

3R - 170

2011 AGWMR

8/16/2012



BUILDING A BETTER WORLD

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August 16, 2012

Mr. Glenn von Gonten
New Mexico Oil Conservation Division (NMOCD)
1220 South St., Francis Drive
Santa Fe, New Mexico 87505

**RE: El Paso CGP Company Pit Groundwater Remediation Sites
2011 Annual Reports**

Dear Mr. Von Gonten:

MWH Americas, Inc., on behalf of El Paso CGP Company (EPCGP), is submitting the enclosed 2011 Annual Reports for 21 of its remaining San Juan River Basin pit groundwater remediation sites (several other sites are handled as different projects with different activity and reporting schedules). The reports present the 2011 sampling and product recovery data and include recommendations for future activities at these sites.

The 2011 Annual Reports are divided into three volumes based on location type. The volumes are as follows:

<u>Volume</u>	<u>Location Type</u>
1	Federal Lands
2	Fee and State Lands
3	Navajo Nation Lands (1 Site Remains)

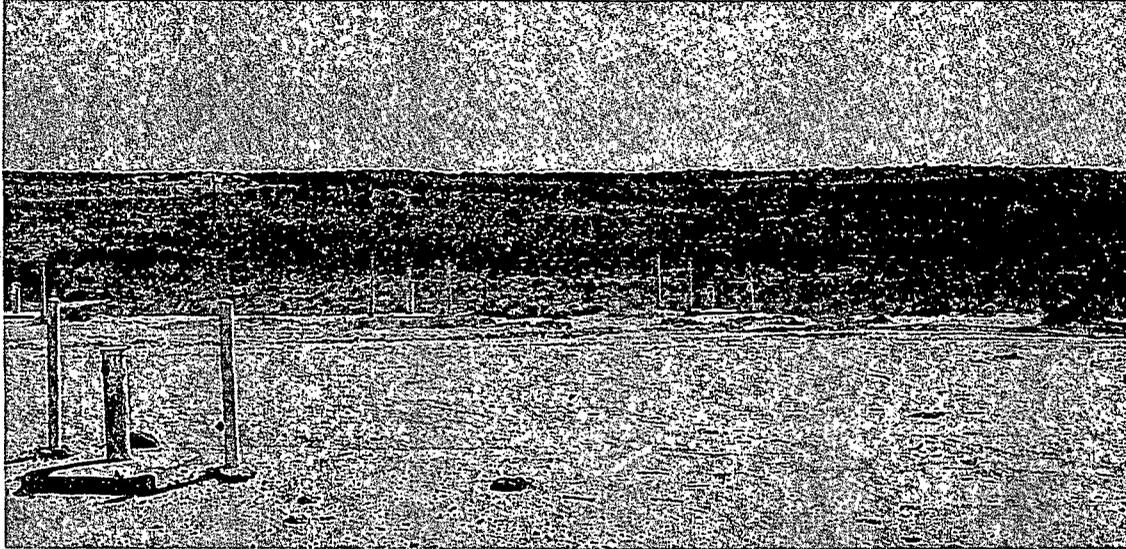
If you have any questions concerning the enclosed reports, please contact either Joe Wiley (representing EPCGP Company) at 713-420-3475 or me at 303-291-2276.

Sincerely,

Jed Smith
Project Manager

encl.

cc: Bill Freeman – NNEPA, Shiprock, NM (Volume 3 Only)
Bill Liese – BLM, Farmington, NM (Volume 1 Only)
Brandon Powell – NMOCD, Aztec, NM (Volumes 1, 2, and 3)
Joe Wiley – EPCGP Company (Volumes 1, 2, and 3 - Electronic)



EL PASO CGP COMPANY

1001 LOUISIANA STREET
HOUSTON, TX 77002

**2011 ANNUAL REPORT
PIT GROUNDWATER REMEDIATION
VOLUME 1: SITES ON FEDERAL LANDS**

AUGUST 2012

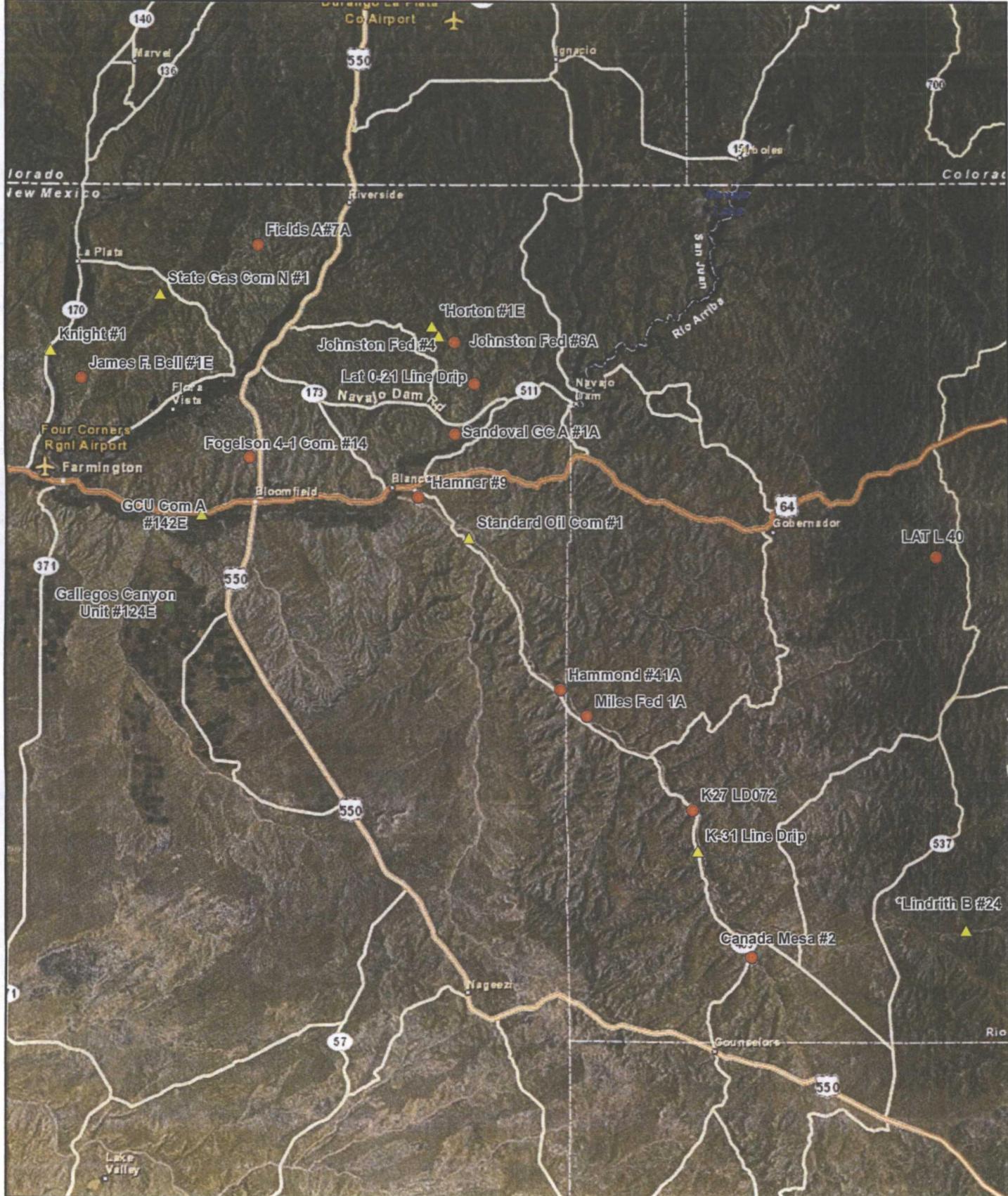
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1001000000



