

3R - 201

2010 AGWMR

03/02/2011



BUILDING A BETTER WORLD

3R201

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

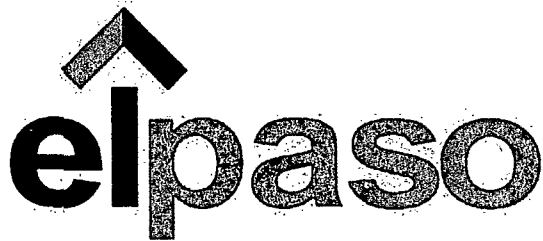
If you have any questions concerning the enclosed reports, please call either Ian Yanagisawa of EPTPC (713-420-7361) or myself (303-291-2276).

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)



El Paso Tennessee
Pipeline Company

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2011 MAR -4 P 12:24

San Juan Basin Pit Program
Groundwater Sites Project

Final 2010 Annual Report
Non-Federal Sites (Volume 2)

March 2011



MWH

1801 California Street, Suite 2900
Denver, Colorado 80202

**2010 ANNUAL GROUNDWATER REPORT
NON-FEDERAL SITES VOLUME II
EL PASO TENNESSEE PIPELINE COMPANY**

TABLE OF CONTENTS

METER or LINE ID	NMOCD CASE NO.	SITE NAME	TOWNSHIP	RANGE	SECTION	UNIT
03906	3RP-179-0	GCU Com A #142E	29N	12W	25	G
93388	3RP-192-0	*Horton #1E	31N	09W	28	H
70194	3RP-201-0	Johnston Fed #4	31N	09W	33	H
LD087	3RP-205-0	K-31 Line Drip	25N	06W	16	N
72556	3RP-207-0	Knight #1	30N	13W	5	A
94967	3RP-214-0	**Lindrith B #24	24N	03W	9	N
70445	3RP-074-0	Standard Oil Com #1	29N	09W	36	N
71669	3RP-239-0	State Gas Com N #1	31N	12W	16	H

*The Horton #1E site was submitted for closure in 2009 and is pending approval from NMOCD. There were no monitoring activities for this site in 2010.

**The Lindrith B#24 site was submitted for closure in 2006 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

3R201

**EPTPC GROUNDWATER SITES
2010 ANNUAL GROUNDWATER REPORT**

**Johnston Fed #4
Meter Code: 70194**

SITE DETAILS

Legal Description: **Town:** 31N **Range:** 09W **Sec:** 33 **Unit:** H
NMOCD Haz Ranking: 40 **Land Type:** Fee **Operator:** ConocoPhillips

PREVIOUS ACTIVITIES

Site Assessment: 8/94	Excavation: 9/94 (60 cy)	Soil Boring: 8/95
Monitor Well: 8/95	Geoprobe: 9/97	Additional MWs: 12/95
Downgradient MWs: 12/95	Replace MW: NA	Quarterly Initiated: NA
ORC Nutrient Injection: NA	Re-Excavation: NA	PSH Removal Initiated: 9/97
Annual Initiated: 6/01	Quarterly Resumed: NA	PSH Removal in 2010? Yes

SUMMARY OF 2010 ACTIVITIES

MW-1: Annual groundwater sampling (June) and quarterly water level monitoring were performed during 2010.

MW-2: Annual groundwater sampling (June) and quarterly water level monitoring were performed during 2010.

MW-3: Annual groundwater sampling (June) and quarterly free-product recovery were performed during 2010.

MW-4: Annual groundwater sampling (June) and quarterly water level monitoring were performed during 2010.

TMW-5: Annual groundwater sampling (June) and quarterly water level monitoring were performed during 2010.

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

SITE MAP

A Site map (June) 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 6. Where applicable, static water level elevations were corrected for measurable thicknesses of free-product (specific gravity of 0.8).

**EPTPC GROUNDWATER SITES
2010 ANNUAL GROUNDWATER REPORT**

**Johnston Fed #4
Meter Code: 70194**

- Historic free-product recovery data are summarized in Table 2 and presented graphically in Figures 2 and 4.
- 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 product recovery socks were disposed of as non-hazardous solid waste.

ISOCONCENTRATION MAPS

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

RESULTS

- The groundwater flow direction at this Site trends toward the east.
- Monitoring wells MW-2 and MW-3 are located downgradient of the former pit. The presence of hydrocarbon contamination in TMW-5, which is located upgradient to crossgradient from the former El Paso pit, may suggest an alternative source of contamination at the Site.
- The annual groundwater sample from MW-1 (a former product-containing well) contained elevated concentrations of benzene, toluene, and total xylenes well above their respective NMWQCC standards. The current concentrations appear to be similar to the historic data.
- The benzene concentration in the annual groundwater sample collected at MW-2 decreased from 22.9 µg/L in June 2009 to 5.6 µg/L in June 2010. This is the first groundwater sample from MW-2 to fully meet the NMWQCC standards; the benzene concentrations in this well have been steadily attenuating from a high of 5,900 µg/L in 1996. Toluene and total xylenes concentrations have met the NMWQCC standards since 2001; and the ethylbenzene concentrations have always been below the standard.
- Free-product recovery efforts at MW-3 resulted in the removal of approximately 0.30 gallons of free-phase hydrocarbons during 2010, bringing the cumulative total volume recovered to 11.59 gallons. A groundwater sample collected from MW-3 in June 2010 contained elevated concentrations of benzene, toluene, and total

**EPTPC GROUNDWATER SITES
2010 ANNUAL GROUNDWATER REPORT**

**Johnston Fed #4
Meter Code: 70194**

xylenes above their respective NMWQCC standards. These results were similar to the previous sample results from this well.

