

**3R155**

**2010 AGWMR**

**03/02/2011**



BUILDING A BETTER WORLD

3R155

March 2, 2011

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

RECEIVED OGD  
2011 MAR -4 P 12:24

**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)

3R155



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El Paso Tennessee  
Pipeline Company

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San Juan Basin Pit Program  
Groundwater Sites Project

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Final 2010 Annual Report  
Federal Sites (Volume 1)

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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

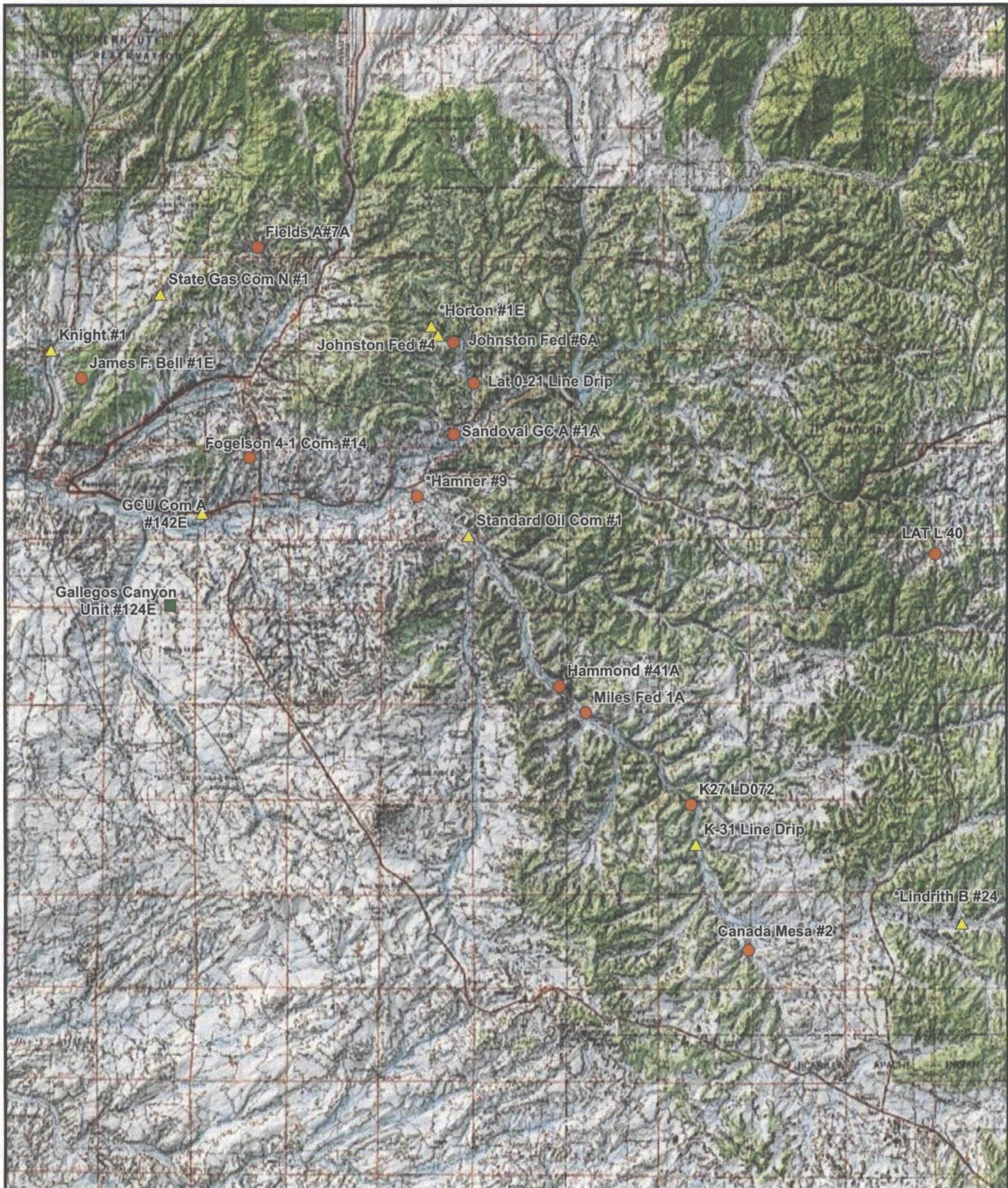
\* The Hamner #9 site was submitted for closure in January 2009 and is pending approval from NMOCD. There were no monitoring activities for this site in 2010.



