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AGWMR

2009

El Paso Tennessee
Pipeline Company

San Juan Basin Pit Program
Groundwater Sites Project

Final 2009 Annual Report
Non-Federal Sites (Volume 2)

April 2010

MWH

1801 California Street, Suite 2900
Denver, Colorado 80202

2009 ANNUAL GROUNDWATER REPORT
NON-FEDERAL SITES VOLUME II

EL PASO TENNESSEE PIPELINE COMPANY

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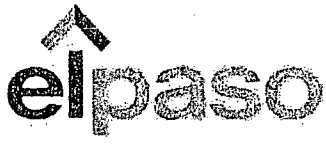
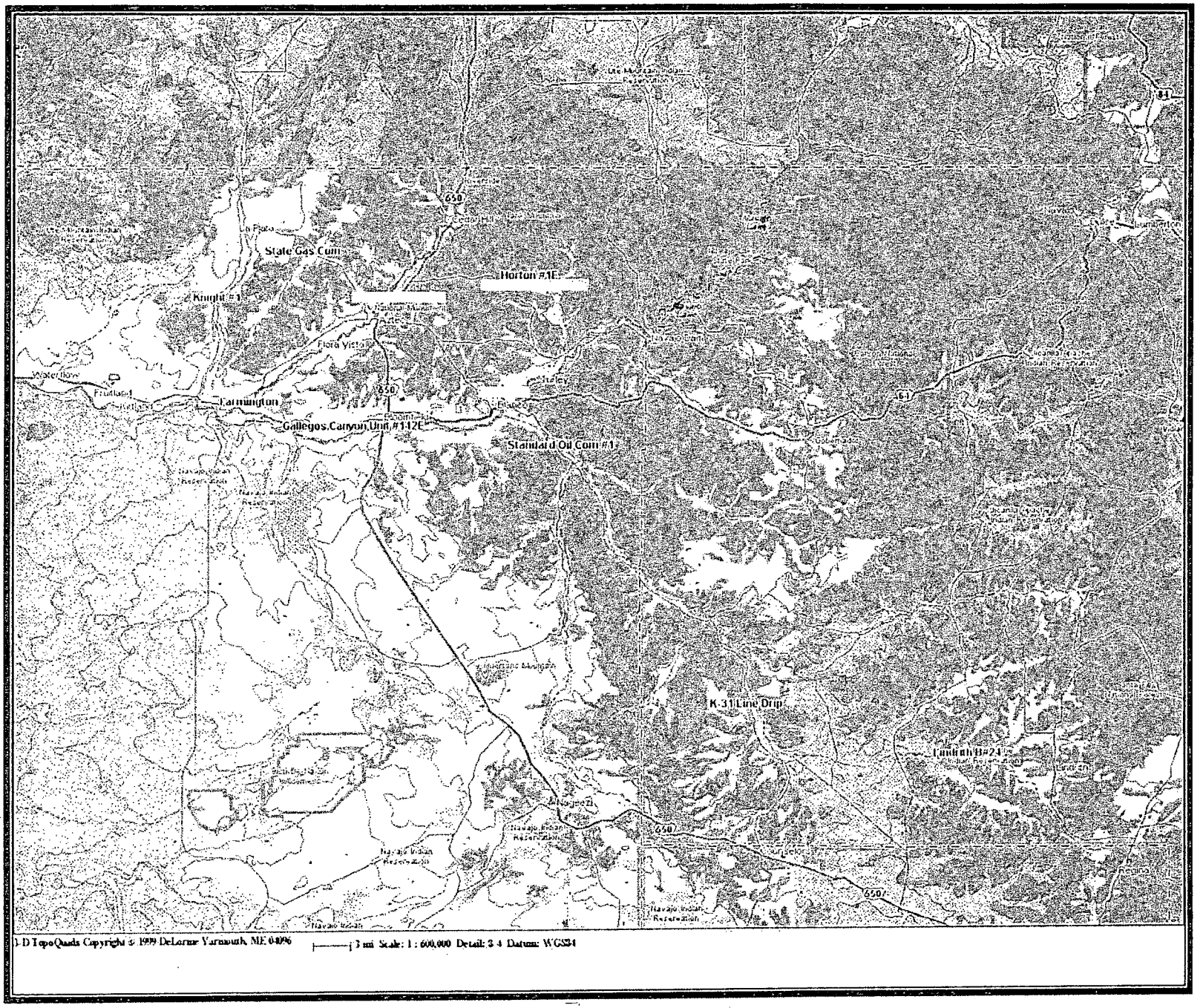
*The Lindrith B#24 site was submitted for closure in 2006 and is pending approval from NMOCD. There were no monitoring activities for this site in 2009.



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

Non-Federal Groundwater Site Map



EPTPC GROUNDWATER SITES
2009 ANNUAL GROUNDWATER REPORT

Knight #1
Meter Code: 72556

SITE DETAILS

Legal Description: **Town:** 30N **Range:** 13W **Sec:** 5 **Unit:** A

NMOCD Haz Ranking: 30 **Land Type:** Fee **Operator:** Fuller Petroleum Inc.

PREVIOUS ACTIVITIES

Site Assessment:	1/95	**Excavation:**	1/95 (60 cy)	**Soil Boring:**	10/95
Monitor Well:	10/95	**Geoprobe:**	1/97	**Additional MWs:**	11/00
Downgradient MWs:	12/95	**Replace MW:**	NA	**Quarterly Initiated:**	4/96
ORC Nutrient Injection:	11/96	**Re-Excavation:**	NA	**PSH Removal Initiated:**	9/01
Annual Initiated:	NA	**Quarterly Resumed:**	NA	**PSH Removal in 2009?**	Yes

SUMMARY OF 2009 ACTIVITIES

MW-1: Annual groundwater sampling (August) and semiannual water level monitoring were performed in 2009.

MW-2: Annual groundwater sampling (August) and semiannual water level monitoring were performed during 2009.

MW-3: Annual groundwater sampling (August) and semiannual water level monitoring were performed in 2009.

MW-4: Annual groundwater sampling (September) and semiannual water level monitoring were performed during 2009. Monthly product recovery was also performed starting in August.

MW-5: Semiannual water level monitoring was performed during 2009.

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

SITE MAP

A Site map (August) 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.

- Historic free-product recovery data are summarized on Table 2 and presented graphically in Figures 2, 4, and 5.
- The 2009 laboratory reports are 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 performed 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 absorbent socks were managed as non-hazardous solid waste.

ISOCONCENTRATION MAPS

No isoconcentration maps were generated for this Site; however, the attached Site map presents the analytical data collected during 2009.

RESULTS

- The groundwater flow direction generally trends to the south-southeast.
- The annual sample collected from MW-1 had a benzene concentration of 2,790 µg/L. This result was well above the NMWQCC standard of 10 µg/L. Ethylbenzene (1,190 µg/L) and total xylenes (12,500 µg/L) were also above their respective NMWQCC standards. Overall, the MW-1 results were similar to previous years.
- Because there was no measurable free-product in MW-1, no product recovery was possible during 2009, leaving the cumulative total volume recovered at 0.42 gallons. Approximately 0.01 gallons of free-product were removed in 2005, the most recent year with recoverable product.
- The annual sample collected from MW-2 had a benzene concentration of 26.6 µg/L. No other BTEX constituent exceeded its respective standard. Benzene concentrations in this well do tend to fluctuate inversely with water level, and the 2009 sample results are near the low end of the observed concentration range, even as site water levels are at their highest recorded elevations.
- The annual sample collected from MW-3 had a benzene concentration of 2,490 µg/L, an ethylbenzene concentration of 842 µg/L, and a total xylenes concentration

of 6,560 µg/L, all above their respective NMWQCC standards. Concentrations in this well have been climbing since 2000. Free product has not been observed in this well since 2004, likely due to the increasing water level trend since that time.

- The laboratory results from the annual sample collected at MW-4 during 2009 indicated a benzene concentration of 2,110 µg/L and a total xylenes concentration of 6,440 µg/L. The other BTEX constituents were below their respective standards. The results were sharp increases from previous years, coinciding with the August 2009 appearance of free-product in this well. Free-product was recovered on a monthly basis for the rest of 2009, with a total recovered volume of approximately 3.1 gallons.