MWH

1801 California Street
Suite 2900
Denver, Colorado 80202
303 291 2222



LEGEND

- Sites on Federal Land
- Sites on Navajo Nation Land
- ▲ Sites on State/Fee "Non-Federal" Lands

*Closure Request Pending with the NMOCD.



PROJECT: SAN JUAN RIVER BASIN
 TITLE: Site Locations

FIGURE:
1

LIST OF ACRONYMS

AMSL	above mean sea level
BTEX	benzene, toluene, ethylbenzene, xylenes
btoc	below top of casing
EPCGP	El Paso CGP Company
ft	foot/feet
GWEL	groundwater elevation
ID	identification
MW	monitoring well
NMWQCC	New Mexico Water Quality Control Commission
TOC	top of casing
NA	not applicable
NMOCD	New Mexico Oil Conservation Division
NS	not sampled
ORC	oxygen-releasing compound
µg/L	micrograms per liter

**2011 ANNUAL GROUNDWATER REPORT
FEDERAL SITES VOLUME I
EL PASO CGP COMPANY**

TABLE OF CONTENTS

METER or LINE ID	NMOCD CASE NO.	SITE NAME	TOWNSHIP	RANGE	SECTION	UNIT
87640	3RP-155-0	Canada Mesa #2	24N	06W	24	I
89961	3RP-170-0	Fields A#7A	32N	11W	34	E
73220	3RP-068-0	Fogelson 4-1 Com. #14	29N	11W	4	P
89894	3RP-186-0	Hammond #41A	27N	08W	25	O
97213	3RP-190-0	Hamner #9	29N	09W	20	A
94715	3RP-196-0	James F. Bell #1E	30N	13W	10	P
89232	3RP-202-0	Johnston Fed #6A	31N	09W	35	F
LD072	3RP-204-0	K27 LD072	25N	06W	4	E
LD174	3RP-212-0	LAT L 40	28N	04W	13	H
LD151	3RP-213-0	Lat 0-21 Line Drip	30N	09W	12	O
94810	3RP-223-0	Miles Fed 1A	26N	07W	5	F
89620	3RP-235-0	Sandoval GC A #1A	30N	09W	35	C

* The Hamner #9 site was submitted for closure in January 2009 and is pending approval from NMOCD. There were no monitoring activities for this site in 2011.



MWH

**EPCGP GROUNDWATER SITES
2011 ANNUAL GROUNDWATER REPORT**

**Fields A#7A
Meter Code: 89961**

SITE DETAILS

Legal Description:	Town: 32n	Range: 11w	Sec: 34	Unit: E
NMOCD Haz Ranking: 40	Land Type: Federal	Operator: BP / Amoco Production Company		

PREVIOUS ACTIVITIES

Site Assessment: 8/94	Excavation: 9/94 (70cy)	Soil Boring: 7/95		
Monitor Well: 7/95	Geoprobe: NA	Additional MWs: 12/95		
Downgradient MWs: 12/95	Replace MW: NA	Quarterly Initiated: NA		
ORC Nutrient Injection: NA	Re-Excavation: NA	PSH Removal Initiated: 8/97		
Annual Initiated: 4/97	Quarterly Resumed: NA	PSH Removal in 2011? No		

SUMMARY OF 2011 ACTIVITIES

MW-1: Annual groundwater sampling (May) and semiannual water level monitoring (May and November) were performed during 2011.

MW-2: Annual groundwater sampling (May) and semiannual water level monitoring (May and November) was performed during 2011.

MW-3: Annual groundwater sampling (May) and semiannual water level monitoring (May and November) was performed during 2011.

MW-4: Annual groundwater sampling (November – not enough water was present to collect a sample in May) and semiannual water level monitoring (May and November) was performed during 2011.

Site-Wide Activities: No other activities were performed at this Site during 2011.

SITE MAP

A Site map (May) is attached as Figure 1.

SUMMARY TABLES AND GRAPHS

- Historic analytical and water level data are summarized in Table 1 and presented graphically in Figures 2 through 5. Where applicable, static water level elevations

**EPCGP GROUNDWATER SITES
2011 ANNUAL GROUNDWATER REPORT**

**Fields A#7A
Meter Code: 89961**

- were corrected for measurable thicknesses of free-product (specific gravity of 0.8).
- Historic free-product recovery data are summarized in Table 2 and presented graphically in Figures 2 and 4.
 - The 2011 laboratory report is presented in Attachment 1 (included on CD).
 - The 2011 field documentation is presented in Attachment 2 (included on CD).

GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

No subsurface activities were performed at this Site during 2011.

DISPOSITION OF GENERATED WASTES

All purge water was taken to the El Paso Natural Gas Rio Vista Compressor Station.

ISOCONCENTRATION MAPS

No isoconcentration maps were prepared for this Site; however, the attached Site map presents the analytical and water level data collected during the annual sampling event.

RESULTS

- The groundwater flow direction at this Site is to the southwest, based on historic water level measurements.
- BTEX concentrations in MW-1 have declined substantially since 1997, when free-product recovery was initiated. The May 2011 benzene concentration was 158 µg/L. All other BTEX constituents were below standards.
- MW-2 was sampled in May 2011. MW-2 was last sampled in 2008, and BTEX constituents continued to remain below the NMWQCC standards.
- MW-3 was sampled in May 2011. BTEX concentrations in this well have declined substantially since 1997, when free-product recovery was initiated at MW-1. Analytical results from the May 2011 sampling event indicate that benzene concentrations (5.7µg/L) dropped below the NMWQCC standard for the first time. All other BTEX constituents remained below the standards.
- MW-4 was sampled in November 2011. BTEX concentrations in MW-4 have attenuated from their historic highs in January 1997. The 2011 sample from MW-4 showed elevated benzene (533 µg/L), above the standard. However, the other BTEX constituents remain below the standards.

