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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

TABLE OF CONTENTS

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

*The 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.

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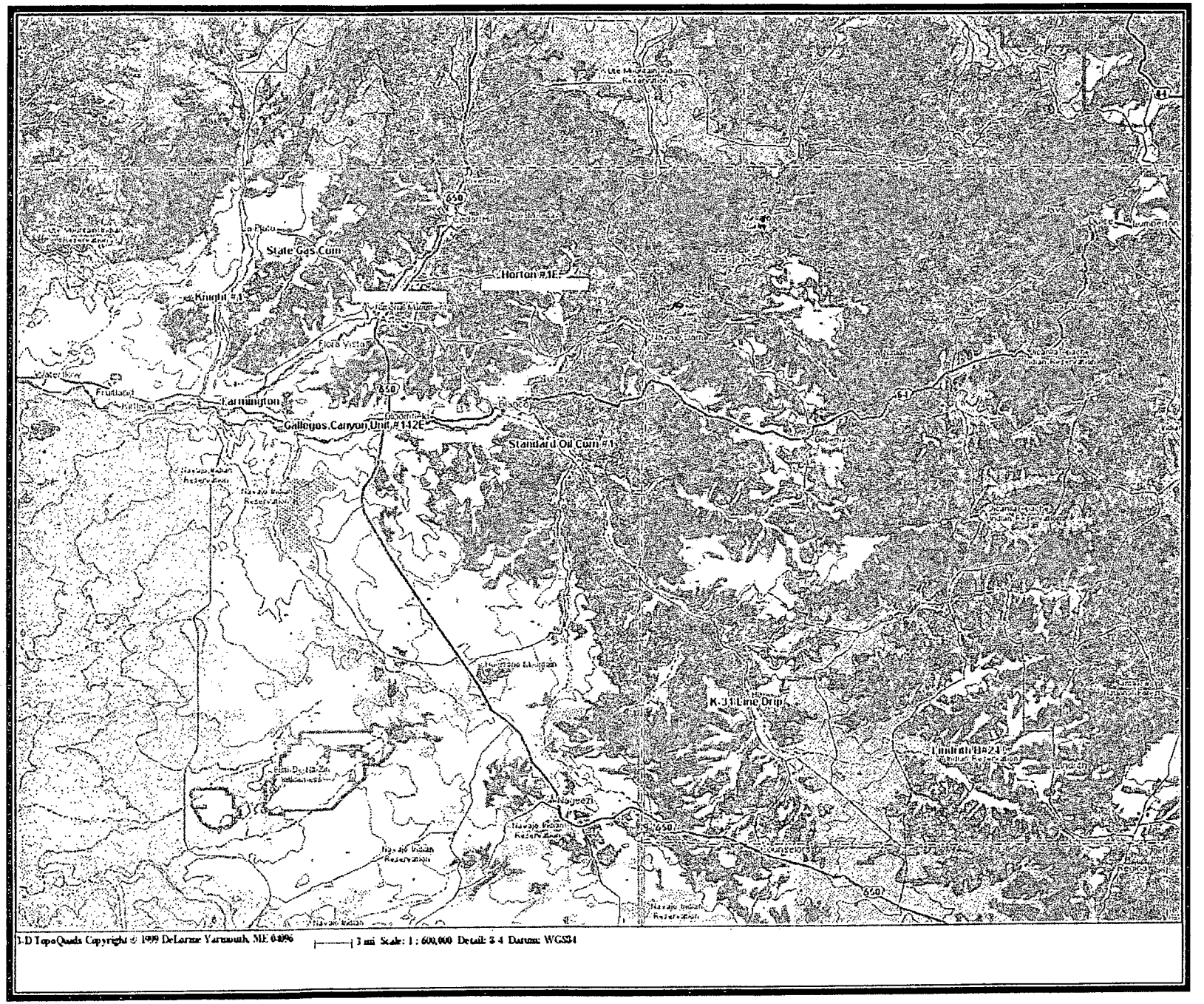
LIST OF ACRONYMS

AMSL	above mean sea level
B	benzene
btoc	below top of casing
E	ethylbenzene
EPTPC	El Paso Tennessee Pipeline Company
ft	foot/feet
GWEL	groundwater elevation
ID	identification
MW	monitor well
NMWQCC	New Mexico Water Quality Control Commission
T	toluene
TOC	top of casing
NA	not applicable
NMOCD	New Mexico Oil Conservation Division
NS	not sampled
ORC	oxygen-releasing compound
µg/L	micrograms per liter
X	total xylenes

Non-Federal Groundwater Site Map



EPTPC GROUNDWATER SITES
2009 ANNUAL GROUNDWATER REPORT

Horton #1E
Meter Code: 93388

SITE DETAILS

Legal Description:		**Town:**	31N	**Range:**	9W	**Sec:**	28	**Unit:**	H
NMOCD Haz Ranking:	40	**Land Type:**	Fee	**Operator:**	BP / Amoco Production Company				

PREVIOUS ACTIVITIES

Site Assessment:	8/94	**Excavation:**	9/94 (50 cy)	**Soil Boring:**	8/95
Monitor Well:	8/95	**Geoprobe:**	NA	**Additional MWs:**	10/99
Downgradient MWs:	10/99	**Replace MW:**	NA	**Quarterly Initiated:**	12/96
ORC Nutrient Injection:	NA	**Re-Excavation:**	NA	**PSH Removal Initiated:**	NA
Annual Initiated:	10/99	**Quarterly Resumed:**	NA	**PSH Removal in 2009?:**	No

SUMMARY OF 2009 ACTIVITIES

MW-1: Quarterly groundwater sampling and water level monitoring was performed through September 2009.

MW-2: Confirmation sampling of the groundwater was performed in September 2009. Quarterly water level monitoring was performed through September 2009.

MW-3: Confirmation sampling of the groundwater was performed in September 2009. Quarterly water level monitoring was performed through September 2009.

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

SITE MAPS

Site maps (March, June, and September) are attached as Figures 1 through 3.

SUMMARY TABLES AND GRAPHS

- Historic analytical and water level data are summarized in Table 1 and presented graphically in Figures 4 though 6.
- 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.

ISOCONCENTRATION MAPS

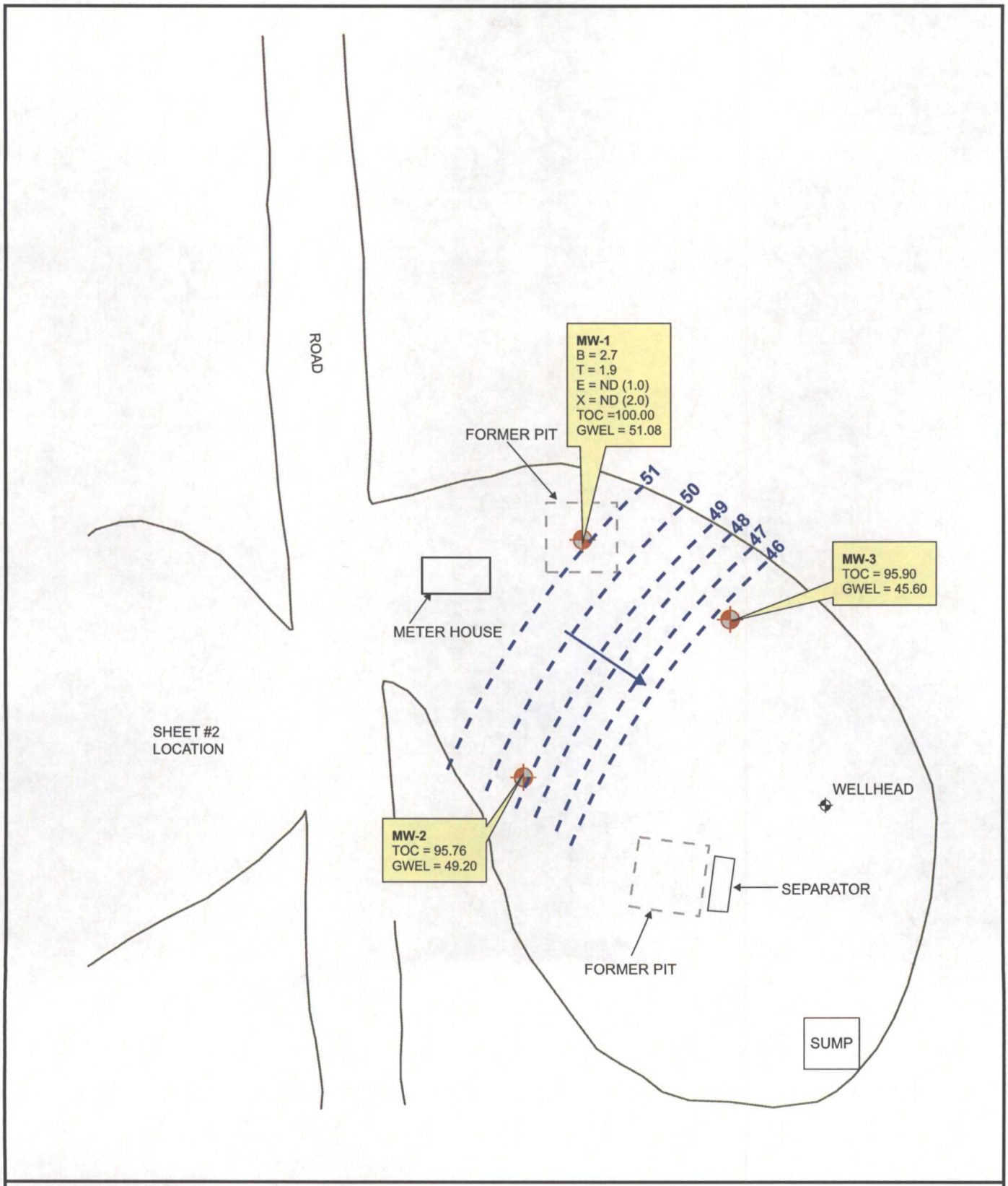
No isoconcentration maps were generated for this Site; however, the attached Site maps present the analytical data collected during 2009.

