

3R - 204

2011 AGWMR

8/16/2012



BUILDING A BETTER WORLD

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2012 AUG 20 A 10:48

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)

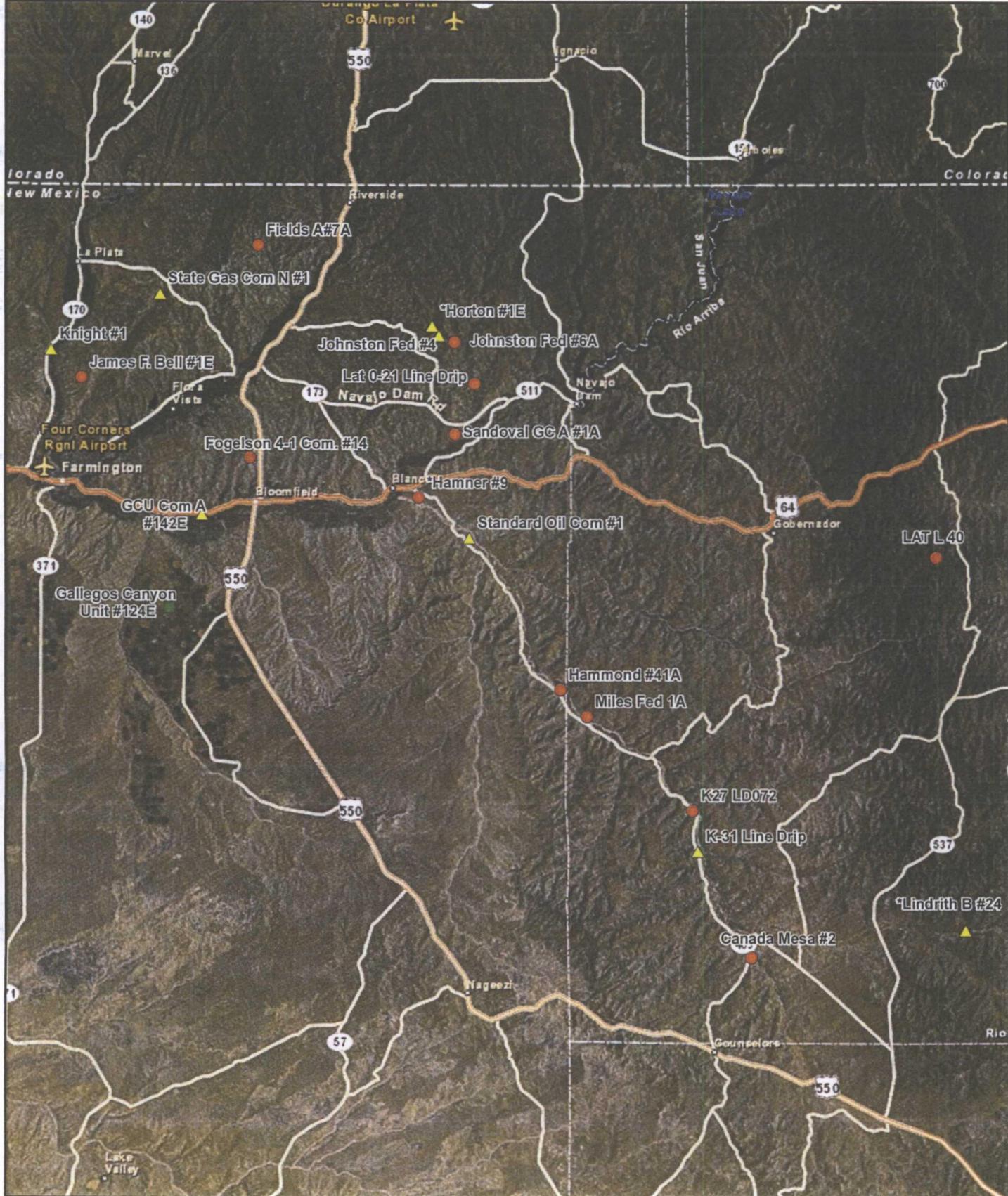
If you have any questions concerning the enclosed reports, please contact either Joe Wiley (representing EPCGP Company) at 713-420-3475 or me at 303-291-2276.

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)



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.



**EPCGP GROUNDWATER SITES
2011 ANNUAL GROUNDWATER REPORT**

**K27
Meter Code: LD072**

SITE DETAILS

Legal Description: **Town:** 25N **Range:** 6W **Sec:** 4 **Unit:** E
NMOCD Haz Ranking: 40 **Land Type:** Federal **Operator:** Enterprise

PREVIOUS ACTIVITIES

Site Assessment:	7/94	Excavation:	8/94	Soil Boring:	9/99
Monitor Well:	9/95	Geoprobe:	9/95	Additional MWs:	12/99
Downgradient MWs:	12/99	Replace MW:	7/00	Quarterly Initiated:	NA
ORC Nutrient Injection:	NA	Re-Excavation:	NA	PSH Removal Initiated:	2/98
Annual Initiated:	NA	Quarterly Resumed:	NA	PSH Removal in 2011?	Yes

SUMMARY OF 2010 ACTIVITIES

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

MW-2: Annual groundwater sampling (November) and quarterly free-product recovery were performed during 2011.

