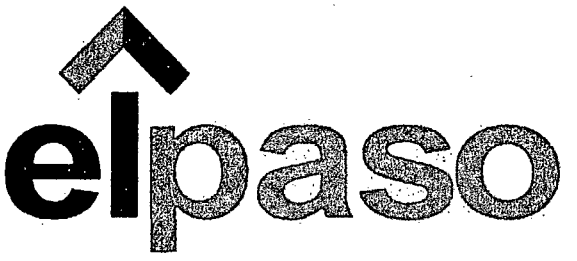
3R - 204

AGWMR

2009



El Paso Tennessee
Pipeline Company

San Juan Basin Pit Program
Groundwater Sites Project

Final 2009 Annual Report
Federal Sites (Volume 1)

April 2010

MWH

1801 California Street, Suite 2900
Denver, Colorado 80202

2009 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 2009.

elpaso MWH

MWH

BUILDING A BETTER WORLD

RECEIVED OCD

2010 APR 19 A 10:39

April 16, 2010

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

RE: El Paso Tennessee Pipeline Company Pit Groundwater Remediation Sites 2009 Annual Reports

Dear Mr. Von Gonten:

MWH Americas, Inc., on behalf of El Paso Tennessee Pipeline Company (EPTPC), is submitting the enclosed 2009 Annual Reports for each of EPTPC's 21 remaining San Juan River Basin pit groundwater remediation sites. The reports present the 2009 sampling and product recovery data and include recommendations for 2010 activities at these sites.

The 2009 Annual Reports are divided into three volumes based on location type. The volumes are as follows:

Volume	Location Type
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 Doug Stavinoha of EPTPC (713-420-5150), Ian Yanagisawa of EPTPC (713-420-7361), or me (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)
Doug Stavinoha – EPTPC (Volumes 1, 2, and 3)

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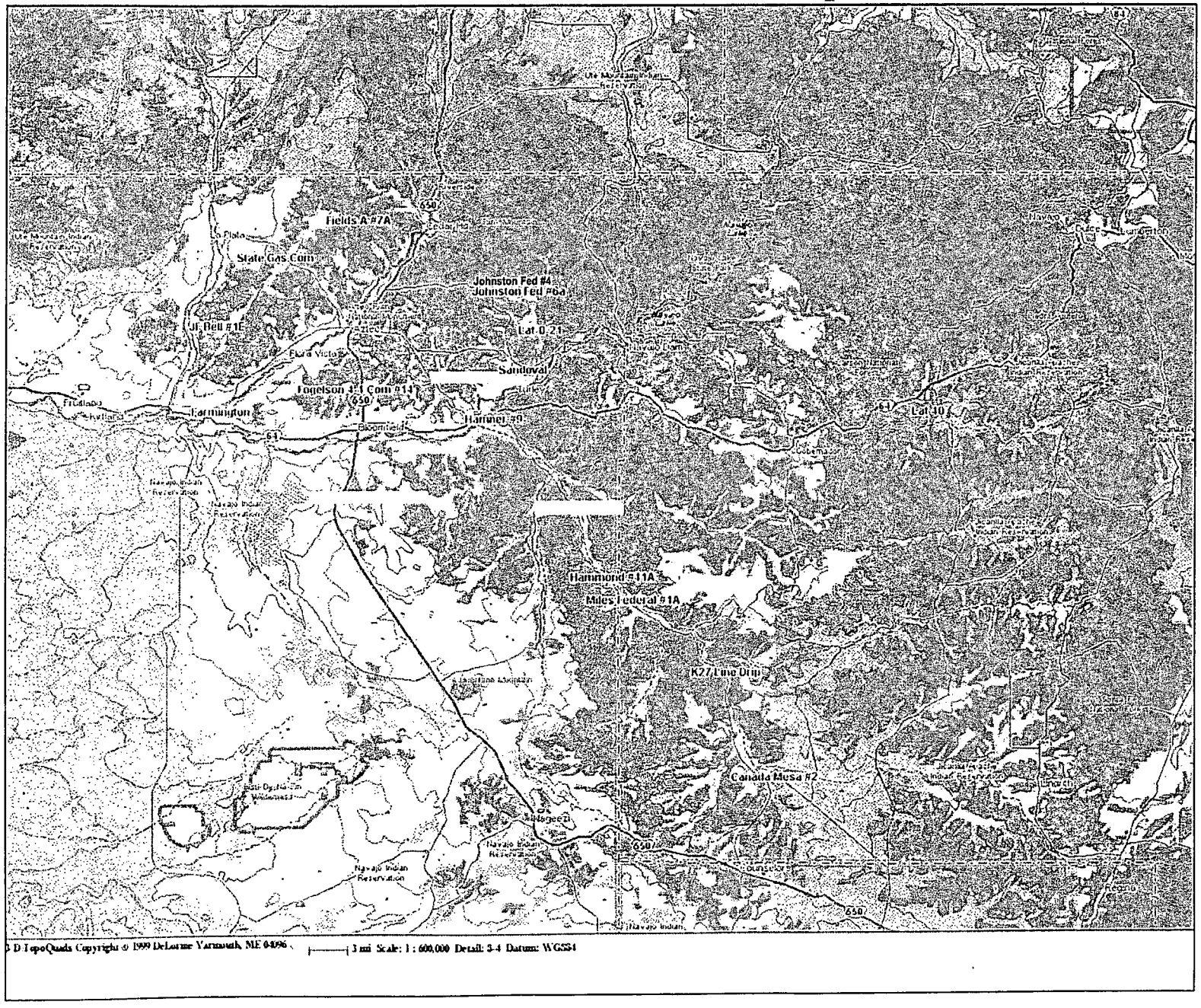
TEL 303 291 2222
FAX 303 291 2221
www.mwhglobal.com

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

Federal Groundwater Site Map



3R204

EPTPC GROUNDWATER SITES
2009 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 2009?**	Yes

SUMMARY OF 2009 ACTIVITIES

MW-1: Annual groundwater sampling (November) and quarterly water level monitoring were performed during 2009.

MW-2: Annual groundwater sampling (November) and quarterly free-product recovery were performed during 2009.

MW-3: Annual groundwater sampling (November) and quarterly water level monitoring were performed during 2009.

TMW-5: Annual groundwater sampling (November) and quarterly water level monitoring were performed during 2009.

Site-Wide Activities: No other activities were performed at this Site during 2009.

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.

- The 2009 laboratory report is presented in Attachment 1 (included on CD).

- The 2009 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 2009.

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 2009.

RESULTS

- The groundwater flow direction is approximately to the north-northeast.

- The groundwater sample from MW-1 contained benzene at a concentration of 355 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.

