3R - 205

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

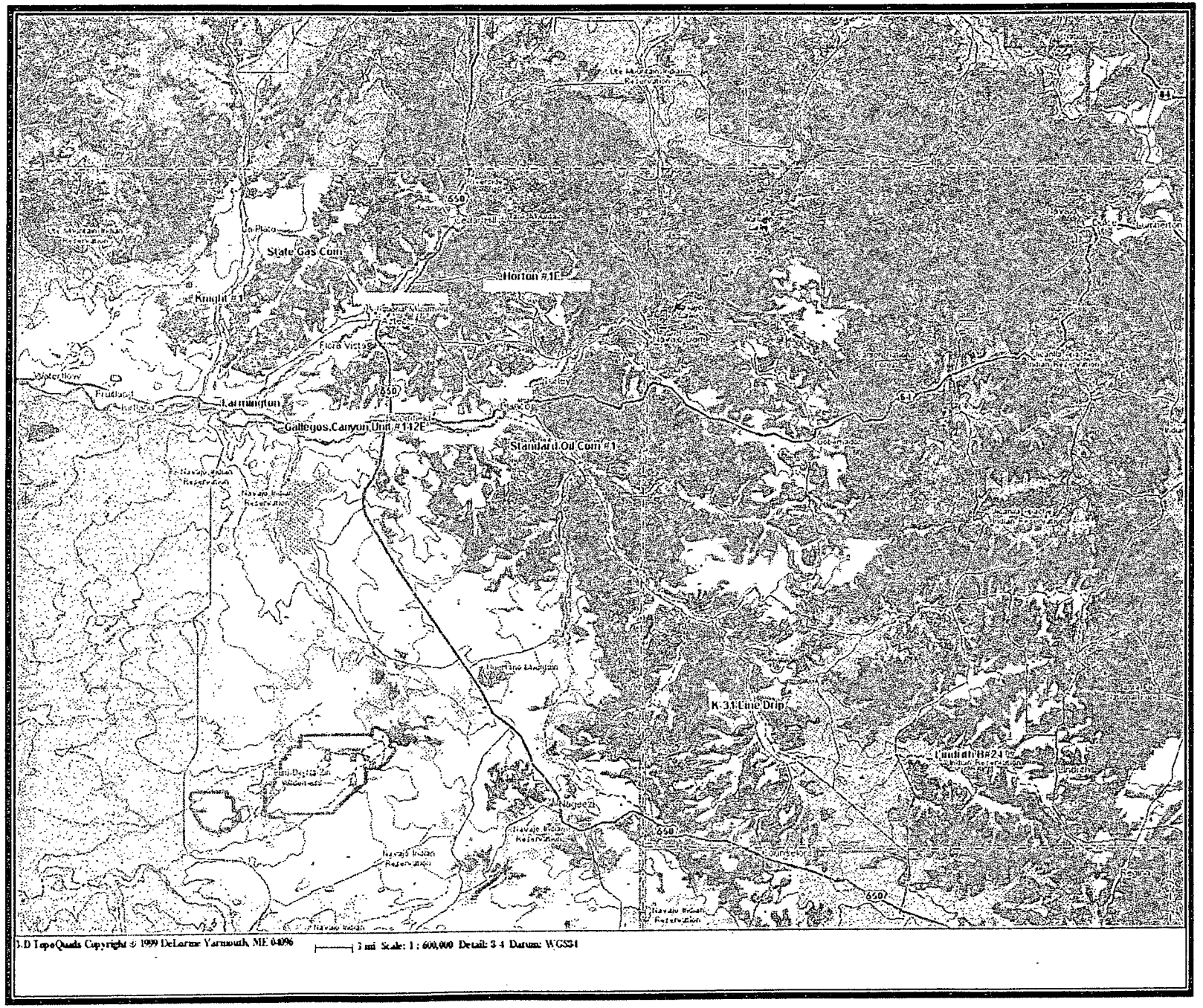
*The Lindrith B#24 site was submitted for closure in 2006 and is pending approval from NMOCD. There were no monitoring activities for this site in 2009.

MWH

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

K-31 Line Drip
Meter Code: LD087

SITE DETAILS

Legal Description: **Town:** 25N **Range:** 6W **Sec:** 16 **Unit:** N

NMOCD Haz Ranking: 40 **Land Type:** State **Operator:** Enterprise

PREVIOUS ACTIVITIES

Site Assessment:	7/94	**Excavation:**	8/94 (90 cy)	**Soil Boring:**	9/95
Monitor Well:	3/97	**Geoprobe:**	7/97	**Additional MWs:**	7/00
Downgradient MWs:	7/00	**Replace MW:**	NA	**Quarterly Initiated:**	6/97
ORC Nutrient Injection:	11/02	**Re-Excavation:**	11/95 (1786 cy)	**PSH Removal Initiated:**	NA
Annual Initiated:	6/99	**Quarterly Resumed:**	NA	**PSH Removal in 2009?**	No

SUMMARY OF 2009 ACTIVITIES

MW-1: Semiannual water level monitoring (June and November) was performed during 2009.

MW-2: Semiannual groundwater sampling (June and November) was performed during 2009.

MW-3: Semiannual water level monitoring (June and November) was performed during 2009.

MW-4: Semiannual groundwater sampling (June and November) was performed during 2009.

MW-5: Semiannual groundwater sampling (June and November) was performed during 2009.

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

SITE MAP

Site maps (June and November) are attached as Figures 1 and 2.

EPTPC GROUNDWATER SITES
2009 ANNUAL GROUNDWATER REPORT

K-31 Line Drip
Meter Code: LD087

SUMMARY TABLES AND GRAPHS

- Historic analytical and water level data are summarized in Table 1 and presented graphically in Figures 3 through 7.
- 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 appears to be north-northwest.
- In November 2002, oxygen releasing compound (ORC) slurry was injected into the subsurface near MW-2. The pre-injection benzene concentrations in MW-2 were 230 and 104 µg/L in March and September 2002, respectively. In 2009, benzene concentrations were 34.7 µg/L in June and 0.51J µg/L in November. These data indicate that long-term attenuation is continuing.
- The samples collected from new downgradient monitoring well MW-4 (installed in November 2006) had benzene concentrations of 38.5 µg/L and 9.3 µg/L, in June and November 2009, respectively. All other BTEX components were well below their respective NMWQCC standards.
- The samples collected from new downgradient monitoring well MW-5 (installed in November 2006) had benzene concentrations of 29.0 µg/L and 15.5 µg/L, in June and November 2009, respectively. All other BTEX components were well below their respective NMWQCC standards.

