SECOR

SECOR INTERNATIONAL INCORPORATED

www.secor.com

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

DATE: March 9, 2005

ARCO QUARTERLY GROUNDWATER MONITORING REPORT

Facility No.: 5350 Address: 3804 Plaza Drive, Oceanside, CA
ARCO Environmental Engineer: Roy Thun
Consulting Co./Contact Person: SECOR/Marci Richards and Kurt Myers
SECOR Project No.: 08BP.U5350.05
Primary Agency/Regulatory ID No.: County of San Diego Site Assessment and Mitigation Program (SAM) Case # H20645-001/Danny Martinez

WORK PERFORMED THIS QUARTER [First - 2005]:

1. Performed First Quarter 2005 groundwater monitoring and prepared report.
2. Submitted Fourth Quarter 2004 groundwater monitoring report.
3. Prepared a Corrective Action Plan (CAP).
4. Collected groundwater samples for analysis of bioattenuation parameters.

REGISTERED GEOLOGIST
KURT R. MYERS
No. 1780
Exp. 3-31-06
Cert. Eng. Geologist
STATE OF CALIFORNIA

WORK PROPOSED FOR NEXT QUARTER [Second - 2005]:

1. Perform Second Quarter 2005 groundwater monitoring and prepare report.
2. Submit First Quarter 2005 groundwater monitoring report.
3. Submit CAP.

Current Phase of Project:	Monitoring	(Assmnt, Remed., etc.)
Frequency of Sampling:	Quarterly	(Quarterly, etc.)
Frequency of Monitoring:	Quarterly	(Monthly, etc.)
Are Liquid Phase Hydrocarbons Present On-site:	No	(Yes/No)
Cumulative LPH Recovered to Date:	None	(gallons)
LPH Recovered this Quarter:	None	(gallons)
Bulk Soil Removed to Date:	None	(cubic yards)
Bulk Soil Removed this Quarter:	None	(cubic yards)
Existing Beneficial Groundwater Uses:	Yes	(Yes/No)
Water Wells or Surface Waters w/in a 2000 ft. Radius & Their Respective Directions:	None Identified	(Distance and direction)
Current Remediation Techniques:	None	(SVES, LPH Removal)

DATE: March 9, 2005

ARCO QUARTERLY GROUNDWATER MONITORING REPORT (Continued)
ARCO Facility #5350

Permits for Discharge:	None	(NPDES, POTW, etc.)
Approximate Depth to Groundwater :	7.35 to 15.62	(Measured Feet)
	South-southeast	(Direction)
Groundwater Gradient:	0.05	(Magnitude)

DISCUSSION: On January 20, 2005, SECOR personnel gauged and sampled nine groundwater monitoring wells at the site. The depth to water ranged between 7.35 feet below ground surface (bgs) in MW-4 to 15.62 feet bgs in MW-9, as presented in Table 1. Groundwater elevations ranged between 185.99 and 199.25 feet above mean sea level (MSL). Groundwater flows to the south-southeast at an approximate gradient of 0.05 (Figure 1). No liquid-phase hydrocarbons (LPH) were present in any of the wells during the monitoring and sampling event. Groundwater samples were collected from the wells in accordance with the attached purging and sampling procedures. Groundwater samples were collected and analyzed for total petroleum hydrocarbons as gasoline (TPHg); benzene, toluene, ethylbenzene, and total xylenes (BTEX); and methyl tert-butyl ether (MTBE). The samples also were analyzed for the other fuel oxygenates tert-butyl alcohol (TBA), ethyl tert-butyl ether (ETBE), di-isopropyl ether (DIPE), tert-amyl methyl ether (TAME), and ethanol. Analytical results are reported in Tables 2 and 3. TPHg, benzene, and MTBE results are presented in Figure 4; a benzene and MTBE isoconcentration map is presented in Figure 5. Hydrographs are also attached.

CONCLUSIONS & RECOMMENDATIONS: Dissolved hydrocarbon concentrations in groundwater appear generally consistent with previously detected levels. The extent of dissolved-phase hydrocarbons in groundwater has been adequately delineated. SECOR recommends switching to a semi-annual groundwater monitoring and sampling schedule.

SUMMARY OF UNUSUAL ACTIVITY: Groundwater samples were collected and analyzed for bioattenuation parameters; results will be reported in a forthcoming CAP.

AGENCY DIRECTIVE REQUIREMENTS: Prepare a CAP.

ATTACHED:

- Site Location Map (Figure 1)
- Site Plan (Figure 2)
- Groundwater Gradient Map, January 20, 2005 (Figure 3)
- TPHg, Benzene and MTBE Concentrations in Groundwater, January 20, 2005 (Figure 4)
- Benzene and MTBE Isoconcentration Map, January 20, 2005 (Figure 5)
- Summary of Groundwater Elevations, 2002 to Present (Table 1)
- Summary of Groundwater Sample Analytical Results, 2002 to Present (Table 2)
- Summary of Additional Oxygenates Analytical Data, 2002 to Present (Table 3)
- Well Hydrographs
- Monitoring Well Purging and Sampling Procedures, San Diego County
- Monitoring Well Gauging Log

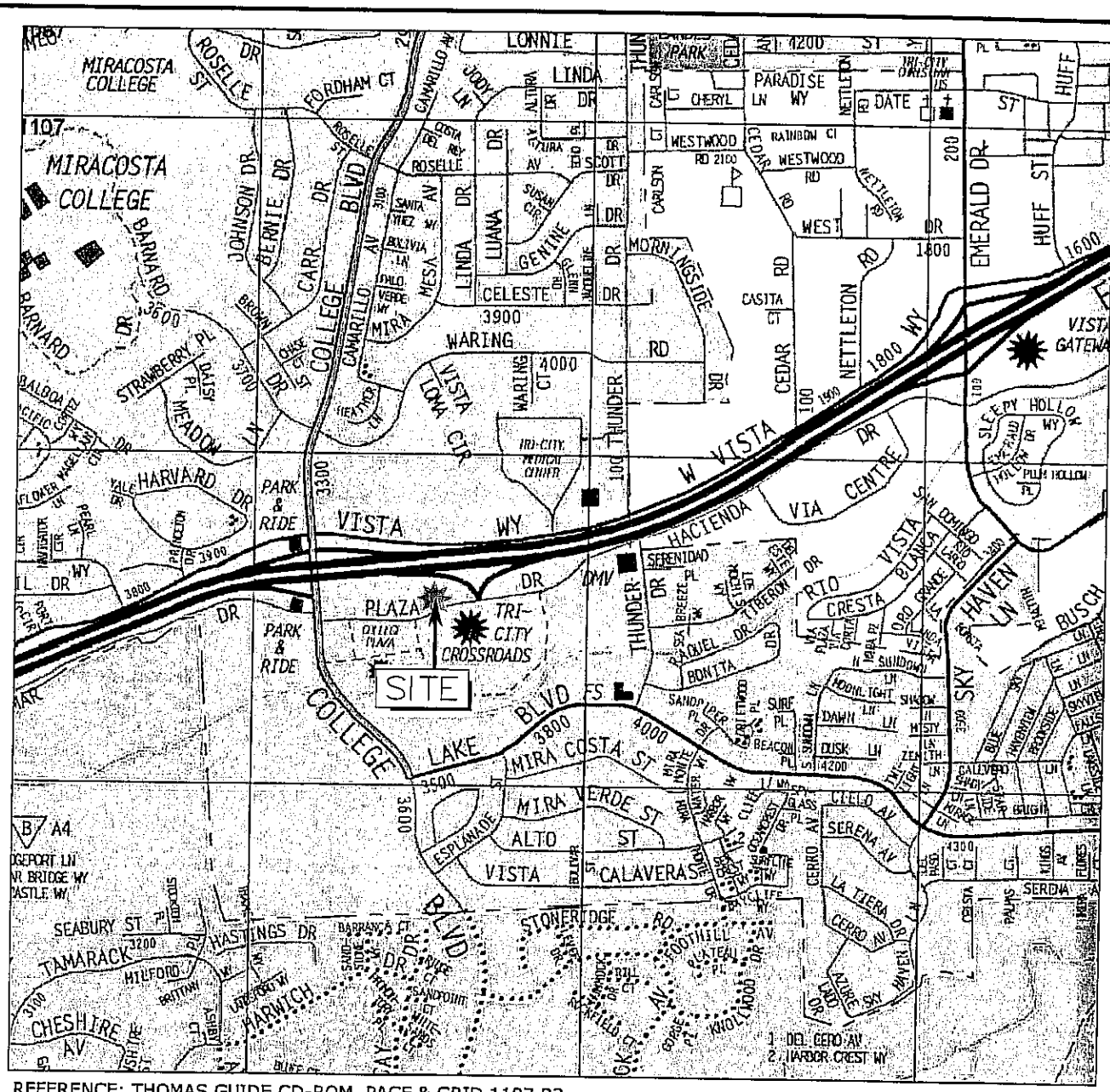
DATE: March 9, 2005

ARCO QUARTERLY GROUNDWATER MONITORING REPORT (Continued)
ARCO Facility #5350

ATTACHED (Continued):

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

cc: Mr. Roy Thun - Atlantic Richfield Company
VOC Realty Investment, Inc., c/o La Caze Development, attn: Ms. Jennifer Brunkow
McDonald's Corporation, c/o Schulz Management, Inc., attn: Mr. K. R. (Kris) Schulz



REFERENCE: THOMAS GUIDE CD-ROM, PAGE & GRID 1107 B2.

N

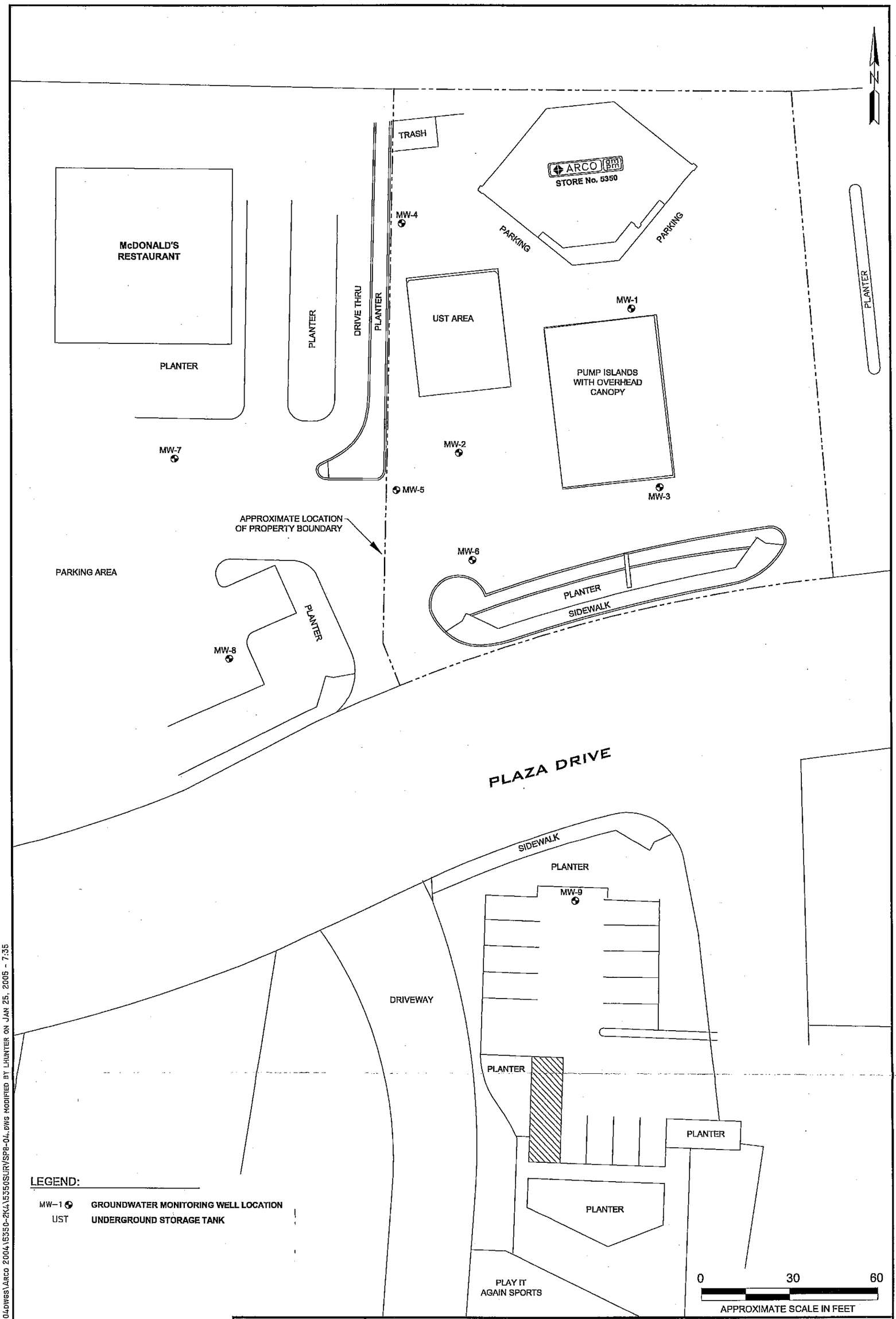
SECOR

0 1320 2640

APPROXIMATE SCALE IN FEET

DRAWN BY: LGH CHECKED: APPROVED: Riem DATE: 1/25/05 JOB No.: 0BBP.U5350.05 CAD FILE: 5350SLOC	PREPARED BY: SECOR 2655 Camino del Rio North, Suite 302 San Diego, California	PREPARED FOR: ARCO FACILITY #5350 3804 PLAZA DRIVE OCEANSIDE, CALIFORNIA	FIGURE: 1 **SITE LOCATION MAP**

P:\CAD\ALL PROJECTS\2002DWGS\ARCO 2002\5350-2K2\5350SLOC.DWG MODIFIED BY LHUNTER ON JAN 25, 2005 - 7:34



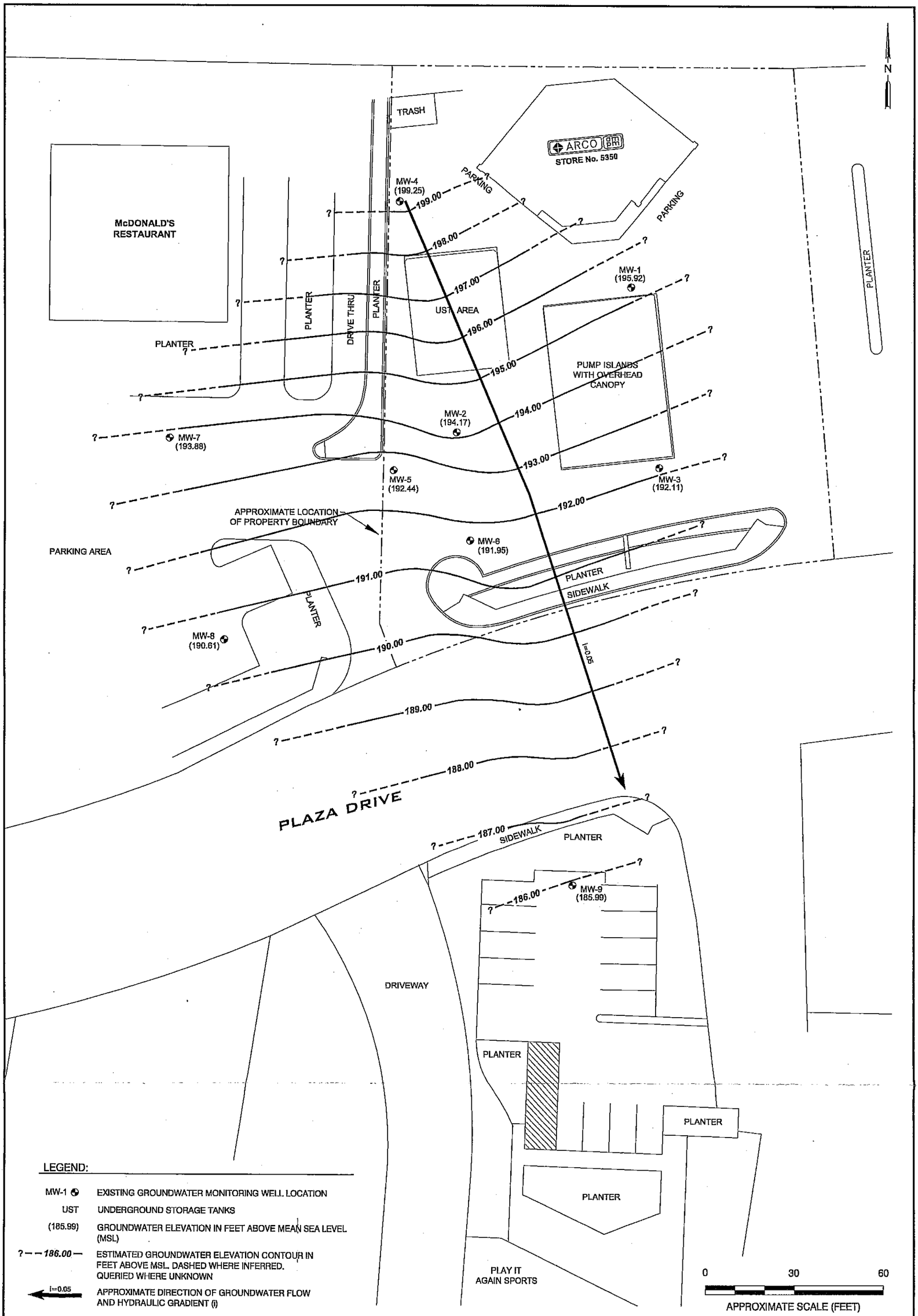
LEGEND:

MW-1 GROUNDWATER MONITORING WELL LOCATION

UST UNDERGROUND STORAGE TANK

DRAWN BY: LGM CHECKED: APPROVED: DATE: 8/26/04 JOB No.: 08BP.U5350.04 CAD FILE: 5350SURVSP8-04	PREPARED BY: SECOR 2655 Camino del Rio North, Suite 302 San Diego, California	PREPARED FOR: ARCO STATION #5350 3804 PLAZA DRIVE OCEANSIDE, CALIFORNIA	FIGURE: 2 **SITE PLAN**

P:\CAD\ALLPROJECTS2004\DWGS\ARCO 2004\5350-2K4\5350SURVSP8-04.DWG MODIFIED BY LHUNTER ON JAN 25, 2005 - 7:35



LEGEND:

