3R - 179

AGWMR

2009

elpaso

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

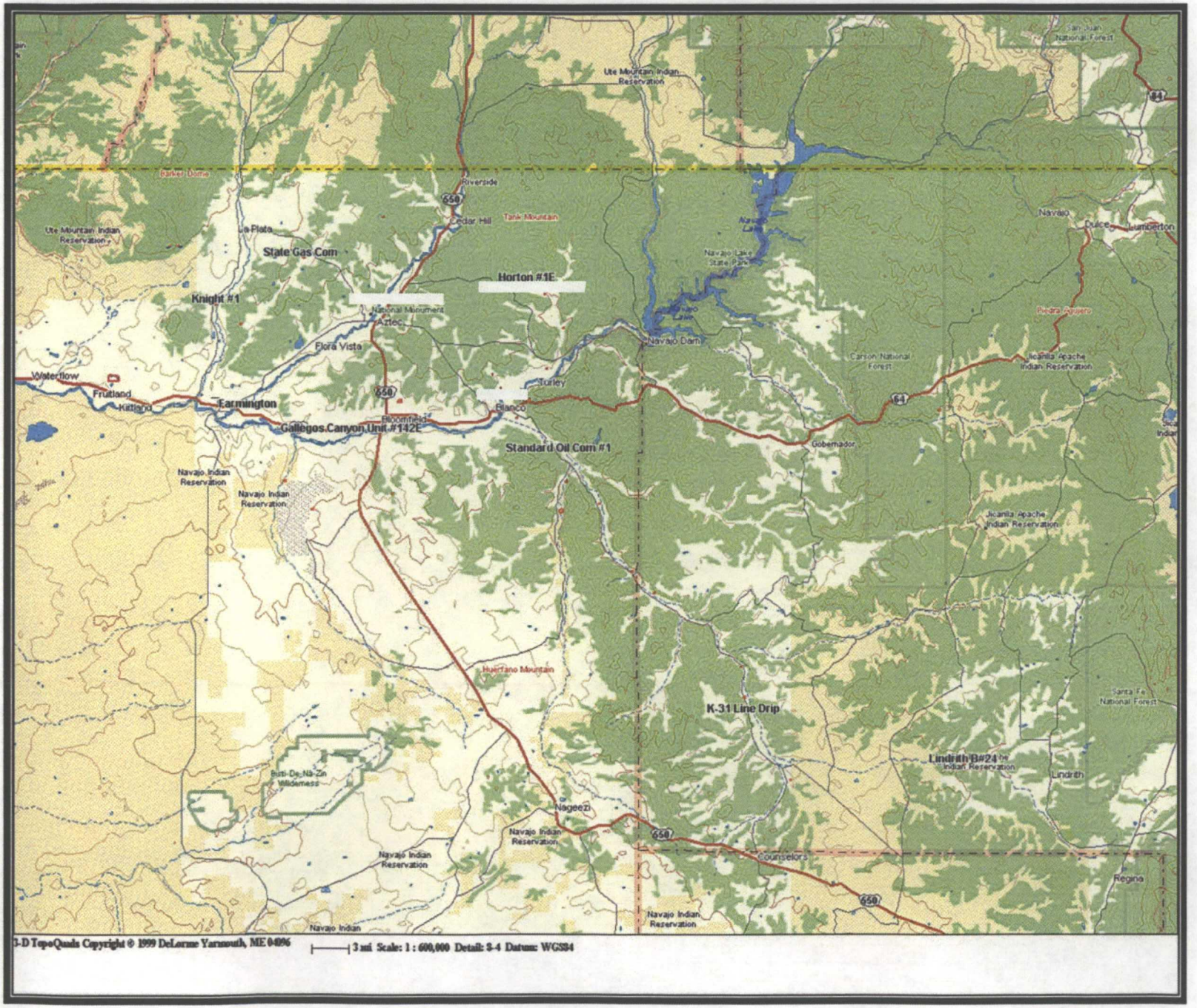
*The Lindrith B#24 site was submitted for closure in 2006 and is pending approval from NMOCD. There were no monitoring activities for this site in 2009.

elpaso 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



3R 179

EPTPC GROUNDWATER SITES
2009 ANNUAL GROUNDWATER REPORT

GCU Com A #142E
Meter Code: 03906

SITE DETAILS

Legal Description:		**Town:**	29N	**Range:**	12W	**Sec:** 25	**Unit:** G
NMOCD Haz Ranking:	10	**Land Type:**	Fee	**Operator:**	BP / Amoco Production Company		

PREVIOUS ACTIVITIES

Site Assessment:	4/94	**Excavation:**	4/94 (20 cy)	**Soil Boring:**	10/95
Monitor Well:	2/97	**Geoprobe:**	12/96	**Additional MWs:**	1/06
Downgradient MWs:	12/01	**Replace MW:**	NA	**Quarterly Initiated:**	8/97
ORC Nutrient Injection:	NA	**Re-Excavation:**	10/96 (882 cy)	**PSH Removal Initiated:**	6/09
Annual Initiated:	5/98	**Quarterly Resumed:**	NA	**PSH Removal in 2009?**	Yes

SUMMARY OF 2009 ACTIVITIES

MW-1: Semiannual groundwater sampling (June and December) was performed in 2009.

MW-2: Annual groundwater sampling (December) and product recovery was performed in 2009.

TMW-1: Annual groundwater sampling (December) was performed in 2009.

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

SITE MAPS

Site map (June and December) are attached as Figures 1 and 2.

SUMMARY TABLES AND GRAPHS

- Historic analytical and water level data are summarized in Table 1 and presented graphically in Figures 3 through 5.
- Historic free-product recovery data are summarized in Table 2 and presented graphically in Figure 4.
- The 2009 laboratory reports are presented in Attachment 1 (included on CD).
- The 2009 field documentation is presented in Attachment 2 (included on CD).

EPTPC GROUNDWATER SITES
2009 ANNUAL GROUNDWATER REPORT

GCU Com A #142E
Meter Code: 03906

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 map presents the analytical data collected during 2009.

RESULTS

- The groundwater flow direction generally trends to the south-southeast.

- In the two samples collected at MW-1, the benzene concentration ranged from 35.3 µg/L to 597 µg/L, with both results exceeding the NMWQCC standard of 10 µg/L. The remaining BTEX constituents were either were detected at levels below their espective standards. BTEX concentrations in this well have attenuated significantly from their 1997 highs (e.g., benzene at 4,010 µg/L).

- Upon finding measurable product in MW-2 during the June 2009 monitoring event, an oil-absorbing sock was placed in the well and groundwater sample collection was delayed. The sock was pulled in December prior to a site-wide groundwater sampling event, and with only partial saturation, the total recovered volume was 0.04 gallons. Bailing of the well during the subsequent sample collection activities recovered approximately 0.02 gallons of additional free oil.

- In the sample collected at MW-2, the concentrations of benzene (6,660 µg/L), toluene (6,750 µg/L), ethylbenzene (764 µg/L), and total xylenes (6,210 µg/L) all exceeded their respective NMWQCC standards. These results are similar to previous data from 2001 and 2004 and appear related to the increased oil saturation near the well.

- Temporary well TMW-01 was installed in January 2006 in order to determine the site hydraulic gradient. The December 2009 sample from TMW-1 was the first groundwater sample collected from this well. The concentrations of benzene (3,660 µg/L), toluene (1,550 µg/L), and total xylenes (4,110 µg/L) all exceeded their respective NMWQCC standards.