**EPCGP GROUNDWATER SITES
2011 ANNUAL GROUNDWATER REPORT**

**Fields A#7A
Meter Code: 89961**

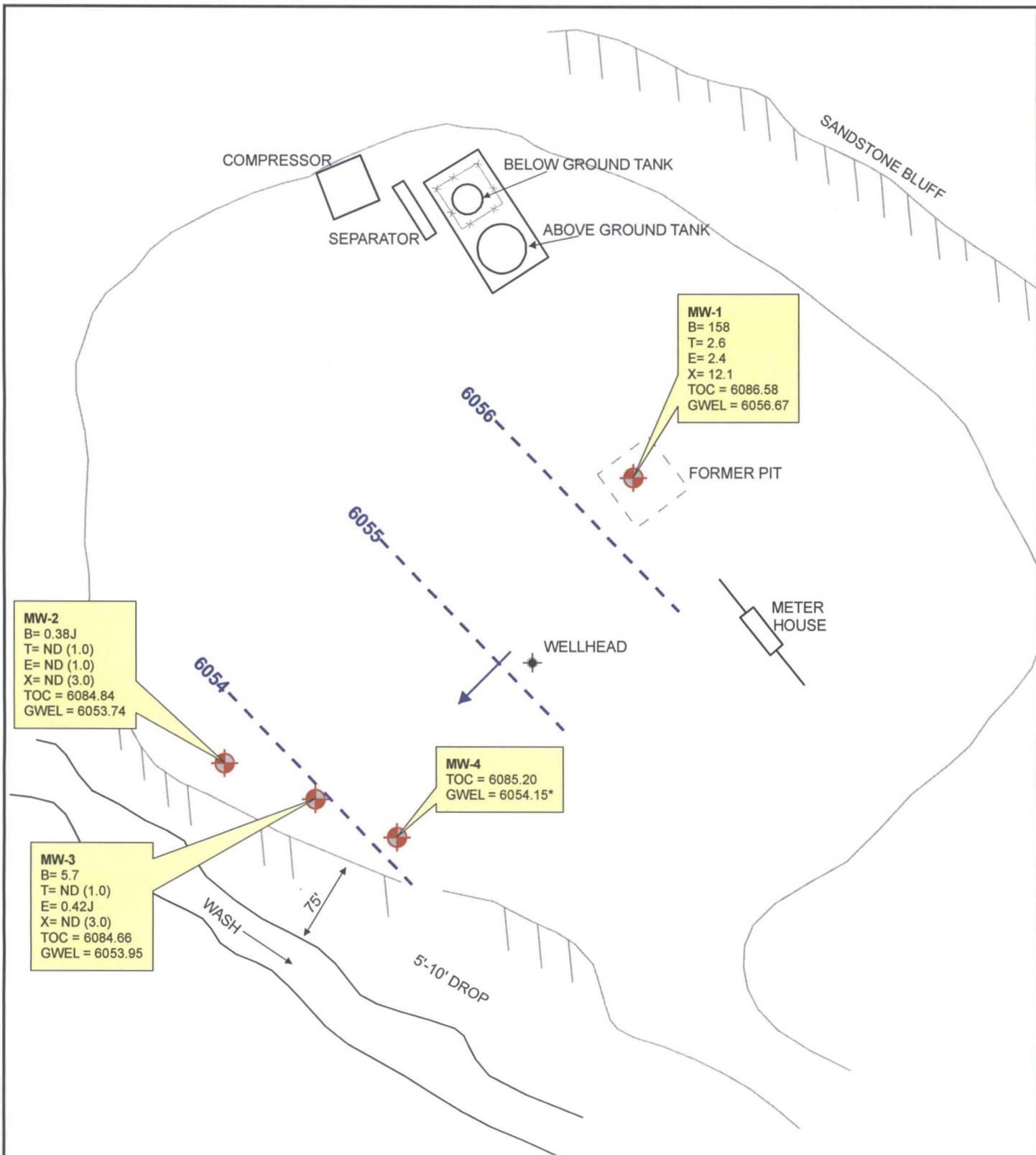
CLOSURE CRITERIA

- This site is being managed per the procedures set forth in the document entitled, "Remediation Plan for Groundwater Encountered during Pit Closure Activities" (El Paso Natural Gas Company / El Paso Field Services Company, 1995). This remediation plan was conditionally approved by the New Mexico Oil Conservation Division (OCD) in correspondence dated November 30, 1995; and the OCD approval conditions were adopted into El Paso's program methods.
- In order to meet the closure requirements at this site, the following condition must be achieved: groundwater contaminant concentrations in the monitoring wells must meet the NMWQCC standards for at least 4 consecutive quarters. Alternatively, concentrations must be reduced to below background levels; however, there are no established background concentrations for the remaining constituents of concern. Currently, MW-1, MW-3, and MW-4 require additional monitoring. The remaining applicable standards are:

Constituent	NMWQCC GW Standard (µg/L)
Benzene	10
Toluene	750
Ethylbenzene	750
Total Xylenes	620

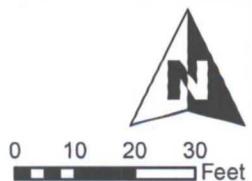
RECOMMENDATIONS

- MW-1 will be gauged semiannually and sampled annually (May) until BTEX concentrations approach the NMWQCC standards.
- EPCGP will attempt semiannual groundwater level measurements and annual groundwater sampling at MW-2, MW-3, and MW-4.
- Once concentrations meet the NMWQCC standards, the wells will be sampled quarterly until BTEX concentrations are below standards for four consecutive quarters, at which time this Site will be submitted for closure.