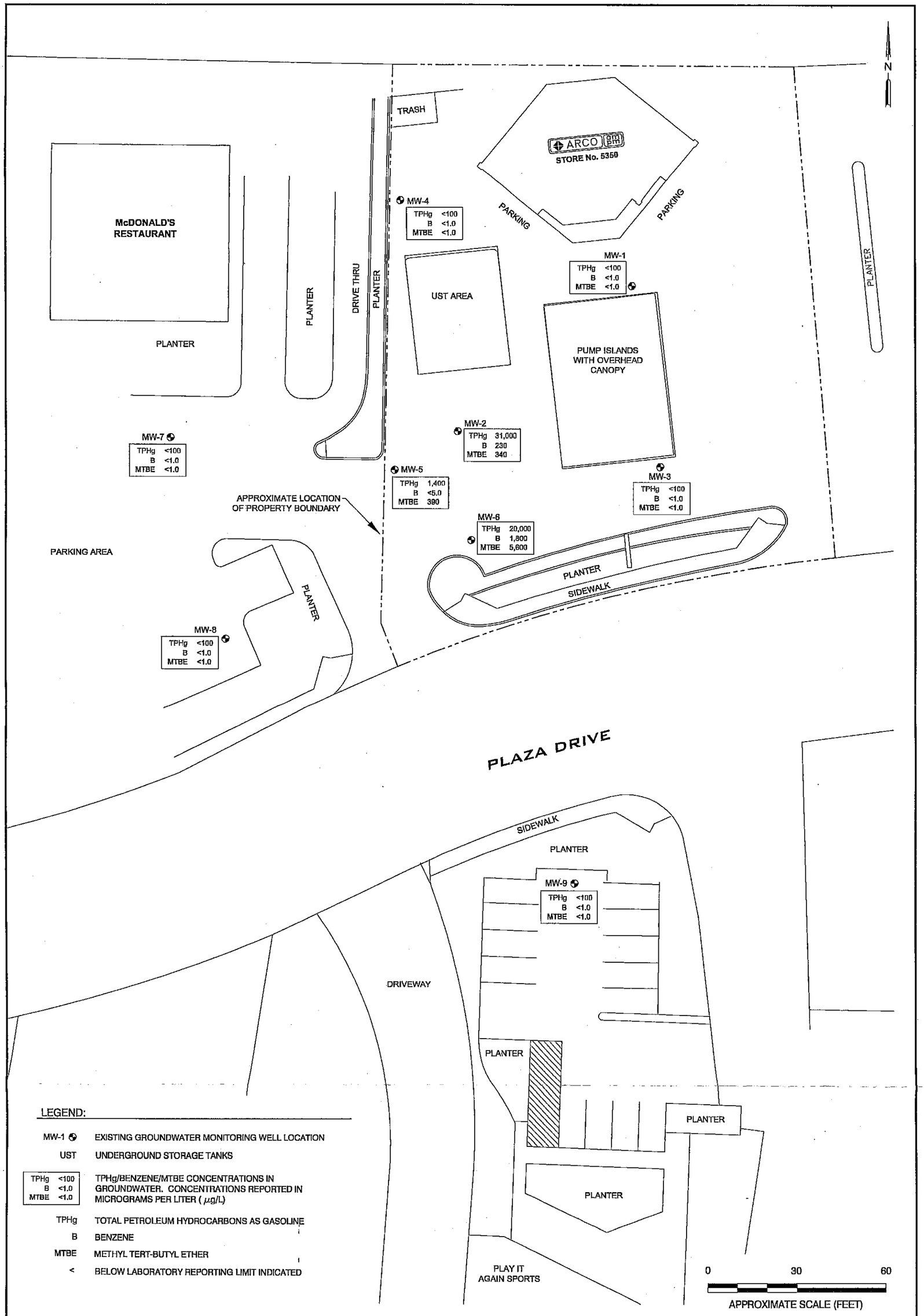
MW-1	EXISTING GROUNDWATER MONITORING WELL LOCATION
UST	UNDERGROUND STORAGE TANKS
(185.99)	GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (MSL)
? — — 186.00 —	ESTIMATED GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MSL. DASHED WHERE INFERRED. QUERIED WHERE UNKNOWN
i=0.05	APPROXIMATE DIRECTION OF GROUNDWATER FLOW AND HYDRAULIC GRADIENT (i)

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

FOR:				FIGURE:
ARCO FACILITY #5350 3804 Plaza Drive Oceanside, California		GROUNDWATER GRADIENT MAP JANUARY 20, 2005		3
JOB NUMBER: 08BP.U5350.05	DRAWN BY: RJO	CHECKED BY: MW	APPROVED BY: KRM	DATE: 2/18/05

FILEPATH:P:\CAD\ALLPROJECTS2005DWGS\ARCO 2005\5350-2K5\5350GW1-05.DWG|HUNTER|MAR 01, 2005 AT 14:47|LAYOUT: MODEL

5350GW1-05

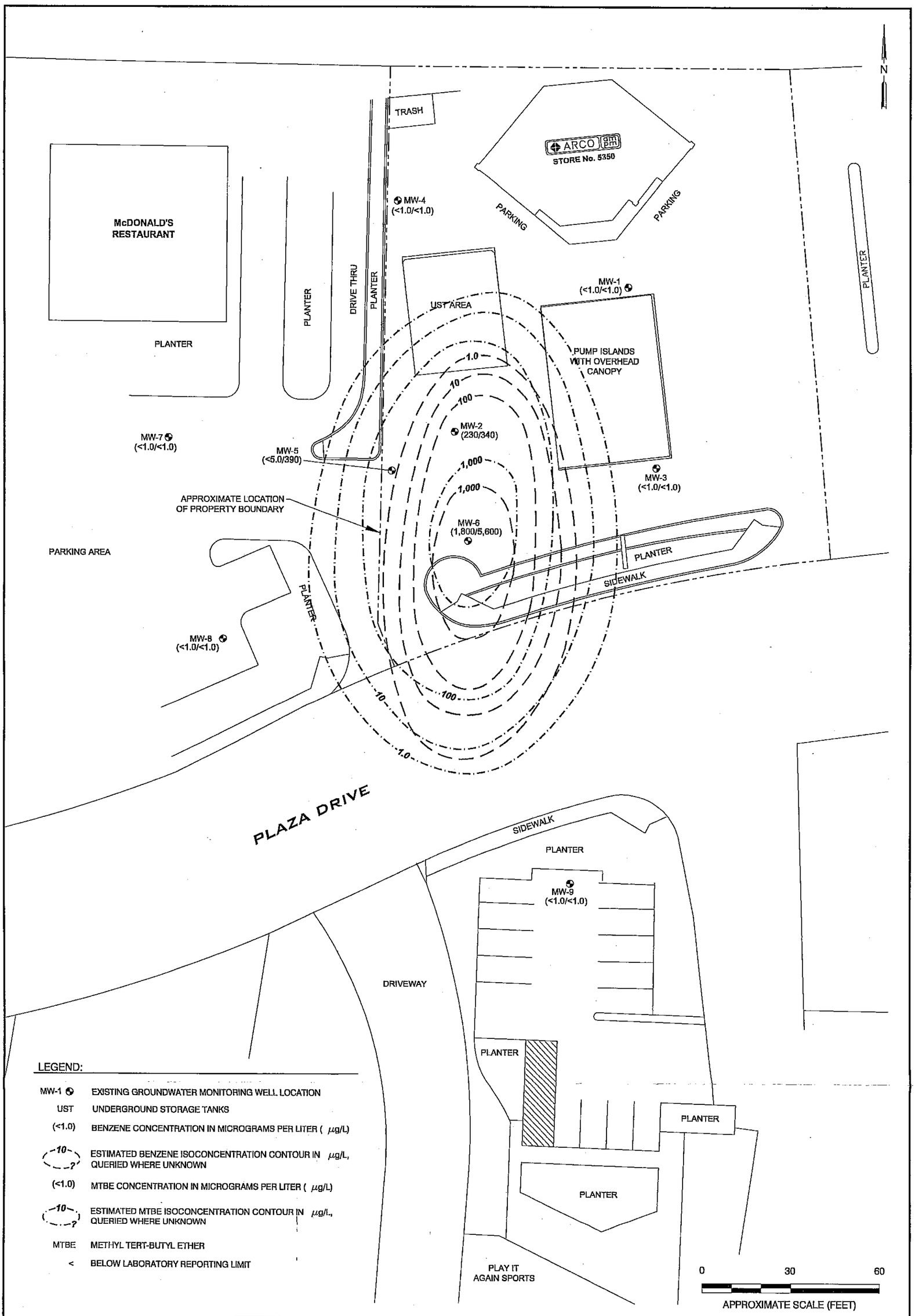


LEGEND:

MW-1	EXISTING GROUNDWATER MONITORING WELL LOCATION
UST	UNDERGROUND STORAGE TANKS
TPHg <100 B <1.0 MTBE <1.0	TPHg/BENZENE/MTBE CONCENTRATIONS IN GROUNDWATER. CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER (μg/L)
TPHg	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
B	BENZENE
MTBE	METHYL TERT-BUTYL ETHER
<	BELOW LABORATORY REPORTING LIMIT INDICATED

SECOR 2655 CAMINO DEL RIO NORTH, SUITE 302 SAN DIEGO, CALIFORNIA PHONE: (619) 296-6195/296-6199 (FAX)	FOR: ARCO FACILITY #5350 3804 Plaza Drive Oceanside, California		TPHg, BENZENE AND MTBE CONCENTRATIONS IN GROUNDWATER JANUARY 20, 2005	FIGURE: 4
	JOB NUMBER: 08BP.U5350.05	DRAWN BY: RJO	CHECKED BY: MW	APPROVED BY: KRM	DATE: 2/22/05

FILEPATH:P:\CAD\ALLPROJECTS2005DWGS\ARCO 2005\5350-2K5\5350CON1-05.DWG|PCANPD|FEB 23, 2005 AT 16:50 | LAYOUT: MODEL 5350CON1-05



LEGEND:

MW-1	EXISTING GROUNDWATER MONITORING WELL LOCATION
UST	UNDERGROUND STORAGE TANKS
(<1.0)	BENZENE CONCENTRATION IN MICROGRAMS PER LITER (μg/L)
10 ?	ESTIMATED BENZENE ISOCONCENTRATION CONTOUR IN μg/L, QUERIED WHERE UNKNOWN
(<1.0)	MTBE CONCENTRATION IN MICROGRAMS PER LITER (μg/L)
10 ?	ESTIMATED MTBE ISOCONCENTRATION CONTOUR IN μg/L, QUERIED WHERE UNKNOWN
MTBE	METHYL TERT-BUTYL ETHER
<	BELOW LABORATORY REPORTING LIMIT

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

FOR:				FIGURE:
ARCO FACILITY #5350 3804 Plaza Drive Oceanside, California		BENZENE AND MTBE ISOCONCENTRATION MAP JANUARY 20, 2005		5
JOB NUMBER: 08BP.U5350.05	DRAWN BY: RJO	CHECKED BY: MW	APPROVED BY: KRM	DATE: 2/22/05

FILEPATH:P:\CAD\ALLPROJECTS2005DWGS\ARCO 2005\5350-2K5\5350ISO1-05.DWG|RCAMPO|FEB 23, 2005 AT 10:31 AM|LAYOUT: MODEL

5350ISO1-05

TABLE 1

SUMMARY OF GROUNDWATER ELEVATIONS, 2002 TO PRESENT
ARCO Facility #5350

Well Identification / Surveyed Well Elevation[1]	Date Measured	Depth to Water (Feet)	LPH Thickness (Feet)	Groundwater Elevation[2]
MW-1	02/15/02	13.68	0.00	193.24
206.92	05/02/02	14.62	0.00	192.30
	07/15/02	14.24	0.00	192.68
206.93	10/16/02	13.39	0.00	193.54
	01/09/03	13.31	0.00	193.62
	04/25/03	12.50	0.00	194.43
	07/30/03	12.60	0.00	194.33
	10/23/03	12.72	0.00	194.21
	01/08/04	13.05	0.00	193.88
	04/07/04	13.09	0.00	193.84
	07/21/04	12.65	0.00	194.28
	10/14/04	12.60	0.00	194.33
	01/20/05	11.01	0.00	195.92
MW-2	02/15/02	14.25	0.00	191.23
205.48	05/02/02	15.12	0.00	190.36
	07/15/02	15.02	0.00	190.46
205.49	10/16/02	14.21	0.00	191.28
	01/09/03	14.35	0.00	191.14
	04/25/03	14.25	0.00	191.24
	07/30/03	13.53	0.00	191.96
	10/23/03	14.23	0.00	191.26
	01/08/04	13.94	0.00	191.55
	04/07/04	13.98	0.00	191.51
	07/21/04	13.06	0.00	192.43
	10/14/04	12.87	0.00	192.62
	01/20/05	11.32	0.00	194.17
MW-3	02/15/02	15.97	0.00	189.71
205.68	05/02/02	16.24	0.00	189.44
	07/15/02	15.77	0.00	189.91
205.70	10/16/02	14.62	0.00	191.08
	01/09/03	14.99	0.00	190.71
	04/25/03	14.80	0.00	190.90
	07/30/03	14.65	0.00	191.05
	10/23/03	14.53	0.00	191.17
	01/08/04	14.88	0.00	190.82
	04/07/04	15.35	0.00	190.35
	07/21/04	14.32	0.00	191.38
	10/14/04	14.63	0.00	191.07
	01/20/05	13.59	0.00	192.11

TABLE 1

SUMMARY OF GROUNDWATER ELEVATIONS, 2002 TO PRESENT
ARCO Facility #5350

Well Identification / Surveyed Well Elevation[1]	Date Measured	Depth to Water (Feet)	LPH Thickness (Feet)	Groundwater Elevation[2]
MW-4	09/09/02	11.29	0.00	195.31
206.60	10/16/02	11.05	0.00	195.55
	01/09/03	10.09	0.00	196.51
	04/25/03	10.20	0.00	196.40
	07/30/03	10.67	0.00	195.93
	10/23/03	10.65	0.00	195.95
	01/08/04	11.09	0.00	195.51
	01/22/04	10.50	0.00	196.10
	04/07/04	10.79	0.00	195.81
	07/21/04	10.23	0.00	196.37
	10/14/04	9.18	0.00	197.42
	01/20/05	7.35	0.00	199.25
MW-5	09/09/02	14.43	0.00	190.32
204.75	10/16/02	14.10	0.00	190.65
	01/09/03	13.85	0.00	190.90
	04/25/03	13.60	0.00	191.15
	07/30/03	13.42	0.00	191.33
	10/23/03	13.40	0.00	191.35
	01/08/04	13.89	0.00	190.86
	01/22/04	13.40	0.00	191.35
	04/07/04	13.62	0.00	191.13
	07/21/04	12.75	0.00	192.00
	10/14/04	11.96	0.00	192.79
	01/20/05	12.31	0.00	192.44
MW-6	09/11/02	14.80	0.00	189.25
204.05	10/16/02	14.62	0.00	189.43
	01/09/03	14.45	0.00	189.60
	04/25/03	14.60	0.00	189.45
	07/30/03	13.95	0.00	190.10
	10/23/03	14.07	0.00	189.98
	01/08/04	14.31	0.00	189.74
	04/07/04	14.30	0.00	189.75
	07/21/04	13.33	0.00	190.72
	10/14/04	13.06	0.00	190.99
	01/20/05	12.10	0.00	191.95
MW-7	07/21/04	11.27	0.00	192.45
203.72	10/14/04	10.28	0.00	193.44
	01/20/05	9.84	0.00	193.88

TABLE 1

SUMMARY OF GROUNDWATER ELEVATIONS, 2002 TO PRESENT
ARCO Facility #5350

Well Identification / Surveyed Well Elevation[1]	Date Measured	Depth to Water (Feet)	LPH Thickness (Feet)	Groundwater Elevation[2]
MW-8	07/21/04	13.39	0.00	188.84
202.23	07/23/04	13.36	0.00	188.87
	10/14/04	12.67	0.00	189.56
	01/20/05	11.62	0.00	190.61
MW-9	07/21/04	16.85	0.00	184.76
201.61	10/14/04	16.82	0.00	184.79
	01/20/05	15.62	0.00	185.99

Notes:

[1] = Elevations are in feet above mean sea level (MSL)
[2] = Groundwater elevation in feet above MSL = Surveyed well elevation - Depth to water
LPH = Liquid-phase hydrocarbons

TABLE 2

SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS, 2002 TO PRESENT
ARCO Facility #5350
All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	TPHg	B	T	E	X	MTBE
MW-1	02/15/02	<500	<0.50	0.63	<0.50	<1.5	2.5
	05/02/02	<25	<0.51	1.63	<0.51	120	1.8
	07/15/02	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	10/16/02	<500	<0.50	<0.50	<0.50	<1.5	1.6
	01/09/03	<500	2.9	14	3.8	13	2.4
	04/25/03	<500	1.4	9.9	2.5	17	<1.0
	07/30/03	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	10/23/03	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	01/08/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	04/07/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	07/21/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	10/14/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	01/20/05	<100	<1.0	<1.0	<1.0	<1.0	<1.0
MW-2	02/15/02	35,000	3,300	7,200	1,800	11,000	18,000
	05/02/02	<3,100	<620	<620	<620	10,000	13,000
	07/15/02	32,000	2,400	6,000	1,400	8,500	13,000
	10/16/02	42,000	2,700	9,200	2,300	12,900	12,000
	01/09/03	51,000	3,000	9,600	2,200	13,000	11,000
	04/25/03	48,000	2,700	8,100	2,000	12,000	9,200
	07/30/03	51,000	2,500	9,200	2,500	13,000	6,100
	10/23/03	34,000	1,800	5,200	1,800	10,000	5,100
	01/08/04	41,000	2,100	7,500	2,500	15,000	5,200
	04/07/04	41,000	1,700	6,400	2,400	14,000	3,200
	07/21/04	52,000	1,100	5,200	2,200	11,000	2,500
	10/14/04	41,000	22	120	51	270	40
	01/20/05	31,000	230	3,400	2,400	14,000	340
MW-3	02/15/02	<500	<0.50	<0.50	<0.50	<1.5	1.8
	05/02/02	<25	<5.0	<5.0	<5.0	2.3	<1.0
	07/15/02	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	10/16/02	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	01/09/03	<500	1.8	11	4.5	24	1.4
	04/25/03	<500	3.0	21	5.2	30	<1.0
	07/30/03	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	10/23/03	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	01/08/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	04/07/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	07/21/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	10/14/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	01/20/05	<100	<1.0	<1.0	<1.0	<1.0	<1.0

TABLE 2

SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS, 2002 TO PRESENT
ARCO Facility #5350
All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	TPHg	B	T	E	X	MTBE
MW-4	09/09/02	<50	<2.0	<2.0	<2.0	<4.0	<5.0
	10/16/02	<500	<0.50	<0.50	<0.50	<1.5	1.9
	01/09/03	<500	0.80	4.0	2.1	9.7	1.9
	04/25/03	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	07/30/03	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	10/23/03	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	01/08/04	Well Not Sampled					
	01/22/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	04/07/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	07/21/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	10/14/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	01/20/05	<100	<1.0	<1.0	<1.0	<1.0	<1.0
MW-5	09/09/02	57	<2.0	<2.0	<2.0	<4.0	4,400
	10/16/02	4,100	<25	34	260	690	6,800
	01/09/03	4,500	<25	<25	500	<75	4,200
	04/25/03	6,500	<25	<25	940	<75	4,500
	07/30/03	5,200	38	<25	980	<75	4,300
	10/23/03	4,300	40	<25	970	<75	4,900
	01/08/04	Well Not Sampled					
	01/22/04	3,100	<25	<25	500	<75	3,400
	04/07/04	3,500	<25	<25	660	<75	2,000
	07/21/04	2,800	9.7	<5.0	260	21	1,000
	10/14/04	1,800	<5.0	<5.0	83	<15	900
	01/20/05	1,400	<5.0	<5.0	65	<5.0	390
MW-6	09/11/02	16,000	3,500	<2,000	<2,000	<4,000	61,000
	10/16/02	24,000	4,100	5,400	1,200	4,900	46,000
	01/09/03	26,000	4,200	4,800	1,300	4,400	47,000
	04/25/03	39,000	3,800	7,600	1,300	6,100	32,000
	07/30/03	27,000	3,700	6,000	1,500	6,300	40,000
	10/23/03	26,000	3,200	3,700	1,200	5,300	32,000
	01/08/04	21,000	2,900	2,100	1,000	4,900	35,000
	04/07/04	24,000	3,800	5,700	1,700	8,300	29,000
	07/21/04	31,000	3,300	4,700	1,900	8,600	22,000
	10/14/04	29,000	3,300	3,800	2,200	10,000	25,000
	01/20/05	20,000	1,800	1,600	1,600	6,300	5,600
MW-7	07/21/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	10/14/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	01/20/05	<100	<1.0	<1.0	<1.0	<1.0	<1.0

