

3R068

2010 AGWMR

03/02/2011



BUILDING A BETTER WORLD

3 R 0 6 8

March 2, 2011

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

2011 MAR -4 P 12:24
RECEIVED OGD

**RE: El Paso Tennessee Pipeline Company Pit Groundwater Remediation Sites
2010 Annual Reports**

Dear Mr. Von Gonten:

MWH Americas, Inc., on behalf of El Paso Tennessee Pipeline Company (EPTPC), is submitting the enclosed 2010 Annual Reports for each of EPTPC's 21 remaining San Juan River Basin pit groundwater remediation sites. The reports present the 2010 sampling and product recovery data and include recommendations for 2011 activities at these sites.

The 2010 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 Land
2	Non-Federal Land (Excl. Navajo Nation)
3	Navajo Nation

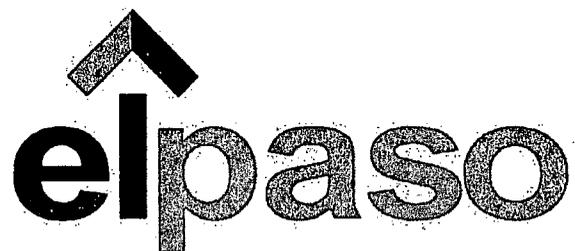
If you have any questions concerning the enclosed reports, please call either Ian Yanagisawa of EPTPC (713-420-7361) or myself (303-291-2276).

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)
- Ian Yanagisawa – EPTPC (Volumes 1, 2, and 3 - Electronic)



El Paso Tennessee
Pipeline Company

San Juan Basin Pit Program
Groundwater Sites Project

Final 2010 Annual Report
Federal Sites (Volume 1)

March 2011



MWH

1801 California Street, Suite 2900
Denver, Colorado 80202

**2010 ANNUAL GROUNDWATER REPORT
FEDERAL SITES VOLUME I
EL PASO TENNESSEE PIPELINE 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

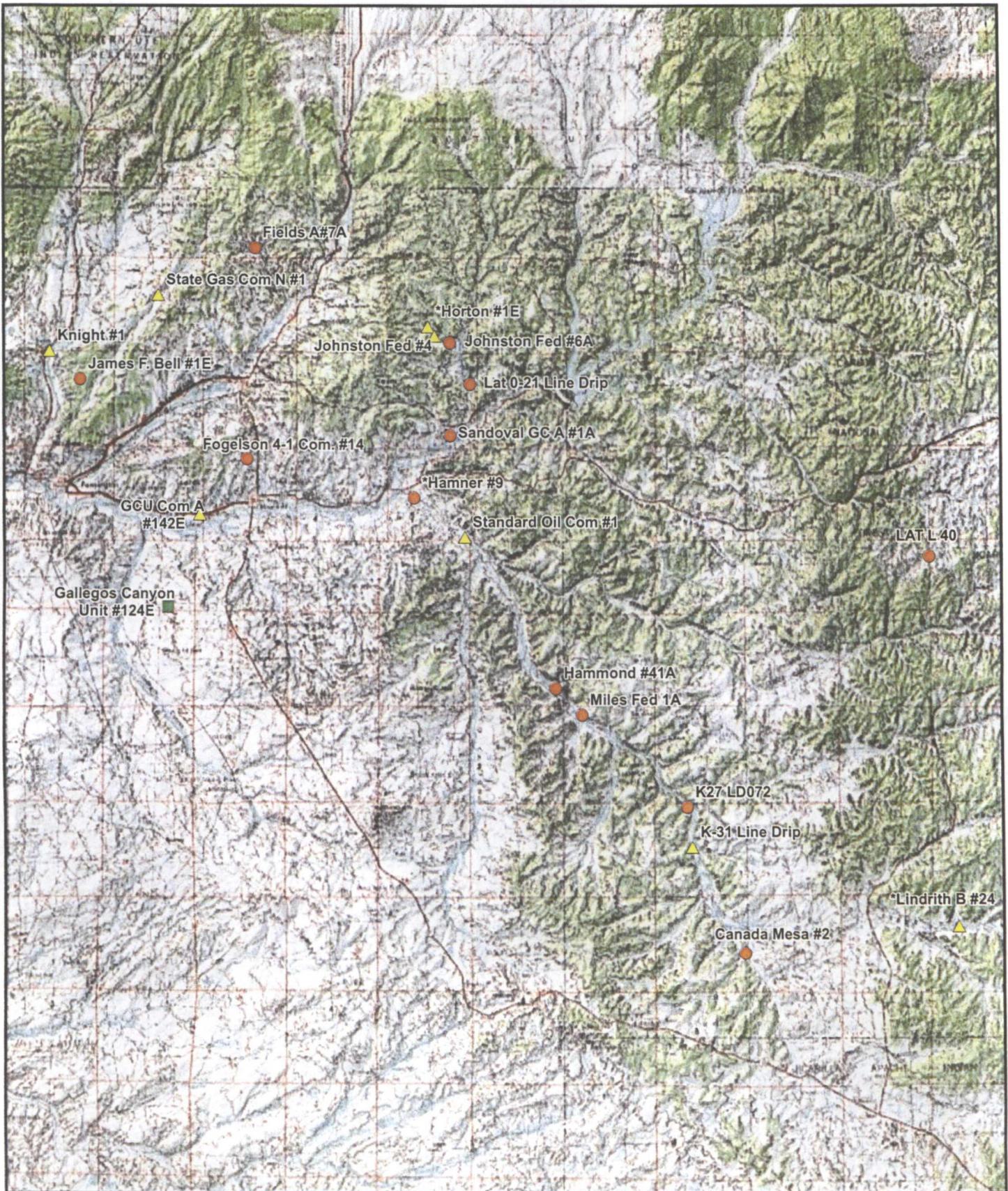
* The Hamner #9 site was submitted for closure in January 2009 and is pending approval from NMOCD. There were no monitoring activities for this site in 2010.