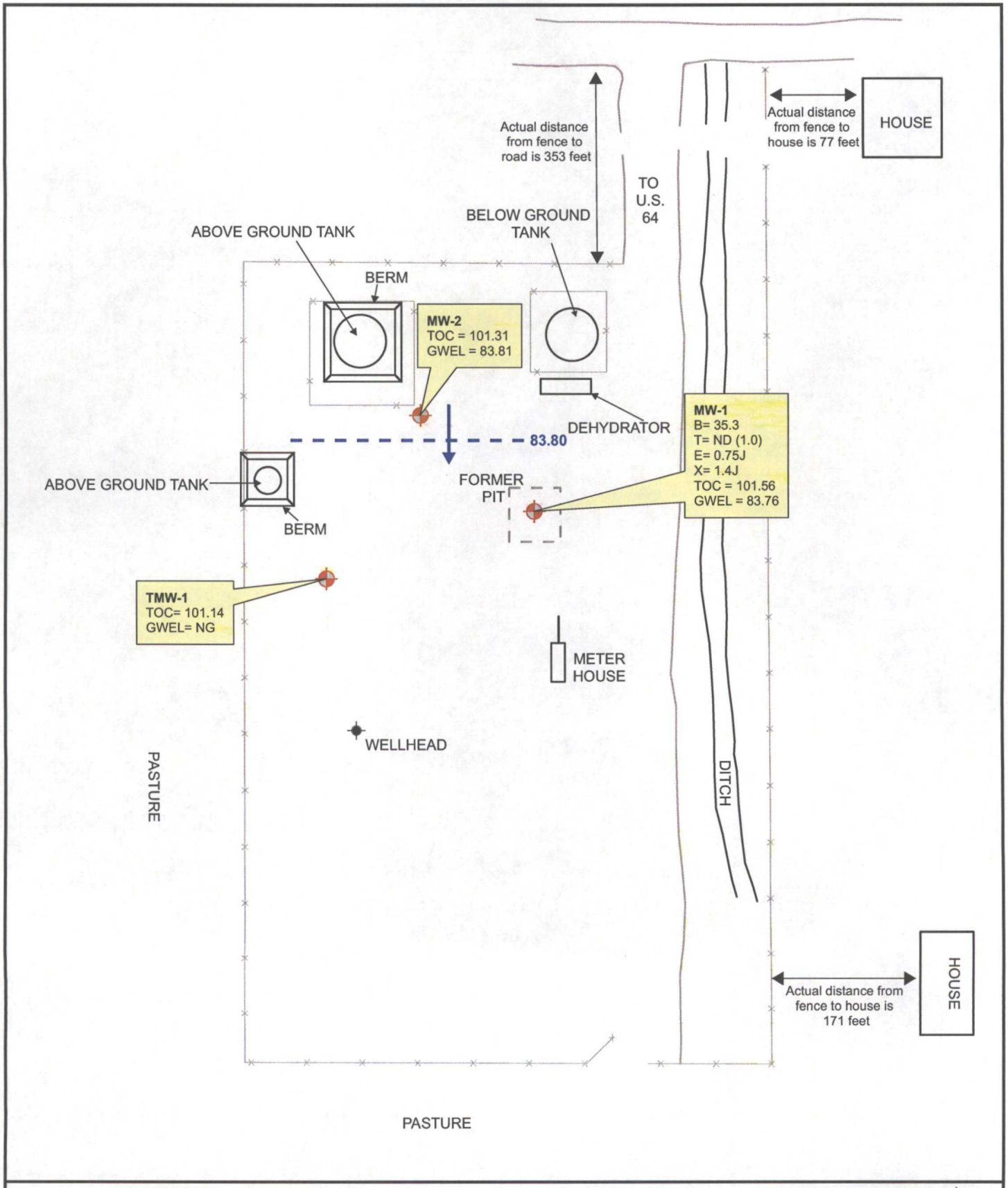
RECOMMENDATIONS

- EPTPC recommends that MW-1 continue to be sampled annually. Annual sampling will continue until BTEX concentrations approach NMWQCC standards, at which time quarterly sampling will be initiated.

- EPTPC recommends that product recovery continue at MW-2, which is located adjacent to production equipment. This well will continue to be sampled annually.

- EPTPC recommends that temporary monitor well TMW-1 be sampled annually in conjunction with the activities at MW-1 and MW-2.

- EPTPC will further evaluate this site for a potential third party source, as the impacts in MW-2 and TMW-1 are either upgradient or crossgradient of the former El Paso pit. Free-product has not been measured before in MW-2, even when the static water table was at comparable elevations.



LEGEND

MW-4	Existing Monitoring / Observation Well
PZ-01	Abandoned Monitoring Well
	Groundwater Flow Direction
86	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.

NG Not Gauged

N

0 10 20 40 Feet

MWH

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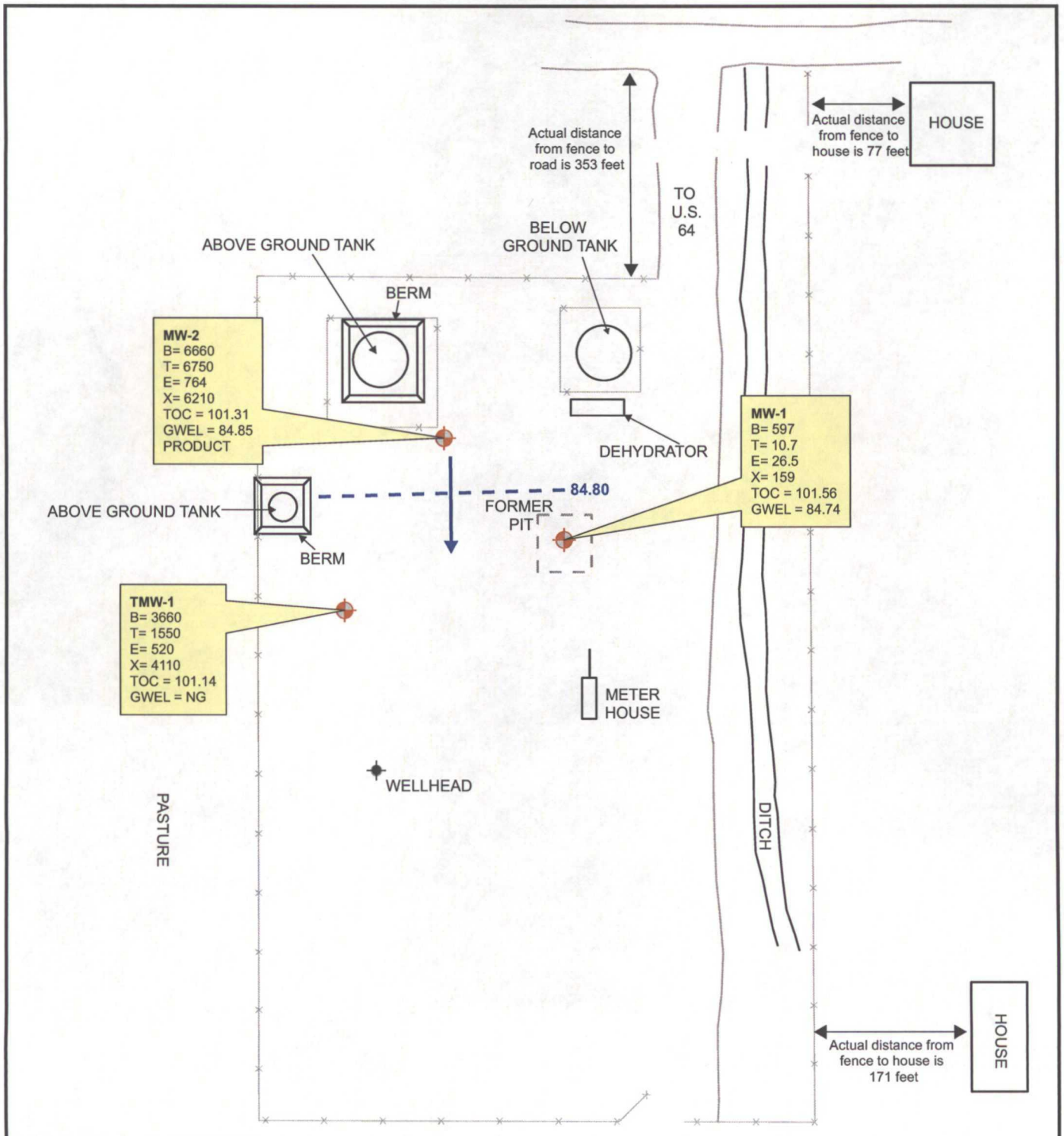
PROJECT: GALLEGOS #142E

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

FIGURE: 1



Product Removed (Gallons)	12/23/09	12/30/09
MW-2	0.02	0.04

LEGEND

- MW-4 — Existing Monitoring / Observation Well
- PZ-01 — Abandoned Monitoring Well
- Groundwater Flow Direction
- 86 — 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.