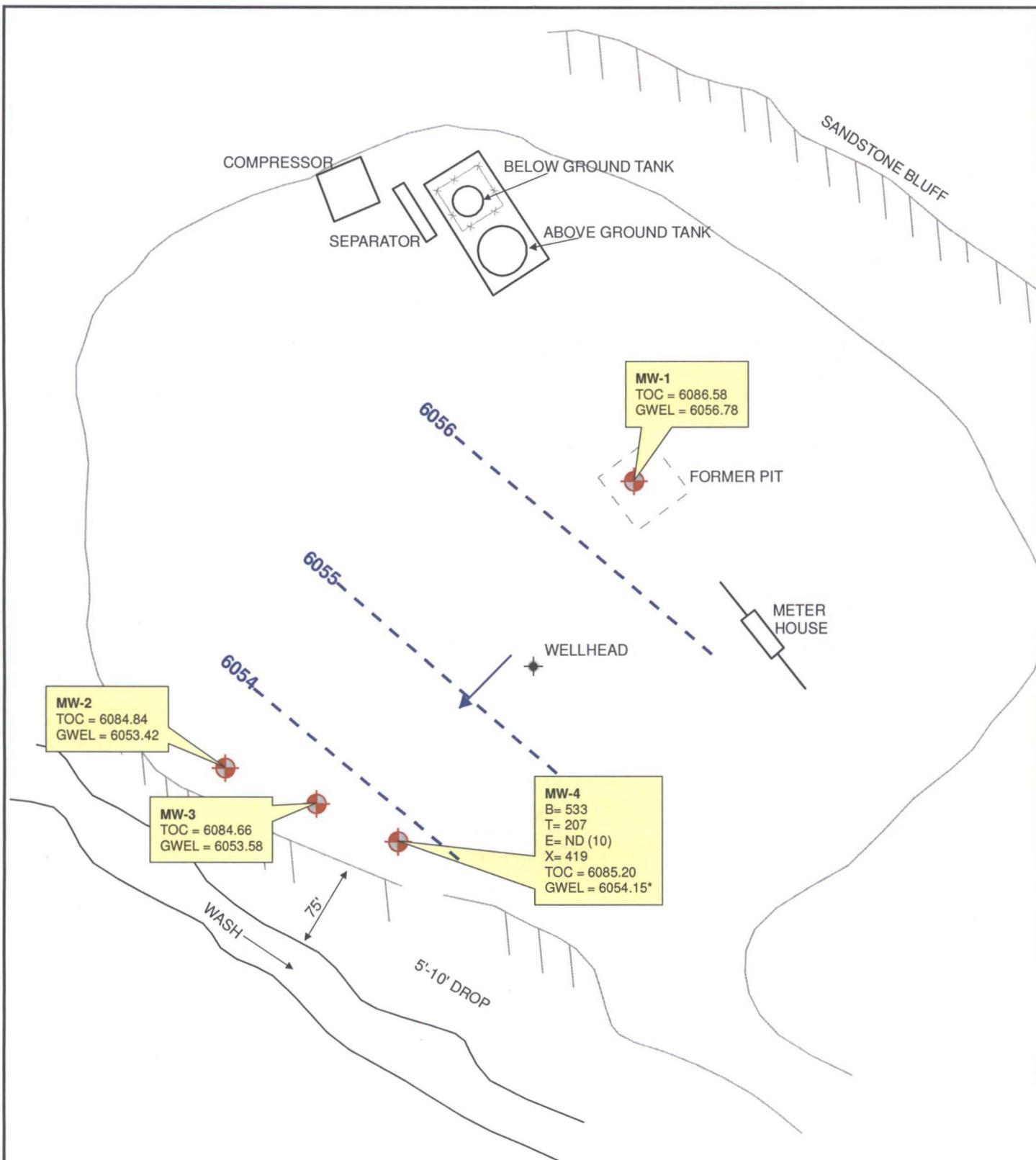


* Water Level appears to be near of below the screen and may not represent static GW conditions.

LEGEND		B	Benzene (ug/L)
MW-1	Existing Monitoring / Observation Well	T	Toluene (ug/L)
→	Historic Groundwater Flow Direction	E	Ethylbenzene (ug/L)
-1275-	Potentiometric Surface Contour (Inferred Where Dashed)	X	Total Xylenes (ug/L)
ND	Not Detected; Reporting Limit Shown In Parenthesis	TOC	Top of Casing (ft. AMSL)
J	Result Flagged as Estimated	GWEL	Groundwater Elevation (ft. AMSL)



	PROJECT: FIELDS A#7A	FIGURE: 1
	TITLE: Groundwater Potentiometric Surface Map, and BTEX Concentrations - May 5, 2011	

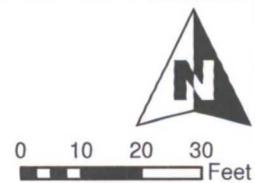


* Water Level appears to be near of below the screen and may not represent static GW conditions.

LEGEND

- MW-1 Existing Monitoring / Observation Well
- Historic Groundwater Flow Direction
- Potentiometric Surface Contour (Inferred Where Dashed)
- ND Not Detected; Reporting Limit Shown In Parenthesis
- J Result Flagged as Estimated

- B Benzene (ug/L)
- T Toluene (ug/L)
- E Ethylbenzene (ug/L)
- X Total Xylenes (ug/L)
- TOC Top of Casing (ft. AMSL)
- GWEL Groundwater Elevation (ft. AMSL)