MW-3: Annual groundwater sampling (November) and quarterly water level monitoring were performed during 2011.

TMW-5: Annual groundwater sampling (November) and quarterly water level monitoring were performed during 2011.

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

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 5. 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 Figures 2 and 3.

**EPCGP GROUNDWATER SITES
2011 ANNUAL GROUNDWATER REPORT**

**K27
Meter Code: LD072**

- 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 conducted at this Site during 2011.

DISPOSITION OF GENERATED WASTES

All purge water was taken to the El Paso Natural Gas Rio Vista Compressor Station. Spent product recovery 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 analytical and product recovery data from 2011.

RESULTS

- The groundwater flow direction is approximately to the northeast.
- The groundwater sample from MW-1 contained benzene at a concentration of 71.8 µg/L, which exceeded the NMWQCC standard of 10 µg/L. The other BTEX constituents were detected but were below their respective standards. The highest benzene concentration in MW-1 was 1,690 µg/L, observed in 1997. It appears that passive product recovery coupled with natural attenuation has been effective at this Site.
- Approximately 0.46 gallons of free-product were removed from MW-2 during 2011, bringing the cumulative total recovery from this well to approximately 9.24 gallons since 2001. The annual groundwater sample from this well contained an elevated benzene concentration (31.9 µg/L). These results were similar to those observed in 2009 and 2010 and show significant attenuation from the higher concentrations observed in the original MW-2 sample, which was collected in August 2000.
- The annual sample from MW-3 was non-detect for BTEX. This well has been sampled 9 times, beginning in September 2000, and the BTEX constituents were only detected on one occasion, at concentrations just above the detection limits.
- Monitoring well TMW-5 (installed in 2006) was sampled for the sixth time in November 2011. As was the case in the previous sampling events, there were no detections of BTEX.

**EPCGP GROUNDWATER SITES
2011 ANNUAL GROUNDWATER REPORT**

**K27
Meter Code: LD072**

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 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 required at MW-2.
 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, all the monitor wells require additional monitoring. The remaining applicable standards are:

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

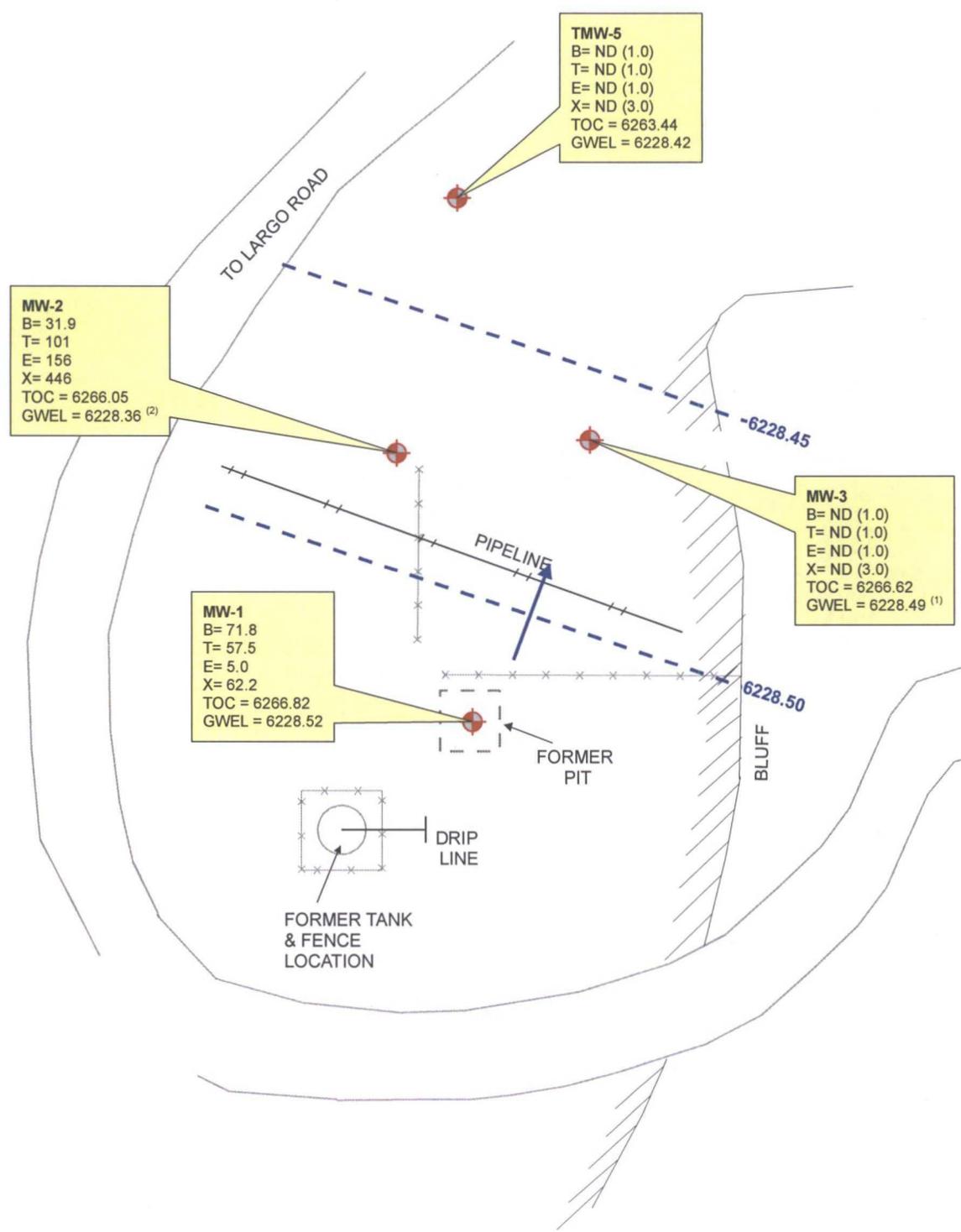
RECOMMENDATIONS

- EPCGP will gauge MW-1 quarterly and sample annually.
- EPCGP will continue quarterly free-product recovery efforts at MW-2; however, the frequency of monitoring may be adjusted based on the amount of product recovered during the monitoring visits. This well will also be sampled annually.
- EPCGP will continue to monitor groundwater levels on a quarterly basis and sample annually at MW-3 in order to provide consistent plume delineation.
- EPCGP will monitor groundwater levels at TMW-5 on a quarterly basis and sample annually in order to provide consistent plume delineation.

**EPCGP GROUNDWATER SITES
2011 ANNUAL GROUNDWATER REPORT**

**K27
Meter Code: LD072**

- Once free-product recovery efforts are completed at this Site, each well will be sampled on an annual basis until sample results achieve closure criteria. The wells will then be scheduled for quarterly sampling until closure criteria are met.
- EPCGP will evaluate the potential for passive bioventing or ORC/electron acceptor remediation technology at the site.



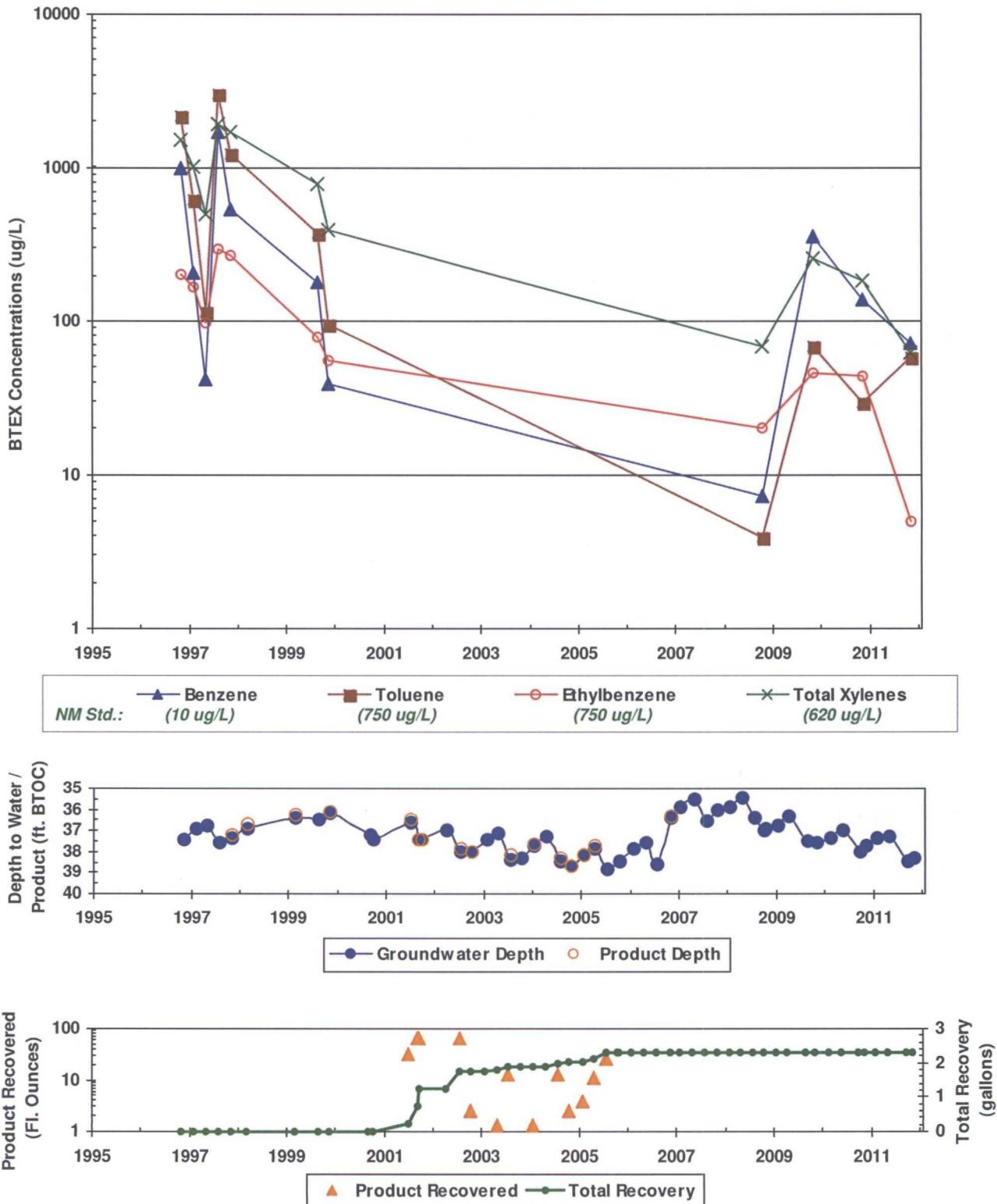
Product Removed (Gallons)	2/1/11	5/2/2011	9/23/11	11/2/11	11/10/11
MW-2	0.07	0.07	0.10	0.11	0.11

⁽¹⁾ Water level appears to be affected by root blockage in well.
⁽²⁾ Water level is anomalous with respect to historic data.