NG Not Gauged

0 10 20 40 Feet

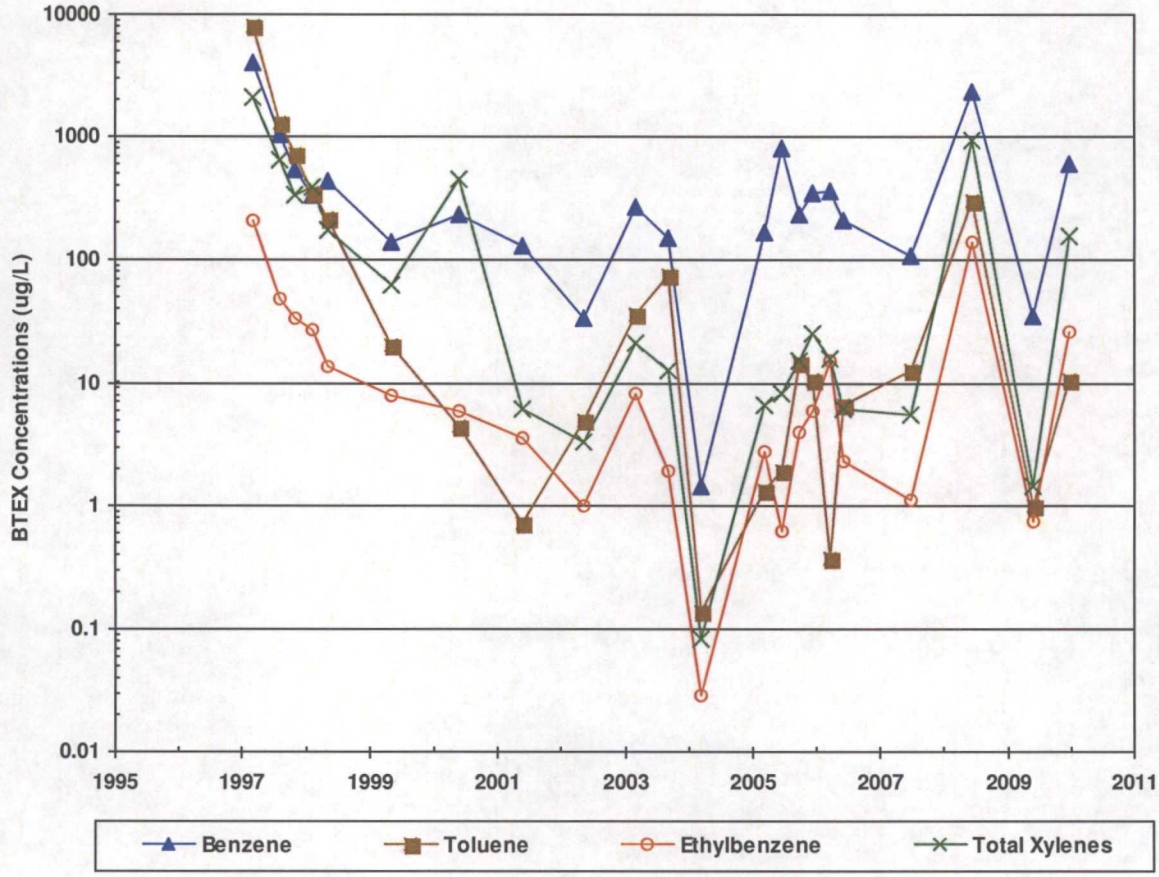
MWH elpaso

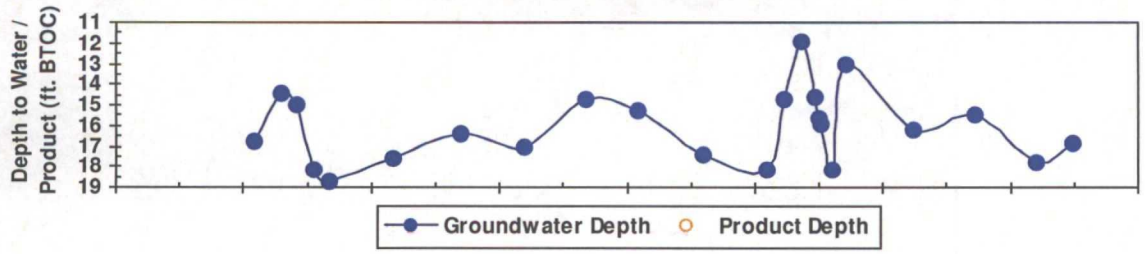
PROJECT: GALLEGOS #142E

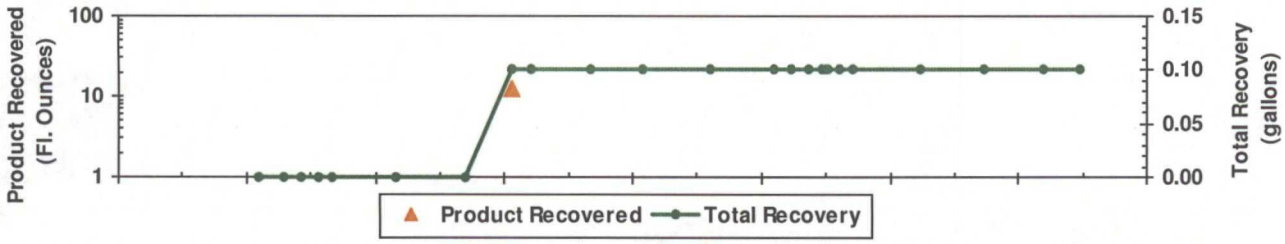
TITLE: Groundwater Potentiometric Surface Map, and BTEX Concentrations - December 30, 2009

FIGURE: 2

FIGURE 3
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY
GCU COM A #142E (METER #03906)
MW01