RECOMMENDATIONS

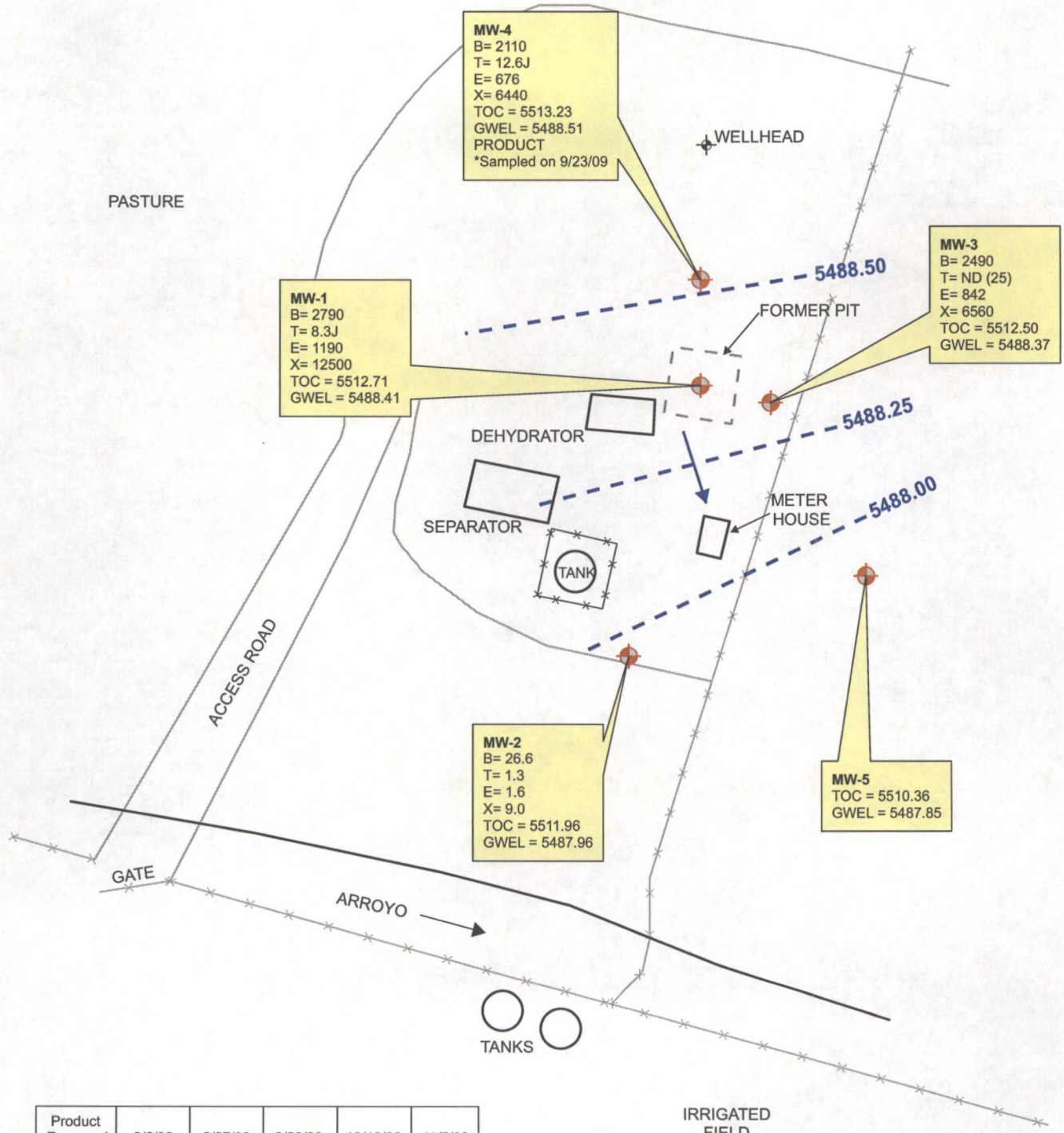
- EPTPC recommends annual sampling and semiannual water level gauging at MW-1. EPTPC will also continue semiannual water level gauging at MW-1, and free-product recovery will again be implemented if measurable free-product thicknesses reappear.

- EPTPC recommends annual sampling and semiannual water level gauging at MW-2.

- EPTPC recommends annual sampling and semiannual water level gauging at MW-3. EPTPC will also continue semiannual water level gauging at MW-3, and free-product recovery will again be implemented if measurable free-product thicknesses reappear.

- EPTPC recommends annual sampling, quarterly product recovery, and semiannual water level gauging at MW-4.

- Because of the significant increases in the MW-3 groundwater BTEX concentrations, EPTPC recommends resuming annual sampling at MW-5, which is located downgradient of MW-3. Water level monitoring will be conducted on a semiannual basis.



Product Removed (Gallons)	3/2/09	8/27/09	9/23/09	10/19/09	11/5/09
MW-4	0	1.00	1.37	0.53	0.13

LEGEND

- **MW-4** Existing Monitoring / Observation Well
- **PZ-01** Abandoned Monitoring Well
- Groundwater Flow Direction
- **—5486—** 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)
J	Result Flagged as Estimated

N

Not To Scale

MWH

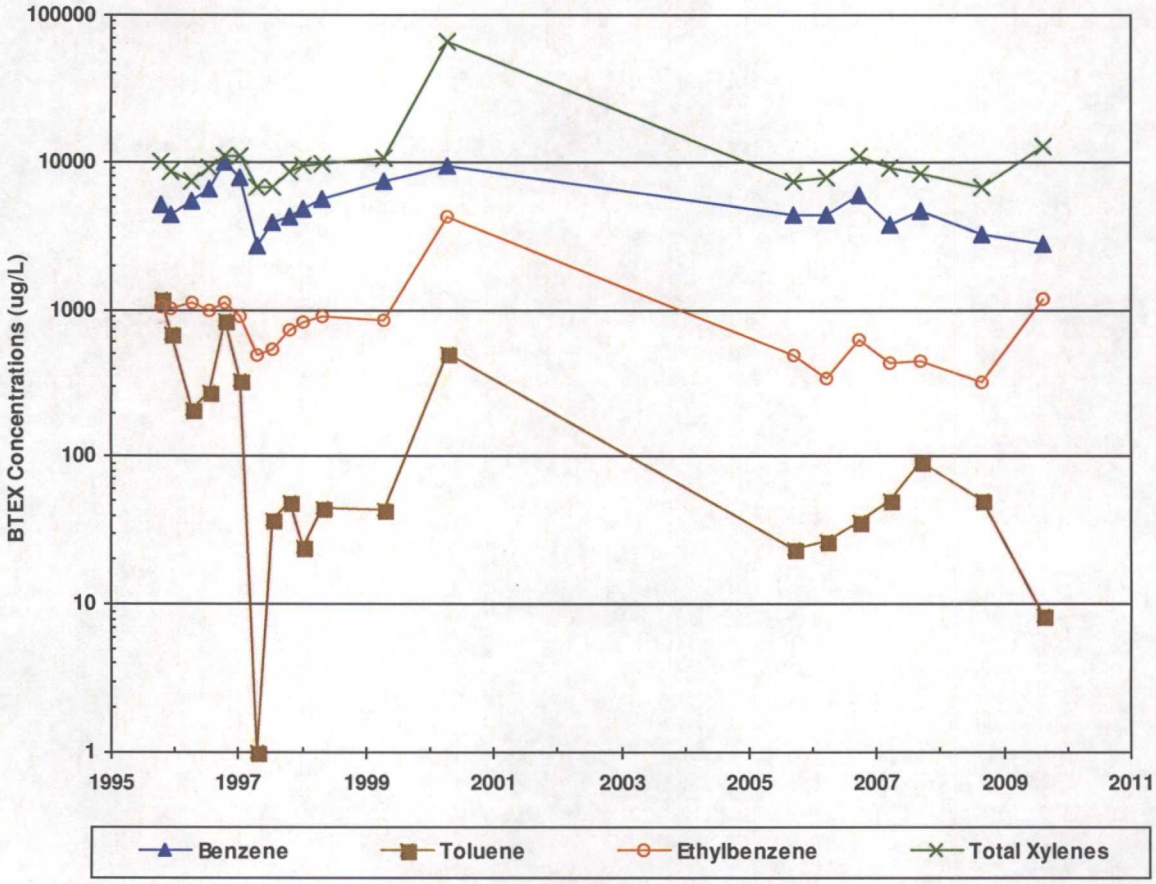
elpaso

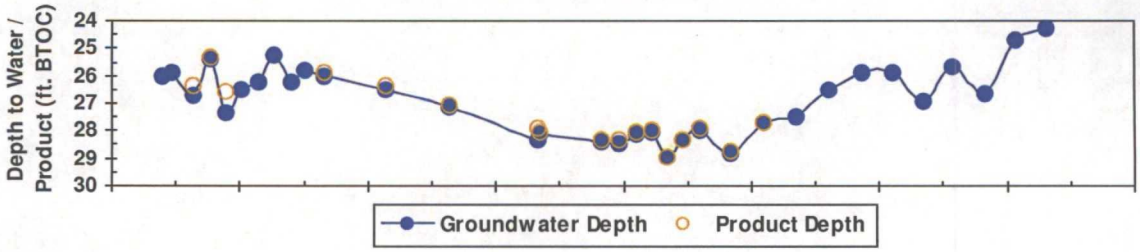
PROJECT: KNIGHT #1

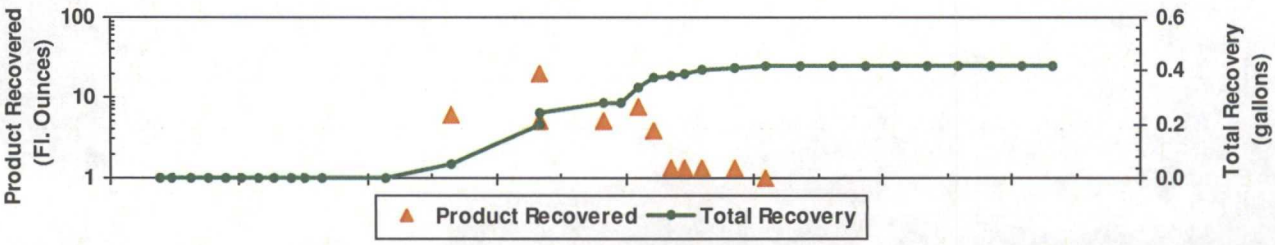
TITLE: Groundwater Potentiometric Surface Map, and BTEX Concentrations - August 27, 2009

FIGURE: 1

FIGURE 2
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY
KNIGHT #1 (METER #72556)
MW01