- Monitoring well MW-4 was sampled for the fourth time in June 2010 and appears to be clean. This well, installed in late 2006, was anticipated to be downgradient of the former pit; however, based on the subsequent survey and monitoring data, this well appears to be cross-gradient of the pit.
- Temporary monitoring well TMW-5 continues to be significantly impacted, though it is upgradient to crossgradient from the former El Paso pit. The June 2010 benzene concentration of 1,970 µg/L and total xylenes concentration of 746 µg/L both exceeded their respective NMWQCC standards. It is noted that the samples from this well contain a much higher concentration of ethylbenzene than toluene. By comparison, the groundwater in MW-1 and MW-3 (located at and downgradient of the former El Paso pit, respectively) contains far more toluene content than ethylbenzene.

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 remaining closure requirements at this site, the following conditions must still be achieved:
 1. The extent of the contaminant plume must be delineated. The site was re-surveyed in 2007, and subsequent gauging events yielded new information regarding the hydraulic gradient. It now appears that a well is needed downgradient (east) of monitor well MW-3. This new understanding of the groundwater flow direction has been confirmed over the last several years.
 2. 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-3.
 3. 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, MW-2, MW-3, and TMW-5 require additional monitoring. The

**EPTPC GROUNDWATER SITES
2010 ANNUAL GROUNDWATER REPORT**

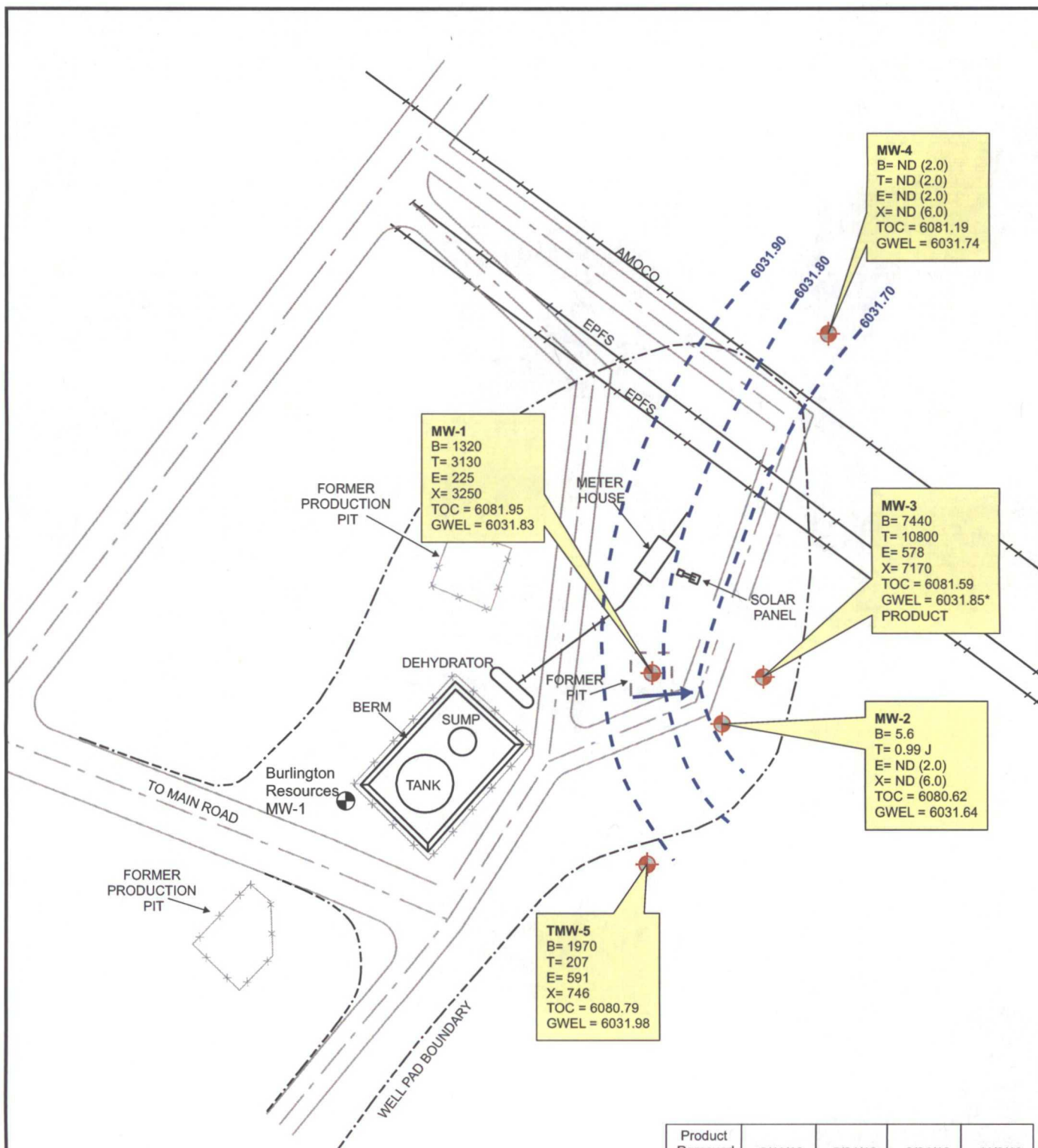
**Johnston Fed #4
Meter Code: 70194**

remaining applicable standards are:

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

RECOMMENDATIONS

- EPTPC will continue annual sampling and quarterly water level monitoring at MW-1.
- EPTPC will continue annual sampling and quarterly water level monitoring at MW-2 until analytical results indicate that Site BTEX concentrations are approaching closure criteria. This well will then be scheduled for quarterly sampling until closure criteria have been met.
- EPTPC will continue quarterly free-product recovery efforts at MW-3; however, the frequency of monitoring may be adjusted based on the amount of product recovered during the monitoring visits. This well will be sampled annually.
- Monitoring wells MW-4 and TMW-5 will be sampled annually in conjunction with MW-1, MW-2, and MW-3. EPTPC may continue to evaluate the source of the potential upgradient impacts in the vicinity of TMW-5.
- EPTPC recommends installing a new monitoring well east of MW-3. With the hydraulic gradient now understood as clearly eastward, additional downgradient delineation of the dissolved phase plume is warranted.



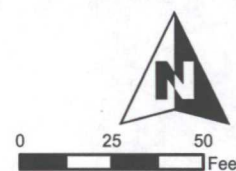
Product Removed (Gallons)	2/11/10	5/24/10	9/24/10	11/2/10
MW-3	0.05	0.06	0.08	0.08

* Elevation corrected for 0.2ft product thickness.

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

- 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)
 J Result Flagged as Estimated



MWH



PROJECT:

JOHNSTON FED #4

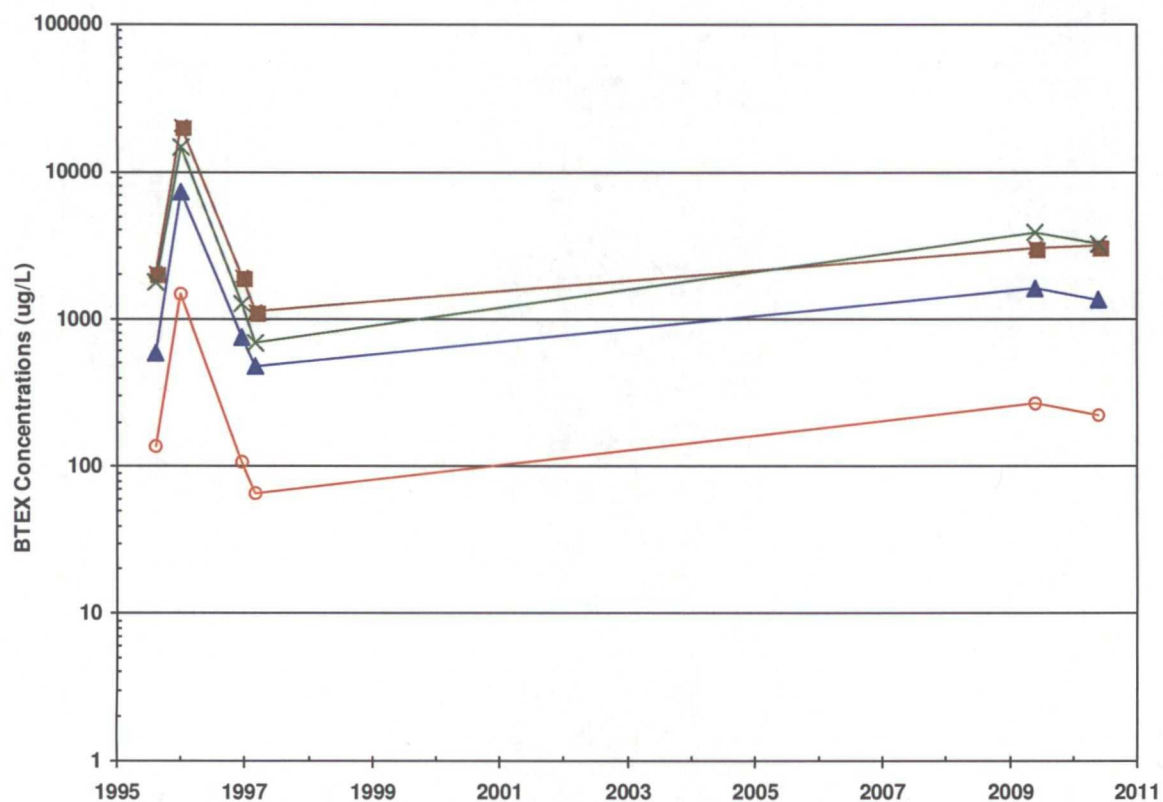
TITLE:

Groundwater Potentiometric Surface Map,
and BTEX Concentrations - June 7, 2010

FIGURE:

1

FIGURE 2
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY
JOHNSTON FED #4 (METER #70194)
MW01

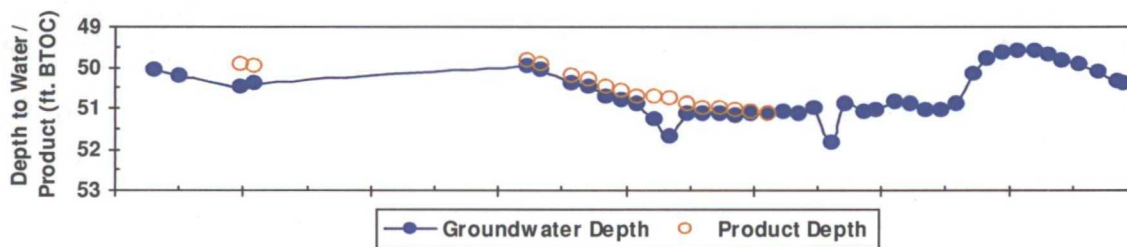


▲ Benzene
 NM Std.: (10 ug/L)