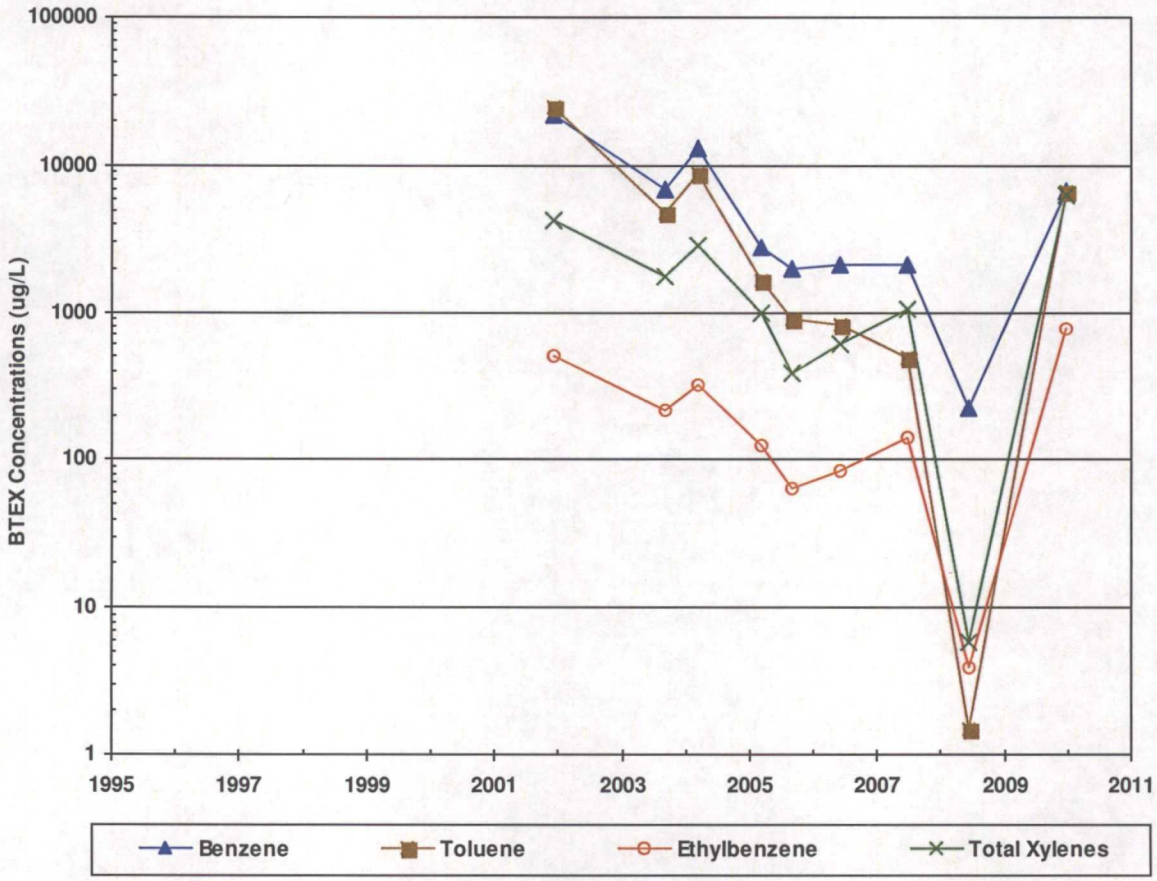


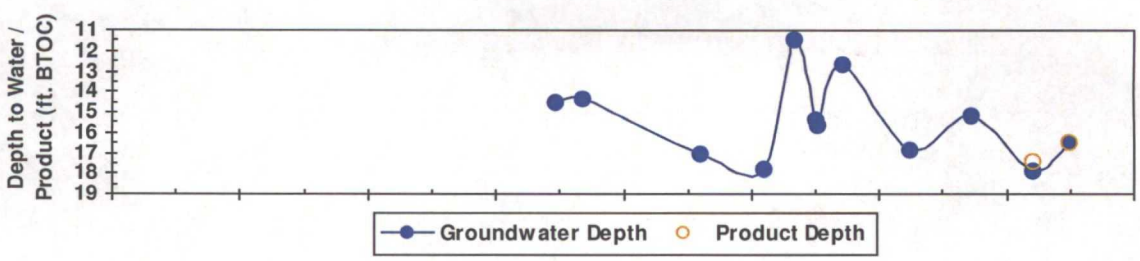


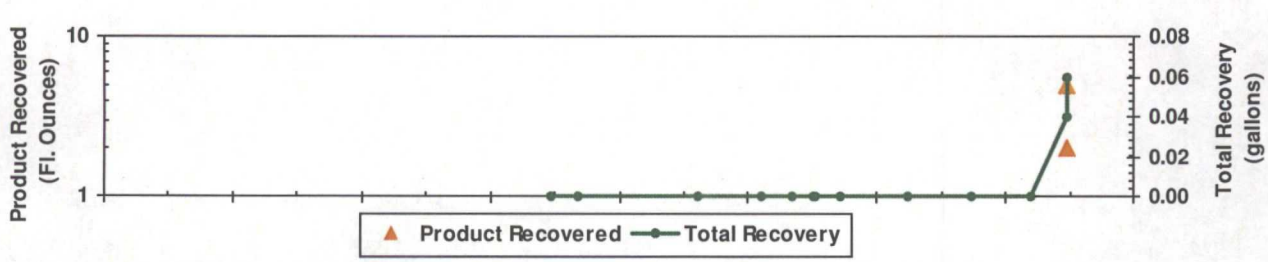


**In some cases, older recovery event data are not available. However, the cumulative totals still include all historic recovery.*

FIGURE 4
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY
GCU COM A #142E (METER #03906)
MW02







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

FIGURE 5
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
GCU COM A #142E (METER #03906)
TMW01

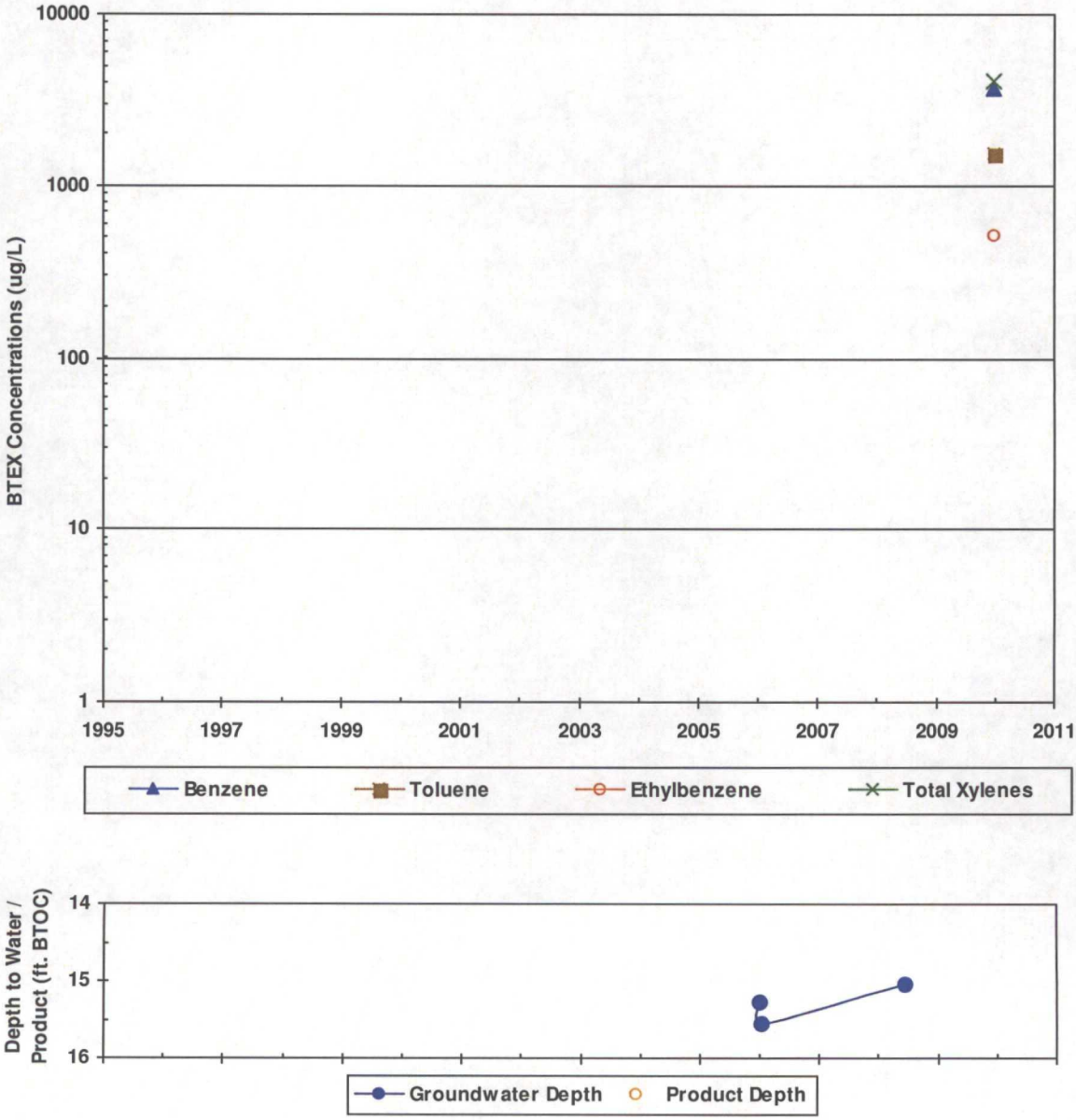


TABLE 1

SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
GCU COM A #142E (METER #03906)