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LIST OF ACRONYMS

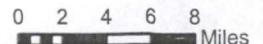
AMSL	above mean sea level
B	benzene
btoc	below top of casing
E	ethylbenzene
EPTPC	El Paso Tennessee Pipeline Company
ft	foot/feet
GWEL	groundwater elevation
ID	identification
MW	monitor well
NMWQCC	New Mexico Water Quality Control Commission
T	toluene
TOC	top of casing
NA	not applicable
NMOCD	New Mexico Oil Conservation Division
NS	not sampled
ORC	oxygen-releasing compound
µg/L	micrograms per liter
X	total xylenes



LEGEND

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

*Closure Request Pending with the NMOCD.



MWH



PROJECT:

SAN JUAN RIVER BASIN

TITLE:

Site Locations, February 2011

FIGURE:

1

**EPTPC GROUNDWATER SITES
2010 ANNUAL GROUNDWATER REPORT**

**Fogelson 4-1 Com #14
Meter Code: 73220**

SITE DETAILS

Legal Description:	Town: 29N	Range: 11W	Sec: 4	Unit: P
NMOCD Haz Ranking: 10	Land Type:	Federal	Operator:	Burlington Resources

PREVIOUS ACTIVITIES

Site Assessment:	3/94	Excavation:	4/94 (65cy)	Soil Boring:	10/95
Monitor Well:	10/95	Geoprobe:	12/96	Additional MWs:	6/00
Downgradient MWs:	6/00	Replace MW:	NA	Quarterly Initiated:	12/96
ORC Nutrient Injection:	8/01	Re-Excavation:	NA	PSH Removal Initiated:	NA
Annual Initiated:	6/98	Quarterly Resumed:	NA	PSH Removal in 2010?	Yes

SUMMARY OF 2010 ACTIVITIES

MW-1: Annual groundwater sampling (November) and quarterly free-product recovery were performed during 2010.

MW-2: Quarterly water level monitoring was performed during 2010.

MW-3: Quarterly water level monitoring was performed during 2010.

Site-Wide Activities: No other activities were performed at this Site during 2010.

SITE MAPS

A Site map (November) 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 4. Where applicable, static water level elevations 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 Figure 2.
- The 2010 laboratory report is presented in Attachment 1 (included on CD).

**EPTPC GROUNDWATER SITES
2010 ANNUAL GROUNDWATER REPORT**

**Fogelson 4-1 Com #14
Meter Code: 73220**

- The 2010 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 2010.

DISPOSITION OF GENERATED WASTES

All purge water was taken to the El Paso Natural Gas Rio Vista Compressor Station. Spent absorbent socks were managed as non-hazardous solid waste.

ISOCONCENTRATION MAPS

No isoconcentration maps were prepared for this Site; however, the attached Site map presents the 2010 analytical and water level data.