RESULTS

- The groundwater flow direction at this Site trends toward the southeast.
- The three quarterly groundwater samples from MW-1 met the NMWQCC standards. As of September 2009, the groundwater in MW-1 has attained four consecutive clean quarters of sampling.
- The confirmatory samples collected from MW-2 and MW-3 in September 2009 met the NMWQCC standards for BTEX.

RECOMMENDATIONS

- EPTPC submitted a closure request to the NMOCD for this site in October 2009. EPTPC will abandon the monitoring wells upon closure approval.



LEGEND

MW-4	Existing Monitoring / Observation 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. *)
GWEL	Groundwater Elevation (ft. *)

* = Elevations in feet relative to a 100 ft benchmark.

N

Not To Scale

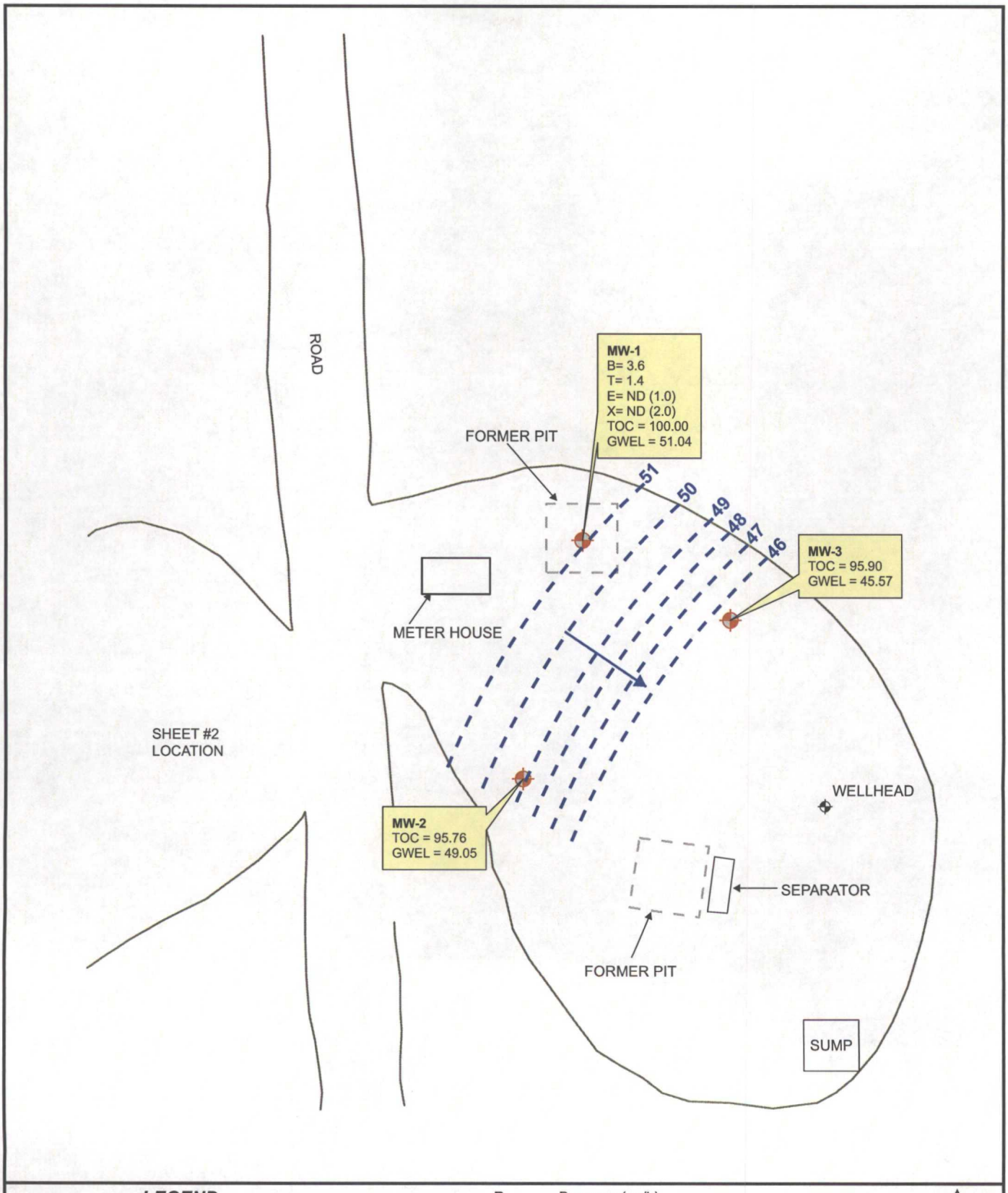
MWH

elpaso

PROJECT: HORTON #1E

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

FIGURE: 1



LEGEND

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

* = Elevations in feet relative to a 100 ft benchmark.

B	Benzene (ug/L)
T	Toluene (ug/L)
E	Ethylbenzene (ug/L)
X	Total Xylenes (ug/L)
TOC	Top of Casing (ft. *)
GWEL	Groundwater Elevation (ft. *)
J	Result Flagged as Estimated