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	3/10/1997	**4010**	**7960**	213	**2050**	16.78	84.78
MW01	8/6/1997	**1040**	**1310**	49.4	**647**	14.46	87.10
MW01	11/5/1997	**543**	719	33.9	342	15.02	86.54
MW01	2/13/1998	**343**	354	27.6	394	18.18	83.38
MW01	5/6/1998	**429**	216	13.6	176	18.69	82.87
MW01	5/4/1999	**143**	20.4	7.78	63.3	17.61	83.95
MW01	5/25/2000	**230**	4.4	6	450	16.44	85.12
MW01	6/1/2001	**130**	0.7	3.5	6.1	17.08	84.48
MW01	5/14/2002	**34**	4.9	1.0	3.3	14.70	86.86
MW01	3/7/2003	**270**	36.8	8.3	21.1	15.31	86.24
MW01	3/22/2004	1.4	<0.1	<0.0	<0.1	17.38	84.18
MW01	3/17/2005	**169**	1.3	2.7	6.6	18.15	83.41
MW01	6/23/2005	**810**	1.9	0.62	8.1	14.72	86.84
MW01	9/26/2005	**232**	14.9	4.0	15.1	11.95	89.61
MW01	12/14/2005	**354**	10.6	5.9	25.6	14.67	86.89
MW01	3/28/2006	**362**	0.37J	15.0	15.7	18.16	83.40
MW01	6/14/2006	**210**	6.5	2.3	6.1	13.08	88.48
MW01	6/28/2007	**109**	12.6	1.1	5.5	16.18	85.38
MW01	6/23/2008	**2320**	305	140	**934**	15.45	86.11
MW01	6/2/2009	**35.3**	<1.0	0.75J	1.4J	17.80	83.76
MW01	12/30/2009	**597**	10.7	26.5	159	16.82	84.74
MW02	12/13/2001	**22000**	**25000**	500	**4300**	14.52	86.79
MW02	3/22/2004	**13000**	**8880**	321	**2850**	17.06	84.25
MW02	3/17/2005	**2800**	**1640**	125	**978**	17.83	83.48
MW02	9/14/2005	**1980**	**915**	63.8	391	11.45	89.86
MW02	6/14/2006	**2140**	**811**	83.5	610	12.64	88.67
MW02	6/28/2007	**2100**	492	140	**1050**	16.86	84.45
MW02	6/23/2008	**221**	1.5J	3.9	5.8	15.15	86.16
MW02	12/30/2009	**6660**	**6750**	**764**	**6210**	16.48	84.85
TMW01	12/30/2009	**3660**	**1550**	520	**4110**	NA	NA

Notes:

Results shown in bold typeface exceed their respective New Mexico Water Quality Control Commission standards.

"J" = result is qualified as estimated. See laboratory report and/or supplemental data validation report for further detail.
"<" = analyte was not detected at the indicated reporting limit.
Static groundwater elevations have been corrected for product thickness where applicable. Specific gravity of 0.8 used.

TABLE 2

SUMMARY OF FREE-PRODUCT REMOVAL
GCU COM A #142E (METER #03906)

Monitor Well	Removal Date	Depth to Product (ft BTOC)	Depth to Water (ft BTOC)	Product Thickness (feet)	Volume Removed (gallons)	Cumulative Removal (gallons)	Corrected GW Elevation (Feet*)
MW01	2/20/2001	NA	NA	NA	0.10	0.10	NA
MW02	6/2/2009	17.42	17.84	0.42	--	0.00	83.81
MW02	12/23/2009	NA	NA	NA	0.04	0.04	NA
MW02	12/30/2009	16.45	16.48	0.03	0.02	0.06	84.85

Notes:

"--" indicates either that product was not measurably detected or that product was not recovered.

"NA" indicates that the respective data point is not available.

Groundwater elevations may not be static due to removal of equipment. Corrections for product thickness utilize SG of 0.8.

*This site has a benchmark elevation of 100 feet rather than mean sea level.

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

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: GCU #142E | Well No: MW-1
Client: MWH | Date: 12/30/2009 | Time: 14:28
Project Manager: Ashley Ager | Sampler's Name: Ashley Ager

Measuring Point: TOC | Depth to Water: 16.82 ft | Depth to Product: ft
Well Diameter: 4" | Total Depth: 21.65 ft | Product Thickness: ft
Water Column Height: 4.83 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
4.83 x .65	3.14 x 3		9.5 gal

Time (military)	pH (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
14:28	6.62	1352	13.2				1	clear, black precipiate
	6.53	1286	13.1				2	light gray, black precipitate
	6.79	1269	13.6				3	black
	6.83	1260	13.1				4	black, bailing down
	6.76	1285	13.5				5	
	6.82	1285	13.4				6.5	black ppt
	6.86	1289	13.7				7.5	
	6.87	1280	13.6				8.8	clear, black precipitate
Final:	6.86	1285	13.6				10	clear, black precipitate

COMMENTS:

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

Water Disposal: Rio Vista

Sample ID: MW-1 | Sample Time: 15:03

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

Trip Blank: 123009AA01 | Duplicate Sample:

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental Inc.
PO Box 4465
Durango, Colorado 81302
T 970.946.1093

WATER LEVEL DATA

Project Name: San Juan Basin Groundwater **Date:** 01/25/2010
Project Manager: Ashley Ager
Client: MWH
Site Name: GCU #142E

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	10:42 AM	-	17.61	-	-	
MW-2		17.27	17.45	0.18	-	installed PR sock (well has not contained PR sock since 12/23/09)
PW-3		-	17.23	-	-	

Comments
Product in MW-2 is clear.

Signature: *Ashley L. Ager* Date: 12/25/2010

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: GCU #142E

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	########	-	17.80	-	-	
MW-2		17.42	17.84	0.42	-	installed 2" oil absorbant sock

Comments
Operator: BP
site map is accurate.

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

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

WATER LEVEL DATA

Project Name: San Juan Basin Groundwater **Date:** 12/30/2009
Project Manager: Ashley Ager
Client: MWH
Site Name: GCU #142E

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	2:02 PM	-	16.82	-	-	Sample for BTEX
MW-2		16.45	16.48	0.03	-	removed 3.5 gallons of water and ~2 oz of product. Sample for BTEX. Did not measure parameters due to presence of product
PW-3						Sample for BTEX. Well diameter too small for oil-water interface probe.

Comments
Product in MW-2 is clear.
Will return next week to install absorbent sock and collect water level from PW-3.

Signature: *Ashley L. Ager* Date: 12/31/2009

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

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: GCU #142E | Well No: MW-1
Client: MWH | Date: 6/2/2009 | Time: 11:25
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 17.8 ft | Depth to Product: ft
Well Diameter: 4" | Total Depth: 21.65 ft | Product Thickness: ft
Water Column Height: 3.85 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
3.85 x .65	2.50 x 3		7.51 gal

Time (military)	pH (su)	SC (us)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
11:31	6.82	995	59.1				1.1	clear, black precipiate
	6.79	985	58.5				2	light gray, black precipitate
	6.85	996	58.6				3	black
	6.97	1008	58.6				3.6	black, bailing down
Final:	7.21	938	59.7				5.2	black, well 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-1 Sample Time: 11:58

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

Trip Blank: 020609TB01 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: GCU #142E | Well No: PW-3
Client: MWH | Date: 12/30/2009 | Time: 14:35
Project Manager: Ashley Ager | Sampler's Name: Ashley Ager

Measuring Point: TOC | Depth to Water: NA ft | Depth to Product: ft
Well Diameter: 2" | Total Depth: NA ft | Product Thickness: ft
Water Column Height: NA 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
			gal

Time (military)	pH (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. oz	Comments/Flow Rate
14:38	6.75	1485	13.2				10	gray, heavy sheen, strong HC odor
	6.78	1425	13.0				20	gray, heavy sheen
	6.72	1435	13.4				25	black, bailing down
	6.70	1430	13.4				32	black, bailing down
	6.70	1430	13.4				35	
14:52	6.71	1432	13.4				40	dry
Final: 15:05	6.7	1430	13.8				42	clear, black precipitate

COMMENTS: Well bailed dry during purging. Water level indicator too big for small diameter well.