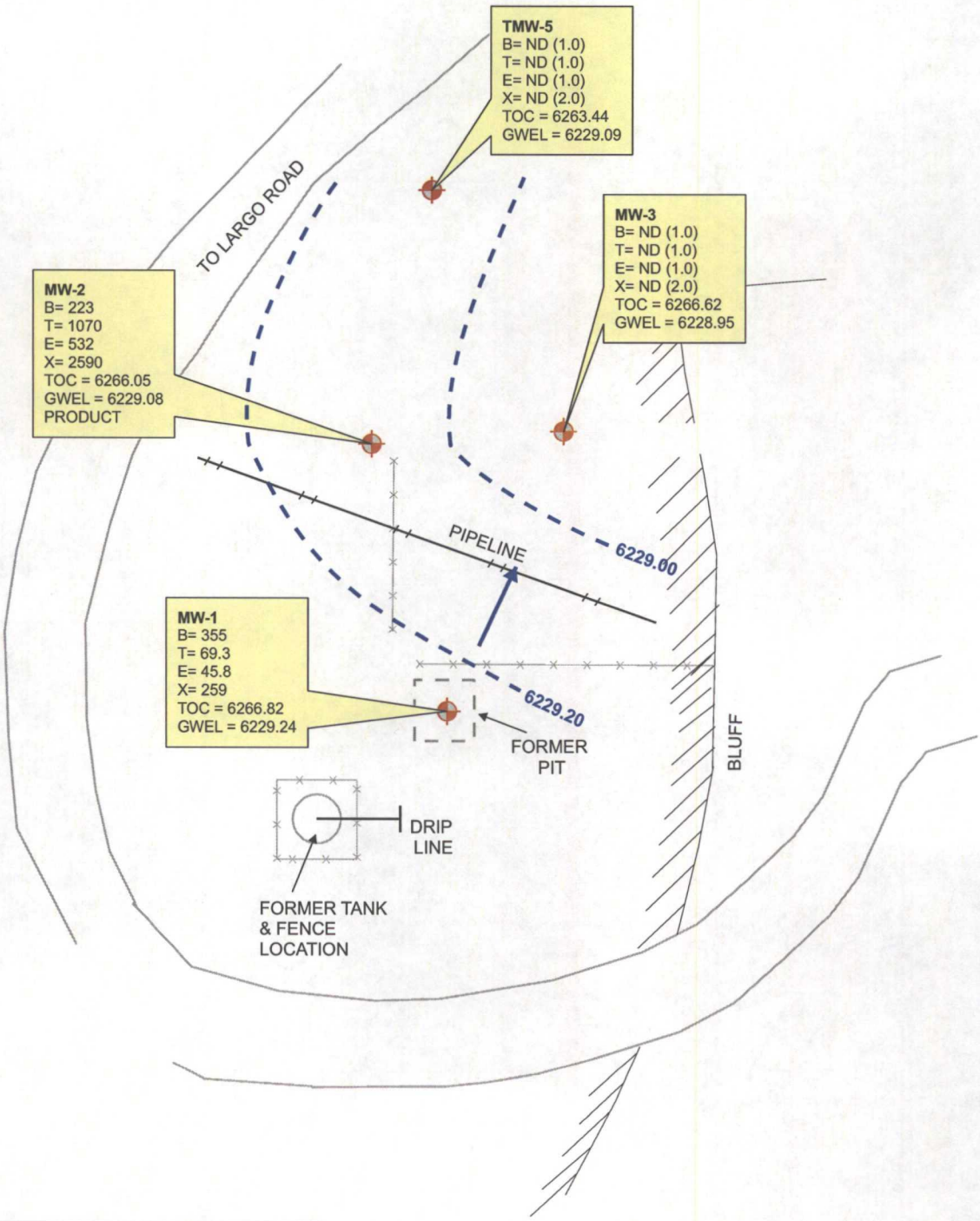
- Approximately 0.46 gallons of free-product were removed from MW-2 during 2009, bringing the cumulative total recovery from this well to approximately 8.39 gallons since 2001. The annual groundwater sample from this well contained elevated concentrations of benzene (223 µg/L), toluene (1,070 µg/L), and total xylenes (2,590 µg/L). These results showed significant attenuation from the levels observed in the previous MW-2 groundwater sample, which was collected in August 2000.

- The annual sample from MW-3 was non-detect for BTEX. This well has been sampled 7 times, beginning in September 2000, and the BTEX constituents were only detected on one occasion, at concentrations just above the detection limits. This well appears to be clean.

- Monitor well TMW-5 (installed in 2006) was sampled for the fourth time in October 2009. As was the case in the first three sampling events, there were no detections of BTEX. This well appears to be clean.

RECOMMENDATIONS

- EPTPC will gauge MW-1 quarterly and sample annually.
- EPTPC will continue quarterly gauging and 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.
- EPTPC will continue to monitor groundwater levels on a quarterly basis and sample annually at MW-3.
- EPTPC will monitor groundwater levels at TMW-5 on a quarterly basis and sample annually.
- Once free-product recovery efforts are completed at this Site, each well will be sampled on an annual basis until sample results approach closure criteria. The wells will then be scheduled for quarterly sampling until closure criteria are met.



Product Removed (Gallons)	1/16/09	4/2/09	8/25/09	11/3/09
MW-2	0.05	0.09	0.09	0.23

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)