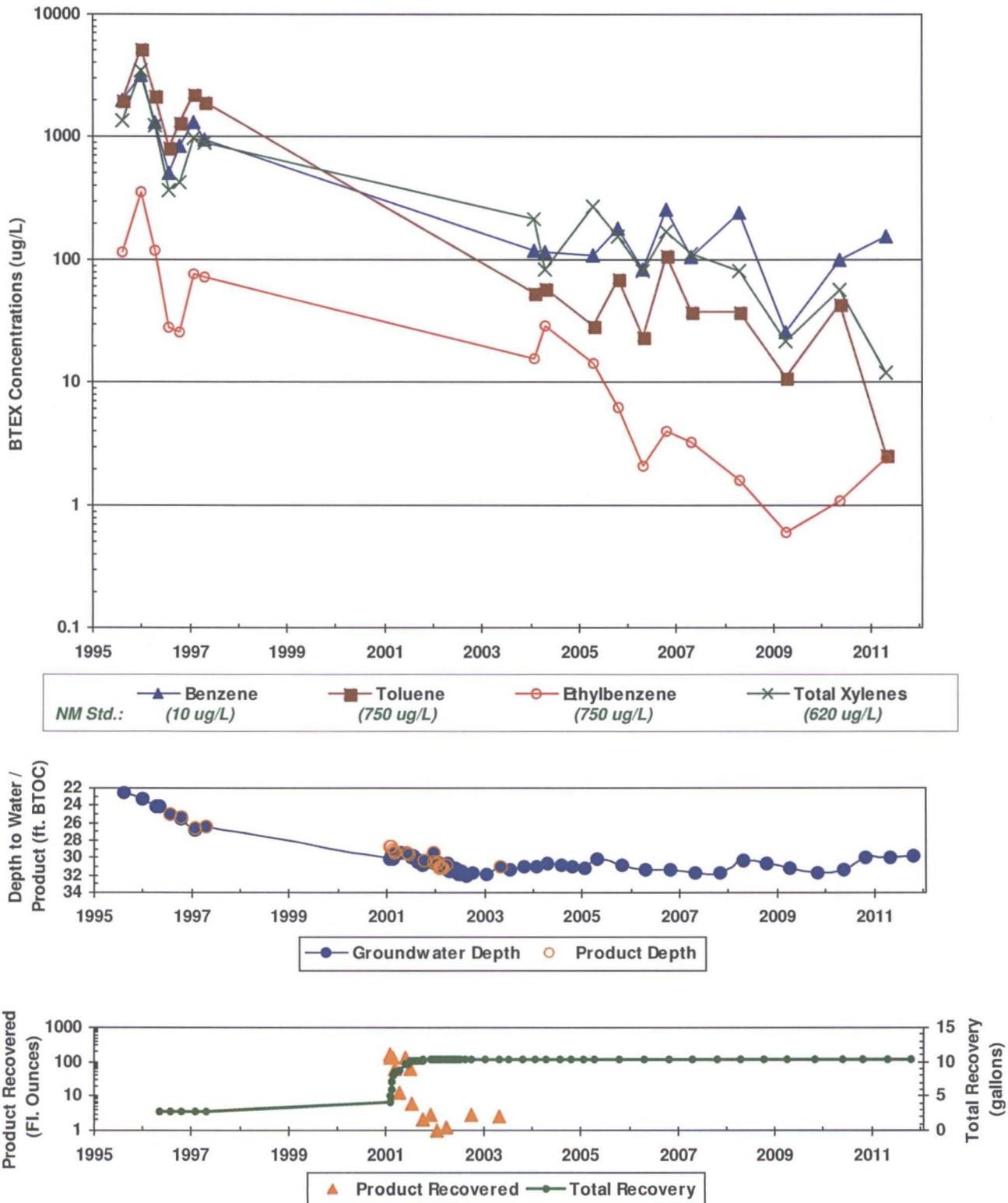


PROJECT: **FIELDS A#7A**

TITLE: **Groundwater Potentiometric Surface Map,
and BTEX Concentrations - November 1, 2011**

FIGURE:
2

FIGURE 2
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY
FIELDS A#7A (METER #89961)
MW-1



**In some cases, older recovery event data are not available. However, the cumulative totals still include all historic recovery.*

FIGURE 3
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
FIELDS A#7A (METER #89961)
MW-2

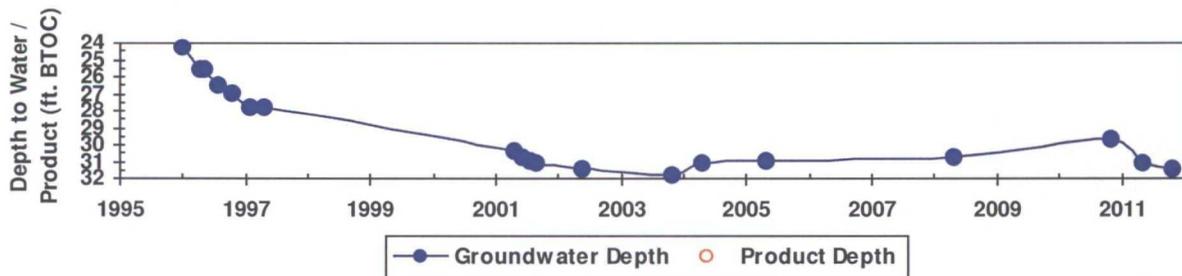
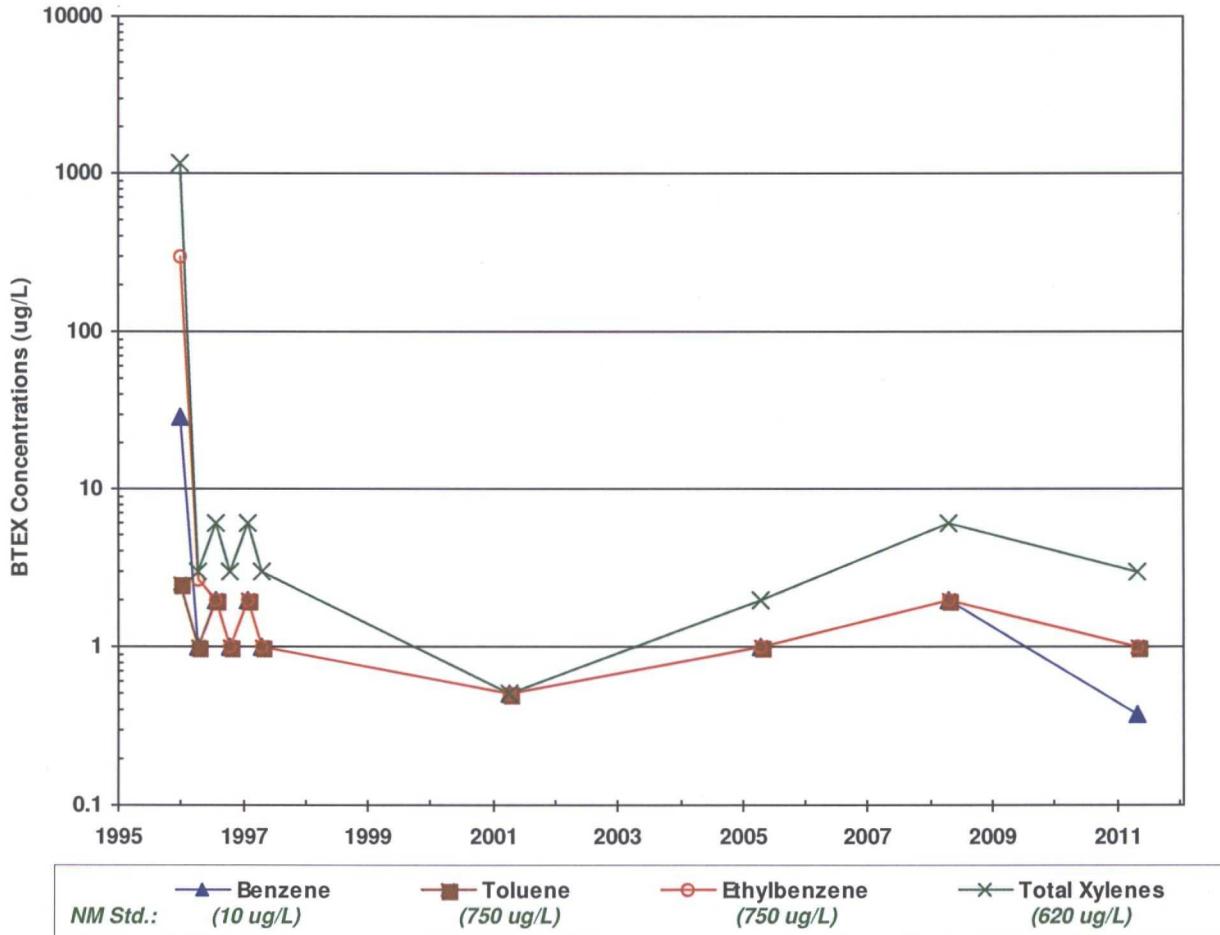


FIGURE 4
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
FIELDS A#7A (METER #89961)
MW-3