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

Water Disposal: Rio Vista

Sample ID: PW-3 | Sample Time: 15:03

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

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

Trip Blank: 123089AA01 Duplicate Sample: _____

WELL DEVELOPMENT AND SAMPLING LOG

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

Site Visit Memo

To: Jed Smith

From: Ashley Ager

CC: File

Date: December 31, 2009

Re: GCU 142 Site Visit

12/23/09
10:28, Pulled absorbent sock from MW-2 for static water levels. Removed approximately 5 oz of product.

Gulf Coast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

06/16/09

Technical Report for

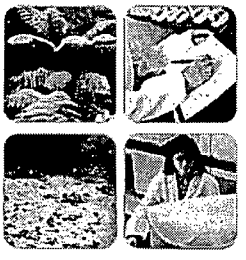
Montgomery Watson

San Juan Basin Pit Groundwater Remediation 2008-2009

JF BELL/GCU142

Accutest Job Number: T30413

Sampling Dates: 06/02/09 - 06/03/09



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; ala@lodestarservices.com
ATTN: Jed Smith

Total number of pages in report: **23**

ACCUTEST LABORATORIES 50 YEARS 1956-2006

ACCREDITED IN ACCORDANCE WITH nelac

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

Paul K Canevaro

Paul Canevaro
Laboratory Director

Client Service contact: Georgia Jones 713-271-4700

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

Test results relate only to samples analyzed.

Sections: 1 2 3 4 5

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Accutest Laboratories

Sample Summary

Montgomery Watson

Job No: T30413

San Juan Basin Pit Groundwater Remediation 2008-2009
Project No: JF BELL/GCU142

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
T30413-1	06/02/09	06:55	TU	06/04/09	AQ	Trip Blank Water	D20609TB01
T30413-2	06/02/09	11:58	TU	06/04/09	AQ	Ground Water	GCU142E MW-1
T30413-3	06/03/09	09:40	TU	06/04/09	AQ	Ground Water	JF BELL MW-1
T30413-4	06/03/09	10:05	TU	06/04/09	AQ	Ground Water	JF BELL MW-6
T30413-5	06/03/09	10:25	TU	06/04/09	AQ	Ground Water	JF BELL MW-2
T30413-6	06/03/09	11:18	TU	06/04/09	AQ	Ground Water	JF BELL MW-3

ACCUTEST Laboratories

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	Montgomery Watson	**Job No**	T30413
Site:	San Juan Basin Pit Groundwater Remediation 2008-2009	**Report Date**	6/12/2009 4:58:02 PM

5 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were collected on between 06/02/2009 and 06/03/2009 and were received at Accutest on 06/04/2009 properly preserved, at 2.8 Deg. C and intact. These Samples received an Accutest job number of T30413. 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:** GKK1500

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T30595-1MS, T30595-1MSD were used as the QC samples indicated.
- Sample(s) T30744-1MS, T30744-1MSD have surrogates outside control limits. Probable cause due to matrix interference.

Matrix AQ **Batch ID:** GKK1501

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T30744-1MS, T30744-1MSD were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Ethylbenzene, Toluene are outside control limits. Probable cause due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for Toluene are outside control limits. Probable cause due to matrix interference.
- Sample(s) T30744-1MS, T30744-1MSD have surrogates 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

Report of Analysis

Client Sample ID:	D20609TB01		
Lab Sample ID:	T30413-1	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	KK031208.D	1	06/09/09	FI	n/a	n/a	GKK1500
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	78%		58-125%
98-08-8	aaa-Trifluorotoluene	86%		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:	GCU142E MW-1		
Lab Sample ID:	T30413-2	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	KK031217.D	1	06/09/09	FI	n/a	n/a	GKK1500
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	35.3	1.0	0.21	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	0.75	1.0	0.35	ug/l	J
1330-20-7	Xylenes (total)	1.4	2.0	0.55	ug/l	J
95-47-6	o-Xylene	0.67	1.0	0.55	ug/l	J
	m,p-Xylene	0.68	1.0	0.66	ug/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	78%		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

Report of Analysis

Client Sample ID:	JF BELL MW-1		
Lab Sample ID:	T30413-3	Date Sampled:	06/03/09
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	KK031221.D	250	06/09/09	FI	n/a	n/a	GKK1500
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	7120	250	52	ug/l	
108-88-3	Toluene	25200	250	56	ug/l	
100-41-4	Ethylbenzene	1270	250	87	ug/l	
1330-20-7	Xylenes (total)	13800	500	140	ug/l	
95-47-6	o-Xylene	3040	250	140	ug/l	
	m,p-Xylene	10700	250	170	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	83%		58-125%
98-08-8	aaa-Trifluorotoluene	89%		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:	JF BELL MW-6		
Lab Sample ID:	T30413-4	Date Sampled:	06/03/09
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	KK031218.D	1	06/09/09	FI	n/a	n/a	GKK1500
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	0.45	1.0	0.21	ug/l	J
108-88-3	Toluene	2.1	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.35	ug/l	
1330-20-7	Xylenes (total)	1.5	2.0	0.55	ug/l	J
95-47-6	o-Xylene	ND	1.0	0.55	ug/l	
	m,p-Xylene	1.5	1.0	0.66	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	82%		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

Report of Analysis

Client Sample ID:	JF BELL MW-2		
Lab Sample ID:	T30413-5	Date Sampled:	06/03/09
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	KK031219.D	1	06/09/09	FI	n/a	n/a	GKK1500
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	0.30	1.0	0.21	ug/l	J
108-88-3	Toluene	1.1	1.0	0.23	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.35	ug/l	
1330-20-7	Xylenes (total)	0.84	2.0	0.55	ug/l	J
95-47-6	o-Xylene	ND	1.0	0.55	ug/l	
	m,p-Xylene	0.84	1.0	0.66	ug/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	79%		58-125%
98-08-8	aaa-Trifluorotoluene	86%		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:	JF BELL MW-3		
Lab Sample ID:	T30413-6	Date Sampled:	06/03/09
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	KK031253.D	25	06/10/09	FI	n/a	n/a	GKK1501
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	549	25	5.2	ug/l	
108-88-3	Toluene	ND	25	5.6	ug/l	
100-41-4	Ethylbenzene	750	25	8.7	ug/l	
1330-20-7	Xylenes (total)	7320	50	14	ug/l	
95-47-6	o-Xylene	43.7	25	14	ug/l	
	m,p-Xylene	7280	25	17	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	88%		58-125%
98-08-8	aaa-Trifluorotoluene	92%		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 2

FED-EX Tracking # 8693 8850 8197 | Bottle Order Control #

Accutest Quote # | Accutest Job # T30413

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.: JFBell / GCU142 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- Ground Rem-007

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	Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH	ZnAc	H2SO4	NaHSO4	MeOH	NONE	BTEX (8021B) Include m,p, & o-xylene	LAB USE ONLY
1	D20609TB ✓1	060209	0655	GW	2	X							X	
2	GCU142E MW-1	060209	1158	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 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	6/3/09 1640	1	2	6/4/09 9:15	
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. 2.8 °C

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T30413: Chain of Custody
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CHAIN OF CUSTODY

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

FED-EX Tracking # 8693 8850 8197 | Bottle Order Control # | Accutest Quote # | Accutest Job #

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.: JF Bell / GC1142
EPTPC San Juan Basin Plt 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-ALMB-Ground Rem-007