TABLE 2

SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS, 2002 TO PRESENT
ARCO Facility #5350
All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	TPHg	B	T	E	X	MTBE
MW-8	07/23/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	10/14/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	01/20/05	<100	<1.0	<1.0	<1.0	<1.0	<1.0
MW-9	07/21/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	10/14/04	<500	<0.50	<0.50	<0.50	<1.5	<1.0
	01/20/05	<100	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:

TPHg = Total petroleum hydrocarbons (DHS Modified EPA Method 8015)
B = Benzene
T = Toluene
E = Ethylbenzene
X = Total Xylenes
MTBE = Methyl tert-Butyl Ether
< = Less than indicated reporting limit
BTEX and MTBE were analyzed by EPA Method 8260B

TABLE 3

SUMMARY OF ADDITIONAL OXYGENATES ANALYTICAL DATA, 2002 TO PRESENT
ARCO Facility #5350
All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	TBA	DIPE	ETBE	TAME	Ethanol
MW-1	02/15/02	<25	<5.0	<5.0	<5.0	--
	05/02/02	<25	<5.0	<5.0	<5.0	--
	07/15/02	<25	<5.0	<5.0	<5.0	--
	10/16/02	<50	<5.0	<5.0	<5.0	--
	01/09/03	<50	<5.0	<5.0	<5.0	<150
	04/25/03	<50	<5.0	<5.0	<5.0	<150
	07/30/03	<50	<5.0	<5.0	<5.0	<150
	10/23/03	<50	<5.0	<5.0	<5.0	<150
	01/08/04	<50	<5.0	<5.0	<5.0	<150
	04/07/04	<50	<5.0	<5.0	<5.0	<150
	07/21/04	<50	<5.0	<5.0	<5.0	<150
	10/14/04	<50	<5.0	<5.0	<5.0	<150
	01/20/05	<25	<2.0	<2.0	<2.0	<500
MW-2	02/15/02	<3,100	<620	<620	<620	--
	05/02/02	3,500	<500	<500	<500	--
	07/15/02	<3,100	<620	<620	<620	--
	10/16/02	<5,000	<500	<500	<500	--
	01/09/03	<10,000	<1,000	<1,000	<1,000	<30,000
	04/25/03	<10,000	<1,000	<1,000	<1,000	<30,000
	07/30/03	<5,000	<500	<500	<500	<15,000
	10/23/03	<2,500	<250	<250	<250	<7,500
	01/08/04	<5,000	<500	<500	<500	<15,000
	04/07/04	<5,000	<500	<500	<500	<15,000
	07/21/04	<2,500	<250	<250	<250	<7,500
	10/14/04	<50	<5.0	<5.0	<5.0	<150
	01/20/05	<3,100	<250	<250	<250	<62,000
MW-3	02/15/02	<25	<5.0	<5.0	<5.0	--
	05/02/02	<25	<5.0	<5.0	<5.0	--
	07/15/02	<25	<5.0	<5.0	<5.0	--
	10/16/02	<50	<5.0	<5.0	<5.0	--
	01/09/03	<50	<5.0	<5.0	<5.0	<150
	04/25/03	<50	<5.0	<5.0	<5.0	<150
	07/30/03	<50	<5.0	<5.0	<5.0	<150
	10/23/03	<50	<5.0	<5.0	<5.0	<150
	01/08/04	<50	<5.0	<5.0	<5.0	<150
	04/07/04	<50	<5.0	<5.0	<5.0	<150
	07/21/04	<50	<5.0	<5.0	<5.0	<150
	10/14/04	<50	<5.0	<5.0	<5.0	<150
	01/20/05	<25	<2.0	<2.0	<2.0	<500

TABLE 3

SUMMARY OF ADDITIONAL OXYGENATES ANALYTICAL DATA, 2002 TO PRESENT
ARCO Facility #5350

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

Well Identification	Sampling Date	TBA	DIPE	ETBE	TAME	Ethanol
MW-4	09/09/02	<50	<5.0	<5.0	<5.0	--
	10/16/02	<50	<5.0	<5.0	<5.0	--
	01/09/03	<50	<5.0	<5.0	<5.0	<150
	04/25/03	<50	<5.0	<5.0	<5.0	<150
	07/30/03	<50	<5.0	<5.0	<5.0	<150
	10/23/03	<50	<5.0	<5.0	<5.0	<150
	01/22/04	<50	<5.0	<5.0	<5.0	<150
	04/07/04	<50	<5.0	<5.0	<5.0	<150
	07/21/04	<50	<5.0	<5.0	<5.0	<150
	10/14/04	<50	<5.0	<5.0	<5.0	<150
	01/20/05	<25	<2.0	<2.0	<2.0	<500
MW-5	09/09/02	<2,500	<250	<250	<250	--
	10/16/02	<2,500	<250	<250	<250	--
	01/09/03	<2,500	<250	<250	<250	<7,500
	04/25/03	<2,500	<250	<250	<250	<7,500
	07/30/03	<2,500	<250	<250	<250	<7,500
	10/23/03	2,900	<250	<250	<250	<7,500
	01/22/04	<2,500	<250	<250	<250	<7,500
	04/07/04	<2,500	<250	<250	<250	<7,500
	07/21/04	<500	<50	<50	<50	<1,500
	10/14/04	<500	<50	<50	<50	<1,500
	01/20/05	<120	<10	<10	<10	<2,500
MW-6	09/11/02	<50,000	<5,000	<5,000	<5,000	--
	10/16/02	<50,000	<5,000	<5,000	<5,000	--
	01/09/03	<20,000	<2,000	<2,000	<2,000	<60,000
	04/25/03	<20,000	<2,000	<2,000	<2,000	<60,000
	07/30/03	<10,000	<1,000	<1,000	<1,000	<30,000
	10/23/03	<50,000	<5,000	<5,000	<5,000	<150,000
	01/08/04	<20,000	<2,000	<2,000	<2,000	<60,000
	04/07/04	<20,000	<2,000	<2,000	<2,000	<60,000
	07/21/04	<10,000	<1,000	<1,000	<1,000	<30,000
	10/14/04	<12,000	<1,200	<1,200	<1,200	<38,000
	01/20/05	<3,100	<250	<250	<250	<62,000
MW-7	07/21/04	<50	<5.0	<5.0	<5.0	<150
	10/14/04	<50	<5.0	<5.0	<5.0	<150
	01/20/05	<25	<2.0	<2.0	<2.0	<500

TABLE 3

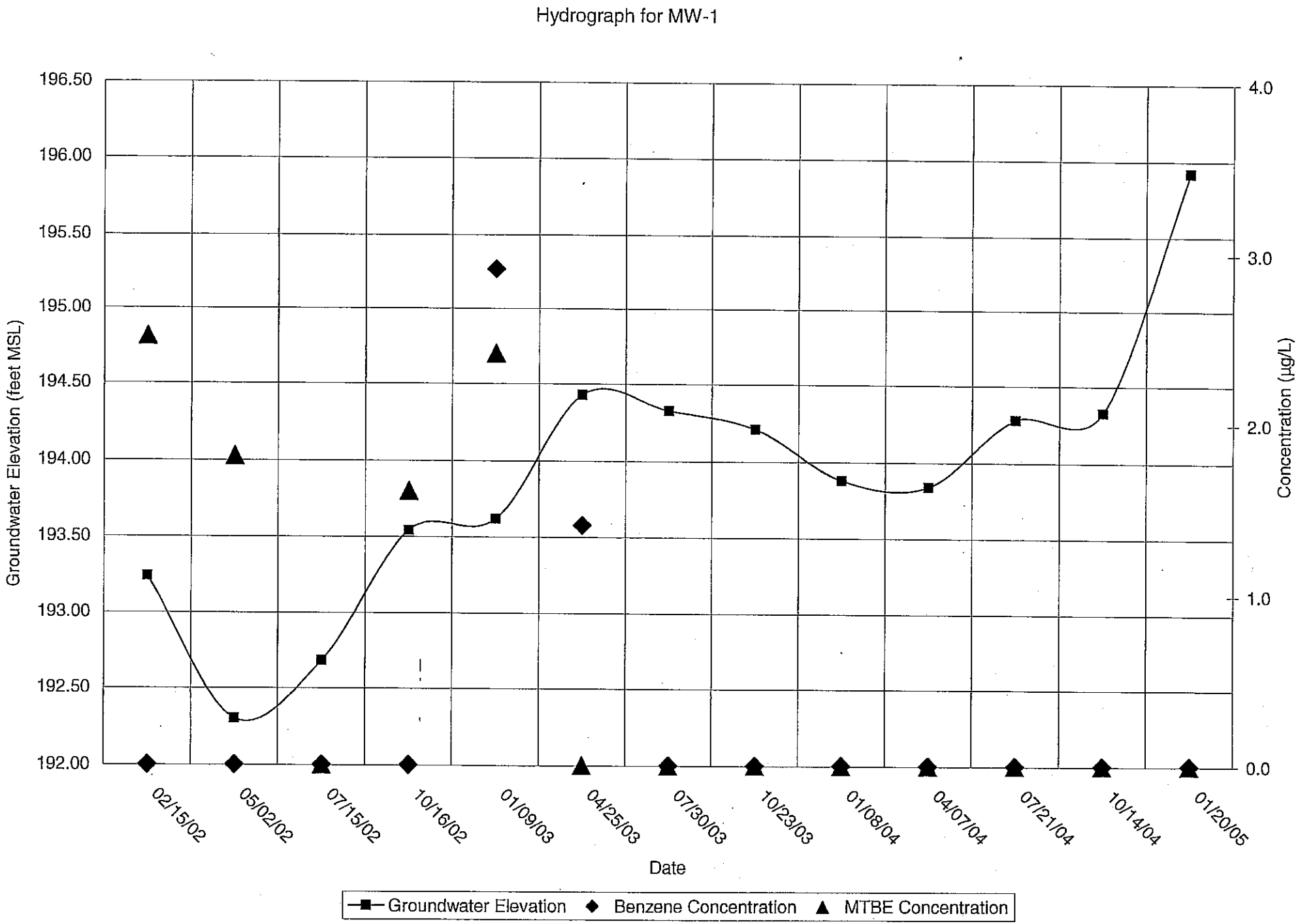
SUMMARY OF ADDITIONAL OXYGENATES ANALYTICAL DATA, 2002 TO PRESENT
ARCO Facility #5350
All Results Reported in Micrograms per Liter (µg/L)

Well Identification	Sampling Date	TBA	DIPE	ETBE	TAME	Ethanol
MW-8	07/23/04	<50	<5.0	<5.0	<5.0	<150
	10/14/04	<50	<5.0	<5.0	<5.0	<150
	01/20/05	<25	<2.0	<2.0	<2.0	<500
MW-9	07/21/04	<50	<5.0	<5.0	<5.0	<150
	10/14/04	<50	<5.0	<5.0	<5.0	<150
	01/20/05	<25	<2.0	<2.0	<2.0	<500

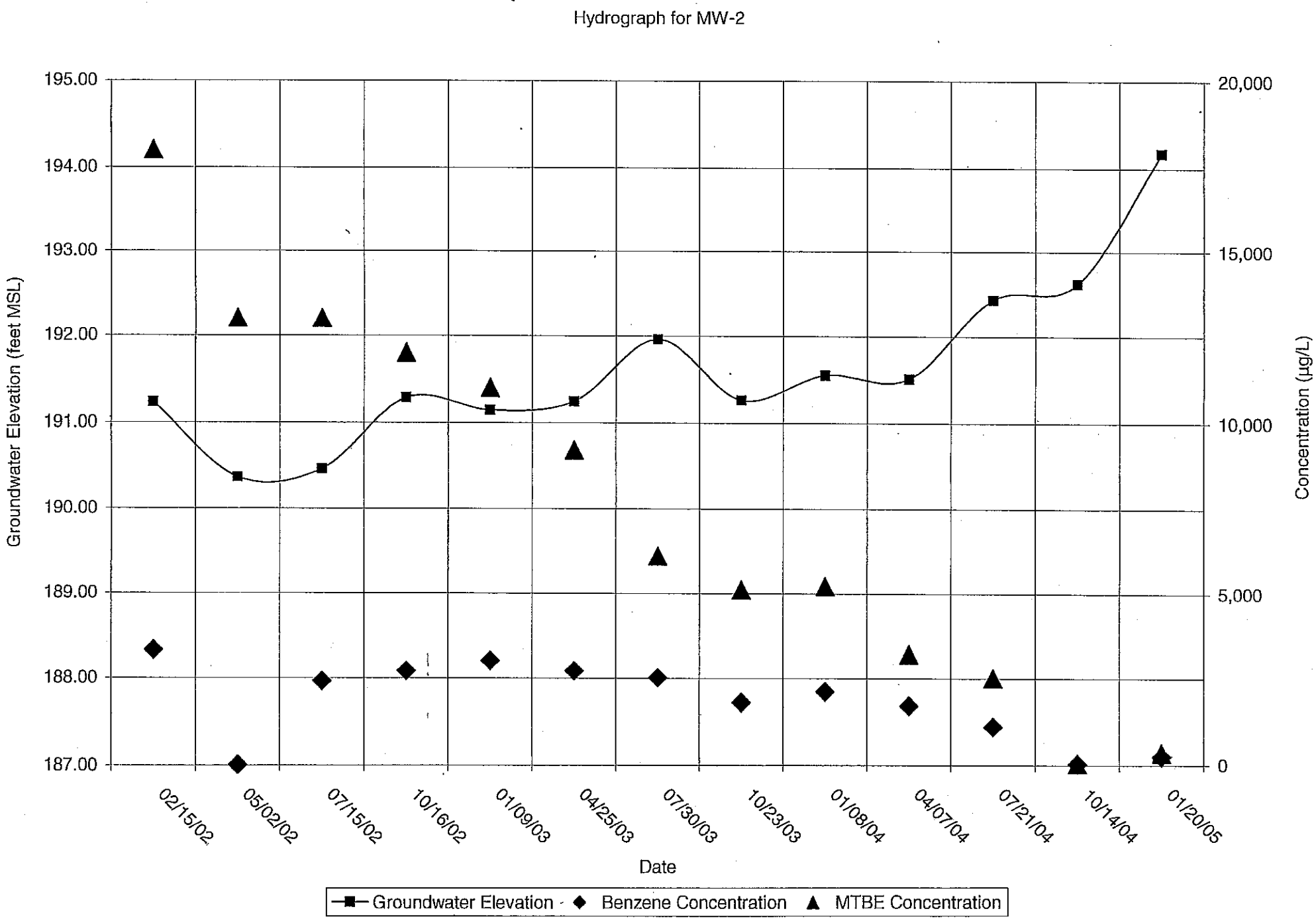
Notes:

TBA = tert-Butyl Alcohol
DIPE = Di-isopropyl Ether
ETBE = Ethyl tert-Butyl Ether
TAME = tert-Amyl Methyl Ether

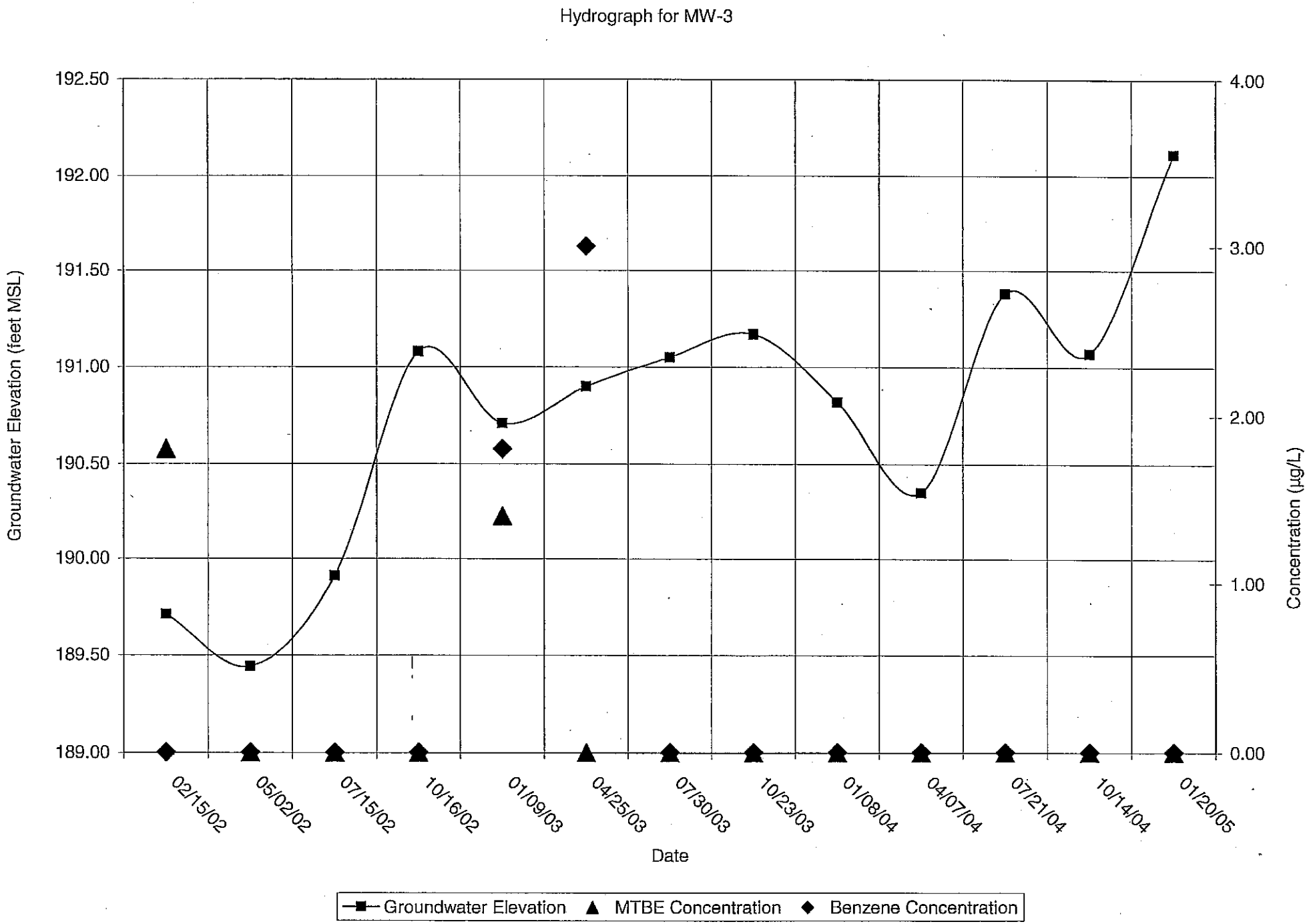
Samples analyzed by EPA Method 8260B
< = Less than indicated reporting limit
-- = Not analyzed