RESULTS

- The groundwater flow direction is generally to the west.
- Water levels at the Site are lower than at any other time in the sampling record (which goes back to 1995). It is typical to see observable accumulations of free-product as more of the smear zone becomes unsaturated. In 2010, a total of 0.27 gallons of free-product was recovered from MW-1 via product-absorbing socks.
- Long-term decreasing BTEX concentrations at the Site indicate that natural attenuation is likely occurring. Historically, benzene concentrations in MW-1 have decreased significantly from their level of 1,520 µg/L in 1995, when sampling was initiated. In November 2010, the benzene concentration was 198 µg/L, the ethylbenzene concentration was 840 µg/L, and the total xylenes concentration was 3,170 µg/L. These results were slightly lower than those in other recent years but were still above their respective NMWQCC standards. The concentration of toluene was below its standard in 2010.
- The November 2010 annual groundwater samples collected from MW-2 and MW-3 were non-detect for BTEX. These results are in agreement with other historical data from these two wells.

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.

**EPTPC GROUNDWATER SITES
2010 ANNUAL GROUNDWATER REPORT**

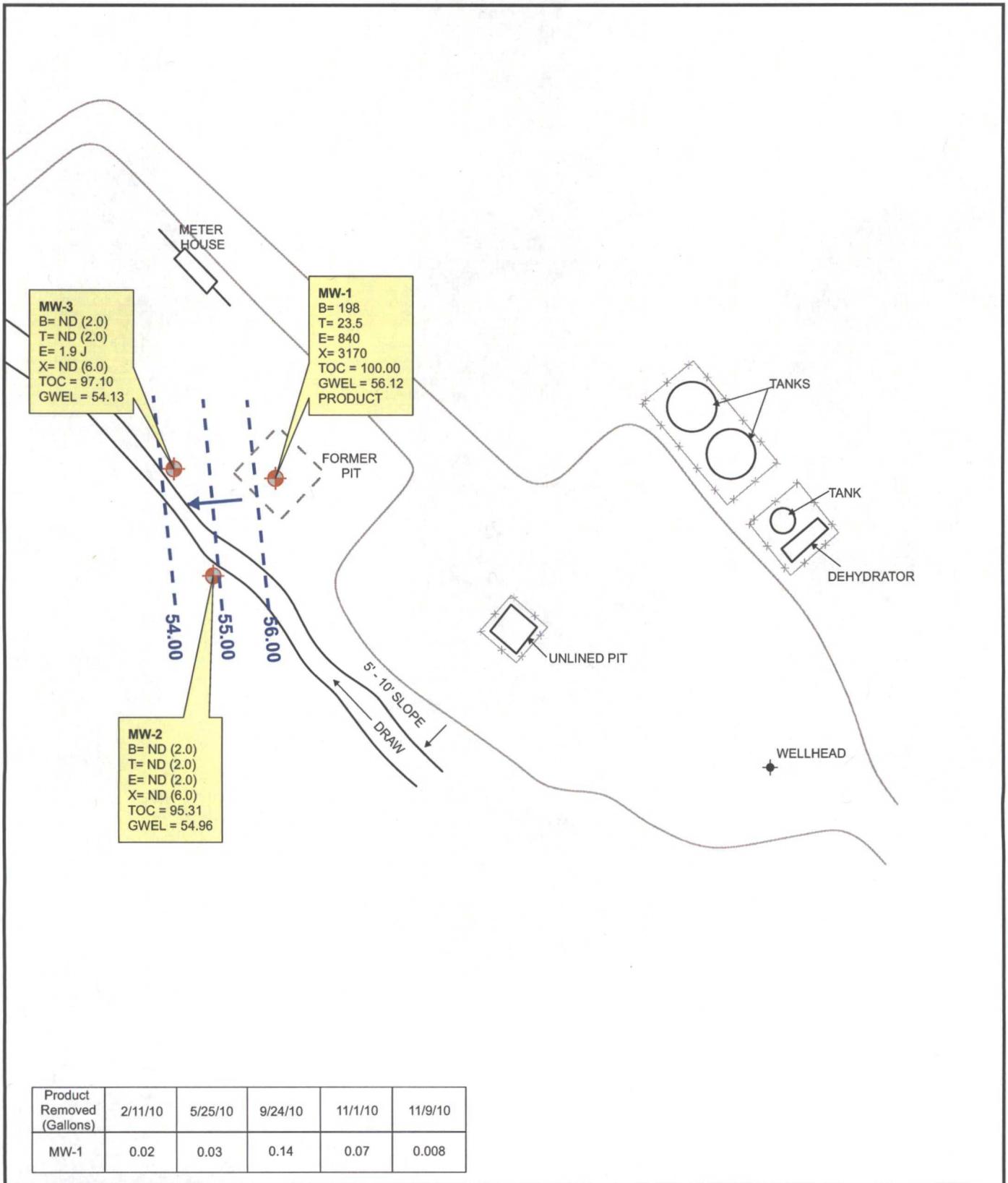
**Fogelson 4-1 Com #14
Meter Code: 73220**