Requested Analyses

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

Matrix Codes

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

Accutest Sample #	Field ID / Point of Collection	Collection Date	Collection Time	Matrix	# of bottles	Number of preserved bottles: HCL	NaOH	HNO3	H2SO4	EnCor	NaHSO4	MeOH	None	BTEX (8021B) include m,p, & o-xylene	LAB USE ONLY
3	JF Bell MW-1	060309	0940	GW	3	X								X	
4	JF Bell MW-6	060309	1005	GW	3	X								X	
5	JF Bell MW-2	060309	1025	GW	3	X								X	
6	JF Bell MW-3	060309	1118	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"
- [ ] TRRP-13
- [X] Commercial "B"
- [ ] EDD Format
- [ ] Reduced Tier 1
- [ ] Other
- [ ] Full Data Package

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	6/3/09	1640	1	2	6.4.9 9:15	2
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
			3	4		4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable ☐	On Ice / Cooler Temp. 2.8°C

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T30413: Chain of Custody
Page 2 of 4

SAMPLE INSPECTION FORM

Accutest Job Number: T30413 Client: MWH Date/Time Received: 6-4-9 9:15

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

Cooler Temps: #1: 2.8°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: 06/04/09

CORRECTIVE ACTIONS

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

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

Client Instructions:

I:\mwalker\forms\samplemanagement

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T30413: Chain of Custody
Page 3 of 4

JOB #: T30413 DATE/TIME RECEIVED: 6-4-9 915

CLIENT: MWH INITIALS: EC

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 >12
1	2	GCU 142 E MW-1	6-2-9 1158	W	40ml	1-3	VR	1 (2) 3 4 5 6 7 8	<2 >12
1	3	JF Bell MW-1	6-3-9 940	W	40ml	1-3	VR	1 (2) 3 4 5 6 7 8	<2 >12
1	4	JF Bell MW-6	6-3-9 1005	W	40ml	1-3	VR	1 (2) 3 4 5 6 7 8	<2 >12
1	5	JF Bell MW-2	6-3-9 1025	W	40ml	1-3	VR	1 (2) 3 4 5 6 7 8	<2 >12
1	6	JF Bell MW-3	6-3-9 1110	W	40ml	1-3	VR	1 (2) 3 4 5 6 7 8	<2 >12

EC 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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T30413: Chain of Custody
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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: T30413
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
GKK1500-MB	KK031207.D	1	06/09/09	FI	n/a	n/a	GKK1500

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

T30413-1, T30413-2, T30413-3, T30413-4, T30413-5

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	78%	58-125%
98-08-8	aaa-Trifluorotoluene	85%	73-139%

Method Blank Summary

Job Number: T30413
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
GKK1501-MB	KK031240.D	1	06/10/09	FI	n/a	n/a	GKK1501

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

T30413-6

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	77%	58-125%
98-08-8	aaa-Trifluorotoluene	85%	73-139%

Blank Spike Summary

Job Number: T30413
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
GKK1500-BS	KK031203.D	1	06/09/09	FI	n/a	n/a	GKK1500

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

T30413-1, T30413-2, T30413-3, T30413-4, T30413-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	18.9	95	86-121
100-41-4	Ethylbenzene	20	18.4	92	81-116
108-88-3	Toluene	20	18.9	95	87-117
1330-20-7	Xylenes (total)	60	54.4	91	85-115
95-47-6	o-Xylene	20	18.2	91	87-116
	m,p-Xylene	40	36.2	91	84-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	81%	58-125%
98-08-8	aaa-Trifluorotoluene	87%	73-139%

Blank Spike Summary

Job Number: T30413
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
GKK1501-BS	KK031236.D	1	06/10/09	FI	n/a	n/a	GKK1501

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

T30413-6

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	17.5	88	81-116
108-88-3	Toluene	20	17.7	89	87-117
1330-20-7	Xylenes (total)	60	51.9	87	85-115
95-47-6	o-Xylene	20	17.3	87	87-116
	m,p-Xylene	40	34.6	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: T30413
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
T30595-1MS	KK031213.D	1	06/09/09	FI	n/a	n/a	GKK1500
T30595-1MSD	KK031214.D	1	06/09/09	FI	n/a	n/a	GKK1500
T30595-1	KK031209.D	1	06/09/09	FI	n/a	n/a	GKK1500

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

T30413-1, T30413-2, T30413-3, T30413-4, T30413-5

CAS No.	Compound	T30595-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0	U	20	20.4	102	20.3	102	0	86-121/19
100-41-4	Ethylbenzene	1.0	U	20	20.1	101	20.3	102	1	81-116/14
108-88-3	Toluene	1.0	U	20	20.6	103	20.5	103	0	87-117/16
1330-20-7	Xylenes (total)	2.0	U	60	59.0	98	59.7	100	1	85-115/12
95-47-6	o-Xylene	1.0	U	20	19.5	98	19.8	99	2	87-116/16
	m,p-Xylene	1.0	U	40	39.5	99	39.9	100	1	84-116/13

CAS No.	Surrogate Recoveries	MS	MSD	T30595-1	Limits
460-00-4	4-Bromofluorobenzene	84%	82%	80%	58-125%
98-08-8	aaa-Trifluorotoluene	90%	86%	87%	73-139%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T30413
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
T30744-1MS	KK031246.D	1	06/10/09	FI	n/a	n/a	GKK1501
T30744-1MSD	KK031247.D	1	06/10/09	FI	n/a	n/a	GKK1501
T30744-1	KK031241.D	1	06/10/09	FI	n/a	n/a	GKK1501

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

T30413-6

CAS No.	Compound	T30744-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	4.1		20	26.9	114	26.0	110	3	86-121/19
100-41-4	Ethylbenzene	1.7		20	26.2	123*	24.8	116	5	81-116/14
108-88-3	Toluene	1.0	U	20	24.7	124*	24.2	121*	2	87-117/16
1330-20-7	Xylenes (total)	3.5		60	70.1	111	69.2	110	1	85-115/12
95-47-6	o-Xylene	1.7		20	23.9	111	23.7	110	1	87-116/16
	m,p-Xylene	1.8		40	46.2	111	45.5	109	2	84-116/13

CAS No.	Surrogate Recoveries	MS	MSD	T30744-1	Limits
460-00-4	4-Bromofluorobenzene	91%	91%	88%	58-125%
98-08-8	aaa-Trifluorotoluene	156%* [a]	153%* [a]	133%	73-139%

(a) Outside control limits due to matrix interference.

Gulf Coast ACCUTEST Laboratories

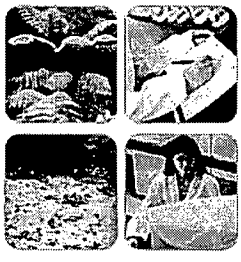
IT'S ALL IN THE CHEMISTRY

01/08/10

Technical Report for

Montgomery Watson

GCU 142



Accutest Job Number: T45026

Sampling Date: 12/30/09

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

ACCUTEST LABORATORIES 50 YEARS 1956-2006

ACCREDITED IN ACCORDANCE WITH nelac

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

Paul K Canevaro

Paul Canevaro
Laboratory Director

Client Service contact: Georgia Jones 713-271-4700

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

Test results relate only to samples analyzed.