■ Toluene
 (750 ug/L)

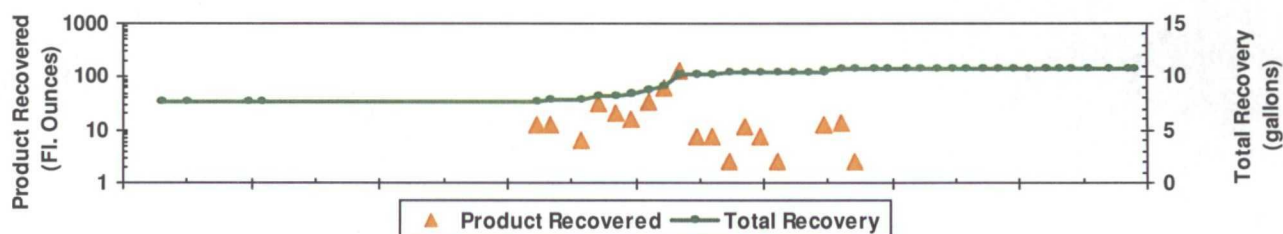
○ Ethylbenzene
 (750 ug/L)

✕ 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
JOHNSTON FED #4 (METER #70194)
MW02

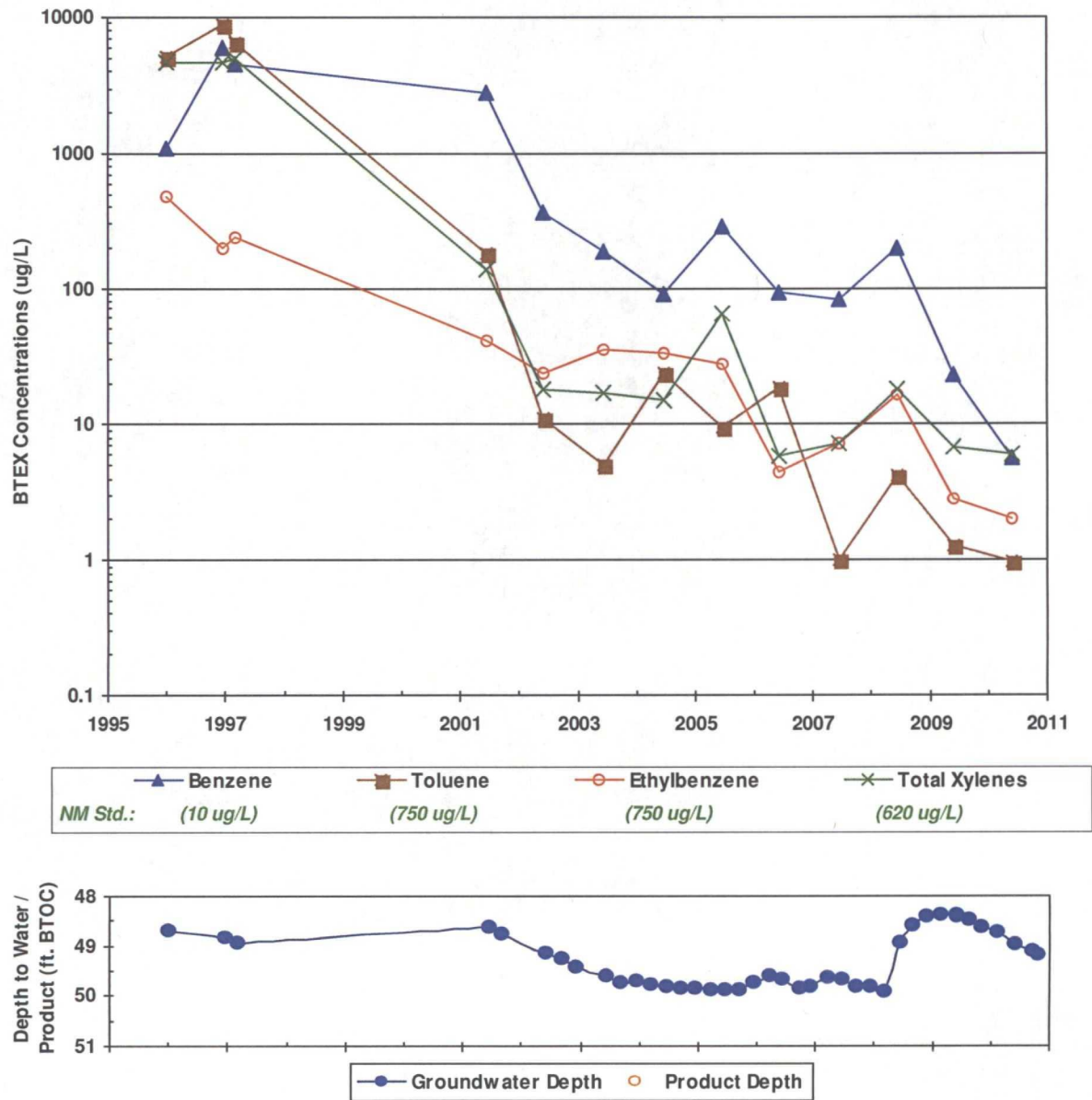
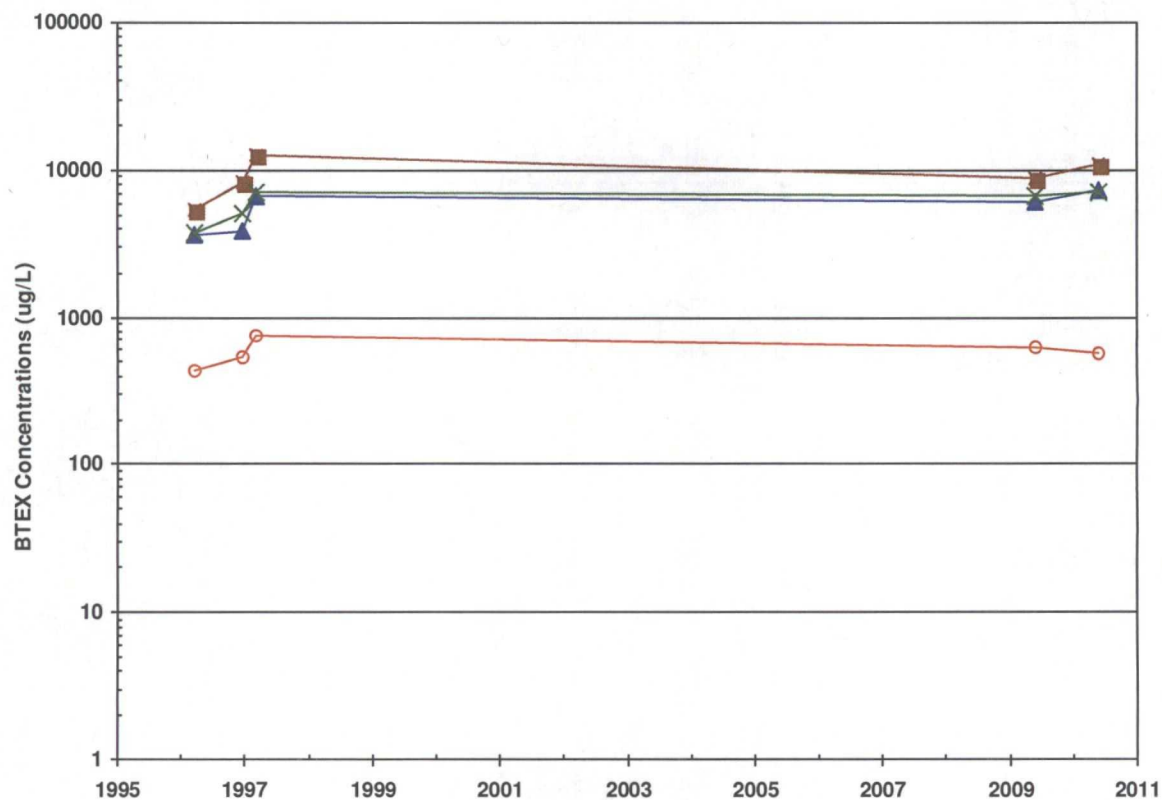
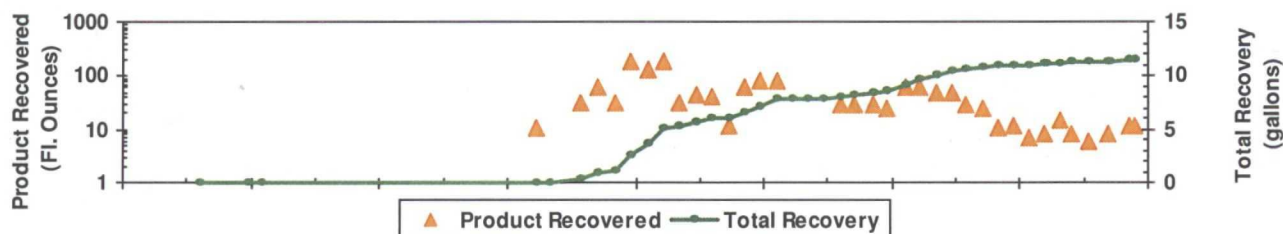
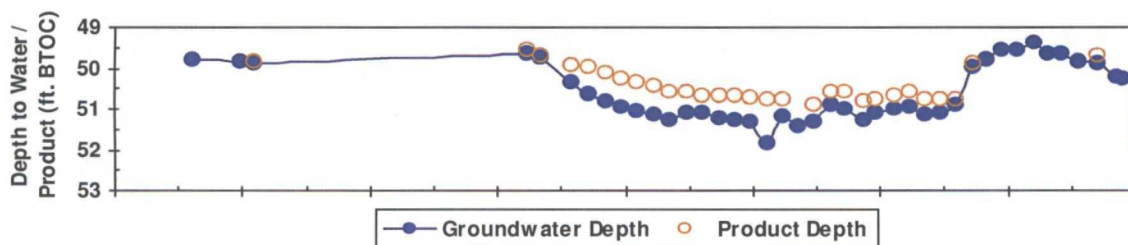


FIGURE 4
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY
JOHNSTON FED #4 (METER #70194)
MW03



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



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

FIGURE 5
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
JOHNSTON FED #4 (METER #70194)
MW04