- In order to meet the closure requirements at this site, the following conditions must be achieved:
 1. Recoverable free-product must be removed from the subsurface. Generally, this corresponds with an absence of measurable free-product in the monitor wells. Currently, product recovery efforts are still required at MW-1.
 2. Groundwater contaminant concentrations in the monitor 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 requires additional monitoring. The remaining applicable standards are:

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

RECOMMENDATIONS

- EPTPC recommends conducting quarterly water level/free-product monitoring for this Site. At this time, EPTPC recommends bailing MW-1 quarterly and installing absorbent socks after each bailing event. These activities should continue until free-product subsides.
- The use of ORC socks in MW-1 to enhance biodegradation of dissolved-phase contaminants may be re-instated once observable free-product in the well has subsided. However, ORC socks are generally not utilized when hydrocarbon product (including residual phase product that cannot seep into a monitoring well) is present, due to the extremely high oxygen demand. EPTPC will evaluate the use of ORC in the future, following the subsidence of free-product.
- EPTPC recommends sampling MW-1 annually.
- Historically, the BTEX concentrations at downgradient / crossgradient monitor wells MW-2 and MW-3 have been less than closure criteria. Because of the observed free-product in MW-1, EPTPC recommends that MW-2 and MW-3 continue to be gauged quarterly and sampled annually.



MW-3
 B= ND (2.0)
 T= ND (2.0)
 E= 1.9 J
 X= ND (6.0)
 TOC = 97.10
 GWEL = 54.13

MW-1
 B= 198
 T= 23.5
 E= 840
 X= 3170
 TOC = 100.00
 GWEL = 56.12
 PRODUCT

MW-2
 B= ND (2.0)
 T= ND (2.0)
 E= ND (2.0)
 X= ND (6.0)
 TOC = 95.31
 GWEL = 54.96

Product Removed (Gallons)	2/11/10	5/25/10	9/24/10	11/1/10	11/9/10
MW-1	0.02	0.03	0.14	0.07	0.008

LEGEND

- MW-4 Existing Monitoring / Observation Well
- PZ-01 Abandoned Monitoring Well
- Groundwater Flow Direction
- Potentiometric Surface Contour (Inferred Where Dashed)
- ND Not Detected; Reporting Limit Shown In Parenthesis
- J Result Flagged as Estimated

