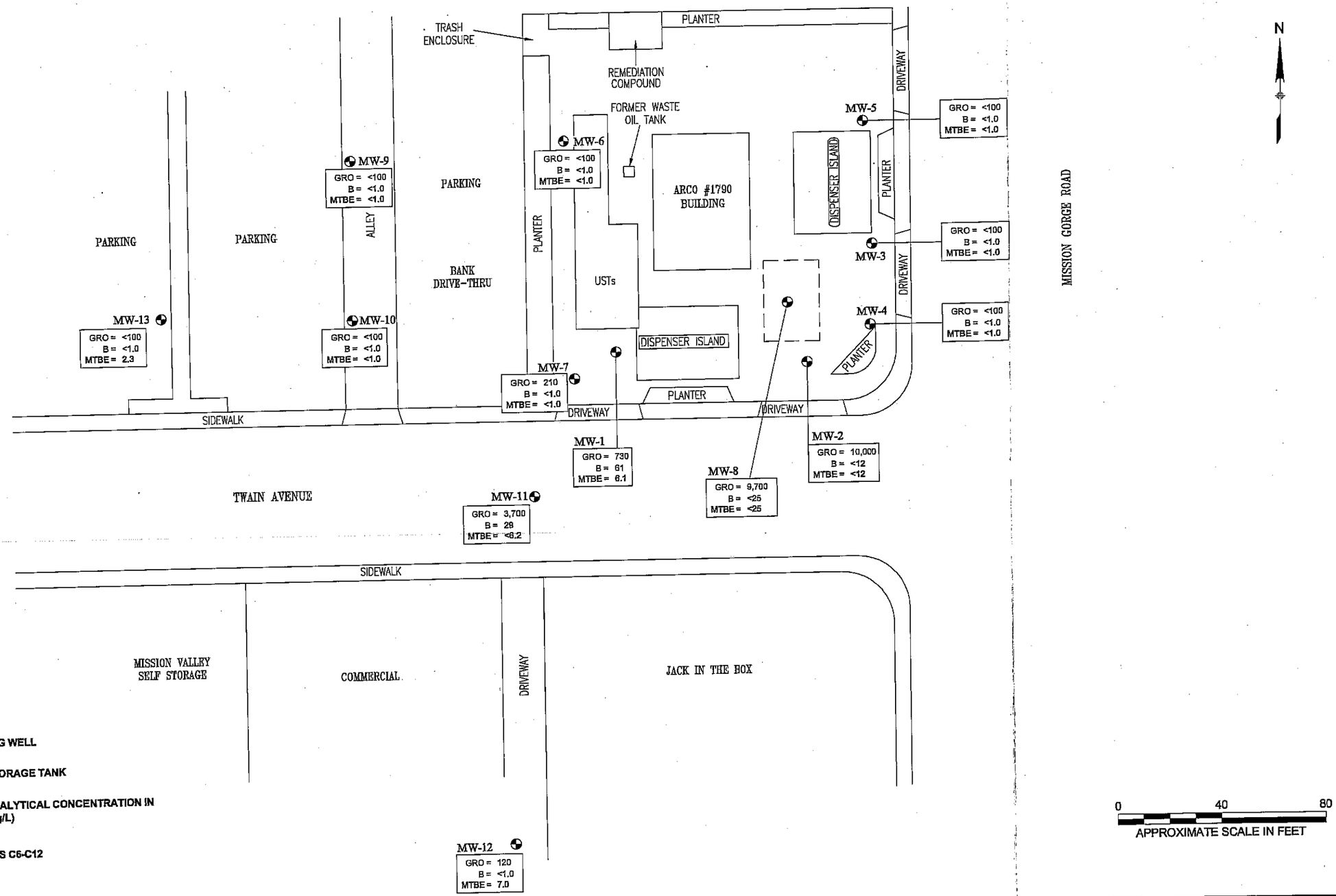

LEGEND:

MW-3 — GROUNDWATER MONITORING WELL

FORMER UNDERGROUND STORAGE TANK

GRO = <500, B = <0.50, MTBE = <1.0 — GROUNDWATER SAMPLE ANALYTICAL CONCENTRATION IN MICROGRAMS PER LITER (μg/L)

GRO — GASOLINE-RANGE ORGANICS C6-C12

B — BENZENE

MTBE — METHYL TERT-BUTYL ETHER

< — BELOW LABORATORY REPORTING LIMIT INDICATED

DRAWN BY: PD CHECKED: APPROVED: DATE: 1/10/05 JOB No.: 08BP.U1790.04 CAD FILE: 1790CON12-04	PREPARED BY: SECOR 2655 Camino del Rio North, Suite 302 San Diego, California	PREPARED FOR: ARCO FACILITY #1790 6110 MISSION GORGE ROAD SAN DIEGO, CALIFORNIA	FIGURE: 4 **GRO, BENZENE, AND MTBE CONCENTRATIONS IN GROUNDWATER, DECEMBER 14, 2004**

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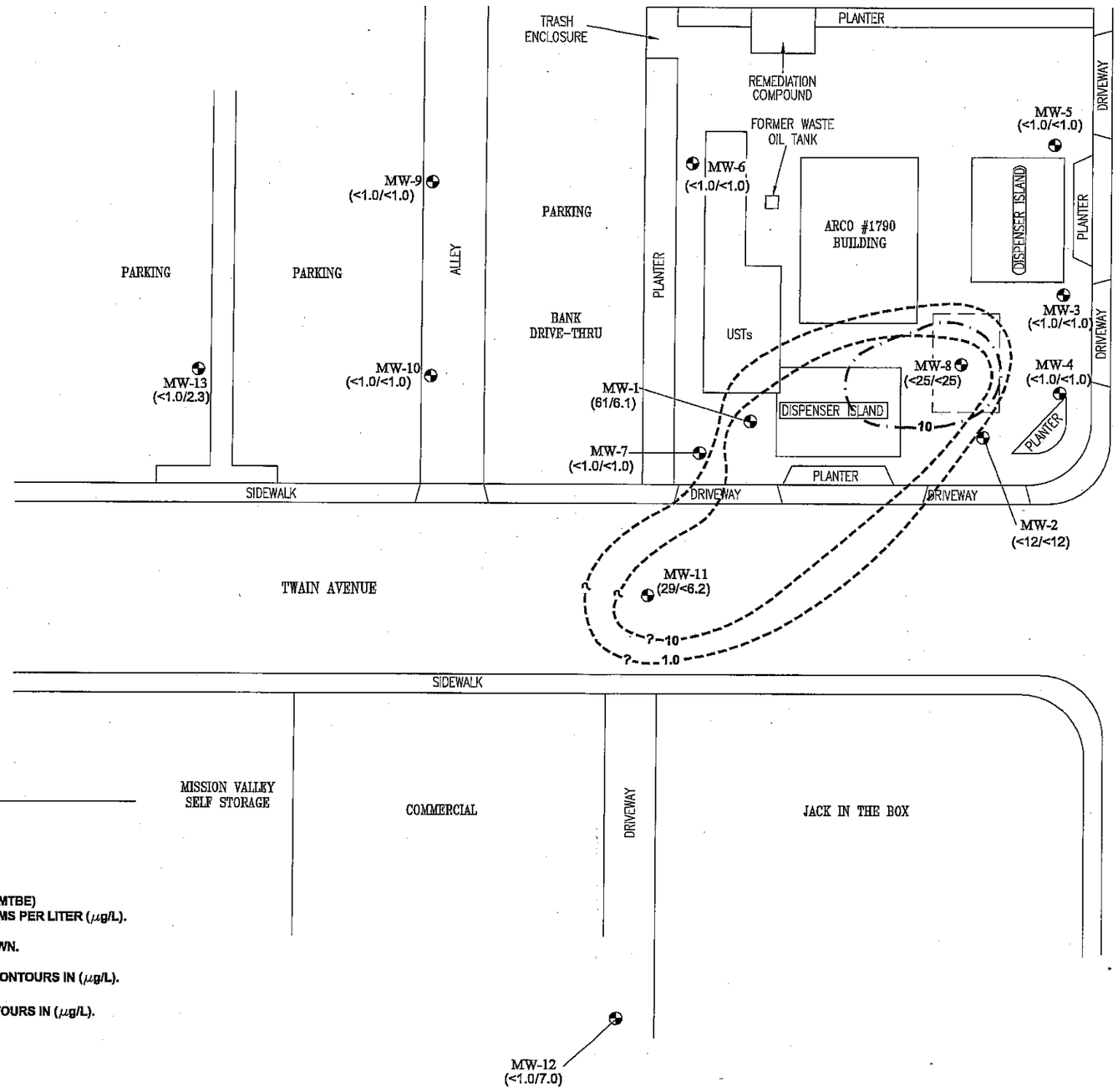

LEGEND:

MW-3	GROUNDWATER MONITORING WELL
	FORMER UNDERGROUND STORAGE TANK
(<0.50/<1.0)	BENZENE AND METHYL-TERT-BUTYL ETHER (MTBE) CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER (μg/L).
<	BELOW LABORATORY DETECTION LIMIT SHOWN.
?-1.0	ESTIMATED BENZENE ISOCONCENTRATION CONTOURS IN (μg/L). QUERIED WHERE UNKNOWN.
?-10	ESTIMATED MTBE ISOCONCENTRATION CONTOURS IN (μg/L). QUERIED WHERE UNKNOWN.

ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE

DRAWN BY: PD CHECKED: APPROVED: DATE: 1/10/05 JOB No.: 08BP.U1790.04 CAD FILE: 1790ISO12-04R	PREPARED BY: SECOR 2655 Camino del Rio North, Suite 302 San Diego, California	PREPARED FOR: ARCO FACILITY #1790 6110 MISSION GORGE ROAD SAN DIEGO, CALIFORNIA	FIGURE: 5 **BENZENE AND MTBE ISOCONCENTRATION MAP DECEMBER 14, 2004**

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TABLE 1
SUMMARY OF GROUNDWATER ELEVATIONS, 2001 TO PRESENT
ARCO Facility #1790

Well Identification / Surveyed Well Elevation[1] (MSL)	Date Measured	Depth to Water (Feet)	LPH Thickness (Feet)	Groundwater Elevation[2] (MSL)
MW-1 79.12	02/06/01	18.90	0.00	60.22
	05/08/01	18.60	0.00	60.52
	07/18/01	19.01	0.00	60.11
	10/18/01	19.15	0.00	59.97
	01/28/02	19.99	0.00	59.13
	04/11/02	19.02	0.00	60.10
	11/14/02	19.13	0.00	59.99
	06/06/03	18.45	0.00	60.67
	08/27/03	19.00	0.00	60.12
	06/17/04	19.08	0.00	60.04
	12/14/04	18.34	0.00	60.78
MW-2 80.28	02/06/01	19.85	0.00	60.43
	05/08/01	19.56	0.00	60.72
	07/18/01	19.92	0.00	60.36
	10/18/01	20.09	0.00	60.19
	01/28/02	19.40	0.00	60.88
	04/11/02	18.51	0.00	61.77
	11/14/02	19.09	0.00	61.19
	06/06/03	19.34	0.00	60.94
	08/27/03	19.93	0.00	60.35
	06/17/04	19.75	0.00	60.53
	12/14/04	19.27	0.00	61.01
MW-3 81.51	02/06/01	20.80	0.00	60.71
	05/08/01	20.49	0.00	61.02
	07/18/01	20.73	0.00	60.78
	10/18/01	21.05	0.00	60.46
	01/28/02	20.94	0.00	60.57
	04/11/02	20.98	0.00	60.53
	11/14/02	21.43	0.00	60.08
	06/06/03	20.34	0.00	61.17
	08/27/03	20.90	0.00	60.61
	06/17/04	20.73	0.00	60.78
	12/14/04	20.27	0.00	61.24
MW-4 81.26	02/06/01	20.74	0.00	60.52
	05/08/01	20.44	0.00	60.82
	07/18/01	20.81	0.00	60.45
	10/18/01	20.99	0.00	60.27
	01/28/02	20.91	0.00	60.35
	04/11/02	20.82	0.00	60.44
	11/14/02	14.89	0.00	66.37
	06/06/03	20.31	0.00	60.95
	08/27/03	20.86	0.00	60.40
	06/17/04	20.64	0.00	60.62
	12/14/04	20.18	0.00	61.08

TABLE 1
SUMMARY OF GROUNDWATER ELEVATIONS, 2001 TO PRESENT
ARCO Facility #1790

Well Identification / Surveyed Well Elevation[1] (MSL)	Date Measured	Depth to Water (Feet)	LPH Thickness (Feet)	Groundwater Elevation[2] (MSL)
MW-5 81.55	02/06/01	20.68	0.00	60.87
	05/08/01	20.38	0.00	61.17
	07/18/01	20.73	0.00	60.82
	10/18/01	20.92	0.00	60.63
	01/28/02	20.88	0.00	60.67
	04/11/02	20.89	0.00	60.66
	11/14/02	21.43	0.00	60.12
	06/06/03	20.23	0.00	61.32
	08/27/03	20.78	0.00	60.77
	06/17/04	20.61	0.00	60.94
	12/14/04	20.20	0.00	61.35
MW-6 79.59	02/06/01	19.30	0.00	60.29
	05/08/01	19.01	0.00	60.58
	07/18/01	19.39	0.00	60.20
	10/18/01	20.54	0.00	59.05
	01/28/02	19.48	0.00	60.11
	04/11/02	19.51	0.00	60.08
	11/14/02	20.01	0.00	59.58
	06/06/03	18.84	0.00	60.75
	08/27/03	19.35	0.00	60.24
	06/17/04	19.21	0.00	60.38
	12/14/04	18.74	0.00	60.85
MW-7 78.57	02/06/01	18.41	0.00	60.16
	05/08/01	18.10	0.00	60.47
	07/18/01	18.51	0.00	60.06
	10/18/01	18.66	0.00	59.91
	01/28/02	18.54	0.00	60.03
	04/11/02	18.47	0.00	60.10
	11/14/02	17.90	0.00	60.67
	06/06/03	17.97	0.00	60.60
	08/27/03	18.45	0.00	60.12
	06/17/04	18.34	0.00	60.23
	12/14/04	17.88	0.00	60.69
MW-8 80.51	02/06/01	20.20	0.00	60.31
	05/08/01	19.89	0.00	60.62
	07/18/01	20.29	0.00	60.22
	10/18/01	20.45	0.00	60.06
	01/28/02	20.30	0.00	60.21
	04/11/02	20.35	0.00	60.16
	11/14/02	20.87	0.00	59.64
	06/06/03	19.69	0.00	60.82
	08/27/03	20.31	0.00	60.20
	06/17/04	20.11	0.00	60.40
	12/14/04	19.28	0.00	61.23

TABLE 1
SUMMARY OF GROUNDWATER ELEVATIONS, 2001 TO PRESENT
ARCO Facility #1790

Well Identification / Surveyed Well Elevation[1] (MSL)	Date Measured	Depth to Water (Feet)	LPH Thickness (Feet)	Groundwater Elevation[2] (MSL)
MW-9 76.28	02/06/01	16.40	0.00	59.88
	05/08/01	16.08	0.00	60.20
	07/18/01	16.50	0.00	59.78
	10/18/01	16.64	0.00	59.64
	01/28/02	16.52	0.00	59.76
	04/11/02	16.57	0.00	59.71
	11/14/02	17.03	0.00	59.25
	06/06/03	15.94	0.00	60.34
	08/27/03	16.49	0.00	59.79
	06/17/04	16.32	0.00	59.96
	12/14/04	15.79	0.00	60.49
MW-10 75.93	02/06/01	16.15	0.00	59.78
	05/08/01	15.85	0.00	60.08
	07/18/01	16.24	0.00	59.69
	10/18/01	16.45	0.00	59.48
	01/28/02	16.27	0.00	59.66
	04/11/02	16.31	0.00	59.62
	11/14/02	16.78	0.00	59.15
	06/06/03	15.66	0.00	60.27
	08/27/03	16.23	0.00	59.70
	06/17/04	16.04	0.00	59.89
	12/14/04	15.54	0.00	60.39
MW-11 77.13	02/06/01	17.10	0.00	60.03
	05/08/01	16.81	0.00	60.32
	07/18/01	17.20	0.00	59.93
	10/18/01	17.38	0.00	59.75
	01/28/02	17.22	0.00	59.91
	04/11/02	17.32	0.00	59.81
	11/14/02	17.78	0.00	59.35
	06/06/03	16.68	0.00	60.45
	08/27/03	17.20	0.00	59.93
	06/17/04	17.01	0.00	60.12
	12/14/04	16.49	0.00	60.64
MW-12 75.77	02/06/01	15.85	0.00	59.92
	05/08/01	15.51	0.00	60.26
	07/18/01	15.90	0.00	59.87
	10/18/01	16.06	0.00	59.71
	01/28/02	15.94	0.00	59.83
	04/11/02	15.99	0.00	59.78
	11/14/02	Not Sampled - Well Inaccessable		
	06/06/03	15.38	0.00	60.39
	08/27/03	15.92	0.00	59.85
	06/17/04	15.77	0.00	60.00
	12/14/04	15.21	0.00	60.56

TABLE 1
SUMMARY OF GROUNDWATER ELEVATIONS, 2001 TO PRESENT
ARCO Facility #1790

Well Identification / Surveyed Well Elevation[1] (MSL)	Date Measured	Depth to Water (Feet)	LPH Thickness (Feet)	Groundwater Elevation[2] (MSL)
MW-13	02/06/01	16.25	0.00	59.52
75.77	05/08/01	15.93	0.00	59.84
	07/18/01	16.33	0.00	59.44
	10/18/01	16.47	0.00	59.30
	01/28/02	16.33	0.00	59.44
	04/11/02	16.38	0.00	59.39
	11/14/02	16.84	0.00	58.93
	06/06/03	15.78	0.00	59.99
	08/27/03	16.23	0.00	59.54
	06/17/04	16.13	0.00	59.64
	12/14/04	15.62	0.00	60.15

Notes:

[1]Elevations are in feet above mean sea level (MSL).
[2]Groundwater Elevation = Surveyed Well Elevation - Depth to Water
[3]Elevations adjusted by adding (0.75 x LPH thickness) to measured groundwater elevations.
LPH = Liquid-phase hydrocarbons.