Sections: 1 2 3 4 5

Table of Contents

-1-

Sample Summary

Montgomery Watson

GCU 142

Job No: T45026

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
T45026-1	12/30/09	15:03	AL	12/31/09	AQ	Ground Water	MW-1
T45026-2	12/30/09	14:25	AL	12/31/09	AQ	Ground Water	MW-2
T45026-3	12/30/09	15:03	AL	12/31/09	AQ	Ground Water	PW-3
T45026-4	12/30/09	00:00	AL	12/31/09	AQ	Trip Blank Water	TRIP BLANK

ACCUTEST Laboratories

2

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Montgomery Watson **Job No** T45026

Site: GCU 142 **Report Date** 1/6/2010 3:41:38 PM

3 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were collected on 12/30/2009 and were received at Accutest on 12/31/2009 properly preserved, at 2 Deg. C and intact. These Samples received an Accutest job number of T45026. 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:** GKK1618

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T45011-6MS, T45011-6MSD 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

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	T45026-1	Date Sampled:	12/30/09
Matrix:	AQ - Ground Water	Date Received:	12/31/09
Method:	SW846 8021B	Percent Solids:	n/a
Project:	GCU 142		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK033923.D	20	01/05/10	FI	n/a	n/a	GKK1618
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	597	20	7.2	ug/l	
108-88-3	Toluene	10.7	20	5.6	ug/l	J
100-41-4	Ethylbenzene	26.5	20	5.0	ug/l	
1330-20-7	Xylenes (total)	159	40	19	ug/l	
95-47-6	o-Xylene	29.3	20	7.1	ug/l	
	m,p-Xylene	130	20	11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	97%		58-125%
98-08-8	aaa-Trifluorotoluene	106%		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:	MW-2		
Lab Sample ID:	T45026-2	Date Sampled:	12/30/09
Matrix:	AQ - Ground Water	Date Received:	12/31/09
Method:	SW846 8021B	Percent Solids:	n/a
Project:	GCU 142		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK033924.D	100	01/05/10	FI	n/a	n/a	GKK1618
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	6660	100	36	ug/l	
108-88-3	Toluene	6750	100	28	ug/l	
100-41-4	Ethylbenzene	764	100	25	ug/l	
1330-20-7	Xylenes (total)	6210	200	93	ug/l	
95-47-6	o-Xylene	1050	100	36	ug/l	
	m,p-Xylene	5160	100	57	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	102%		58-125%
98-08-8	aaa-Trifluorotoluene	116%		73-139%

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

Report of Analysis

Client Sample ID:	PW-3		
Lab Sample ID:	T45026-3	Date Sampled:	12/30/09
Matrix:	AQ - Ground Water	Date Received:	12/31/09
Method:	SW846 8021B	Percent Solids:	n/a
Project:	GCU 142		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK033925.D	50	01/05/10	FI	n/a	n/a	GKK1618
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	3660	50	18	ug/l	
108-88-3	Toluene	1550	50	14	ug/l	
100-41-4	Ethylbenzene	520	50	13	ug/l	
1330-20-7	Xylenes (total)	4110	100	46	ug/l	
95-47-6	o-Xylene	638	50	18	ug/l	
	m,p-Xylene	3470	50	28	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	100%		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:	TRIP BLANK		
Lab Sample ID:	T45026-4	Date Sampled:	12/30/09
Matrix:	AQ - Trip Blank Water	Date Received:	12/31/09
Method:	SW846 8021B	Percent Solids:	n/a
Project:	GCU 142		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK033909.D	1	01/05/10	FI	n/a	n/a	GKK1618
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	93%		58-125%
98-08-8	aaa-Trifluorotoluene	108%		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 ___ of

FED-EX Tracking # 8709 8619 1392 | Bottle Order Control # | Accutest Quote # | Accutest Job # T45026

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:

Project Information

Project Name / No.: GCU 142
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 #: WO 94293

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 H2O	NaHSO4	ENCORE	Na2S2O3	NaOH	HNO3	BTEX (8021B) include m, p, & o-xylene	LAB USE ONLY
1	MW-1	12-30-09	1425	GW	3	✓								✓	
2	MW-2	12-30-09	1503	GW	3	✓								✓	
3	PW-3	12-30-09	1503	GW	1	✓								✓	

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	Ashley L Ciger	12-30-09 1630	1	2 Fed Ex	12/31/09 0900	2
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
4						
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable ☐	On Ice ☒ Cooler Temp. 2.0

4.1 4

T45026: Chain of Custody
Page 1 of 3

SAMPLE RECEIPT LOG

JOB #: T45026 DATE/TIME RECEIVED: 12/31/09 09:00

CLIENT: MWH INITIALS: TC

COOLER#	SAMPLE ID	FIELD ID	DATE	MATRIX	VOL	BOTTLE #	LOCATION	PRESERV	PH
	1	MW-1	12/30/09 15:03	W	40ml	1-3	VR	1 (2) 3 4 5 6 7 8	<2 >12
	2	MW-2	12/30/09 14:25			1-3		1 (2) 3 4 5 6 7 8	<2 >12
	3	PW-3	12/30/09 15:03			1		1 (2) 3 4 5 6 7 8	<2 >12
	4	TRIP Blank	——	W	40ml	1-2	VR	1 (2) 3 4 5 6 7 8	<2 >12

PRESERVATIVES: 1: None 2: HCL 3: HNO3 4: H2SO4 5: NAOH 6: DI 7: MeOH 8: Other
LOCATION: 1: Walk-In #1 (Waters) 2: Walk-In #2 (Soils) VR: Volatile Fridge M: Metals SUB: Subcontract EF: Encore Freezer

Rev 8/13/01 ewp

SAMPLE INSPECTION FORM

Accutest Job Number: T45026 Client: MWH Date/Time Received: 12/31/09 09:00

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

Cooler Temps: #1: 2.0 #2: _____ #3: _____ #4: _____ #5: _____ #6: _____ #7: _____ #8: _____

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

Airbill Numbers: 8709 8619 1392

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)
- [X] 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
- [X] Received Water Trip Blank
- [ ] Received Soil TB

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

Summary of Discrepancies:

#1 Sample Time on Bottle is @ 15:03
#2 Sample Time on Bottle is @ 14:25

TECHNICIAN SIGNATURE/DATE: TClaunch 12/31/09

INFORMATION AND SAMPLE LABELING VERIFIED BY: [signature] 12/31/09

CORRECTIVE ACTIONS

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

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

Client Instructions:

4.1

GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: T45026
Account: MWHCODE Montgomery Watson
Project: GCU 142

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1618-MB	KK033908.D	1	01/05/10	FI	n/a	n/a	GKK1618

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

T45026-1, T45026-2, T45026-3, T45026-4

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	109%	73-139%

Blank Spike Summary

Job Number: T45026
Account: MWHCODE Montgomery Watson
Project: GCU 142

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1618-BS	KK033905.D	1	01/05/10	FI	n/a	n/a	GKK1618

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

T45026-1, T45026-2, T45026-3, T45026-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	19.8	99	86-121
100-41-4	Ethylbenzene	20	19.7	99	81-116
108-88-3	Toluene	20	19.7	99	87-117
1330-20-7	Xylenes (total)	60	58.4	97	85-115
95-47-6	o-Xylene	20	19.7	99	87-116
	m,p-Xylene	40	38.8	97	84-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	98%	58-125%
98-08-8	aaa-Trifluorotoluene	107%	73-139%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T45026
Account: MWHCODE Montgomery Watson
Project: GCU 142

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T45011-6MS	KK033914.D	1	01/05/10	FI	n/a	n/a	GKK1618
T45011-6MSD	KK033915.D	1	01/05/10	FI	n/a	n/a	GKK1618
T45011-6	KK033913.D	1	01/05/10	FI	n/a	n/a	GKK1618

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

T45026-1, T45026-2, T45026-3, T45026-4

CAS No.	Compound	T45011-6 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0	U	20	22.5	113	22.2	111	1	86-121/19
100-41-4	Ethylbenzene	1.0	U	20	22.3	112	22.1	111	1	81-116/14
108-88-3	Toluene	1.0	U	20	22.4	112	22.1	111	1	87-117/16
1330-20-7	Xylenes (total)	2.0	U	60	65.3	109	64.6	108	1	85-115/12
95-47-6	o-Xylene	1.0	U	20	21.9	110	21.7	109	1	87-116/16
	m,p-Xylene	1.0	U	40	43.4	109	42.9	107	1	84-116/13

CAS No.	Surrogate Recoveries	MS	MSD	T45011-6	Limits
460-00-4	4-Bromofluorobenzene	98%	99%	98%	58-125%
98-08-8	aaa-Trifluorotoluene	108%	109%	112%	73-139%