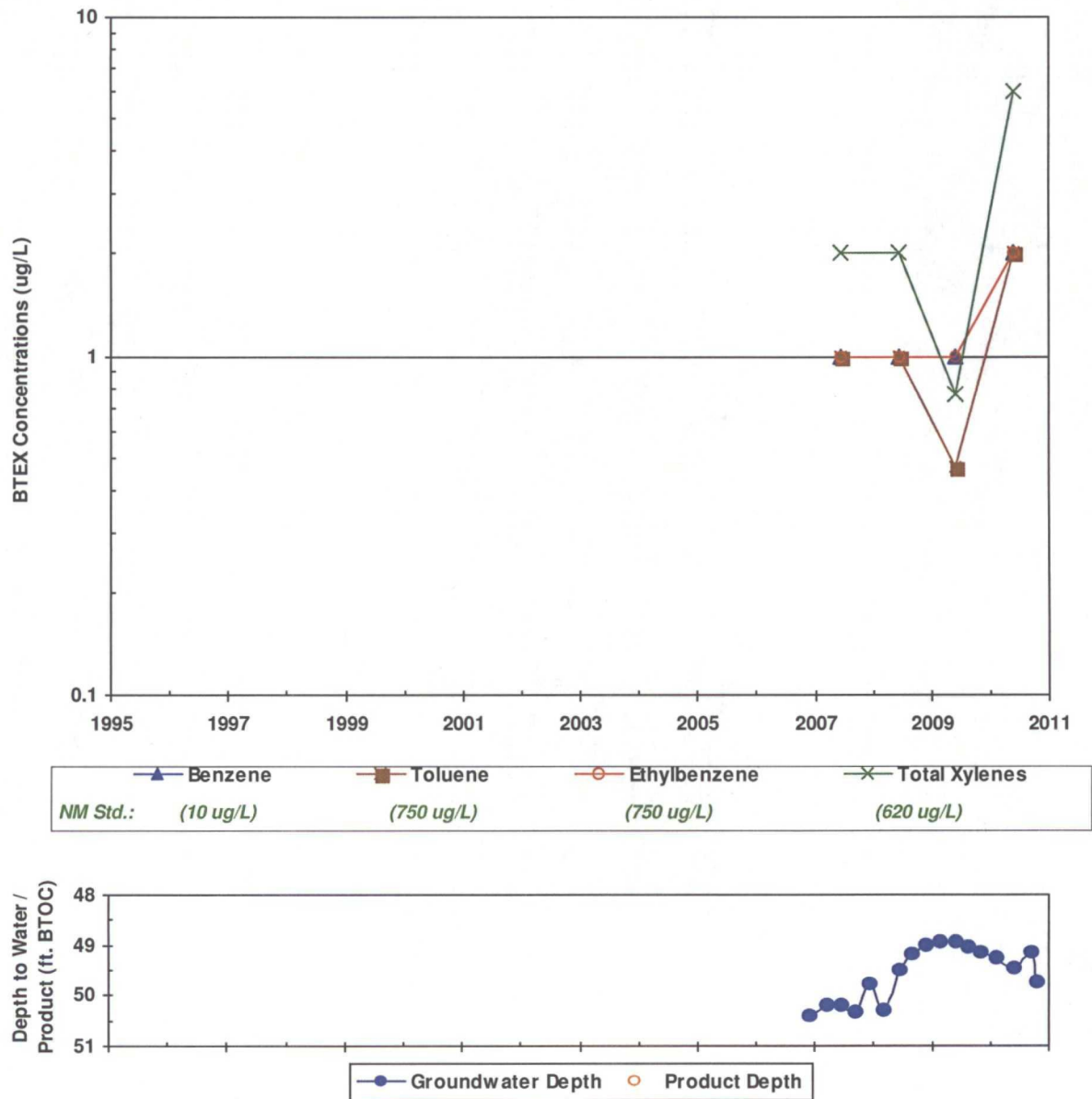


FIGURE 6
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
JOHNSTON FED #4 (METER #70194)
TMW05