TABLE 2
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS, 2001 TO PRESENT
ARCO Facility #1790
All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	GRO	B	T	E	X	MTBE
MW-1	02/06/01 NP	<500	5.3	<0.50	0.71	<1.5	32
	05/08/01 NP	<500	<0.50	<0.50	<0.50	<1.5	11
	07/18/01 NP	<500	<0.50	<0.50	<0.50	<1.5	13
	10/18/01 NP	<500	13	<.0.50	<0.50	<1.5	30
	01/28/02 NP	<500	5.4	<.0.50	<0.50	<1.5	23
	04/11/02 NP	<500	<0.50	<.0.50	<0.50	<1.5	2.4
	11/14/02 NP	<500	<0.50	<0.50	<0.50	<1.5	1.9
	06/06/03 NP	<500	<0.50	<.0.50	<0.50	<1.5	<1.0
	08/27/03 NP	<500	2.5	<0.50	1.6	<1.5	<1.0
	08/27/03	1,200	120	<0.50	140	3.7	13
	06/17/04	420	27	<0.50	38	<1.5	4.2
	12/14/04	730	61	<2.5	160	<2.5	6.1
MW-2	02/06/01 NP	10,000	<5.0	42	1,300	730	<10
	05/08/01 NP	9,100	<5.0	15	1,200	650	<10
	07/18/01 NP	11,000	<5.0	76	1,500	1,100	<10
	10/18/01 NP	<500	<10	41	1,100	540	<20
	01/28/02 NP	<500	<0.50	0.77	22	10.7	<1.0
	04/11/02 NP	520	<0.50	1.3	2.4	51	<1.0
	11/14/02 NP	3,500	<0.50	8.0	140	380	<1.0
	06/06/03 NP	780	<0.50	1.6	55	22	<1.0
	08/27/03 NP	<5,000	<2.0	4.4	260	19	<4.0
	08/27/03	7,600	<5.0	29	630	880	<10
	06/17/04	4,600	<0.50	0.95	42	34	<1.0
	12/14/04	10,000	<12	13	620	730	<12
MW-3	02/06/01 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	05/08/01 NP	800	5.0	0.55	180	56	<1.0
	07/18/01 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	10/18/01 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	01/28/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	04/11/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	11/14/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	06/06/03 NP	820	<0.50	<0.50	66	<1.5	<1.0
	08/27/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	08/27/03	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	06/17/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	12/14/04	<100	<1.0	<1.0	<1.0	<1.0	<1.0
MW-4	02/06/01 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	05/08/01 NP	<500	<0.50	<0.50	2.7	<1.5	<1.0
	07/18/01 NP	<500	<0.50	<0.50	1.1	<1.5	<1.0
	10/18/01 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	01/28/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	04/11/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	11/14/02 NP	<500	<0.50	<0.50	0.74	2.0	<1.0
	06/06/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	08/27/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	08/27/03	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	06/17/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	12/14/04	<100	<1.0	<1.0	<1.0	<1.0	<1.0

TABLE 2
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS, 2001 TO PRESENT
ARCO Facility #1790
All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	GRO	B	T	E	X	MTBE
MW-5	02/06/01 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	05/08/01 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	07/18/01 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	10/18/01 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	01/28/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	04/11/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	11/14/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	06/06/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	08/27/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	08/27/03	<500	<0.50	<0.50	0.79	<1.5	<1.0
	06/17/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	12/14/04	<100	<1.0	<1.0	<1.0	<1.0	<1.0
MW-6	02/06/01 NP	<500	<0.50	<0.50	<0.50	<1.5	2.2
	05/08/01	Not Sampled - Well Reduction Program					
	07/18/01 NP	Not Sampled - Well Reduction Program					
	10/18/01 NP	Not Sampled - Well Reduction Program					
	01/28/02 NP	<500	<0.50	<0.50	<0.50	<1.5	3.3
	04/11/02 NP	Not Sampled - Well Reduction Program					
	11/14/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	06/06/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	08/27/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	08/27/03	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	06/17/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	12/14/04	<100	<1.0	<1.0	<1.0	<1.0	<1.0
MW-7	02/06/01 NP	610	4.1	0.83	17	66	19
	05/08/01 NP	560	6.9	<0.50	12	13	16
	07/18/01 NP	520	7.6	0.64	24	23	21
	10/18/01 NP	<500	3.5	0.50	6	24	33
	01/28/02 NP	<500	<0.50	<0.50	5.7	9.5	7.2
	04/11/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	11/14/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	06/06/03 NP	<500	<0.50	<0.50	<0.50	2.8	<1.0
	08/27/03 NP	<500	<0.50	<0.50	2.0	6.8	<1.0
	08/27/03	<500	<0.50	<0.50	11	28	<1.0
	06/17/04	<500	0.89	<0.50	13	<1.5	<1.0
	12/14/04	210	<1.0	<1.0	9.8	2.8	<1.0
MW-8	02/06/01 NP	24,000	71	430	2,700	6,500	<20
	05/08/01 NP	22,000	83	400	2,400	6,300	<40
	07/18/01 NP	25,000	78	530	2,800	7,900	<40
	10/18/01 NP	43,000	48	950	4,200	16,000	<50
	01/28/02 NP	20,000	<25	270	1,200	8,100	<50
	04/11/02 NP	30,000	<25	230	1,500	10,000	<50
	11/14/02 NP	24,000	<20	130	1,900	7,700	<40
	06/06/03 NP	19,000	<20	42	1,700	1,600	<40
	08/27/03 NP	21,000	<10	100	3,600	4,200	<20
	08/27/03	20,000	<20	130	3,600	4,900	<40
	06/17/04	13,000	<20	41	3,100	3,600	<40
	12/14/04	9,700	<25	<25	1,300	1,100	<25

TABLE 2
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS, 2001 TO PRESENT
ARCO Facility #1790
All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	GRO	B	T	E	X	MTBE
MW-9	02/06/01 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	05/08/01	Not Sampled - Well Reduction Program					
	07/18/01 NP	Not Sampled - Well Reduction Program					
	10/18/01 NP	Not Sampled - Well Reduction Program					
	01/28/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	04/11/02 NP	Not Sampled - Well Reduction Program					
	11/14/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	06/06/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	08/27/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	08/27/03	<500	<0.50	0.77	<0.50	<1.5	<1.0
	06/17/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	12/14/04	<100	<1.0	<1.0	<1.0	<1.0	<1.0
MW-10	02/06/01 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	05/08/01 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	07/18/01 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	10/18/01 NP	<500	<0.50	<0.50	<0.50	<1.5	5.2
	01/28/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	04/11/02 NP	<500	<0.50	<0.50	<0.50	<1.5	1.0
	11/14/02 NP	<500	<0.50	<0.50	<0.50	<1.5	2.1
	06/06/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	08/27/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	08/27/03	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	06/17/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	12/14/04	<100	<1.0	<1.0	<1.0	<1.0	<1.0
MW-11	02/06/01 NP	1,500	66	3.3	150	37	8.5
	05/08/01 NP	1,000	5.1	2.0	22	67	<1.0
	07/18/01 NP	<500	13	4.2	11	95	<1.0
	10/18/01 NP	7,400	160	43	610	860	4.1
	01/28/02 NP	1,700	25	2.6	110	29	1.8
	04/11/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	11/14/02 NP	1,200	3.5	1.1	75	70	<1.0
	06/06/03 NP	<500	6.1	<0.50	1.2	1.8	1.1
	08/27/03 NP	<500	6.8	<0.50	1.5	2.4	1.2
	08/27/03	510	8.5	0.62	8.9	11	1.1
	06/17/04	1,700	26	3.6	170	220	<1.0
	12/14/04	3,700	29	<6.2	360	420	<6.2
MW-12	02/06/01 NP	<500	0.58	<0.50	<0.50	<1.5	100
	05/08/01 NP	<500	<0.50	<0.50	<0.50	<1.5	63
	07/18/01 NP	<500	11	0.61	7.1	5.3	74
	10/18/01 NP	<500	<0.50	0.79	0.7	1.8	83
	01/28/02 NP	<500	<0.50	<0.50	<0.50	<1.5	65
	04/11/02 NP	<500	<0.50	<0.50	<0.50	<1.5	48
	11/04/02 NP	Not Sampled - Well Inaccessible					
	06/06/03 NP	<500	<0.50	<0.50	<0.50	<1.5	29
	08/27/03 NP	<500	<0.50	<0.50	<0.50	<1.5	29
	08/27/03	<500	<0.50	<0.50	<0.50	<1.5	32
	06/17/04	<500	<0.50	<0.50	<0.50	<1.5	9.8
	12/14/04	120	<1.0	<1.0	<1.0	<1.0	7.0

TABLE 2
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS, 2001 TO PRESENT
ARCO Facility #1790
All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	GRO	B	T	E	X	MTBE
MW-13	02/06/01 NP	<500	<0.50	<0.50	<0.50	<1.5	1.6
	05/08/01	Not Sampled - Well Reduction Program					
	07/18/01 NP	Not Sampled - Well Reduction Program					
	10/18/01 NP	Not Sampled - Well Reduction Program					
	01/28/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	04/11/02 NP	Not Sampled - Well Reduction Program					
	11/14/02 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	06/06/03 NP	<500	<0.50	<0.50	<0.50	<1.5	1.1
	08/27/03 NP	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	08/27/03	<500	<0.50	<0.50	<0.50	<1.5	20
	06/17/04	<500	<0.50	<0.50	<0.50	<1.5	4.9
	12/14/04	<100	<1.0	<1.0	<1.0	1.2	2.3

Notes:

GRO = Gasoline-Range Organics C_6-C_{12} (DHS Modified EPA Method 8015B)
B = Benzene
T = Toluene
E = Ethylbenzene
X = Total Xylenes
BTEX = Analyzed by EPA Method 8260B
MTBE = Methyl-tert-Butyl Ether analyzed by EPA Method 8260B
< = Below laboratory detection limit shown
-- = Not analyzed
NP = Well sampled according to No-Purge Sampling Procedures

TABLE 3
ADDITIONAL OXYGENATES ANALYTICAL RESULTS, 2001 TO PRESENT
ARCO Facility #1790
All Results Reported in Micrograms Per Liter (ug/L)

Well Identification	Sampling Date	DIPE	ETBE	TAME	TBA	ETHANOL
MW-1	02/06/01 NP	<5.0	<5.0	<5.0	61	--
	05/08/01 NP	<5.0	<5.0	<5.0	<25	--
	07/18/01 NP	<5.0	<5.0	<5.0	<25	--
	10/18/01 NP	<5.0	<5.0	<5.0	40	--
	01/28/02 NP	<5.0	<5.0	<5.0	<25	--
	04/11/02 NP	<5.0	<5.0	<5.0	<25	--
	11/14/02 NP	<5.0	<5.0	<5.0	<50	--
	06/06/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03	<5.0	<5.0	<5.0	<50	<150
	06/17/04	<5.0	<5.0	<5.0	<50	<150
	12/14/04	<5.0	<5.0	<5.0	<62	<1,200
MW-2	02/06/01 NP	<50	<50	<50	<250	--
	05/08/01 NP	<50	<50	<50	<250	--
	07/18/01 NP	<50	<50	<50	<250	--
	10/18/01 NP	<100	<100	<100	<500	--
	01/28/02 NP	<5.0	<5.0	<5.0	<25	--
	04/11/02 NP	<5.0	<5.0	<5.0	<25	--
	11/14/02 NP	<5.0	<5.0	<5.0	<50	--
	06/06/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03 NP	<20	<20	<20	<200	<600
	08/27/03	<50	<50	<50	<500	<1,500
	06/17/04	<5.0	<5.0	<5.0	<50	<150
	12/14/04	<25	<25	<25	<310	<6,200
MW-3	02/06/01 NP	<5.0	<5.0	<5.0	<25	--
	05/08/01 NP	<5.0	<5.0	<5.0	<25	--
	07/18/01 NP	<5.0	<5.0	<5.0	<25	--
	10/18/01 NP	<5.0	<5.0	<5.0	<25	--
	01/28/02 NP	<5.0	<5.0	<5.0	<25	--
	04/11/02 NP	<5.0	<5.0	<5.0	<25	--
	11/14/02 NP	<5.0	<5.0	<5.0	<50	--
	06/06/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03	<5.0	<5.0	<5.0	<50	<150
	06/17/04	<5.0	<5.0	<5.0	<50	<150
	12/14/04	<2.0	<2.0	<2.0	<25	<500
MW-4	02/06/01 NP	<5.0	<5.0	<5.0	<25	--
	05/08/01 NP	<5.0	<5.0	<5.0	<25	--
	07/18/01 NP	<5.0	<5.0	<5.0	<25	--
	10/18/01 NP	<5.0	<5.0	<5.0	<25	--
	01/28/02 NP	<5.0	<5.0	<5.0	<25	--
	04/11/02 NP	<5.0	<5.0	<5.0	<25	--
	11/14/02 NP	<5.0	<5.0	<5.0	<50	--
	06/06/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03	<5.0	<5.0	<5.0	<50	<150
	06/17/04	<5.0	<5.0	<5.0	<50	<150
	12/14/04	<2.0	<2.0	<2.0	<25	<500

TABLE 3
ADDITIONAL OXYGENATES ANALYTICAL RESULTS, 2001 TO PRESENT
ARCO Facility #1790
All Results Reported in Micrograms Per Liter (ug/L)

Well Identification	Sampling Date	DIPE	ETBE	TAME	TBA	ETHANOL
MW-5	02/06/01 NP	<5.0	<5.0	<5.0	<25	--
	05/08/01 NP	<5.0	<5.0	<5.0	<25	--
	07/18/01 NP	<5.0	<5.0	<5.0	<25	--
	10/18/01 NP	<5.0	<5.0	<5.0	<25	--
	01/28/02 NP	<5.0	<5.0	<5.0	<25	--
	04/11/02 NP	<5.0	<5.0	<5.0	<25	--
	11/14/02 NP	<5.0	<5.0	<5.0	<50	--
	06/06/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03	<5.0	<5.0	<5.0	<50	<150
	06/17/04	<5.0	<5.0	<5.0	<50	<150
	12/14/04	<2.0	<2.0	<2.0	<25	<500
MW-6	02/06/01 NP	<5.0	<5.0	<5.0	<25	--
	05/08/01 NP	Not Sampled - Well Reduction Program				--
	07/18/01 NP	Not Sampled - Well Reduction Program				--
	10/18/01 NP	Not Sampled - Well Reduction Program				--
	01/28/02 NP	<5.0	<5.0	<5.0	<25	--
	04/11/02 NP	Not Sampled - Well Reduction Program				--
	11/14/02 NP	<5.0	<5.0	<5.0	<50	--
	06/06/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03	<5.0	<5.0	<5.0	<50	<150
	06/17/04	<5.0	<5.0	<5.0	<50	<150
	12/14/04	<2.0	<2.0	<2.0	<25	<500
MW-7	02/06/01 NP	<5.0	<5.0	<5.0	90	--
	05/08/01 NP	<5.0	<5.0	<5.0	44	--
	07/18/01 NP	<5.0	<5.0	<5.0	52	--
	10/18/01 NP	<5.0	<5.0	<5.0	56	--
	01/28/02 NP	<5.0	<5.0	<5.0	<25	--
	04/11/02 NP	<5.0	<5.0	<5.0	<25	--
	11/14/02 NP	<5.0	<5.0	<5.0	<50	--
	06/06/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03	<5.0	<5.0	<5.0	<50	<150
	06/17/04	<5.0	<5.0	<5.0	<50	<150
	12/14/04	<2.0	<2.0	<2.0	<25	<500
MW-8	02/06/01 NP	<100	<100	<100	<500	--
	05/08/01 NP	<200	<200	<200	<1,000	--
	07/18/01 NP	<200	<200	<200	<1,000	--
	10/18/01 NP	<250	<250	<250	<1,200	--
	01/28/02 NP	<250	<250	<250	<1,200	--
	04/11/02 NP	<250	<250	<250	<1,200	--
	11/14/02 NP	<200	<200	<200	<2000	--
	06/06/03 NP	<200	<200	<200	<400	<6,000
	08/27/03 NP	<100	<100	<100	<1,000	<3,000
	08/27/03	<200	<200	<200	<2,000	<6,000
	06/17/04	<200	<200	<200	<2,000	<6,000
	12/14/04	<50	<50	<50	<620	<12,000
MW-9	02/06/01 NP	<5.0	<5.0	<5.0	<25	--
	05/08/01	Not Sampled - Well Reduction Program				--

TABLE 3
ADDITIONAL OXYGENATES ANALYTICAL RESULTS, 2001 TO PRESENT
ARCO Facility #1790
All Results Reported in Micrograms Per Liter (ug/L)