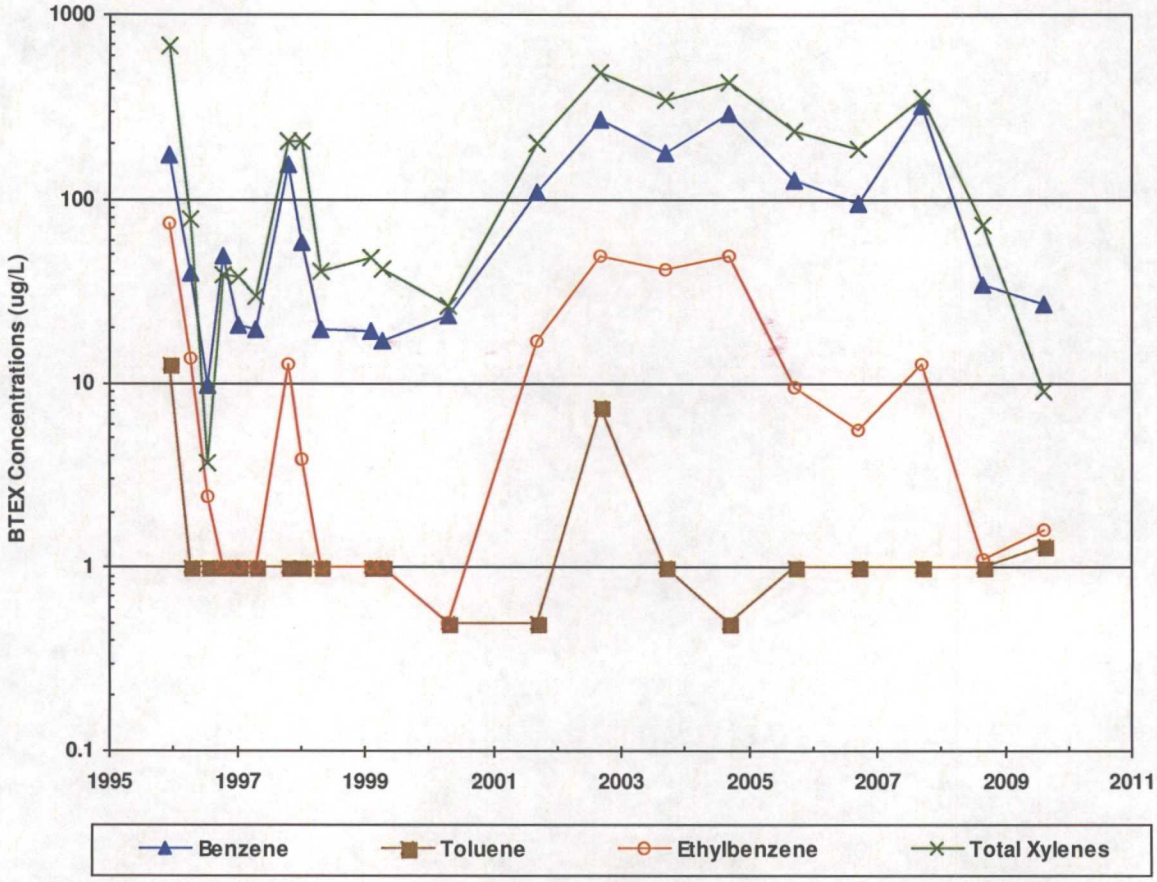






**In some cases, older recovery event data are not available. However, the cumulative totals still include all historic recovery.*

FIGURE 3
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
KNIGHT #1 (METER #72556)
MW02



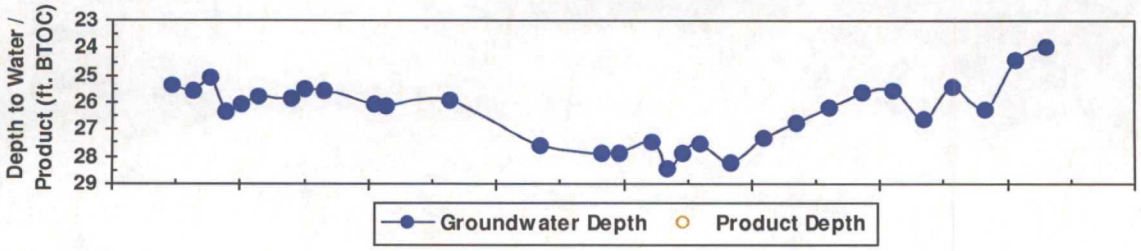
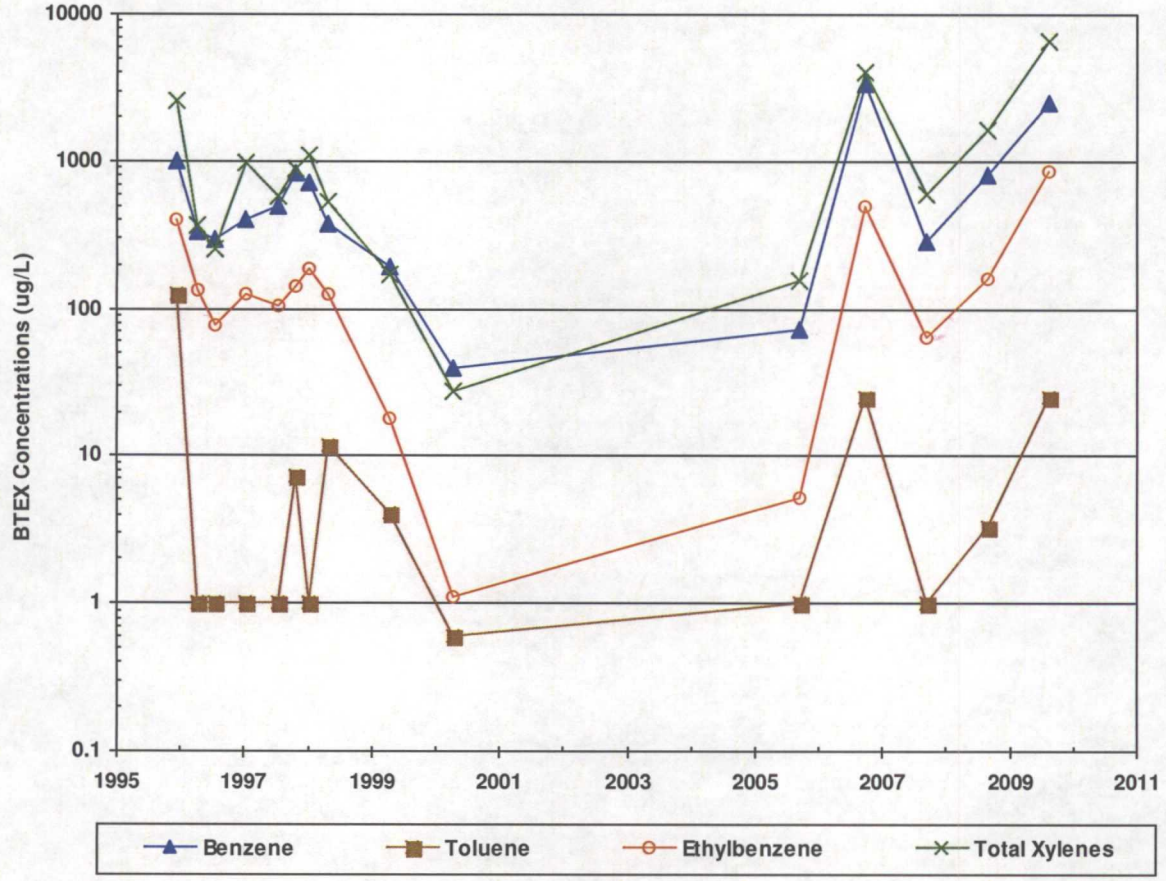
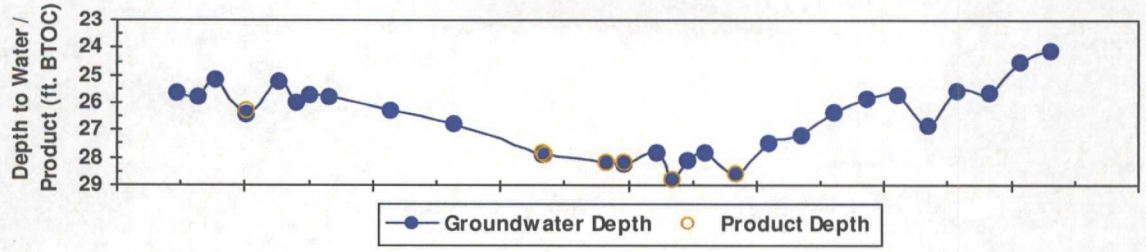
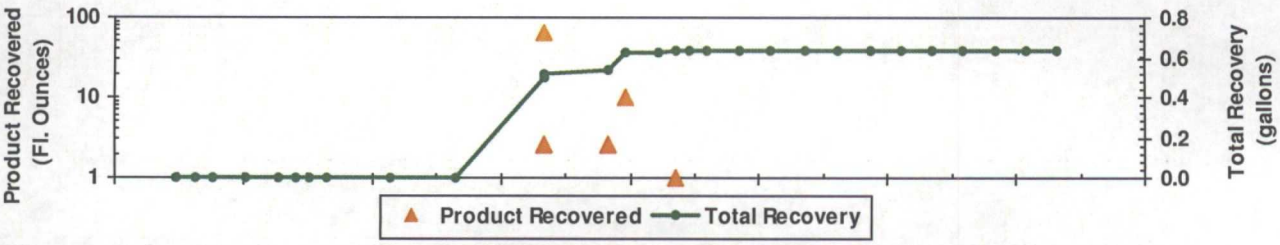


FIGURE 4
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY
KNIGHT #1 (METER #72556)
MW03