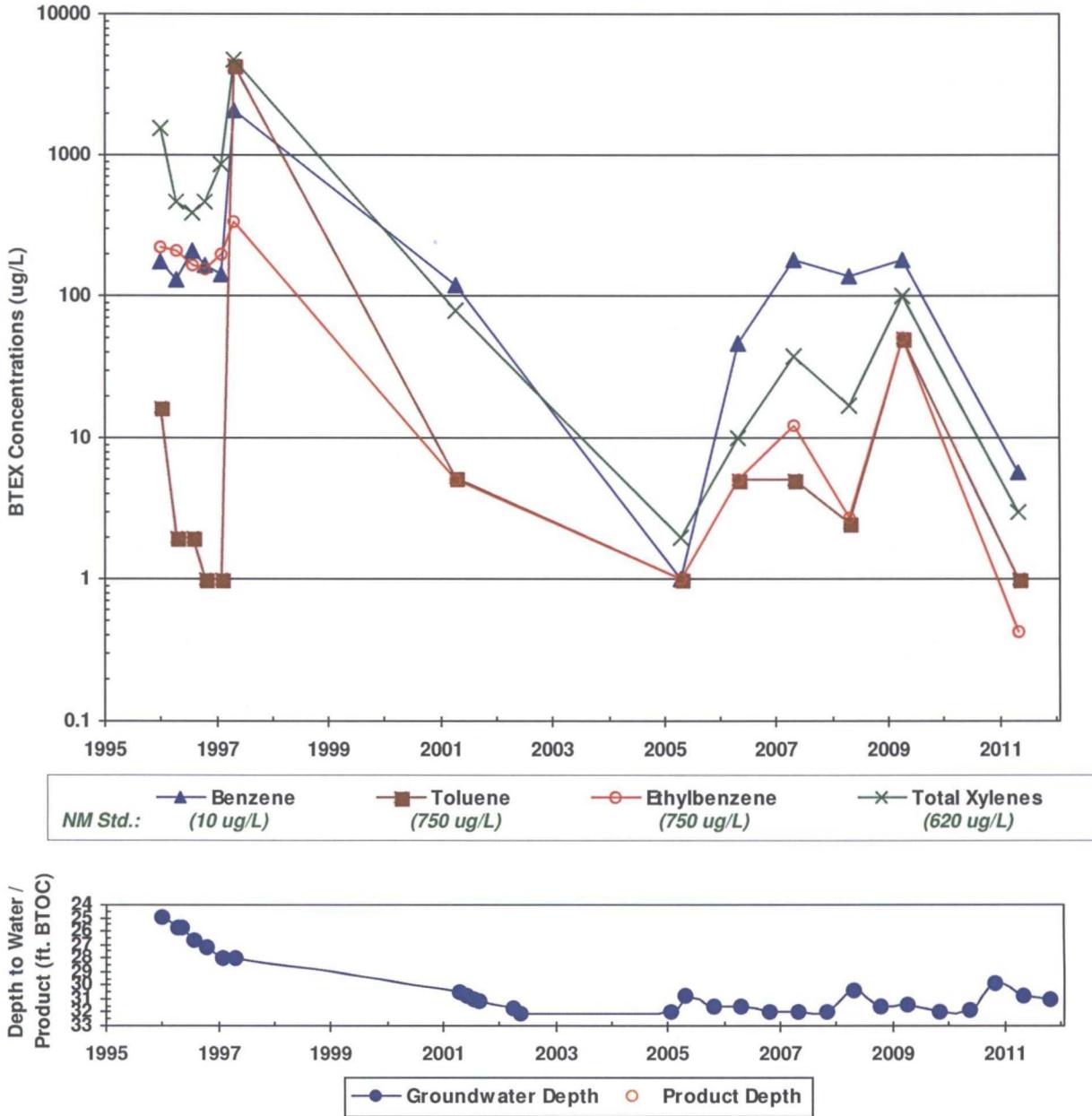
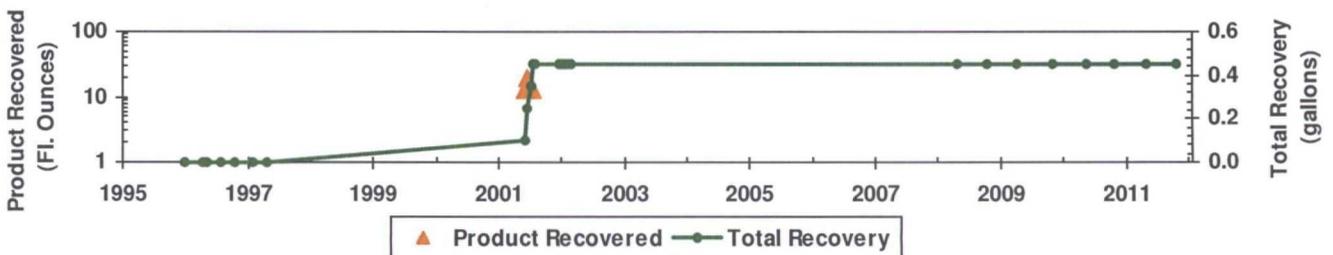
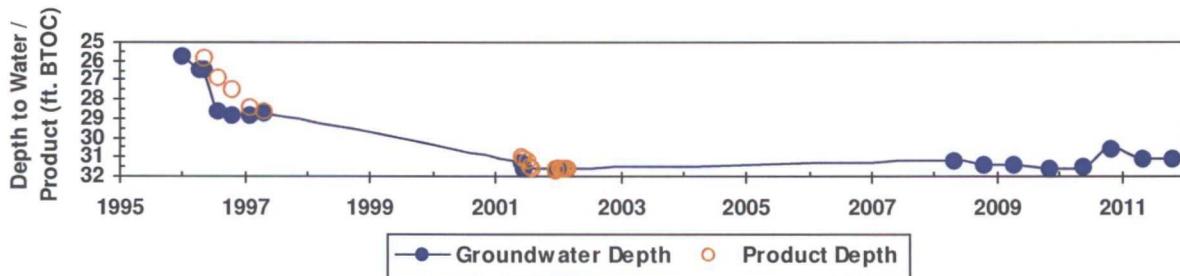
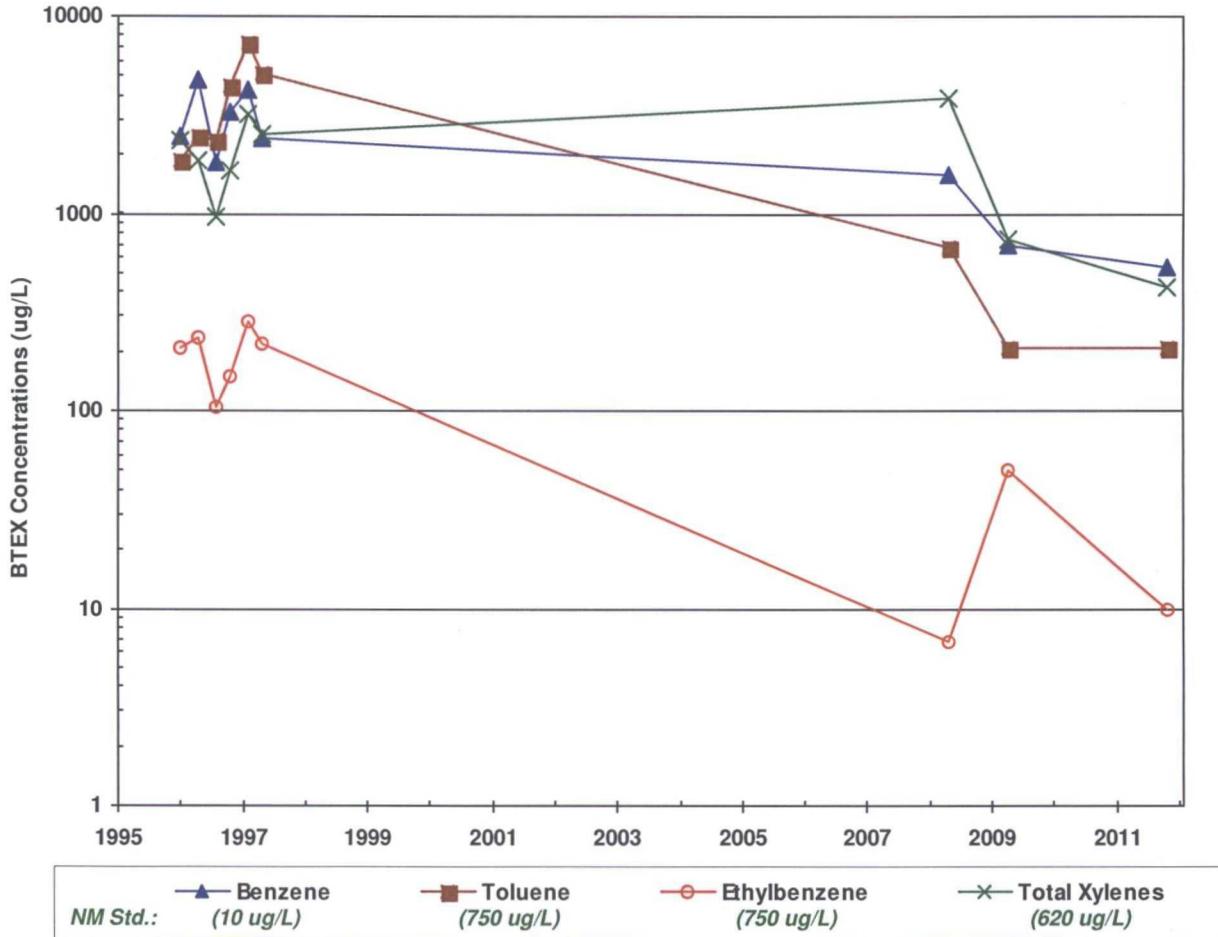