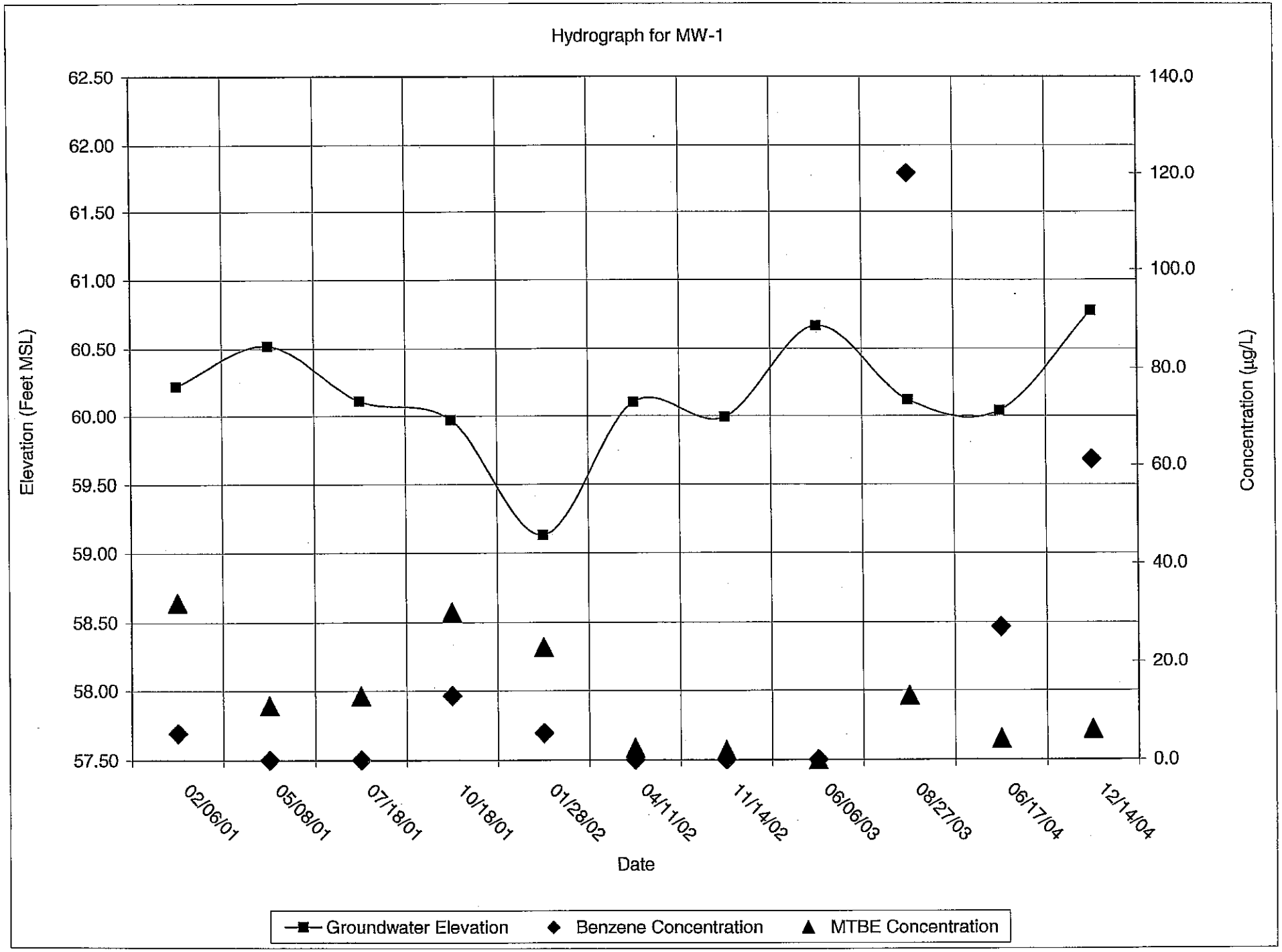
Well Identification	Sampling Date	DIPE	ETBE	TAME	TBA	ETHANOL
MW-9 Cont'd	07/18/01	Not Sampled - Well Reduction Program				--
	10/18/01	Not Sampled - Well Reduction Program				--
	01/28/02 NP	<5.0	<5.0	<5.0	<25	--
	04/11/02 NP	Not Sampled - Well Reduction Program				--
	11/14/02 NP	<5.0	<5.0	<5.0	<50	--
	06/06/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03	<5.0	<5.0	<5.0	<50	<150
	06/17/04	<5.0	<5.0	<5.0	<50	<150
	12/14/04	<2.0	<2.0	<2.0	<25	<500
MW-10	02/06/01 NP	<5.0	<5.0	<5.0	<25	--
	05/08/01 NP	<5.0	<5.0	<5.0	<25	--
	07/18/01 NP	<5.0	<5.0	<5.0	<25	--
	10/18/01 NP	<5.0	<5.0	<5.0	<25	--
	01/28/02 NP	<5.0	<5.0	<5.0	<25	--
	04/11/02 NP	<5.0	<5.0	<5.0	<25	--
	11/14/02 NP	<5.0	<5.0	<5.0	<50	--
	06/06/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03	<5.0	<5.0	<5.0	<50	<150
	06/17/04	<5.0	<5.0	<5.0	<50	<150
	12/14/04	<2.0	<2.0	<2.0	<25	<500
MW-11	02/06/01 NP	<5.0	<5.0	<5.0	<25	--
	05/08/01 NP	<5.0	<5.0	<5.0	<25	--
	07/18/01 NP	<5.0	<5.0	<5.0	<25	--
	10/18/01 NP	<5.0	<5.0	<5.0	<25	--
	01/28/02 NP	<5.0	<5.0	<5.0	<25	--
	04/11/02 NP	<5.0	<5.0	<5.0	<25	--
	11/14/02 NP	<5.0	<5.0	<5.0	<50	--
	06/06/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03	<5.0	<5.0	<5.0	<50	<150
	06/17/04	<5.0	<5.0	<5.0	<50	<150
	12/14/04	<12	<12	<12	<160	<3,100
MW-12	02/06/01 NP	<5.0	<5.0	<5.0	49	--
	05/08/01 NP	<5.0	<5.0	<5.0	<25	--
	07/18/01 NP	<5.0	<5.0	<5.0	<25	--
	10/18/01 NP	<5.0	<5.0	<5.0	25	--
	01/28/02 NP	<5.0	<5.0	<5.0	65	--
	04/11/02 NP	<5.0	<5.0	<5.0	<25	--
	11/14/02 NP	Not Sampled - Well Reduction Program				--
	06/06/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03	<5.0	<5.0	<5.0	<50	<150
	06/17/04	<5.0	<5.0	<5.0	<50	<150
	12/14/04	<2.0	<2.0	<2.0	<25	<500
MW-13	02/06/01 NP	<5.0	<5.0	<5.0	<25	--
	05/08/01	Not Sampled - Well Reduction Program				--
	07/18/01	Not Sampled - Well Reduction Program				--
	10/18/01	Not Sampled - Well Reduction Program				--

TABLE 3
ADDITIONAL OXYGENATES ANALYTICAL RESULTS, 2001 TO PRESENT
ARCO Facility #1790
All Results Reported in Micrograms Per Liter (ug/L)

Well Identification	Sampling Date	DIPE	ETBE	TAME	TBA	ETHANOL
MW-13 Cont'd	01/28/02 NP	<5.0	<5.0	<5.0	<25	--
	04/11/02 NP	Not Sampled - Well Reduction Program				--
	11/14/02 NP	<5.0	<5.0	<5.0	<50	--
	06/06/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03 NP	<5.0	<5.0	<5.0	<50	<150
	08/27/03	<5.0	<5.0	<5.0	<50	<150
	06/17/04	<5.0	<5.0	<5.0	<50	<150
	12/14/04	<2.0	<2.0	<2.0	<25	<500

Notes:

DIPE = Di isopropyl ether
ETBE = Ethyl tert-butyl ether
TAME = tert-Amyl methyl ether
TBA = tert-Butyl alcohol
< = Below laboratory reporting limit
-- = Not analyzed
NP = Well sampled according to No-Purge Sampling
Fuel oxygenates (DIPE, ETBE, TAME, TBA, and Ethanol) analyzed by EPA Method 8260B.



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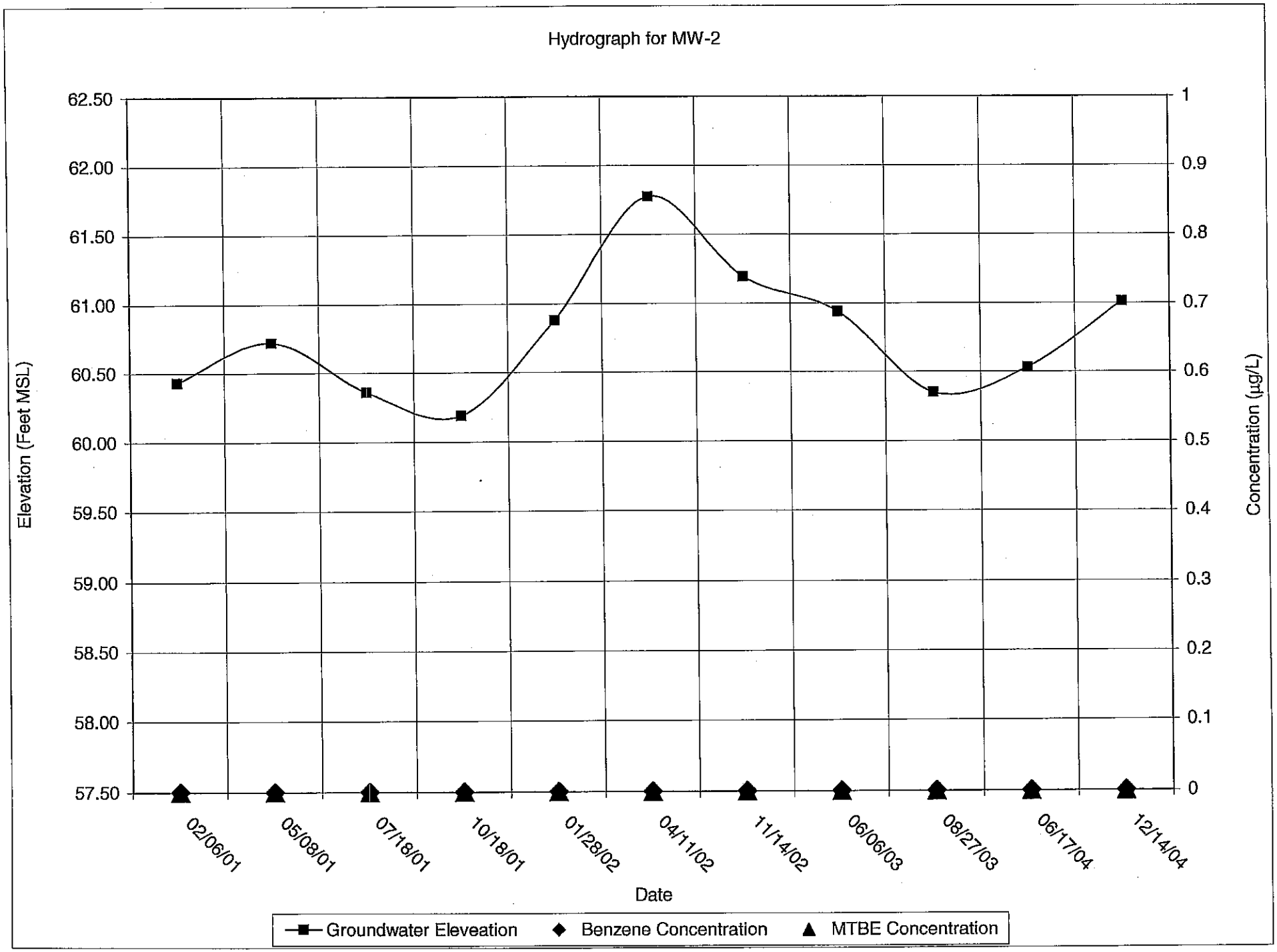

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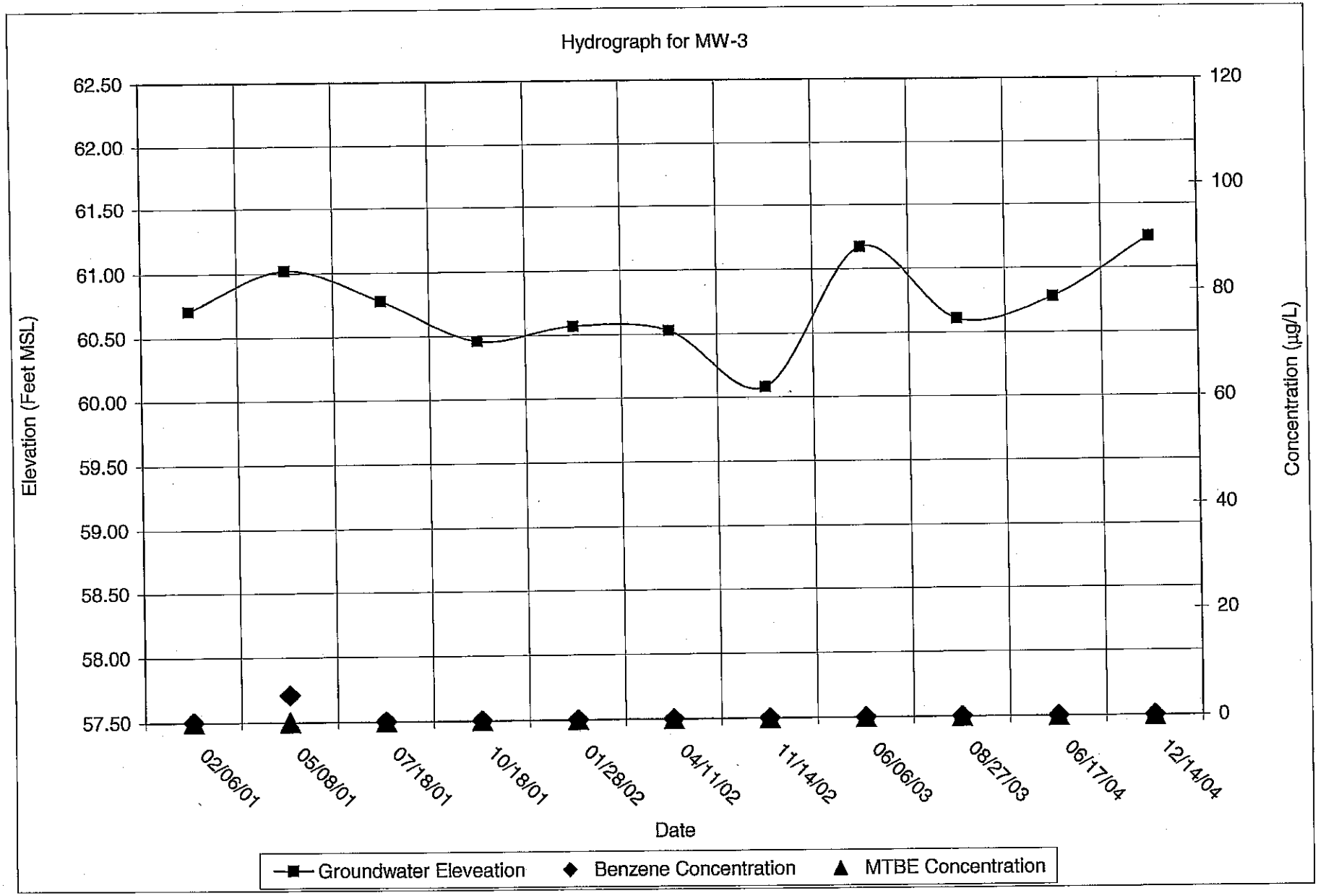

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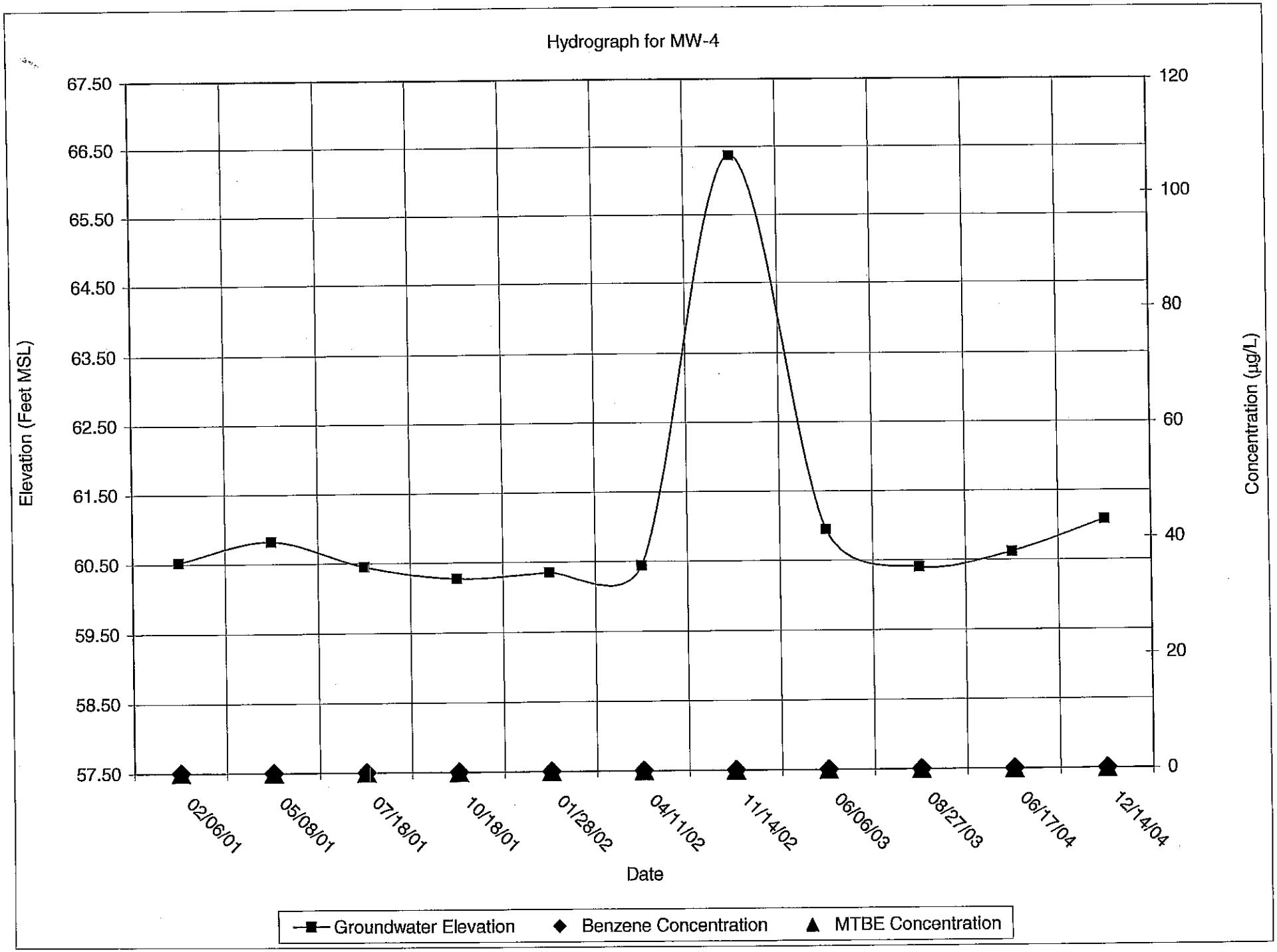

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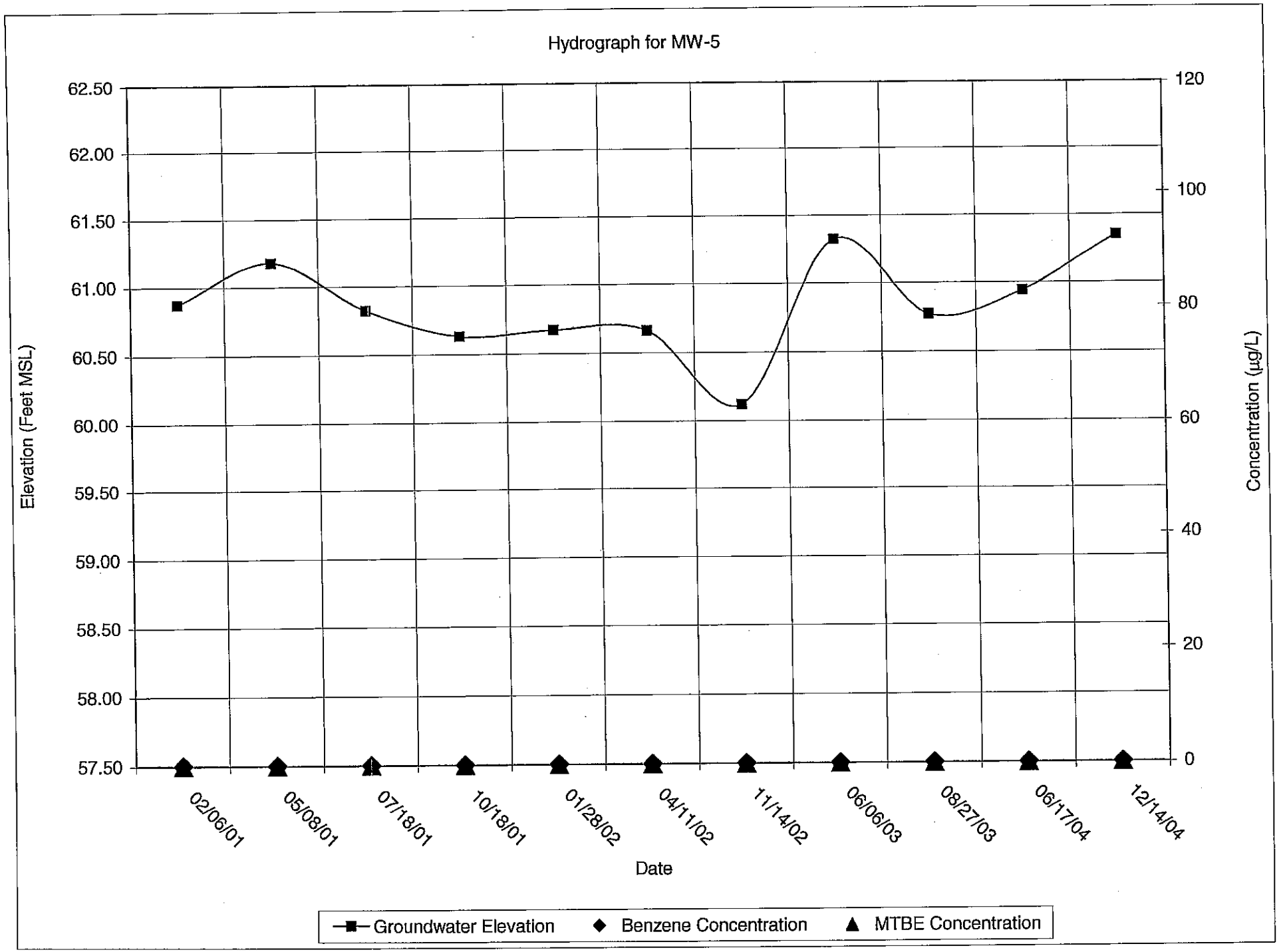