N

0 20 40 Feet

MWH

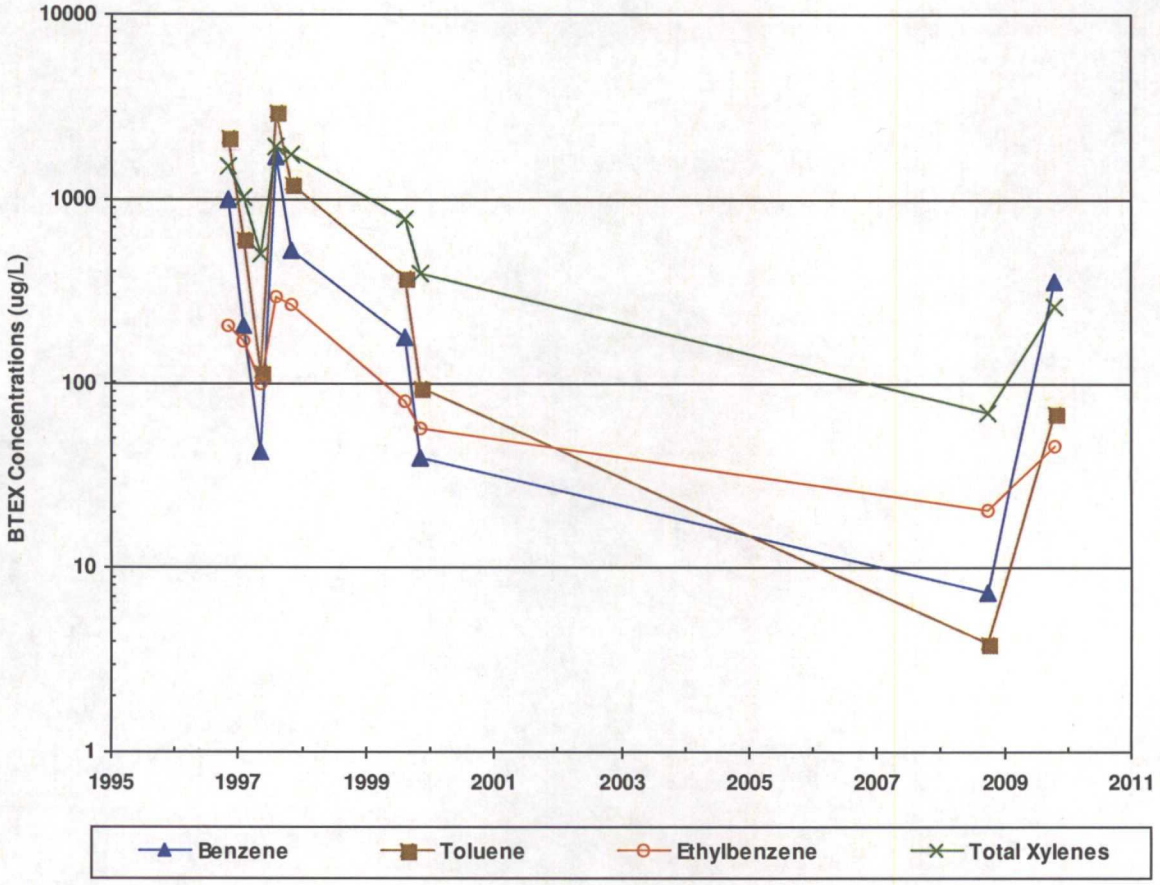
elpaso

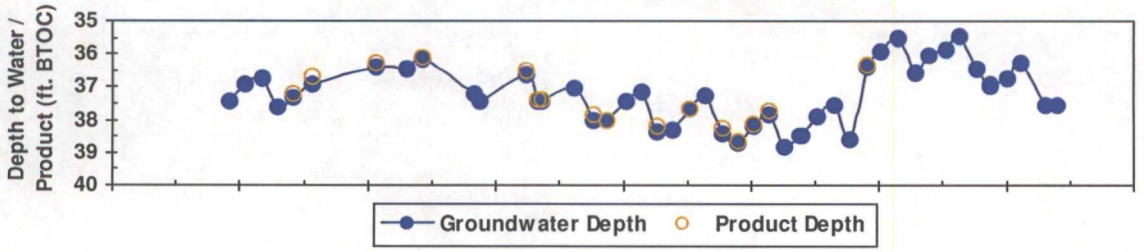
PROJECT: K-27 LD072

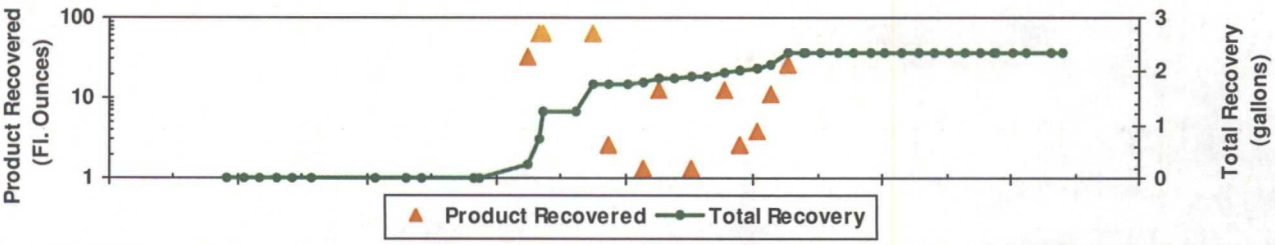
TITLE: Groundwater Potentiometric Surface Map, and BTEX Concentrations - November 3, 2009

FIGURE: 1

FIGURE 2
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY
K27 LD072 (METER #LD072)
MW01