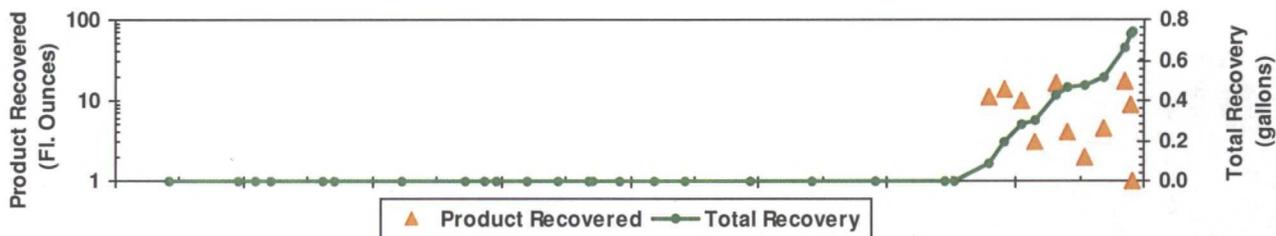
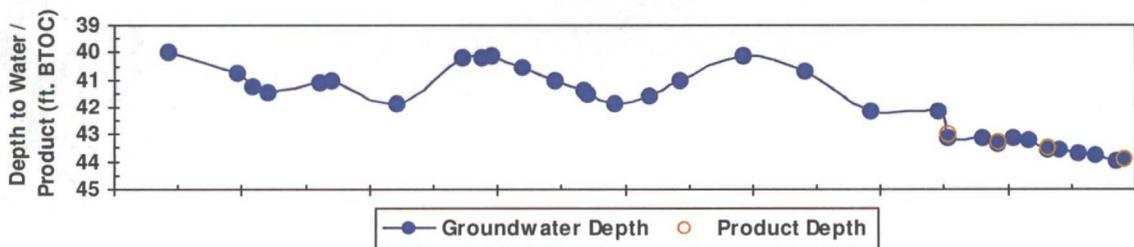
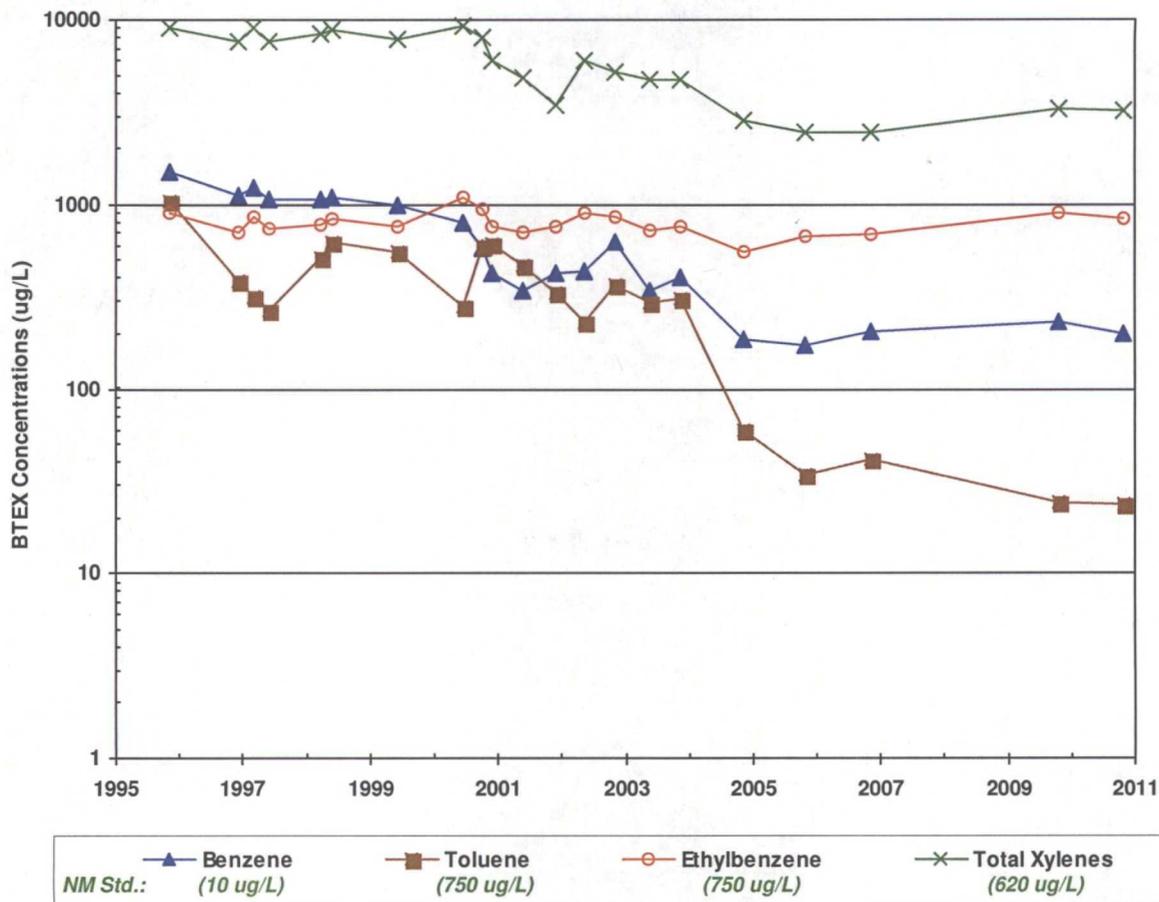
- B Benzene (ug/L)
- T Toluene (ug/L)
- E Ethylbenzene (ug/L)
- X Total Xylenes (ug/L)
- TOC Top of Casing (ft. AMSL)
- GWEL Groundwater Elevation (ft. *)
- * = Elevations in feet relative to a 100 ft benchmark.