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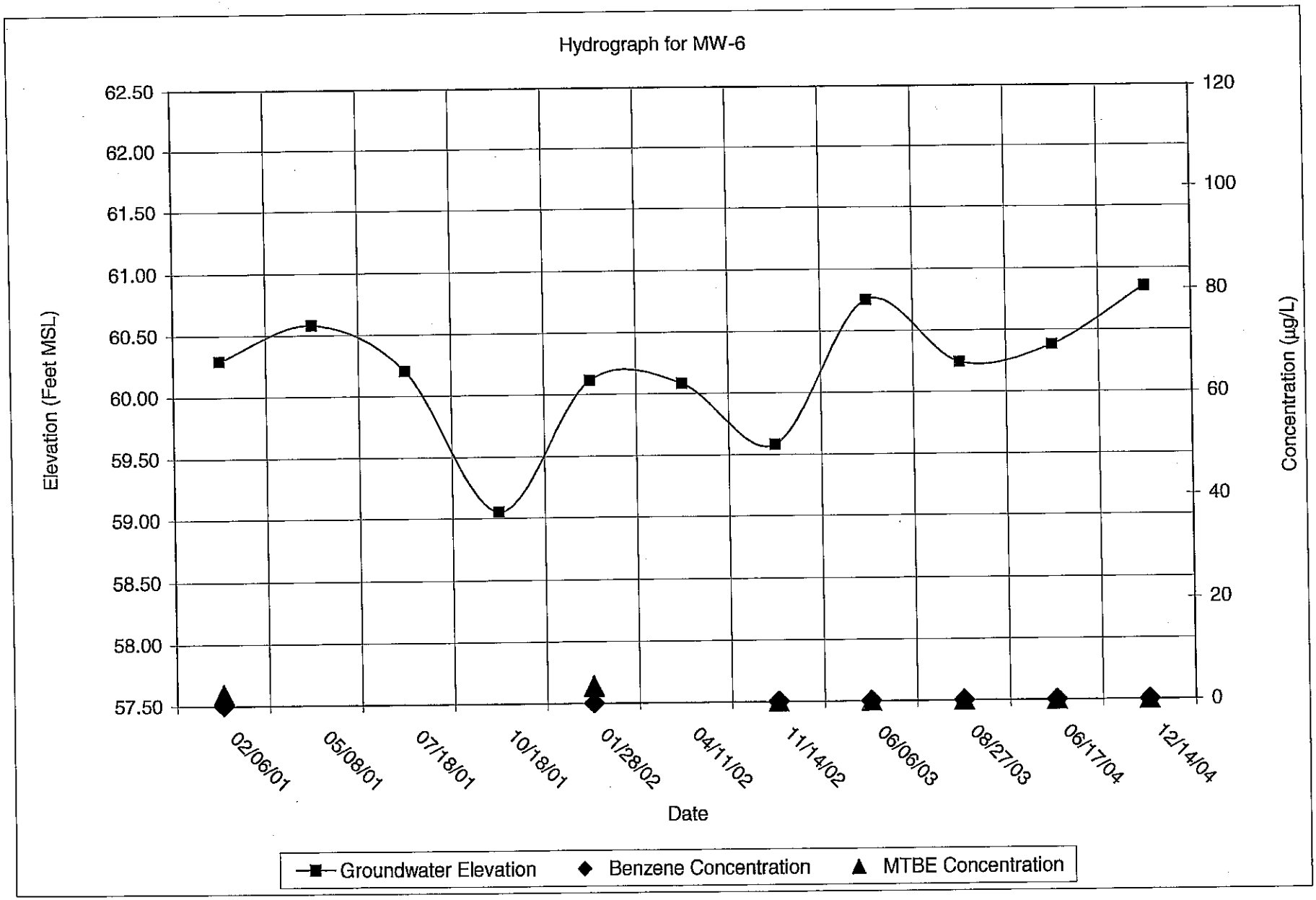

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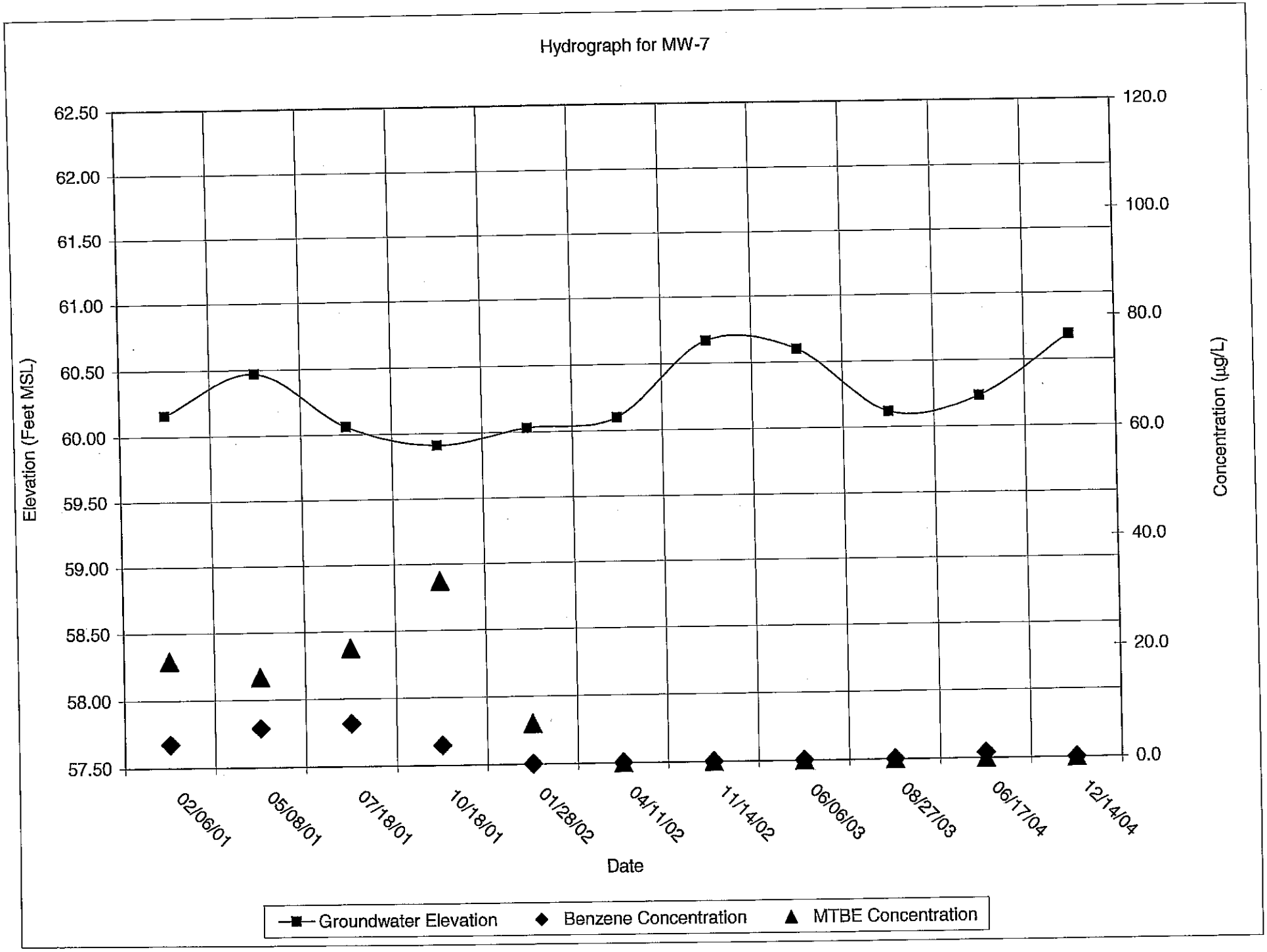

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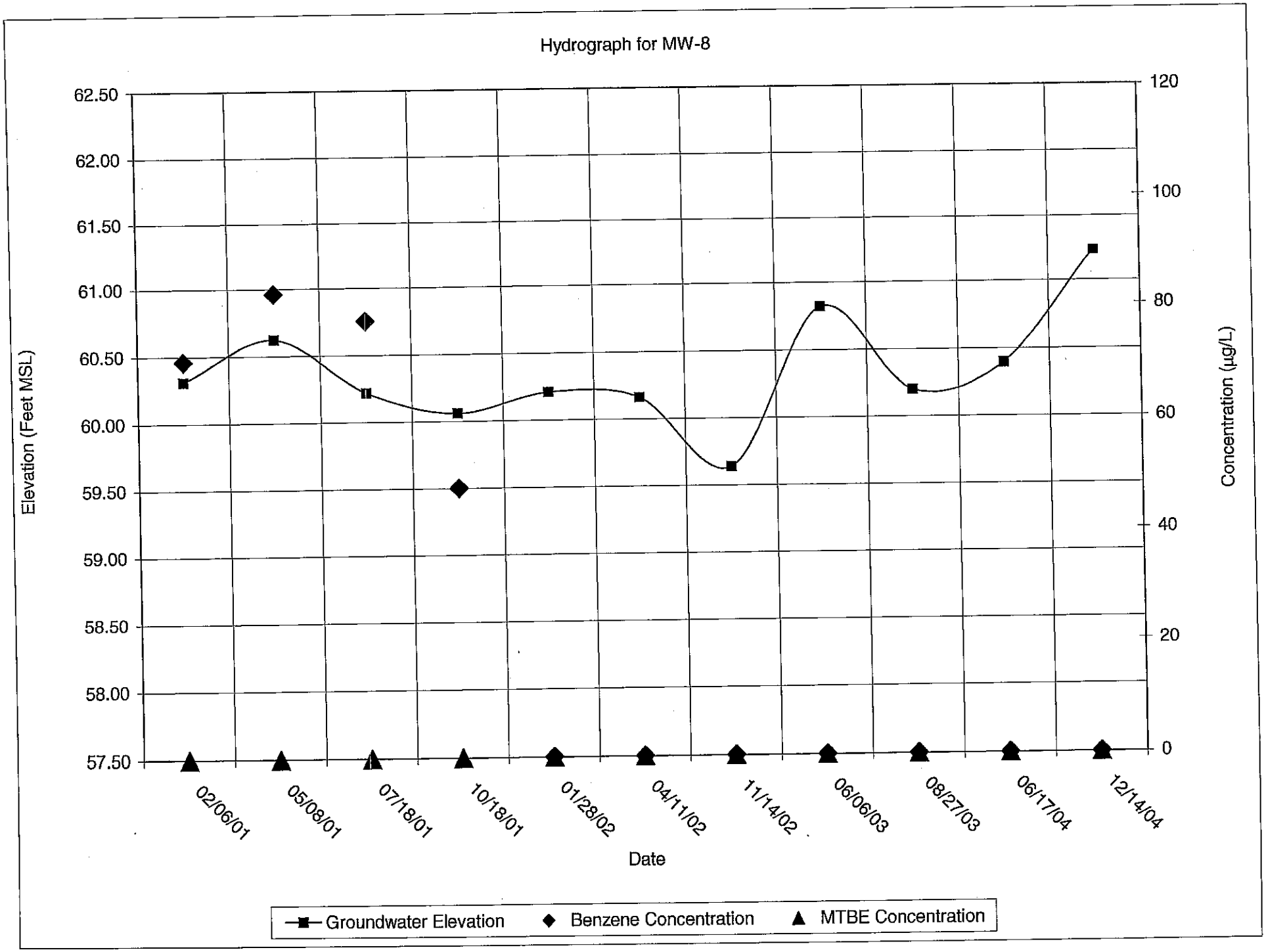

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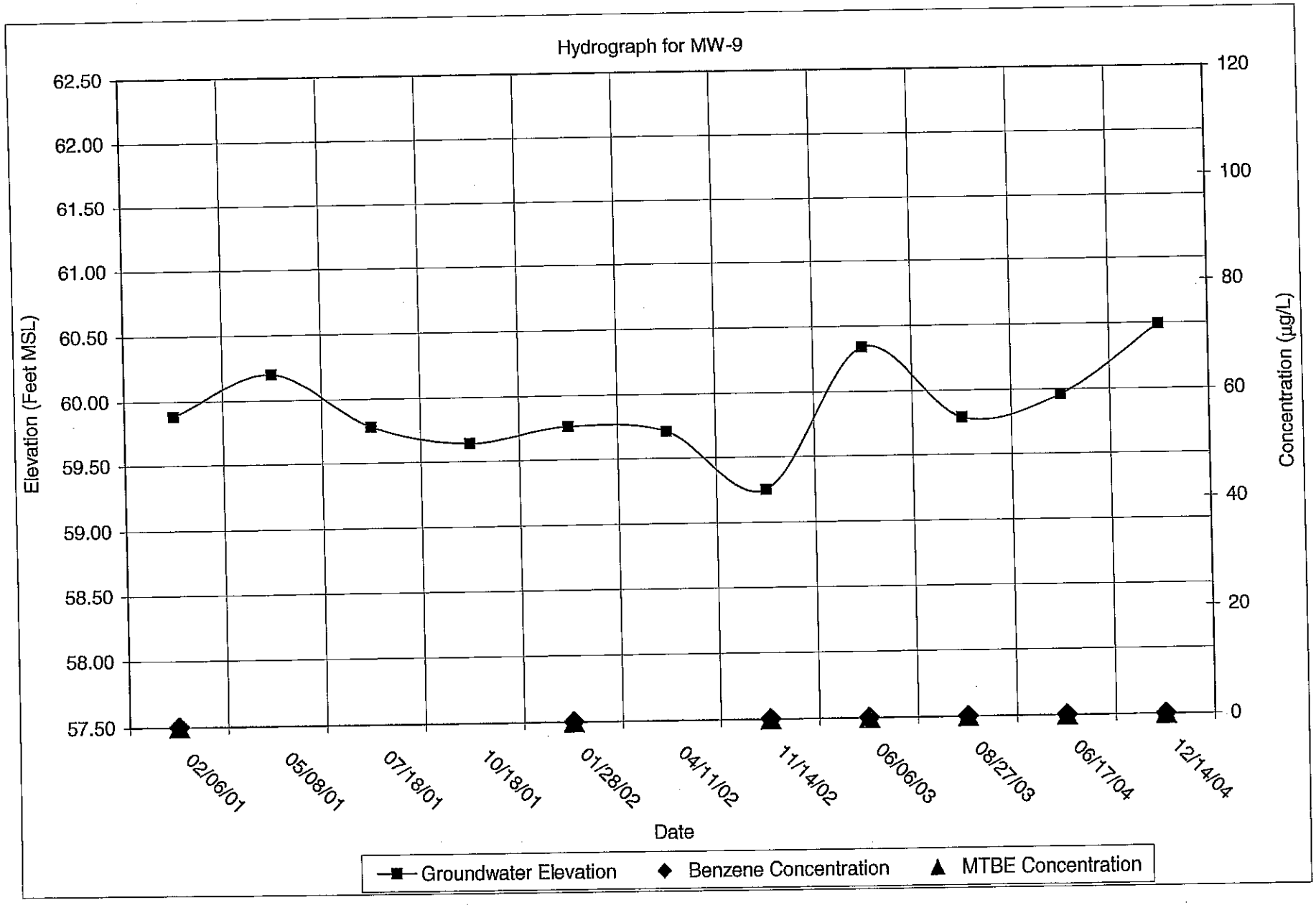

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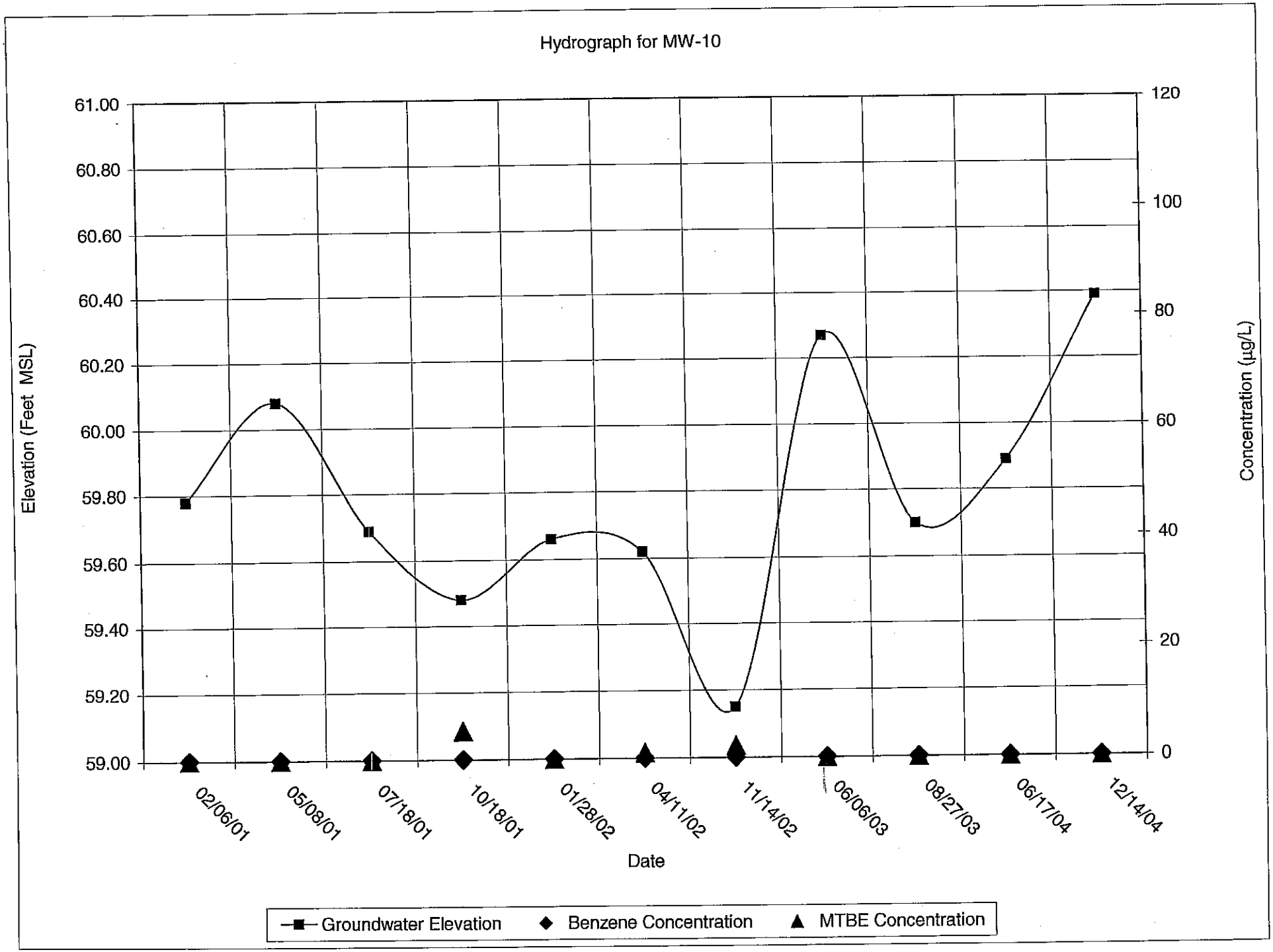