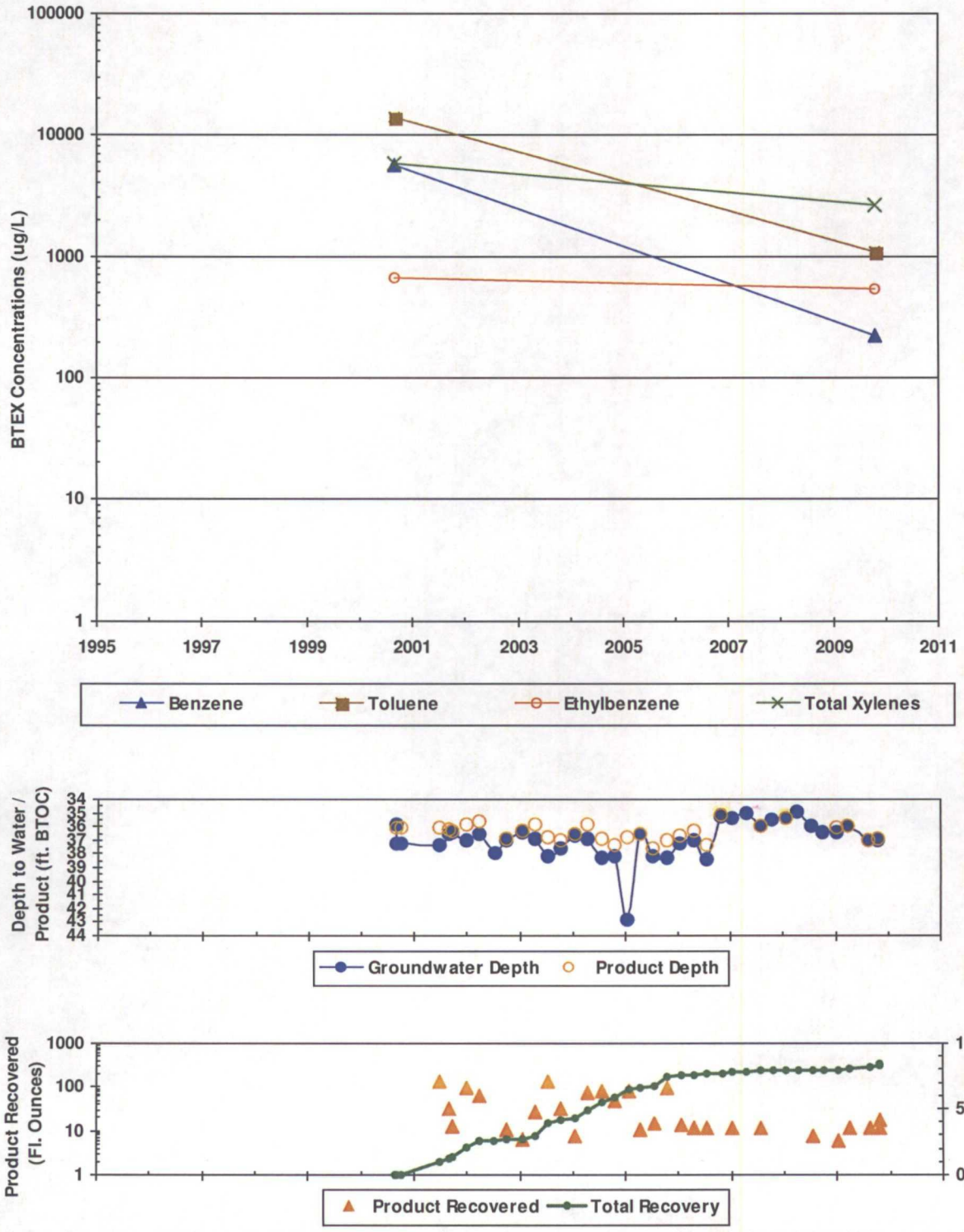






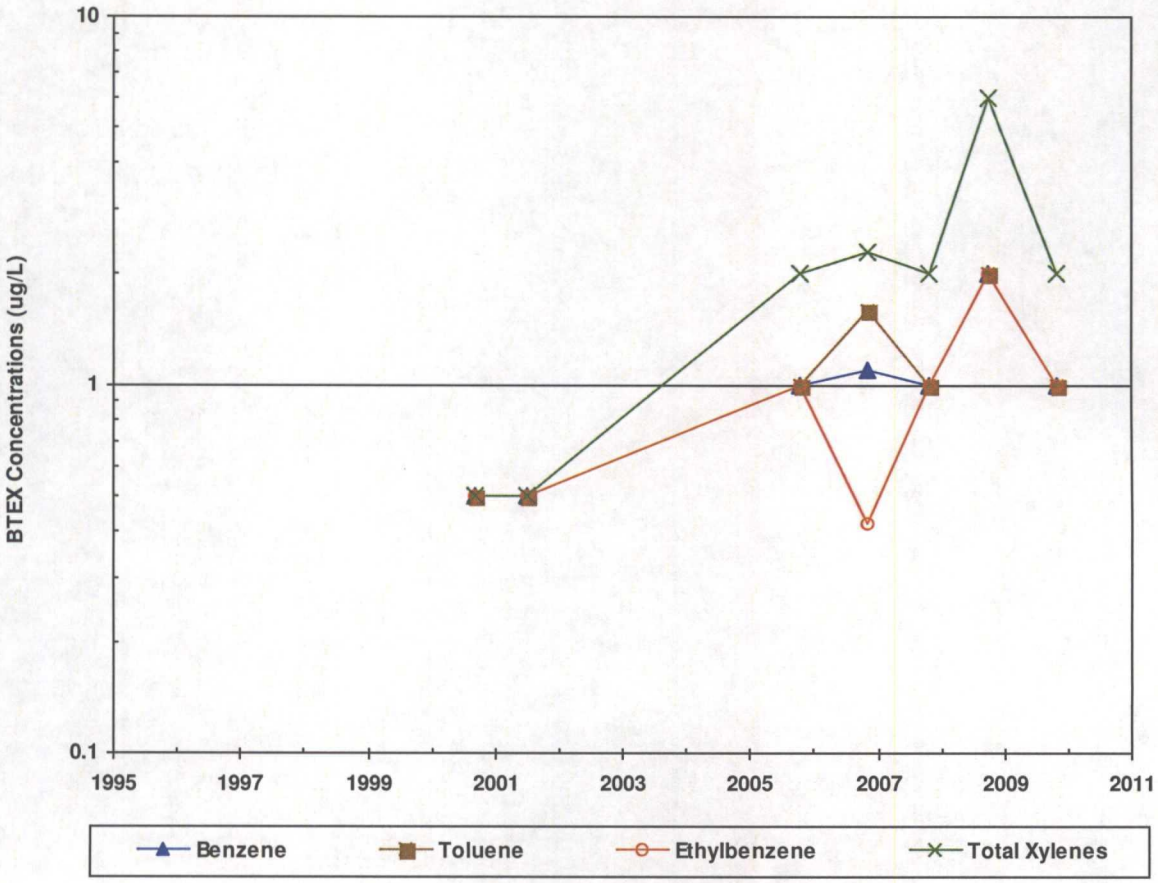
**In some cases, older recovery event data are not available. However, the cumulative totals still include all historic recovery.*

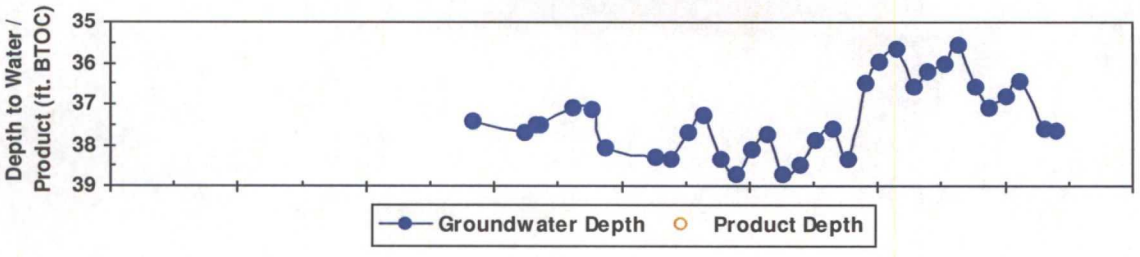
FIGURE 3
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY
K27 LD072 (METER #LD072)
MW02

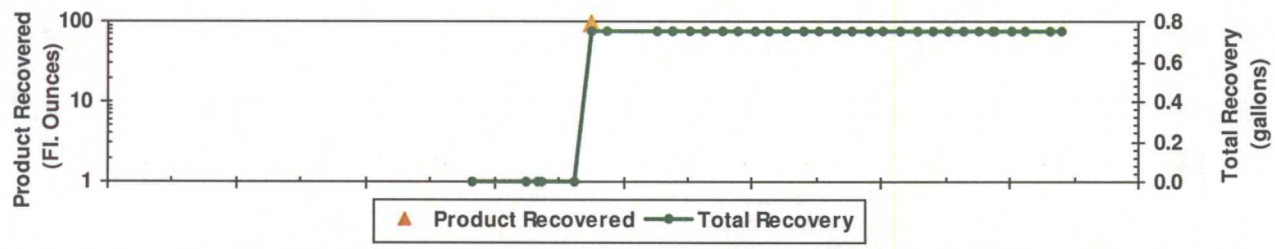


**In some cases, older recovery event data are not available. However, the cumulative totals still include all historic recovery.*

FIGURE 4
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY
K27 LD072 (METER #LD072)
MW03