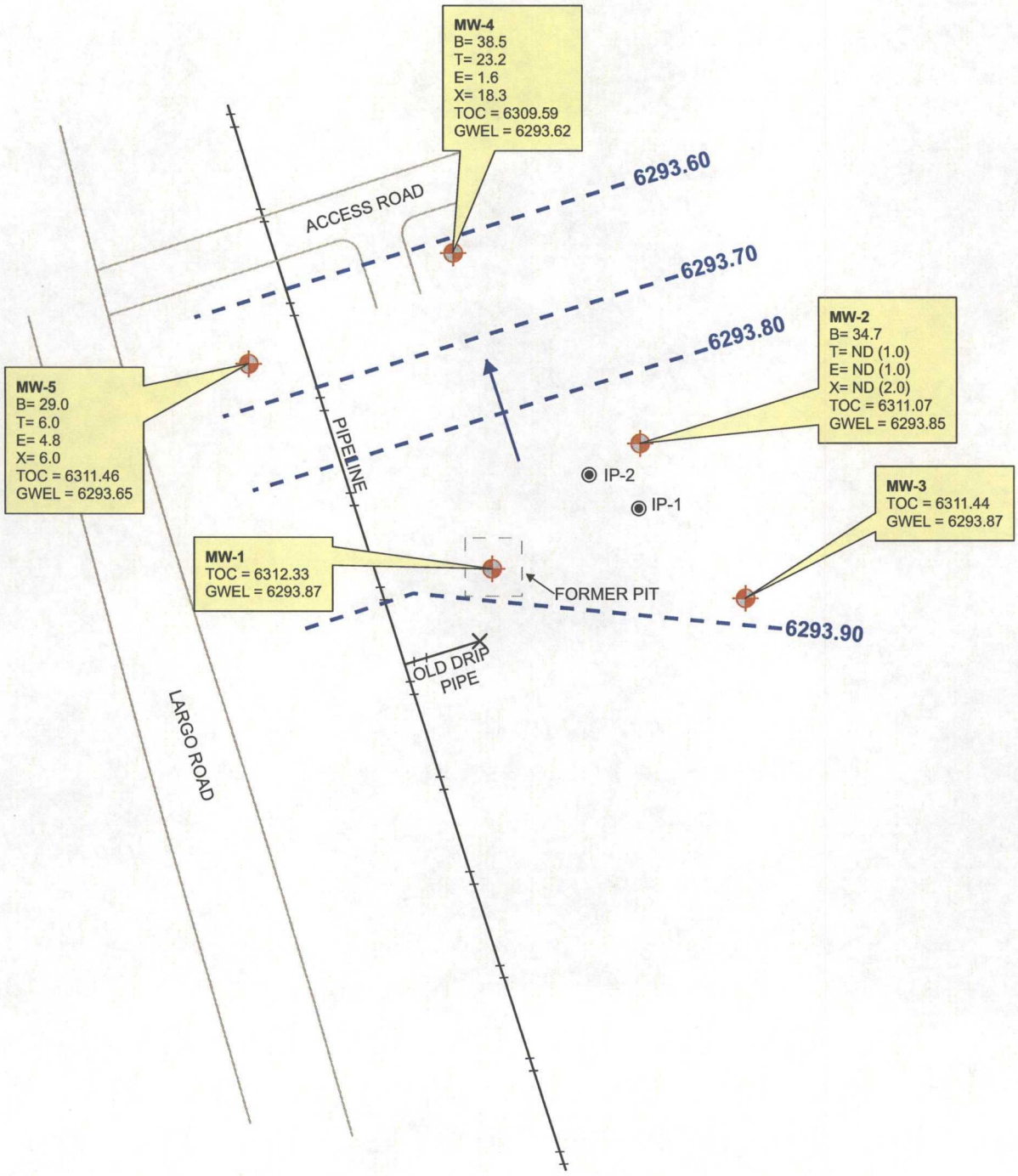
RECOMMENDATIONS

- Because sampling at MW-1 has indicated BTEX concentrations below detection limits for four consecutive quarters, EPTPC recommends that this well not be sampled until closure samples are collected.

- EPTPC will continue to sample MW-2 on a semiannual basis until BTEX concentrations approach closure standards. Quarterly sampling will then be initiated.

- Because sampling at MW-3 has indicated BTEX concentrations below detection limits, EPTPC recommends that this well not be sampled until closure samples are collected.

- EPTPC recommends that new monitoring wells MW-4 and MW-5 be sampled in conjunction with MW-2.



LEGEND

MW-4	Existing Monitoring / Observation Well
PZ-01	Abandoned Monitoring Well
→	Groundwater Flow Direction
—6294—	Potentiometric Surface Contour (Inferred Where Dashed)

B	Benzene (ug/L)
T	Toluene (ug/L)
E	Ethylbenzene (ug/L)
X	Total Xylenes (ug/L)
TOC	Top of Casing (ft. AMSL)
GWEL	Groundwater Elevation (ft. AMSL)

N

Not To Scale

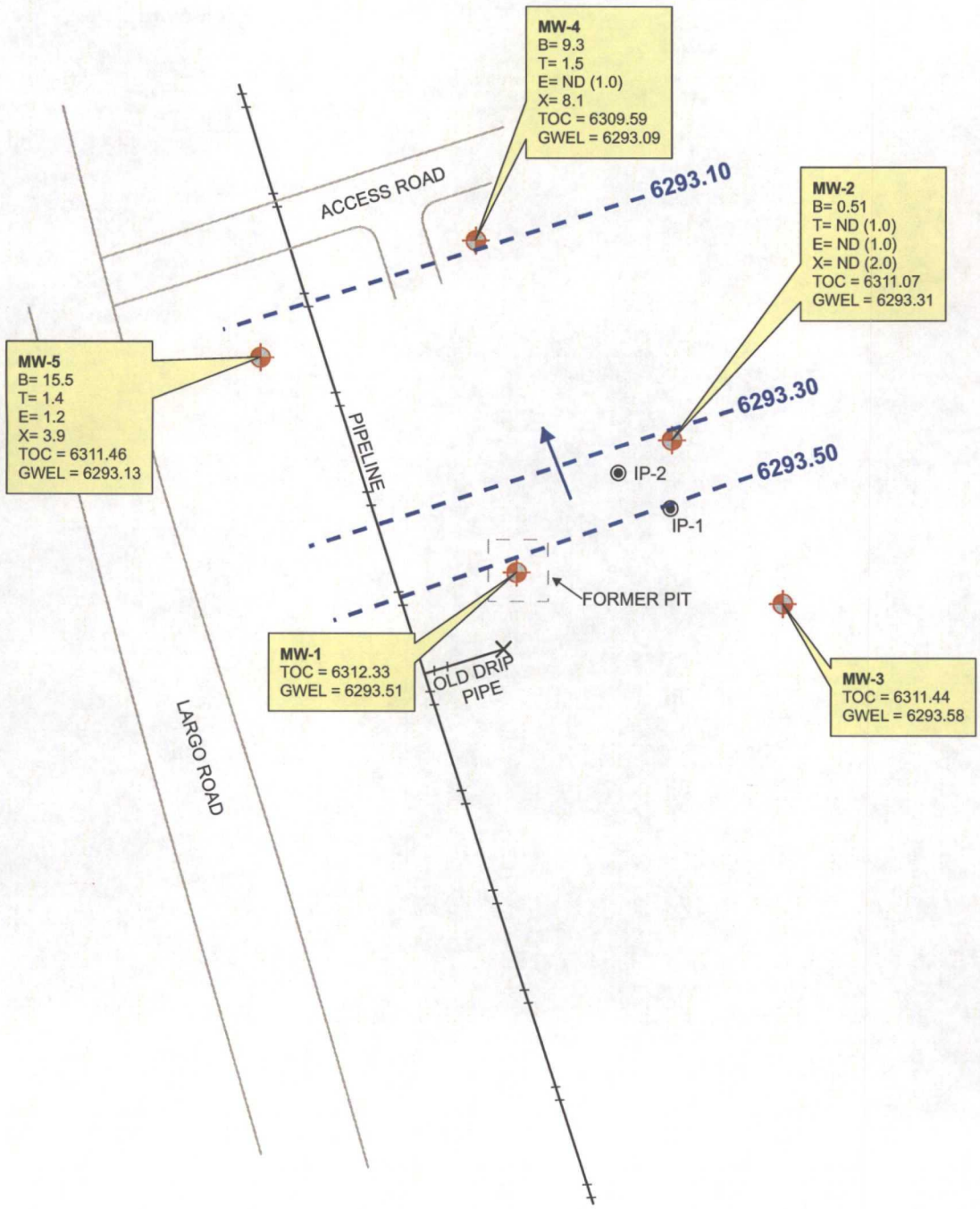
MWH

elpaso

PROJECT: K-31 LINE DRIP

TITLE: Groundwater Potentiometric Surface Map, and BTEX Concentrations - June 10, 2009

FIGURE: 1



LEGEND

MW-4	Existing Monitoring / Observation Well
PZ-01	Abandoned Monitoring Well
→	Groundwater Flow Direction
—6294—	Potentiometric Surface Contour (Inferred Where Dashed)

B	Benzene (ug/L)
T	Toluene (ug/L)
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X	Total Xylenes (ug/L)
TOC	Top of Casing (ft. AMSL)
GWEL	Groundwater Elevation (ft. AMSL)