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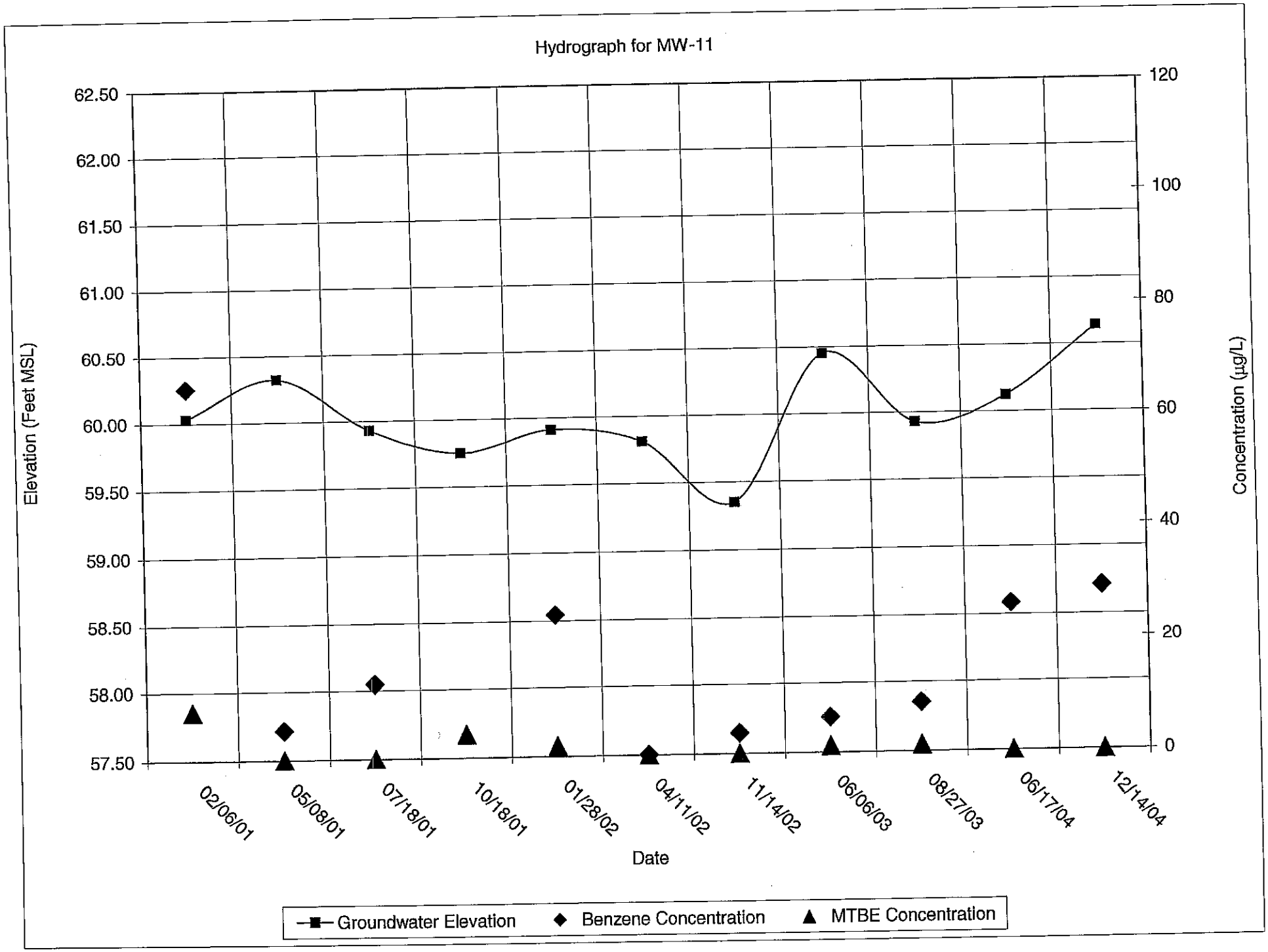

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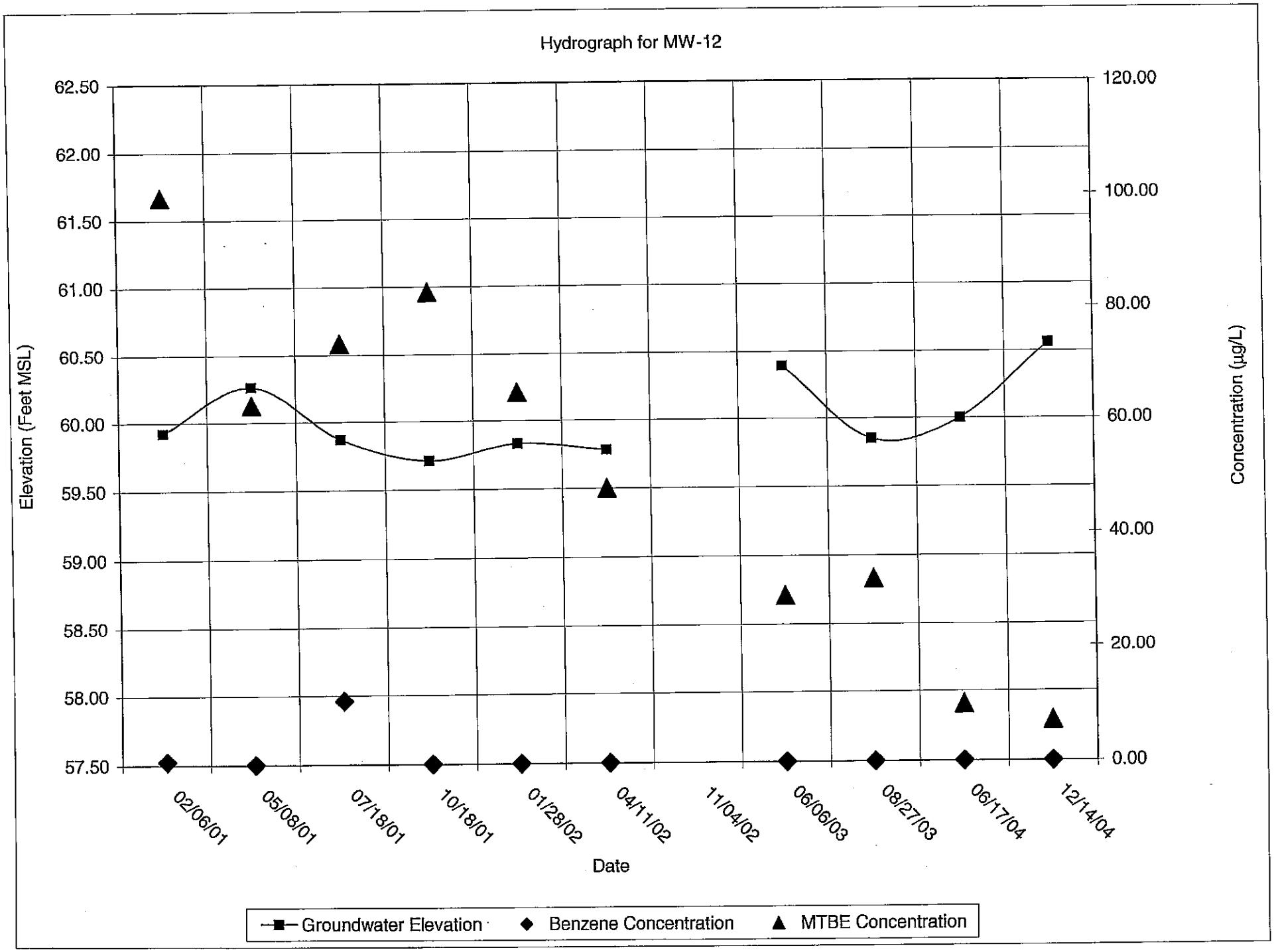

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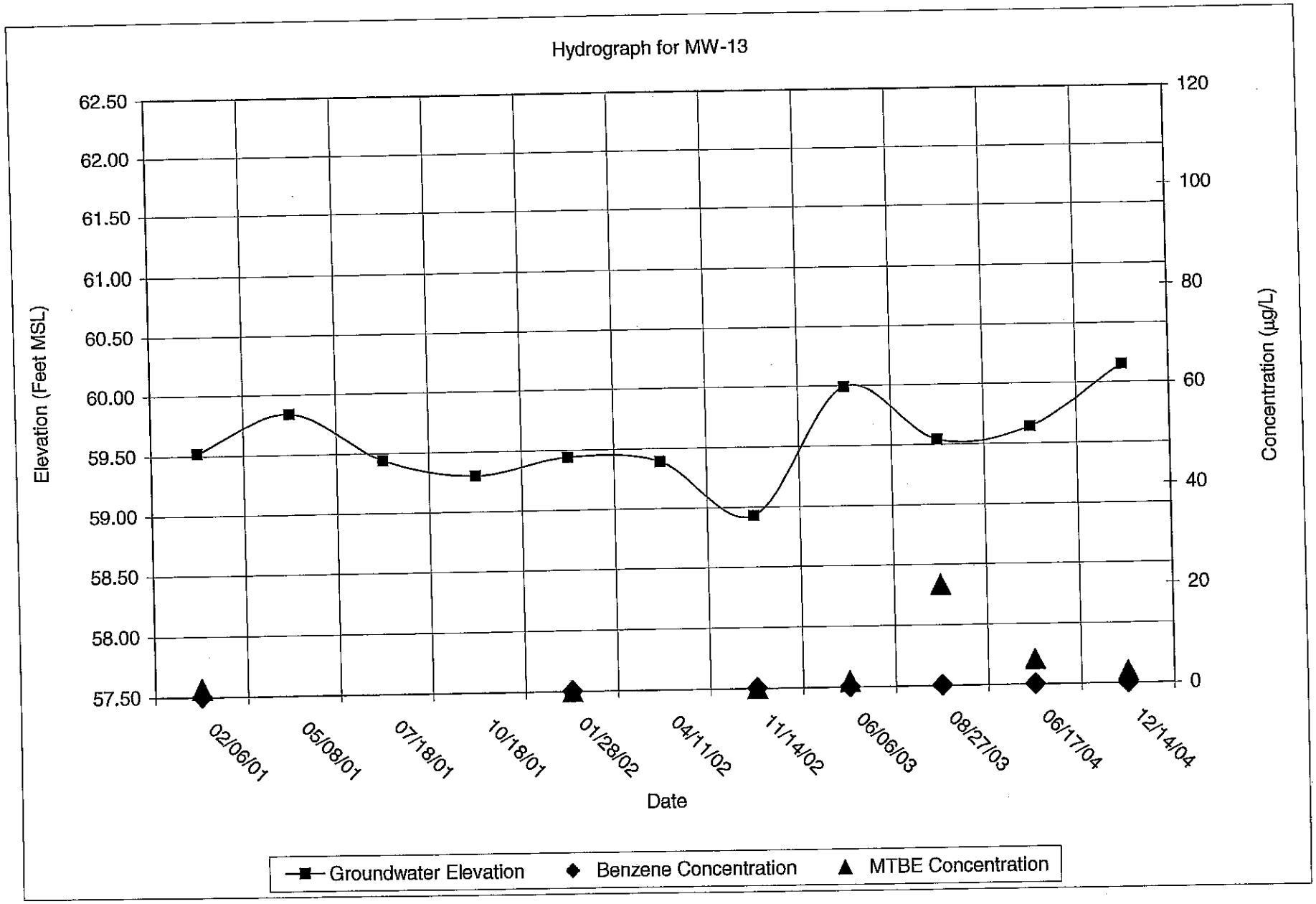

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MONITORING WELL PURGING AND SAMPLING PROCEDURES
SAN DIEGO COUNTY

Monitoring well purging and sampling methods follow the procedures outlined by the County of San Diego, Environmental Health Services, Site Assessment and Mitigation (SAM) Manual.

Purging Procedures

A. Using a decontaminated instrument (i.e., tape measure, continuity meter, or interface probe) measure the depth to groundwater in reference to the measuring point at the top of the casing. Measure the total depth of the well to calculate the height and volume of water in the borehole.

B. Based on previously obtained data, if a monitoring well is suspected of containing LPH concentrations, lower a transparent bailer into the well to evaluate the presence of hydrocarbon sheen on the water table.

C. Decontaminate the purge pump and/or PVC bailers by scrubbing in Alconox detergent solution, followed by a tap water rinse and then a deionized water rinse.

D. Purge, by pumping, bailing, or using a vacuum truck with dedicated tubing, approximately one borehole volume of groundwater as calculated according to the thickness of the water column and the diameter of the borehole.

E. Conduct field measurements (i.e., pH and conductivity) after approximately one borehole volume has been purged, or if the water level in the well is so low as to prevent further purging (or dry).

1. If the well has not been purged dry, continue to bail and/or pump and conduct field measurements again following removal of each successive one-half borehole volume of water.

   a) If the first and third series of measurements vary by less than 10 percent or if 3 borehole volumes of water have been removed, the well has been adequately purged. Allow the well to recover to 80 percent of its static condition and begin the sampling procedure.

   b) If the measurements vary by 10 percent or greater, repeat Step E1 above.

2. If the well has been purged dry, measure the water level and allow the well to recharge to 80 percent, or for two hours, whichever occurs first. Calculate the percent recovery.

   a) If the well recovers to greater than 80 percent in less than two hours, repeat Step E1 above.

   b) If the well recovers to less than 80 percent within two hours, it is a slow recharging well. Begin the sampling procedure.

Sampling Procedures

- Use a disposable bailer to collect the groundwater sample.
- Fit the stopcock onto the base of the bailer and transfer the groundwater sample into the appropriate container(s). Where applicable, some containers are completely filled to achieve zero headspace. Label the samples according to location and date of collection.
- Enter the samples into Chain-of-Custody and preserve on ice until delivery to the analytical laboratory. Complete the Well Development or Purging/Sampling Log to be stored in the project file.

When requested by the client, collect a bailer rinsate blank of deionized water to check decontamination procedure. In addition, trip blanks prepared by the laboratory and kept with the samples may be included to check for cross contamination of samples within the cooler. Additional and/or alternate QA/QC samples can be collected and analyzed upon client request.

SECOR

MONITORING WELL GAUGING LOG

Site Name & Facility No: ARCO 1790 Date: 12/14/2004

Project Number: 08BP.U1790.04 Field Representative(s): BP, JM, SM

Checked by: BP

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-1	19.08	0937	—	18.34	—		79.12	60.78		
MW-2	19.75	0920	—	19.27	—		80.28	61.01		
MW-3	20.73	909	—	20.27	—		81.51	61.24		
MW-4	20.64	0917	—	20.18	—		81.26	61.08		
MW-5	20.61	900	—	20.20	—		81.55	61.35		
MW-6	19.21	0906	—	18.74	—		79.59	60.85		
MW-7	18.34	0925	—	17.88	—		78.57	60.69		
MW-8	20.11	0931	—	19.28	—		80.51	61.23		
MW-9	16.32	0914	—	15.79	—		76.28	60.49		wellbox full of water running down sides of casing
MW-10	16.04	0913	—	15.54	—		75.93	60.39		
MW-11	17.01	1015	—	16.49	—		77.13	60.64		
MW-12	15.77	1200	—	15.21	—		75.77	60.56		

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

SECOR

MONITORING WELL GAUGING LOG

Site Name & Facility No: ARCO 1790 Date: 12/14/2004

Project Number: 08BP.U1790.04 Field Representative(s): BP, SMJM

Checked by: BP

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-13	16.13	0925	–	15.62	–		75.77	60.15		

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

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 1
	Project Name: ARCO 1790		Date: 12/14/2004
	Project Number: 08BP.U1790.04		Sample Time: 1309
	SECOR Rep: J. Morell	Checked by:	Sample No: MW- 1

PURGING & SAMPLING EQUIPMENT / METHOD

Water Level Meter Type & ID: Solinist # 8

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

pH Temp/Conductivity Meter Type / ID: 4

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): 18.34

Total Well Depth (DTB) (ft): 30.45

Water Column: 12.11

Floating Product:

Thickness (in):

Borehole Volume (gal): 18.17

1.5 Borehole Volumes (gal): 27.25

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1230	Started Purging					
1245	23.92	18.5	7.08	24.5	2.73	Brown, odorless, cloudy
1258	23.25	27.5	7.11	24.7	2.84	"
1309	19.45	Sample				

Maximum Drawdown (DTW_2) (ft) = 23.92

H_2O Removal Rate (GPM) = .98

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1309

Depth to Water at time of sampling (DTW_3): 19.45

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

BOREHOLE VOLUME CALCULATIONS

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

Casing 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: Disposable bailer stuck in well from previous job. Could not get out.