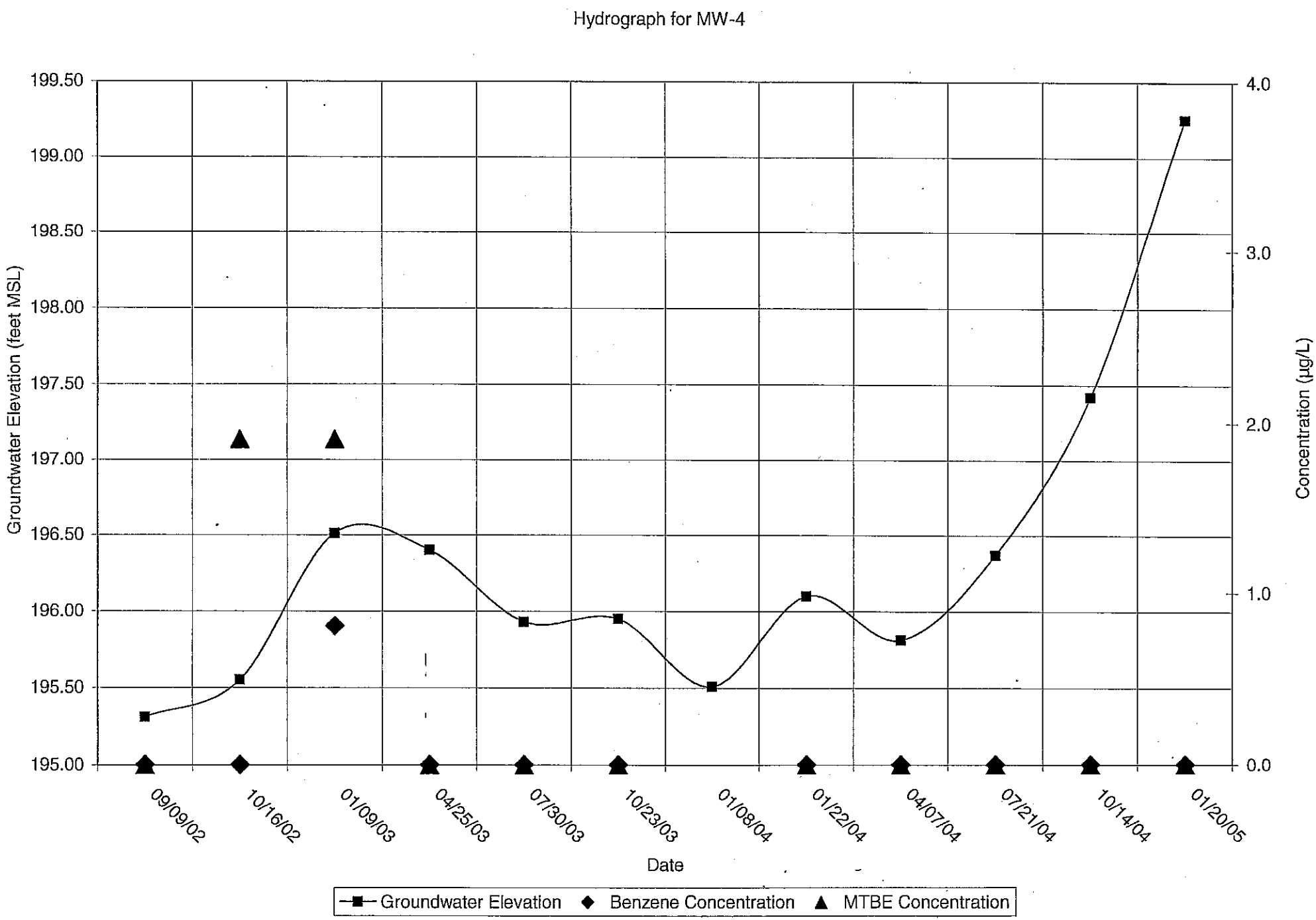
P:\Arco\5350\5350T-27(1Q2005Rpt).xls



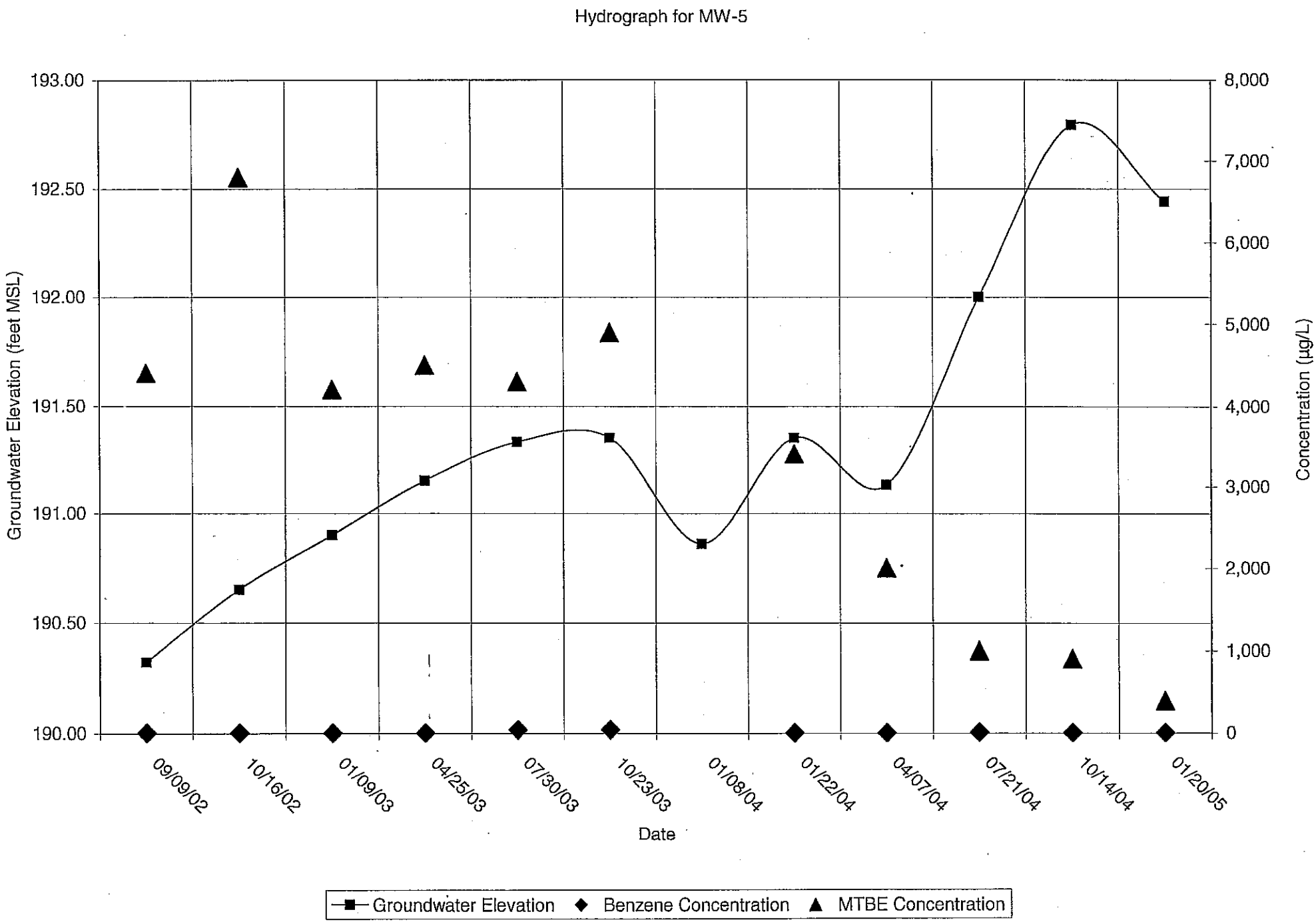
P:\Arco\5350\5350T-27(1Q2005Rpt).xls



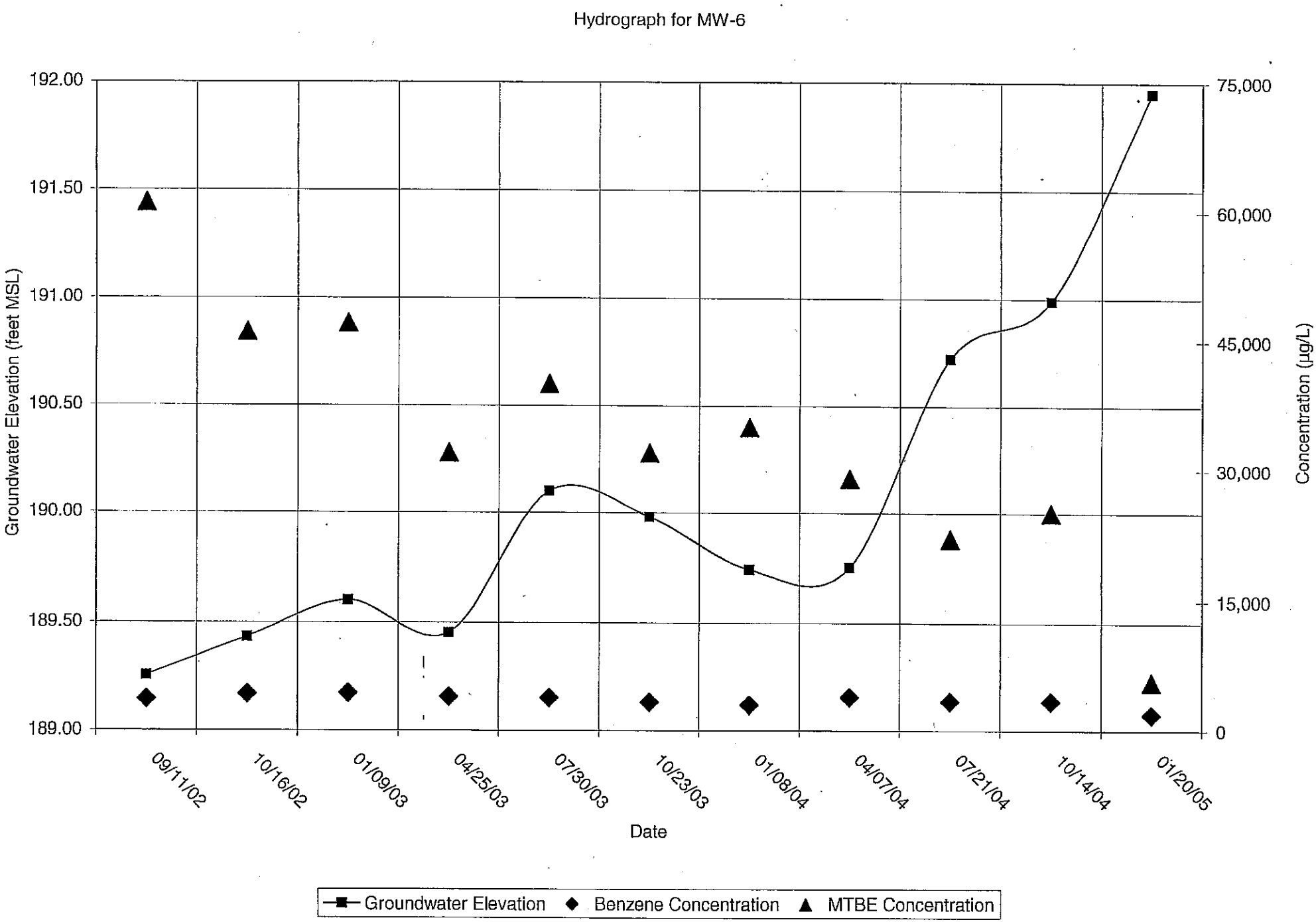
P:\Arco\5350\5350T-27(1Q2005Rpt).xls



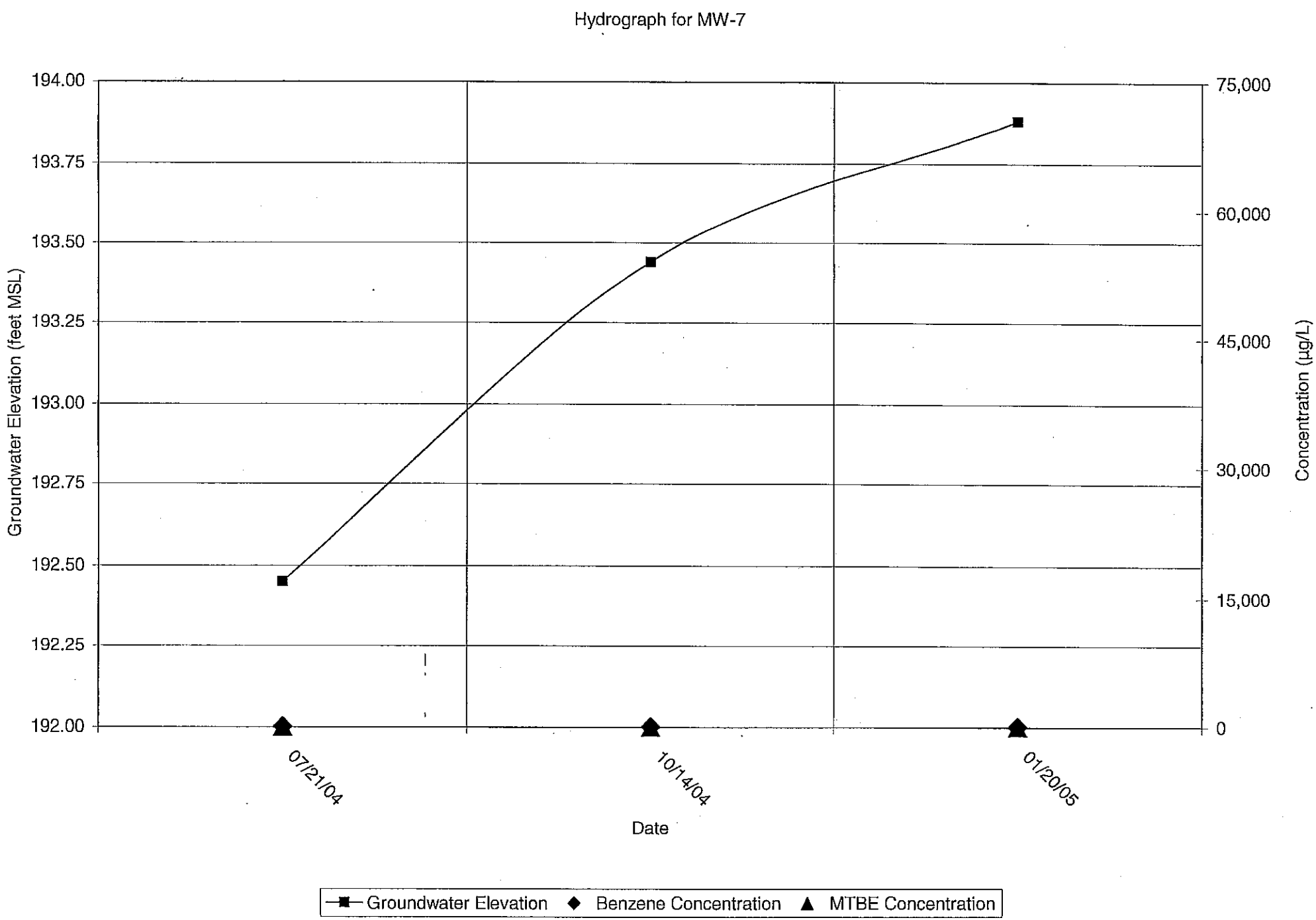
P:\Arco\5350\5350T-27(1Q2005Rpt).xls



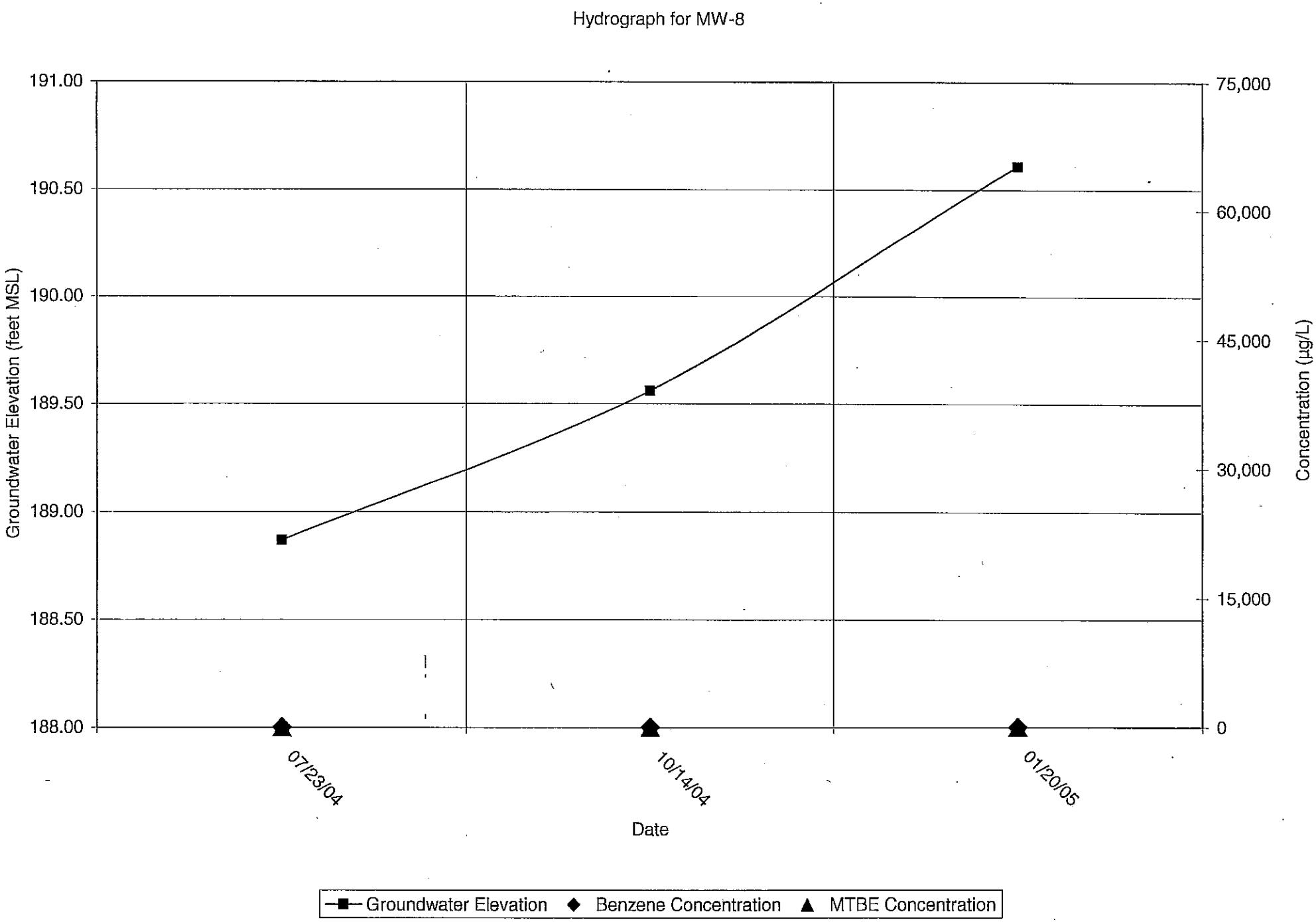
P:\Arco\5350\5350T-27(1Q2005Rpt).xls



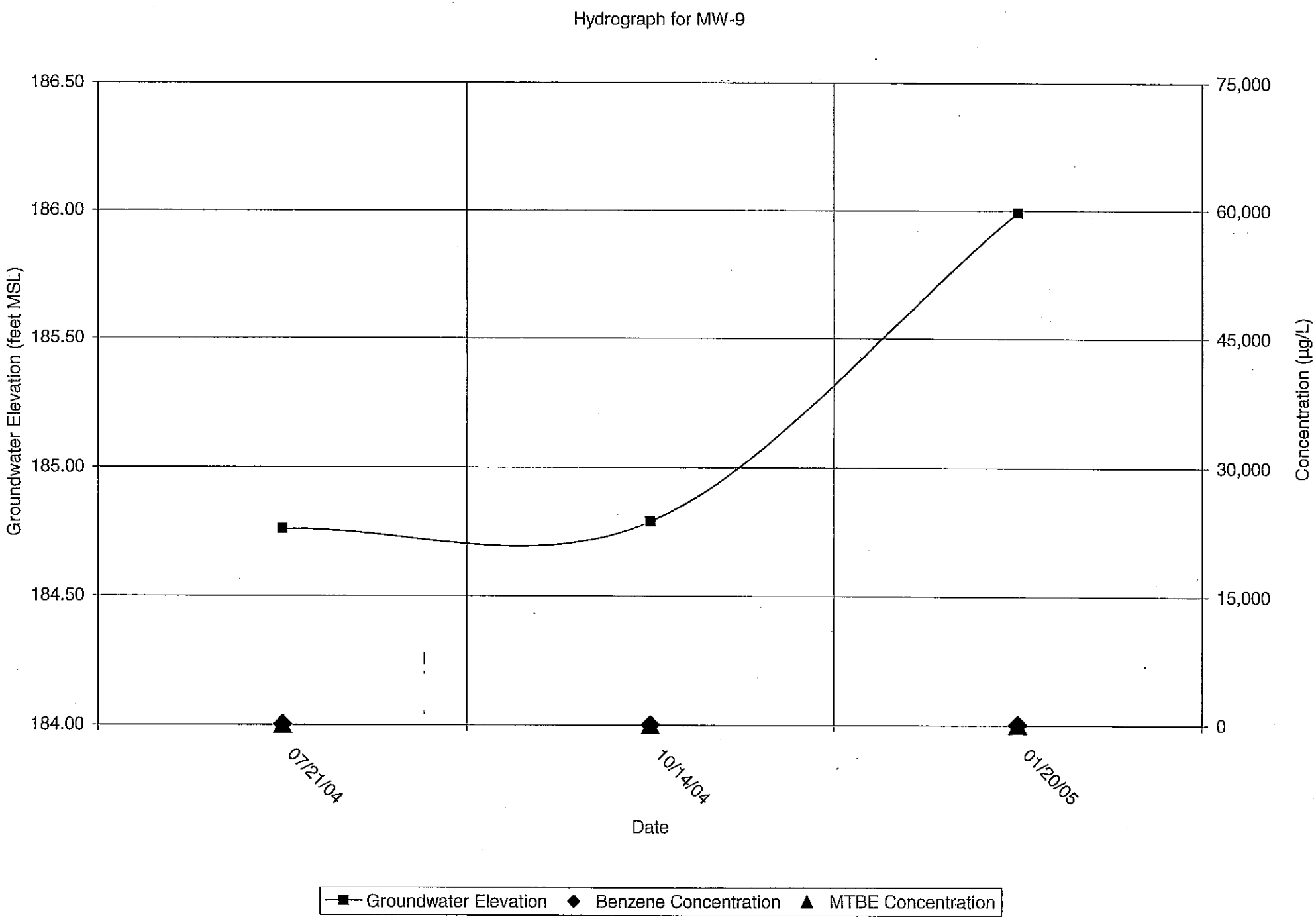
P:\Arco\5350\5350T-27(1Q2005Rpt).xls



P:\Arco\5350\5350T-27(1Q2005Rpt).xls



P:\Arco\5350\5350T-27(1Q2005Rpt).xls



P:\Arco\5350\5350T-27(1Q2005Rpt).xls

MONITORING WELL PURGING AND SAMPLING PROCEDURES
SAN DIEGO COUNTY

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

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

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

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

1. High-flow Purging and Sampling Method

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

a. Measure for NAPL

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

b. Measure Water Level

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

c. Placement of Pump

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

d. Calculation of Borehole Volume

e. Parameter Stability

It is assumed that parameter stability is achieved when the difference between successive measurements is less than 10 percent. Generally, measurements are made after one borehole volume is removed and then at one-half borehole volume intervals. Commonly, the measurement of temperature, specific conductance, and pH are used exclusively, but it has been found these

parameters are less sensitive to field conditions. It is recommended that dissolved oxygen, turbidity, specific conductance, and temperature be monitored.

f. Purge Well

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

(1) Fast Recovering Wells

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

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

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

(2) Slow Recovering Wells

(a) Remove 1 borehole volume of water.

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

g. Collect Samples

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

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

(2) Collect groundwater samples from wells with sampling equipment.

Sampling equipment must be compatible with the contaminant being analyzed

(3) Sampling equipment should be decontaminated before use.

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

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

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

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

(8) Headspace in sample containers should be avoided.

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

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

SECOR

MONITORING WELL GAUGING LOG

Site Name & Facility No: ARCO 5350

Date: 1/20/2005

Project Number: 08BP.U5350.04

Field Representative(s): JM, EK, WW

Checked by: [illegible]

Well No.	Previous QTR DTW	Gauging Time	Depth to Floating Product	Depth to Water (ft)	Floating Product Thickness	Total Casing Depth (ft)	Casing Elevation[1]	Groundwater Elevation[1]	Corrected Groundwater Elevation[1*]	QA/QC GW ELEV Comments
MW-1	12.60	1032		11.01		33.51	206.93	195.92		195.92
MW-2	12.87	1020	–	11.32	–	34.80	205.49	194.17		194.17
MW-3	14.63	1027		13.59		34.72	205.70	192.11		192.11
MW-4	9.18	1010	–	7.35	–	29.90	206.60	199.25		199.25
MW-5	11.96	10.26	–	12.31	–	29.75	204.75	192.44		192.44
MW-6	13.06	1024	–	12.10	–	29.95	204.05	191.95		191.95
MW-7	10.28	1001	–	9.84	–	25.11	203.72	193.88		193.88
MW-8	12.67	1017	–	11.62	–	25.12	202.23	190.61		190.61
MW-9	16.82	1009	–	15.62	–	25.13	201.61	185.99		185.99

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-~~2~~1
	Project Name: ARCO 5350		Date: 1/20/2005
	Project Number: 08BP.U5350.04		Sample Time: 1348
	SECOR Rep: [illegible]	Checked by: [illegible]	Sample No: MW-~~2~~1

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 3	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: ___ Vac Truck ___ Submersible Pump X Bailer ___ Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID: 4	Depth to Water (DTW_1) (ft): ~~11.32~~ 11.01	
Sampling Method: ___ Teflon Bailer X Disposable Bailer ___ Other:	Total Well Depth (DTB) (ft): 33.51 ~~34.80~~	Water Column: ~~23.48~~ 22.5
	Floating Product: —	Thickness (in): —
Decontamination Method: ___ Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___ Other:	Borehole Volume (gal): 33.75 ~~35.22~~	1.5 Borehole Volumes (gal): 50.63 ~~52.83~~

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1136	Started Purging					
1151	24.45	34.~~25~~	6.95	24.0	11080	tan/gray, foul/mod silt, odorless
1158	29.92	51.~~25~~	6.89	23.8	11180	
1348	11.88	Sample				

Maximum Drawdown (DTW_2) (ft) = 29.92

H^2O Removal Rate (GPM) = 2.32

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1348

Depth to Water at time of sampling (DTW_3): 11.88

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: ~~long time to purge~~

RECOVERY CALCULATIONS

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

$$\% \text{ of Recovery} = 1 - \frac{(11.01) - (11.88)}{(11.01) - (29.92)} = \frac{-.87}{-18.91}$$

$$= 95\ \%$$

80% Recharge = ~~19.~~ 14.79

SECOR

INTERNATIONAL INCORPORATED

WELL PURGING / SAMPLING LOG

Project Name:	ARCO 5350	Well No:	MW-~~1~~ 2
Project Number:	08BP.U5350.04	Date:	1/20/2005
SECOR Rep:	W Wang	Sample Time:	1250
Checked by:		Sample No:	MW-2

PURGING & SAMPLING EQUIPMENT / METHOD

Water Level Meter Type & ID: Solinist # 3

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): ~~11.01~~ 11.32

Total Well Depth (DTB) (ft): ~~33.31~~ 34.80

Water Column: ~~22.5~~ 23.48

Floating Product: —

Thickness (in): —

Borehole Volume (gal): ~~3.75~~ 35.22

1.5 Borehole Volumes (gal): ~~52.62~~ 52.83

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1055	Started Purging					
1107	25.69	~~35~~ 34	6.93	24.7	5500	gray/white, low/med silt, odor
~~1119~~ 1119	31.96	~~53~~ 51	6.90	24.4	5600	
1250	13.25	Sample				

Maximum Drawdown (DTW_2) (ft) = 31.96

H^2O Removal Rate (GPM) = 2.21

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1250

Depth to Water at time of sampling (DTW_3): 13.25

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

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

$$\% \text{ of Recovery} = 1 - \frac{(\cancel{11.01}\ 11.32) - (13.25)}{(\cancel{44.01}\ 11.32) - (31.96)} = \frac{-1.93}{-20.64}$$

$$= 91\ \%$$

80% Recharge = ~~36.09~~ 15.45

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG	Well No: MW- 3
	Project Name: ARCO 5350	Date: 1/20/2005
	Project Number: 08BP.U5350.04	Sample Time: 1410
	SECOR Rep: J. Morell / Checked by:	Sample No: MW- 3

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS
Water Level Meter Type & ID: Solinist # 2	Borehole Diameter (in): 8 (10) 12
Purging Equipment / Method: ___ Vac Truck X Bailer ___ Submersible Pump ___ Other	Casing Diameter (in): 2 (4)
pH Temp/Conductivity Meter Type / ID: 4	Depth to Water (DTW_1) (ft): 13.59
Sampling Method: ___ Teflon Bailer X Disposable Bailer ___ Other:	Total Well Depth (DTB) (ft): 34.72 / Water Column: 21.13
	Floating Product: — / Thickness (in): —
Decontamination Method: ___ Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___ Other:	Borehole Volume (gal): 31.70 / 1.5 Borehole Volumes (gal): 47.54

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1147	Started Purging					
1200	27.02	32	7.03	24.2	9.48	Brown, odorless, cloudy
1210	32.55	48	7.05	24.0	9.60	"
1410	14.93	Sample				

Maximum Drawdown (DTW_2) (ft) = 32.55

H^2O Removal Rate (GPM) = 2.08

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1410

Depth to Water at time of sampling (DTW_3): 14.93

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

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

$$\% \text{ of Recovery} = 1 - \frac{(13.59)-(14.93)}{(13.59)-(32.55)} = \frac{1.34}{18.96} = 93\ \%$$

80% Recharge = 17.38

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 4
	Project Name: ARCO 5350		Date: 1/20/2005
	Project Number: 08BP.U5350.04		Sample Time: 1430
	SECOR Rep: E. Gauhorek	Checked by:	Sample No: MW- 4

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 5	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: ___Vac Truck ___Bailer X Submersible Pump ___Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID:	Depth to Water (DTW_1) (ft): 7.35	