N

Not To Scale

MWH

elpaso

PROJECT: K-31 LINE DRIP

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

FIGURE: 2

FIGURE 3
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
K-31 LINE DRIP (METER #LD087)
MW01

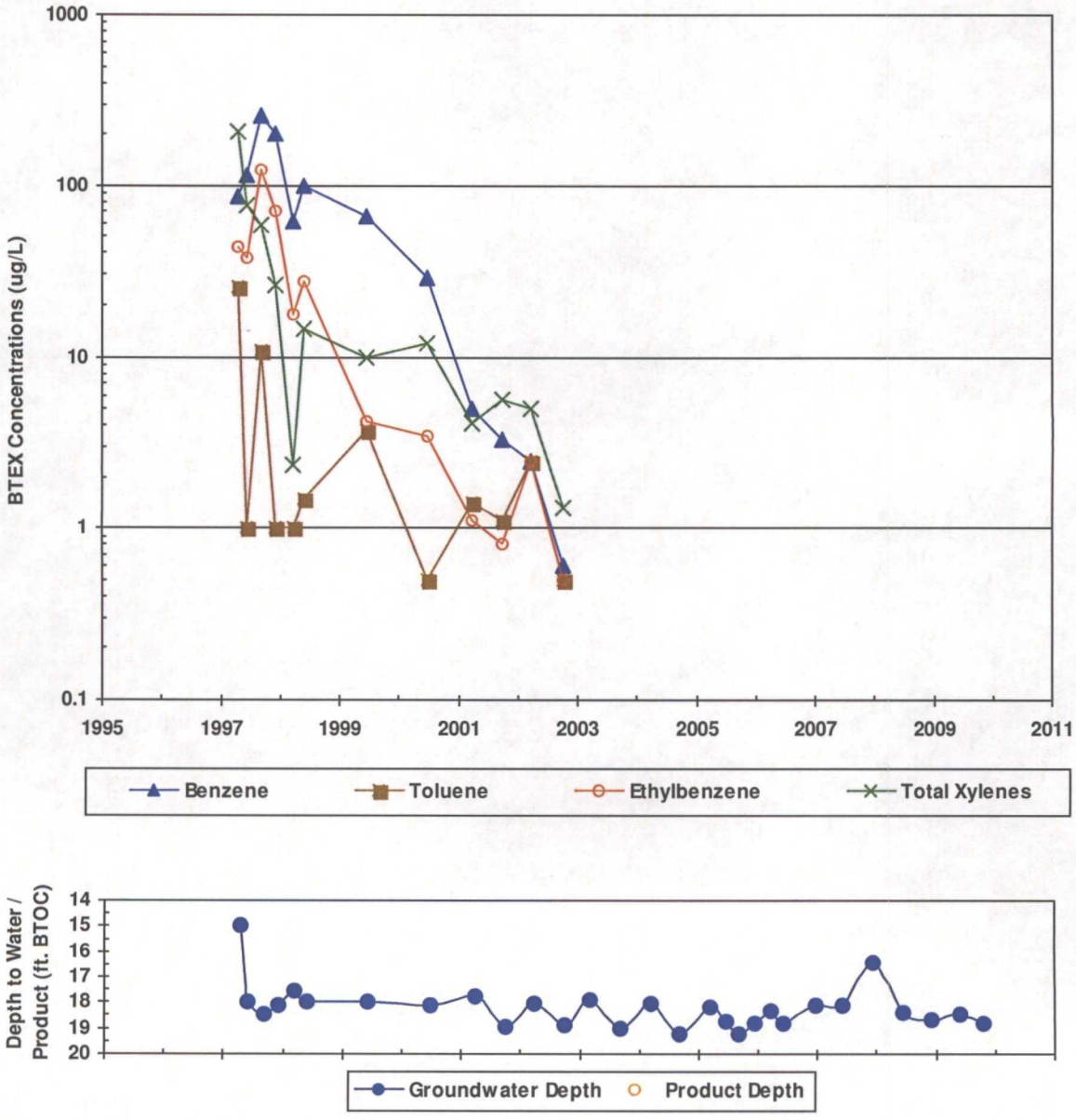

FIGURE 4
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
K-31 LINE DRIP (METER #LD087)
MW02

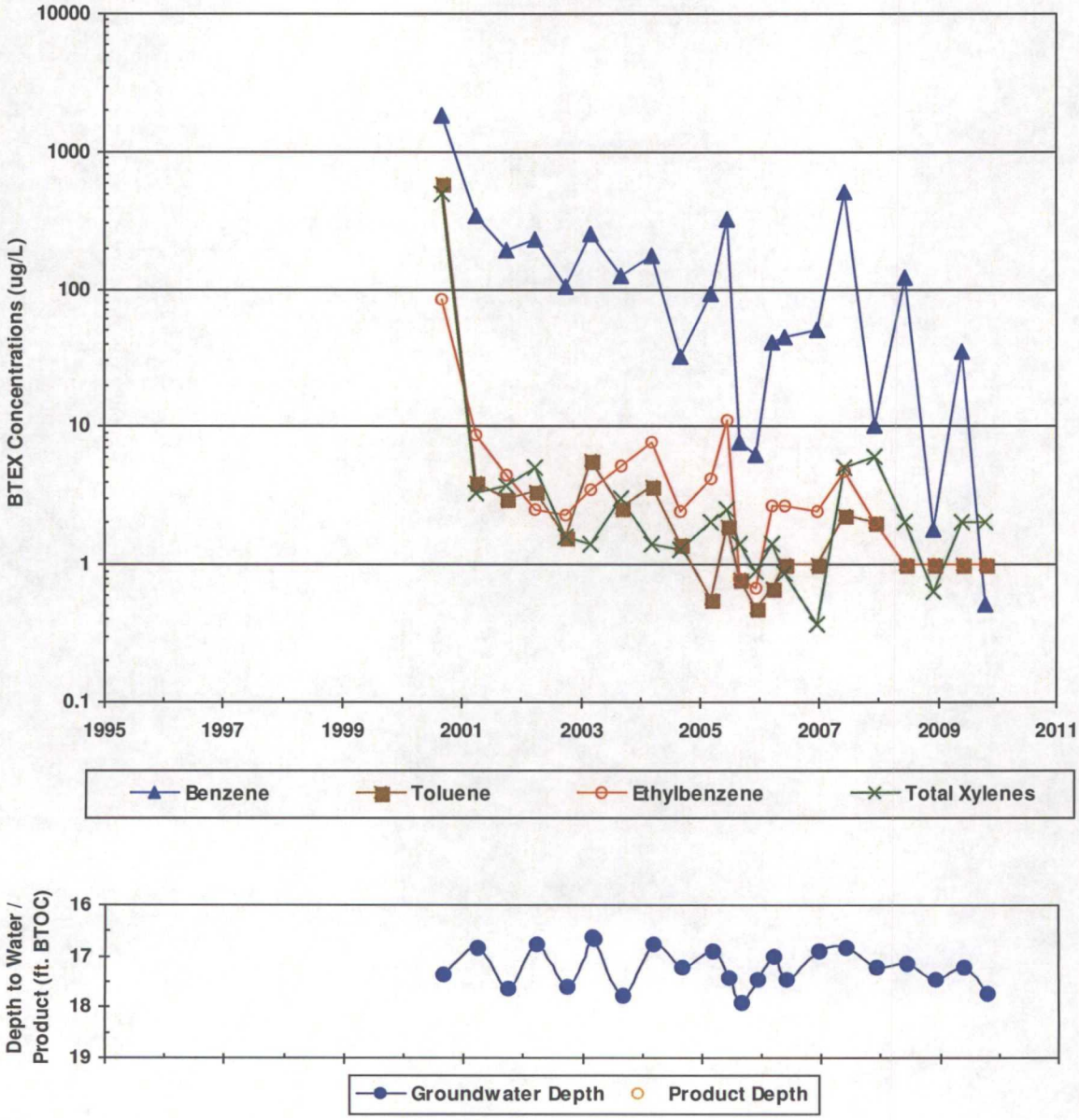

FIGURE 5
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
K-31 LINE DRIP (METER #LD087)
MW03