**MWH**

## LIST OF ACRONYMS

AMSL	above mean sea level
B	benzene
btop	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**

3R-155

EPTPC GROUNDWATER SITES  
2010 ANNUAL GROUNDWATER REPORT

Canada Mesa #2  
Meter Code: 87640

SITE DETAILS

<b>Legal Description:</b>	<b>Town:</b> 24N	<b>Range:</b> 6W	<b>Sec:</b> 24	<b>Unit:</b> I
<b>NMOCD Haz Ranking:</b>	40	<b>Land Type:</b>	Federal	<b>Operator:</b> Merrion Oil & Gas Company

PREVIOUS ACTIVITIES

<b>Site Assessment:</b>	7/94	<b>Excavation:</b>	8/94	<b>Soil Boring:</b>	8/95
<b>Monitor Well:</b>	8/95	<b>Geoprobe:</b>	NA	<b>Additional MWs:</b>	10/00
<b>Downgradient MWs:</b>	10/00	<b>Replace MW:</b>	NA	<b>Quarterly Initiated:</b>	8/95
<b>ORC Nutrient Injection:</b>	NA	<b>Re-Excavation:</b>	NA	<b>PSH Removal Initiated:</b>	8/97
<b>Annual Initiated:</b>	11/00	<b>Quarterly Resumed:</b>	NA	<b>PSH Removal in 2010?</b>	Yes

SUMMARY OF 2010 ACTIVITIES

- MW-1:** Annual groundwater sampling (November) and quarterly free-product recovery were performed during 2010.
  - MW-2:** Annual groundwater sampling (November) and quarterly water level monitoring were performed during 2010.
  - MW-3:** Annual groundwater sampling (November) and quarterly water level monitoring were performed during 2010.
- Site-Wide Activities:** No other activities were performed at this Site during 2010.

SITE MAP

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.

**EPTPC GROUNDWATER SITES  
2010 ANNUAL GROUNDWATER REPORT**

**Canada Mesa #2  
Meter Code: 87640**

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- The 2010 laboratory report is presented in Attachment 1 (included on CD).
- 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**

The attached Site map presents both the water level and analytical data collected during the November 2010 annual sampling event.

**RESULTS**

- The groundwater flow direction is generally to the east-northeast at this Site.
- Approximately 0.74 gallons of free-product was recovered from MW-1 in 2010, bringing the cumulative total recovered to approximately 47.84 gallons. Groundwater concentrations of benzene, toluene, ethylbenzene, and total xylenes remain elevated above the NMWQCC standards in MW-1.
- The BTEX constituents were not detected in MW-2 during 2010. The benzene concentration in MW-2 first dropped below the NMWQCC standard in 2006 and has remained in compliance since that time.
- The benzene concentration in MW-3 was 426 µg/L in November 2010, similar to previous years. Overall, the benzene concentrations have decreased significantly from a high of 1,430 µg/L in 2002. Toluene, ethylbenzene and total xylenes concentrations remain below their respective NMWQCC standards.

**REMAINING CLOSURE REQUIREMENTS**

- 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 conditions must still be achieved:

**EPTPC GROUNDWATER SITES  
2010 ANNUAL GROUNDWATER REPORT**

**Canada Mesa #2  
Meter Code: 87640**

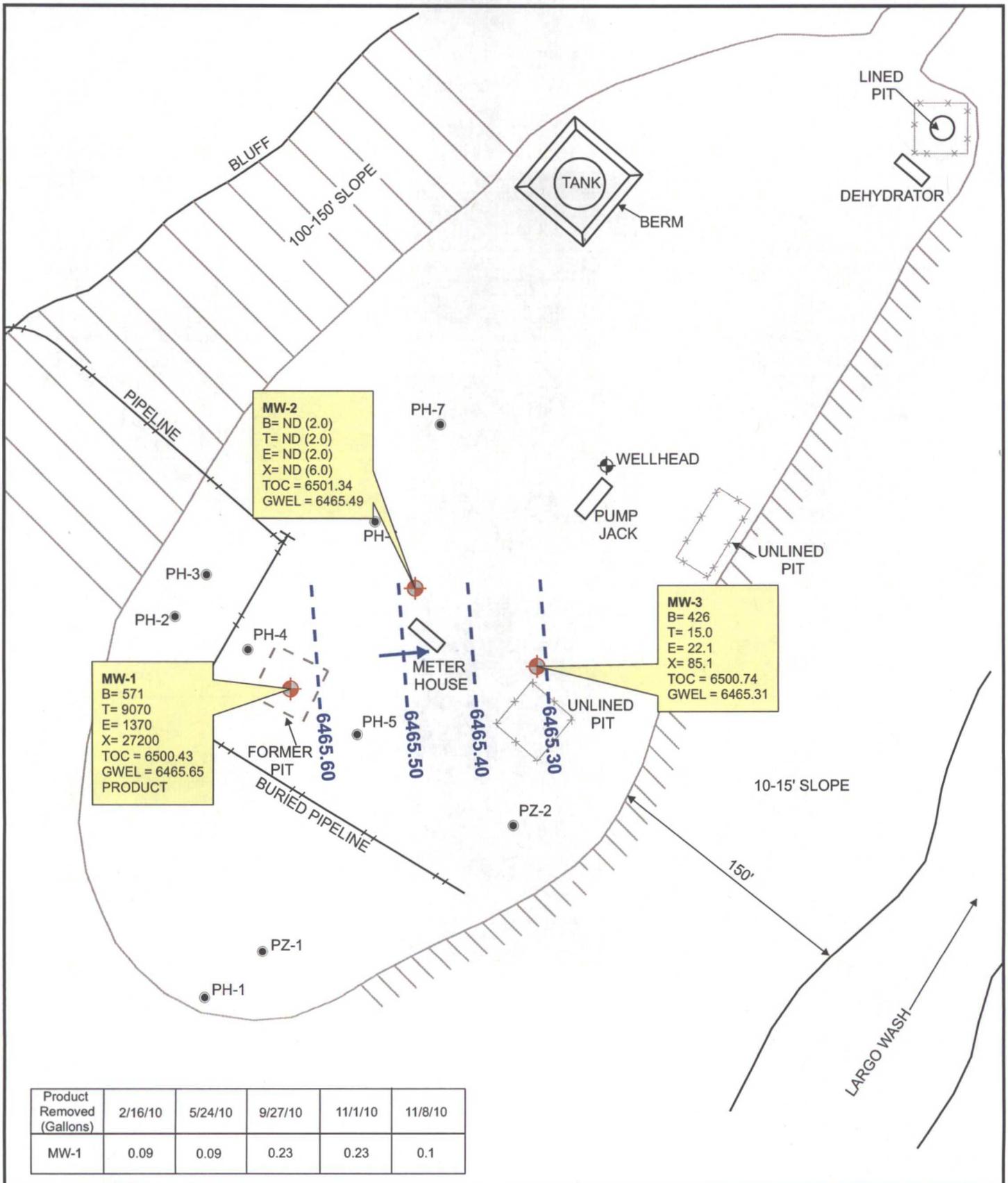
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1. Recoverable free-product must be removed from the subsurface. Generally, this corresponds with an absence of measurable free-product in the monitor wells. Currently, product recovery efforts are still required at MW-1.
2. Groundwater contaminant 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 and MW-3 require additional monitoring. The remaining applicable standards are:

Constituent	NMWQCC GW Standard ( $\mu\text{g/L}$ )
Benzene	10
Toluene	750
Ethylbenzene	750
Total Xylenes	620