**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)
TMW05

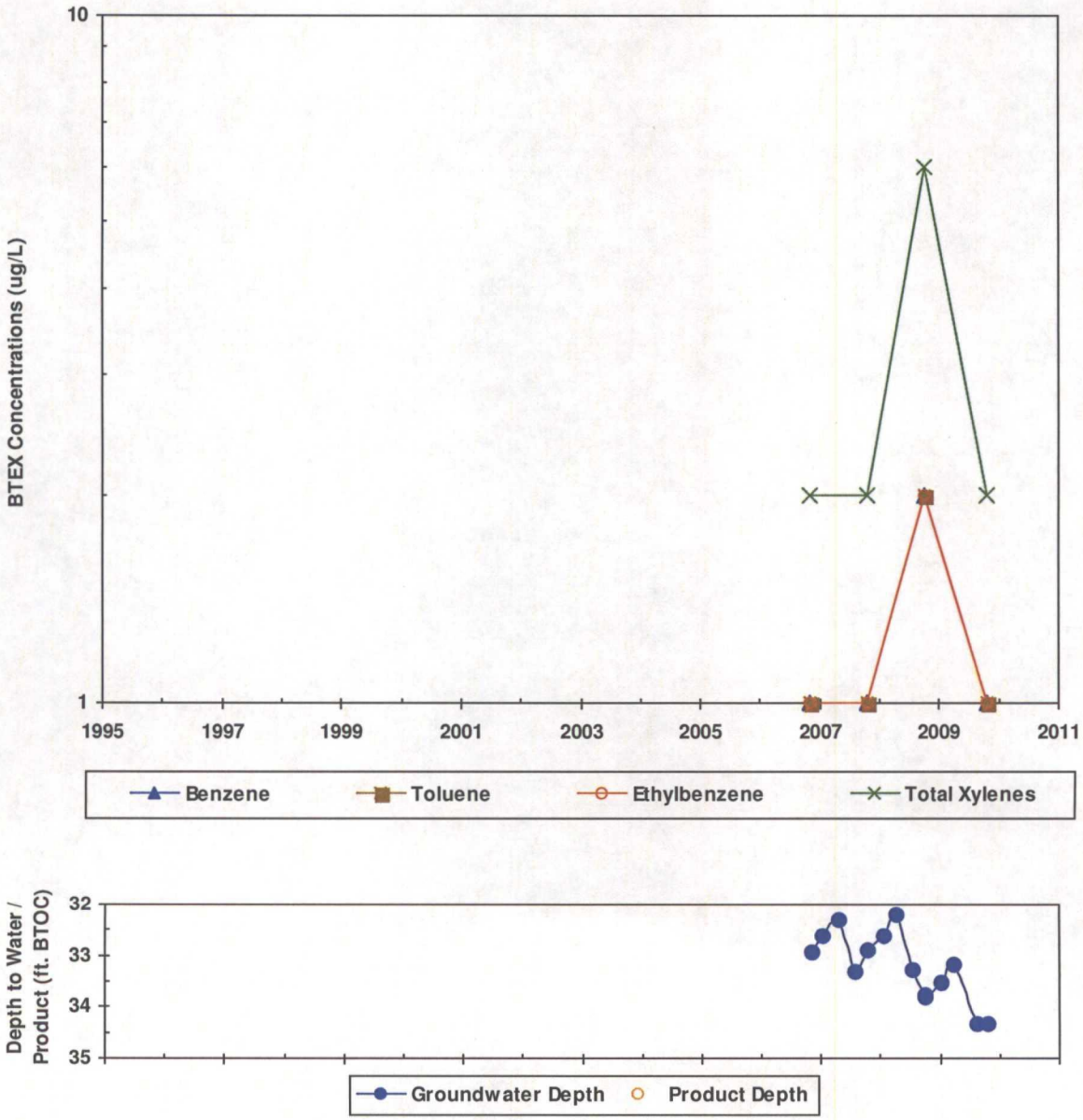


TABLE 1

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

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	11/4/1996	**996**	**2170**	204	**1520**	37.44	6229.38
MW01	2/5/1997	**207**	613	168	**1010**	36.89	6229.93
MW01	5/7/1997	**41.8**	114	97.8	500	36.73	6230.09
MW01	8/8/1997	**1690**	**2980**	298	**1930**	37.61	6229.21
MW01	11/7/1997	**533**	**1210**	267	**1720**	37.33	6229.59
MW01	8/19/1999	**179**	379	79.1	**777**	36.48	6230.34
MW01	11/10/1999	**39**	95	56	390	36.17	6230.71
MW01	10/8/2008	7.3	3.9	20.2	68.7	36.95	6229.87
MW01	11/3/2009	**355**	69.3	45.8	259	37.58	6229.24
MW02	8/31/2000	**5500**	**14000**	670	**5800**	35.81	6230.24
MW02	11/3/2009	**223**	**1070**	532	**2590**	37.00	6229.08
MW03	9/5/2000	<0.5	<0.5	<0.5	<0.5	37.40	6229.22
MW03	7/3/2001	<0.5	<0.5	<0.5	<0.5	37.69	6228.93
MW03	10/21/2005	<1.0	<1.0	<1.0	<2.0	38.48	6228.14
MW03	11/7/2006	1.1	1.6	0.42J	2.3	36.50	6230.12
MW03	10/25/2007	<1.0	<1.0	<1.0	<2.0	36.20	6230.42
MW03	10/8/2008	<2.0	<2.0	<2.0	<6.0	37.09	6229.53
MW03	11/3/2009	<1.0	<1.0	<1.0	<2.0	37.67	6228.95
TMW05	11/8/2006	<1.0	<1.0	<1.0	<2.0	32.95	6230.49
TMW05	10/25/2007	<1.0	<1.0	<1.0	<2.0	32.90	6230.54
TMW05	10/8/2008	<2.0	<2.0	<2.0	<6.0	33.79	6229.65
TMW05	11/3/2009	<1.0	<1.0	<1.0	<2.0	34.35	6229.09

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
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)
MW01	11/7/1997	37.21	37.33	0.12	--	0.00	6229.59
MW01	2/26/1998	36.71	36.89	0.18	--	0.00	6230.07
MW01	2/24/1999	36.27	36.39	0.12	--	0.00	6230.53
MW01	11/10/1999	36.10	36.17	0.07	--	0.00	6230.71
MW01	7/3/2001	36.49	36.64	0.15	0.25	0.25	6230.30
MW01	9/4/2001	37.39	37.43	0.04	0.50	0.75	6229.42
MW01	9/24/2001	37.40	37.45	0.05	0.50	1.25	6229.41
MW01	7/15/2002	37.85	38.02	0.17	0.50	1.75	6228.94
MW01	10/8/2002	38.00	38.01	0.01	0.02	1.77	6228.82
MW01	4/26/2003	--	37.15	0.00	0.01	1.78	6229.67
MW01	7/17/2003	38.18	38.36	0.18	0.10	1.88	6228.60
MW01	1/19/2004	37.68	37.69	0.01	0.01	1.89	6229.14
MW01	7/27/2004	38.28	38.45	0.17	0.10	1.99	6228.51
MW01	10/20/2004	38.68	38.71	0.03	0.02	2.01	6228.13
MW01	1/25/2005	38.16	38.18	0.02	0.03	2.04	6228.66
MW01	4/14/2005	37.75	37.84	0.09	0.09	2.13	6229.05
MW01	7/19/2005	--	38.84	0.00	0.20	2.33	6227.98
MW01	11/7/2006	36.31	36.37	0.06	--	2.33	6230.50
MW02	9/5/2000	36.11	37.28	1.17	--	0.00	6229.71
MW02	10/6/2000	36.04	37.31	1.27	--	0.00	6229.76
MW02	7/3/2001	36.12	37.37	1.25	1.00	1.00	6229.68
MW02	9/4/2001	36.25	36.52	0.27	0.25	1.25	6229.75
MW02	9/24/2001	36.27	36.46	0.19	0.10	1.35	6229.74
MW02	1/2/2002	35.87	36.97	1.10	0.75	2.10	6229.96
MW02	4/1/2002	35.67	36.61	0.94	0.50	2.60	6230.19
MW02	10/8/2002	36.94	37.01	0.07	0.08	2.68	6229.10
MW02	1/27/2003	36.31	36.47	0.16	0.05	2.73	6229.71
MW02	4/26/2003	35.85	36.88	1.03	0.21	2.94	6229.99
MW02	7/17/2003	36.75	38.20	1.45	1.00	3.94	6229.01
MW02	10/13/2003	37.07	37.64	0.57	0.25	4.19	6228.87
MW02	1/19/2004	36.51	36.72	0.21	0.06	4.25	6229.50
MW02	4/20/2004	35.91	36.93	1.02	0.58	4.83	6229.94
MW02	7/27/2004	36.88	38.30	1.42	0.63	5.46	6228.89
MW02	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)
MW02	1/25/2005	36.77	42.87	6.10	0.61	6.45	6228.06
MW02	4/14/2005	36.55	36.55	0.00	0.08	6.53	6229.50
MW02	7/19/2005	37.55	38.16	0.61	0.12	6.65	6228.38
MW02	10/21/2005	37.06	38.31	1.25	0.75	7.40	6228.74
MW02	1/23/2006	36.69	37.31	0.62	0.11	7.51	6229.24
MW02	4/28/2006	36.33	37.01	0.68	0.09	7.60	6229.58
MW02	7/26/2006	37.42	38.37	0.95	0.09	7.69	6228.44
MW02	11/7/2006	35.21	35.28	0.07	--	7.69	6230.83
MW02	1/17/2007	--	35.35	0.00	0.09	7.78	6230.70
MW02	7/31/2007	36.01	36.03	0.02	0.09	7.87	6230.04
MW02	1/25/2008	35.34	35.37	0.03	--	7.87	6230.70
MW02	7/23/2008	--	35.95	0.00	0.06	7.93	6230.10
MW02	1/16/2009	36.14	36.39	0.25	0.05	7.98	6229.86
MW02	4/2/2009	NA	NA	NA	0.09	8.07	NA
MW02	4/6/2009	35.94	35.98	0.04	--	8.07	6230.10
MW02	8/25/2009	36.97	37.03	0.06	0.09	8.16	6229.07
MW02	11/2/2009	NA	NA	NA	0.13	8.30	NA
MW02	11/3/2009	36.96	37.00	0.04	0.09	8.39	6229.08
MW03	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.