PROJECT: FOGELSON 4-1 COM. #14
 TITLE: Groundwater Potentiometric Surface Map, and BTEX Concentrations - November 9, 2010

FIGURE: 1

FIGURE 2
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY
FOGELSON 4-1 COM. #14 (METER #73220)
MW01



*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
FOGELSON 4-1 COM. #14 (METER #73220)
MW02

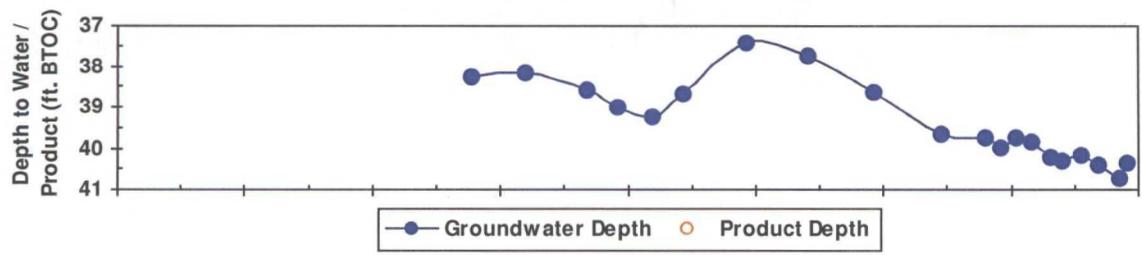
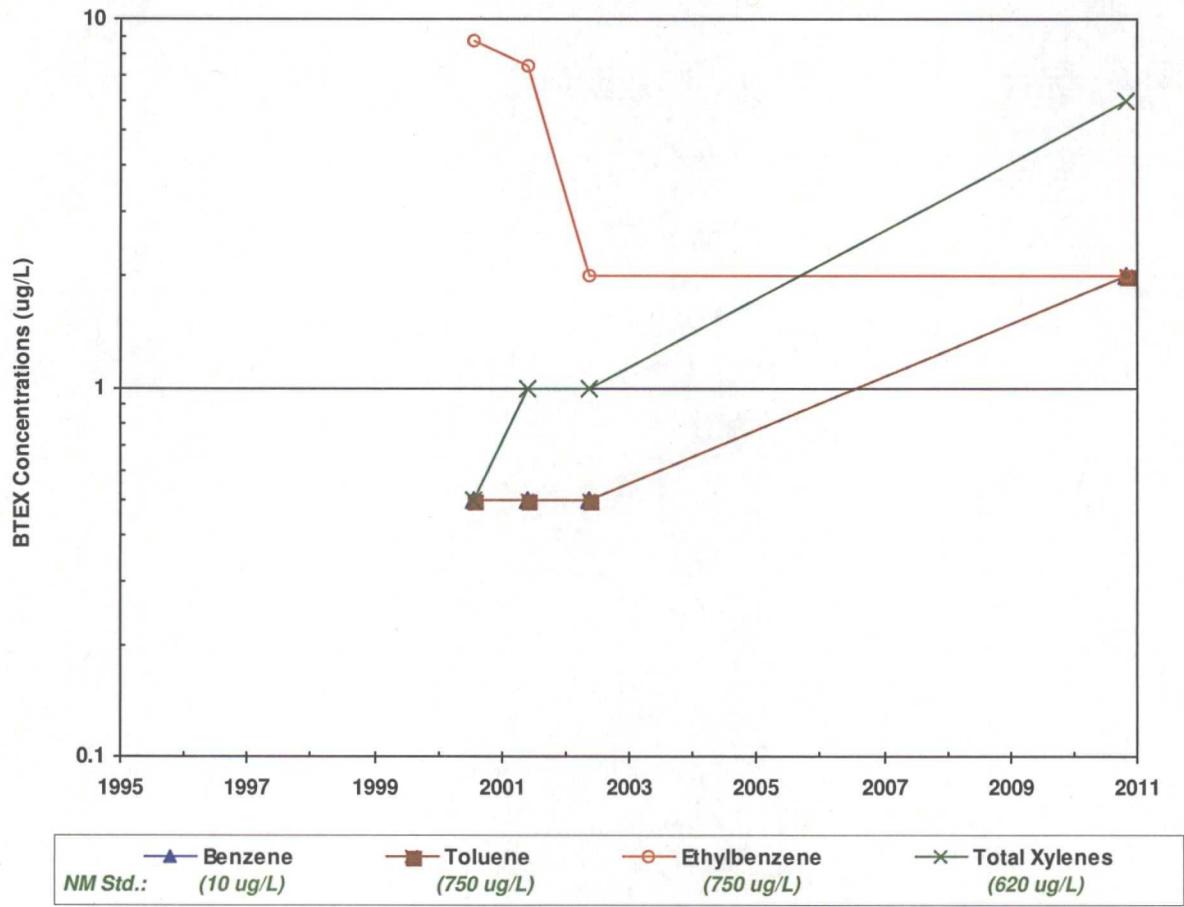
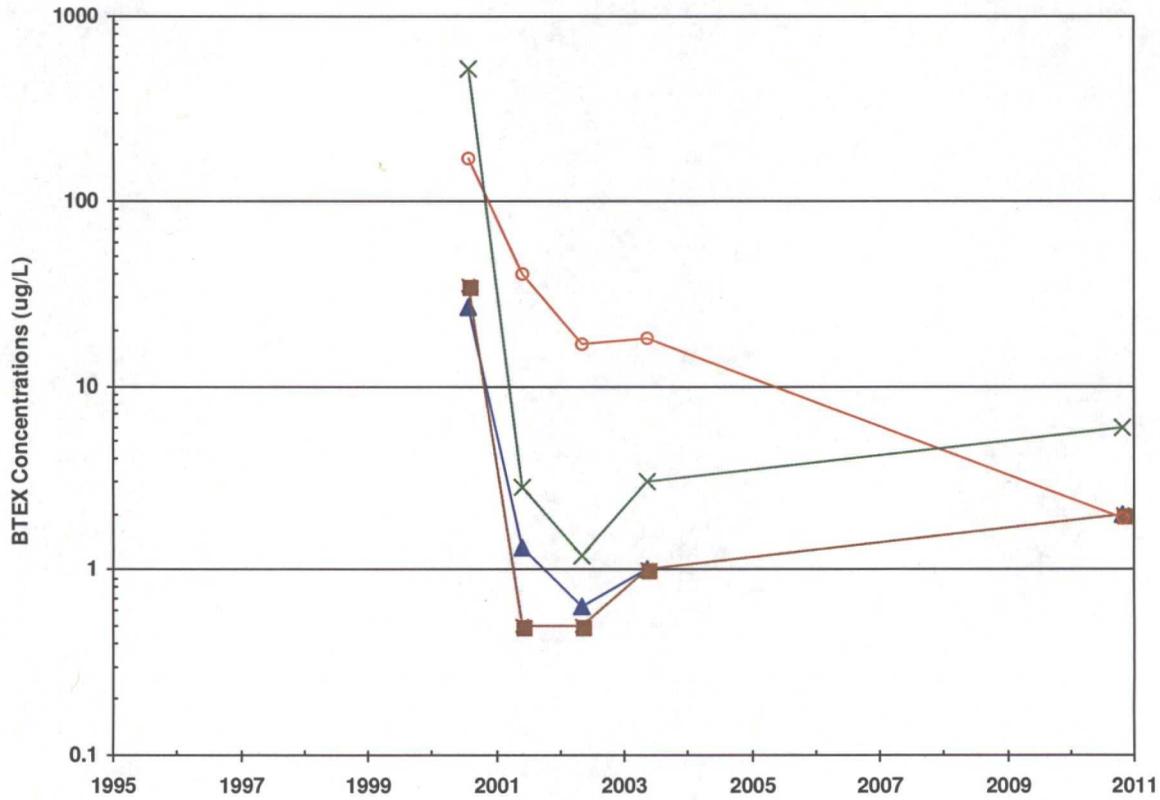
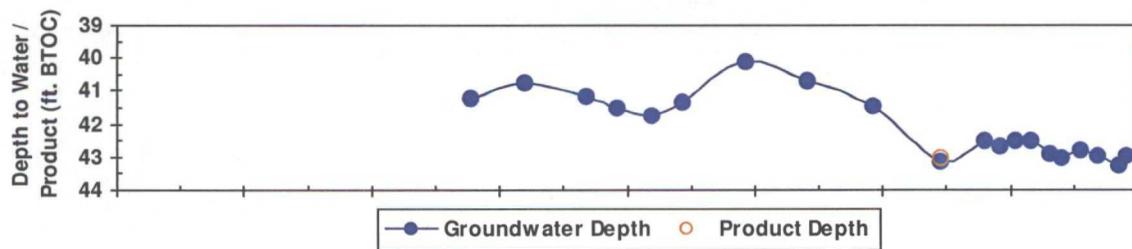