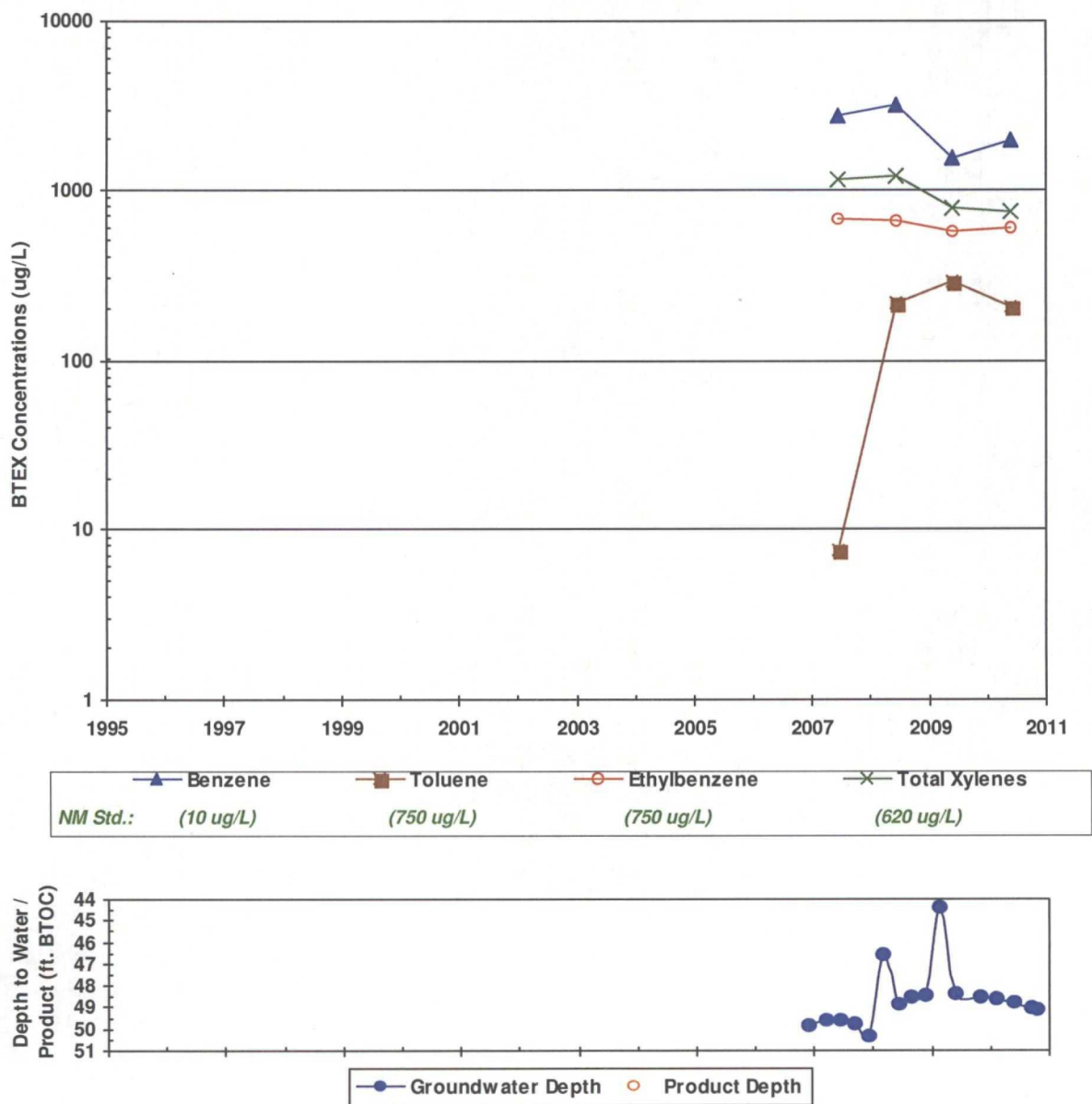


TABLE 1
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
JOHNSTON FED #4 (METER #70194)

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)
NMWQCC GW Std.:		10	750	750	620		
MW01	8/8/1995	590	2040	137	1764	50.08	6031.87
MW01	1/4/1996	7380	20900	1480	14600	50.23	6031.72
MW01	12/17/1996	762	1930	107	1270	50.50	6031.90
MW01	3/6/1997	483	1110	66.1	678	50.38	6031.88
MW01	6/9/2009	1630	3000	268	3880	49.61	6032.34
MW01	6/7/2010	1320	3130	225	3250	50.12	6031.83
MW02	1/4/1996	1104	5107	479	4640	48.71	6031.91
MW02	12/17/1996	5900	8970	197	4670	48.84	6031.78
MW02	3/6/1997	4500	6480	236	4920	48.94	6031.68
MW02	6/22/2001	2800	180	41	140	48.62	6032.00
MW02	6/3/2002	370	11	24	18	49.15	6031.47
MW02	6/18/2003	186	<5.0	34.9	16.8	49.62	6031.00
MW02	6/22/2004	88.9	24	32.9	15.2	49.82	6030.80
MW02	6/23/2005	283	9.4	27.7	64.5	49.87	6030.75
MW02	6/7/2006	92.1	18.4	4.4	5.9	49.67	6030.95
MW02	6/19/2007	83.0	<1.0	7.3	7.2	49.67	6030.95
MW02	6/17/2008	201	4.2	16.6	17.9	48.93	6031.69
MW02	6/9/2009	22.9	1.3	2.8	6.9	48.43	6032.19
MW02	6/7/2010	5.6	0.991	<2.0	<6.0	48.98	6031.64
MW03	3/19/1996	3660	5410	436	3730	49.81	6031.78
MW03	12/17/1996	3910	8210	530	5020	49.84	6031.75
MW03	3/6/1997	6670	12700	759	7020	49.87	6031.75
MW03	6/9/2009	6100	8700	627	6630	49.39	6032.20
MW03	6/7/2010	7440	10800	578	7170	49.90	6031.85
MW04	6/19/2007	<1.0	<1.0	<1.0	<2.0	50.21	6030.98
MW04	6/17/2008	<1.0	<1.0	<1.0	<2.0	49.50	6031.69
MW04	6/9/2009	<1.0	0.47J	<1.0	0.77J	48.94	6032.25
MW04	6/7/2010	<2.0	<2.0	<2.0	<6.0	49.45	6031.74
TMW05	6/19/2007	2730	7.6	680	1160	49.64	6031.15
TMW05	6/17/2008	3190	217	651	1220	48.87	6031.92
TMW05	6/9/2009	1540	285	568	784	48.38	6032.41
TMW05	6/7/2010	1970	207	591	746	48.81	6031.98

TABLE 1

**SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
JOHNSTON FED #4 (METER #70194)**

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)
NMWQCC GW Std.:		10	750	750	620		