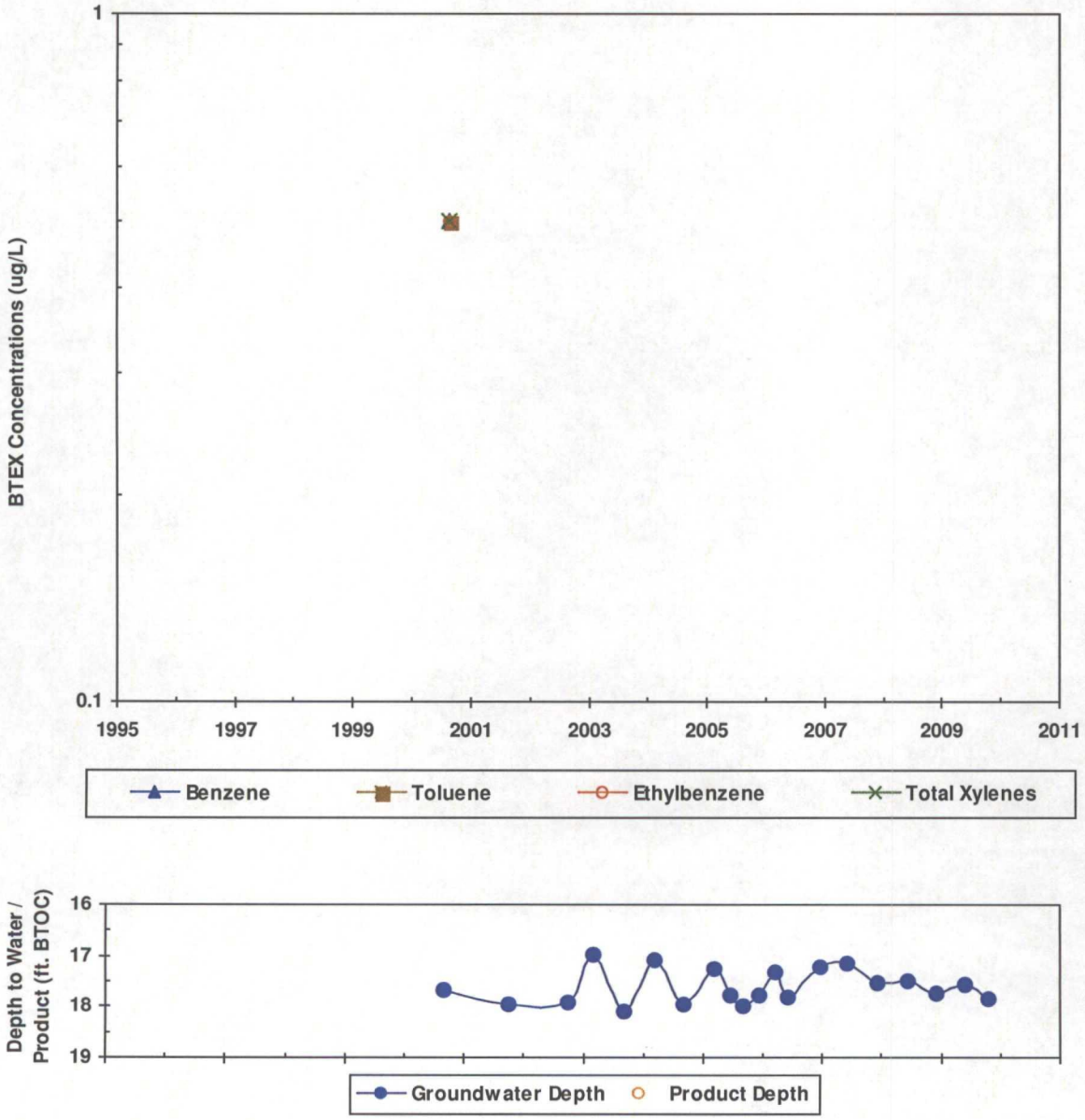

FIGURE 6
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
K-31 LINE DRIP (METER #LD087)
MW04

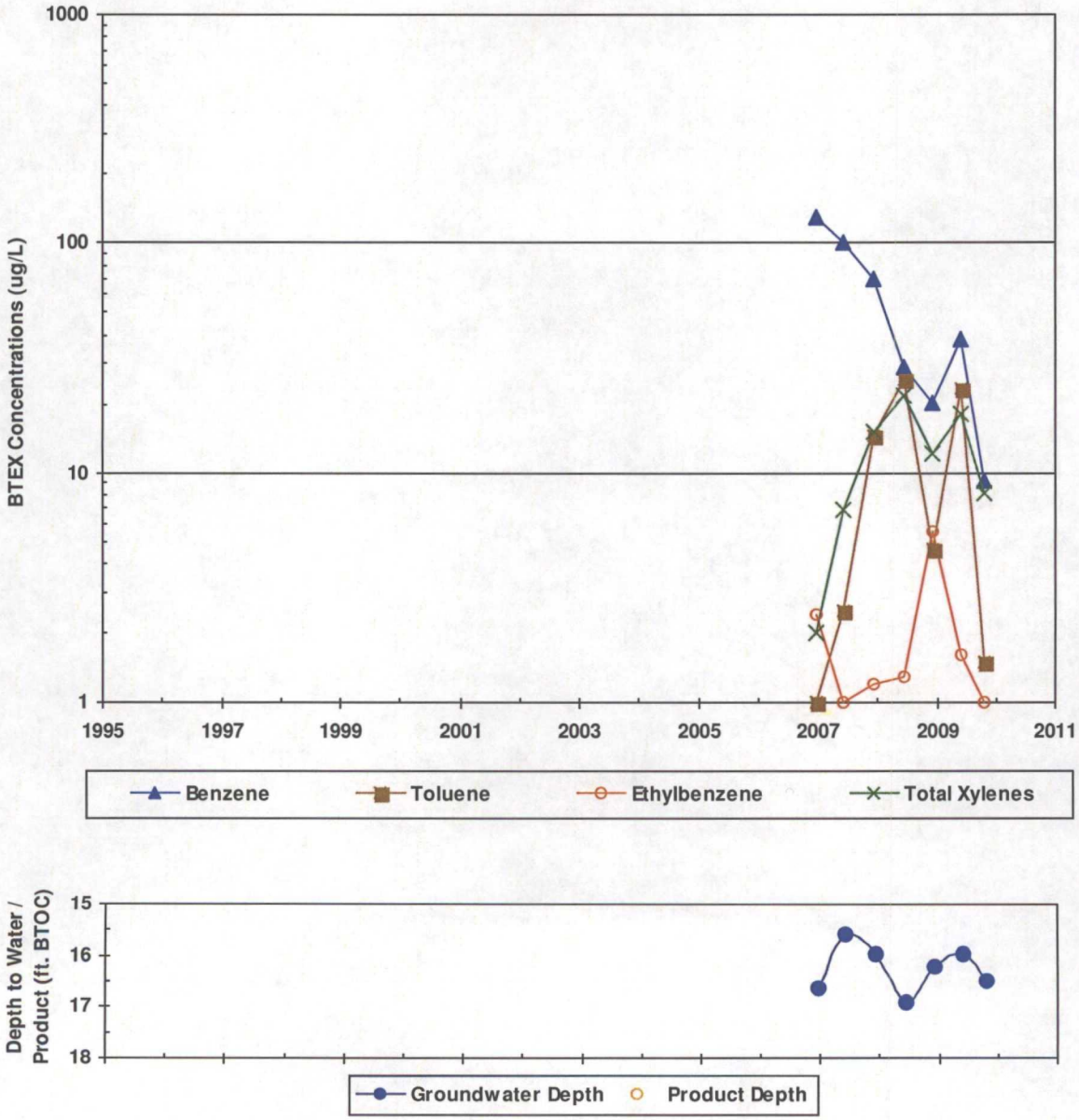

FIGURE 7
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
K-31 LINE DRIP (METER #LD087)
MW05