FIGURE 5
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY
FIELDS A#7A (METER #89961)
MW-4



**In some cases, older recovery event data are not available. However, the cumulative totals still include all historic recovery.*

TABLE 1

**SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER
FIELDS A#7A (METER #89961)**

Monitor Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes	Depth to Water (ft BTOC)	Corr. GW Elevation (ft AMSL)
NMWQCC GW Std.:		10	750	750	620		
MW-1	8/9/1995	1950	1946	115	1361	22.50	6064.08
MW-1	1/3/1996	3150	5280	361	3460	23.28	6063.30
MW-1	4/18/1996	1300	2140	119	1240	24.20	6062.38
MW-1	7/29/1996	503	804	28	363	25.07	6061.55
MW-1	10/21/1996	843	1300	26	422	25.45	6061.19
MW-1	1/30/1997	1300	2200	76.8	966	26.83	6059.96
MW-1	4/21/1997	951	1920	73	894	26.47	6060.13
MW-1	1/26/2004	121	54	15.8	216	31.02	6055.56
MW-1	4/21/2004	116	58.1	29.3	83.3	30.67	6055.91
MW-1	4/18/2005	108	29.0	14.2	274	30.19	6056.39
MW-1	10/22/2005	180	69.2	6.3	154	30.74	6055.84
MW-1	4/25/2006	83.7	23.8	2.11	82.5	31.41	6055.17
MW-1	10/24/2006	254	108	4.0	169	31.39	6055.19
MW-1	4/24/2007	106	37.2	3.3	112	31.66	6054.92
MW-1	4/21/2008	246	38.3	1.61	81.3	30.31	6056.27
MW-1	4/7/2009	25.5	11.0	0.601	21.5	31.24	6055.34
MW-1	5/24/2010	100	43.8	1.11	56.9	31.33	6055.25
MW-1	5/4/2011	158	2.6	2.4	12.1	29.91	6056.67
MW-2	1/3/1996	28.8	<2.5	297	1169	24.27	6060.57
MW-2	4/18/1996	<1.0	<1.0	2.64	<3.0	25.53	6059.31
MW-2	7/29/1996	<2.0	<2.0	<2.0	<6.0	26.48	6058.36
MW-2	10/21/1996	<1.0	<1.0	<1.0	<3.0	26.96	6057.88
MW-2	1/30/1997	<2.0	<2.0	<2.0	<6.0	27.73	6057.11
MW-2	4/21/1997	<1.0	<1.0	<1.0	<3.0	27.77	6057.07
MW-2	4/13/2001	<0.5	<0.5	<0.5	<0.5	30.33	6054.51
MW-2	4/18/2005	<1.0	<1.0	<1.0	<2.0	30.98	6053.86
MW-2	4/21/2008	<2.0	<2.0	<2.0	<6.0	30.66	6054.18
MW-2	5/4/2011	0.381	<1.0	<1.0	<3.0	31.10	6053.74
MW-3	1/3/1996	176	16.4	225	1550	24.88	6059.78
MW-3	4/18/1996	129	<2.0	212	463	25.75	6058.91
MW-3	7/29/1996	212	<2.0	167	393	26.64	6058.02
MW-3	10/21/1996	165	<1.0	157	467	27.16	6057.50
MW-3	1/30/1997	144	<1.0	198	851	27.92	6056.74
MW-3	4/21/1997	2070	4340	332	4730	28.00	6056.66