LEGEND

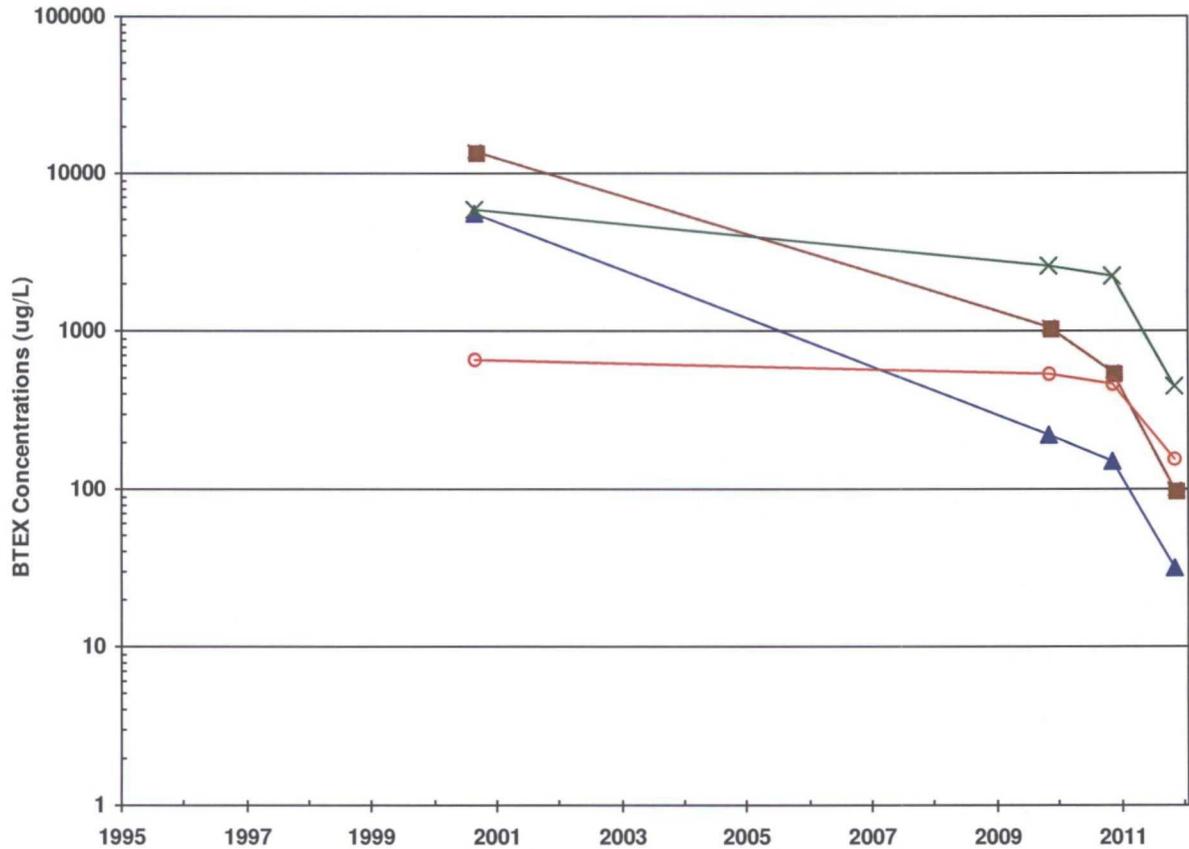
- MW-1 Existing Monitoring / Observation Well
- Groundwater Flow Direction
- 6228- Potentiometric Surface Contour (Inferred Where Dashed)
- ND Not Detected; Reporting Limit Shown in Parenthesis
- B Benzene (ug/L)
- T Toluene (ug/L)
- E Ethylbenzene (ug/L)
- X Total Xylenes (ug/L)
- TOC Top of Casing (ft. AMSL)
- GWEL Groundwater Elevation (ft. AMSL)

FIGURE 2
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY
K27 LD072 (METER #LD072)
MW-1