Sampling Method: ___Teflon Bailer X Disposable Bailer ___Other:	Total Well Depth (DTB) (ft): 29.90	Water Column: 22.55
	Floating Product: —	Thickness (in): —
Decontamination Method: ___Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___Other:	Borehole Volume (gal): 33.83	1.5 Borehole Volumes (gal): 50.74

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1222	Started Purging					
1239	21.17	34	6.73	23.6	9.56m	cloudy, gray, no odor
1252	27.01	51	6.77	23.5	10.12m	" " "
1430	8.89	Sample				

Maximum Drawdown (DTW_2) (ft) = 27.01

H^2O Removal Rate (GPM) = 1.7

X Fast Recharging Well

___Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1430

Depth to Water at time of sampling (DTW_3): 8.89

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

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

$$\% \text{ of Recovery} = 1 - \frac{(7.35)-(8.89)}{(7.35)-(27.01)} = \frac{-1.54}{-19.66} = 92\%$$

80% Recharge = 11.98

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 5
	Project Name: ARCO 5350		Date: 1/20/2005
	Project Number: 08BP.U5350.04		Sample Time: 13:23
	SECOR Rep: J. Morell	Checked by:	Sample No: MW- 5

PURGING & SAMPLING EQUIPMENT / METHOD

Water Level Meter Type & ID: Solinist # 1

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): 12.31

Total Well Depth (DTB) (ft): 29.75

Water Column: 17.44

Floating Product: —

Thickness (in): —

Borehole Volume (gal): 26.16

1.5 Borehole Volumes (gal): 39.24

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1054	Started Purging					
1106	25.12	26	6.93	24.7	1160	Clear/hazy, strong odor
1123	Dry	39.5	6.89	24.6	1158	"
1323	14.93	Sample				

Maximum Drawdown (DTW_2) (ft) = 29.75

H^2O Removal Rate (GPM) = 1.36

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1323

Depth to Water at time of sampling (DTW_3): 14.93

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: long time to purge

RECOVERY CALCULATIONS

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

$$\% \text{ of Recovery} = 1 - \frac{(12.31)-(14.93)}{(12.31)-(29.75)} = \frac{2.62}{17.44} = 85\%$$

80% Recharge = 15.79

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG	Well No: MW- 6
	Project Name: ARCO 5350	Date: 1/20/2005
	Project Number: 08BP.U5350.04	Sample Time: 1448
	SECOR Rep: J. Morell / Checked by: (m)	Sample No: MW- 6

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS
Water Level Meter Type & ID: Solinist # 2	Borehole Diameter (in): 8 (10) 12
Purging Equipment / Method: ___ Vac Truck ___ Submersible Pump X Bailer ___ Other	Casing Diameter (in): 2 (4)
pH Temp/Conductivity Meter Type / ID: 4	Depth to Water (DTW_1) (ft): 12.10
Sampling Method: ___ Teflon Bailer X Disposable Bailer ___ Other:	Total Well Depth (DTB) (ft): 29.95 / Water Column: 17.85
Decontamination Method: ___ Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___ Other:	Floating Product: — / Thickness (in): —
	Borehole Volume (gal): 26.78 / 1.5 Borehole Volumes (gal): 40.16

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1227	Started Purging					
1243	23.13	27	7.04	23.9	5.38	Grey, odor, cloudy, sheen
1248	Dry	40.5	7.07	24.0	5.36	" "
1448	13.37	Sample				

Maximum Drawdown (DTW_2) (ft) = 29.95

H^2O Removal Rate (GPM) = 1.92

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1448

Depth to Water at time of sampling (DTW_3): 13.37

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: Sheen observed

RECOVERY CALCULATIONS

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

$$\% \text{ of Recovery} = 1 - \frac{(12.10)-(13.37)}{(12.10)-(29.95)} = \frac{1.27}{17.85} = 93\%$$

80% Recharge = 15.67

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 7
	Project Name: ARCO 5350		Date: 1/20/2005
	Project Number: 08BP.U5350.04		Sample Time: 1414
	SECOR Rep: W Wong	Checked by: M	Sample No: MW- 7

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 3	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: ___ Vac Truck, X Bailer, ___ Submersible Pump, ___ Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID: 4	Depth to Water (DTW_1) (ft): 9.84	
Sampling Method: ___ Teflon Bailer, X Disposable Bailer, ___ Other:	Total Well Depth (DTB) (ft): 25.11	Water Column: 15.27
	Floating Product: —	Thickness (in): —
Decontamination Method: ___ Steam / High Pressure Wash, X 3 Stage (Alconox, Tap & DI rinse), ___ Other:	Borehole Volume (gal): 22.91	1.5 Borehole Volumes (gal): 34.36

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1217	Started Purging					
1225	20.29	23	7.28	23.9	3210	gray/tan, fine/med silt, odorless
1231	23.34	34.5	7.27	23.8	3320	"
1414	9.94	Sample				

Maximum Drawdown (DTW_2) (ft) = 23.34

H^2O Removal Rate (GPM) = 2.46

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1414

Depth to Water at time of sampling (DTW_3): 9.94

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

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

$$\% \text{ of Recovery} = 1 - \frac{(9.84)-(9.94)}{(9.84)-(23.34)} = \frac{-.1}{-13.50}$$

$$= 99\ \%$$

80% Recharge = 12.54

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 8
	Project Name ARCO 5350		Date: 1/20/2005
	Project Number: 08BP.U5350.04		Sample Time: 1315
	SECOR Rep: E. Leachorek	Checked by: [signature]	Sample No: MW- 8

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS
Water Level Meter Type & ID: Solinist # 5	Borehole Diameter (in): 8 (10) 12
Purging Equipment / Method: ___Vac Truck X Submersible Pump ___Bailer ___Other	Casing Diameter (in): 2 (4)
pH Temp/Conductivity Meter Type / ID:	Depth to Water (DTW_1) (ft): 11.62
Sampling Method: ___Teflon Bailer X Disposable Bailer ___Other:	Total Well Depth (DTB) (ft): 25.12 — Water Column: 13.5
	Floating Product: — — Thickness (in): —
Decontamination Method: ___Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___Other:	Borehole Volume (gal): 20.25 — 1.5 Borehole Volumes (gal): 30.38

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1116	Started Purging					
1127	25.00	21	7.25	23.9	3.40m	clear, n odor
1150	25.00	30.5	7.21	24.3	3.45m	" "
1315	13.52	Sample				

Maximum Drawdown (DTW_2) (ft) = 25.00

H^2O Removal Rate (GPM) = 0.90

X Fast Recharging Well

___Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1315

Depth to Water at time of sampling (DTW_3): 13.52

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

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

$$\% \text{ of Recovery} = 1 - \frac{(11.62)-(13.52)}{(11.62)-\cancel{(25.12)}\ 25.00} = \frac{-1.9}{-13.38} = 86\ \%$$

80% Recharge = 14.30

SECOR INTERNATIONAL INCORPORATED	WELL PURGING / SAMPLING LOG		Well No: MW- 9
	Project Name: ARCO 5350		Date: 1/20/2005
	Project Number: 08BP.U5350.04		Sample Time: 1404
	SECOR Rep: F. Vacharek	Checked by:	Sample No: MW- 9

PURGING & SAMPLING EQUIPMENT / METHOD	WELL SPECIFICATIONS & MEASUREMENTS	
Water Level Meter Type & ID: Solinist # 5	Borehole Diameter (in): 8 (10) 12	
Purging Equipment / Method: ___ Vac Truck X Bailer ___ Submersible Pump ___ Other	Casing Diameter (in): 2 (4)	
pH Temp/Conductivity Meter Type / ID:	Depth to Water (DTW_1) (ft): 15.62	
Sampling Method: ___ Teflon Bailer X Disposable Bailer ___ Other:	Total Well Depth (DTB) (ft): 25.13	Water Column: 9.51
	Floating Product: —	Thickness (in): —
Decontamination Method: ___ Steam / High Pressure Wash X 3 Stage (Alconox, Tap & DI rinse) ___ Other:	Borehole Volume (gal): 14.27	1.5 Borehole Volumes (gal): 21.40

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1059	Started Purging					
1201	DRY	15	7.29	24.3	5.39m	brown, cloudy, no odor
1204	DRY	21.5	7.32	24.3	5.27m	" " "
1404	17.30	Sample				

Maximum Drawdown (DTW_2) (ft) = 25.13

H^2O Removal Rate (GPM) = 6.33

X Fast Recharging Well

___ Slow Recharging Well

SAMPLING INFORMATION

Time Sampled: 1404

Depth to Water at time of sampling (DTW_3): 17.30

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

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

$$\% \text{ of Recovery} = 1 - \frac{(15.62)-(17.30)}{(15.62)-(25.13)} = \frac{-1.68}{-9.51} = 82\%$$

80% Recharge = 17.52

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

February 10, 2005

STL LOT NUMBER: **E5A210247**
PO/CONTRACT: GEM-6-21909

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

Dear KURT MYERS,

This report contains the analytical results for the 11 samples received under chain of custody by STL Los Angeles on January 21, 2005. These samples are associated with your ARCO #5350 project.