RECOVERY CALCULATIONS

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

$$\% \text{ of Recovery} = 1 - \frac{(18.34) - (19.45)}{(18.34) - (23.92)} = \frac{-1.11}{-5.58} = 80\%$$

80% Recharge = 19.45

SECOR

INTERNATIONAL INCORPORATED

WELL PURGING / SAMPLING LOG

Well No:	MW- 2
Project Name:	ARCO 1790
Date:	12/14/2004
Project Number:	08BP.U1790.04
Sample Time:	1450
SECOR Rep:	B. Page
Checked by:	BP
Sample No:	MW- 2

PURGING & SAMPLING EQUIPMENT / METHOD

Water Level Meter Type & ID: Solinist # 7

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

pH Temp/Conductivity Meter Type / ID: 1

Sampling Method: ___ Teflon Bailer Y 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): 19.27

Total Well Depth (DTB) (ft): 25.00

Water Column: 5.73

Floating Product:

Thickness (in):

Borehole Volume (gal): 9.00

1.5 Borehole Volumes (gal): 12.89

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1350	Started Purging					
1415	Dry	9	6.89	24.3	2,790	HC, cloudy dk gry sheen
1435	DM	13	7.13	24.8	2,870	"
1450	19.64	sample				

Maximum Drawdown (DTW_2) (ft) = 25.00

H_2O Removal Rate (GPM) = .3

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1450

Depth to Water at time of sampling (DTW_3): 19.64

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

BOREHOLE VOLUME CALCULATIONS

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

Casing 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: Sheen

RECOVERY CALCULATIONS

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

$$\% \text{ of Recovery} = 1 - \frac{(19.27)-(19.64)}{(19.27)-(25.00)} = \frac{-.37}{-5.73} = 93\ \%$$

80% Recharge = 20.42

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 3
	Project Name: ARCO 1790		Date: 12/14/2004
	Project Number: 08BP.U1790.04		Sample Time: 1340
	SECOR Rep: B. Day	Checked by: BF	Sample No: MW- 3

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 7	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: 1	Depth to Water (DTW_1) (ft): 20.27	
Sampling Method: ___Teflon Bailer ✓ Disposable Bailer ___Other:	Total Well Depth (DTB) (ft): 29.90	Water Column: 9.63
Decontamination Method: ___Steam / High Pressure Wash ✓ 3 Stage (Alconox, Tap & DI rinse) ___Other:	Floating Product:	Thickness (in):
	Borehole Volume (gal): 1.44	1.5 Borehole Volumes (gal): 2.167

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1148	Started Purging					
1200	Dry	1.5	6.94	25.1	3020	Honey cloudy brown
1212	Dry	2.2	7.07	24.8	3180	
1340	20.27	Sample				

Maximum Drawdown (DTW_2) (ft) = 29.90

H_2O Removal Rate (GPM) = .92

✓ Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1340

Depth to Water at time of sampling (DTW_3): 20.27

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

BOREHOLE VOLUME CALCULATIONS

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

Casing 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

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

$$\%\ of\ Recovery = 1 - \frac{(20.27) - (20.27)}{(20.27) - (29.90)} = \frac{0}{9.63} = 100\%$$

80% Recharge = 22.20

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 4
	Project Name: ARCO 1790		Date: 12/14/2004
	Project Number: 08BP.U1790.04		Sample Time: 1330
	SECOR Rep: B. Day	Checked by: BP	Sample No: MW- 4

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 7	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: __ Vac Truck, Y Bailer, __ Submersible Pump, __ Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID: 1	Depth to Water (DTW_1) (ft): 20.18	
Sampling Method: ____ Teflon Bailer, X Disposable Bailer, ____ Other:	Total Well Depth (DTB) (ft): 33.90	Water Column: 13.72
Decontamination Method: __ Steam / High Pressure Wash, X 3 Stage (Alconox, Tap & DI rinse), __ Other:	Floating Product:	Thickness (in):
	Borehole Volume (gal): 20.58	1.5 Borehole Volumes (gal): 30.87

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1300	Started Purging					
1310	20.36	21	6.89	25.1	3410	none, cloudy, brown
1317	20.57	31	6.88	25.1	3420	"
1330	20.18	Sample				

Maximum Drawdown (DTW_2) (ft) = 20.51

H_2O Removal Rate (GPM) = 1.8

X Fast Recharging Well

__ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1330

Depth to Water at time of sampling (DTW_3): 20.18

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

BOREHOLE VOLUME CALCULATIONS

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

Casing 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

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

$$\% \text{ of Recovery} = 1 - \frac{(20.18) - (20.18)}{(20.18) - (20.51)} = \frac{0}{-.33} = 100\%$$

80% Recharge = 20.25

SECOR

INTERNATIONAL INCORPORATED

WELL PURGING / SAMPLING LOG

Project Name	ARCO 1790	Well No:	MW- 5
Project Number:	08BP.U1790.04	Date:	12/14/2004
SECOR Rep: B Pay	Checked by: BB	Sample Time:	1130
		Sample No:	MW- 5

PURGING & SAMPLING EQUIPMENT / METHOD

Water Level Meter Type & ID: Solinist # 7

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

pH Temp/Conductivity Meter Type / ID:

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): 20.20

Total Well Depth (DTB) (ft): 35.23

Water Column: 15.03

Floating Product:

Thickness (in):

Borehole Volume (gal): 22.55

1.5 Borehole Volumes (gal): 33.81

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1040	Started Purging					
1110	20.60	23	6.97	24.5	3330	None, Cloudy brown
1124	20.63	34	6.88	24.5	3340	"
1130	20.20	sample				

Maximum Drawdown (DTW_2) (ft) = 20.63

H_2O Removal Rate (GPM) = .77

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1130

Depth to Water at time of sampling (DTW_3): 20.20

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

BOREHOLE VOLUME CALCULATIONS

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

Casing 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: switch to bailer too many roots

RECOVERY CALCULATIONS

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

$$\% \text{ of Recovery} = 1 - \frac{(20.20)-(20.20)}{(20.20)-(20.63)} = \frac{0}{.43}$$

$$= 100\ \%$$

80% Recharge = 20.29

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 6
	Project Name: ARCO 1790		Date: 12/14/2004
	Project Number: 08BP.U1790.04		Sample Time: 1055
	SECOR Rep: J. Morell	Checked by:	Sample No: MW- 6

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: 4	Depth to Water (DTW_1) (ft): 18.74	
Sampling Method: ___ Teflon Bailer X Disposable Bailer ___ Other:	Total Well Depth (DTB) (ft): 34.77	Water Column: 16.03
	Floating Product:	Thickness (in):
Decontamination Method: ___ Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___ Other:	Borehole Volume (gal): 24.05	1.5 Borehole Volumes (gal): 36.06

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1022	Started Purging					
1033	19.41	24.5	6.77	24.4	3.45	Brown, odorless, cloudy
1038	19.74	36.5	6.81	24.5	3.40	"
1055	18.74	Sample				

Maximum Drawdown (DTW_2) (ft) = 19.74

H_2O Removal Rate (GPM) = 2.28

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1055

Depth to Water at time of sampling (DTW_3): 18.74

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

BOREHOLE VOLUME CALCULATIONS

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

Casing 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

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

$$\% \text{ of Recovery} = 1 - \frac{(18.74) - (18.74)}{(18.74) - (19.74)} = \frac{.0}{1.0}$$

$$= 100\ \%$$

80% Recharge = 18.94

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 7
	Project Name: ARCO 1790		Date: 12/14/2004
	Project Number: 08BP.U1790.04		Sample Time: 1148
	SECOR Rep: J. Morell	Checked by:	Sample No: MW- 7

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: 4	Depth to Water (DTW_1) (ft): 17.88	
Sampling Method: ___ Teflon Bailer, X Disposable Bailer, ___ Other:	Total Well Depth (DTB) (ft): 32.95	Water Column: 15.07
Decontamination Method: ___ Steam / High Pressure Wash, X 3 Stage (Alconox, Tap & DI rinse), ___ Other:	Floating Product:	Thickness (in):
	Borehole Volume (gal): 22.61	1.5 Borehole Volumes (gal): 33.91

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1121	Started Purging					
1131	17.91	23	6.97	24.7	3.10	Brown, odorless, cloudy
1137	17.88	34	7.01	24.7	3.08	"
1148	17.88	Sample				

Maximum Drawdown (DTW_2) (ft) = 17.91

H_2O Removal Rate (GPM) = 2.12

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1148

Depth to Water at time of sampling (DTW_3): 17.91

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

BOREHOLE VOLUME CALCULATIONS

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

Casing 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

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

$$\% \text{ of Recovery} = 1 - \frac{(17.88)-(17.88)}{(17.88)-(17.91)} = \frac{.00}{-.03}$$

$$= 100\ \%$$

80% Recharge = 17.88

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 8
	Project Name: ARCO 1790		Date: 12/14/2004
	Project Number: 08BP.U1790.04		Sample Time: 1459
	SECOR Rep: J. Morell	Checked by:	Sample No: MW- 8

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: 4	Depth to Water (DTW_1) (ft): 19.28	
Sampling Method: ____ Teflon Bailer X Disposable Bailer ____ Other:	Total Well Depth (DTB) (ft): 34.80	Water Column: 15.52
	Floating Product:	Thickness (in):
Decontamination Method: __ Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) Other:	Borehole Volume (gal): 23.28	1.5 Borehole Volumes (gal): 34.92

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1335	Started Purging					
1419	19.73	23.5	6.85	25.1	3.61	Black, odor, cloudy
1432	19.60	35	6.82	25.2	3.54	"
1459	19.37	Sample				

Maximum Drawdown (DTW_2) (ft) = 19.73

H_2O Removal Rate (GPM) = .61

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1459

Depth to Water at time of sampling (DTW_3): 19.37

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

BOREHOLE VOLUME CALCULATIONS

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

Casing 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

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

$$\% \text{ of Recovery} = 1 - \frac{(19.28) - (19.37)}{(19.28) - (19.73)} = \frac{.09}{.45} = 80\ \%$$

80% Recharge = 19.37

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 9
	Project Name: ARCO 1790		Date: 12/14/2004
	Project Number: 08BP.U1790.04		Sample Time: 1345
	SECOR Rep: S. Martin	Checked by:	Sample No: MW- 9

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist #	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: 5	Depth to Water (DTW_1) (ft): 15.79	
Sampling Method: ___Teflon Bailer X Disposable Bailer ___Other:	Total Well Depth (DTB) (ft): 32.85	Water Column: 17.06
Decontamination Method: ___Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___Other:	Floating Product:	Thickness (in):
	Borehole Volume (gal): 25.59	1.5 Borehole Volumes (gal): 38.39

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1323	Started Purging					
1334	16.25	26	7.94	20.8	5950	none, clear
1339	16.25	39	7.96	20.7	5680	" "
1345	15.79	Sample				

Maximum Drawdown (DTW_2) (ft) = 16.25

H_2O Removal Rate (GPM) = 7.44

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1345

Depth to Water at time of sampling (DTW_3): 15.79

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

BOREHOLE VOLUME CALCULATIONS

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

Casing 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

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

$$\% \text{ of Recovery} = 1 - \frac{(15.79) - (15.79)}{(15.79) - (16.25)} = \frac{0}{-0.46} = 100\%$$

80% Recharge = 15.88

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 10
	Project Name: ARCO 1790		Date: 12/14/2004
	Project Number: 08BP.U1790.04		Sample Time: 1308
	SECOR Rep: S.Martin	Checked by:	Sample No: MW- 10

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 1	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: ( ) X Vac Truck / Submersible Pump ___Bailer ___Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID: 5	Depth to Water (DTW_1) (ft): 15.54	
Sampling Method: ___Teflon Bailer X Disposable Bailer ___Other:	Total Well Depth (DTB) (ft): 32.71	Water Column: 17.17
	Floating Product:	Thickness (in):
Decontamination Method: ___Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___Other:	Borehole Volume (gal): 25.76	1.5 Borehole Volumes (gal): 38.63

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1249	Started Purging			(SM)		
1256	15.73	26	7.90	~~19.6~~ 23.0	5.83	None, clear
1300	15.79	39	7.94	24.1	5450	
1308	15.52	Sample				

Maximum Drawdown (DTW_2) (ft) = 15.79

H_2O Removal Rate (GPM) = 3.54

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1308

Depth to Water at time of sampling (DTW_3): 15.52

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

BOREHOLE VOLUME CALCULATIONS

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

Casing 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

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

$$\% \text{ of Recovery} = 1 - \frac{(15.54) - (15.52)}{(15.54) - (\cancel{15.52})\ 15.79} = \frac{+0.02}{-0.25} = \underline{100+\%}$$

80% Recharge = 15.59

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG	Well No: MW- 11
	Project Name: ARCO 1790	Date: 12/14/2004
	Project Number: 08BP.U1790.04	Sample Time: 1054
	SECOR Rep: S. Martin / Checked by:	Sample No: MW- 11

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS
Water Level Meter Type & ID: Solinist #	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: 5	Depth to Water (DTW_1) (ft): 16.49
Sampling Method: ___Teflon Bailer X Disposable Bailer ___Other:	Total Well Depth (DTB) (ft): 34.55 / Water Column: 18.06
Decontamination Method: ___Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___Other:	Floating Product: / Thickness (in):
	Borehole Volume (gal): 27.09 / 1.5 Borehole Volumes (gal): 40.64

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1028	Started Purging					
1038	16.78	28	7.84	17.6	1364	none, clear
1049	16.82	41	7.79	17.9	1400	
1054	16.49	sample				

Maximum Drawdown (DTW_2) (ft) = 16.82

H_2O Removal Rate (GPM) = 2.56

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1054

Depth to Water at time of sampling (DTW_3): 16.49

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

BOREHOLE VOLUME CALCULATIONS

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

Casing 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

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

$$\% \text{ of Recovery} = 1 - \frac{(16.49)-(16.49)}{(16.49)-(16.82)} = \frac{0}{-0.33} = 100\ \%$$

80% Recharge = 16.56

SECOR

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WELL PURGING / SAMPLING LOG

Project Name	ARCO 1790	Well No:	MW- 12
Project Number:	08BP.U1790.04	Date:	12/14/2004
SECOR Rep: S. Martin	Checked by: BB	Sample Time:	1222
		Sample No:	MW- 12

PURGING & SAMPLING EQUIPMENT / METHOD

Water Level Meter Type & ID: Solinist # 1

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

pH Temp/Conductivity Meter Type / ID: 65

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): 15.21

Total Well Depth (DTB) (ft): 19.67

Water Column: 4.46

Floating Product:

Thickness (in):

Borehole Volume (gal): 6.69

1.5 Borehole Volumes (gal): 10.04

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1209	Started Purging					
1212	15.52	7	7.41	24.5	3050	none, clear
1214	15.54	11	7.45	24.8	3100	" "
1222	15.21	sample				
~~1225~~						

Maximum Drawdown (DTW_2) (ft) = 15.54

H_2O Removal Rate (GPM) = 2.20

___ Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1222

Depth to Water at time of sampling (DTW_3): 15.21

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

BOREHOLE VOLUME CALCULATIONS

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

Casing 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

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

$$\% \text{ of Recovery} = 1 - \frac{(15.21)-(15.21)}{(15.21)-(15.54)} = \frac{0}{-0.33} = 100\%$$

80% Recharge = 15.27

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 13
	Project Name: ARCO 1790		Date: 12/14/2004
	Project Number: 08BP.U1790.04		Sample Time: 1149
	SECOR Rep: S Martin	Checked by:	Sample No: MW- 13

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 1	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: ( ) X Vac Truck ___Bailer X Submersible Pump ___Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID: 5	Depth to Water (DTW_1) (ft): 15.62	
Sampling Method: ___Teflon Bailer X Disposable Bailer ___Other:	Total Well Depth (DTB) (ft): 29.53	Water Column: 13.91
Decontamination Method: ___Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___Other:	Floating Product:	Thickness (in):
	Borehole Volume (gal): 20.87	1.5 Borehole Volumes (gal): 31.30

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1130	Started Purging					
1138	16.50	21	7.48	23.9	1691	None, Clear
1143	16.47	32	7.50	24.1	1701	" "
1148	15.62	Sample				

Maximum Drawdown (DTW_2) (ft) = 16.50

H_2O Removal Rate (GPM) = 2.46

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1148

Depth to Water at time of sampling (DTW_3): 15.62

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

BOREHOLE VOLUME CALCULATIONS

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

Casing 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

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

$$\% \text{ of Recovery} = 1 - \frac{(15.62 - 15.62)}{(15.62) - (16.50)} = \frac{0}{-0.88} = 100\%$$

80% Recharge = 15.86

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

January 7, 2005

STL LOT NUMBER: **E4L190114**
PO/CONTRACT: 08BP.01790.05

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 15 samples received under chain of custody by STL Los Angeles on December 17, 2004. These samples are associated with your ARCO Site #1790 project.

STL Los Angeles certifies that the test results provided in this report meet all NELAP 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 cooler received for this project can be found on the Project Receipt Checklist. 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 except as noted on the following page.

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

This report contains 000044 pages.

If you have any questions, please feel free to call me at (714) 258-8610.

Sincerely,

Beth Riley
Project Manager

cc: Project File

CASE NARRATIVE

LOT NUMBER E4L190114

COMMENTS:

E4L190114-001 was received with one VOA Vial with headspace > 5 mm diameter.
E4L190114-014 was received with two VOA Vials with headspace > 5 mm diameter.
Vials with headspace were not analyzed.
Trip blank was prepared 9/30/04.

ARCO SITE #1790

109866

E4L190114

Chain of Custody Record

Project Name ARCO 1790 GWS
BP BU/GEM CO Portfolio: Retail
BP Laboratory Contract Number:
Requested Due Date (mm/dd/yy) Standard

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

nd To:	
b Name:	STL
b Address:	1721 S. Grand Avenue, Santa Ana, CA 92705
b PM:	Beth Riley
le/Fax:	714-258-1861 0 / 714-258-0921
port Type & QC Level:	
/GEM Account No.:	
b Bottle Order No:	

BP/GEM Facility No.:	ARCO 1790
BP/GEM Facility Address:	6110 Mission Gorge Rd
Site ID No.	1790
Site Lat/Long:	
California Global ID #:	T0607300655
BP/GEM PM Contact:	Roy Thun
Address:	4 Centur Pointe Dr, La Palma CA 90623
Tele/Fax:	661 287 3855 222 7349

Consultant/Contractor:	Secor Int'l
Address:	1655 Camino Del Rio N #302, San Diego CA 92108
e-mail EDD:	nimmel@secor.com
Consultant/Contractor Project No.:	08-BP.01790.05
Consultant/Contractor Tele/Fax:	619 296 6195 / 6199
Consultant/Contractor PM:	Brad Eisenberg
Invoice to:	Consultant or BP or Atlantic Richfield Co (Circle one)
BP/GEM Work Release No:	

em io.	Sample Description	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No.	No. of containers	Preservatives: Unpreserved	Preservatives: H_2SO_4	Preservatives: HNO_3	Preservatives: HCl	Requested Analysis: BTEX 8021	Requested Analysis: BTEX/TPH	Requested Analysis: EPA 8260	Requested Analysis: EPA 8270	Requested Analysis: BTEX, Oxys, MTBE, EtOH EPA 8260B	Requested Analysis: GRO 8015M	Sample Point Lat/Long and Comments
1	MW-1	1309	12-14-03		X			6				X					X	X	
2	MW-2	1450																	
3	MW-3	1340																	
4	MW-4	1330																	
5	MW-5	1130																	
6	MW-~~7~~6 1055	~~1140~~																	
7	MW-~~8~~7 1140	~~1055~~																	
8	MW-8	1459																	
9	MW-9	1345																	
0	MW-10	1308																	

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
mpler's Name: Bryan Page						
mpler's Company: Secor	[illegible] / Secor	12-16-03	1145	[illegible]	12-16-03	1145
ipment Date:	[illegible]	12-17-03	1345	[illegible]	12/17/03	1345
ipment Method: Courier						
ipment Tracking No:						

ecial Instructions: Enfos GO 1K4-0038 / Mon-Fri (04) / Retail

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

LABORATORY

BP COC Rev. 2 4/18/03

3

E4L190114

ARCO SITE #1790

Chain of Custody Record

109873

E4L190114

Project Name ARCO 1790 GWS
BP BU/GEM CO Portfolio: Retail
BP Laboratory Contract Number:
Requested Due Date (mm/dd/yy) Standard TAT