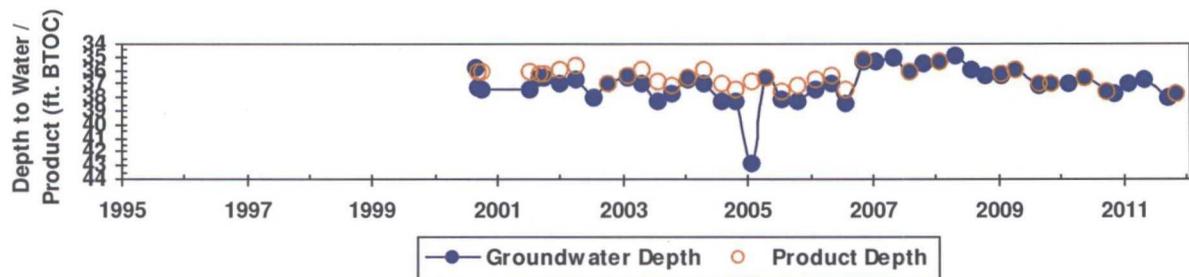


**In some cases, older recovery event data are not available. However, the cumulative totals still include all historic recovery.*

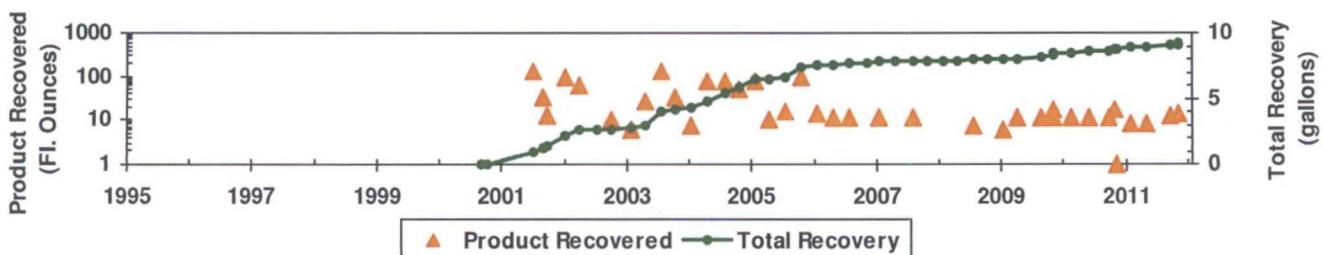
FIGURE 3
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY
K27 LD072 (METER #LD072)
MW-2