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

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

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

000071

This report contains _____ pages.

CASE NARRATIVE

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

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

Please note that the trip blank and the equipment blank were included in the cooler for this project, but they were not indicated on the chain of custody (COC). Secor personnel are aware of this situation and the trip blank and the equipment blank were placed on Hold.

Please note that the ferrous iron result is bias high for samples –002 and –006, and should not be used as a basis for decision making in the field. The lab believes the bias high result is most likely due to the sample remaining in an acidic environment beyond the time frame recommended by Standard Methods 3500D.

As defined, Ferrous Iron samples should be analyzed in the field. As this often is not practical, the samples should be collected in unpreserved containers and preserved by the lab prior to analysis. In this case, the lab provided prepreserved containers to you for us in collecting samples for this analysis. This led to the samples being maintained in an acidic state thus converting Ferric Iron to its Ferrous state.

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

Sincerely,

Sabina Sudoko
Project Manager
CC: Project File

ARCO SITE #5350

ESA210247

Page___ of___.

Chain of Custody Record

Project Name: ARCO 5350 RNA Sampling
BP BU/AR Region/Enfos Segment: Retail
State or Lead Regulatory Agency: County of San Diego, DEH
Requested Due Date (mm/dd/yy): Standard TAT

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

Lab Name:	STL Los Angeles	BP/AR Facility No.:	5350	Consultant/Contractor:	SECOR
Address:	1721 Grand Ave.	BP/AR Facility Address:	3804 Plaza Dr., Oceanside, CA	Address:	2655 Camino Del Rio North, Suite 302
	Santa Ana, CA 92705-4808	Site Lat/Long:			San Diego, CA 92108
Lab PM:	Sabina Sudoko	California Global ID No.:	T0607391302	Consultant/Contractor Project No.:	08BP.05350.05
Tele/Fax:	714.258.8610	Enfos Project No.:	G0BNM-001	Consultant/Contractor PM:	Kurt Myers
BP/AR PM Contact:	Roy Thun	Provision or RCOP:	Provision	Tele/Fax:	619.296.6195/6199
Address:	4 Centerpointe Dr.	Phase/WBS:	RAP (02)	Report Type & QC Level:	Normal
	La Palma, Ca 90623	Sub Phase/Task:	Analytical	E-mail EDD To:	kmyers@secor.com
Tele/Fax:	661.287.3855/222-2349	Cost Element:	Subcontracted Cost	Invoice to:	Atlantic Richfield Co.

Lab Bottle Order No:

Item No.	Sample Description	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No.	No. of Containers	Preservative: Unpreserved (1)	Preservative: H_2SO_4	Preservative: HNO_3 (1)	Preservative: HCl (3)	Preservative: Methanol	Preservative: 2% HCL (1)	BTEX 8021	BTEX/TPH	BTEX/Oxy/TPH	EPA 8260	EPA 8270	NO_3 + SO_4 EPA 300.0	TOTAL 1200L EPA 160.1/3	Fe, Mn, plus 1200 D EPA 160.1/3	Methane RSK175	Sample Point Lat/Long and Comments
1	MW-1	1248	11/20/05		X			6	X		X	X		X						X	X	X	X	
2	MW-2	1200						6																
3	MW-3	1410						6																
4	MW-4	1430						8																
5	MW-5	1533						6																
6	MW-6	1448						6																
7	MW-7	1414						6																
8	MW-8	1315						6																
9	MW-9	1404						6																
10																								

Sampler's Name: MARY MARKERMAN	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date / Time
Sampler's Company: SECOR	Mary Markerman/SECOR	11/20/05	1630		
Shipment Date: 11/20/05					
Shipment Method: FED EX					
Shipment Tracking No: 8482 4645 4016					

Special Instructions:

Custody Seals In Place Yes____ No____ Temp Blank Yes____ No____ Cooler Temperature on Receipt ____°F/C Trip Blank Yes____ No____

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

BP COC Rev. 4 10/1/04

3

ESA210247

Sudoko, Sabina

From: Mary Wackerman [mwackerman@secor.com]

Sent: Friday, January 21, 2005 8:25 AM

To: Sudoko, Sabina

Subject: ARCO 5350 Groundwater Samples

Hi Sabina,

As discussed in our telephone conversation, the trip blanks (Sample ID TB-5350-20050120) and equipment blanks (Sample ID EB-5350-20050120) for the 8015 GRO analysis and the 8260 BTEX and Oxys analysis are included in the sample cooler that is arriving at the lab today, however they were not logged onto the chain of custody. Please add them to the chain of custody and place them on hold. If you have any questions, please give me a call. Thanks.

Mary A. Wackerman
Staff Scientist
SECOR International Inc.
2655 Camino Del Rio North, Suite 302
San Diego, CA 92108
Phone: 619.296.6195
FAX: 619.296.6199
Cell: 619.347.7343

STL LOS ANGELES - PROJECT RECEIPT CHECKLIST Date: 01/21/05

LIMS Lot #: E5A210247 Cooler #1 Quote #:

Client Name: ST COR Project: 5350

Received by: AB Date/Time Received: 01/21/05 @ 1030

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

****

	Initial / Date
Custody Seal Status Cooler: ☒ Intact ☐ Broken ☐ None	AB 01/21/05
Custody Seal Status Samples: ☐ Intact ☐ Broken ☒ None	
Custody Seal #(s): ☒ No Seal #	
Sampler Signature on COC ☐ Yes ☐ No ☒ N/A	
IR Gun # A Correction Factor 0.2°C IR passed daily verification ☒ Yes ☐ No	
Temperature - BLANK 5.9 °C +/- 0.2 CF = 5.7 °C	
Temperature – COOLER (___ °C ___ °C ___ °C ___ °C) = ___ avg °C +/- ___ CF = ___ °C	
Samples outside temperature criteria but received within 6 hours of final sampling ☐ Yes ☒ N/A	
Sample Container(s): ☐ STL-LA ☒ Client	
One COC/Multiple coolers: ☐ Yes- # coolers ___ All within temp criteria ☐ Yes ☐ No ☒ N/A	
One or more coolers with an anomaly: ☐ Yes – (fill out PRC for each) ☒ N/A	
Samples: ☒ Intact ☐ Broken ☐ Other	
pH measured: ☒ Yes ☐ Anomaly (if checked, notify lab and file NCM) ☐ N/A	
Anomalies: ☒ No ☒ Yes – complete CUR and Create NCM NCM #	
Complete shipment received in good condition with correct temperatures, containers, labels, volumes preservatives and within method specified holding times. ☒ Yes ☒ N/A	
Labeled by: AB Labeling checked AB	

****

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

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

_____

_____

_____

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

Headspace Anomaly ☒ N/A AB 01/21/05

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

LIMS Lot # E5A210247

PROJECT RECEIPT CHECKLIST Cont'd

Fraction	1-3	4	5-9											
VOAH/ *	3	5	3											
~~500PP07~~	1	1	1											
250PB	1	1	1											
~~250AGBH~~	1	1	1											

* VOA with headspace/bubbles < 6mm

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

Condition Upon Receipt Anomaly Form

☐ N/A _____

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

Comments: 6 Vials of TB not listed on COC

_ Corrective Action Implemented:

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

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

Logged by/Date: AB 01/27/05

PM Review/Date: 1/24 SL

STL LOS ANGELES - PROJECT RECEIPT CHECKLIST Date: 01/21/05

Cooler #2

LIMS Lot #: ESA 210247 Quote #: _____

Client Name: SECOR Project: _____

Received by: AB Date/Time Received: 1/21/05 @ 1030

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

****

	Initial / Date
Custody Seal Status Cooler: ☑ Intact ☐ Broken ☐ None	AB 01/21/05
Custody Seal Status Samples: ☐ Intact ☐ Broken ☑ None	
Custody Seal #(s): _____ ☒ No Seal #	
Sampler Signature on COC ☐ Yes ☐ No ☒ N/A	
IR Gun # A Correction Factor ____ °C IR passed daily verification ☑ Yes ☐ No	
Temperature - BLANK 5.9 °C +/- 0.2 CF = 5.7 °C	01/21/05 AB
Temperature – COOLER (____ °C ____ °C ____ °C ____ °C) = ____ avg °C +/- ____ CF = ____ °C	AB 01/21/05
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 2 All within temp criteria ☐ Yes ☐ No ☒ N/A	
One or more coolers with an anomaly: ☐ Yes – (fill out PRC for each) ☒ N/A	
Samples: ☑ Intact ☐ Broken ☐ Other _____	
pH measured: ☐ Yes ☐ Anomaly (if checked, notify lab and file NCM) ☒ N/A	
Anomalies: ☐ No ☑ Yes – complete CUR and Create NCM NCM # _____	
Complete shipment received in good condition with correct temperatures, containers, labels, volumes preservatives and within method specified holding times. ☐ Yes ☒ N/A	
Labeled by: AB Labeling checked AB	

****

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

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

_____

_____

_____

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

Headspace Anomaly ☑ N/A AB 01/21/05

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

LIMS Lot # E5A210247

PROJECT RECEIPT CHECKLIST Cont'd

Fraction	1-7	10	11											
VOAH/ *	6	6	6											

* VOA with headspace/bubbles < 6mm
H: HCL, S: H2SO4, N: HNO3, V: VOA, SL, Sleeve, E: Encore, PB: Poly Bottle, CGB: Clear Glass Bottle, AGJ: Amber Glass Jar, T: Terracore
AGB: Amber Glass Bottle, n/f/l:HNO3-Lab filtered, n/f:HNO3-Field filtered, znna: Zinc Acetate/Sodium Hydroxide, Na2s2o3: sodium thiosulfate

Condition Upon Receipt Anomaly Form

☐ N/A _____

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

Comments:
TB & EB Samples not on COC

_ 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: [illegible] 1/21/05

PM Review/Date: 1/24 SC

SECOR International Inc

Client Sample ID: MW-1

GC/MS Volatiles

Lot-Sample #...:	E5A210247-001	Work Order #...:	G218Q1AN	Matrix.....:	W
Date Sampled...:	01/20/05 13:48	Date Received..:	01/21/05 10:30	MS Run #.....:	5034269
Prep Date.....:	02/03/05	Analysis Date..:	02/03/05		
Prep Batch #...:	5034498	Analysis Time..:	02:16		
Dilution Factor:	1				
Analyst ID.....:	000038	Instrument ID..:	MSQ		
		Method.....:	SW846 8260B		

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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	95	(75 - 120)
1,2-Dichloroethane-d4	105	(65 - 130)
Toluene-d8	102	(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 #...:	E5A210247-001	Work Order #...:	G218Q1AD	Matrix.....:	W
Date Sampled...:	01/20/05 13:48	Date Received..:	01/21/05 10:30	MS Run #.....:	
Prep Date.....:	01/26/05	Analysis Date..:	01/26/05		
Prep Batch #...:	5027321	Analysis Time..:	14:59		
Dilution Factor:	1				
Analyst ID.....:	402431	Instrument ID..:	GC1		
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methane	ND	1.0	ug/L

SECOR International Inc

Client Sample ID: MW-1

GC Volatiles

Lot-Sample #...:	E5A210247-001	Work Order #...:	G218Q1AP	Matrix.....:	W
Date Sampled...:	01/20/05 13:48	Date Received..:	01/21/05 10:30	MS Run #.....:	5025150
Prep Date.....:	01/24/05	Analysis Date..:	01/24/05		
Prep Batch #...:	5025251	Analysis Time..:	23:26		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

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

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

SECOR International Inc

Client Sample ID: MW-1

TOTAL Metals

Lot-Sample #...: E5A210247-001 Matrix.....: W
Date Sampled...: 01/20/05 13:48 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 5024251						
Iron	<366	100	ug/L	SW846 6010B	01/24-01/25/05	G218Q1AF
		Dilution Factor: 1		Analysis Time..: 17:28	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5024155		

SECOR International Inc

Client Sample ID: MW-1

General Chemistry

Lot-Sample #...: E5A210247-001 Work Order #...: G218Q Matrix.....: W
Date Sampled...: 01/20/05 13:48 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ferrous Iron	ND	200	ug/L	SM18 3500-FE D	01/21/05	5021385
		Dilution Factor: 1		Analysis Time..: 12:30	Analyst ID.....: 021088	
		Instrument ID..: NO INST		MS Run #.....: 5021204		
Nitrate as N	4590	500	ug/L	MCAWW 300.0A	01/21/05	5021304
		Dilution Factor: 5		Analysis Time..: 20:49ST	Analyst ID.....: 0000224	
		Instrument ID..: W01		MS Run #.....: 5021216		
Sulfate	442000	25000	ug/L	MCAWW 300.0A	01/21-01/22/05	5021305
		Dilution Factor: 25		Analysis Time..: 08:39	Analyst ID.....: 0000226	
		Instrument ID..: W01		MS Run #.....: 5021217		

SECOR International Inc

Client Sample ID: MW-2

GC/MS Volatiles

Lot-Sample #...:	E5A210247-002	Work Order #...:	G21841AG	Matrix.....:	W
Date Sampled...:	01/20/05 12:50	Date Received..:	01/21/05 10:30	MS Run #.....:	5034269
Prep Date.....:	02/03/05	Analysis Date..:	02/03/05		
Prep Batch #...:	5034498	Analysis Time..:	02:38		
Dilution Factor:	125				
Analyst ID.....:	000038	Instrument ID..:	MSQ		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diisopropyl Ether (DIPE)	ND	250	ug/L
Benzene	230	120	ug/L
Ethanol	ND IO	62000	ug/L
Ethylbenzene	2400	120	ug/L
tert-Butyl alcohol	ND	3100	ug/L
Toluene	3400	120	ug/L
o-Xylene	5100	120	ug/L
Xylenes (total)	14000	120	ug/L
m-Xylene & p-Xylene	9200	120	ug/L
Methyl tert-butyl ether (MTBE)	340	120	ug/L
Ethyl-t-Butyl Ether (ETBE)	ND	250	ug/L
Tert-amyl methyl ether (TAME)	ND	250	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	98	(75 - 120)
1,2-Dichloroethane-d4	114	(65 - 130)
Toluene-d8	100	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-2

GC Volatiles

Lot-Sample #...:	E5A210247-002	Work Order #...:	G21841AD	Matrix.....:	W
Date Sampled...:	01/20/05 12:50	Date Received..:	01/21/05 10:30	MS Run #.....:	
Prep Date.....:	01/26/05	Analysis Date..:	01/26/05		
Prep Batch #...:	5027321	Analysis Time..:	15:20		
Dilution Factor:	1				
Analyst ID.....:	402431	Instrument ID..:	GC1		
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methane	510	1.0	ug/L

SECOR International Inc

Client Sample ID: MW-2

GC Volatiles

Lot-Sample #...:	E5A210247-002	Work Order #...:	G21841AH	Matrix.....:	W
Date Sampled...:	01/20/05 12:50	Date Received..:	01/21/05 10:30	MS Run #.....:	5025150
Prep Date.....:	01/24/05	Analysis Date..:	01/24/05		
Prep Batch #...:	5025251	Analysis Time..:	23:54		
Dilution Factor:	10				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	31000	1000	ug/L

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

SECOR International Inc

Client Sample ID: MW-2

TOTAL Metals

Lot-Sample #...: E5A210247-002 Matrix.....: W
Date Sampled...: 01/20/05 12:50 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 5024251						
Iron	1620	100	ug/L	SW846 6010B	01/24-01/25/05	G21841AF
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5024155		

SECOR International Inc

Client Sample ID: MW-2

General Chemistry

Lot-Sample #...: E5A210247-002 Work Order #...: G2184 Matrix.....: W
Date Sampled...: 01/20/05 12:50 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ferrous Iron	1100	200	ug/L	SM18 3500-FE D	01/21/05	5021385
		Dilution Factor: 1		Analysis Time..: 12:30	Analyst ID.....: 0210887	
		Instrument ID..: NO INST		MS Run #.....: 5021204		
Nitrate as N	ND	100	ug/L	MCAWW 300.0A	01/21/05	5021304
		Dilution Factor: 1		Analysis Time..: 21:05ST	Analyst ID.....: 0000224	
		Instrument ID..: W01		MS Run #.....: 5021216		
Sulfate	2480	1000	ug/L	MCAWW 300.0A	01/21/05	5021305
		Dilution Factor: 1		Analysis Time..: 21:05	Analyst ID.....: 0000226	
		Instrument ID..: W01		MS Run #.....: 5021217		

SECOR International Inc

Client Sample ID: MW-3

GC/MS Volatiles

Lot-Sample #...:	E5A210247-003	Work Order #...:	G21851AG	Matrix.....:	W
Date Sampled...:	01/20/05 14:10	Date Received..:	01/21/05 10:30	MS Run #.....:	5034269
Prep Date.....:	02/03/05	Analysis Date..:	02/03/05		
Prep Batch #...:	5034498	Analysis Time..:	03:00		
Dilution Factor:	1				
Analyst ID.....:	000038	Instrument ID..:	MSQ		
		Method.....:	SW846 8260B		

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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	94	(75 - 120)
1,2-Dichloroethane-d4	111	(65 - 130)
Toluene-d8	100	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-3