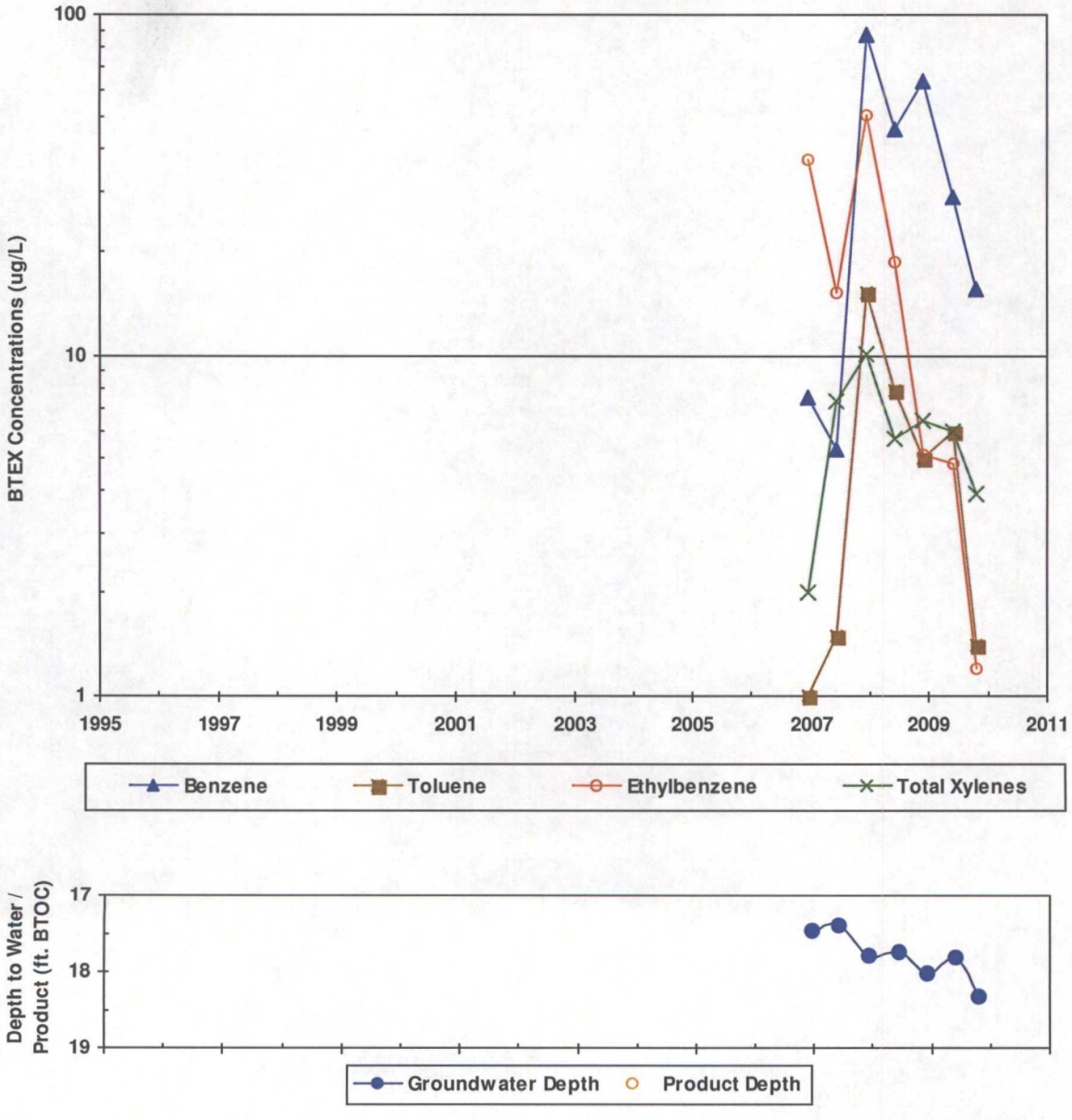

TABLE 1

SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
K-31 LINE DRIP (METER #LD087)

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	4/16/1997	**84.9**	25.7	43.6	206	15.00	6297.33
MW01	6/6/1997	**115**	<1.0	37.8	76.1	17.99	6294.34
MW01	9/11/1997	**259**	10.8	124	58.4	18.48	6293.85
MW01	12/9/1997	**201**	<1.0	71.5	25.8	18.09	6294.24
MW01	3/19/1998	**61.2**	<1.0	17.8	2.35	17.59	6294.74
MW01	6/2/1998	**98.3**	1.48	27.2	14.7	17.98	6294.35
MW01	6/14/1999	**65**	3.7	4.2	10	17.98	6294.35
MW01	6/27/2000	**29**	<0.5	3.5	12	18.10	6294.23
MW01	4/3/2001	5	1.4	1.1	4.1	17.79	6294.54
MW01	10/1/2001	3.3	1.1	0.8	5.6	18.94	6293.39
MW01	4/1/2002	<2.5	<2.5	<2.5	<5.0	18.05	6294.28
MW01	10/8/2002	0.6	<0.5	<0.5	1.3	18.86	6293.47
MW02	8/31/2000	**1800**	590	86	490	17.36	6293.71
MW02	4/3/2001	**340**	4	8.7	3.3	16.82	6294.25
MW02	10/1/2001	**190**	3.0	4.5	3.7	17.63	6293.44
MW02	4/1/2002	**230**	3.4	<2.5	<5.0	16.78	6294.29
MW02	10/8/2002	**104**	1.6	2.3	1.6	17.61	6293.45
MW02	3/13/2003	**254**	5.6	3.5	1.4	16.64	6294.43
MW02	9/15/2003	**125**	2.6	5.2	3	17.78	6293.29
MW02	3/22/2004	**176**	3.7	7.7	1.4	16.76	6294.31
MW02	9/14/2004	**32.2**	1.4	2.4	1.3J	17.21	6293.86
MW02	3/22/2005	**93.7**	0.56	4.2	<2.0	16.91	6294.16
MW02	6/24/2005	**322**	1.9	11.0	2.5	17.44	6293.63
MW02	9/14/2005	7.6	0.79JJ	0.78JJ	1.4JJ	17.92	6293.15
MW02	12/14/2005	6.3J	0.48JJ	0.68JJ	0.89JJ	17.46	6293.61
MW02	3/28/2006	**40.8**	0.68J	2.7	1.4J	17.02	6294.05
MW02	6/7/2006	**44.3**	<1.0	2.7	0.86J	17.47	6293.60
MW02	12/26/2006	**50.8**	<1.0	2.4	0.37J	16.90	6294.17
MW02	6/12/2007	**502**	2.3	4.7	5.0	16.83	6294.24
MW02	12/18/2007	10.2	<2.0	<2.0	<6.0	17.22	6293.85
MW02	6/16/2008	**123**	<1.0	<1.0	<2.0	17.15	6293.92
MW02	12/10/2008	1.8	<1.0	<1.0	0.64J	17.45	6293.62
MW02	6/10/2009	**34.7**	<1.0	<1.0	<2.0	17.22	6293.85
MW02	11/2/2009	0.51J	<1.0	<1.0	<2.0	17.76	6293.31

TABLE 1

SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
K-31 LINE DRIP (METER #LD087)

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**		
MW03	8/31/2000	<0.5	<0.5	<0.5	<0.5	17.69	6293.75
MW04	12/26/2006	**131**	<1.0	2.4	<2.0	16.64	6292.95
MW04	6/12/2007	**99.8**	2.5	<1.0	6.9	15.58	6294.01
MW04	12/18/2007	**70.1**	14.5	1.2J	15.0	15.97	6293.62
MW04	6/16/2008	**28.9**	25.8	1.3	21.6	16.92	6292.67
MW04	12/10/2008	**20.4**	4.6	5.5	12.1	16.22	6293.37
MW04	6/10/2009	**38.5**	23.2	1.6	18.3	15.97	6293.62
MW04	11/2/2009	9.3	1.5	<1.0	8.1	16.50	6293.09
MW05	12/26/2006	7.5	<1.0	37.3	<2.0	17.46	6294.00
MW05	6/12/2007	5.3	1.5	15.2	7.3	17.39	6294.07
MW05	12/18/2007	**87.0**	15.3	50.4	10.1	17.78	6293.68
MW05	6/16/2008	**45.7**	7.9	18.7	5.7	17.75	6293.71
MW05	12/10/2008	**63.5**	5	5.1	6.4	18.02	6293.44
MW05	6/10/2009	**29.0**	6.0	4.8	6.0	17.81	6293.65
MW05	11/2/2009	**15.5**	1.4	1.2	3.9	18.33	6293.13