Lodestar Services, Incorporated
PO Box 4465, Durango, CO 81302 Office (970) 946-1093

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: K-27 | Well No: MW-3
Client: MWH | Date: 11/3/2009 | Time: 11:45
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 37.67 ft | Depth to Product: ft
Well Diameter: 2" | Total Depth: 42.84 ft | Product Thickness: ft
Water Column Height: 5.17 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☑ Other bail dry

Water Volume in Well			
Gal/ft x ft of water	Gallons	Ounces	Volume to be removed
5.17 x .16	0.83 x 3		2.48 gal

Time (military)	pH (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
11:56	7.07	9.42	57.2				0.25	light tan, roots
	7.17	9.26	57.2				0.50	light tan, roots
	7.17	9.34	57.0				0.75	light tan, roots
	7.21	9.31	57.0				1.00	light tan, roots
	7.24	9.36	57.0				2.00	light tan, roots, bailing down
	7.24	9.25	57.0				2.25	clear
Final: 12:30	7.25	9.26	56.8				2.50	light gray, roots, bailed dry

COMMENTS: well bailed dry during purging.

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: Rio Vista

Sample ID: MW-3 | Sample Time: 12:22

Analysis Requested: ☑ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other

Trip Blank: | Duplicate Sample:

Lodestar Services, Incorporated
PO Box 4465, Durango, CO 81302 Office (970) 946-1093

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: K-27 | Well No: TMW-5
Client: MWH | Date: 11/3/2009 | Time: 12:32
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 34.35 ft | Depth to Product: ft
Well Diameter: 2" | Total Depth: 41.15 ft | Product Thickness: ft
Water Column Height: 6.8 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☑ Other bail dry

Water Volume in Well			
Gal/ft x ft of water	Gallons	Ounces	Volume to be removed
6.8 x .16	1.088 x 3		3.26 gal

Time (military)	pH (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
11:56	7.24	1.30	56.5				0.25	tan, silty roots
	7.35	1.32	56.2				0.50	tan, silty roots
	7.36	1.32	55.9				0.75	tan, silty roots
	7.39	1.34	55.8				1.00	brown, silty
	7.38	1.27	55.2				2.00	brown, silty
	7.39	1.29	55.9				3.00	brown, silty
	7.39	1.28	55.2				3.25	brown, silty
Final: 12:50	7.40	1.30	55.1				3.50	brown, silty roots

COMMENTS:

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: Rio Vista

Sample ID: TMW-5 | Sample Time: 12:53

Analysis Requested: ☑ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other

Trip Blank: | Duplicate Sample:

Lodestar Services, Incorporated
PO Box 4465, Durango, CO 81302 Office (970) 946-1093

WATER LEVEL DATA

Project Name: San Juan Basin Groundwater
Project Manager: Ashley Ager
Client: MWH
Site Name: K-27
Date: 04/06/2009

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	8:40 AM	-	36.30	-	-	
MW-2		35.94	35.98	0.04	12 oz	static, removed sock on 04/02/09
MW-3		-	36.43	-	-	
TMW-5		-	33.18	-	-	

Comments
Removed sock and 12 oz product on 04/02/09. Installed new sock on 04/06/09.

Signature: Ashley L. Ager
Date: 04/06/2009

Lodestar Services, Incorporated
PO Box 4465, Durango, CO 81302 Office 970-946-1093

Site Visit Memo

To: Jed Smith

From: Ashley Ager

CC: File

Date: November 3, 2009

Re: K-27 Site Visit

11/02/09
12:07, Pulled absorbent sock from MW-2 for static water levels. Removed approximately 17 oz of product.

Lodestar Services, Incorporated
PO Box 4465, Durango, CO 81302 Office 970-946-1093

Site Visit Memo

To: Jed Smith

From: Ashley Ager

CC: File

Date: April 2, 2009

Re: K-27 Site Visit

0907, Pulled absorbent sock from MW-2 for static water levels. Removed approximately 12 oz of product.

Reviewed site map and made site photos. Map is accurate.

Lodestar Services, Incorporated
PO Box 4465, Durango, CO 81302 Office (970) 946-1093

WATER LEVEL DATA

Project Name: San Juan Basin Groundwater **Date:** 08/25/2009
Project Manager: Ashley Ager
Client: MWH
Site Name: K-27

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	1:52 PM	-	37.53	-	-	
MW-2		36.97	37.03	0.06	13.5	replaced PR sock, recovered 13.5 oz
MW-3		-	37.62	-	-	
TMW-5		-	34.35	-	-	

Comments
Lid had been pulled off MW-2 and sock was not underwater - probably due to cattle.

Signature: *Ashley L. Ager* Date: 08/25/2009

Lodestar Services, Incorporated
PO Box 4465, Durango, CO 81302 Office (970) 946-1093

WATER LEVEL DATA

Project Name: San Juan Basin Groundwater **Date:**
Project Manager: Ashley Ager
Client: MWH
Site Name: K-27

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-1	11:42 AM	-	37.58	-	-
MW-2		36.96	37.00	0.04	12 oz
MW-3		-	37.67	-	-
TMW-5		-	34.35	-	-

Comments
Reset sock in MW-2.

Signature: *Ashley L. Ager* Date: 04/06/2009

Lodestar Services, Incorporated
PO Box 4465, Durango, CO 81302 Office (970) 946-1093

WATER LEVEL DATA

11/03/2009

Comments
sampled BTEX, did not measure parameters due to heavy sheen. Purged 3 gallons and sampled.
sampled BTEX, did not measure parameters due to product. Purged 1.75 gallons and sampled.
sampled BTEX
sampled BTEX

Lodestar Services, Incorporated
PO Box 4465, Durango, CO 81302 Office (970) 946-1093

PRODUCT RECOVERY/WATER LEVEL DATA

Project Name_	**San Juan Basin Ground Water**	**Project No.**	**30001.0**
Project Manager	**Ashley Ager**		
Client Company	**MWH**	**Date**	**01/16/09**
Site Name	**K27**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-1	1130		36.77		**no sock, no product**
MW-2		36.14	36.39	0.25	**replaced sock; recovered 6 oz**
MW-3			38.83		
TMW-5			33.53		

Comments:

Signature: *Ashley Ager* Date: 01/18/09

Gulf Coast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

11/13/09

Technical Report for

Montgomery Watson

San Juan Basin Pit Groundwater Remediation

K-27/ WO94293

Accutest Job Number: T41573

Sampling Date: 11/03/09

Report to:

MWH Americas
1801 California St. Suite 2900
Denver, CO 80202
jed.smith@mwhglobal.com

ATTN: Jed Smith

Total number of pages in report: **20**

ACCUTEST LABORATORIES 50 YEARS 1956-2006

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul K Canevaro

Paul Canevaro
Laboratory Director

Client Service contact: Georgia Jones 713-271-4700

Certifications: TX (T104704220-06-TX) AR (88-0756) FL (E87628) KS (E-10366) LA (85695/04004) OK (9103) UT(7132714700)

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Sample Summary

Montgomery Watson

Job No: T41573

San Juan Basin Pit Groundwater Remediation
Project No: K-27/ WO94293

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
T41573-1	11/03/09	12:22		11/05/09	AQ	Ground Water	K27 MW-3
T41573-2	11/03/09	12:53		11/05/09	AQ	Ground Water	K27 TMW-5
T41573-3	11/03/09	13:30		11/05/09	AQ	Ground Water	K27 MW-1
T41573-4	11/03/09	13:54		11/05/09	AQ	Ground Water	K27 MW-2

ACCUTEST Laboratories

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	Montgomery Watson	**Job No**	T41573
Site:	San Juan Basin Pit Groundwater Remediation	**Report Date**	11/12/2009 4:37:09 PM

4 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 11/03/2009 and were received at Accutest on 11/05/2009 properly preserved, at 2.4 Deg. C and intact. These Samples received an Accutest job number of T41573. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GC By Method SW846 8021B

Matrix AQ **Batch ID:** GKK1582

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T41575-2MS, T41575-2MSD were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Benzene are outside control limits. Probable cause due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for Benzene are outside control limits. Probable cause due to matrix interference.