GC Volatiles

Lot-Sample #...:	E5A210247-003	Work Order #...:	G21851AD	Matrix.....:	W
Date Sampled...:	01/20/05 14:10	Date Received..:	01/21/05 10:30	MS Run #.....:	
Prep Date.....:	01/26/05	Analysis Date..:	01/26/05		
Prep Batch #...:	5027321	Analysis Time..:	15:50		
Dilution Factor:	1				
Analyst ID.....:	402431	Instrument ID..:	GC1		
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methane	ND	1.0	ug/L

SECOR International Inc

Client Sample ID: MW-3

GC Volatiles

Lot-Sample #...:	E5A210247-003	Work Order #...:	G21851AH	Matrix.....:	W
Date Sampled...:	01/20/05 14:10	Date Received..:	01/21/05 10:30	MS Run #.....:	5025150
Prep Date.....:	01/24/05	Analysis Date..:	01/25/05		
Prep Batch #...:	5025251	Analysis Time..:	00:22		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

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

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

SECOR International Inc

Client Sample ID: MW-3

TOTAL Metals

Lot-Sample #...: E5A210247-003 Matrix.....: W
Date Sampled...: 01/20/05 14:10 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 5024251						
Iron	590	100	ug/L	SW846 6010B	01/24-01/25/05	G21851AF
		Dilution Factor: 1		Analysis Time..: 18:17	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5024155		

SECOR International Inc

Client Sample ID: MW-3

General Chemistry

Lot-Sample #...: E5A210247-003 Work Order #...: G2185 Matrix.....: W
Date Sampled...: 01/20/05 14:10 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ferrous Iron	ND	200	ug/L	SM18 3500-FE D	01/21/05	5021385
		Dilution Factor: 1		Analysis Time..: 12:30	Analyst ID.....: 0210887	
		Instrument ID..: NO INST		MS Run #.....: 5021204		
Nitrate as N	4230	500	ug/L	MCAWW 300.0A	01/21/05	5021304
		Dilution Factor: 5		Analysis Time..: 21:22ST	Analyst ID.....: 0000224	
		Instrument ID..: W01		MS Run #.....: 5021216		
Sulfate	374000	25000	ug/L	MCAWW 300.0A	01/21/05	5021305
		Dilution Factor: 25		Analysis Time..: 09:12	Analyst ID.....: 0000226	
		Instrument ID..: W01		MS Run #.....: 5021217		

SECOR International Inc

Client Sample ID: MW-4

GC/MS Volatiles

Lot-Sample #...:	E5A210247-004	Work Order #...:	G219C1AG	Matrix.....:	W
Date Sampled...:	01/20/05 14:30	Date Received..:	01/21/05 10:30	MS Run #.....:	5034269
Prep Date.....:	02/03/05	Analysis Date..:	02/03/05		
Prep Batch #...:	5034498	Analysis Time..:	03:21		
Dilution Factor:	1				
Analyst ID.....:	000038	Instrument ID..:	MSQ		
		Method.....:	SW846 8260B		

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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	97	(75 - 120)
1,2-Dichloroethane-d4	111	(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-4

GC Volatiles

Lot-Sample #...:	E5A210247-004	Work Order #...:	G219C1AD	Matrix.....:	W
Date Sampled...:	01/20/05 14:30	Date Received..:	01/21/05 10:30	MS Run #.....:	
Prep Date.....:	01/26/05	Analysis Date..:	01/26/05		
Prep Batch #...:	5027321	Analysis Time..:	16:14		
Dilution Factor:	1				
Analyst ID.....:	402431	Instrument ID..:	GC1		
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methane	ND	1.0	ug/L

SECOR International Inc

Client Sample ID: MW-4

GC Volatiles

Lot-Sample #...:	E5A210247-004	Work Order #...:	G219C1AH	Matrix.....:	W
Date Sampled...:	01/20/05 14:30	Date Received..:	01/21/05 10:30	MS Run #.....:	5025150
Prep Date.....:	01/24/05	Analysis Date..:	01/25/05		
Prep Batch #...:	5025251	Analysis Time..:	00:50		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

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

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

SECOR International Inc

Client Sample ID: MW-4

TOTAL Metals

Lot-Sample #...: E5A210247-004 Matrix.....: W
Date Sampled...: 01/20/05 14:30 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 5024251						
Iron	176	100	ug/L	SW846 6010B	01/24-01/25/05	G219C1AF
		Dilution Factor: 1		Analysis Time..: 18:25	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5024155		

SECOR International Inc

Client Sample ID: MW-4

General Chemistry

Lot-Sample #...: E5A210247-004 Work Order #...: G219C Matrix.....: W
Date Sampled...: 01/20/05 14:30 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ferrous Iron	ND	200	ug/L	SM18 3500-FE D	01/21/05	5021385
		Dilution Factor: 1		Analysis Time..: 12:30	Analyst ID.....: 0210887	
		Instrument ID..: NO INST		MS Run #.....: 5021204		
Nitrate as N	713	100	ug/L	MCAWW 300.0A	01/21-01/22/05	5021304
		Dilution Factor: 1		Analysis Time..: 10:02ST	Analyst ID.....: 0000224	
		Instrument ID..: W01		MS Run #.....: 5021216		
Sulfate	689000	25000	ug/L	MCAWW 300.0A	01/21-01/22/05	5021305
		Dilution Factor: 25		Analysis Time..: 13:36	Analyst ID.....: 0000226	
		Instrument ID..: W01		MS Run #.....: 5021217		

SECOR International Inc

Client Sample ID: MW-5

GC/MS Volatiles

Lot-Sample #...:	E5A210247-005	Work Order #...:	G219D1AG	Matrix.....:	W
Date Sampled...:	01/20/05 13:23	Date Received..:	01/21/05 10:30	MS Run #.....:	5034269
Prep Date.....:	02/03/05	Analysis Date..:	02/03/05		
Prep Batch #...:	5034498	Analysis Time..:	03:43		
Dilution Factor:	5				
Analyst ID.....:	000038	Instrument ID..:	MSQ		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diisopropyl Ether (DIPE)	ND	10	ug/L
Benzene	ND	5.0	ug/L
Ethanol	ND IO	2500	ug/L
Ethylbenzene	**65**	**5.0**	**ug/L**
tert-Butyl alcohol	ND	120	ug/L
Toluene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L
m-Xylene & p-Xylene	ND	5.0	ug/L
Methyl tert-butyl ether (MTBE)	**390**	**5.0**	**ug/L**
Ethyl-t-Butyl Ether (ETBE)	ND	10	ug/L
Tert-amyl methyl ether (TAME)	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	99	(75 - 120)
1,2-Dichloroethane-d4	109	(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-5

GC Volatiles

Lot-Sample #...:	E5A210247-005	Work Order #...:	G219D1AD	Matrix.....:	W
Date Sampled...:	01/20/05 13:23	Date Received..:	01/21/05 10:30	MS Run #.....:	
Prep Date.....:	01/26/05	Analysis Date..:	01/26/05		
Prep Batch #...:	5027321	Analysis Time..:	16:38		
Dilution Factor:	1				
Analyst ID.....:	402431	Instrument ID..:	GC1		
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methane	370	1.0	ug/L

SECOR International Inc

Client Sample ID: MW-5

GC Volatiles

Lot-Sample #...:	E5A210247-005	Work Order #...:	G219D1AH	Matrix.....:	W
Date Sampled...:	01/20/05 13:23	Date Received..:	01/21/05 10:30	MS Run #.....:	5025150
Prep Date.....:	01/24/05	Analysis Date..:	01/25/05		
Prep Batch #...:	5025251	Analysis Time..:	01:17		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	1400	100	ug/L

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

SECOR International Inc

Client Sample ID: MW-5

TOTAL Metals

Lot-Sample #...: E5A210247-005 Matrix.....: W
Date Sampled...: 01/20/05 13:23 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 5024251						
Iron	670	100	ug/L	SW846 6010B	01/24-01/25/05	G219D1AF
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5024155		

SECOR International Inc

Client Sample ID: MW-5

General Chemistry

Lot-Sample #...: E5A210247-005 Work Order #...: G219D Matrix.....: W
Date Sampled...: 01/20/05 13:23 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ferrous Iron	ND	200	ug/L	SM18 3500-FE D	01/21/05	5021385
		Dilution Factor: 1		Analysis Time..: 12:30	Analyst ID.....: 0210887	
		Instrument ID..: NO INST		MS Run #.....: 5021204		
Nitrate as N	ND	100	ug/L	MCAWW 300.0A	01/21-01/22/05	5021304
		Dilution Factor: 1		Analysis Time..: 10:18ST	Analyst ID.....: 0000224	
		Instrument ID..: W01		MS Run #.....: 5021216		
Sulfate	806000	50000	ug/L	MCAWW 300.0A	01/21-01/22/05	5021305
		Dilution Factor: 50		Analysis Time..: 13:53	Analyst ID.....: 0000226	
		Instrument ID..: W01		MS Run #.....: 5021217		

SECOR International Inc

Client Sample ID: MW-6

GC/MS Volatiles

Lot-Sample #...:	E5A210247-006	Work Order #...:	G219E1AG	Matrix.....:	W
Date Sampled...:	01/20/05 14:48	Date Received..:	01/21/05 10:30	MS Run #.....:	5034269
Prep Date.....:	02/03/05	Analysis Date..:	02/03/05		
Prep Batch #...:	5034498	Analysis Time..:	04:04		
Dilution Factor:	125				
Analyst ID.....:	000038	Instrument ID..:	MSQ		
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diisopropyl Ether (DIPE)	ND	250	ug/L
Benzene	1800	120	ug/L
Ethanol	ND IO	62000	ug/L
Ethylbenzene	1600	120	ug/L
tert-Butyl alcohol	ND	3100	ug/L
Toluene	1600	120	ug/L
o-Xylene	2800	120	ug/L
Xylenes (total)	6300	120	ug/L
m-Xylene & p-Xylene	3600	120	ug/L
Methyl tert-butyl ether (MTBE)	5600	120	ug/L
Ethyl-t-Butyl Ether (ETBE)	ND	250	ug/L
Tert-amyl methyl ether (TAME)	ND	250	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	94	(75 - 120)
1,2-Dichloroethane-d4	101	(65 - 130)
Toluene-d8	98	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

SECOR International Inc

Client Sample ID: MW-6

GC Volatiles

Lot-Sample #...:	E5A210247-006	Work Order #...:	G219E1AD	Matrix.....:	W
Date Sampled...:	01/20/05 14:48	Date Received..:	01/21/05 10:30	MS Run #.....:	
Prep Date.....:	01/26/05	Analysis Date..:	01/26/05		
Prep Batch #...:	5027321	Analysis Time..:	17:01		
Dilution Factor:	1				
Analyst ID.....:	402431	Instrument ID..:	GC1		
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methane	370	1.0	ug/L

SECOR International Inc

Client Sample ID: MW-6

GC Volatiles

Lot-Sample #...:	E5A210247-006	Work Order #...:	G219E1AH	Matrix.....:	W
Date Sampled...:	01/20/05 14:48	Date Received..:	01/21/05 10:30	MS Run #.....:	5025150
Prep Date.....:	01/24/05	Analysis Date..:	01/25/05		
Prep Batch #...:	5025251	Analysis Time..:	04:05		
Dilution Factor:	10				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
GRO (C6 - C12)	20000	1000	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	104	(70 - 130)

SECOR International Inc

Client Sample ID: MW-6

TOTAL Metals

Lot-Sample #...: E5A210247-006 Matrix.....: W
Date Sampled...: 01/20/05 14:48 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 5024251						
Iron	836	100	ug/L	SW846 6010B	01/24-01/25/05	G219E1AF
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5024155		

SECOR International Inc

Client Sample ID: MW-6

General Chemistry

Lot-Sample #...: E5A210247-006 Work Order #...: G219E Matrix.....: W
Date Sampled...: 01/20/05 14:48 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ferrous Iron	853	200	ug/L	SM18 3500-FE D	01/21/05	5021385
		Dilution Factor: 1		Analysis Time..: 12:30	Analyst ID.....: 0210887	
		Instrument ID..: NO INST		MS Run #.....: 5021204		
Nitrate as N	ND	100	ug/L	MCAWW 300.0A	01/21-01/22/05	5021304
		Dilution Factor: 1		Analysis Time..: 10:35ST	Analyst ID.....: 0000224	
		Instrument ID..: W01		MS Run #.....: 5021216		
Sulfate	49500	1000	ug/L	MCAWW 300.0A	01/21/05	5021305
		Dilution Factor: 1		Analysis Time..: 22:11	Analyst ID.....: 0000226	
		Instrument ID..: W01		MS Run #.....: 5021217		

SECOR International Inc

Client Sample ID: MW-7

GC/MS Volatiles

Lot-Sample #...:	E5A210247-007	Work Order #...:	G219G1AG	Matrix.....:	W
Date Sampled...:	01/20/05 14:14	Date Received..:	01/21/05 10:30	MS Run #.....:	5034312
Prep Date.....:	02/03/05	Analysis Date..:	02/03/05		
Prep Batch #...:	5034565	Analysis Time..:	13:14		
Dilution Factor:	1				
Analyst ID.....:	015590	Instrument ID..:	MSQ		
		Method.....:	SW846 8260B		

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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	96	(75 - 120)
1,2-Dichloroethane-d4	105	(65 - 130)
Toluene-d8	102	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

IB CCV recovery above limit; analyte not detected.

SECOR International Inc

Client Sample ID: MW-7

GC Volatiles

Lot-Sample #...:	E5A210247-007	Work Order #...:	G219G1AD	Matrix.....:	W
Date Sampled...:	01/20/05 14:14	Date Received..:	01/21/05 10:30	MS Run #.....:	
Prep Date.....:	01/26/05	Analysis Date..:	01/26/05		
Prep Batch #...:	5027321	Analysis Time..:	17:26		
Dilution Factor:	1				
Analyst ID.....:	402431	Instrument ID..:	GC1		
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methane	ND	1.0	ug/L

SECOR International Inc

Client Sample ID: MW-7

GC Volatiles

Lot-Sample #...:	E5A210247-007	Work Order #...:	G219G1AH	Matrix.....:	W
Date Sampled...:	01/20/05 14:14	Date Received..:	01/21/05 10:30	MS Run #.....:	5025150
Prep Date.....:	01/24/05	Analysis Date..:	01/25/05		
Prep Batch #...:	5025251	Analysis Time..:	01:45		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

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

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

SECOR International Inc

Client Sample ID: MW-7

TOTAL Metals

Lot-Sample #...: E5A210247-007 Matrix.....: W
Date Sampled...: 01/20/05 14:14 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 5024251						
Iron	301	100	ug/L	SW846 6010B	01/24-01/25/05	G219G1AF
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5024155		

SECOR International Inc

Client Sample ID: MW-7

General Chemistry

Lot-Sample #...: E5A210247-007 Work Order #...: G219G Matrix.....: W
Date Sampled...: 01/20/05 14:14 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ferrous Iron	ND	200	ug/L	SM18 3500-FE D	01/21/05	5021385
		Dilution Factor: 1		Analysis Time..: 12:30	Analyst ID.....: 0210887	
		Instrument ID..: NO INST		MS Run #.....: 5021204		
Nitrate as N	192	100	ug/L	MCAWW 300.0A	01/21-01/22/05	5021304
		Dilution Factor: 1		Analysis Time..: 10:51ST	Analyst ID.....: 0000224	
		Instrument ID..: W01		MS Run #.....: 5021216		
Sulfate	449000	50000	ug/L	MCAWW 300.0A	01/21-01/22/05	5021305
		Dilution Factor: 50		Analysis Time..: 14:26	Analyst ID.....: 0000226	
		Instrument ID..: W01		MS Run #.....: 5021217		

SECOR International Inc

Client Sample ID: MW-8

GC/MS Volatiles

Lot-Sample #...:	E5A210247-008	Work Order #...:	G219J1AG	Matrix.....:	W
Date Sampled...:	01/20/05 13:15	Date Received..:	01/21/05 10:30	MS Run #.....:	5034312
Prep Date.....:	02/03/05	Analysis Date..:	02/03/05		
Prep Batch #...:	5034565	Analysis Time..:	13:36		
Dilution Factor:	1				
Analyst ID.....:	015590	Instrument ID..:	MSQ		
		Method.....:	SW846 8260B		

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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	94	(75 - 120)
1,2-Dichloroethane-d4	96	(65 - 130)
Toluene-d8	100	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

IB CCV recovery above limit; analyte not detected.

SECOR International Inc

Client Sample ID: MW-8

GC Volatiles

Lot-Sample #...:	E5A210247-008	Work Order #...:	G219J1AD	Matrix.....:	W
Date Sampled...:	01/20/05 13:15	Date Received..:	01/21/05 10:30	MS Run #.....:	
Prep Date.....:	01/26/05	Analysis Date..:	01/26/05		
Prep Batch #...:	5027321	Analysis Time..:	17:54		
Dilution Factor:	1				
Analyst ID.....:	402431	Instrument ID..:	GC1		
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methane	ND	1.0	ug/L

SECOR International Inc

Client Sample ID: MW-8

GC Volatiles

Lot-Sample #...:	E5A210247-008	Work Order #...:	G219J1AH	Matrix.....:	W
Date Sampled...:	01/20/05 13:15	Date Received..:	01/21/05 10:30	MS Run #.....:	5025150
Prep Date.....:	01/24/05	Analysis Date..:	01/25/05		
Prep Batch #...:	5025251	Analysis Time..:	04:33		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

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

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

SECOR International Inc

Client Sample ID: MW-8

TOTAL Metals

Lot-Sample #...: E5A210247-008 Matrix.....: W
Date Sampled...: 01/20/05 13:15 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 5024251						
Iron	435	100	ug/L	SW846 6010B	01/24-01/25/05	G219J1AF
		Dilution Factor: 1		Analysis Time..: 18:59	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5024155		

SECOR International Inc

Client Sample ID: MW-8

General Chemistry

Lot-Sample #...: E5A210247-008 Work Order #...: G219J Matrix.....: W
Date Sampled...: 01/20/05 13:15 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ferrous Iron	ND	200	ug/L	SM18 3500-FE D	01/21/05	5021385
		Dilution Factor: 1		Analysis Time..: 12:30	Analyst ID.....: 0210887	
		Instrument ID..: NO INST		MS Run #.....: 5021204		
Nitrate as N	183	100	ug/L	MCAWW 300.0A	01/21-01/22/05	5021304
		Dilution Factor: 1		Analysis Time..: 11:08ST	Analyst ID.....: 0000224	
		Instrument ID..: W01		MS Run #.....: 5021216		
Sulfate	325000	50000	ug/L	MCAWW 300.0A	01/21-01/22/05	5021305
		Dilution Factor: 50		Analysis Time..: 14:42	Analyst ID.....: 0000226	
		Instrument ID..: W01		MS Run #.....: 5021217		

SECOR International Inc

Client Sample ID: MW-9

GC/MS Volatiles

Lot-Sample #...:	E5A210247-009	Work Order #...:	G219N1AG	Matrix.....:	W
Date Sampled...:	01/20/05 14:04	Date Received..:	01/21/05 10:30	MS Run #.....:	5034312
Prep Date.....:	02/03/05	Analysis Date..:	02/03/05		
Prep Batch #...:	5034565	Analysis Time..:	13:58		
Dilution Factor:	1				
Analyst ID.....:	015590	Instrument ID..:	MSQ		
		Method.....:	SW846 8260B		

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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	96	(75 - 120)
1,2-Dichloroethane-d4	104	(65 - 130)
Toluene-d8	102	(80 - 130)

NOTE(S):

IO Contract limits originate from BP-GCLN Technical Requirements

IB CCV recovery above limit; analyte not detected.