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: K-31 | Well No: MW-2
Client: MWH | Date: 6/10/2009 | Time: 11:50
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 17.22 ft | Depth to Product: ft
Well Diameter: 2" | Total Depth: 23.4 ft | Product Thickness: ft
Water Column Height: 6.18 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
6.18 x .16	0.99 x 3		2.96 gal

Time (military)	pH (su)	SC (ms)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
11:55	6.90	8.23	54.1				0.25	yellow tint
	7.10	8.11	54.1				0.5	rust colored
	7.12	8.04	54.1				0.75	rust colored
	7.12	8.06	54.1				1	rust colored
	7.19	8.08	54.5				1.75	rust colored, silty
Final:	7.20	8.01	54.9				1.9	rust colored, silty

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: 12:10

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

Trip Blank: 100609TB01 | Duplicate Sample:

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

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: K-31 | Well No: MW-4
Client: MWH | Date: 6/10/2009 | Time: 12:15
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 15.97 ft | Depth to Product: ft
Well Diameter: 2" | Total Depth: 23.47 ft | Product Thickness: ft
Water Column Height: 7.5 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
7.5 x .16	1.20 x 3		3.6 gal

Time (military)	pH (su)	SC (ms)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
12:20	7.29	6.78	56.7				0.25	gray, silty
	7.31	6.68	56.3				0.5	gray, silty
	7.29	6.68	56.3				0.75	gray, silty
	7.29	6.77	56.1				1	gray, silty
	7.29	6.67	56.5				2	gray, silty
	7.32	6.64	56.3				3	gray, silty
	7.30	6.62	56.1				3.5	gray, silty
Final:	7.32	6.59	55.9				3.75	gray, silty

COMMENTS:

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

Water Disposal: Rio Vista

Sample ID: MW-4 | Sample Time: 12:34

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

Trip Blank: 100609TB01 | Duplicate Sample:

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

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: K-31 | Well No: MW-5
Client: MWH | Date: 6/10/2009 | Time: 12:47
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 17.81 ft | Depth to Product: ft
Well Diameter: 2" | Total Depth: 28.79 ft | Product Thickness: ft
Water Column Height: 10.98 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
10.98 x .16	1.78 x 3		5.27 gal

Time (military)	pH (su)	SC (ms)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
12:20	7.36	4.88	57.0				0.25	gray, silty
	7.41	4.84	57.2				0.5	gray, silty
	7.40	4.89	57.0				0.75	gray, silty
	7.42	4.86	57.0				1	gray, silty
	7.41	4.87	57.2				2	gray, silty
	7.43	4.84	57.0				3	gray, silty
	7.43	4.91	57.0				4	gray, silty
	7.44	4.95	57.0				5	gray, silty
	7.43	5.04	57.0				5.25	gray, silty
Final:	7.44	5.05	56.8				5.5	gray, silty

COMMENTS:

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

Water Disposal: Rio Vista

Sample ID: MW-5 | Sample Time: 13:11

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

Trip Blank: 100609TB01 | 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:** 06/10/2009
Project Manager: Ashley Ager
Client: MWH
Site Name: K-31

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	########	-	18.46	-	-	
MW-2		-	17.22	-	-	sample BTEX
MW-3		-	17.57	-	-	
MW-4		-	15.97	-	-	sample BTEX
MW-5		-	17.81	-	-	sample BTEX

Comments

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

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

WATER LEVEL DATA

Project Name: San Juan Basin Groundwater **Date:**
Project Manager: Ashley Ager
Client: MWH
Site Name: K-31

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-1	9:40 AM	-	18.82	-	-
MW-2		-	17.76	-	-
MW-3		-	17.86	-	-
MW-4		-	16.50	-	-
MW-5		-	18.33	-	-

Comments

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

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

WATER LEVEL DATA

11/02/2009

Comments
sample BTEX
sample BTEX
sample BTEX

Gulf Coast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

11/13/09

Technical Report for

Montgomery Watson

San Juan Basin Pit Groundwater Remediation

K-31/ WO94293

Accutest Job Number: T41575

Sampling Date: 11/02/09

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: **21**

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

Table of Contents

Sample Summary

Montgomery Watson

Job No: T41575

San Juan Basin Pit Groundwater Remediation
Project No: K-31/ WO94293

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
T41575-1	11/02/09	07:00	TU	11/05/09	AQ	Trip Blank Water	021109TB01
T41575-2	11/02/09	10:24	TU	11/05/09	AQ	Ground Water	K31 MW-2
T41575-3	11/02/09	10:41	TU	11/05/09	AQ	Ground Water	K31 MW-8
T41575-4	11/02/09	10:54	TU	11/05/09	AQ	Ground Water	K31 MW-4
T41575-5	11/02/09	11:45	TU	11/05/09	AQ	Ground Water	K31 MW-5

ACCUTEST Laboratories

2

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Montgomery Watson **Job No** T41575

Site: San Juan Basin Pit Groundwater Remediation **Report Date** 11/12/2009 4:38:57 PM

4 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were collected on 11/02/2009 and were received at Accutest on 11/05/2009 properly preserved, at 2.4 Deg. C and intact. These Samples received an Accutest job number of T41575. 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:** GKK1581

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T41699-6MS, T41699-6MSD were used as the QC samples indicated.

Matrix AQ **Batch ID:** GKK1582

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

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:	021109TB01		
Lab Sample ID:	T41575-1	Date Sampled:	11/02/09
Matrix:	AQ - Trip Blank Water	Date Received:	11/05/09
Method:	SW846 8021B	Percent Solids:	n/a
Project:	San Juan Basin Pit Groundwater Remediation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK033075.D	1	11/10/09	FI	n/a	n/a	GKK1581
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	92%		58-125%
98-08-8	aaa-Trifluorotoluene	113%		73-139%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	K31 MW-2		
Lab Sample ID:	T41575-2	Date Sampled:	11/02/09
Matrix:	AQ - Ground Water	Date Received:	11/05/09
Method:	SW846 8021B	Percent Solids:	n/a
Project:	San Juan Basin Pit Groundwater Remediation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK033090.D	1	11/10/09	FI	n/a	n/a	GKK1582
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.51	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	88%		58-125%
98-08-8	aaa-Trifluorotoluene	109%		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:	K31 MW-8		
Lab Sample ID:	T41575-3	Date Sampled:	11/02/09
Matrix:	AQ - Ground Water	Date Received:	11/05/09
Method:	SW846 8021B	Percent Solids:	n/a
Project:	San Juan Basin Pit Groundwater Remediation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK033091.D	1	11/10/09	FI	n/a	n/a	GKK1582
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	9.5	1.0	0.36	ug/l	
108-88-3	Toluene	1.5	1.0	0.28	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l	
1330-20-7	Xylenes (total)	8.6	2.0	0.93	ug/l	
95-47-6	o-Xylene	3.3	1.0	0.36	ug/l	
	m,p-Xylene	5.2	1.0	0.57	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	94%		58-125%
98-08-8	aaa-Trifluorotoluene	109%		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

3.4

Client Sample ID:	K31 MW-4		
Lab Sample ID:	T41575-4	Date Sampled:	11/02/09
Matrix:	AQ - Ground Water	Date Received:	11/05/09
Method:	SW846 8021B	Percent Solids:	n/a
Project:	San Juan Basin Pit Groundwater Remediation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK033092.D	1	11/11/09	FI	n/a	n/a	GKK1582
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	9.3	1.0	0.36	ug/l	
108-88-3	Toluene	1.5	1.0	0.28	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l	
1330-20-7	Xylenes (total)	8.1	2.0	0.93	ug/l	
95-47-6	o-Xylene	3.4	1.0	0.36	ug/l	
	m,p-Xylene	4.7	1.0	0.57	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	95%		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