**RECOMMENDATIONS**

- EPTPC will continue quarterly free-product recovery efforts at MW-1; however, the frequency of monitoring may be adjusted based on the amount of product recovered during the monitoring visits.
- EPTPC will continue sampling MW-1, MW-2, and MW-3 on an annual basis. Once the results meet the closure criteria, sampling will be conducted on a quarterly basis until the closure criteria are met.



**LEGEND**

- MW-4 Existing Monitoring / Observation Well
- PZ-01 Abandoned Monitoring Well
- Groundwater Flow Direction
- 1275- Potentiometric Surface Contour (Inferred Where Dashed)

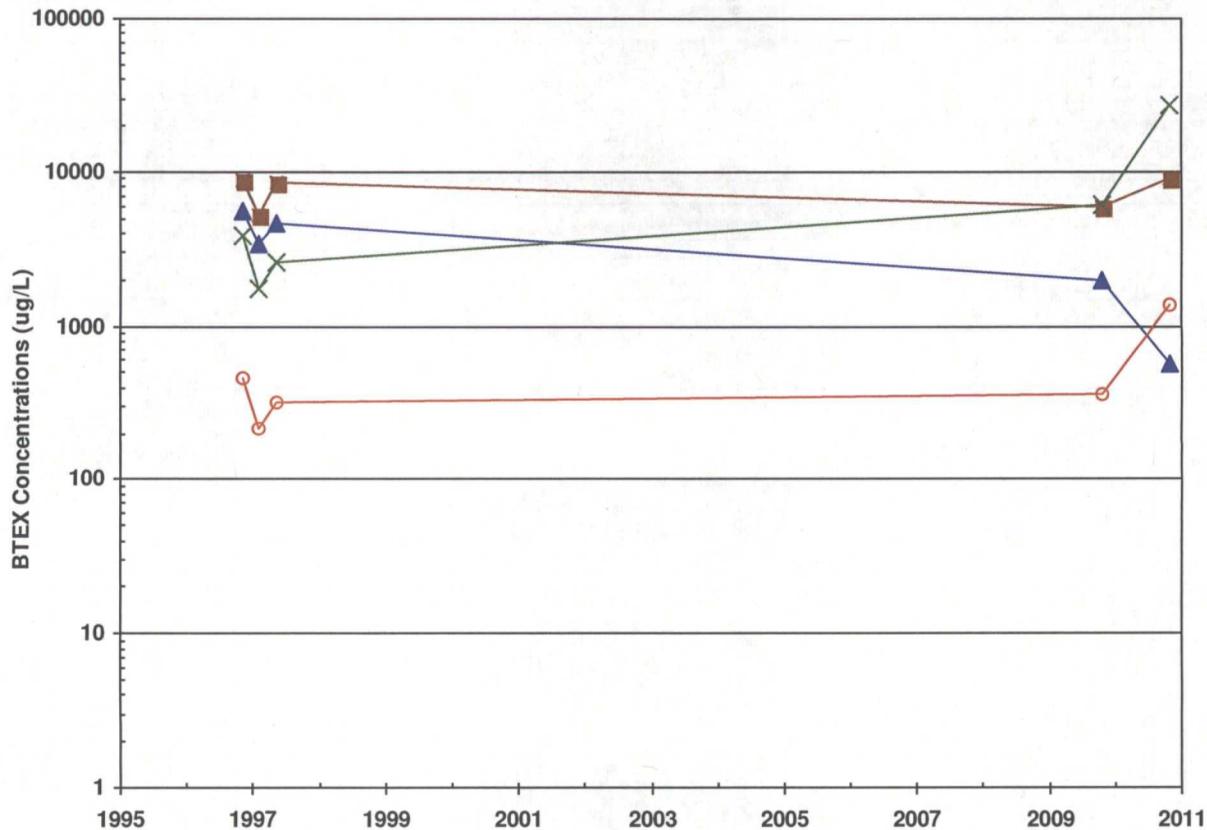
- B Benzene (ug/L)
- T Toluene (ug/L)
- E Ethylbenzene (ug/L)
- X Total Xylenes (ug/L)
- TOC Top of Casing (ft. AMSL)
- GWEL Groundwater Elevation (ft. AMSL)