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



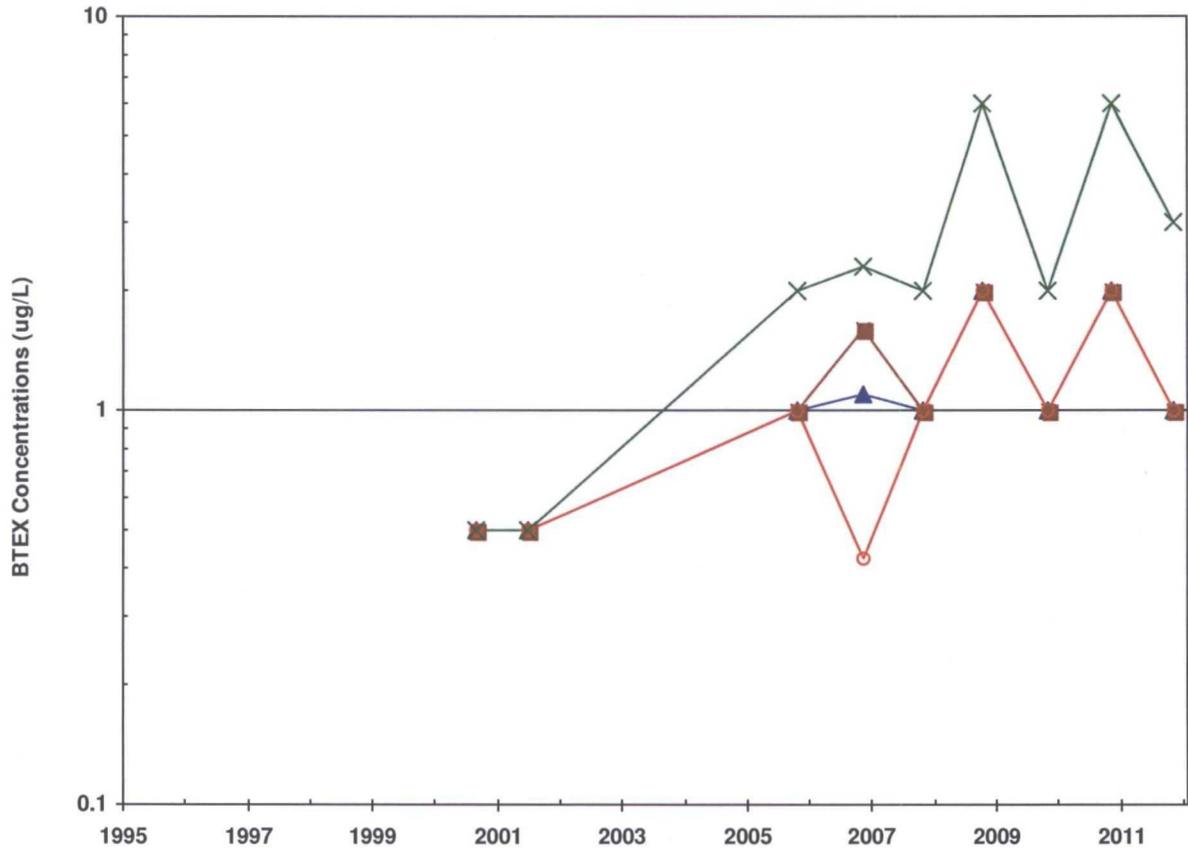
● Groundwater Depth ○ Product Depth



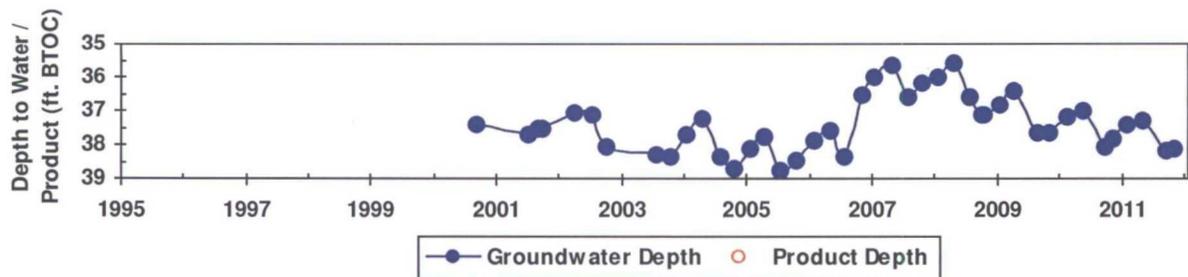
▲ Product Recovered — Total Recovery

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

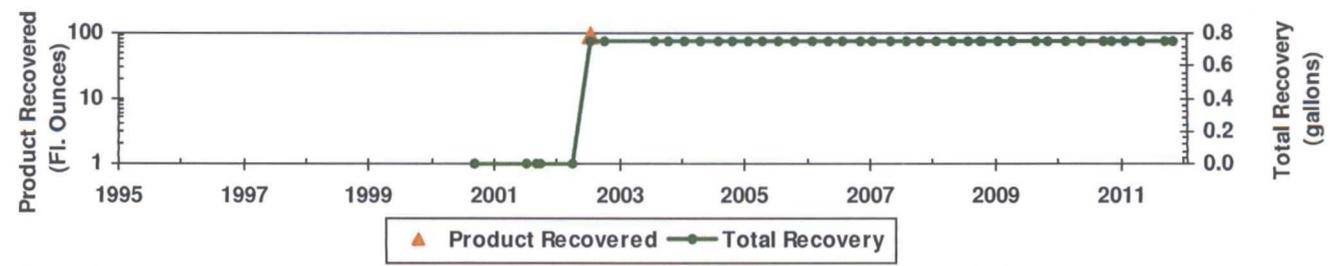
FIGURE 4
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY
K27 LD072 (METER #LD072)
MW-3



NM Std.: ▲ Benzene (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 5
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
K27 LD072 (METER #LD072)
TMW-5