Report of Analysis

Client Sample ID:	K31 MW-5		
Lab Sample ID:	T41575-5	Date Sampled:	11/02/09
Matrix:	AQ - Ground Water	Date Received:	11/05/09
Method:	SW846 8021B	Percent Solids:	n/a
Project:	San Juan Basin Pit Groundwater Remediation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK033093.D	1	11/11/09	FI	n/a	n/a	GKK1582
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	15.5	1.0	0.36	ug/l	
108-88-3	Toluene	1.4	1.0	0.28	ug/l	
100-41-4	Ethylbenzene	1.2	1.0	0.25	ug/l	
1330-20-7	Xylenes (total)	3.9	2.0	0.93	ug/l	
95-47-6	o-Xylene	1.5	1.0	0.36	ug/l	
	m,p-Xylene	2.3	1.0	0.57	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	88%		58-125%
98-08-8	aaa-Trifluorotoluene	112%		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 1164 | Bottle Order Control #
Accutest Quote # | Accutest Job # T41575

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 -K-31
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 #: W094293

Requested Analyses

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

Matrix Codes

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

Accutest Sample #	Field ID / Point of Collection	Collection Date	Collection Time	Matrix	# of bottles	Number of preserved bottles: HCl	H2SO4	HNO3	NaOH	ENCOR	NaHSO4	MEOH	NONE	BTEX (8021B) include m, p, & o-xylene	LAB USE ONLY
	021109 TB 01	~~02~~ 110209	0700	GW	2	X								X	
	K31 MW-2	110209	1024	GW	3	X								X	
	K31 MW-8	110209	1041	GW	3	X								X	
	K31 MW-4	110209	1054	GW	3	X								X	
	K31 MW-5	110209	1145	GW	3	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 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 11/4/09	1620	1	2 Fed Ex	11/5/09 900	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. 2.4

4.1.4

T41575: Chain of Custody
Page 1 of 3

SAMPLE INSPECTION FORM

Accutest Job Number: T41575 Client: MWH Date/Time Received: 11/5/09

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

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

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

Airbill Numbers: 8706-6705-1104

COOLER INFORMATION

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

CHAIN OF CUSTODY

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

SAMPLE INFORMATION

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

TRIP BLANK INFORMATION

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

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

Summary of Discrepancies:

TECHNICIAN SIGNATURE/DATE: TClauch 11/5/09

INFORMATION AND SAMPLE LABELING VERIFIED BY: EC 11-5-09

CORRECTIVE ACTIONS

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

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

Client Instructions:

4.1 4

SAMPLE RECEIPT LOG

JOB #: T41575 DATE/TIME RECEIVED: 11/5/09 9:00

CLIENT: MWH INITIALS: TC

COOLER#	SAMPLE ID	FIELD ID	DATE	MATRIX	VOL	BOTTLE #	LOCATION	PRESERV	PH
1	1	TRIP Blank	—	W	40mL	1-2	VR	1 (2) 3 4 5 6 7 8	<2 >12
↓	2	K31 MW-2	11/02/09 10:24	↓	↓	1-3	↓	1 (2) 3 4 5 6 7 8	<2 >12
	3	K31 MW-8	11/02/09 10:41					1 (2) 3 4 5 6 7 8	<2 >12
	4	K31 MW-4	11/02/09 10:54					1 (2) 3 4 5 6 7 8	<2 >12
	5	K31 MW-5	11/02/09 11:45	↓	↓	↓	↓	1 (2) 3 4 5 6 7 8	<2 >12

TC 11/5/09

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

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

Rev 8/13/01

T41575: Chain of Custody

Page 3 of 3

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: T41575
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1581-MB	KK033063.D	1	11/10/09	FI	n/a	n/a	GKK1581

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

T41575-1

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	91%	58-125%
98-08-8	aaa-Trifluorotoluene	113%	73-139%

Method Blank Summary

Job Number: T41575
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

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

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

T41575-2, T41575-3, T41575-4, T41575-5

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

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

Blank Spike Summary

Job Number: T41575
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1581-BS	KK033059.D	1	11/10/09	FI	n/a	n/a	GKK1581

5.2.1

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

T41575-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	21.8	109	86-121
100-41-4	Ethylbenzene	20	20.7	104	81-116
108-88-3	Toluene	20	20.9	105	87-117
1330-20-7	Xylenes (total)	60	62.4	104	85-115
95-47-6	o-Xylene	20	20.9	105	87-116
	m,p-Xylene	40	41.5	104	84-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	91%	58-125%
98-08-8	aaa-Trifluorotoluene	115%	73-139%

Blank Spike Summary

Job Number: T41575
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

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

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

T41575-2, T41575-3, T41575-4, T41575-5

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

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

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T41575
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T41699-6MS	KK033070.D	1	11/10/09	FI	n/a	n/a	GKK1581
T41699-6MSD	KK033071.D	1	11/10/09	FI	n/a	n/a	GKK1581
T41699-6	KK033068.D	1	11/10/09	FI	n/a	n/a	GKK1581

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

T41575-1

CAS No.	Compound	T41699-6 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		20	23.7	119	23.3	117	2	86-121/19
100-41-4	Ethylbenzene	ND		20	22.5	113	22.0	110	2	81-116/14
108-88-3	Toluene	ND		20	22.8	114	22.1	111	3	87-117/16
1330-20-7	Xylenes (total)	ND		60	66.9	112	65.7	110	2	85-115/12
95-47-6	o-Xylene	ND		20	22.2	111	21.8	109	2	87-116/16
	m,p-Xylene	ND		40	44.7	112	43.8	110	2	84-116/13

CAS No.	Surrogate Recoveries	MS	MSD	T41699-6	Limits
460-00-4	4-Bromofluorobenzene	94%	94%	95%	58-125%
98-08-8	aaa-Trifluorotoluene	119%	119%	118%	73-139%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T41575
Account: MWHCODE Montgomery Watson
Project: San Juan Basin Pit Groundwater Remediation

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

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

T41575-2, T41575-3, T41575-4, T41575-5

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

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

Gulf Coast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

06/16/09

Technical Report for

Montgomery Watson

San Juan Basin Pit Groundwater Remediation 2008-2009

Accutest Job Number: T30983

Sampling Date: 06/10/09

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: **16**

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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Accutest Laboratories

Sample Summary

Montgomery Watson

Job No: T30983

San Juan Basin Pit Groundwater Remediation 2008-2009

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
T30983-1	06/10/09	12:10	TU	06/11/09	AQ	Ground Water	K-31 MW-2
T30983-2	06/10/09	12:34	TU	06/11/09	AQ	Ground Water	K-31 MW-4
T30983-3	06/10/09	13:11	TU	06/11/09	AQ	Ground Water	K-31 MW-5

ACCUTEST Laboratories

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	Montgomery Watson	**Job No**	T30983
Site:	San Juan Basin Pit Groundwater Remediation 2008-2009	**Report Date**	6/15/2009 5:05:45 PM

3 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 06/10/2009 and were received at Accutest on 06/11/2009 properly preserved, at 3.1 Deg. C and intact. These Samples received an Accutest job number of T30983. 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:** GKK1503

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T30983-1MS, T30983-1MSD 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