N

Not To Scale

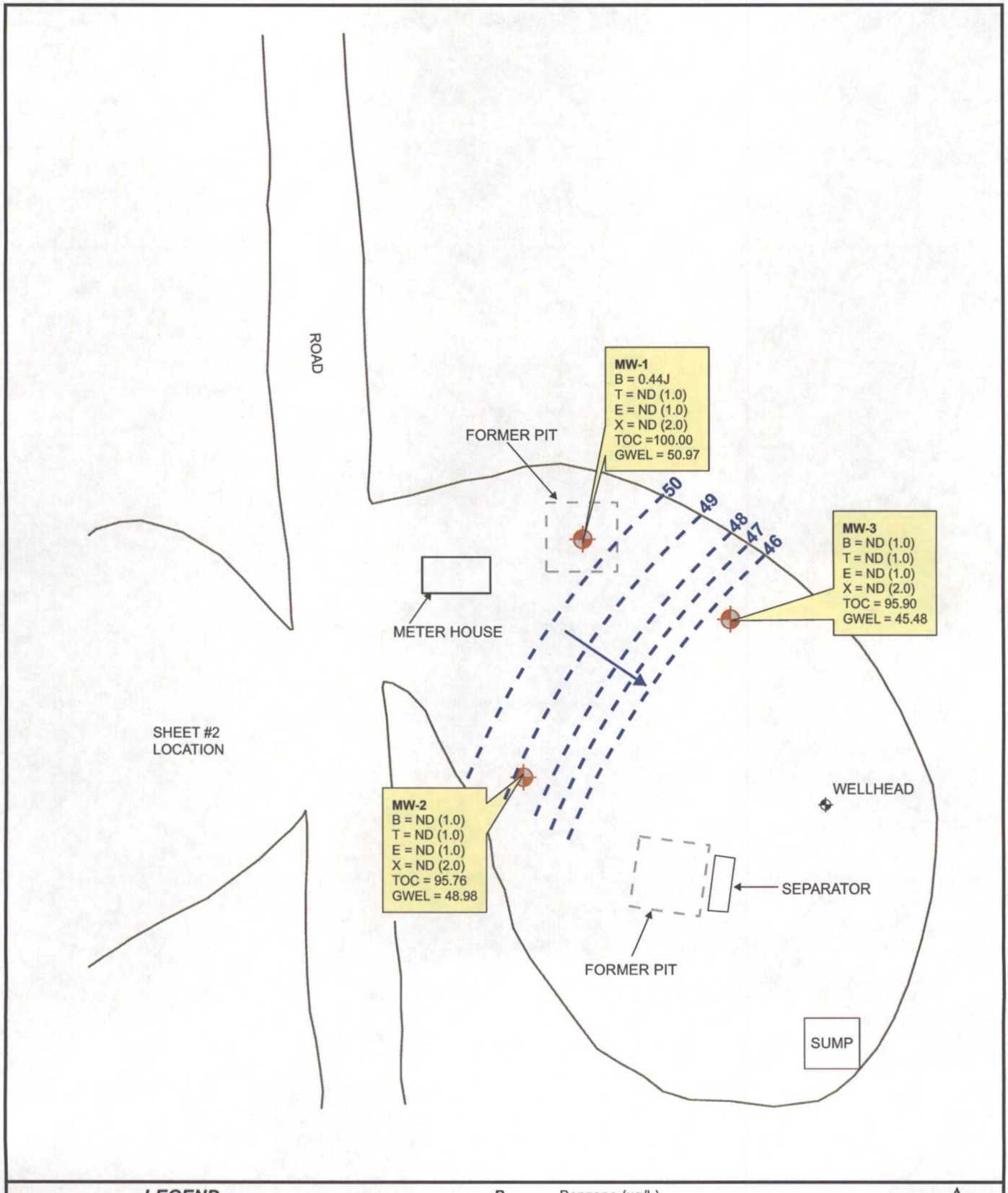
MWH

elpaso

PROJECT: HORTON #1E

TITLE: Groundwater Potentiometric Surface Map, and BTEX Concentrations - June 2, 2009

FIGURE: 2



LEGEND

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

* = Elevations in feet relative to a 100 ft benchmark.

B	Benzene (ug/L)
T	Toluene (ug/L)
E	Ethylbenzene (ug/L)
X	Total Xylenes (ug/L)
TOC	Top of Casing (ft. *)
GWEL	Groundwater Elevation (ft. *)
J	Result Flagged as Estimated

N

Not To Scale

MWH

elpaso

PROJECT: HORTON #1E

TITLE: Groundwater Potentiometric Surface Map, and BTEX Concentrations - September 16, 2009

FIGURE: 3

FIGURE 4
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
HORTON #1E (METER #93388)
MW01

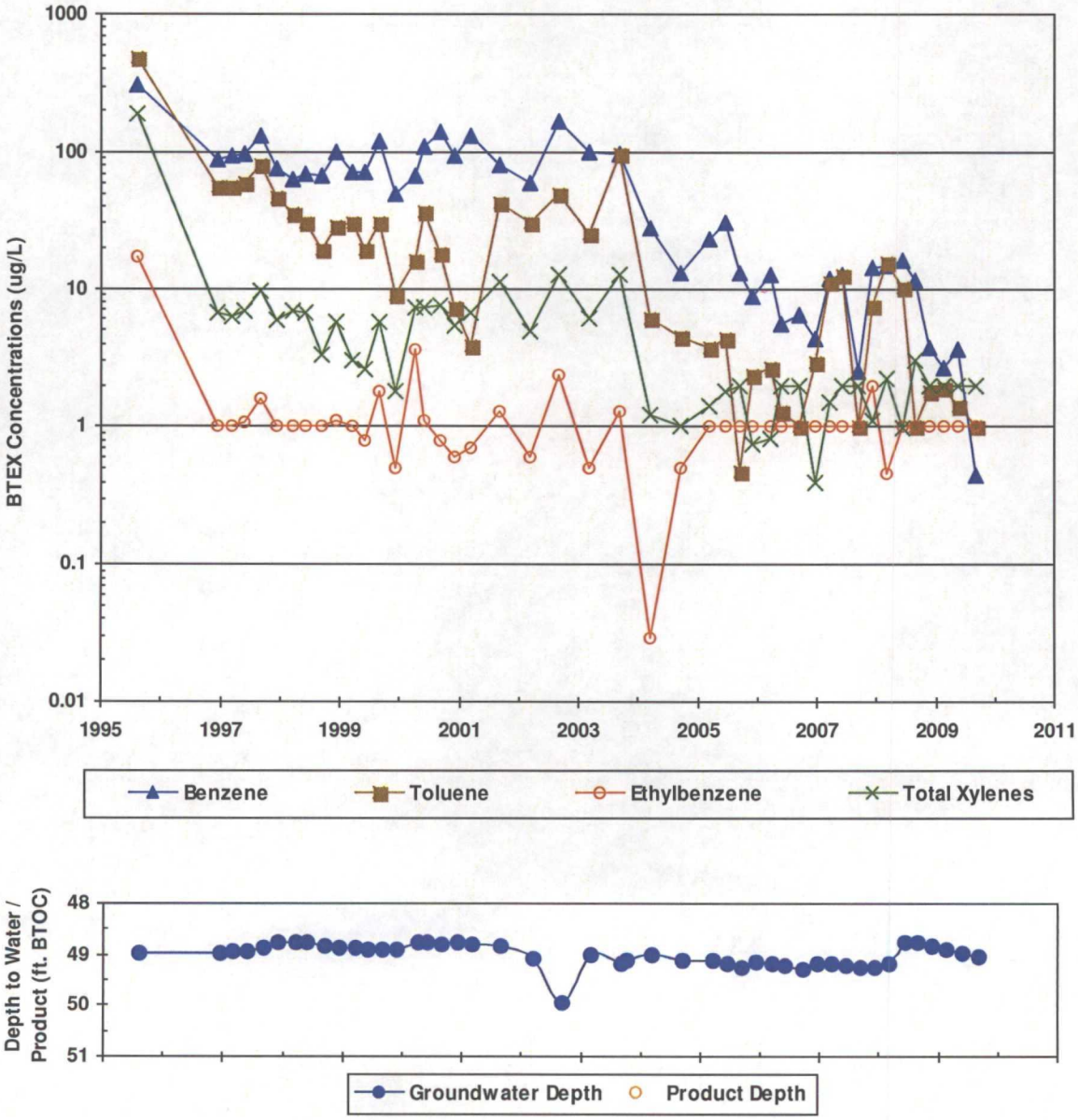


FIGURE 5
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
HORTON #1E (METER #93388)
MW02