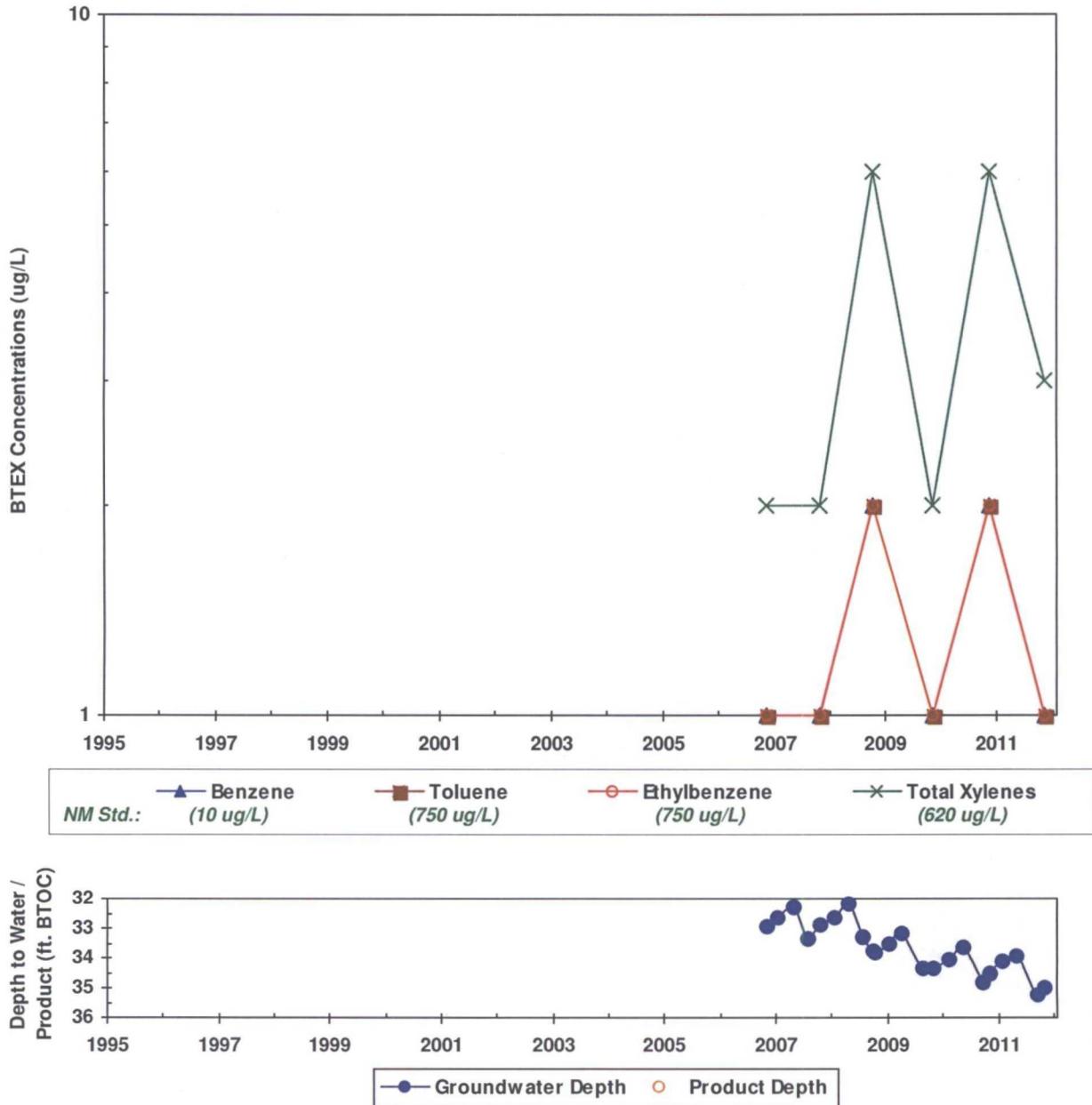


TABLE 1

**SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER
K27 LD072 (METER #LD072)**

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		
B1(32.5-36.5)	1/3/2006	1.1	5.2	1.1	8.2	NA	NA
B2(33-37)	1/3/2006	<1.0	1.7	<1.0	1.4J	NA	NA
B4(35-39)	1/3/2006	<1.0	1.5	<1.0	1.8J	NA	NA
MW-1	11/4/1996	996	2170	204	1520	37.44	6229.38
MW-1	2/5/1997	207	613	168	1010	36.89	6229.93
MW-1	5/7/1997	41.8	114	97.8	500	36.73	6230.09
MW-1	8/8/1997	1690	2980	298	1930	37.61	6229.21
MW-1	11/7/1997	533	1210	267	1720	37.33	6229.59
MW-1	8/19/1999	179	379	79.1	777	36.48	6230.34
MW-1	11/10/1999	39	95	56	390	36.17	6230.71
MW-1	10/8/2008	7.3	3.9	20.2	68.7	36.95	6229.87
MW-1	11/3/2009	355	69.3	45.8	259	37.58	6229.24
MW-1	11/8/2010	138	29.4	43.9	183	37.70	6229.12
MW-1	11/10/2011	71.8	57.5	5.0	62.2	38.30	6228.52
MW-2	8/31/2000	5500	14000	670	5800	35.81	6230.24
MW-2	11/3/2009	223	1070	532	2590	37.00	6229.08
MW-2	11/8/2010	152	547	471	2190	37.72	6228.33
MW-2	11/10/2011	31.9	101	156	446	37.70	6228.36
MW-3	9/5/2000	<0.5	<0.5	<0.5	<0.5	37.40	6229.22
MW-3	7/3/2001	<0.5	<0.5	<0.5	<0.5	37.69	6228.93
MW-3	10/21/2005	<1.0	<1.0	<1.0	<2.0	38.48	6228.14
MW-3	11/7/2006	1.1	1.6	0.42J	2.3	36.50	6230.12
MW-3	10/25/2007	<1.0	<1.0	<1.0	<2.0	36.20	6230.42
MW-3	10/8/2008	<2.0	<2.0	<2.0	<6.0	37.09	6229.53
MW-3	11/3/2009	<1.0	<1.0	<1.0	<2.0	37.67	6228.95
MW-3	11/8/2010	<2.0	<2.0	<2.0	<6.0	37.82	6228.80
MW-3	11/10/2011	<1.0	<1.0	<1.0	<3.0	38.13	6228.49
TMW-5	11/8/2006	<1.0	<1.0	<1.0	<2.0	32.95	6230.49
TMW-5	10/25/2007	<1.0	<1.0	<1.0	<2.0	32.90	6230.54
TMW-5	10/8/2008	<2.0	<2.0	<2.0	<6.0	33.79	6229.65
TMW-5	11/3/2009	<1.0	<1.0	<1.0	<2.0	34.35	6229.09
TMW-5	11/8/2010	<2.0	<2.0	<2.0	<6.0	34.55	6228.89
TMW-5	11/10/2011	<1.0	<1.0	<1.0	<3.0	35.02	6228.42

TABLE 2
SUMMARY OF FREE-PRODUCT REMOVAL
K27 LD072 (METER #LD072)