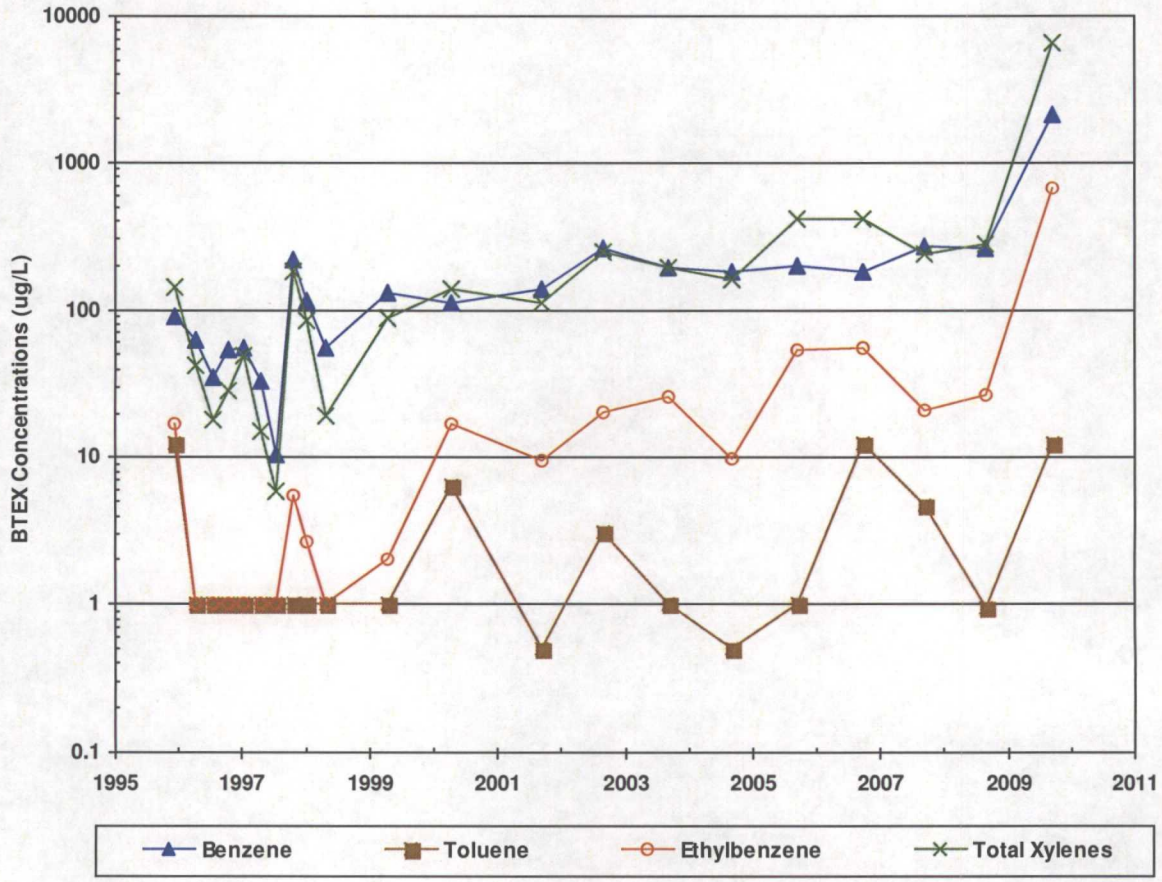


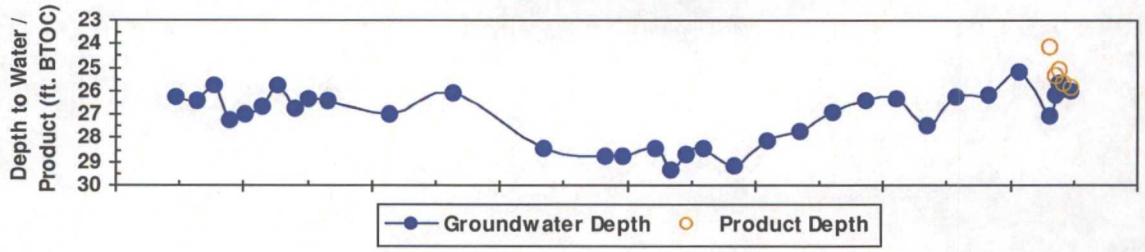


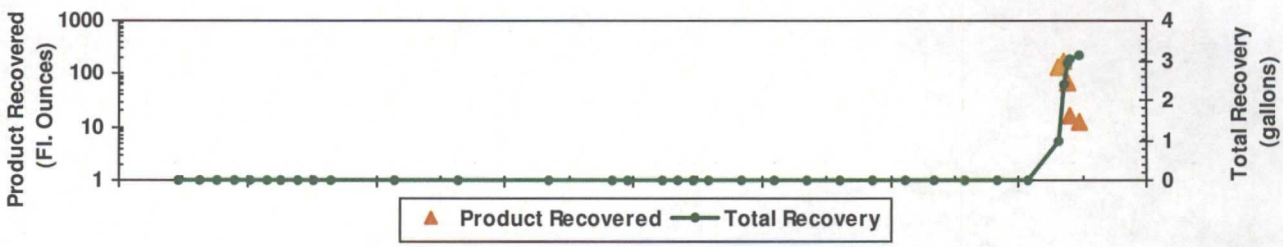


**In some cases, older recovery event data are not available. However, the cumulative totals still include all historic recovery.*

FIGURE 5
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY
KNIGHT #1 (METER #72556)
MW04







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

FIGURE 6
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
KNIGHT #1 (METER #72556)
MW05

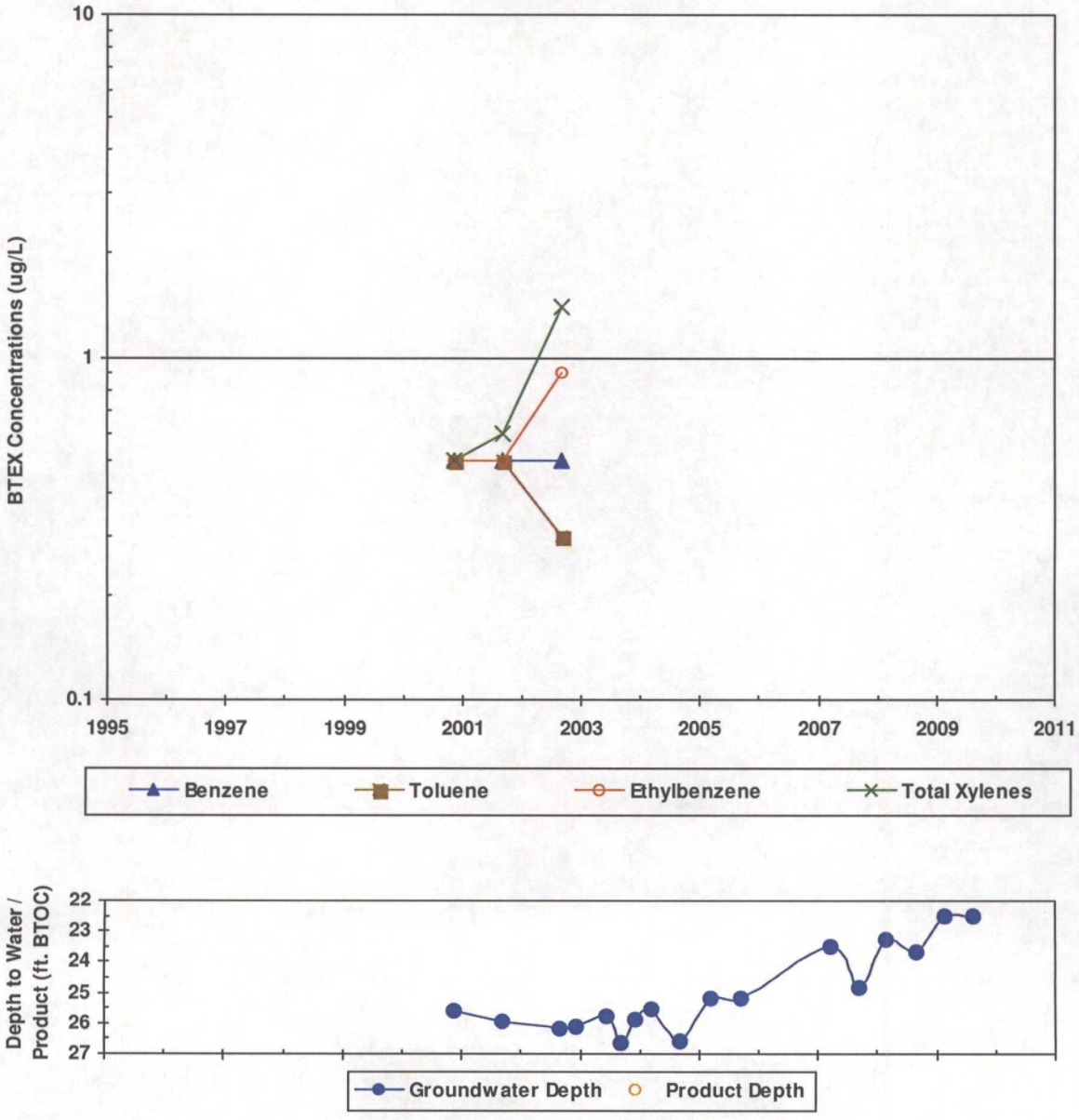


TABLE 1

SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
KNIGHT #1 (METER #72556)

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	10/16/1995	**5080**	**1180**	**1050**	**9970**	26.03	5486.68
MW01	12/12/1995	**4330**	679	**1010**	**8560**	25.91	5486.80
MW01	4/9/1996	**5490**	208	**1100**	**7370**	26.71	5486.30
MW01	7/17/1996	**6450**	279	**990**	**9060**	25.39	5487.35
MW01	10/15/1996	**9870**	**840**	**1120**	**10900**	27.35	5485.96
MW01	1/13/1997	**7760**	332	**914**	**10900**	26.53	5486.18
MW01	4/22/1997	**2700**	<1.0	492	**6690**	26.23	5486.48
MW01	7/14/1997	**3900**	36.7	530	**6700**	25.25	5487.46
MW01	10/22/1997	**4270**	48.7	728	**8580**	26.22	5486.49
MW01	1/9/1998	**4750**	24.2	**819**	**9480**	25.82	5486.89
MW01	4/24/1998	**5610**	44.7	**898**	**9530**	26.01	5486.81
MW01	4/16/1999	**7340**	42.8	**853**	**10600**	26.52	5486.29
MW01	4/19/2000	**9400**	510	**4300**	**66000**	27.14	5485.63
MW01	9/19/2005	**4430**	23.7	487	**7370**	27.47	5485.24
MW01	3/27/2006	**4410**	26.6J	337	**7860**	26.49	5486.22
MW01	9/26/2006	**5880**	36.5	633	**11000**	25.91	5486.80
MW01	3/28/2007	**3740**	<50	441	**9210**	25.87	5486.84
MW01	9/17/2007	**4640**	93.3	444	**8180**	26.94	5485.77
MW01	9/9/2008	**3230**	<50	324	**6780**	26.68	5486.03
MW01	8/27/2009	**2790**	8.3J	**1190**	**12500**	24.30	5488.41
MW02	12/12/1995	**175**	<12.5	74.3	**671**	25.37	5486.59
MW02	4/9/1996	**39.2**	<1.0	13.4	77.9	25.58	5486.38
MW02	7/17/1996	9.55	<1.0	2.39	3.65	25.09	5486.87
MW02	10/15/1996	**49.7**	<1.0	<1.0	38.4	26.36	5485.60
MW02	1/13/1997	**20.3**	<1.0	<1.0	37.3	26.05	5485.91
MW02	4/22/1997	**19.4**	<1.0	<1.0	29.8	25.82	5486.14
MW02	10/22/1997	**155**	<1.0	12.6	204	25.86	5486.10
MW02	1/9/1998	**58.0**	<1.0	3.85	207	25.50	5486.46
MW02	4/24/1998	**19.4**	<1.0	<1.0	40.7	25.60	5486.36
MW02	2/9/1999	**19.0**	<1.0	<1.0	48	26.05	5485.91
MW02	4/16/1999	**16.7**	<1.0	<1.0	41	26.16	5485.80
MW02	4/19/2000	**23.0**	0.5	<0.5	26	25.92	5486.04
MW02	9/11/2001	**110**	<0.5	17	200	27.60	5484.36
MW02	9/4/2002	**269**	7.4	48.9	482.4	27.88	5484.08