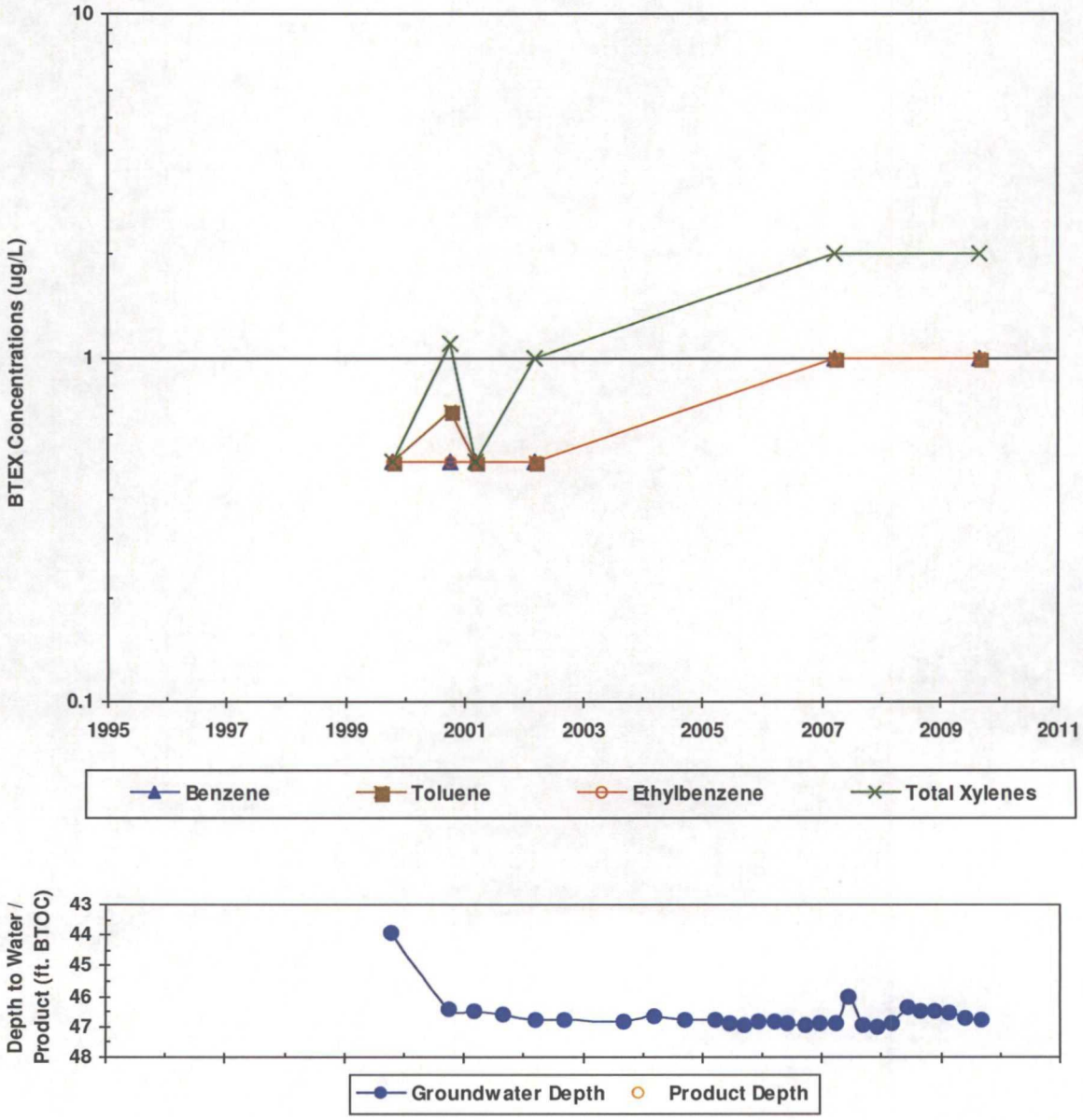
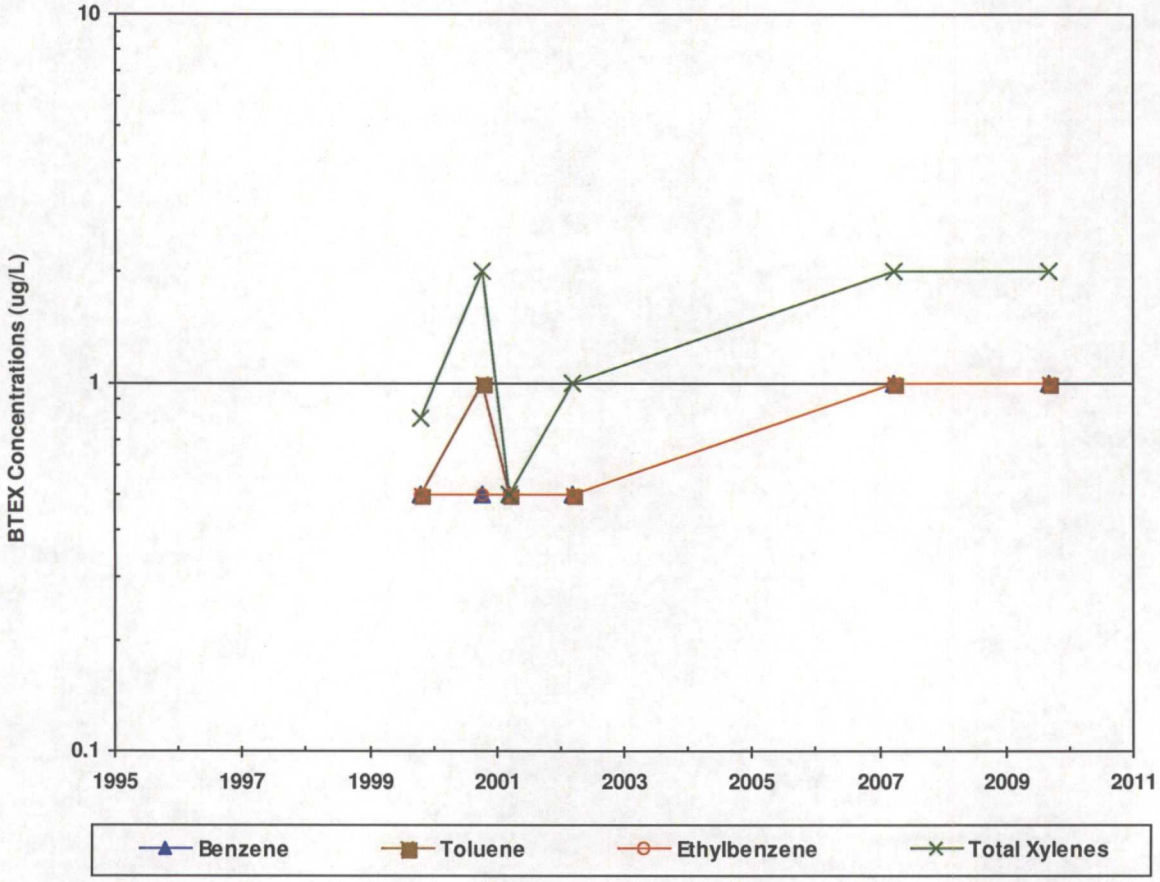


FIGURE 6
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
HORTON #1E (METER #93388)
MW03



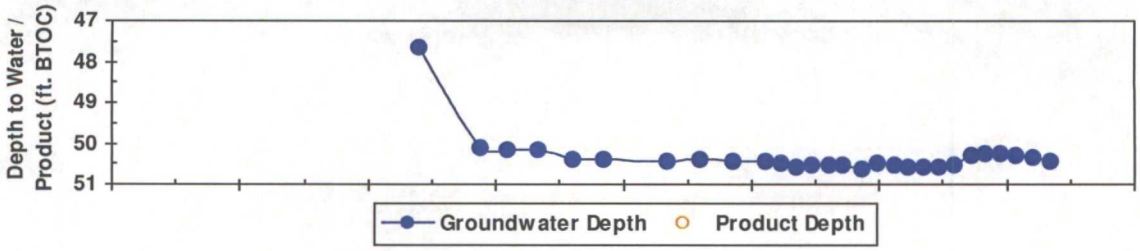


TABLE 1

SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
HORTON #1E (METER #93388)