FIGURE 4
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
FOGELSON 4-1 COM. #14 (METER #73220)
MW03



Benzene	Toluene	Ethylbenzene	Total Xylenes
NM Std.: (10 ug/L)	(750 ug/L)	(750 ug/L)	(620 ug/L)



Groundwater Depth	Product Depth
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TABLE 1

**SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
FOGELSON 4-1 COM. #14 (METER #73220)**

Monitor Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft BTOC)	Corrected GW Elevation (Feet*)
NMWQCC GW Std.:		10	750	750	620		
MW01	11/6/1995	1520	1050	907	9180	39.99	60.01
MW01	12/6/1996	1110	388	713	7730	40.74	59.26
MW01	3/10/1997	1240	318	850	9050	41.23	58.77
MW01	6/6/1997	1080	268	747	7700	41.44	58.56
MW01	3/30/1998	1070	522	789	8430	41.08	58.92
MW01	6/4/1998	1090	627	837	8880	41.02	58.98
MW01	6/15/1999	1000	550	770	7800	41.88	58.12
MW01	6/19/2000	790	280	1100	9300	40.17	59.83
MW01	10/2/2000	580	600	950	8000	40.22	59.78
MW01	12/5/2000	420	610	770	6000	40.09	59.91
MW01	5/30/2001	340	470	710	4800	40.54	59.46
MW01	11/26/2001	420	330	760	3400	41.00	59.00
MW01	5/15/2002	430	230	900	6000	41.37	58.63
MW01	11/4/2002	625	370	862	5210	41.90	58.10
MW01	5/21/2003	339	296	723	4730	41.57	58.43
MW01	11/15/2003	401	308	755	4700	41.00	59.00
MW01	11/16/2004	185	59.9	550	2800	40.10	59.90
MW01	11/8/2005	174	34.3	675	2440	40.68	59.32
MW01	11/8/2006	206	41.6	694	2460	42.16	57.84
MW01	11/3/2009	230	24.2J	901	3290	43.52	56.48
MW01	11/9/2010	198	23.5	840	3170	43.89	56.12
MW02	7/27/2000	<0.5	<0.5	8.8	<0.5	38.25	57.06
MW02	5/30/2001	<0.5	<0.5	7.5	1	38.17	57.14
MW02	5/15/2002	<0.5	<0.5	2.0	<1.0	38.56	56.75
MW02	11/9/2010	<2.0	<2.0	<2.0	<6.0	40.35	54.96
MW03	7/27/2000	27	35	170	520	41.21	55.89
MW03	5/30/2001	1.3	<0.5	40	2.8	40.77	56.33
MW03	5/15/2002	0.64	<0.5	17	1.2	41.14	55.96
MW03	5/21/2003	<1.0	<1.0	18.2	<3.0	41.71	55.39
MW03	11/9/2010	<2.0	<2.0	1.9J	<6.0	42.97	54.13

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.

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

TABLE 1

SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
FOGELSON 4-1 COM. #14 (METER #73220)

Monitor Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft BTOC)	Corrected GW Elevation (Feet*)
NMWQCC GW Std.:		10	750	750	620		

TABLE 2

SUMMARY OF FREE-PRODUCT REMOVAL
FOGELSON 4-1 COM. #14 (METER #73220)

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 (Feet*)
MW01	1/25/2008	43.00	43.10	0.10	--	0.00	56.98
MW01	8/12/2008	--	43.14	0.00	0.09	0.09	56.86
MW01	11/7/2008	43.24	43.32	0.08	0.11	0.20	56.74
MW01	2/6/2009	--	43.12	0.00	0.08	0.28	56.88
MW01	5/4/2009	--	43.22	0.00	0.02	0.30	56.78
MW01	8/26/2009	43.46	43.53	0.07	0.13	0.43	56.53
MW01	11/3/2009	--	43.52	0.00	0.03	0.47	56.48
MW01	2/11/2010	--	43.64	0.00	0.02	0.48	56.36
MW01	5/25/2010	--	43.75	0.00	0.04	0.52	56.25
MW01	9/24/2010		43.95	0.00	0.14	0.66	56.05
MW01	11/1/2010	NA	NA	NA	0.07	0.73	NA
MW01	11/9/2010	43.88	43.89	0.01	0.01	0.74	56.12
MW03	11/29/2007	43.01	43.10	0.09	--	0.00	54.07

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.

*This site has a benchmark elevation of 100 feet rather than mean sea level.