TABLE 1

SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
KNIGHT #1 (METER #72556)

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		
MW02	9/17/2003	177	<1.0	41	343	28.42	5483.54
MW02	9/15/2004	291	<0.5	48.9	431	28.25	5483.71
MW02	9/19/2005	126	<1.0	9.5	231	26.80	5485.16
MW02	9/26/2006	95.8	<1.0	5.5	189	25.66	5486.30
MW02	9/17/2007	317	<1.0	12.5	354	26.63	5485.33
MW02	9/9/2008	34.3	<1.0	1.1	71.9	26.30	5485.66
MW02	8/27/2009	26.6	1.3	1.6	9.0	24.00	5487.96
MW03	12/12/1995	979	<125	398	2540	25.67	5486.83
MW03	4/9/1996	328	<1.0	132	369	25.78	5486.72
MW03	7/17/1996	299	<1.0	76.7	251	25.15	5487.35
MW03	1/13/1997	395	<1.0	126	955	26.41	5486.22
MW03	7/14/1997	499	<1.0	104	583	25.21	5487.29
MW03	10/22/1997	817	7.22	141	869	26.01	5486.49
MW03	1/9/1998	702	<1.0	185	1080	25.69	5486.81
MW03	4/24/1998	377	11.8	126	525	25.76	5486.74
MW03	4/16/1999	191	4.11	18.1	169	26.30	5486.20
MW03	4/19/2000	40	0.6	1.1	28	26.75	5485.75
MW03	9/19/2005	73.8	<1.0	5.2	158	27.16	5485.34
MW03	9/26/2006	3370	<25	498	3960	25.83	5486.67
MW03	9/17/2007	288	<1.0	65.4	599	26.85	5485.65
MW03	9/9/2008	805	3.3	160	1630	25.62	5486.88
MW03	8/27/2009	2490	<25	842	6560	24.13	5488.37
MW04	12/12/1995	90.1	<12.5	16.8	144	26.27	5486.96
MW04	4/9/1996	63.1	<1.0	<1.0	42.5	26.40	5486.83
MW04	7/17/1996	35	<1.0	<1.0	17.8	25.77	5487.46
MW04	10/15/1996	53.5	<1.0	<1.0	28.4	27.26	5485.97
MW04	1/13/1997	56.2	<1.0	<1.0	48.4	26.96	5486.27
MW04	4/22/1997	32.8	<1.0	<1.0	15.2	26.69	5486.54
MW04	7/14/1997	10.4	<1.0	<1.0	5.79	25.78	5487.45
MW04	10/22/1997	215	<1.0	5.5	184	26.72	5486.51
MW04	1/9/1998	114	<1.0	2.66	85.7	26.34	5486.89
MW04	4/24/1998	55.4	<1.0	<1.0	19.3	26.44	5486.79
MW04	4/16/1999	129	<1.0	2.03	87.3	26.97	5486.26
MW04	4/19/2000	110	6.5	17	140	26.09	5487.14

TABLE 1

SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
KNIGHT #1 (METER #72556)

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**		
MW04	9/11/2001	**140**	<0.5	9.6	110	28.48	5484.75
MW04	9/4/2002	**261**	3.1	20.1	246.5	28.75	5484.48
MW04	9/17/2003	**192**	<1.0	26.3	194	29.36	5483.87
MW04	9/15/2004	**182**	<0.5	9.8	161	29.20	5484.03
MW04	9/19/2005	**199**	<1.0	53.8	416	27.74	5485.49
MW04	9/26/2006	**180**	12.5	55.9	417	26.45	5486.78
MW04	9/17/2007	**272**	4.7	21.3	236	27.44	5485.79
MW04	9/9/2008	**265**	0.94J	26.5	274	26.15	5487.08
MW04	9/23/2009	**2110**	12.6J	676	**6440**	26.15	5487.72
MW05	11/15/2000	<0.5	<0.5	<0.5	<0.5	25.62	5484.74
MW05	9/11/2001	<0.5	<0.5	<0.5	0.6	25.94	5484.42
MW05	9/4/2002	<0.5	0.3	0.9	1.4	26.20	5484.15

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
KNIGHT #1 (METER #72556)

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	4/9/1996	26.34	26.71	0.37	--	0.00	5486.30
MW01	7/17/1996	25.35	25.39	0.04	--	0.00	5487.35
MW01	10/15/1996	26.60	27.35	0.75	--	0.00	5485.96
MW01	4/24/1998	25.87	26.01	0.14	--	0.00	5486.81
MW01	4/16/1999	26.40	26.52	0.12	--	0.00	5486.29
MW01	4/19/2000	27.07	27.14	0.07	0.05	0.05	5485.63
MW01	9/5/2001	27.93	28.32	0.39	0.15	0.20	5484.70
MW01	9/11/2001	28.05	28.10	0.05	0.04	0.24	5484.65
MW01	9/4/2002	28.31	28.39	0.08	0.04	0.28	5484.38
MW01	12/10/2002	28.31	28.47	0.16	--	0.28	5484.37
MW01	3/20/2003	28.05	28.14	0.09	0.06	0.34	5484.64
MW01	6/19/2003	28.00	28.02	0.02	0.03	0.37	5484.71
MW01	9/17/2003	28.95	28.97	0.01	0.01	0.38	5483.76
MW01	12/9/2003	28.30	28.32	0.02	0.01	0.39	5484.41
MW01	3/15/2004	27.89	27.99	0.10	0.01	0.40	5484.80
MW01	9/15/2004	28.77	28.78	0.01	0.01	0.41	5483.94
MW01	3/16/2005	27.67	27.67	0.00	0.01	0.42	5485.04
MW03	1/13/1997	26.25	26.41	0.16	--	0.00	5486.22
MW03	9/5/2001	27.84	27.91	0.07	0.50	0.50	5484.65
MW03	9/11/2001	27.89	27.91	0.02	0.02	0.52	5484.61
MW03	9/4/2002	28.16	28.17	0.01	0.02	0.54	5484.34
MW03	12/10/2002	28.17	28.20	0.03	0.08	0.62	5484.32
MW03	9/17/2003	28.76	28.79	0.03	0.01	0.63	5483.73
MW03	9/15/2004	28.60	28.60	0.00	--	0.63	5483.90
MW04	8/27/2009	24.13	27.10	2.97	1.00	1.00	5488.51
MW04	9/23/2009	25.35	26.15	0.80	1.38	2.38	5487.72
MW04	10/19/2009	25.15	25.70	0.55	0.53	2.91	5487.97
MW04	11/5/2009	25.69	25.95	0.26	0.13	3.03	5487.49
MW04	12/21/2009	25.85	26.05	0.20	0.10	3.13	5487.34

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

WATER LEVEL DATA

Project Name: San Juan Basin Groundwater **Date:** 03/02/2009
Project Manager: Ashley Ager
Client: MWH
Site Name: Knight

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	9:32 AM	-	24.71	-	-	
MW-2		-	24.46	-	-	
MW-3		-	24.55	-	-	
MW-4		-	25.19	-	-	
MW-5		-	22.52	-	-	

Comments
Operator: no sign on location
Reviewed site map, made site photos

Signature: *Ashley L. Ager* Date: 03/02/2009

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

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: Knight | Well No: MW-1
Client: MWH | Date: 8/27/2009 | Time: 9:35
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 24.3 ft | Depth to Product: ft
Well Diameter: 4" | Total Depth: 33.88 ft | Product Thickness: ft
Water Column Height: 9.58 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
9.58 x .65	6.23 x 3		18.68 gal

Time (military)	pH (su)	SC (us)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
9:50	7.88	1255	63.9				1.25	clear
	7.78	1268	63.7				2.5	dark gray
	7.78	1288	63.8				3.75	dark gray
	7.85	1288	62.8				5	light gray, sheen
	7.88	1287	62.8				10	light gray, silty
	7.87	1288	62.7				15	light gray, silty
	7.39	1278	63.3				16.25	light gray, silty
	7.40	1275	62.9				17.5	light gray, silty
Final:	7.4	1274	62.9				18.75	light gray, silty, sheen

COMMENTS:

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

Water Disposal: Rio Vista

Sample ID: MW-1 | Sample Time: 10:18

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: Knight | Well No: MW-2
Client: MWH | Date: 8/27/2009 | Time: 10:27
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 24 ft | Depth to Product: ft
Well Diameter: 4" | Total Depth: 36.87 ft | Product Thickness: ft
Water Column Height: 12.87 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
12.87 x .65	8.36 x 3		25.09 gal

Time (military)	pH (su)	SC (ms)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
11:24	6.82	2.88	63.7				1.25	light gray
	6.95	2.12	62.9				2.5	light gray
	6.95	2.03	62.9				3.75	light gray
	6.95	2.11	60.3				5	light gray
	6.97	2.08	62.2				10	light gray
	6.96	2.07	61.5				15	light gray
	7.09	2.04	61.5				20	light gray
Final: 12:10	7.16	2.06	61.2				21.5	light gray, 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-2 Sample Time: 12:03

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: Knight | Well No: MW-3
Client: MWH | Date: 8/27/2009 | Time: 10:27
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 24.13 ft | Depth to Product: ft
Well Diameter: 4" | Total Depth: 37.29 ft | Product Thickness: ft
Water Column Height: 13.16 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
13.16 x .65	8.55 x 3		25.66 gal

Time (military)	pH (su)	SC (us)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
10:36	6.98	1404	63.1				1.25	clear
	7.78	1471	62.1				2.5	clear
	7.88	1507	62.4				3.75	light tan
	7.26	1537	60.4				5	light tank
	7.27	1582	61.3				10	brown, sheen
	7.27	1649	61.2				15	brown, sheen
	7.35	1661	60.8				19	brown, sheen, bailing down
Final: 11:07	7.32	1655	61.1				20.25	brown, sheen, bailed dry

K+A1

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: 11:03

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 **Date:** 08/29/2009
Project Manager: Ashley Ager
Client: MWH
Site Name: Knight

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	8:35 AM	-	24.3	-	-	
MW-2		-	24	-	-	
MW-3		-	24.13	-	-	
MW-4		24.13	27.1	2.97	-	bailed 14 gallons of product/water, could not remove product, installed PR Sock
MW-5		-	22.51	-	-	

Comments
Almost 3' of product in MW-4

Signature: *Ashley L. Ager* Date: 08/29/2009

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

WATER LEVEL DATA

Project Name: San Juan Basin Groundwater **Date:** 09/23/2009
Project Manager: Ashley Ager
Client: MWH
Site Name: Knight

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	8:51 AM	-	-	-	-	
MW-2		-	-	-	-	
MW-3		-	-	-	-	
MW-4		25.35	26.15	0.8	-	Recovered 48 oz of product with PR sock. Bailed 13.25 g of product and water. Sampled both water and product. Replaced sock.
MW-5		-	-	-	-	

Comments
No water quality measurements recorded since product was present in purge water. Total amount of product recovered: ????. Unable to completely remove product, noticeable product in bailer when well was sampled. Sampled 4 oz of product and stored in refrigerator.

Signature: *Ashley L. Ager* Date: 09/23/2009

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

WATER LEVEL DATA

Project Name: San Juan Basin Groundwater **Date:** 10/19/2009
Project Manager: Ashley Ager
Client: MWH
Site Name: Knight

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	8:37 AM	-	-	-	-	
MW-2		-	-	-	-	
MW-3		-	-	-	-	
MW-4		25.15	25.7	0.55	see below	Recovered 48 oz of product with PR sock. Bailed 7.25 g of product and water.
MW-5		-	-	-	-	

Comments
No water quality measurements recorded since product was present in purge water. Total amount of product recovered: ~20 oz bailed + 48 oz in sock = 68 oz. Unable to completely remove product.

Signature: *Ashley L. Ager* Date: 10/20/2009

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

WATER LEVEL DATA

Project Name: San Juan Basin Groundwater **Date:** 11/05/2009
Project Manager: Ashley Ager
Client: MWH
Site Name: Knight

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	8:37 AM	-	-	-	-	
MW-2		-	-	-	-	
MW-3		-	-	-	-	
MW-4		25.69	25.95	0.26	see below	Bailed 8.5 gallons of product and water, approximately 0.125 gal of product removed
MW-5		-	-	-	-	

Comments
No water quality measurements recorded since product was present in purge water.

Signature: *Ashley L. Ager* Date: 11/06/2009

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

WATER LEVEL DATA

Project Name: San Juan Basin Groundwater **Date:** 12/21/2009
Project Manager: Ashley Ager
Client: MWH
Site Name: Knight

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	1:35 PM	-	-	-	-	
MW-2		-	-	-	-	
MW-3		-	-	-	-	
MW-4		25.85	26.05	0.2	see below	Bailed 6.0 gallons of product and water, approximately 0.1 gal of product removed. Product is golden in color (similar to previous observations).
MW-5		-	-	-	-	

Comments
No water quality measurements recorded since product was present in purge water.

Signature: *Ashley L. Ager* Date: 12/22/2009

Gulf Coast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

09/18/09

Technical Report for

Montgomery Watson

San Juan Basin Pit Groundwater Remediation

2009-2010 West-ALAB-Ground Rem-007

Accutest Job Number: T36563

Sampling Dates: 08/25/09 - 08/27/09

Report to:

MWH Americas

jed.smith@mwhglobal.com

ATTN: Jed Smith

Total number of pages in report: **22**

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)

Test results relate only to samples analyzed.

Sections: 1 2 3 4

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Accutest Laboratories

Sample Summary

Montgomery Watson

Job No: T36563

San Juan Basin Pit Groundwater Remediation
Project No: 2009-2010 West-ALAB-Ground Rem-007

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
T36563-1	08/25/09	16:27	TU	08/28/09	AQ	Ground Water	GCU 124E MW-1
T36563-2	08/26/09	14:02	TU	08/28/09	AQ	Ground Water	STATE GAS COM MW-7
T36563-3	08/26/09	14:45	TU	08/28/09	AQ	Ground Water	STATE GAS COM MW-1
T36563-4	08/26/09	15:40	TU	08/28/09	AQ	Ground Water	STATE GAS COM MW-3
T36563-5	08/26/09	16:26	TU	08/28/09	AQ	Ground Water	STATE GAS COM MW-4
T36563-6	08/26/09	17:22	TU	08/28/09	AQ	Ground Water	STATE GAS COM MW-5
T36563-7	08/26/09	17:58	TU	08/28/09	AQ	Ground Water	STATE GAS COM MW-9
T36563-8	08/27/09	10:18	TU	08/28/09	AQ	Ground Water	KNIGHT MW-1
T36563-9	08/27/09	11:03	TU	08/28/09	AQ	Ground Water	KNIGHT MW-3
T36563-10	08/27/09	12:03	TU	08/28/09	AQ	Ground Water	KNIGHT MW-2
T36563-11	08/25/09	07:00	TU	08/28/09	AQ	Trip Blank Water	250809TB03

ACCUTEST Laboratories

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	Montgomery Watson	**Job No**	T36563
Site:	San Juan Basin Pit Groundwater Remediation 2008-2009	**Report Date**	9/10/2009 4:32:21 PM

10 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were collected on between 08/25/2009 and 08/27/2009 and were received at Accutest on 08/28/2009 properly preserved, at 0.8 Deg. C and intact. These Samples received an Accutest job number of T36563. 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 GCMS By Method SW846 8260B

Matrix AQ **Batch ID:** VF3540

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T36890-11MS, T36890-11MSD were used as the QC samples indicated.

Volatiles by GC By Method SW846 8021B

Matrix AQ **Batch ID:** GKK1547

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T36641-2MS, T36641-2MSD were used as the QC samples indicated.
- Matrix Spike Recovery(s) for m,p-Xylene, o-Xylene, Xylenes (total) are outside control limits. Probable cause due to matrix interference.

Matrix AQ **Batch ID:** GKK1548

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T36548-2MS, T36548-2MSD 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:	GCU 124E MW-1		
Lab Sample ID:	T36563-1	Date Sampled:	08/25/09
Matrix:	AQ - Ground Water	Date Received:	08/28/09
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	KK032351.D	10	09/02/09	FI	n/a	n/a	GKK1548
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	57.9	10	3.6	ug/l	
108-88-3	Toluene	8.8	10	2.8	ug/l	J
100-41-4	Ethylbenzene	58.4	10	2.5	ug/l	
1330-20-7	Xylenes (total)	298	20	9.3	ug/l	
95-47-6	o-Xylene	91.7	10	3.6	ug/l	
	m,p-Xylene	206	10	5.7	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	105%		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:	STATE GAS COM MW-7		
Lab Sample ID:	T36563-2	Date Sampled:	08/26/09
Matrix:	AQ - Ground Water	Date Received:	08/28/09
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	KK032322.D	100	09/01/09	FI	n/a	n/a	GKK1547
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	11200	100	36	ug/l	
108-88-3	Toluene	4930	100	28	ug/l	
100-41-4	Ethylbenzene	916	100	25	ug/l	
1330-20-7	Xylenes (total)	5760	200	93	ug/l	
95-47-6	o-Xylene	1670	100	36	ug/l	
	m,p-Xylene	4090	100	57	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	117%		58-125%
98-08-8	aaa-Trifluorotoluene	119%		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:	STATE GAS COM MW-1		
Lab Sample ID:	T36563-3	Date Sampled:	08/26/09
Matrix:	AQ - Ground Water	Date Received:	08/28/09
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	KK032323.D	100	09/01/09	FI	n/a	n/a	GKK1547
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	12600	100	36	ug/l	
108-88-3	Toluene	8470	100	28	ug/l	
100-41-4	Ethylbenzene	973	100	25	ug/l	
1330-20-7	Xylenes (total)	8670	200	93	ug/l	
95-47-6	o-Xylene	1900	100	36	ug/l	
	m,p-Xylene	6770	100	57	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	119%		58-125%
98-08-8	aaa-Trifluorotoluene	118%		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:	STATE GAS COM MW-3		
Lab Sample ID:	T36563-4	Date Sampled:	08/26/09
Matrix:	AQ - Ground Water	Date Received:	08/28/09
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	KK032321.D	200	09/01/09	FI	n/a	n/a	GKK1547
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	20100	200	72	ug/l	
108-88-3	Toluene	434	200	56	ug/l	
100-41-4	Ethylbenzene	936	200	50	ug/l	
1330-20-7	Xylenes (total)	4690	400	190	ug/l	
95-47-6	o-Xylene	817	200	71	ug/l	
	m,p-Xylene	3870	200	110	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	116%		58-125%
98-08-8	aaa-Trifluorotoluene	121%		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:	STATE GAS COM MW-4		
Lab Sample ID:	T36563-5	Date Sampled:	08/26/09
Matrix:	AQ - Ground Water	Date Received:	08/28/09
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	KK032325.D	200	09/02/09	FI	n/a	n/a	GKK1547
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	17000	200	72	ug/l	
108-88-3	Toluene	14400	200	56	ug/l	
100-41-4	Ethylbenzene	934	200	50	ug/l	
1330-20-7	Xylenes (total)	11000	400	190	ug/l	
95-47-6	o-Xylene	2300	200	71	ug/l	
	m,p-Xylene	8650	200	110	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	118%		58-125%
98-08-8	aaa-Trifluorotoluene	116%		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:	STATE GAS COM MW-5		
Lab Sample ID:	T36563-6	Date Sampled:	08/26/09
Matrix:	AQ - Ground Water	Date Received:	08/28/09
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	KK032324.D	100	09/01/09	FI	n/a	n/a	GKK1547
Run #2	KK032341.D	200	09/02/09	FI	n/a	n/a	GKK1548

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	19800 [a]	200	72	ug/l	
108-88-3	Toluene	63.2	100	28	ug/l	J
100-41-4	Ethylbenzene	1280	100	25	ug/l	
1330-20-7	Xylenes (total)	2470	200	93	ug/l	
95-47-6	o-Xylene	59.5	100	36	ug/l	J
	m,p-Xylene	2410	100	57	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	118%	115%	58-125%
98-08-8	aaa-Trifluorotoluene	105%	115%	73-139%

(a) Result is from Run# 2

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:	STATE GAS COM MW-9		
Lab Sample ID:	T36563-7	Date Sampled:	08/26/09
Matrix:	AQ - Ground Water	Date Received:	08/28/09
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	KK032339.D	1	09/02/09	FI	n/a	n/a	GKK1548
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	1.2	1.0	0.36	ug/l	
108-88-3	Toluene	0.69	1.0	0.28	ug/l	J
100-41-4	Ethylbenzene	0.35	1.0	0.25	ug/l	J
1330-20-7	Xylenes (total)	2.7	2.0	0.93	ug/l	
95-47-6	o-Xylene	0.47	1.0	0.36	ug/l	J
	m,p-Xylene	2.2	1.0	0.57	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	106%		58-125%
98-08-8	aaa-Trifluorotoluene	110%		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:	KNIGHT MW-1		
Lab Sample ID:	T36563-8	Date Sampled:	08/27/09
Matrix:	AQ - Ground Water	Date Received:	08/28/09
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	KK032328.D	25	09/02/09	FI	n/a	n/a	GKK1547
Run #2	KK032348.D	500	09/02/09	FI	n/a	n/a	GKK1548

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	2790	25	9.0	ug/l	
108-88-3	Toluene	8.3	25	7.1	ug/l	J
100-41-4	Ethylbenzene	1190	25	6.3	ug/l	
1330-20-7	Xylenes (total)	12500 [a]	1000	460	ug/l	
95-47-6	o-Xylene	29.8	25	8.9	ug/l	
	m,p-Xylene	12500 [a]	500	280	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	121%	105%	58-125%
98-08-8	aaa-Trifluorotoluene	119%	114%	73-139%

(a) Result is from Run# 2

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:	KNIGHT MW-3		
Lab Sample ID:	T36563-9	Date Sampled:	08/27/09
Matrix:	AQ - Ground Water	Date Received:	08/28/09
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	KK032329.D	25	09/02/09	FI	n/a	n/a	GKK1547
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	2490	25	9.0	ug/l	
108-88-3	Toluene	ND	25	7.1	ug/l	
100-41-4	Ethylbenzene	842	25	6.3	ug/l	
1330-20-7	Xylenes (total)	6560	50	23	ug/l	
95-47-6	o-Xylene	13.0	25	8.9	ug/l	J
	m,p-Xylene	6550	25	14	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	119%		58-125%
98-08-8	aaa-Trifluorotoluene	110%		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:	KNIGHT MW-2		
Lab Sample ID:	T36563-10	Date Sampled:	08/27/09
Matrix:	AQ - Ground Water	Date Received:	08/28/09
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	KK032340.D	1	09/02/09	FI	n/a	n/a	GKK1548
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	26.6	1.0	0.36	ug/l	
108-88-3	Toluene	1.3	1.0	0.28	ug/l	
100-41-4	Ethylbenzene	1.6	1.0	0.25	ug/l	
1330-20-7	Xylenes (total)	9.0	2.0	0.93	ug/l	
95-47-6	o-Xylene	0.40	1.0	0.36	ug/l	J
	m,p-Xylene	8.6	1.0	0.57	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	103%		58-125%
98-08-8	aaa-Trifluorotoluene	118%		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:	250809TB03		
Lab Sample ID:	T36563-11	Date Sampled:	08/25/09
Matrix:	AQ - Trip Blank Water	Date Received:	08/28/09
Method:	SW846 8260B	Percent Solids:	n/a
Project:	San Juan Basin Pit Groundwater Remediation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F019528.D	1	09/05/09	AP	n/a	n/a	VF3540
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	2.0	0.50	ug/l	
108-88-3	Toluene	ND	2.0	0.43	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.55	ug/l	
1330-20-7	Xylene (total)	ND	6.0	1.7	ug/l	
95-47-6	o-Xylene	ND	2.0	0.53	ug/l	
	m,p-Xylene	ND	4.0	1.1	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		79-122%
17060-07-0	1,2-Dichloroethane-D4	98%		75-121%
2037-26-5	Toluene-D8	100%		87-119%
460-00-4	4-Bromofluorobenzene	93%		80-133%

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

CHAIN OF CUSTODY

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

FED-EX Tracking # 8706 6705 8890 | Bottle Order Control # | Accutest Quote # | Accutest Job # T36563

Client / Reporting Information

Company Name: MWH
Project Contact: Jed Smith | E-Mail: jed.smith@mwhglobal.com
Address: 1801 Califomia Street, Suite 2900
City: Denver | State: CO | Zip: 80202
Phone No.: 303-291-2276 | Fax No.:
Sampler's Name: Troy Urban

Project Information

Project Name / No.: EPTPC San Juan Basin Pit GW Remediation 2009-2010
Bill to: El Paso Corp | Invoice Attn.: Norma Ramos
Address: 1001 Louisiana Street, Rm S1904B
City: Hou | State: TX | Zip: 77002
Phone No.: | Fax No.:
Client Purchase Order #: West-ALAB-Ground Ren-007

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	Collection Date	Time	Matrix	# of bottles	Number of preserved bottles: HCl	MeOH	HNO3	H2SO4	EnCore	NaHSO4	NaOH	None	BTEX (8021B) include m, p, & o-xylene	LAB USE ONLY
1	GCU 124E MW-1	082509	1627	GW	3	X								X	
	~~02~~ 250809TB03	082509	0700	GW	2	X								X	

Turnaround Time (Business days)

- [X] 10 Day STANDARD — Approved By:/ Date:
- [ ] 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!!!

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	9/27/09 1330	1	2 Fed Ex	9/25/09 0940	2
3	Relinquished by:	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable ☐	On Ice ☐ Cooler Temp. 0.8

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CHAIN OF CUSTODY

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

FED-EX Tracking # 8706 6705 8890 | Bottle Order Control #
Accutest Quote # | Accutest Job # T36563

Client / Reporting Information

Company Name: MWH
Project Contact: Jed Smith | E-Mail: jed.smith@mwhglobal.com
Address: 1801 California Street, Suite 2900
City: Denver | State: CO | Zip: 80202
Phone No.: 303-291-2276 | Fax No.:
Samplers's Name: Troy Urban

Project Information

Project Name / No.: EPTPC San Juan Basin Pit GW Remediation 2009-2010
Bill to: El Paso Corp | Invoice Attn.: Norma Ramos
Address: 1001 Louisiana Street, Rm S1904B
City: Hou | State: TX | Zip: 77002
Phone No.: | Fax No.:
Client Purchase Order #: WOT-ALAB-Ground Rem-007

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	Collection Date	Collection Time	Matrix	# of bottles	Number of preserved bottles: NO	HNO3	H2SO4	ENCORE	NaHSO4	MEOH	NONE	BTEX (8021B) Include m, p, & o-xylene	LAB USE ONLY
2	State Gas Com MW-7	082609	1402	GW	3							X	X	
3	State Gas Com MW-1	082609	1445	GW	3	X							X	
4	State Gas Com MW-3	082609	1540	GW	3							X	X	
5	State Gas Com MW-4	082609	1626	GW	3							X	X	
6	State Gas Com MW-5	082609	1722	GW	3	X							X	
7	State Gas Com MW-9	082609	1758	GW	3	X							X	

Turnaround Time (Business days)

- [X] 10 Day STANDARD — Approved By / Date:
- [ ] 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 several samples

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 9/27/09	1330	1	2		2
3		3	4		4
5		5	Custody Seal #	Preserved where applicable ☐	On Ice ☐ Cooler Temp.

4.1 4

CHAIN OF CUSTODY

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

FED-EX Tracking # 8706 6705 8890 | Bottle Order Control # | Accutest Quote # | Accutest Job # T36563

Client / Reporting Information

Company Name: MWH
Project Contact: Jed Smith | E-Mail: jed.smith@mwhglobal.com
Address: 1801 California Street, Suite 2900
City: Denver | State: CO | Zip: 80202
Phone No.: 303-291-2276 | Fax No.:
Samplers's Name: Troy Urban

Project Information

Project Name / No.: EPTPC San Juan Basin Pit GW Remediation 2009-2010
Bill to: El Paso Corp | Invoice Attn.: Norma Ramos
Address: 1001 Louisiana Street, Rm S1904B
City: Hou | State: TX | Zip: 77002
Phone No.: | Fax No.:
Client Purchase Order #: West - ALAB-Ground Rem - 007

Requested Analyses

Accutest Sample #	Field ID / Point of Collection	Collection Date	Collection Time	Matrix	# of bottles	Number of preserved bottles	BTEX (8021B) include m, p, & o-xylene	LAB USE ONLY
8	Knight MW-1	082709	1018	GW	3	X	X	
	~~Knight MW-~~	~~082709~~	~~1103~~	~~GW~~				
9	Knight MW-3	082709	1103	GW	3	X	X	
10	Knight MW-2	082709	1203	GW	3	X	X	

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

Turnaround Time (Business days)

- [X] 10 Day STANDARD — Approved By/ Date:
- [ ] 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!!!

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	8/27/09 1330	1	2		2
3			3	4		4
5			5	Custody Seal #	Preserved where applicable ☐	On Ice ☐ Cooler Temp.

4.1 4

SAMPLE INSPECTION FORM

Accutest Job Number: T36563 Client: MWH Date/Time Received: 8/20/09 0940

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

Cooler Temps: #1: 0.6 #2: _____ #3: _____ #4: _____ #5: _____ #6: _____ #7: _____ #8: _____

Method of Delivery: FEDEX UPS Accutest Courier Greyhound Delivery Other

Airbill Numbers: _____

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: _____

INFORMATION AND SAMPLE LABELING VERIFIED BY: _____

CORRECTIVE ACTIONS

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

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

Client Instructions:

i:\mwalker\forms\samplemanagement

4.1

SAMPLE RECEIPT LOG

JOB #: T36563 DATE/TIME RECEIVED: 8/28/09 0940

CLIENT: MWH INITIALS: CF

COOLER#	SAMPLE ID	FIELD ID	DATE	MATRIX	VOL	BOTTLE #	LOCATION	PRESERV	PH	
1	1	GCU 12E MW-1	8/25/09 1627	W	40ml	1-3	VR	1 (2) 3 4 5 6 7 8	<2	>12
	2	State Gas Com MW-7	8/26/09 1402					(1) 2 3 4 5 6 7 8	<2	>12
	3	MW-1	1445					1 (2) 3 4 5 6 7 8	<2	>12
	4	MW-3	1540					1 (2) 3 4 5 6 7 8	<2	>12
	5	MW-4	1626					(1) 2 3 4 5 6 7 8	<2	>12
	6	MW-5	1725					(1) 2 3 4 5 6 7 8	<2	>12
	7	MW-9	1758					1 (2) 3 4 5 6 7 8	<2	>12
	8	Knight MW-1	8/27/09 1019					1 (2) 3 4 5 6 7 8	<2	>12
	9	MW-3	1103					1 (2) 3 4 5 6 7 8	<2	>12
	10	MW-2	1263					1 (2) 3 4 5 6 7 8	<2	>12
	11	Trip Blank				1-2		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
			FF	8/28/09				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

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 (Solls) VR: Volatile Fridge M: Metals SUB: Subcontract EF: Encore Freezer

Rev 8/13/01 ewp

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T36563: Chain of Custody
Page 5 of 5

ACCUTEST Laboratories T36563

Gulf Coast ACCUTEST. Laboratories

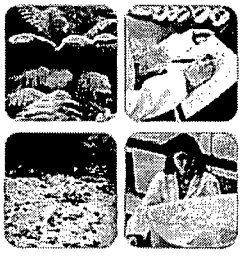
IT'S ALL IN THE CHEMISTRY

09/29/09

Technical Report for

Montgomery Watson

San Juan Basin Pit Groundwater Remediation



Accutest Job Number: T38242

Sampling Date: 09/23/09

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: **15**

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)

Test results relate only to samples analyzed.

Sections: 1 2 3 4 5

Table of Contents

-1-

Sample Summary

Montgomery Watson

Job No: T38242

San Juan Basin Pit Groundwater Remediation

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
T38242-1	09/23/09	09:33	TU	09/24/09	AQ	Ground Water	KNIGHT MW-4
T38242-2	09/23/09	07:00	TU	09/24/09	AQ	Trip Blank Water	230909 TB01

ACCUTEST. Laboratories

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Montgomery Watson **Job No** T38242

Site: San Juan Basin Pit Groundwater Remediation **Report Date** 9/29/2009 2:44:15 PM

1 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were collected on 09/23/2009 and were received at Accutest on 09/24/2009 properly preserved, at 4 Deg. C and intact. These Samples received an Accutest job number of T38242. 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:** GKK1557

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T38363-2MS, T38363-2MSD were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Ethylbenzene, Toluene are outside control limits. Probable cause due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for Ethylbenzene, Toluene are outside control limits. Probable cause due to matrix interference.

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:	KNIGHT MW-4		
Lab Sample ID:	T38242-1	Date Sampled:	09/23/09
Matrix:	AQ - Ground Water	Date Received:	09/24/09
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	KK032560.D	25	09/28/09	FI	n/a	n/a	GKK1557
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	2110	25	9.0	ug/l	
108-88-3	Toluene	12.6	25	7.1	ug/l	J
100-41-4	Ethylbenzene	676	25	6.3	ug/l	
1330-20-7	Xylenes (total)	6440	50	23	ug/l	
95-47-6	o-Xylene	ND	25	8.9	ug/l	
	m,p-Xylene	6440	25	14	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	116%		58-125%
98-08-8	aaa-Trifluorotoluene	121%		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:	230909 TB01		
Lab Sample ID:	T38242-2	Date Sampled:	09/23/09
Matrix:	AQ - Trip Blank Water	Date Received:	09/24/09
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	KK032553.D	1	09/28/09	FI	n/a	n/a	GKK1557
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	82%		58-125%
98-08-8	aaa-Trifluorotoluene	110%		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

CHAIN OF CUSTODY

ACCUTEST Laboratories

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

Page 1 of 1

FED-EX Tracking # 8706 6705 5001 | Bottle Order Control # | Accutest Quote # | Accutest Job # T38242

Client / Reporting Information

Company Name: MWH
Project Contact: Jed Smith | E-Mail: jed.smith@mwhglobal.com
Address: 1801 California Street, Suite 2900
City: Denver | State: CO | Zip: 80202
Phone No.: 303-291-2276 | Fax No.:
Samplers's Name: Troy Urban

Project Information

Project Name / No.: EPTPC San Juan Basin Pit GW Remediation - Knight #1
Bill to: El Paso Corp | Invoice Attn.: Norma Ramos
Address: 1001 Louisiana Street, Rm S1904B
City: Hou | State: TX | Zip: 77002
Phone No.: | Fax No.:
Client Purchase Order #: WOST-ALAB-GroundRem-007

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	Collection Date	Collection Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH	HNO3	H2SO4	EnCore	Na2S2O3	MEOH	None	BTEX (8021B) Include m, p, & o-xylene	LAB USE ONLY
	Knight MW-4	092309	0933	GW	3	3								X	
	738909 TB #1	092309	0700	GW	2	2								X	

Turnaround Time (Business days)

- [X] 10 Day STANDARD
- [ ] 7 Day
- [ ] 4 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [ ] Other

Approved By/ Date:

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!!!

probable product in Knight mw-4 sample

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 1115	9/23/09	1	2 Fed Ex	9/24/09 0945	2
3			3	4		4
5			5	Custody Seal #	Preserved where applicable ☐	On Ice ☑ Cooler Temp. 4.0

4.1

T38242: Chain of Custody
Page 1 of 3

SAMPLE INSPECTION FORM

Accutest Job Number: T38242 Client: MWH Date/Time Received: 9/24/04 0945

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

Cooler Temps: #1: 4.0 #2: _____ #3: _____ #4: _____ #5: _____ #6: _____ #7: _____ #8: _____

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

Airbill Numbers: _____

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: _____

INFORMATION AND SAMPLE LABELING VERIFIED BY: _____ 9/24

CORRECTIVE ACTIONS

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

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

Client Instructions:

i:\mwalker\forms\samplemanagement

4.1 4

T38242: Chain of Custody
Page 2 of 3

SAMPLE RECEIPT LOG

JOB #: T38242　　DATE/TIME RECEIVED: 09/24/09 0945

CLIENT: MWH　　INITIALS: FF

COOLER#	SAMPLE ID	FIELD ID	DATE	MATRIX	VOL	BOTTLE #	LOCATION	PRESERV	PH	
1	1	Knight MW-4	09/23/09 0933	W	40ml	1-3	VR	1 (2) 3 4 5 6 7 8	<2	>12
	2	Trip Blank	—	"	"	1-2	"	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
			FF 9/24/09					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

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

T38242: Chain of Custody
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GC Volatiles

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QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: T38242
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1557-MB	KK032550.D	1	09/28/09	FI	n/a	n/a	GKK1557

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

T38242-1, T38242-2

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	76%	58-125%
98-08-8	aaa-Trifluorotoluene	108%	73-139%

Blank Spike Summary

Job Number: T38242
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1557-BS	KK032546.D	1	09/28/09	FI	n/a	n/a	GKK1557

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

T38242-1, T38242-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	19.9	100	86-121
100-41-4	Ethylbenzene	20	20.3	102	81-116
108-88-3	Toluene	20	20.3	102	87-117
1330-20-7	Xylenes (total)	60	61.2	102	85-115
95-47-6	o-Xylene	20	20.5	103	87-116
	m,p-Xylene	40	40.7	102	84-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	101%	58-125%
98-08-8	aaa-Trifluorotoluene	115%	73-139%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T38242
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T38363-2MS	KK032556.D	1	09/28/09	FI	n/a	n/a	GKK1557
T38363-2MSD	KK032557.D	1	09/28/09	FI	n/a	n/a	GKK1557
T38363-2	KK032555.D	1	09/28/09	FI	n/a	n/a	GKK1557

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

T38242-1, T38242-2

CAS No.	Compound	T38363-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		20	23.5	118	23.0	115	2	86-121/19
100-41-4	Ethylbenzene	ND		20	23.9	120*	23.9	120*	0	81-116/14
108-88-3	Toluene	ND		20	23.9	120*	23.6	118*	1	87-117/16
1330-20-7	Xylenes (total)	ND		60	68.5	114	68.2	114	0	85-115/12
95-47-6	o-Xylene	ND		20	22.9	115	22.8	114	0	87-116/16
	m,p-Xylene	ND		40	45.6	114	45.4	114	0	84-116/13

CAS No.	Surrogate Recoveries	MS	MSD	T38363-2	Limits
460-00-4	4-Bromofluorobenzene	110%	113%	101%	58-125%
98-08-8	aaa-Trifluorotoluene	118%	117%	115%	73-139%