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

Send To:	BP/GEM Facility No.: 1790	Consultant/Contractor: Secor Int'l
Lab Name: STL	BP/GEM Facility Address: 6110 Mission Gorge Rd	Address: 2655 Camino del Rio N #302 San Diego CA
Lab Address: 1721 South Grand Ave. Santa Ana, CA 92705	Site ID No. 1790	
	Site Lat/Long:	e-mail EDD: nimmel@secor.com
	California Global ID #: T0607300655	Consultant/Contractor Project No.: 08BP.01790.05/0427
Lab PM: Beth Riley	BP/GEM PM Contact: Ray Thun	Consultant/Contractor Tele/Fax: 619 296 6195 / 6199
Tele/Fax: (714) 258-8610 / 714-258-0928	Address: 4 Centre Pointe Dr La Palma CA 90623	Consultant/Contractor PM: Brad Eisenberg
Report Type & QC Level:		Invoice to: (Consultant) or BP or Atlantic Richfield Co (Circle one)
BP/GEM Account No.:	Tele/Fax: (562) 287-3855 / 222-7349	BP/GEM Work Release No:

Lab Bottle Order No:

Item No.	Sample Description	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No.	No. of containers	Preservatives: Unpreserved	Preservatives: H_2SO_4	Preservatives: HNO_3	Preservatives: HCl	Requested Analysis: BTEX 8021	Requested Analysis: BTEX/TPH	Requested Analysis: EPA 8260	Requested Analysis: EPA 8270	Requested Analysis: BTEX (only) MTBE (STOP)	Requested Analysis: EPA 8260B	Requested Analysis: Cr6 EMTM	Sample Point Lat/Long and Comments
1	MW-11	1054	12-14-04		X			6				X					X		X	
2	MW-12	1222																		
3	MW-13	1148																		
4	TB							3												
5	EB-1790-20041214							4									X		X	HOLD
6																				
7																				
8																				
9																				
10																				

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: Kenyon Page						
Sampler's Company: Secor		12-16-04	1145		12-16-04	1145
Shipment Date:		12-17-04	1345		12/17/04	1345
Shipment Method: Courier						
Shipment Tracking No:						

Special Instructions:
EnBas 609K4-00380 / Monitoring (04) / Retail

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

LABORATORY

BP COC Rev. 2 4/18/03

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E4L190114

STL LOS ANGELES - PROJECT RECEIPT CHECKLIST Date: 12-17-04

LIMS Lot #: E4L190114 Quote #: 67032

Client Name: Secor Project: Arco 1790 GWS

Received by: AB Date/Time Received: 12-17-04 / 13:45

Delivered by : ☐ Client ☐ STL ☐ Airborne ☐ Fed Ex ☐ UPS ☑ Other Edmund

****

	Initial / Date
Custody Seal Status Cooler: ☐Intact ☐Broken ☑None	12/19/04
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 -0.2°C IR passed daily verification ☑Yes ☐No	
Temperature - BLANK 2.7 °C -0.2°C CF = 2.5 °C	
Temperature – COOLER (°C °C °C °C) = avg °C -0.2°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 # 05-10987	
Complete shipment received in good condition with correct temperatures, containers, labels, volumes preservatives and within method specified holding times. ☐ Yes ☐N/A	
Labeled by: Labeling checked	

****

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 12/19/04

Lab ID	Container(s) #	Headspace	Lab ID	Container(s) #	Headspace
-001	#1	☑ > 5mm ☐ < 5mm			☐ > 5mm ☐ < 5mm
-014	#1,7 (9/30/04)	☑ > 5mm ☐ < 5mm			☐ > 5mm ☐ < 5mm
		☐ > 5mm ☐ < 5mm			☐ > 5mm ☐ < 5mm
		☐ > 5mm ☐ < 5mm			☐ > 5mm ☐ < 5mm
		☐ > 5mm ☐ < 5mm			☐ > 5mm ☐ < 5mm
		☐ > 5mm ☐ < 5mm			☐ > 5mm ☐ < 5mm
		☐ > 5mm ☐ < 5mm			☐ > 5mm ☐ < 5mm

LIMS Lot # [illegible]

PROJECT RECEIPT CHECKLIST Cont'd

Fraction	1-13	14	15											
VOAH/ *	6	3	4											

* VOA with headspace/bubbles
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 12/12/04

- COOLERS
  - ☐ Not Received (received COC only)
  - ☐ Leaking
  - ☐ Other:
- CUSTODY SEALS (COOLER(S) / 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
  - ☐ 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:	Log Review/Date:	PM Review/Date:
12/9/04		12/20/04

Page 2 of 2

SECOR International Inc

Client Sample ID: MW-1

GC/MS Volatiles

Lot-Sample #...: E4L190114-001
Date Sampled...: 12/14/04 13:04
Prep Date.....: 12/24/04
Prep Batch #...: 4363565
Dilution Factor: 2.5
Analyst ID.....: 000038

Work Order #...: G1GRL1AA
Date Received..: 12/17/04 13:45
Analysis Date..: 12/24/04
Analysis Time..: 13:52

Instrument ID..: MSQ
Method.....: SW846 8260B

Matrix.....: W
MS Run #.....: 4363298

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	**61**	**2.5**	**ug/L**	**0.75**
tert-Butyl alcohol	ND	62	ug/L	15
Ethanol	ND IO	1200	ug/L	180
Tert-amyl methyl ether	ND	5.0	ug/L	1.2
Ethyl-t-Butyl Ether (ETBE)	ND	5.0	ug/L	1.2
Ethylbenzene	**160**	**2.5**	**ug/L**	**0.50**
Diisopropyl Ether (DIPE)	ND	5.0	ug/L	1.2
Methyl tert-butyl ether	**6.1**	**2.5**	**ug/L**	**1.2**
Toluene	ND	2.5	ug/L	0.75
m-Xylene & p-Xylene	ND	2.5	ug/L	1.2
o-Xylene	ND	2.5	ug/L	0.50
Xylenes (total)	ND	2.5	ug/L	2.0

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	97	(75 - 120)
1,2-Dichloroethane-d4	98	(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-1

GC Volatiles

Lot-Sample #...: E4L190114-001
Date Sampled...: 12/14/04 13:04
Prep Date.....: 12/27/04
Prep Batch #...: 4364312
Dilution Factor: 1
Analyst ID.....: 001464

Work Order #...: G1GRL1AC
Date Received..: 12/17/04 13:45
Analysis Date..: 12/27/04
Analysis Time..: 19:03

Instrument ID..: G13
Method.....: SW846 8015B

Matrix.....: W
MS Run #.....: 4364194

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
GRO (C6 - C12)	730	100	ug/L	40

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	88	(70 - 130)

SECOR International Inc

Client Sample ID: MW-2

GC/MS Volatiles

Lot-Sample #...: E4L190114-002
Date Sampled...: 12/14/04 14:50
Prep Date.....: 12/24/04
Prep Batch #...: 4363565
Dilution Factor: 12.5
Analyst ID.....: 000038

Work Order #...: G1GRM1AA
Date Received..: 12/17/04 13:45
Analysis Date..: 12/24/04
Analysis Time..: 13:30

Instrument ID..: MSQ
Method.....: SW846 8260B

Matrix.....: W
MS Run #.....: 4363298

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	12	ug/L	3.8
tert-Butyl alcohol	ND	310	ug/L	75
Ethanol	ND IO	6200	ug/L	920
Tert-amyl methyl ether	ND	25	ug/L	6.2
Ethyl-t-Butyl Ether (ETBE)	ND	25	ug/L	6.2
Ethylbenzene	620	12	ug/L	2.5
Diisopropyl Ether (DIPE)	ND	25	ug/L	6.2
Methyl tert-butyl ether	ND	12	ug/L	6.2
Toluene	13	12	ug/L	3.8
m-Xylene & p-Xylene	530	12	ug/L	6.2
o-Xylene	200	12	ug/L	2.5
Xylenes (total)	730	12	ug/L	10

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	101	(75 - 120)
1,2-Dichloroethane-d4	92	(65 - 130)
Toluene-d8	104	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-2

GC Volatiles

Lot-Sample #...:	E4L190114-002	Work Order #...:	G1GRM1AC	Matrix.....:	W
Date Sampled...:	12/14/04 14:50	Date Received..:	12/17/04 13:45	MS Run #.....:	4364194
Prep Date.....:	12/27/04	Analysis Date..:	12/27/04		
Prep Batch #...:	4364312	Analysis Time..:	19:32		
Dilution Factor:	5				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
GRO (C6 - C12)	10000	500	ug/L	200

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	128	(70 - 130)

SECOR International Inc

Client Sample ID: MW-3

GC/MS Volatiles

Lot-Sample #...: E4L190114-003 Work Order #...: G1GRN1AA Matrix.....: W
Date Sampled...: 12/14/04 13:40 Date Received..: 12/17/04 13:45 MS Run #.....: 4363298
Prep Date.....: 12/24/04 Analysis Date..: 12/24/04
Prep Batch #...: 4363565 Analysis Time..: 13:09
Dilution Factor: 1
Analyst ID.....: 000038 Instrument ID..: MSQ
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
tert-Butyl alcohol	ND	25	ug/L	6.0
Ethanol	ND IO	500	ug/L	74
Tert-amyl methyl ether	ND	2.0	ug/L	0.50
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Diisopropyl Ether (DIPE)	ND	2.0	ug/L	0.50
Methyl tert-butyl ether	ND	1.0	ug/L	0.50
Toluene	ND	1.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20
Xylenes (total)	ND	1.0	ug/L	0.80

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	97	(75 - 120)
1,2-Dichloroethane-d4	110	(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-3

GC Volatiles

Lot-Sample #...:	E4L190114-003	Work Order #...:	G1GRN1AC	Matrix.....:	W
Date Sampled...:	12/14/04 13:40	Date Received..:	12/17/04 13:45	MS Run #.....:	4364194
Prep Date.....:	12/27/04	Analysis Date..:	12/27/04		
Prep Batch #...:	4364312	Analysis Time..:	20:00		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
GRO (C6 - C12)	ND	100	ug/L	40

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	87	(70 - 130)

SECOR International Inc

Client Sample ID: MW-4

GC/MS Volatiles

Lot-Sample #...: E4L190114-004
Date Sampled...: 12/14/04 13:30
Prep Date.....: 12/23/04
Prep Batch #...: 4361031
Dilution Factor: 1
Analyst ID.....: 000038

Work Order #...: G1GRP1AA
Date Received..: 12/17/04 13:45
Analysis Date..: 12/23/04
Analysis Time..: 18:02

Instrument ID..: MSQ
Method.....: SW846 8260B

Matrix.....: W
MS Run #.....: 4361011

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
tert-Butyl alcohol	ND	25	ug/L	6.0
Ethanol	ND IO	500	ug/L	74
Tert-amyl methyl ether	ND	2.0	ug/L	0.50
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Diisopropyl Ether (DIPE)	ND	2.0	ug/L	0.50
Methyl tert-butyl ether	ND	1.0	ug/L	0.50
Toluene	ND	1.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20
Xylenes (total)	ND	1.0	ug/L	0.80

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	92	(75 - 120)
1,2-Dichloroethane-d4	104	(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-4

GC Volatiles

Lot-Sample #...:	E4L190114-004	Work Order #...:	G1GRP1AC	Matrix.....:	W
Date Sampled...:	12/14/04 13:30	Date Received..:	12/17/04 13:45	MS Run #.....:	4364194
Prep Date.....:	12/27/04	Analysis Date..:	12/27/04		
Prep Batch #...:	4364312	Analysis Time..:	20:28		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
GRO (C6 - C12)	ND	100	ug/L	40

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	88	(70 - 130)

SECOR International Inc

Client Sample ID: MW-5

GC/MS Volatiles

Lot-Sample #...: E4L190114-005
Date Sampled...: 12/14/04 11:30
Prep Date.....: 12/23/04
Prep Batch #...: 4361031
Dilution Factor: 1
Analyst ID.....: 000038

Work Order #...: G1GRQ1AA
Date Received..: 12/17/04 13:45
Analysis Date..: 12/23/04
Analysis Time..: 18:24

Instrument ID..: MSQ
Method.....: SW846 8260B

Matrix.....: W
MS Run #.....: 4361011

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
tert-Butyl alcohol	ND	25	ug/L	6.0
Ethanol	ND IO	500	ug/L	74
Tert-amyl methyl ether	ND	2.0	ug/L	0.50
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Diisopropyl Ether (DIPE)	ND	2.0	ug/L	0.50
Methyl tert-butyl ether	ND	1.0	ug/L	0.50
Toluene	ND	1.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20
Xylenes (total)	ND	1.0	ug/L	0.80

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	88	(75 - 120)
1,2-Dichloroethane-d4	97	(65 - 130)
Toluene-d8	94	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-5

GC Volatiles

Lot-Sample #...:	E4L190114-005	Work Order #...:	G1GRQ1AC	Matrix.....:	W
Date Sampled...:	12/14/04 11:30	Date Received..:	12/17/04 13:45	MS Run #.....:	4364194
Prep Date.....:	12/27/04	Analysis Date..:	12/27/04		
Prep Batch #...:	4364312	Analysis Time..:	20:55		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
GRO (C6 - C12)	ND	100	ug/L	40

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

SECOR International Inc

Client Sample ID: MW-6

GC/MS Volatiles

Lot-Sample #...: E4L190114-006
Date Sampled...: 12/14/04 10:55
Prep Date.....: 12/23/04
Prep Batch #...: 4361031
Dilution Factor: 1
Analyst ID.....: 000038

Work Order #...: G1GRR1AA
Date Received..: 12/17/04 13:45
Analysis Date..: 12/23/04
Analysis Time..: 18:46

Instrument ID..: MSQ
Method.....: SW846 8260B

Matrix.....: W
MS Run #.....: 4361011

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
tert-Butyl alcohol	ND	25	ug/L	6.0
Ethanol	ND IO	500	ug/L	74
Tert-amyl methyl ether	ND	2.0	ug/L	0.50
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Diisopropyl Ether (DIPE)	ND	2.0	ug/L	0.50
Methyl tert-butyl ether	ND	1.0	ug/L	0.50
Toluene	ND	1.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20
Xylenes (total)	ND	1.0	ug/L	0.80

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	88	(75 - 120)
1,2-Dichloroethane-d4	95	(65 - 130)
Toluene-d8	92	(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 #...: E4L190114-006
Date Sampled...: 12/14/04 10:55
Prep Date.....: 12/27/04
Prep Batch #...: 4364312
Dilution Factor: 1
Analyst ID.....: 001464

Work Order #...: G1GRR1AC
Date Received..: 12/17/04 13:45
Analysis Date..: 12/27/04
Analysis Time..: 21:23

Instrument ID..: G13
Method.....: SW846 8015B

Matrix.....: W
MS Run #.....: 4364194

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
GRO (C6 - C12)	ND	100	ug/L	40

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	88	(70 - 130)

SECOR International Inc

Client Sample ID: MW-7

GC/MS Volatiles

Lot-Sample #...: E4L190114-007
Date Sampled...: 12/14/04 11:48
Prep Date.....: 12/23/04
Prep Batch #...: 4361031
Dilution Factor: 1
Analyst ID.....: 000038

Work Order #...: G1GRT1AA
Date Received..: 12/17/04 13:45
Analysis Date..: 12/23/04
Analysis Time..: 19:07

Instrument ID..: MSQ
Method.....: SW846 8260B

Matrix.....: W
MS Run #.....: 4361011

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
tert-Butyl alcohol	ND	25	ug/L	6.0
Ethanol	ND IO	500	ug/L	74
Tert-amyl methyl ether	ND	2.0	ug/L	0.50
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L	0.50
Ethylbenzene	**9.8**	**1.0**	**ug/L**	**0.20**
Diisopropyl Ether (DIPE)	ND	2.0	ug/L	0.50
Methyl tert-butyl ether	ND	1.0	ug/L	0.50
Toluene	ND	1.0	ug/L	0.30
m-Xylene & p-Xylene	**2.8**	**1.0**	**ug/L**	**0.50**
o-Xylene	ND	1.0	ug/L	0.20
Xylenes (total)	**2.8**	**1.0**	**ug/L**	**0.80**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	90	(75 - 120)
1,2-Dichloroethane-d4	96	(65 - 130)
Toluene-d8	92	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-7

GC Volatiles

Lot-Sample #...:	E4L190114-007	Work Order #...:	G1GRT1AC	Matrix.....:	W
Date Sampled...:	12/14/04 11:48	Date Received..:	12/17/04 13:45	MS Run #.....:	4364194
Prep Date.....:	12/27/04	Analysis Date..:	12/27/04		
Prep Batch #...:	4364312	Analysis Time..:	14:23		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
GRO (C6 - C12)	210	100	ug/L	40

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

SECOR International Inc

Client Sample ID: MW-8

GC/MS Volatiles

Lot-Sample #...: E4L190114-008
Date Sampled...: 12/14/04 14:59
Prep Date.....: 12/23/04
Prep Batch #...: 4361031
Dilution Factor: 25
Analyst ID.....: 000038

Work Order #...: G1GRV1AA
Date Received..: 12/17/04 13:45
Analysis Date..: 12/23/04
Analysis Time..: 19:29

Instrument ID..: MSQ
Method.....: SW846 8260B

Matrix.....: W
MS Run #.....: 4361011

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	25	ug/L	7.5
tert-Butyl alcohol	ND	620	ug/L	150
Ethanol	ND IO	12000	ug/L	1800
Tert-amyl methyl ether	ND	50	ug/L	12
Ethyl-t-Butyl Ether (ETBE)	ND	50	ug/L	12
Ethylbenzene	1300	25	ug/L	5.0
Diisopropyl Ether (DIPE)	ND	50	ug/L	12
Methyl tert-butyl ether	ND	25	ug/L	12
Toluene	ND	25	ug/L	7.5
m-Xylene & p-Xylene	1000	25	ug/L	12
o-Xylene	72	25	ug/L	5.0
Xylenes (total)	1100	25	ug/L	20

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	90	(75 - 120)
1,2-Dichloroethane-d4	89	(65 - 130)
Toluene-d8	93	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-8

GC Volatiles

Lot-Sample #...:	E4L190114-008	Work Order #...:	G1GRV1AC	Matrix.....:	W
Date Sampled...:	12/14/04 14:59	Date Received..:	12/17/04 13:45	MS Run #.....:	4364194
Prep Date.....:	12/27/04	Analysis Date..:	12/27/04		
Prep Batch #...:	4364312	Analysis Time..:	14:51		
Dilution Factor:	10				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
GRO (C6 - C12)	9700	1000	ug/L	400

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	101	(70 - 130)

SECOR International Inc

Client Sample ID: MW-9

GC/MS Volatiles

Lot-Sample #...:	E4L190114-009	Work Order #...:	G1GRW1AA	Matrix.....:	W
Date Sampled...:	12/14/04 13:45	Date Received..:	12/17/04 13:45	MS Run #.....:	4361011
Prep Date.....:	12/23/04	Analysis Date..:	12/23/04		
Prep Batch #...:	4361031	Analysis Time..:	19:50		
Dilution Factor:	1				
Analyst ID.....:	000038	Instrument ID..:	MSQ		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
tert-Butyl alcohol	ND	25	ug/L	6.0
Ethanol	ND IO	500	ug/L	74
Tert-amyl methyl ether	ND	2.0	ug/L	0.50
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Diisopropyl Ether (DIPE)	ND	2.0	ug/L	0.50
Methyl tert-butyl ether	ND	1.0	ug/L	0.50
Toluene	ND	1.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20
Xylenes (total)	ND	1.0	ug/L	0.80

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	87	(75 - 120)
1,2-Dichloroethane-d4	92	(65 - 130)
Toluene-d8	92	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-9