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
JOHNSTON FED #4 (METER #70194)

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	12/17/1996	49.94	50.50	0.56	--	7.65	6031.90
MW01	3/6/1997	49.99	50.38	0.39	--	7.65	6031.88
MW01	6/22/2001	49.82	49.96	0.14	0.10	7.75	6032.10
MW01	9/4/2001	49.94	50.05	0.11	0.10	7.85	6031.99
MW01	3/4/2002	50.23	50.40	0.17	0.05	7.90	6031.69
MW01	6/3/2002	50.31	50.50	0.19	0.25	8.15	6031.60
MW01	9/10/2002	50.51	50.70	0.19	0.16	8.31	6031.40
MW01	12/12/2002	50.60	50.83	0.23	0.13	8.44	6031.30
MW01	3/14/2003	50.73	50.90	0.17	0.26	8.70	6031.19
MW01	6/18/2003	50.74	51.28	0.54	0.50	9.20	6031.10
MW01	9/16/2003	50.78	51.70	0.92	1.00	10.20	6030.99
MW01	12/17/2003	50.92	51.15	0.23	0.06	10.26	6030.98
MW01	3/16/2004	50.98	51.14	0.16	0.06	10.32	6030.94
MW01	6/22/2004	51.02	51.15	0.13	0.02	10.34	6030.90
MW01	9/22/2004	51.06	51.18	0.12	0.09	10.43	6030.87
MW01	12/21/2004	51.08	51.15	0.07	0.06	10.49	6030.86
MW01	3/23/2005	51.13	51.13	0.00	0.02	10.51	6030.82
MW01	12/15/2005	--	51.02	0.00	0.10	10.61	6030.93
MW01	3/27/2006	--	51.86	0.00	0.11	10.72	6030.09
MW01	6/7/2006	--	50.92	0.00	0.02	10.74	6031.03
MW03	3/6/1997	49.83	49.87	0.04	--	0.00	6031.75
MW03	6/22/2001	49.58	49.66	0.08	0.08	0.08	6031.99
MW03	9/4/2001	49.70	49.76	0.06	--	0.08	6031.88
MW03	3/4/2002	49.91	50.35	0.44	0.25	0.33	6031.59
MW03	6/3/2002	49.96	50.62	0.66	0.50	0.83	6031.50
MW03	9/10/2002	50.12	50.79	0.67	0.25	1.08	6031.34
MW03	12/12/2002	50.25	50.95	0.70	1.50	2.58	6031.20
MW03	3/14/2003	50.34	51.03	0.69	1.00	3.58	6031.11
MW03	6/18/2003	50.45	51.16	0.71	1.50	5.08	6031.00
MW03	9/16/2003	50.58	51.30	0.72	0.25	5.33	6030.86
MW03	12/17/2003	50.60	51.08	0.48	0.35	5.68	6030.89
MW03	3/16/2004	50.68	51.10	0.42	0.31	5.99	6030.83
MW03	6/22/2004	50.68	51.22	0.54	0.09	6.08	6030.80
MW03	9/22/2004	50.69	51.30	0.61	0.50	6.58	6030.78

TABLE 2
SUMMARY OF FREE-PRODUCT REMOVAL
JOHNSTON FED #4 (METER #70194)

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)
MW03	12/21/2004	50.71	51.32	0.61	0.63	7.21	6030.76
MW03	3/23/2005	50.76	51.85	1.09	0.61	7.82	6030.61
MW03	6/23/2005	50.76	51.20	0.44	--	7.82	6030.74
MW03	12/15/2005	50.92	51.32	0.40	--	7.82	6030.59
MW03	3/27/2006	50.58	50.92	0.34	0.22	8.04	6030.94
MW03	6/7/2006	50.56	51.01	0.45	0.22	8.26	6030.94
MW03	9/25/2006	50.80	51.27	0.47	0.22	8.48	6030.70
MW03	12/7/2006	50.77	51.07	0.30	0.20	8.68	6030.76
MW03	3/28/2007	50.66	50.99	0.33	0.47	9.15	6030.86
MW03	6/18/2007	50.58	50.97	0.39	0.47	9.62	6030.93
MW03	9/17/2007	50.78	51.15	0.37	0.39	10.01	6030.74
MW03	12/17/2007	50.78	51.08	0.30	0.39	10.40	6030.75
MW03	3/10/2008	50.75	50.90	0.15	0.23	10.63	6030.81
MW03	6/17/2008	49.89	49.98	0.09	0.20	10.83	6031.68
MW03	9/10/2008	--	49.77	0.00	0.08	10.91	6031.82
MW03	12/2/2008	--	49.58	0.00	0.09	11.00	6032.01
MW03	3/3/2009	--	49.55	0.00	0.05	11.05	6032.04
MW03	6/4/2009	NA	NA	NA	0.06	11.11	NA
MW03	8/28/2009	--	49.65	0.00	0.12	11.23	6031.94
MW03	11/4/2009	--	49.63	0.00	0.06	11.29	6031.96
MW03	2/11/2010	--	49.83	0.00	0.05	11.34	6031.76
MW03	5/24/2010	NA	NA	NA	0.06	11.41	NA
MW03	6/7/2010	49.70	49.90	0.20	--	11.41	6031.85
MW03	9/24/2010	--	50.19	0.00	0.09	11.50	6031.40
MW03	11/2/2010	--	50.26	0.00	0.09	11.59	6031.33

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.