PROJECT: CANADA MESA #2  
 TITLE: Groundwater Potentiometric Surface Map, and BTEX Concentrations - November 8, 2010

FIGURE:  
 1

**FIGURE 2**  
**SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY**  
**CANADA MESA #2 (METER #87640)**  
**MW01**

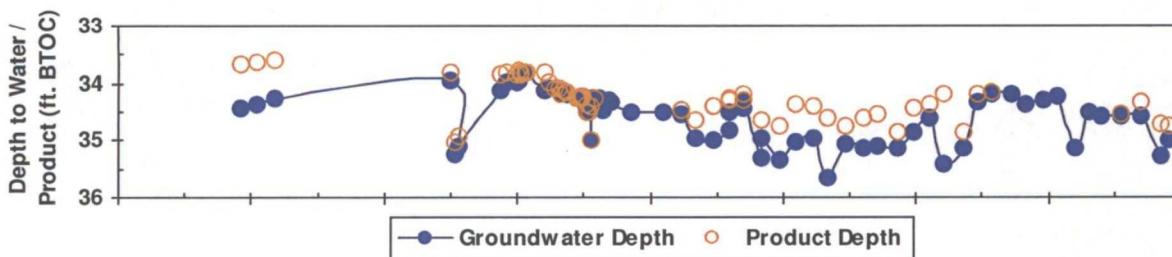


Benzene  
*NM Std.: (10 ug/L)*

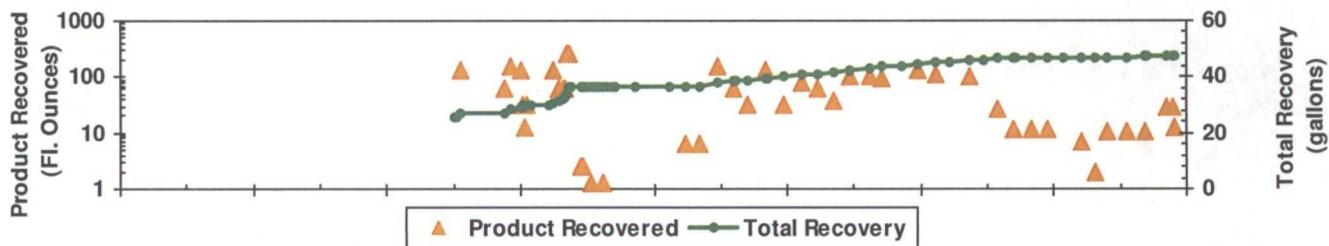
Toluene  
*(750 ug/L)*

Ethylbenzene  
*(750 ug/L)*

Total Xylenes  
*(620 ug/L)*



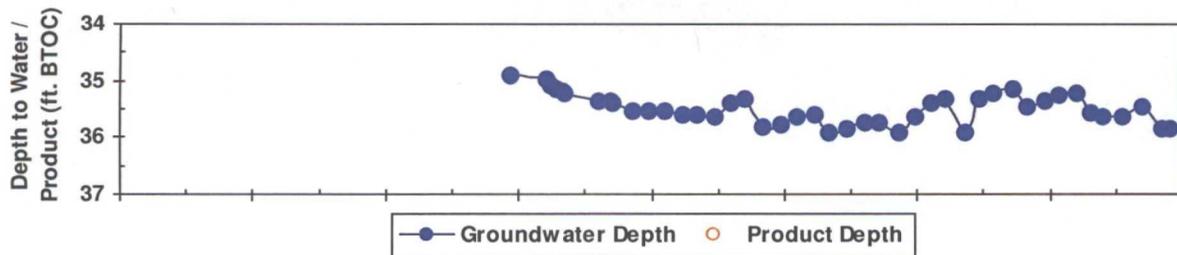
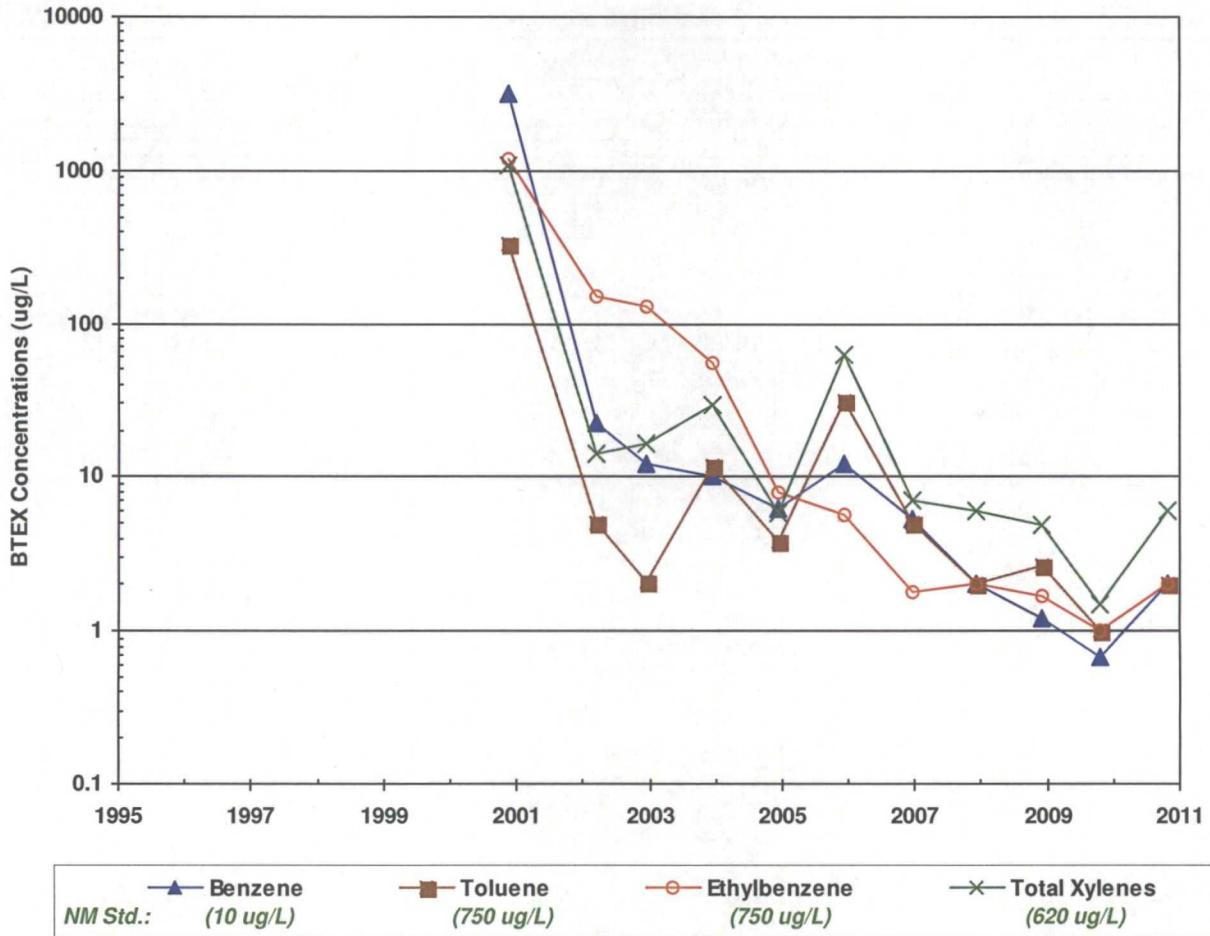
Groundwater Depth
  Product Depth



Product Recovered
  Total Recovery

*\*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**  
**CANADA MESA #2 (METER #87640)**  
**MW02**



**FIGURE 4**  
**SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS**  
**CANADA MESA #2 (METER #87640)**  
**MW03**