SECOR International Inc

Client Sample ID: MW-9

GC Volatiles

Lot-Sample #...:	E5A210247-009	Work Order #...:	G219N1AD	Matrix.....:	W
Date Sampled...:	01/20/05 14:04	Date Received..:	01/21/05 10:30	MS Run #.....:	
Prep Date.....:	01/26/05	Analysis Date..:	01/26/05		
Prep Batch #...:	5027321	Analysis Time..:	18:19		
Dilution Factor:	1				
Analyst ID.....:	402431	Instrument ID..:	GC1		
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methane	ND	1.0	ug/L

SECOR International Inc

Client Sample ID: MW-9

GC Volatiles

Lot-Sample #...:	E5A210247-009	Work Order #...:	G219N1AH	Matrix.....:	W
Date Sampled...:	01/20/05 14:04	Date Received..:	01/21/05 10:30	MS Run #.....:	5025150
Prep Date.....:	01/24/05	Analysis Date..:	01/25/05		
Prep Batch #...:	5025251	Analysis Time..:	05:01		
Dilution Factor:	1				
Analyst ID.....:	001464	Instrument ID..:	G13		
		Method.....:	SW846 8015B		

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

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

SECOR International Inc

Client Sample ID: MW-9

TOTAL Metals

Lot-Sample #...: E5A210247-009 Matrix.....: W
Date Sampled...: 01/20/05 14:04 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 5024251						
Iron	172	100	ug/L	SW846 6010B	01/24-01/25/05	G219N1AF
		Dilution Factor: 1		Analysis Time..: 19:07	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5024155		

SECOR International Inc

Client Sample ID: MW-9

General Chemistry

Lot-Sample #...: E5A210247-009 Work Order #...: G219N Matrix.....: W
Date Sampled...: 01/20/05 14:04 Date Received..: 01/21/05 10:30

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ferrous Iron	ND	200	ug/L	SM18 3500-FE D	01/21/05	5021385
		Dilution Factor: 1		Analysis Time..: 12:30	Analyst ID.....: 0210887	
		Instrument ID..: NO INST		MS Run #.....: 5021204		
Nitrate as N	1020	100	ug/L	MCAWW 300.0A	01/21-01/22/05	5021304
		Dilution Factor: 1		Analysis Time..: 11:24ST	Analyst ID.....: 0000224	
		Instrument ID..: W01		MS Run #.....: 5021216		
Sulfate	453000	50000	ug/L	MCAWW 300.0A	01/21-01/22/05	5021305
		Dilution Factor: 50		Analysis Time..: 14:59	Analyst ID.....: 0000226	
		Instrument ID..: W01		MS Run #.....: 5021217		

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: E5A210247
MB Lot-Sample #: E5B030000-498

Analysis Date..: 02/02/05
Dilution Factor: 1

Work Order #...: G3Q3D1AA

Prep Date.....: 02/02/05
Prep Batch #...: 5034498

Analyst ID.....: 000038

Matrix.....: WATER

Analysis Time..: 22:29
Instrument ID..: MSQ

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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	87	(75 - 120)
1,2-Dichloroethane-d4	93	(65 - 130)
Toluene-d8	92	(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 #...: E5A210247
MB Lot-Sample #: E5B030000-565

Analysis Date..: 02/03/05
Dilution Factor: 1

Work Order #...: G3RD51AA

Prep Date.....: 02/03/05
Prep Batch #...: 5034565

Analyst ID.....: 015590

Matrix.....: WATER

Analysis Time..: 11:59
Instrument ID..: MSQ

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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	81	(75 - 120)
1,2-Dichloroethane-d4	114	(65 - 130)
Toluene-d8	86	(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 #...: E5A210247
MB Lot-Sample #: M5A270000-321

Analysis Date..: 01/26/05
Dilution Factor: 1

Work Order #...: G3AQW1AA

Prep Date.....: 01/26/05
Prep Batch #...: 5027321

Analyst ID.....: 402431

Matrix.....: WATER

Analysis Time..: 10:29
Instrument ID..: GC1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Methane	ND	1.0	ug/L	RSK SOP-175

NOTE(S):

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

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: E5A210247
MB Lot-Sample #: E5A250000-251

Analysis Date..: 01/24/05
Dilution Factor: 1

Work Order #...: G26QL1AA

Prep Date.....: 01/24/05
Prep Batch #...: 5025251

Analyst ID.....: 001464

Matrix.....: WATER

Analysis Time..: 21:34
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)	94	(70 - 130)

NOTE(S):

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

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: E5A210247 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: E5A240000-251		Prep Batch #...: 5024251				
Iron	ND	100	ug/L	SW846 6010B	01/24-01/25/05	G240T1AA

Dilution Factor: 1

Analysis Time..: 17:15 Analyst ID.....: 021088 Instrument ID..: M01

NOTE(S):

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

METHOD BLANK REPORT

General Chemistry

Client Lot #...: E5A210247 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ferrous Iron		Work Order #: G227V1AA		MB Lot-Sample #:	E5A210000-385	
	ND	200	ug/L	SM18 3500-FE D	01/21/05	5021385
		Dilution Factor: 1				
		Analysis Time..: 12:30		Analyst ID.....: 021088	Instrument ID..: W01	
Nitrate as N		Work Order #: G23ET1AA		MB Lot-Sample #:	E5A210000-304	
	ND	100	ug/L	MCAWW 300.0A	01/21/05	5021304
		Dilution Factor: 1				
		Analysis Time..: 20:32		Analyst ID.....: 000022	Instrument ID..: W01	
Sulfate		Work Order #: G23EW1AA		MB Lot-Sample #:	E5A210000-305	
	ND	1000	ug/L	MCAWW 300.0A	01/21/05	5021305
		Dilution Factor: 1				
		Analysis Time..: 20:32		Analyst ID.....: 000022	Instrument ID..: W01	

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 #...: E5A210247 Work Order #...: G3Q3D1AC Matrix.....: WATER
LCS Lot-Sample#: E5B030000-498
Prep Date.....: 02/02/05 Analysis Date..: 02/02/05
Prep Batch #...: 5034498 Analysis Time..: 22:07
Dilution Factor: 1 Instrument ID..: MSQ
Analyst ID.....: 000038

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	10.0	10.1	ug/L	101	SW846 8260B
tert-Butyl alcohol	50.0	53.7	ug/L	107	SW846 8260B
Ethanol	2000	2050 IO	ug/L	102	SW846 8260B
Tert-amyl methyl ether (T	10.0	9.63	ug/L	96	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	10.0	10.0	ug/L	100	SW846 8260B
Ethylbenzene	10.0	10.4	ug/L	104	SW846 8260B
Diisopropyl Ether (DIPE)	10.0	10.1	ug/L	101	SW846 8260B
Methyl tert-butyl ether (MTBE)	10.0	9.43	ug/L	94	SW846 8260B
Toluene	10.0	10.1	ug/L	101	SW846 8260B
m-Xylene & p-Xylene	20.0	20.9	ug/L	104	SW846 8260B
o-Xylene	10.0	10.4	ug/L	104	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	96	(75 - 120)
1,2-Dichloroethane-d4	97	(65 - 130)
Toluene-d8	93	(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 #...: E5A210247
LCS Lot-Sample#: E5B030000-565
Prep Date.....: 02/03/05
Prep Batch #...: 5034565
Dilution Factor: 1
Analyst ID.....: 015590

Work Order #...: G3RD51AC
Analysis Date..: 02/03/05
Analysis Time..: 12:21
Instrument ID..: MSQ

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	10.0	9.35	ug/L	94	SW846 8260B
tert-Butyl alcohol	50.0	57.9	ug/L	116	SW846 8260B
Ethanol	2000	2530 IO	ug/L	126	SW846 8260B
Tert-amyl methyl ether (T	10.0	9.09	ug/L	91	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	10.0	9.25	ug/L	92	SW846 8260B
Ethylbenzene	10.0	9.35	ug/L	94	SW846 8260B
Diisopropyl Ether (DIPE)	10.0	9.20	ug/L	92	SW846 8260B
Methyl tert-butyl ether (MTBE)	10.0	8.98	ug/L	90	SW846 8260B
Toluene	10.0	9.19	ug/L	92	SW846 8260B
m-Xylene & p-Xylene	20.0	18.9	ug/L	95	SW846 8260B
o-Xylene	10.0	9.31	ug/L	93	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	93	(75 - 120)
1,2-Dichloroethane-d4	123	(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 #...: E5A210247
LCS Lot-Sample#: M5A270000-321
Prep Date.....: 01/26/05
Prep Batch #...: 5027321
Dilution Factor: 1
Analyst ID.....: 402431

Work Order #...: G3AQW1AC-LCS
G3AQW1AD-LCSD
Analysis Date..: 01/26/05
Analysis Time..: 09:44
Instrument ID..: GC1

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Methane	327	322	ug/L	98		RSK SOP-175
	327	319	ug/L	98	0.68	RSK SOP-175

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: E5A210247
LCS Lot-Sample#: E5A250000-251
Prep Date.....: 01/24/05
Prep Batch #...: 5025251
Dilution Factor: 1
Analyst ID.....: 001464

Work Order #...: G26QL1AC

Analysis Date..: 01/24/05
Analysis Time..: 22:58
Instrument ID..: G13

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
GRO (C6 - C12)	1000	999	ug/L	100	SW846 8015B

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

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: E5A210247 Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: E5A240000-251 Prep Batch #...: 5024251							
Iron	1000	1010	ug/L	101	SW846 6010B	01/24-01/25/05	G240T1AC
			Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 021088	
			Instrument ID..: M01				

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: E5A210247 Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ferrous Iron			Work Order #: G227V1AC		LCS Lot-Sample#:	E5A210000-385	
	2000	2010	ug/L	100	SM18 3500-FE D	01/21/05	5021385
			Dilution Factor: 1		Analysis Time..: 12:30	Analyst ID.....: 021088	
			Instrument ID..: W17				
Nitrate as N			Work Order #: G23ET1AC		LCS Lot-Sample#:	E5A210000-304	
	5000	5040	ug/L	101	MCAWW 300.0A	01/21/05	5021304
			Dilution Factor: 1		Analysis Time..: 20:15	Analyst ID.....: 000022	
			Instrument ID..: W01				
Sulfate			Work Order #: G23EW1AC		LCS Lot-Sample#:	E5A210000-305	
	25000	25200	ug/L	101	MCAWW 300.0A	01/21/05	5021305
			Dilution Factor: 1		Analysis Time..: 20:15	Analyst ID.....: 000022	
			Instrument ID..: W01				

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E5A210247 Work Order #...: G25LK1AC-MS Matrix.....: WATER
MS Lot-Sample #: E5A240220-003 G25LK1AD-MSD
Date Sampled...: 01/20/05 15:50 Date Received..: 01/21/05 19:10 MS Run #.....: 5034269
Prep Date.....: 02/03/05 Analysis Date..: 02/03/05
Prep Batch #...: 5034498 Analysis Time..: 08:10
Dilution Factor: 10 Analyst ID.....: 000038 Instrument ID..: MSQ

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzene	ND	100	104	ug/L	104		SW846 8260B
	ND	100	104	ug/L	104	0.67	SW846 8260B
tert-Butyl alcohol	ND	500	1150	ug/L	231 LM		SW846 8260B
	ND	500	1040	ug/L	207 LM	11	SW846 8260B
Ethanol	ND	20000	25000	ug/L	125 IO		SW846 8260B
	ND	20000	22800	ug/L	114 IO	9.0	SW846 8260B
Tert-amyl methyl ether (T	ND	100	89.2	ug/L	89		SW846 8260B
	ND	100	100	ug/L	100	11	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	ND	100	95.8	ug/L	96		SW846 8260B
	ND	100	102	ug/L	102	6.1	SW846 8260B
Ethylbenzene	ND	100	107	ug/L	107		SW846 8260B
	ND	100	106	ug/L	106	1.2	SW846 8260B
Diisopropyl Ether (DIPE)	ND	100	98.9	ug/L	99		SW846 8260B
	ND	100	102	ug/L	102	3.3	SW846 8260B
Methyl tert-butyl ether (MTBE)	490	100	530	ug/L	36 BB		SW846 8260B
	490	100	600	ug/L	106	12	SW846 8260B
Toluene	ND	100	104	ug/L	104		SW846 8260B
	ND	100	104	ug/L	104	0.28	SW846 8260B
m-Xylene & p-Xylene	ND	200	212	ug/L	106		SW846 8260B
	ND	200	212	ug/L	106	0.42	SW846 8260B
o-Xylene	ND	100	104	ug/L	104		SW846 8260B
	ND	100	105	ug/L	105	1.0	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	98	(75 - 120)
	99	(75 - 120)
1,2-Dichloroethane-d4	106	(65 - 130)
	102	(65 - 130)
Toluene-d8	104	(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

Spiked analyte recovery is outside stated control limits.

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

IO Contract limits originate from BP-GCLN Technical Requirements

BB Sample > 4X spike concentration

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E5A210247
MS Lot-Sample #: E5A210247-009
Date Sampled...: 01/20/05 14:04
Prep Date.....: 02/03/05
Prep Batch #...: 5034565
Dilution Factor: 1

Work Order #...: G219N1AJ-MS
G219N1AK-MSD
Date Received..: 01/21/05 10:30
Analysis Date..: 02/03/05
Analysis Time..: 19:02
Analyst ID.....: 015590

Matrix.....: W
MS Run #.....: 5034312
Instrument ID..: MSQ

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzene	ND	10.0	8.54	ug/L	85		SW846 8260B
	ND	10.0	8.76	ug/L	88	2.5	SW846 8260B
tert-Butyl alcohol	ND	50.0	239	ug/L	478 LM		SW846 8260B
	ND	50.0	148	ug/L	295	47	SW846 8260B
		Qualifiers:	BA,LM				
Ethanol	ND	2000	3730	ug/L	187		SW846 8260B
		Qualifiers:	LM,IO				
	ND	2000	4230	ug/L	211	12	SW846 8260B
		Qualifiers:	LM,IO				
Tert-amyl methyl ether (T	ND	10.0	9.07	ug/L	91		SW846 8260B
	ND	10.0	9.20	ug/L	92	1.4	SW846 8260B
Ethyl-t-Butyl Ether (ETBE	ND	10.0	9.04	ug/L	90		SW846 8260B
	ND	10.0	9.24	ug/L	92	2.2	SW846 8260B
Ethylbenzene	ND	10.0	8.36	ug/L	84		SW846 8260B
	ND	10.0	8.87	ug/L	89	5.9	SW846 8260B
Diisopropyl Ether (DIPE)	ND	10.0	8.93	ug/L	89		SW846 8260B
	ND	10.0	9.03	ug/L	90	1.1	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	10.0	8.95	ug/L	90		SW846 8260B
	ND	10.0	8.88	ug/L	89	0.78	SW846 8260B
Toluene	ND	10.0	8.14	ug/L	81		SW846 8260B
	ND	10.0	8.63	ug/L	86	5.8	SW846 8260B
m-Xylene & p-Xylene	ND	20.0	17.0	ug/L	85		SW846 8260B
	ND	20.0	17.8	ug/L	89	4.3	SW846 8260B
o-Xylene	ND	10.0	8.41	ug/L	84		SW846 8260B
	ND	10.0	8.90	ug/L	89	5.7	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	88	(75 - 120)
	87	(75 - 120)
1,2-Dichloroethane-d4	113	(65 - 130)
	115	(65 - 130)
Toluene-d8	89	(80 - 130)
	89	(80 - 130)

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E5A210247 Work Order #...: G219N1AJ-MS Matrix.....: W
MS Lot-Sample #: E5A210247-009 G219N1AK-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

Spiked analyte recovery is outside stated control limits.

BA Relative percent difference out of control

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

IO Contract limits originate from BP-GCLN Technical Requirements

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: E5A210247 Work Order #...: G219G1AJ-MS Matrix.....: W
MS Lot-Sample #: E5A210247-007 G219G1AK-MSD
Date Sampled...: 01/20/05 14:14 Date Received..: 01/21/05 10:30 MS Run #.....: 5025150
Prep Date.....: 01/24/05 Analysis Date..: 01/25/05
Prep Batch #...: 5025251 Analysis Time..: 03:09
Dilution Factor: 1 Analyst ID.....: 001464 Instrument ID..: G13

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
GRO (C6 - C12)	ND	1000	801	ug/L	80		SW846 8015B
	ND	1000	814	ug/L	81	1.5	SW846 8015B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	118	(70 - 130)
	115	(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

TOTAL Metals

Client Lot #...: E5A210247 Matrix.....: W
Date Sampled...: 01/20/05 13:48 Date Received..: 01/21/05 10:30

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: E5A210247-001 Prep Batch #...: 5024251									
Iron									
	366	1000	1330	ug/L	96		SW846 6010B	01/24-01/26/05	G218Q1AQ
	366	1000	1290	ug/L	92	2.7	SW846 6010B	01/24-01/26/05	G218Q1AR

Dilution Factor: 1
Analysis Time...: 15:07 Instrument ID...: M01 Analyst ID.....: 021088
MS Run #.....: 5024155

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: E5A210247 Matrix.....: W
Date Sampled...: 01/20/05 13:48 Date Received..: 01/21/05 10:30

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ferrous Iron			WO#: G218Q1AG-MS/G218Q1AH-MSD				MS Lot-Sample #: E5A210247-001		
	ND	2000	2070	ug/L	104		SM18 3500-FE	01/21/05	5021385
	ND	2000	2080	ug/L	104	0.48	SM18 3500-FE	01/21/05	5021385

Dilution Factor: 1
Analysis Time..: 10:16 Instrument ID..: W17 Analyst ID.....: 021088
MS Run #.....: 5021204

Nitrate as N			WO#: G218Q1AJ-MS/G218Q1AK-MSD				MS Lot-Sample #: E5A210247-001		
	4590	12500	16900	ug/L	99		MCAWW 300.0A	01/21/05	5021304
	4590	12500	16800	ug/L	98	0.93	MCAWW 300.0A	01/21-01/22/05	5021304

Dilution Factor: 1
Analysis Time..: 23:17 Instrument ID..: W01 Analyst ID.....: 000022
MS Run #.....: 5021216

Sulfate			WO#: G218Q1AL-MS/G218Q1AM-MSD				MS Lot-Sample #: E5A210247-001		
	442000	312000	771000	ug/L	105		MCAWW 300.0A	01/21-01/22/05	5021305
	442000	312000	790000	ug/L	111	2.3	MCAWW 300.0A	01/21-01/22/05	5021305

Dilution Factor: 1
Analysis Time..: 11:40 Instrument ID..: W01 Analyst ID.....: 000022
MS Run #.....: 5021217

NOTE(S):

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