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 (Feet*)
NMWQCC GW Std.:		**10**	**750**	**750**	**620**		
MW01	8/7/1995	**308**	483	16.9	190	48.99	51.01
MW01	12/17/1996	**86.8**	55.5	<1.0	6.66	48.96	51.04
MW01	3/10/1997	**93.3**	55.3	1.02	6.34	48.93	51.07
MW01	6/2/1997	**96.1**	58.8	1.07	6.82	48.94	51.06
MW01	9/8/1997	**132**	80.7	1.59	9.46	48.88	51.12
MW01	12/10/1997	**74.9**	47.1	<1.0	5.94	48.76	51.24
MW01	3/23/1998	**63.6**	35.9	<1.0	6.93	48.78	51.22
MW01	6/4/1998	**68.1**	30.6	<1.0	6.60	48.76	51.24
MW01	9/14/1998	**67.7**	19.4	<1.0	3.26	48.85	51.15
MW01	12/17/1998	**100**	29	1.1	5.80	48.87	51.13
MW01	3/23/1999	**70.1**	30.6	<1.0	3.00	48.88	51.12
MW01	6/11/1999	**71**	19	0.8	2.60	48.92	51.08
MW01	9/2/1999	**120**	30	1.8	5.80	48.91	51.09
MW01	12/9/1999	**50**	9.1	<0.5	1.8	48.89	51.11
MW01	4/12/2000	**67**	16	3.6	7.2	48.77	51.23
MW01	6/9/2000	**110**	37	1.1	7.4	48.75	51.25
MW01	9/8/2000	**140**	18	0.8	7.6	48.81	51.19
MW01	12/11/2000	**93**	7.2	0.6	5.3	48.75	51.25
MW01	3/13/2001	**130**	3.8	0.7	6.6	48.81	51.19
MW01	9/7/2001	**80**	43	1.3	11	48.83	51.17
MW01	3/20/2002	**60**	30	0.6	4.9	49.07	50.93
MW01	9/10/2002	**167**	49.9	2.4	12.7	49.96	50.04
MW01	3/14/2003	**100**	25.5	0.5	6.1	49.00	51.00
MW01	9/16/2003	**95.5**	95.8	1.3	12.5	49.18	50.82
MW01	3/23/2004	**27.8**	6.1	<0.0	1.2	49.01	50.99
MW01	9/22/2004	**12.8**	4.5	<0.5	<1.0	49.12	50.88
MW01	3/23/2005	**22.8**	3.7	<1.0	1.4	49.12	50.88
MW01	6/23/2005	**30.6**	4.4	<1.0	1.8	49.18	50.82
MW01	9/20/2005	**12.8**	0.47	<1.0	<2.0	49.24	50.76
MW01	12/14/2005	8.8	2.4	<1.0	0.74	49.14	50.86
MW01	3/27/2006	**12.5**	2.7	<1.0	0.82J	49.17	50.83
MW01	6/7/2006	5.6	1.3	<1.0	<2.0	49.21	50.79
MW01	9/25/2006	6.5	<1.0	<1.0	<2.0	49.28	50.72
MW01	12/27/2006	4.3	2.9	<1.0	0.39J	49.19	50.81

TABLE 1

SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
HORTON #1E (METER #93388)

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 (Feet*)
NMWQCC GW Std.:		10	750	750	620		
MW01	3/28/2007	**11.9**	11.3	<1.0	1.5J	49.20	50.80
MW01	6/18/2007	**12.6**	12.5	<1.0	2.0	49.23	50.77
MW01	9/17/2007	2.5	<1.0	<1.0	<2.0	49.27	50.73
MW01	12/17/2007	**14.2**	7.6	<2.0	1.1J	49.27	50.73
MW01	3/11/2008	**14.7**	15.5	0.46J	2.2	49.17	50.83
MW01	6/17/2008	**16.2**	10.3	<1.0	0.99J	48.75	51.25
MW01	9/10/2008	**11.6**	1.0	<1.0	<3.0	48.78	51.22
MW01	12/2/2008	3.7	1.8	<1.0	<2.0	48.85	51.15
MW01	3/3/2009	2.7	1.9	<1.0	<2.0	48.92	51.08
MW01	6/2/2009	3.6	1.4	<1.0	<2.0	48.96	51.04
MW01	9/16/2009	0.44J	<1.0	<1.0	<2.0	49.03	50.97
MW02	10/20/1999	<0.5	<0.5	<0.5	<0.5	43.95	51.81
MW02	10/9/2000	<0.5	0.7	<0.5	1.1	46.41	49.35
MW02	3/13/2001	<0.5	<0.5	<0.5	<0.5	46.47	49.29
MW02	3/20/2002	<0.5	<0.5	<0.5	<1.0	46.75	49.01
MW02	3/31/2007	<1.0	<1.0	<1.0	<2.0	46.89	48.87
MW02	9/16/2009	<1.0	<1.0	<1.0	<2.0	46.78	48.98
MW03	10/20/1999	<0.5	<0.5	<0.5	0.8	47.65	48.25
MW03	10/10/2000	<0.5	1	<0.5	2	50.12	45.78
MW03	3/13/2001	<0.5	<0.5	<0.5	<0.5	50.18	45.72
MW03	3/20/2002	<0.5	<0.5	<0.5	<1.0	50.40	45.50
MW03	3/31/2007	<1.0	<1.0	<1.0	<2.0	50.52	45.38
MW03	9/16/2009	<1.0	<1.0	<1.0	<2.0	50.42	45.48

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.

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

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: Horton #1E | Well No: MW-1
Client: MWH | Date: 6/2/2009 | Time: 7:48
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 48.96 ft | Depth to Product: ft
Well Diameter: 4" | Total Depth: 65.36 ft | Product Thickness: ft
Water Column Height: 16.4 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
16.4 x .65	10.66 x 3		31.98 gal

Time (military)	pH (su)	SC (us)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
8:00	6.69	15.05	60.1				1.25	clear
	6.79	14.98	59.9				2.5	clear
	6.75	15.05	59.7				3.75	light gray, silty
	6.79	14.88	59.9				5	light gray, silty
	6.71	15.24	59.4				10	light gray, silty, bailing down
	6.75	15.09	59.5				15	light gray, silty, bailing down
	6.80	15.06	59.4				20	light gray, silty, bailing down
	6.85	15.12	59.4				24.2	light gray, silty, dry
Final: 8:55	6.85	15.15	59.6				24.5	light gray, silty, dry

COMMENTS: well bailed dry.

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

Water Disposal: Rio Vista

Sample ID: Horton #1E MW-1 | Sample Time: 8:52

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

Trip Blank: 020609TB02 | 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:** 03/03/2009
Project Manager: Ashley Ager
Client: MWH
Site Name: Horton #1E

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	7:52 AM	-	48.92	-	-	Sample BTEX
MW-2		-	46.56	-	-	
MW-3		-	50.30	-	-	

Comments
Operator: BP
Reviewed site map (no changes necessary), made site photos

Signature: *Ashley L. Ager* Date: 03/04/2009

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

WATER LEVEL DATA

Project Name: San Juan Basin Groundwater **Date:** 06/02/2009
Project Manager: Ashley Ager
Client: MWH
Site Name: Horton #1E

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	7:40 AM	-	48.96	-	-	Sample BTEX
MW-2		-	46.71	-	-	
MW-3		-	50.33	-	-	

Comments

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

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

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: Horton #1E | Well No: MW-1
Client: MWH | Date: 3/3/2009 | Time: 8:28
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 48.92 ft | Depth to Product: ft
Well Diameter: 4" | Total Depth: 65.36 ft | Product Thickness: ft
Water Column Height: 16.44 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
16.44 x 0.65	10.68 x 3		32.04 gal

Time (military)	pH (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
8:36	6.85	2.07	57.7				1.25	clear
	6.87	2.08	57.9				2.5	light gray, silty
	6.88	2.04	57.9				3.75	light gray, silty
	6.90	2.05	57.7				5	light gray, silty
	6.84	2.04	57.6				10	light gray, silty, bailing down
	6.97	2.02	57.4				15	light gray, silty, bailing down
	6.93	2.01	57.0				20	light gray, silty, bailing down
	7.13	2.02	56.7				25	light gray, silty, bailing down
Final:	7.13	2.02	56.8				26.2	light gray, silty, dry

COMMENTS: well bailed dry.

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

Water Disposal: Rio Vista

Sample ID: Horton #1E MW-1 Sample Time: 9:39

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

Trip Blank: 03032009TB01 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: Horton #1E

Date: 09/16/2009

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	8:40 AM	-	49.03	-	-	Sample BTEX
MW-2		-	46.78	-	-	Sample BTEX
MW-3		-	50.42	-	-	Sample BTEX

Comments

Signature: *Ashley L. Ager*

Date: 09/18/2009

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

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: Horton #1E | Well No: MW-1
Client: MWH | Date: 9/16/2009 | Time: 8:45
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 49.03 ft | Depth to Product: ft
Well Diameter: 4" | Total Depth: 65.36 ft | Product Thickness: ft
Water Column Height: 16.33 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
16.33 x .65	10.61 x 3		31.8 gal

Time (military)	pH (su)	SC (us)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
8:50	6.79	1504	59.4				1.25	light gray, silty
	6.78	1472	59.2				2.5	light gray, silty
	6.78	1454	59.2				3.75	light gray, silty
	6.78	1470	59.2				5	light gray, silty
	6.77	1466	59.2				10	light gray, silty
	6.80	1434	59.2				15	light gray, silty
	6.88	1499	58.8				20	light gray, silty
	6.92	1479	58.8				21.8	light gray, silty, bailing down
Final: 9:40	7.02	1479	58.8				22.25	light gray, silty, dry

COMMENTS: well bailed dry.

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

Water Disposal: Rio Vista

Sample ID: Horton #1E MW-1 Sample Time: 9:35

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

Trip Blank: 16092009TB01 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: Horton #1E | Well No: MW-2
Client: MWH | Date: 9/16/2009 | Time: 9:48
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 46.78 ft | Depth to Product: ft
Well Diameter: 2" | Total Depth: 62.62 ft | Product Thickness: ft
Water Column Height: 15.84 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
15.84 x .16	2.53 x 3		7.6 gal

Time (military)	pH (su)	SC (us)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
9:59	7.03	1427	58.1				0.25	light gray, silty
	7.03	1412	57.6				0.5	light gray, silty
	7.06	1429	57.7				0.75	light gray, silty
	7.07	1430	57.7				1	light gray, silty
	7.08	1471	57.6				2	light gray, silty
	7.04	1644	57.7				3	light gray, silty
	7.06	1432	57.7				4	light gray, silty
	7.06	1444	57.7				5	light gray, silty
	7.10	1439	57.7				7	light gray, silty
	7.10	1436	57.7				7.5	light gray, silty
	7.13	1445	57.7				7.75	light gray, silty
Final: 10:35	7.12	1446	57.7				8	light gray, silty

COMMENTS:

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

Water Disposal: Rio Vista

Sample ID: Horton #1E MW-2 | Sample Time: 10:43

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

Trip Blank: 16092009TB01 | 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: Horton #1E | Well No: MW-3
Client: MWH | Date: 9/16/2009 | Time: 10:53
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 50.42 ft | Depth to Product: ft
Well Diameter: 2" | Total Depth: 57.13 ft | Product Thickness: ft
Water Column Height: 6.71 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
6.71 x .16	1.07 x 3		3.22 gal

Time (military)	pH (su)	SC (us)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
10:57	6.98	1540	58.6				0.25	brown, silty, roots
	7.00	1580	59.5				0.5	brown, silty, roots
	7.01	1624	58.1				0.75	brown, silty, roots
	7.02	1609	58.3				1	brown, silty, roots
	7.00	1620	58.1				2	brown, silty, roots
	7.00	1616	58.1				3	brown, silty, roots
	7.00	1594	57.7				3.25	brown, silty, roots
Final: 9:40	7.03	1598	57.9				3.5	brown, silty, roots

COMMENTS:

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

Water Disposal: Rio Vista

Sample ID: Horton #1E MW-3 | Sample Time: 11:28

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

Trip Blank: 16092009TB01 | Duplicate Sample:

Gulf Coast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

03/09/09

Technical Report for

Montgomery Watson

San Juan Basin Pit Groundwater Remediation 2008-2009

Accutest Job Number: T25892

Sampling Date: 03/03/09

Report to:

MWH Americas
1801 California St. Suite 2900
Denver, CO 80202
jed.smith@mwhglobal.com; daniel.a.wade@mwhglobal.com;
craig.moore@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: William Reeves 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

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Sample Summary

Montgomery Watson

Job No: T25892

San Juan Basin Pit Groundwater Remediation 2008-2009

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
T25892-1	03/03/09	09:39	TU	03/04/09	AQ	Ground Water	HORTON 1E MW-1
T25892-2	03/03/09	07:00	TU	03/04/09	AQ	Trip Blank Water	030309TB01

ACCUTEST Laboratories

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	Montgomery Watson	**Job No**	T25892
Site:	San Juan Basin Pit Groundwater Remediation 2008-2009	**Report Date**	3/9/2009 3:10:05 PM

1 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were collected on 03/03/2009 and were received at Accutest on 03/04/2009 properly preserved, at 4.4 Deg. C and intact. These Samples received an Accutest job number of T25892. 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:** GKK1444

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T25846-2MS, T25846-2MSD 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:	HORTON 1E MW-1		
Lab Sample ID:	T25892-1	Date Sampled:	03/03/09
Matrix:	AQ - Ground Water	Date Received:	03/04/09
Method:	SW846 8021B	Percent Solids:	n/a
Project:	San Juan Basin Pit Groundwater Remediation 2008-2009		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK029828.D	1	03/07/09	FI	n/a	n/a	GKK1444
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	2.7	1.0	0.21	ug/l	
108-88-3	Toluene	1.9	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.35	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	0.55	ug/l	
95-47-6	o-Xylene	ND	1.0	0.55	ug/l	
	m,p-Xylene	ND	1.0	0.66	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	96%		58-125%
98-08-8	aaa-Trifluorotoluene	84%		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:	030309TB01		
Lab Sample ID:	T25892-2	Date Sampled:	03/03/09
Matrix:	AQ - Trip Blank Water	Date Received:	03/04/09
Method:	SW846 8021B	Percent Solids:	n/a
Project:	San Juan Basin Pit Groundwater Remediation 2008-2009		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK029823.D	1	03/06/09	FI	n/a	n/a	GKK1444
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	0.21	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.35	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	0.55	ug/l	
95-47-6	o-Xylene	ND	1.0	0.55	ug/l	
	m,p-Xylene	ND	1.0	0.66	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	97%		58-125%
98-08-8	aaa-Trifluorotoluene	83%		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 # 8663 2309 4720 | Bottle Order Control # | Accutest Quote # | Accutest Job # T25892

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.:
Sampler's Name: Troy Urban

Project Information

Project Name / No.: EPTPC San Juan Basin Pit GW Remediation 2008-2009
Bill to: El Paso Corp | Invoice Attn.: Norma Ramos
Address: 1001 Louisiana Street, Rm S1904B
City: Houstor | State: TX | Zip: 77002
Phone No.: | Fax No.:
Client Purchase Order #:

Requested Analyses

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	MeOH	NaHSO4	H2SO4	EnCore	NaOH/ZnAc	MeOH	None	BTEX (8021B)	LAB USE ONLY
1	Horton LE MW-1	030309	0939	GW	3	X								X	
2	030309 TB#1	030309	0700	GW	2	X								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"
- [ ] Commercial "B"
- [ ] Reduced Tier 1
- [ ] Full Data Package
- [ ] TRRP-13
- [ ] EDD Format
- [ ] Other

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

Comments / Remarks

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 3/3/09	1545	1	2	3-4-9 900	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 4.4

4.1.4

T25892: Chain of Custody
Page 1 of 3

SAMPLE INSPECTION FORM

Accutest Job Number: T25892 Client: MWH Date/Time Received: 3-4-9 900

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

Cooler Temps: #1: 4.4 #2: _____ #3: _____ #4: _____ #5: _____ #6: _____ #7: _____ #8: _____

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

Airbill Numbers: 8663-2309-4720

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: [signature] 3-4-9

INFORMATION AND SAMPLE LABELING VERIFIED BY: [signature]

CORRECTIVE ACTIONS

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

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

Client Instructions:

I:\mwalker\forms\samplemanagement

4.1 4

T25892: Chain of Custody
Page 2 of 3

SAMPLE RECEIPT LOG

JOB #: T25892 DATE/TIME RECEIVED: 3-4-9 900

CLIENT: MWH INITIALS: GHC

COOLER#	SAMPLE ID	FIELD ID	DATE	MATRIX	VOL	BOTTLE #	LOCATION	PRESERV	PH
1	1	Harton 1-E MW-1	030309 0939	W	40ml	1-3	VR	1 2 3 4 5 6 7 8	<2 >12
1	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
								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

GHC 3-4-9

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

T25892: 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: T25892
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation 2008-2009

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1444-MB	KK029812.D	1	03/06/09	FI	n/a	n/a	GKK1444

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

T25892-1, T25892-2

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.21	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.35	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	0.55	ug/l	
95-47-6	o-Xylene	ND	1.0	0.55	ug/l	
	m,p-Xylene	ND	1.0	0.66	ug/l	

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	96%	58-125%
98-08-8	aaa-Trifluorotoluene	84%	73-139%

Blank Spike Summary

Job Number: T25892
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation 2008-2009

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1444-BS	KK029808.D	1	03/06/09	FI	n/a	n/a	GKK1444

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

T25892-1, T25892-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	19.2	96	86-121
100-41-4	Ethylbenzene	20	19.5	98	81-116
108-88-3	Toluene	20	19.4	97	87-117
1330-20-7	Xylenes (total)	60	58.6	98	85-115
95-47-6	o-Xylene	20	19.6	98	87-116
	m,p-Xylene	40	39.0	98	84-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	98%	58-125%
98-08-8	aaa-Trifluorotoluene	85%	73-139%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T25892
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation 2008-2009

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T25846-2MS	KK029819.D	1	03/06/09	FI	n/a	n/a	GKK1444
T25846-2MSD	KK029820.D	1	03/06/09	FI	n/a	n/a	GKK1444
T25846-2	KK029816.D	1	03/06/09	FI	n/a	n/a	GKK1444

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

T25892-1, T25892-2

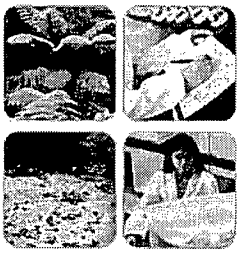
CAS No.	Compound	T25846-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	0.72	J	20	21.2	102	20.5	99	3	86-121/19
100-41-4	Ethylbenzene	ND		20	20.9	105	20.0	100	4	81-116/14
108-88-3	Toluene	ND		20	20.7	104	20.0	100	3	87-117/16
1330-20-7	Xylenes (total)	ND		60	61.7	103	59.4	99	4	85-115/12
95-47-6	o-Xylene	ND		20	20.6	103	19.8	99	4	87-116/16
	m,p-Xylene	ND		40	41.1	103	39.5	99	4	84-116/13

CAS No.	Surrogate Recoveries	MS	MSD	T25846-2	Limits
460-00-4	4-Bromofluorobenzene	100%	99%	98%	58-125%
98-08-8	aaa-Trifluorotoluene	85%	84%	84%	73-139%

Gulf Coast ACCUTEST. Laboratories

IT'S ALL IN THE CHEMISTRY

06/11/09



Technical Report for

Montgomery Watson

San Juan Basin Pit Groundwater Remediation 2008-2009

Horton

Accutest Job Number: T30414

Sampling Date: 06/02/09

Report to:

MWH Americas
1801 California St. Suite 2900
Denver, CO 80202
jed.smith@mwhglobal.com; daniel.a.wade@mwhglobal.com;
craig.moore@mwhglobal.com; ala@lodestarservices.com
ATTN: Jed Smith

Total number of pages in report: 15

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

ACCUTEST LABORATORIES 50 YEARS 1956-2006

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

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Sample Summary

Montgomery Watson

Job No: T30414

San Juan Basin Pit Groundwater Remediation 2008-2009
Project No: Horton

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
T30414-1	06/02/09	06:55	TU	06/04/09	AQ	Trip Blank Water	020609TB02
T30414-2	06/02/09	08:52	TU	06/04/09	AQ	Ground Water	HORTON 1E MW-1

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	Montgomery Watson	**Job No**	T30414
Site:	San Juan Basin Pit Groundwater Remediation 2008-2009	**Report Date**	6/8/2009 3:24:25 PM

1 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were collected on 06/02/2009 and were received at Accutest on 06/04/2009 properly preserved, at 4 Deg. C and intact. These Samples received an Accutest job number of T30414. 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:** GKK1498

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T30414-2MS, T30414-2MSD 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:	020609TB02		
Lab Sample ID:	T30414-1	Date Sampled:	06/02/09
Matrix:	AQ - Trip Blank Water	Date Received:	06/04/09
Method:	SW846 8021B	Percent Solids:	n/a
Project:	San Juan Basin Pit Groundwater Remediation 2008-2009		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK031128.D	1	06/05/09	FI	n/a	n/a	GKK1498
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	0.21	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.35	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	0.55	ug/l	
95-47-6	o-Xylene	ND	1.0	0.55	ug/l	
	m,p-Xylene	ND	1.0	0.66	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	85%		58-125%
98-08-8	aaa-Trifluorotoluene	88%		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:	HORTON 1E MW-1		
Lab Sample ID:	T30414-2	Date Sampled:	06/02/09
Matrix:	AQ - Ground Water	Date Received:	06/04/09
Method:	SW846 8021B	Percent Solids:	n/a
Project:	San Juan Basin Pit Groundwater Remediation 2008-2009		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK031118.D	1	06/05/09	FI	n/a	n/a	GKK1498
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	3.6	1.0	0.21	ug/l	
108-88-3	Toluene	1.4	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.35	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	0.55	ug/l	
95-47-6	o-Xylene	ND	1.0	0.55	ug/l	
	m,p-Xylene	ND	1.0	0.66	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	84%		58-125%
98-08-8	aaa-Trifluorotoluene	90%		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 # 8643 8850 8201 | Bottle Order Control # | Accutest Quote # | Accutest Job # T30414

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.:
Sampler's Name: Troy Urban

Project Information

Project Name / No.: Horton
EPTPC San Juan Basin Pit GW Remediation 2008-2009
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-GroundRem-007

Requested Analyses

Accutest Sample #	Field ID / Point of Collection	Collection Date	Collection Time	Matrix	# of bottles	Number of preserved bottles: HCl	HNO3	H2SO4	ENCORE	NaHSO4	MEOH	NONE	BTEX (8021B) include m,p, & o-xylene	Matrix Codes / LAB USE ONLY
	020609TB02	060209	0655	GW	2	X							X	
	Horton 1E MW-1	060209	0852	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
- [ ] 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 times!!

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	6/3/09 1640	1			1
2			2	FedEx	6-4-9 9:5	2
3	Relinquished by:	Date Time:	3	Relinquished By:	Date Time:	Received By: 3
4						4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable ☐	On Ice: X Cooler Temp.: 4.0°C

4.1

T30414: Chain of Custody
Page 1 of 3

SAMPLE INSPECTION FORM

Accutest Job Number: T30414 Client: MWH Date/Time Received: 6-4-9 905

# of Coolers Received: 1 Thermometer #: 110 Temperature Adjustment Factor: -0.3

Cooler Temps: #1: 4.0°C #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: 6-4-9

INFORMATION AND SAMPLE LABELING VERIFIED BY: 06/4/09

CORRECTIVE ACTIONS

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

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

Client Instructions:

l:\mwalker\forms\samplemanagement

4.1 4

T30414: Chain of Custody
Page 2 of 3

SAMPLE RECEIPT LOG

JOB #: T30414 DATE/TIME RECEIVED: 6-4-9 9:15

CLIENT: MWH INITIALS: GC

COOLER#	SAMPLE ID	FIELD ID	DATE	MATRIX	VOL	BOTTLE #	LOCATION	PRESERV	PH
1	1	Trip Blank	—	—	40ml	1-2	VR	1 (2) 3 4 5 6 7 8 (2 circled)	<2 >12
1	2	Horton 1E MW-1	6-2-9	W	"	1-3	"	1 (2) 3 4 5 6 7 8 (2 circled)	<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
								1 2 3 4 5 6 7 8	<2 >12

GC 6-4-9

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

4.1

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T30414: Chain of Custody

Page 3 of 3

GC Volatiles

GT

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: T30414
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation 2008-2009

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1498-MB	KK031117.D	1	06/05/09	FI	n/a	n/a	GKK1498

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

T30414-1, T30414-2

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.21	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.35	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	0.55	ug/l	
95-47-6	o-Xylene	ND	1.0	0.55	ug/l	
	m,p-Xylene	ND	1.0	0.66	ug/l	

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	86%	58-125%
98-08-8	aaa-Trifluorotoluene	88%	73-139%

Blank Spike Summary

Job Number: T30414
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation 2008-2009

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1498-BS	KK031113.D	1	06/05/09	FI	n/a	n/a	GKK1498

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

T30414-1, T30414-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	19.1	96	86-121
100-41-4	Ethylbenzene	20	19.3	97	81-116
108-88-3	Toluene	20	19.3	97	87-117
1330-20-7	Xylenes (total)	60	57.7	96	85-115
95-47-6	o-Xylene	20	19.2	96	87-116
	m,p-Xylene	40	38.5	96	84-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	88%	58-125%
98-08-8	aaa-Trifluorotoluene	91%	73-139%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T30414
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation 2008-2009