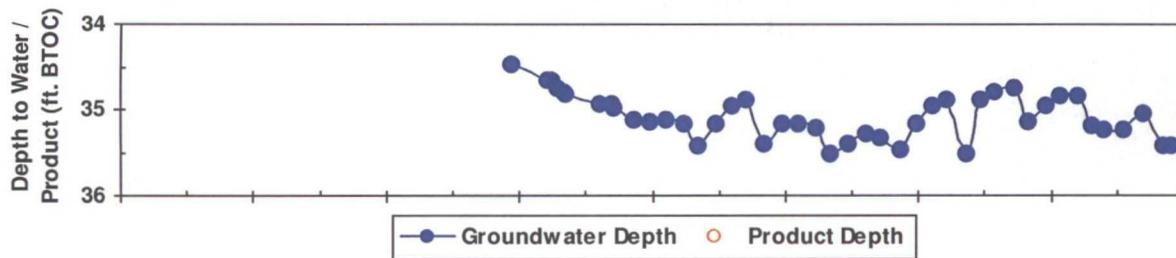
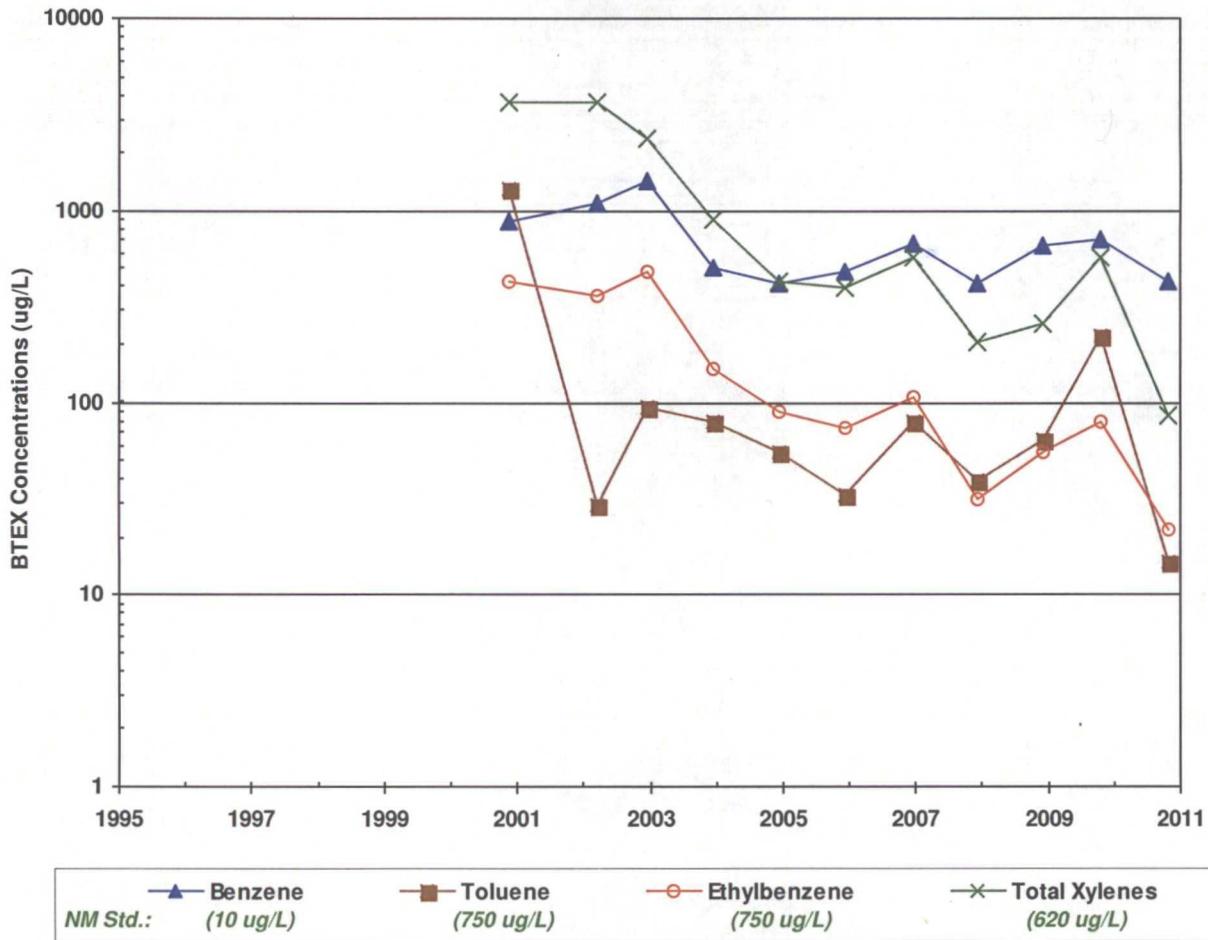


TABLE 1

**SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
CANADA MESA #2 (METER #87640)**

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 (ft AMSL)
<b>NMWQCC GW Std.:</b>		<b>10</b>	<b>750</b>	<b>750</b>	<b>620</b>		
MW01	11/4/1996	<b>5520</b>	<b>8880</b>	469	<b>3920</b>	34.42	6466.61
MW01	2/5/1997	<b>3450</b>	<b>5200</b>	214	<b>1770</b>	34.35	6466.65
MW01	5/7/1997	<b>4650</b>	<b>8440</b>	317	<b>2580</b>	34.24	6466.69
MW01	11/3/2009	<b>1970</b>	<b>6020</b>	359	<b>6110</b>	34.57	6465.86
MW01	11/8/2010	<b>571</b>	<b>9070</b>	<b>1370</b>	<b>27200</b>	34.98	6465.65
MW02	11/16/2000	<b>3200</b>	330	<b>1200</b>	<b>1100</b>	34.90	6466.44
MW02	3/19/2002	<b>22</b>	<5.0	150	14	35.36	6465.98
MW02	12/24/2002	<b>12.1</b>	2.1	129	16.4	35.52	6465.82
MW02	12/15/2003	10	11.7	55.3	29.7	35.63	6465.71
MW02	12/15/2004	6.3	3.8	8.0	5.9	35.79	6465.55
MW02	12/15/2005	<b>12.1</b>	30.9	5.6	61.9	35.85	6465.49
MW02	12/26/2006	5.3	5.0	1.8	7.1	35.63	6465.71
MW02	12/18/2007	<2.0	<2.0	<2.0	<6.0	35.32	6466.02
MW02	12/10/2008	1.2	2.7	1.7	4.9	35.37	6465.97
MW02	11/3/2009	0.68J	<1.0	<1.0	1.5J	35.65	6465.69
MW02	11/8/2010	<2.0	<2.0	<2.0	<6.0	35.85	6465.49
MW03	11/16/2000	<b>880</b>	<b>1300</b>	420	<b>3700</b>	34.46	6466.28
MW03	3/19/2002	<b>1100</b>	29	360	<b>3700</b>	34.92	6465.82
MW03	12/24/2002	<b>1430</b>	95	483	<b>2359</b>	35.15	6465.59
MW03	12/15/2003	<b>503J</b>	<b>79.7J</b>	148J	<b>891J</b>	35.17	6465.57
MW03	12/15/2004	<b>410</b>	54.9	88.7	420	35.17	6465.57
MW03	12/15/2005	<b>482</b>	32.7	74.1	399	35.40	6465.34
MW03	12/26/2006	<b>679</b>	78.9	106	565	35.16	6465.58
MW03	12/18/2007	<b>412</b>	39.4	31.5	207	34.88	6465.86
MW03	12/10/2008	<b>653</b>	63.2	55.5	253	34.95	6465.79
MW03	11/3/2009	<b>715</b>	220	80.0	570	35.23	6465.51
MW03	11/8/2010	<b>426</b>	15.0	22.1	85.1	35.43	6465.31

**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 2

**SUMMARY OF FREE-PRODUCT REMOVAL  
CANADA MESA #2 (METER #87640)**

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)
MW01	11/4/1996	33.67	34.42	0.75	NA	NA	6466.61
MW01	2/5/1997	33.64	34.35	0.71	NA	NA	6466.65
MW01	5/7/1997	33.61	34.24	0.63	NA	NA	6466.69
MW01	1/9/2000	33.79	33.93	0.14	--	25.73	6466.61
MW01	1/26/2000	35.03	35.22	0.19	--	25.73	6465.36
MW01	2/15/2000	34.93	35.11	0.18	1.00	26.73	6465.46
MW01	10/6/2000	33.82	34.11	0.29	0.50	27.23	6466.55
MW01	11/14/2000	33.81	33.98	0.17	1.25	28.48	6466.59
MW01	1/3/2001	33.83	33.96	0.13	1.00	29.48	6466.57
MW01	1/15/2001	33.78	33.93	0.15	--	29.48	6466.62
MW01	1/22/2001	33.81	33.81	0.00	0.25	29.73	6466.62
MW01	1/30/2001	33.82	33.83	0.01	0.10	29.83	6466.61
MW01	2/13/2001	33.80	33.80	0.00	0.25	30.08	6466.63
MW01	2/20/2001	33.81	33.81	0.00	--	30.08	6466.62
MW01	2/28/2001	33.81	33.81	0.00	--	30.08	6466.62
MW01	6/4/2001	33.81	34.13	0.32	--	30.08	6466.56
MW01	7/3/2001	33.96	34.09	0.13	1.00	31.08	6466.44
MW01	8/6/2001	34.07	34.08	0.01	0.50	31.58	6466.36
MW01	8/20/2001	34.09	34.10	0.01	0.50	32.08	6466.34
MW01	8/31/2001	34.17	34.17	0.00	0.50	32.58	6466.26
MW01	9/14/2001	34.13	34.14	0.01	2.02	34.60	6466.30
MW01	9/26/2001	34.14	34.15	0.01	2.02	36.62	6466.29
MW01	10/2/2001	34.15	34.17	0.02	--	36.62	6466.28
MW01	10/10/2001	34.16	34.18	0.02	--	36.62	6466.27
MW01	12/5/2001	34.25	34.26	0.01	0.02	36.64	6466.18
MW01	12/14/2001	34.27	34.27	0.00	0.02	36.66	6466.16
MW01	12/21/2001	34.24	34.24	0.00	--	36.66	6466.19
MW01	12/28/2001	34.22	34.22	0.00	--	36.66	6466.21
MW01	1/2/2002	34.23	34.23	0.00	--	36.66	6466.20
MW01	1/7/2002	34.23	34.25	0.02	--	36.66	6466.20
MW01	1/23/2002	34.37	34.42	0.05	0.01	36.67	6466.05
MW01	1/30/2002	34.50	34.51	0.01	0.01	36.68	6465.93
MW01	2/7/2002	34.49	34.50	0.01	--	36.68	6465.94
MW01	2/14/2002	34.41	34.42	0.01	--	36.68	6466.02

TABLE 2

SUMMARY OF FREE-PRODUCT REMOVAL  
CANADA MESA #2 (METER #87640)

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)
MW01	2/20/2002	34.99	35.00	0.01	--	36.68	6465.44
MW01	3/7/2002	34.24	34.25	0.01	--	36.68	6466.19
MW01	3/12/2002	34.24	34.25	0.01	--	36.68	6466.19
MW01	3/28/2002	--	34.27	0.00	0.01	36.69	6466.16
MW01	6/22/2003	34.48	34.55	0.07	0.05	36.74	6465.94
MW01	9/15/2003	34.65	34.97	0.32	0.05	36.79	6465.72
MW01	12/15/2003	34.41	34.98	0.57	1.25	38.04	6465.91
MW01	3/17/2004	34.24	34.80	0.56	0.50	38.54	6466.08
MW01	3/22/2004	34.29	34.49	0.20	--	38.54	6466.10
MW01	6/3/2004	34.30	34.44	0.14	0.25	38.79	6466.10
MW01	6/4/2004	34.20	34.30	0.10	--	38.79	6466.21
MW01	9/13/2004	34.64	35.30	0.66	1.00	39.79	6465.66
MW01	9/14/2004	34.65	34.95	0.30	--	39.79	6465.72
MW01	12/15/2004	34.74	35.32	0.58	0.25	40.04	6465.57
MW01	3/22/2005	34.36	35.01	0.65	0.64	40.68	6465.94
MW01	6/24/2005	34.39	34.97	0.58	0.50	41.18	6465.92
MW01	9/14/2005	34.60	35.65	1.05	0.30	41.48	6465.62
MW01	12/14/2005	34.74	35.05	0.31	0.80	42.28	6465.63
MW01	3/28/2006	34.59	35.14	0.55	0.80	43.08	6465.73
MW01	6/7/2006	34.52	35.11	0.59	0.75	43.83	6465.79
MW01	9/29/2006	34.85	35.14	0.29	--	43.83	6465.52
MW01	12/26/2006	34.44	34.85	0.41	1.00	44.83	6465.91
MW01	3/26/2007	34.35	34.60	0.25	0.84	45.67	6466.03
MW01	6/13/2007	34.20	35.39	1.19	--	45.67	6465.99
MW01	9/28/2007	34.86	35.12	0.26	0.79	46.46	6465.52
MW01	12/18/2007	34.18	34.34	0.16	--	46.46	6466.22
MW01	3/5/2008	34.15	34.17	0.02	0.21	46.67	6466.28
MW01	6/4/2008	NA	NA	NA	0.09	46.76	NA
MW01	9/10/2008	--	34.35	0.00	0.09	46.85	6466.08
MW01	12/10/2008	--	34.30	0.00	0.09	46.94	6466.13
MW01	6/9/2009	NA	NA	NA	0.05	47.00	NA
MW01	8/25/2009	--	34.50	0.00	0.02	47.01	6465.93
MW01	11/2/2009	NA	NA	NA	0.09	47.10	NA
MW01	2/16/2010	34.54	34.57	0.03	0.09	47.18	6465.88

**TABLE 2**

**SUMMARY OF FREE-PRODUCT REMOVAL  
CANADA MESA #2 (METER #87640)**

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)
MW01	5/24/2010	NA	NA	NA	0.09	47.27	NA
MW01	6/2/2010	34.34	34.58	0.24		47.27	6466.04
MW01	9/27/2010	34.71	35.26	0.55	0.23	47.50	6465.61
MW01	11/1/2010	NA	NA	NA	0.23	47.74	NA
MW01	11/8/2010	34.73	34.98	0.25	0.10	47.84	6465.65

**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.