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	11/7/1997	37.21	37.33	0.12	--	0.00	6229.59
MW-1	2/26/1998	36.71	36.89	0.18	--	0.00	6230.07
MW-1	2/24/1999	36.27	36.39	0.12	--	0.00	6230.53
MW-1	11/10/1999	36.10	36.17	0.07	--	0.00	6230.71
MW-1	7/3/2001	36.49	36.64	0.15	0.25	0.25	6230.30
MW-1	9/4/2001	37.39	37.43	0.04	0.50	0.75	6229.42
MW-1	9/24/2001	37.40	37.45	0.05	0.50	1.25	6229.41
MW-1	7/15/2002	37.85	38.02	0.17	0.50	1.75	6228.94
MW-1	10/8/2002	38.00	38.01	0.01	0.02	1.77	6228.82
MW-1	4/26/2003	--	37.15	0.00	0.01	1.78	6229.67
MW-1	7/17/2003	38.18	38.36	0.18	0.10	1.88	6228.60
MW-1	1/19/2004	37.68	37.69	0.01	0.01	1.89	6229.14
MW-1	7/27/2004	38.28	38.45	0.17	0.10	1.99	6228.51
MW-1	10/20/2004	38.68	38.71	0.03	0.02	2.01	6228.13
MW-1	1/25/2005	38.16	38.18	0.02	0.03	2.04	6228.66
MW-1	4/14/2005	37.75	37.84	0.09	0.09	2.13	6229.05
MW-1	7/19/2005	--	38.84	0.00	0.20	2.33	6227.98
MW-1	11/7/2006	36.31	36.37	0.06	--	2.33	6230.50
MW-2	9/5/2000	36.11	37.28	1.17	--	0.00	6229.71
MW-2	10/6/2000	36.04	37.31	1.27	--	0.00	6229.76
MW-2	7/3/2001	36.12	37.37	1.25	1.00	1.00	6229.68
MW-2	9/4/2001	36.25	36.52	0.27	0.25	1.25	6229.75
MW-2	9/24/2001	36.27	36.46	0.19	0.10	1.35	6229.74
MW-2	1/2/2002	35.87	36.97	1.10	0.75	2.10	6229.96
MW-2	4/1/2002	35.67	36.61	0.94	0.50	2.60	6230.19
MW-2	10/8/2002	36.94	37.01	0.07	0.08	2.68	6229.10
MW-2	1/27/2003	36.31	36.47	0.16	0.05	2.73	6229.71
MW-2	4/26/2003	35.85	36.88	1.03	0.21	2.94	6229.99
MW-2	7/17/2003	36.75	38.20	1.45	1.00	3.94	6229.01
MW-2	10/13/2003	37.07	37.64	0.57	0.25	4.19	6228.87
MW-2	1/19/2004	36.51	36.72	0.21	0.06	4.25	6229.50
MW-2	4/20/2004	35.91	36.93	1.02	0.58	4.83	6229.94
MW-2	7/27/2004	36.88	38.30	1.42	0.63	5.46	6228.89
MW-2	10/20/2004	37.37	38.23	0.86	0.38	5.84	6228.51

TABLE 2

SUMMARY OF FREE-PRODUCT REMOVAL
K27 LD072 (METER #LD072)

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-2	1/25/2005	36.77	42.87	6.10	0.61	6.45	6228.06
MW-2	4/14/2005	36.55	36.55	0.00	0.08	6.53	6229.50
MW-2	7/19/2005	37.55	38.16	0.61	0.12	6.65	6228.38
MW-2	10/21/2005	37.06	38.31	1.25	0.75	7.40	6228.74
MW-2	1/23/2006	36.69	37.31	0.62	0.11	7.51	6229.24
MW-2	4/28/2006	36.33	37.01	0.68	0.09	7.60	6229.58
MW-2	7/26/2006	37.42	38.37	0.95	0.09	7.69	6228.44
MW-2	11/7/2006	35.21	35.28	0.07	--	7.69	6230.83
MW-2	1/17/2007	--	35.35	0.00	0.09	7.78	6230.70
MW-2	7/31/2007	36.01	36.03	0.02	0.09	7.87	6230.04
MW-2	1/25/2008	35.34	35.37	0.03	--	7.87	6230.70
MW-2	7/23/2008	--	35.95	0.00	0.06	7.93	6230.10
MW-2	1/16/2009	36.14	36.39	0.25	0.05	7.98	6229.86
MW-2	4/2/2009	NA	NA	NA	0.09	8.07	NA
MW-2	4/6/2009	35.94	35.98	0.04	--	8.07	6230.10
MW-2	8/25/2009	36.97	37.03	0.06	0.09	8.16	6229.07
MW-2	11/2/2009	NA	NA	NA	0.13	8.30	NA
MW-2	11/3/2009	36.96	37.00	0.04	0.09	8.39	6229.08
MW-2	2/16/2010	--	36.96	0.00	0.09	8.48	6229.09
MW-2	5/24/2010	36.48	36.55	0.07	0.09	8.56	6229.56
MW-2	9/27/2010	37.57	37.58	0.01	0.09	8.66	6228.48
MW-2	11/1/2010	NA	NA	NA	0.13	8.79	NA
MW-2	11/8/2010	--	37.72	0.00	0.01	8.80	6228.33
MW-2	2/1/2011	--	36.92	0.00	0.07	8.86	6229.13
MW-2	5/2/2011	--	36.71	0.00	0.07	8.93	6229.34
MW-2	9/23/2011	--	38.01	0.00	0.10	9.03	6228.04
MW-2	11/2/2011	NA	NA	NA	0.11	9.13	NA
MW-2	11/10/2011	37.69	37.70	0.01	0.11	9.24	6228.36
MW-3	7/15/2002	--	37.13	0.00	0.75	0.75	6229.49

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.