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T30414-2MS	KK031124.D	1	06/05/09	FI	n/a	n/a	GKK1498
T30414-2MSD	KK031125.D	1	06/05/09	FI	n/a	n/a	GKK1498
T30414-2	KK031118.D	1	06/05/09	FI	n/a	n/a	GKK1498

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

T30414-1, T30414-2

CAS No.	Compound	T30414-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	3.6		20	24.5	105	24.4	104	0	86-121/19
100-41-4	Ethylbenzene	ND		20	21.4	107	21.3	107	0	81-116/14
108-88-3	Toluene	1.4		20	22.4	105	22.3	105	0	87-117/16
1330-20-7	Xylenes (total)	ND		60	63.4	106	63.1	105	0	85-115/12
95-47-6	o-Xylene	ND		20	21.1	106	21.0	105	0	87-116/16
	m,p-Xylene	ND		40	42.3	106	42.2	106	0	84-116/13

CAS No.	Surrogate Recoveries	MS	MSD	T30414-2	Limits
460-00-4	4-Bromofluorobenzene	89%	89%	84%	58-125%
98-08-8	aaa-Trifluorotoluene	91%	91%	90%	73-139%

Gulf Coast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

09/23/09

Technical Report for

Montgomery Watson

San Juan Basin Pit Groundwater Remediation

HORTON #E

Accutest Job Number: T37836

Sampling Date: 09/16/09

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: 17

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

Accutest Laboratories

Sample Summary

Montgomery Watson

Job No: T37836

San Juan Basin Pit Groundwater Remediation
Project No: HORTON #E

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
T37836-1	09/16/09	09:35	TU	09/17/09	AQ	Ground Water	HORTON 1E MW-1
T37836-2	09/16/09	10:43	TU	09/17/09	AQ	Ground Water	HORTON 1E MW-2
T37836-3	09/16/09	11:28	TU	09/17/09	AQ	Ground Water	HORTON 1E MW-3
T37836-4	09/16/09	07:00	TU	09/17/09	AQ	Trip Blank Water	160909 TB01

ACCUTEST. Laboratories

2

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	Montgomery Watson	**Job No**	T37836
Site:	San Juan Basin Pit Groundwater Remediation	**Report Date**	9/22/2009 4:48:45 PM

3 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were collected on 09/16/2009 and were received at Accutest on 09/17/2009 properly preserved, at 2 Deg. C and intact. These Samples received an Accutest job number of T37836. 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:** GKK1554

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T37878-3MS, T37878-3MSD were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Ethylbenzene, m,p-Xylene, o-Xylene, Toluene, Xylenes (total) are outside control limits. Probable cause due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for Ethylbenzene, m,p-Xylene, o-Xylene, Xylenes (total) 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:	HORTON 1E MW-1		
Lab Sample ID:	T37836-1	Date Sampled:	09/16/09
Matrix:	AQ - Ground Water	Date Received:	09/17/09
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	KK032485.D	1	09/21/09	FI	n/a	n/a	GKK1554
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	0.44	1.0	0.36	ug/l	J
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	101%		58-125%
98-08-8	aaa-Trifluorotoluene	122%		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:	HORTON 1E MW-2		
Lab Sample ID:	T37836-2	Date Sampled:	09/16/09
Matrix:	AQ - Ground Water	Date Received:	09/17/09
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	KK032495.D	1	09/21/09	FI	n/a	n/a	GKK1554
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	96%		58-125%
98-08-8	aaa-Trifluorotoluene	120%		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:	HORTON 1E MW-3		
Lab Sample ID:	T37836-3	Date Sampled:	09/16/09
Matrix:	AQ - Ground Water	Date Received:	09/17/09
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	KK032496.D	1	09/21/09	FI	n/a	n/a	GKK1554
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	99%		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:	160909 TB01		
Lab Sample ID:	T37836-4	Date Sampled:	09/16/09
Matrix:	AQ - Trip Blank Water	Date Received:	09/17/09
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	KK032484.D	1	09/21/09	FI	n/a	n/a	GKK1554
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	99%		58-125%
98-08-8	aaa-Trifluorotoluene	120%		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

FED-EX Tracking # 8706 6705 7162 | Bottle Order Control # | Accutest Quote # | Accutest Job # T37836

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.:
Sampler's Name: Troy Urban

Project Information

Project Name / No.: HORTON #E
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 #:

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	MeOH	DI Water	H2SO4	NaOH	Ascorbic Acid	NaHSO4	Methanol	None	BTEX (8021B) Include m, p, & o-xylene	LAB USE ONLY
	Horton 1E MW-1	091609	0935	GW	3	X									X	
	Horton 1E MW-2	091609	1043	GW	3	X									X	
	Horton 1E MW-3	091609	1128	GW	3	X									X	
	160909 TB01	091609	0700	GW	2	X									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!!!

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 9/16/09	1440	1			
2			2	Jed Sy	9/17 9:30	Earl C
3			3			
4			4			
5			5			

Custody Seal # | Preserved where applicable | On Ice | Cooler Temp. 2.0 °C

4.1

T37836: Chain of Custody
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SAMPLE INSPECTION FORM

Accutest Job Number: T37836 Client: MWH Date/Time Received: 9-17-9 930

# of Coolers Received: 1 Thermometer #: IR-1 Temperature Adjustment Factor: +.4

Cooler Temps: #1: 2.0°C #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: 9/17/9

INFORMATION AND SAMPLE LABELING VERIFIED BY: _____

CORRECTIVE ACTIONS

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

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

Client Instructions:

I:\mwalker\forms\samplemanagement

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SAMPLE RECEIPT LOG

JOB #: T37836 DATE/TIME RECEIVED: 9-17-9 930

CLIENT: MWH INITIALS: EC

COOLER#	SAMPLE ID	FIELD ID	DATE	MATRIX	VOL	BOTTLE #	LOCATION	PRESERV	PH	
1	1	Horton 1E mw-1	9-16-9 935	W	40ml	1-3	VR	1 (2) 3 4 5 6 7 8	<2	>12
↓	2	↓ -2	↓ 1243	↓	↓	↓	↓	1 (2) 3 4 5 6 7 8	<2	>12
↓	3	↓ -3	↓ 1123	↓	↓	↓	↓	1 (2) 3 4 5 6 7 8	<2	>12
↓	4	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
								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

EC 9-17-9

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

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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: T37836
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1554-MB	KK032483.D	1	09/21/09	FI	n/a	n/a	GKK1554

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

T37836-1, T37836-2, T37836-3, T37836-4

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	99%	58-125%
98-08-8	aaa-Trifluorotoluene	120%	73-139%

Blank Spike Summary

Job Number: T37836
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1554-BS	KK032479.D	1	09/21/09	FI	n/a	n/a	GKK1554

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

T37836-1, T37836-2, T37836-3, T37836-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	19.3	97	86-121
100-41-4	Ethylbenzene	20	21.3	107	81-116
108-88-3	Toluene	20	20.6	103	87-117
1330-20-7	Xylenes (total)	60	63.1	105	85-115
95-47-6	o-Xylene	20	21.3	107	87-116
	m,p-Xylene	40	41.8	105	84-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	102%	58-125%
98-08-8	aaa-Trifluorotoluene	122%	73-139%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T37836
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T37878-3MS	KK032489.D	1	09/21/09	FI	n/a	n/a	GKK1554
T37878-3MSD	KK032490.D	1	09/21/09	FI	n/a	n/a	GKK1554
T37878-3	KK032488.D	1	09/21/09	FI	n/a	n/a	GKK1554

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

T37836-1, T37836-2, T37836-3, T37836-4

CAS No.	Compound	T37878-3 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	2.4		20	24.4	110	24.2	109	1	86-121/19
100-41-4	Ethylbenzene	1.0 U		20	24.8	124*	24.9	125*	0	81-116/14
108-88-3	Toluene	0.82	J	20	24.5	118*	24.3	117	1	87-117/16
1330-20-7	Xylenes (total)	11.7		60	84.1	121*	83.9	120*	0	85-115/12
95-47-6	o-Xylene	6.0		20	30.2	121*	30.2	121*	0	87-116/16
	m,p-Xylene	5.8		40	53.9	120*	53.8	120*	0	84-116/13

CAS No.	Surrogate Recoveries	MS	MSD	T37878-3	Limits
460-00-4	4-Bromofluorobenzene	103%	106%	101%	58-125%
98-08-8	aaa-Trifluorotoluene	124%	124%	123%	73-139%