Matrix AQ **Batch ID:** GKK1583

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T41699-9MS, T41699-9MSD were used as the QC samples indicated.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	K27 MW-3		
Lab Sample ID:	T41573-1	Date Sampled:	11/03/09
Matrix:	AQ - Ground Water	Date Received:	11/05/09
Method:	SW846 8021B	Percent Solids:	n/a
Project:	San Juan Basin Pit Groundwater Remediation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK033100.D	1	11/11/09	FI	n/a	n/a	GKK1582
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.36	ug/l	
108-88-3	Toluene	ND	1.0	0.28	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	0.93	ug/l	
95-47-6	o-Xylene	ND	1.0	0.36	ug/l	
	m,p-Xylene	ND	1.0	0.57	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	81%		58-125%
98-08-8	aaa-Trifluorotoluene	111%		73-139%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	K27 TMW-5		
Lab Sample ID:	T41573-2	Date Sampled:	11/03/09
Matrix:	AQ - Ground Water	Date Received:	11/05/09
Method:	SW846 8021B	Percent Solids:	n/a
Project:	San Juan Basin Pit Groundwater Remediation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK033101.D	1	11/11/09	FI	n/a	n/a	GKK1582
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.36	ug/l	
108-88-3	Toluene	ND	1.0	0.28	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	0.93	ug/l	
95-47-6	o-Xylene	ND	1.0	0.36	ug/l	
	m,p-Xylene	ND	1.0	0.57	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	87%		58-125%
98-08-8	aaa-Trifluorotoluene	113%		73-139%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	K27 MW-1		
Lab Sample ID:	T41573-3	Date Sampled:	11/03/09
Matrix:	AQ - Ground Water	Date Received:	11/05/09
Method:	SW846 8021B	Percent Solids:	n/a
Project:	San Juan Basin Pit Groundwater Remediation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK033122.D	10	11/11/09	FI	n/a	n/a	GKK1583
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	355	10	3.6	ug/l	
108-88-3	Toluene	69.3	10	2.8	ug/l	
100-41-4	Ethylbenzene	45.8	10	2.5	ug/l	
1330-20-7	Xylenes (total)	259	20	9.3	ug/l	
95-47-6	o-Xylene	81.9	10	3.6	ug/l	
	m,p-Xylene	177	10	5.7	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	95%		58-125%
98-08-8	aaa-Trifluorotoluene	123%		73-139%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	K27 MW-2		
Lab Sample ID:	T41573-4	Date Sampled:	11/03/09
Matrix:	AQ - Ground Water	Date Received:	11/05/09
Method:	SW846 8021B	Percent Solids:	n/a
Project:	San Juan Basin Pit Groundwater Remediation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK033123.D	25	11/11/09	FI	n/a	n/a	GKK1583
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	223	25	9.0	ug/l	
108-88-3	Toluene	1070	25	7.1	ug/l	
100-41-4	Ethylbenzene	532	25	6.3	ug/l	
1330-20-7	Xylenes (total)	2590	50	23	ug/l	
95-47-6	o-Xylene	782	25	8.9	ug/l	
	m,p-Xylene	1800	25	14	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	102%		58-125%
98-08-8	aaa-Trifluorotoluene	117%		73-139%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ACCUTEST Laboratories

CHAIN OF CUSTODY

10165 Harwin, Suite 150 - Houston, TX 77036 - 713-271-4700 fax: 713-271-4770

Page 1 of 3

FED-EX Tracking # 8706 6705 1164 | Bottle Order Control #
Accutest Quote # | Accutest Job # T41573

4.1

4

Client / Reporting Information		Project Information	
Company Name: MWH		Project Name / No.: EPTPC San Juan Basin Pit GW Remediation -K27-	
Project Contact: Jed Smith	E-Mail: jed.smith@mwhglobal.com	Bill to: El Paso Corp	Invoice Attn.: Norma Ramos
Address: 1801 California Street, Suite 2900		Address: 1001 Louisiana Street, Rm S1904B	
City: Denver State: CO	Zip: 80202	City: Hou State: TX	Zip: 77002
Phone No.: 303-291-2276	Fax No.	Phone No.	Fax No.
Samplers's Name: Troy Urban		Client Purchase Order #: ~~WO#94293~~ W094293	

Requested Analyses: BTEX (8021B) include m, p, & o-xylene

Matrix Codes: DW - Drinking Water, GW - Ground Water, WW - Wastewater, SO - Soil, SL - Sludge, OI - Oil, LIQ - Liquid, SOL - Other Solid

Accutest Sample #	Field ID / Point of Collection	Date	Time	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	ENCORE	NaHSO4	MEOH	NONE	BTEX (8021B) include m, p, & o-xylene	LAB USE ONLY
	K27 MW-3	110309	1222	GW	3	X								X	
	K27 TMW-5	110309	1253	GW	3	X								X	
	K27 MW-1	110309	1330	GW	3	X								X	
	K27 MW-2	110309	1354	GW	3	X								X	

Turnaround Time (Business days) — Approved By:/ Date:
- [X] 10 Day STANDARD
- [ ] 7 Day
- [ ] 4 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [ ] Other

Real time analytical data available via Lablink

Data Deliverable Information
- [ ] Commercial "A"
- [X] Commercial "B"
- [ ] Reduced Tier 1
- [ ] Full Data Package
- [ ] TRRP-13
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only
Commercial "B" = Results & Standard QC

Comments / Remarks
If samples are received unpreserved, please notify MWH regarding holding time!!!
possible product in K27 MW-1 and K27 MW-2

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 Troy Urban 11/4/09	1620	1	2 Fed Ex	11/5/09	2 [signature]
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable ☐	On Ice ☑ Cooler Temp. 2.4

T41573: Chain of Custody
Page 1 of 3

SAMPLE INSPECTION FORM

Accutest Job Number: T41573 Client: MWH Date/Time Received: 11/5/09 8:00

# of Coolers Received: 1 Thermometer #: IR1 Temperature Adjustment Factor: +0.4

Cooler Temps: #1: 2.4 #2: _____ #3: _____ #4: _____ #5: _____ #6: _____ #7: _____ #8: _____

Method of Delivery: (FEDEX) UPS Accutest Courier Greyhound Delivery Other

Airbill Numbers: 8706 6705 1164

COOLER INFORMATION
- [ ] Custody seal missing or not intact
- [ ] Temperature criteria not met
- [ ] Wet ice received in cooler