TABLE 1

**SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER
FIELDS A#7A (METER #89961)**

Monitor Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes	Depth to Water (ft BTOC)	Corr. GW Elevation (ft AMSL)
NMWQCC GW Std.:		10	750	750	620		
MW-3	4/13/2001	120	5.2	<5.0	80	30.48	6054.18
MW-3	4/18/2005	<1.0	<1.0	<1.0	<2.0	30.77	6053.89
MW-3	4/25/2006	46.4	<5.0	<5.0	<10	31.61	6053.05
MW-3	4/24/2007	179	<5.0	12.3	37.9	31.90	6052.76
MW-3	4/21/2008	140	2.5	2.7	16.9	30.40	6054.26
MW-3	4/7/2009	182	<50	<50	<100	31.40	6053.26
MW-3	5/4/2011	5.7	<1.0	0.42J	<3.0	30.71	6053.95
MW-4	1/3/1996	2470	1880	206	2350	25.69	6059.51
MW-4	4/18/1996	4760	2460	235	1880	26.42	6058.78
MW-4	7/29/1996	1830	2380	106	967	28.65	6058.01
MW-4	10/21/1996	3320	4520	149	1680	28.84	6057.47
MW-4	1/30/1997	4320	7420	280	3250	28.85	6056.69
MW-4	4/21/1997	2410	5170	219	2530	28.68	6056.60
MW-4	4/21/2008	1580	679	6.8J	3900	31.22	6053.98
MW-4	4/7/2009	695	206	<50	745	31.40	6053.80
MW-4	11/1/2011	533	207	<10	419	31.05	6054.15

Notes:

Results shown in bold typeface exceed their respective New Mexico Water Quality Control Commission standards.

"J" = result is qualified as estimated. See laboratory report and/or supplemental data validation report for further detail.

"<" = analyte was not detected at the indicated reporting limit (some historic data were reported at the detection limit)

Static groundwater elevations have been corrected for product thickness where applicable. Specific gravity of 0.8 used

TABLE 2

**SUMMARY OF FREE-PRODUCT REMOVAL
FIELDS A#7A (METER #89961)**

Monitor Well	Removal Date	Depth to Product (ft BTOC)	Depth to Water (ft BTOC)	Product Thickness (feet)	Volume Removed (gallons)	Cumulative Removal (gallons)	Corrected GW Elevation (ft AMSL)
MW-1	7/29/1996	25.02	25.07	0.05	--	2.85	6061.55
MW-1	10/21/1996	25.38	25.45	0.07	--	2.85	6061.19
MW-1	1/30/1997	26.57	26.83	0.26	--	2.85	6059.96
MW-1	4/21/1997	26.44	26.47	0.03	--	2.85	6060.13
MW-1	1/30/2001	28.74	30.08	1.34	1.25	4.10	6057.57
MW-1	2/8/2001	28.65	29.85	1.20	1.00	5.10	6057.69
MW-1	2/16/2001	29.08	30.20	1.12	1.00	6.10	6057.28
MW-1	2/17/2001	29.08	29.66	0.58	1.00	7.10	6057.38
MW-1	2/26/2001	29.39	29.54	0.15	1.00	8.10	6057.16
MW-1	3/5/2001	29.25	29.28	0.03	0.50	8.60	6057.32
MW-1	4/11/2001	--	29.33	0.00	0.10	8.70	6057.25
MW-1	6/5/2001	29.34	29.46	0.12	1.00	9.70	6057.22
MW-1	6/15/2001	29.57	29.65	0.08	--	9.70	6056.99
MW-1	7/6/2001	--	30.00	0.00	0.50	10.20	6056.58
MW-1	7/13/2001	--	29.96	0.00	0.05	10.25	6056.62
MW-1	10/10/2001	30.32	30.33	0.01	0.02	10.27	6056.26
MW-1	12/4/2001	--	30.51	0.00	0.02	10.29	6056.07
MW-1	12/13/2001	29.42	29.43	0.01	--	10.29	6057.16
MW-1	12/21/2001	30.39	30.40	0.01	--	10.29	6056.19
MW-1	1/7/2002	30.58	30.59	0.01	--	10.29	6056.00
MW-1	1/23/2002	30.40	30.41	0.01	0.01	10.30	6056.18
MW-1	1/31/2002	30.94	30.95	0.01	--	10.30	6055.64
MW-1	2/7/2002	31.11	31.12	0.01	--	10.30	6055.47
MW-1	2/14/2002	31.17	31.18	0.01	--	10.30	6055.41
MW-1	2/20/2002	31.14	31.15	0.01	--	10.30	6055.44
MW-1	3/21/2002	30.78	30.80	0.02	--	10.30	6055.80
MW-1	3/28/2002	--	30.92	0.00	0.01	10.31	6055.66
MW-1	10/11/2002	--	31.77	0.00	0.02	10.33	6054.81
MW-1	4/27/2003	31.06	31.07	0.01	0.02	10.35	6055.52
MW-4	5/8/1996	25.83	26.42	0.59	--	0.00	6059.25
MW-4	7/29/1996	26.82	28.65	1.83	--	0.00	6058.01
MW-4	10/21/1996	27.45	28.84	1.39	--	0.00	6057.47
MW-4	1/30/1997	28.43	28.85	0.42	--	0.00	6056.69
MW-4	4/21/1997	28.58	28.68	0.10	--	0.00	6056.60

TABLE 2

SUMMARY OF FREE-PRODUCT REMOVAL
FIELDS A#7A (METER #89961)

Monitor Well	Removal Date	Depth to Product (ft BTOC)	Depth to Water (ft BTOC)	Product Thickness (feet)	Volume Removed (gallons)	Cumulative Removal (gallons)	Corrected GW Elevation (ft AMSL)
MW-4	6/5/2001	31.01	31.25	0.24	0.10	0.10	6054.14
MW-4	6/15/2001	31.12	31.56	0.44	0.15	0.25	6053.99
MW-4	7/6/2001	31.20	NA	NA	0.10	0.35	NA
MW-4	7/13/2001	31.44	NA	NA	0.10	0.45	NA
MW-4	7/20/2001	31.51	NA	NA	--	0.45	NA
MW-4	8/1/2001	31.54	NA	NA	--	0.45	NA
MW-4	12/13/2001	31.65	NA	NA	--	0.45	NA
MW-4	12/21/2001	31.61	NA	NA	--	0.45	NA
MW-4	1/7/2002	31.61	NA	NA	--	0.45	NA
MW-4	1/23/2002	31.62	NA	NA	--	0.45	NA
MW-4	1/31/2002	31.61	NA	NA	--	0.45	NA
MW-4	2/7/2002	31.60	NA	NA	--	0.45	NA
MW-4	2/14/2002	31.62	NA	NA	--	0.45	NA
MW-4	2/20/2002	31.62	NA	NA	--	0.45	NA

Notes:

"--" indicates either that product was not measurably detected or that product was not recovered.

"NA" indicates that the respective data point is not available.

Groundwater elevations may not be static due to removal of equipment. Corrections for product thickness utilize SG of 0.8.