GC Volatiles

Lot-Sample #...:	E4L190114-009	Work Order #...:	G1GRW1AC	Matrix.....:	W
Date Sampled...:	12/14/04 13:45	Date Received..:	12/17/04 13:45	MS Run #.....:	4364194
Prep Date.....:	12/27/04	Analysis Date..:	12/27/04		
Prep Batch #...:	4364312	Analysis Time..:	15:19		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
GRO (C6 - C12)	ND	100	ug/L	40

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	82	(70 - 130)

SECOR International Inc

Client Sample ID: MW-10

GC/MS Volatiles

Lot-Sample #...: E4L190114-010
Date Sampled...: 12/14/04 13:08
Prep Date.....: 12/24/04
Prep Batch #...: 4363565
Dilution Factor: 1
Analyst ID.....: 000038

Work Order #...: G1GRX1AA
Date Received..: 12/17/04 13:45
Analysis Date..: 12/24/04
Analysis Time..: 12:47

Instrument ID..: MSQ
Method.....: SW846 8260B

Matrix.....: W
MS Run #.....: 4363298

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
tert-Butyl alcohol	ND	25	ug/L	6.0
Ethanol	ND IO	500	ug/L	74
Tert-amyl methyl ether	ND	2.0	ug/L	0.50
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Diisopropyl Ether (DIPE)	ND	2.0	ug/L	0.50
Methyl tert-butyl ether	ND	1.0	ug/L	0.50
Toluene	ND	1.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20
Xylenes (total)	ND	1.0	ug/L	0.80

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	93	(75 - 120)
1,2-Dichloroethane-d4	109	(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-10

GC Volatiles

Lot-Sample #...:	E4L190114-010	Work Order #...:	G1GRX1AC	Matrix.....:	W
Date Sampled...:	12/14/04 13:08	Date Received..:	12/17/04 13:45	MS Run #.....:	4364194
Prep Date.....:	12/27/04	Analysis Date..:	12/27/04		
Prep Batch #...:	4364312	Analysis Time..:	15:47		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
GRO (C6 - C12)	ND	100	ug/L	40

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	87	(70 - 130)

SECOR International Inc

Client Sample ID: MW-11

GC/MS Volatiles

Lot-Sample #...: E4L190114-011
Date Sampled...: 12/14/04 10:54
Prep Date.....: 12/23/04
Prep Batch #...: 4361031
Dilution Factor: 6.25
Analyst ID.....: 000038

Work Order #...: G1GR01AA
Date Received..: 12/17/04 13:45
Analysis Date..: 12/23/04
Analysis Time..: 20:34

Instrument ID..: MSQ
Method.....: SW846 8260B

Matrix.....: W
MS Run #.....: 4361011

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	29	6.2	ug/L	1.9
tert-Butyl alcohol	ND	160	ug/L	38
Ethanol	ND IO	3100	ug/L	460
Tert-amyl methyl ether	ND	12	ug/L	3.1
Ethyl-t-Butyl Ether (ETBE)	ND	12	ug/L	3.1
Ethylbenzene	360	6.2	ug/L	1.2
Diisopropyl Ether (DIPE)	ND	12	ug/L	3.1
Methyl tert-butyl ether	ND	6.2	ug/L	3.1
Toluene	ND	6.2	ug/L	1.9
m-Xylene & p-Xylene	390	6.2	ug/L	3.1
o-Xylene	23	6.2	ug/L	1.2
Xylenes (total)	420	6.2	ug/L	5.0

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	88	(75 - 120)
1,2-Dichloroethane-d4	86	(65 - 130)
Toluene-d8	92	(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 #...: E4L190114-011
Date Sampled...: 12/14/04 10:54
Prep Date.....: 12/27/04
Prep Batch #...: 4364312
Dilution Factor: 5
Analyst ID.....: 001464

Work Order #...: G1GR01AC
Date Received..: 12/17/04 13:45
Analysis Date..: 12/27/04
Analysis Time..: 16:15

Instrument ID..: G13
Method.....: SW846 8015B

Matrix.....: W
MS Run #.....: 4364194

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
GRO (C6 - C12)	3700	500	ug/L	200

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	100	(70 - 130)

SECOR International Inc

Client Sample ID: MW-12

GC/MS Volatiles

Lot-Sample #...: E4L190114-012
Date Sampled...: 12/14/04 12:22
Prep Date.....: 12/23/04
Prep Batch #...: 4361031
Dilution Factor: 1
Analyst ID.....: 000038

Work Order #...: G1GR11AA
Date Received..: 12/17/04 13:45
Analysis Date..: 12/23/04
Analysis Time..: 20:55

Instrument ID..: MSQ
Method.....: SW846 8260B

Matrix.....: W
MS Run #.....: 4361011

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
tert-Butyl alcohol	ND	25	ug/L	6.0
Ethanol	ND IO	500	ug/L	74
Tert-amyl methyl ether	ND	2.0	ug/L	0.50
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Diisopropyl Ether (DIPE)	ND	2.0	ug/L	0.50
Methyl tert-butyl ether	**7.0**	**1.0**	**ug/L**	**0.50**
Toluene	ND	1.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20
Xylenes (total)	ND	1.0	ug/L	0.80

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	90	(75 - 120)
1,2-Dichloroethane-d4	89	(65 - 130)
Toluene-d8	92	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-12

GC Volatiles

Lot-Sample #...: E4L190114-012
Date Sampled...: 12/14/04 12:22
Prep Date.....: 12/27/04
Prep Batch #...: 4364312
Dilution Factor: 1
Analyst ID.....: 001464

Work Order #...: G1GR11AC
Date Received..: 12/17/04 13:45
Analysis Date..: 12/27/04
Analysis Time..: 16:43

Instrument ID..: G13
Method.....: SW846 8015B

Matrix.....: W
MS Run #.....: 4364194

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
GRO (C6 - C12)	120	100	ug/L	40

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 #...: E4L190114-013
Date Sampled...: 12/14/04 11:48
Prep Date.....: 12/23/04
Prep Batch #...: 4361031
Dilution Factor: 1
Analyst ID.....: 000038

Work Order #...: G1GR21AA
Date Received..: 12/17/04 13:45
Analysis Date..: 12/23/04
Analysis Time..: 21:17

Instrument ID..: MSQ
Method.....: SW846 8260B

Matrix.....: W
MS Run #.....: 4361011

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
tert-Butyl alcohol	ND	25	ug/L	6.0
Ethanol	ND IO	500	ug/L	74
Tert-amyl methyl ether	ND	2.0	ug/L	0.50
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Diisopropyl Ether (DIPE)	ND	2.0	ug/L	0.50
Methyl tert-butyl ether	**2.3**	**1.0**	**ug/L**	**0.50**
Toluene	ND	1.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20
Xylenes (total)	**1.2**	**1.0**	**ug/L**	**0.80**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	88	(75 - 120)
1,2-Dichloroethane-d4	94	(65 - 130)
Toluene-d8	92	(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 #...:	E4L190114-013	Work Order #...:	G1GR21AC	Matrix.....:	W
Date Sampled...:	12/14/04 11:48	Date Received..:	12/17/04 13:45	MS Run #.....:	4364194
Prep Date.....:	12/27/04	Analysis Date..:	12/27/04		
Prep Batch #...:	4364312	Analysis Time..:	18:07		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
GRO (C6 - C12)	ND	100	ug/L	40

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	91	(70 - 130)

SECOR International Inc

Client Sample ID: TB-1790-20041214

GC/MS Volatiles

Lot-Sample #...:	E4L190114-014	Work Order #...:	G1GR31AA	Matrix.....:	WQ
Date Sampled...:	12/14/04 08:00	Date Received..:	12/17/04 13:45	MS Run #.....:	4361011
Prep Date.....:	12/23/04	Analysis Date..:	12/23/04		
Prep Batch #...:	4361031	Analysis Time..:	16:02		
Dilution Factor:	1				
Analyst ID.....:	000038	Instrument ID..:	MSQ		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
tert-Butyl alcohol	ND	25	ug/L	6.0
Ethanol	ND IO	500	ug/L	74
Tert-amyl methyl ether	ND	2.0	ug/L	0.50
Ethyl-t-Butyl Ether (ETBE)	ND	2.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Diisopropyl Ether (DIPE)	ND	2.0	ug/L	0.50
Methyl tert-butyl ether	ND	1.0	ug/L	0.50
Toluene	ND	1.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20
Xylenes (total)	ND	1.0	ug/L	0.80

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	91	(75 - 120)
1,2-Dichloroethane-d4	114	(65 - 130)
Toluene-d8	98	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: TB-1790-20041214

GC Volatiles

Lot-Sample #...:	E4L190114-014	Work Order #...:	G1GR31AC	Matrix.....:	WQ
Date Sampled...:	12/14/04 08:00	Date Received..:	12/17/04 13:45	MS Run #.....:	4364194
Prep Date.....:	12/27/04	Analysis Date..:	12/27/04		
Prep Batch #...:	4364312	Analysis Time..:	18:36		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
GRO (C6 - C12)	ND	100	ug/L	40

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	87	(70 - 130)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: E4L190114
MB Lot-Sample #: E4L260000-031

Analysis Date..: 12/23/04
Dilution Factor: 1

Work Order #...: G1Q6R1AA

Prep Date.....: 12/23/04
Prep Batch #...: 4361031

Analyst ID.....: 000038

Matrix.....: WATER

Analysis Time..: 14:29
Instrument ID..: MSQ

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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	100	(75 - 120)
1,2-Dichloroethane-d4	102	(65 - 130)
Toluene-d8	104	(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 #...: E4L190114
MB Lot-Sample #: E4L280000-565

Analysis Date..: 12/24/04
Dilution Factor: 1

Work Order #...: G1WMG1AA

Prep Date.....: 12/24/04
Prep Batch #...: 4363565

Analyst ID.....: 000038

Matrix.....: WATER

Analysis Time..: 11:26
Instrument ID..: MSQ

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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	97	(75 - 120)
1,2-Dichloroethane-d4	100	(65 - 130)
Toluene-d8	103	(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 #...: E4L190114
MB Lot-Sample #: E4L290000-312

Analysis Date..: 12/27/04
Dilution Factor: 1

Work Order #...: G1XWH1AA

Prep Date.....: 12/27/04
Prep Batch #...: 4364312

Analyst ID.....: 001464

Matrix.....: WATER

Analysis Time..: 12:31
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)	89	(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 #...: E4L190114 Work Order #...: G1Q6R1AC Matrix.....: WATER
LCS Lot-Sample#: E4L260000-031
Prep Date.....: 12/23/04 Analysis Date..: 12/23/04
Prep Batch #...: 4361031 Analysis Time..: 14:08
Dilution Factor: 1 Instrument ID..: MSQ
Analyst ID.....: 000038

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	10.0	10.6	ug/L	106	SW846 8260B
tert-Butyl alcohol	50.0	50.3	ug/L	101	SW846 8260B
Ethanol	2000	2220 IO	ug/L	111	SW846 8260B
Tert-amyl methyl ether	10.0	10.8	ug/L	108	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	10.0	10.9	ug/L	109	SW846 8260B
Ethylbenzene	10.0	10.8	ug/L	108	SW846 8260B
Diisopropyl Ether (DIPE)	10.0	10.4	ug/L	104	SW846 8260B
Methyl tert-butyl ether (MTBE)	10.0	10.3	ug/L	103	SW846 8260B
Toluene	10.0	10.3	ug/L	103	SW846 8260B
m-Xylene & p-Xylene	20.0	21.9	ug/L	109	SW846 8260B
o-Xylene	10.0	10.8	ug/L	108	SW846 8260B

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E4L190114 Work Order #...: G1WMG1AC Matrix.....: WATER
LCS Lot-Sample#: E4L280000-565
Prep Date.....: 12/24/04 Analysis Date..: 12/24/04
Prep Batch #...: 4363565 Analysis Time..: 11:04
Dilution Factor: 1 Instrument ID..: MSQ
Analyst ID.....: 000038

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	10.0	10.5	ug/L	105	SW846 8260B
tert-Butyl alcohol	50.0	58.6	ug/L	117	SW846 8260B
Ethanol	2000	2010 IO	ug/L	100	SW846 8260B
Tert-amyl methyl ether	10.0	10.1	ug/L	101	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	10.0	10.3	ug/L	103	SW846 8260B
Ethylbenzene	10.0	10.7	ug/L	107	SW846 8260B
Diisopropyl Ether (DIPE)	10.0	9.89	ug/L	99	SW846 8260B
Methyl tert-butyl ether (MTBE)	10.0	9.68	ug/L	97	SW846 8260B
Toluene	10.0	10.4	ug/L	104	SW846 8260B
m-Xylene & p-Xylene	20.0	21.6	ug/L	108	SW846 8260B
o-Xylene	10.0	10.6	ug/L	106	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	94	(75 - 120)
1,2-Dichloroethane-d4	95	(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 Volatiles

Client Lot #...: E4L190114
LCS Lot-Sample#: E4L290000-312
Prep Date.....: 12/27/04
Prep Batch #...: 4364312
Dilution Factor: 1
Analyst ID.....: 001464

Work Order #...: G1XWH1AC
Analysis Date..: 12/27/04
Analysis Time..: 12:59
Instrument ID..: G13

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
GRO (C6 - C12)	1000	988	ug/L	99	SW846 8015B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	120	(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 #...: E4L190114 Work Order #...: G1D3P1AD-MS Matrix.....: WATER
MS Lot-Sample #: E4L170324-011 G1D3P1AE-MSD
Date Sampled...: 12/13/04 15:06 Date Received..: 12/14/04 18:45 MS Run #.....: 4361011
Prep Date.....: 12/23/04 Analysis Date..: 12/23/04
Prep Batch #...: 4361031 Analysis Time..: 17:07
Dilution Factor: 25 Analyst ID.....: 000038 Instrument ID..: MSQ

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzene	1300	250	1580	ug/L	103		SW846 8260B
	1300	250	1570	ug/L	98	0.82	SW846 8260B
tert-Butyl alcohol	ND	1250	1550	ug/L	124		SW846 8260B
	ND	1250	1550	ug/L	124	0.38	SW846 8260B
Ethanol	ND	50000	55100	ug/L	110 IO		SW846 8260B
	ND	50000	48100	ug/L	96 IO	14	SW846 8260B
Tert-amyl methyl ether	ND	250	263	ug/L	105		SW846 8260B
	ND	250	265	ug/L	106	0.71	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	ND	250	266	ug/L	106		SW846 8260B
	ND	250	270	ug/L	108	1.5	SW846 8260B
Ethylbenzene	320	250	570	ug/L	101		SW846 8260B
	320	250	582	ug/L	105	2.1	SW846 8260B
Diisopropyl Ether (DIPE)	ND	250	281	ug/L	107		SW846 8260B
	ND	250	279	ug/L	106	0.60	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	250	264	ug/L	100		SW846 8260B
	ND	250	272	ug/L	104	3.0	SW846 8260B
Toluene	ND	250	256	ug/L	102		SW846 8260B
	ND	250	266	ug/L	106	3.7	SW846 8260B
m-Xylene & p-Xylene	ND	500	544	ug/L	109		SW846 8260B
	ND	500	564	ug/L	113	3.7	SW846 8260B
o-Xylene	ND	250	266	ug/L	107		SW846 8260B
	ND	250	277	ug/L	111	3.9	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	96	(75 - 120)
	98	(75 - 120)
1,2-Dichloroethane-d4	104	(65 - 130)
	99	(65 - 130)
Toluene-d8	99	(80 - 130)
	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

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E4L190114 Work Order #...: G1GRN1AD-MS Matrix.....: W
MS Lot-Sample #: E4L190114-003 G1GRN1AE-MSD
Date Sampled...: 12/14/04 13:40 Date Received..: 12/17/04 13:45 MS Run #.....: 4363298
Prep Date.....: 12/24/04 Analysis Date..: 12/24/04
Prep Batch #...: 4363565 Analysis Time..: 14:14
Dilution Factor: 1 Analyst ID.....: 000038 Instrument ID..: MSQ

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzene	ND	10.0	10.9	ug/L	109		SW846 8260B
	ND	10.0	11.3	ug/L	113	3.6	SW846 8260B
tert-Butyl alcohol	ND	50.0	138	ug/L	276 LM		SW846 8260B
	ND	50.0	59.2	ug/L	118 BA	80	SW846 8260B
Ethanol	ND	2000	2960	ug/L	148		SW846 8260B
		Qualifiers:	IB,LM				
	ND	2000	3310	ug/L	165	11	SW846 8260B
		Qualifiers:	IB,LM				
Tert-amyl methyl ether	ND	10.0	10.2	ug/L	102		SW846 8260B
	ND	10.0	10.4	ug/L	104	2.0	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	ND	10.0	10.5	ug/L	105		SW846 8260B
	ND	10.0	10.6	ug/L	106	1.6	SW846 8260B
Ethylbenzene	ND	10.0	12.0	ug/L	110		SW846 8260B
	ND	10.0	12.7	ug/L	118	6.1	SW846 8260B
Diisopropyl Ether (DIPE)	ND	10.0	10.1	ug/L	101		SW846 8260B
	ND	10.0	10.3	ug/L	103	1.7	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	10.0	9.65	ug/L	96		SW846 8260B
	ND	10.0	9.79	ug/L	98	1.4	SW846 8260B
Toluene	ND	10.0	10.7	ug/L	107		SW846 8260B
	ND	10.0	11.3	ug/L	113	5.6	SW846 8260B
m-Xylene & p-Xylene	ND	20.0	22.4	ug/L	112		SW846 8260B
	ND	20.0	23.6	ug/L	118	5.0	SW846 8260B
o-Xylene	ND	10.0	11.1	ug/L	111		SW846 8260B
	ND	10.0	11.7	ug/L	117	6.0	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	98	(75 - 120)
	96	(75 - 120)
1,2-Dichloroethane-d4	105	(65 - 130)
	105	(65 - 130)
Toluene-d8	99	(80 - 130)
	99	(80 - 130)

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MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E4L190114 Work Order #...: G1GRN1AD-MS Matrix.....: W
MS Lot-Sample #: E4L190114-003 G1GRN1AE-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS

NOTE(S):

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

Bold print denotes control parameters

BA Relative percent difference out of control

Spiked analyte recovery is outside stated control limits.

IB CCV recovery above limit; analyte not detected.

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

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: E4L190114 **Work Order #...:** G1GRT1AD-MS **Matrix.....:** W
MS Lot-Sample #: E4L190114-007 G1GRT1AE-MSD
Date Sampled...: 12/14/04 11:48 **Date Received..:** 12/17/04 13:45 **MS Run #.....:** 4364194
Prep Date.....: 12/27/04 **Analysis Date..:** 12/27/04
Prep Batch #...: 4364312 **Analysis Time..:** 13:27
Dilution Factor: 1 **Analyst ID.....:** 001464 **Instrument ID..:** G13

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
GRO (C6 - C12)	210	1000	1130	ug/L	92		SW846 8015B
	210	1000	1080	ug/L	87	5.1	SW846 8015B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	126	(70 - 130)
	120	(70 - 130)

NOTE(S):

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

Bold print denotes control parameters