CHAIN OF CUSTODY
- [ ] Chain of Custody not received
- [ ] Sample D/T unclear or missing
- [ ] Analyses unclear or missing
- [ ] COC not properly executed

SAMPLE INFORMATION
- [ ] Sample containers received broken
- [ ] VOC vials have headspace
- [ ] Sample labels missing or illegible
- [ ] ID on COC does not match label(s)
- [ ] D/T on COC does not match label(s)
- [ ] Sample/Bottles rcvd but no analysis on COC
- [ ] Sample listed on COC, but not received
- [ ] Bottles missing for requested analysis
- [ ] Insufficient volume for analysis
- [ ] Sample received improperly preserved

TRIP BLANK INFORMATION
- [ ] Trip Blank on COC but not received
- [ ] Trip Blank received but not on COC
- [ ] Trip Blank not intact
- [ ] Received Water Trip Blank
- [ ] Received Soil TB

Number of Encores? _____
Number of 5035 kits? _____
Number of lab-filtered metals? _____

Summary of Discrepancies:

TECHNICIAN SIGNATURE/DATE: TClauch 11/05/09

INFORMATION AND SAMPLE LABELING VERIFIED BY: EC 11-5-9

CORRECTIVE ACTIONS

Client Representative Notified: _____ **Date:** _____

By Accutest Representative: _____ **Via:** Phone Email

Client Instructions:

4.1 4

SAMPLE RECEIPT LOG

JOB #: T41573 DATE/TIME RECEIVED: 11/05/09 9:00

CLIENT: MWH INITIALS: [illegible]

COOLER#	SAMPLE ID	FIELD ID	DATE	MATRIX	VOL	BOTTLE #	LOCATION	PRESERV	PH
1	1	K27 MW-3	11/03/09 12:22	W	40mL	1-3	VR	1 2 3 4 5 6 7 8	<2 >12
	2	K27 T-MW-5	11/03/09 12:53	↓	↓	1-3	↓	1 2 3 4 5 6 7 8	<2 >12
	3	K27 MW-1	11/03/09 13:30			1-3		1 2 3 4 5 6 7 8	<2 >12
	4	K27 MW-2	11/03/09 13:54	↓	↓	1-3	↓	1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12

(Unused rows struck through, initialed 11/05/09)

PRESERVATIVES: 1: None 2: HCL 3: HNO3 4: H2SO4 5: NAOH 6: DI 7: MeOH 8: Other

LOCATION: 1: Walk-In #1 (Waters) 2: Walk-In #2 (Soils) VR: Volatile Fridge M: Metals SUB: Subcontract EF: Encore Freezer

Rev 8/13/01 ewp

T41573: Chain of Custody

Page 3 of 3

GC Volatiles

5

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: T41573
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1582-MB	KK033089.D	1	11/10/09	FI	n/a	n/a	GKK1582

The QC reported here applies to the following samples: Method: SW846 8021B

T41573-1, T41573-2

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.36	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	1.0	0.28	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	0.93	ug/l	
95-47-6	o-Xylene	ND	1.0	0.36	ug/l	
	m,p-Xylene	ND	1.0	0.57	ug/l	

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	84%	58-125%
98-08-8	aaa-Trifluorotoluene	112%	73-139%

Method Blank Summary

Job Number: T41573
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1583-MB	KK033111.D	1	11/11/09	FI	n/a	n/a	GKK1583

The QC reported here applies to the following samples: Method: SW846 8021B

T41573-3, T41573-4

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.36	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	1.0	0.28	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	0.93	ug/l	
95-47-6	o-Xylene	ND	1.0	0.36	ug/l	
	m,p-Xylene	ND	1.0	0.57	ug/l	

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	92%	58-125%
98-08-8	aaa-Trifluorotoluene	114%	73-139%

Blank Spike Summary

Job Number: T41573
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1582-BS	KK033085.D	1	11/10/09	FI	n/a	n/a	GKK1582

The QC reported here applies to the following samples: Method: SW846 8021B

T41573-1, T41573-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	21.5	108	86-121
100-41-4	Ethylbenzene	20	20.6	103	81-116
108-88-3	Toluene	20	20.5	103	87-117
1330-20-7	Xylenes (total)	60	62.2	104	85-115
95-47-6	o-Xylene	20	20.8	104	87-116
	m,p-Xylene	40	41.5	104	84-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	95%	58-125%
98-08-8	aaa-Trifluorotoluene	115%	73-139%

Blank Spike Summary

Job Number: T41573
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1583-BS	KK033107.D	1	11/11/09	FI	n/a	n/a	GKK1583

The QC reported here applies to the following samples: Method: SW846 8021B

T41573-3, T41573-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	22.1	111	86-121
100-41-4	Ethylbenzene	20	20.8	104	81-116
108-88-3	Toluene	20	22.3	112	87-117
1330-20-7	Xylenes (total)	60	64.3	107	85-115
95-47-6	o-Xylene	20	21.1	106	87-116
	m,p-Xylene	40	43.3	108	84-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	91%	58-125%
98-08-8	aaa-Trifluorotoluene	116%	73-139%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T41573
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T41575-2MS	KK033096.D	1	11/11/09	FI	n/a	n/a	GKK1582
T41575-2MSD	KK033097.D	1	11/11/09	FI	n/a	n/a	GKK1582
T41575-2	KK033090.D	1	11/10/09	FI	n/a	n/a	GKK1582

The QC reported here applies to the following samples: Method: SW846 8021B

T41573-1, T41573-2

CAS No.	Compound	T41575-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	0.51	J	20	25.4	124*	25.7	126*	1	86-121/19
100-41-4	Ethylbenzene	ND		20	22.5	113	22.4	112	0	81-116/14
108-88-3	Toluene	ND		20	22.8	114	22.9	115	0	87-117/16
1330-20-7	Xylenes (total)	ND		60	66.9	112	66.9	112	0	85-115/12
95-47-6	o-Xylene	ND		20	22.2	111	22.2	111	0	87-116/16
	m,p-Xylene	ND		40	44.7	112	44.7	112	0	84-116/13

CAS No.	Surrogate Recoveries	MS	MSD	T41575-2	Limits
460-00-4	4-Bromofluorobenzene	91%	91%	88%	58-125%
98-08-8	aaa-Trifluorotoluene	111%	112%	109%	73-139%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T41573
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T41699-9MS	KK033118.D	20	11/11/09	FI	n/a	n/a	GKK1583
T41699-9MSD	KK033119.D	20	11/11/09	FI	n/a	n/a	GKK1583
T41699-9	KK033114.D	20	11/11/09	FI	n/a	n/a	GKK1583

The QC reported here applies to the following samples: Method: SW846 8021B

T41573-3, T41573-4

CAS No.	Compound	T41699-9 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	328		400	778	113	761	108	2	86-121/19
100-41-4	Ethylbenzene	597		400	1020	106	1010	103	1	81-116/14
108-88-3	Toluene	5.6	J	400	424	105	414	102	2	87-117/16
1330-20-7	Xylenes (total)	926		1200	2190	105	2170	104	1	85-115/12
95-47-6	o-Xylene	ND		400	433	108	429	107	1	87-116/16
	m,p-Xylene	926		800	1760	104	1740	102	1	84-116/13

CAS No.	Surrogate Recoveries	MS	MSD	T41699-9	Limits
460-00-4	4-Bromofluorobenzene	95%	97%	95%	58-125%
98-08-8	aaa-Trifluorotoluene	115%	115%	115%	73-139%