3.1

Client Sample ID:	K-31 MW-2		
Lab Sample ID:	T30983-1	Date Sampled:	06/10/09
Matrix:	AQ - Ground Water	Date Received:	06/11/09
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	KK031270.D	1	06/12/09	FI	n/a	n/a	GKK1503
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	34.7	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	75%		58-125%
98-08-8	aaa-Trifluorotoluene	81%		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:	K-31 MW-4		
Lab Sample ID:	T30983-2	Date Sampled:	06/10/09
Matrix:	AQ - Ground Water	Date Received:	06/11/09
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	KK031271.D	1	06/12/09	FI	n/a	n/a	GKK1503
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	38.5	1.0	0.21	ug/l	
108-88-3	Toluene	23.2	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	1.6	1.0	0.35	ug/l	
1330-20-7	Xylenes (total)	18.3	2.0	0.55	ug/l	
95-47-6	o-Xylene	4.7	1.0	0.55	ug/l	
	m,p-Xylene	13.7	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	85%		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:	K-31 MW-5		
Lab Sample ID:	T30983-3	Date Sampled:	06/10/09
Matrix:	AQ - Ground Water	Date Received:	06/11/09
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	KK031272.D	1	06/12/09	FI	n/a	n/a	GKK1503
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	29.0	1.0	0.21	ug/l	
108-88-3	Toluene	6.0	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	4.8	1.0	0.35	ug/l	
1330-20-7	Xylenes (total)	6.0	2.0	0.55	ug/l	
95-47-6	o-Xylene	2.9	1.0	0.55	ug/l	
	m,p-Xylene	3.1	1.0	0.66	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	81%		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

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K-31

FEDEX Tracking # 8693 8850 8186 | Bottle Order Control # | Accutest Quote # | Accutest Job # T30983

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.: ~~Std Oil Com/K-31A~~ 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

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	HNO3	H2SO4	ENCORE	NaHSO4	MEOH	NONE	BTEX (8021B) include m,p, & o-xylene	LAB USE ONLY
	K-31 MW-2	061009	1210	GW	3	X								X	
	K-31 MW-4	061009	1234	GW	3	X								X	
	K-31 MW-5	061009	1311	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!!!

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	6/10/09 1410	1	2 Fed Ex	6/11/09 1000	2
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
			3	4		4
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable ☐	On Ice ☑ Cooler Temp. 3.1
			5			

T30983: Chain of Custody
Page 1 of 3

SAMPLE INSPECTION FORM

Accutest Job Number: T30983 Client: MWH Date/Time Received: 06/11/09 1000

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

Cooler Temps: #1: 3.1 #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: 06/11/09

INFORMATION AND SAMPLE LABELING VERIFIED BY: GC 6-11-9

CORRECTIVE ACTIONS

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

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

Client Instructions:

JOB #: T30983 DATE/TIME RECEIVED: 06/11/09 1000

CLIENT: MWH INITIALS: FF

COOLER#	SAMPLE ID	FIELD ID	DATE	MATRIX	VOL	BOTTLE #	LOCATION	PRESERV	PH
1	1	MW-2	06/ 1210	W	40ml	1-3	VR	1 2 3 4 5 6 7 8	<2 >12
"	2	MW-4	" 1234	"	"	"	"	1 2 3 4 5 6 7 8	<2 >12
"	3	MW-5	" 1311	"	"	"	"	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

FF 06/11/09

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

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

Rev 8/13/01 ewp

T30983: 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: T30983
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
GKK1503-MB	KK031268.D	1	06/12/09	FI	n/a	n/a	GKK1503

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

T30983-1, T30983-2, T30983-3

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	76%	58-125%
98-08-8	aaa-Trifluorotoluene	82%	73-139%

Blank Spike Summary

Job Number: T30983
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
GKK1503-BS	KK031264.D	1	06/12/09	FI	n/a	n/a	GKK1503

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

T30983-1, T30983-2, T30983-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	17.6	88	86-121
100-41-4	Ethylbenzene	20	17.6	88	81-116
108-88-3	Toluene	20	17.7	89	87-117
1330-20-7	Xylenes (total)	60	52.4	87	85-115
95-47-6	o-Xylene	20	17.6	88	87-116
	m,p-Xylene	40	34.8	87	84-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	81%	58-125%
98-08-8	aaa-Trifluorotoluene	85%	73-139%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T30983
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
T30983-1MS	KK031274.D	1	06/12/09	FI	n/a	n/a	GKK1503
T30983-1MSD	KK031275.D	1	06/12/09	FI	n/a	n/a	GKK1503
T30983-1	KK031270.D	1	06/12/09	FI	n/a	n/a	GKK1503

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

T30983-1, T30983-2, T30983-3

CAS No.	Compound	T30983-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	34.7		20	54.2	98	53.5	94	1	86-121/19
100-41-4	Ethylbenzene	ND		20	20.3	102	19.5	98	4	81-116/14
108-88-3	Toluene	ND		20	19.7	99	19.5	98	1	87-117/16
1330-20-7	Xylenes (total)	ND		60	60.6	101	57.8	96	5	85-115/12
95-47-6	o-Xylene	ND		20	19.9	100	19.1	96	4	87-116/16
	m,p-Xylene	ND		40	40.7	102	38.7	97	5	84-116/13

CAS No.	Surrogate Recoveries	MS	MSD	T30983-1	Limits
460-00-4	4-Bromofluorobenzene	83%	80%	75%	58-125%
98-08-8	aaa-Trifluorotoluene	87%	82%	81%	73-139%

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

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: K-31 | Well No: MW-2
Client: MWH | Date: 11/2/2009 | Time: 9:58
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 17.76 ft | Depth to Product: ft
Well Diameter: 2" | Total Depth: 23.46 ft | Product Thickness: ft
Water Column Height: 5.7 ft

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

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

Water Volume in Well			
Gal/ft x ft of water	Gallons	Ounces	Volume to be removed
5.7 x .16	0.9 x 3		2.7 gal

Time (military)	pH (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
10:05	7.03	8.19	55.9				0.25	clear
	7.07	8.17	55.8				0.5	tan, silty
	7.07	8.18	55.9				0.75	tan, silty
	7.10	8.18	55.9				1	tan, silty, bailing down
Final: 10:30	**7.19**	**8.18**	**55.4**				**1.4**	**tan, silty, 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: 10:24

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

Trip Blank: 110209TB01 | Duplicate Sample:

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

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: K-31 | Well No: MW-4
Client: MWH | Date: 11/2/2009 | Time: 10:32
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 16.5 ft | Depth to Product: ft
Well Diameter: 2" | Total Depth: 23.47 ft | Product Thickness: ft
Water Column Height: 6.97 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
6.95 x .16	1.11 x 3		3.37 gal

Time (military)	pH (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
10:40	7.32	6.15	58.5				0.25	light gray
	7.36	6.25	58.8				0.5	dark gray, silty
	7.37	6.27	58.8				0.75	dark gray, silty
	7.37	6.24	58.5				1	dark gray, silty
	7.37	6.32	58.6				2	dark gray, silty
	7.37	6.30	58.8				3	dark gray, silty
	7.37	6.26	58.6				3.25	dark gray, silty, bailing dry
Final:	7.36	6.30	58.8				3.5	dark gray, silty

COMMENTS:

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

Water Disposal: Rio Vista

Sample ID: MW-4 | Sample Time: 10:41

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

Trip Blank: 110209TB01 | Duplicate Sample: MW-8 @ 10:41

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

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: K-31 | Well No: MW-5
Client: MWH | Date: 11/2/2009 | Time: 11:12
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 18.33 ft | Depth to Product: ft
Well Diameter: 2" | Total Depth: 28.79 ft | Product Thickness: ft
Water Column Height: 10.46 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
10.46 x .16	1.67 x 3		5.02 gal

Time (military)	pH (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
11:17	7.41	4.64	59.7				0.25	dark gray, HC odor
	7.33	4.59	59.9				0.5	dark gray, HC odor
	7.50	5.01	58.8				0.75	dark gray, HC odor
	7.47	4.99	58.5				1	dark gray, HC odor
	7.45	5.05	59.4				2	dark gray, HC odor
	7.49	5.01	59.0				3	dark gray, HC odor
	7.51	4.99	58.6				4	dark gray, HC odor
	7.51	5.04	58.5				4.75	dark gray, silty
	7.51	5.17	58.5				5	dark gray, silty
Final:	7.52	5.21	58.8				5.25	dark gray, silty

COMMENTS:

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

Water Disposal: Rio Vista

Sample ID: MW-5 | Sample Time: 11:45

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

Trip Blank: 110209TB01 | Duplicate Sample: