3R - 179

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



2009 ANNUAL GROUNDWATER REPORT NON-FEDERAL SITES VOLUME II EL PASO TENNESSEE PIPELINE COMPANY

TABLE OF CONTENTS

	METER or LINE ID	NMOCD CASE NO.	SITENAME	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	Н
	70194	3RP-201-0	Johnston Fed #4	31N	09W	33	Н
ļ	LD087	3RP-205-0	K-31 Line Drip	25N	06W	16	N
1	72556	3RP-207-0	Knight #1	30N	13W	5	Α
	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	Н

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





LIST OF ACRONYMS

٦

AMSL	above mean sea level
В	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
NMWQCC T	New Mexico Water Quality Control Commission toluene
NMWQCC T TOC	New Mexico Water Quality Control Commission toluene top of casing
NMWQCC T TOC NA	New Mexico Water Quality Control Commission toluene top of casing not applicable
NMWQCC T TOC NA NMOCD	New Mexico Water Quality Control Commission toluene top of casing not applicable New Mexico Oil Conservation Division
NMWQCC T TOC NA NMOCD NS	New Mexico Water Quality Control Commission toluene top of casing not applicable New Mexico Oil Conservation Division not sampled
NMWQCC T TOC NA NMOCD NS ORC	New Mexico Water Quality Control Commissiontoluenetop of casingnot applicableNew Mexico Oil Conservation Divisionnot sampledoxygen-releasing compound
NMWQCC Τ TOC NA NMOCD NS ORC μg/L	New Mexico Water Quality Control Commissiontoluenetop of casingnot applicableNew Mexico Oil Conservation Divisionnot sampledoxygen-releasing compoundmicrograms per liter



I

3R 179

EPTPC GROUNDWATER SITES 2009 ANNUAL GROUNDWATER REPORT

GCU Com A #142E Meter Code: 03906

SITE DETAILS

Legal Description:		Fown: 29N	Range:	12W	Sec: 25	Unit: G
NMOCD Haz Ranking:	. 10	Land Type:	Fee	Operator	BP / Amoco Pro Company	duction
PREVIOUS AC	FIVITIE	<u>6</u>			·	
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 Resu	imed:	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 $35.3 \ \mu g/L$ to $597 \ \mu g/L$, with both results exceeding the NMWQCC standard of 10 $\mu g/L$. 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 $\mu g/L$).
- 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 μ g/L), toluene (6,750 μ g/L), ethylbenzene (764 μ g/L), and total xylenes (6,210 μ g/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 μ g/L), toluene (1,550 μ g/L), and total xylenes (4,110 μ g/L) all exceeded their respective NMWQCC standards.

<u>RECOMMENDATIONS</u>

• 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 GROUNDWATER SITES 2009 ANNUAL GROUNDWATER REPORT

GCU Com A #142E Meter Code: 03906

- 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.











*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.





Depth O Product Dep

TABLE 1

Monitor Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft	Corrected GW Elevation
NMWQCC GW Std.:		10	750	750	620	BTOC)	(Feet*)
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	
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
MŴ02	12/30/2009	6660	6750	764	6210	16.48	84.85
TMW01	12/30/2009	3660	1550	520	4110	NA	NA

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

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: Client: Project Manager:	San Juan B MWH Ashley Age	asin r	Samp	Location: Date: ler's Name:	GCU #1421 12/30/200 Ashley Age	E 19 er	Well No: Time:	MW-1 14:28			
Measuring Point: Well Diameter:	<u>TOC</u> <u>4"</u> Wa	Depth Tot ater Colum	to Water: tal Depth: in Height:	<u> </u>	ft ft ft	Depth Product	to Product: Thickness:	ft ft			
Sampling Method: Criteria:	□ Submersib ☑ Bottom Va ☑ 3 to 5 Casi	le Pump [lve Bailer ng Volumes d	Centrifug	al Pump 🗌 Pe heck Valve Baile noval 🗹 Stabili	ristaltic Pump er zation of India	Other	ers 🗹 Other	bail dry			
				Water Volun	ne in Well						
Gal/ft x ft of w	/ater	Gall	ons	Oun	ices		Volume	to be removed			
4.83 x .65		3.14	x 3					9.5 gal			
Time (military)	рН (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	i ang si si dala si			10	clear, black precipitate			
COMMENTS:											
Instrumentation:	🗹 pH Meter	DO Mor	nitor 🗹 C	onductivity Met	er 🗹 Tem	perature Mete	r 🗌 Other				
Water Disposal:	Rio Vista										
Sample ID:	MW-1		. Sa	imple Time:	15:03		. *	· · ·			
Analysis Requested:	BTEX Other	UVOCs	🗌 Alkalini	ty 🗌 TDS	Cations [Anions [Nitrate	Nitrite . 🗋 Metals			
Trip Blank:	Trip Blank: 123009AA01 Duplicate Sample:										

.



01/25/2010

Date:

WATER LEVEL DATA

Project Name: San Juan Basin Groundwater 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

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

WATER LEVEL DATA

Project Name: San Juan Basin Groundwater Project Manager: Ashley Ager

Client: MWH Site Name: 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

Date:

06/02/2009

Lodestar Services, Incorporated

Lodestar Services, Incorporated

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

WATER LEVEL DATA

Project Name: San Juan Basin Groundwater Project Manager: Ashley Ager Client: MWH

Site Name: 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

Date:

12/30/2009

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

WELL DEVELOPMENT AND SAMPLING LC)G
----------------------------------	----

`

· · · · · · · · · · · · · · · · · · ·								
Project Name: Client: Project Manager:	San Juan B MWH Ashley Age	asin r	Samp	Location: Date: Iler's Name:	GCU #1421 6/2/2009 Troy Urbar	E	Well No: Time:	MW-1 11:25
								······································
Measuring Point: Well Diameter:	TOC 4" Wa	Depth To ater Colum	to Water: tal Depth: nn Height:	17.8 21.65 3.85	ft ft ft	Depth Product	to Product: : Thickness:	ft ft
Sampling Method: Criteria:	□ Submersib ☑ Bottom Va ☑ 3 to 5 Casi	le Pump lve Bailer ng Volumes o	Centrifug	al Pump 🗌 Pe heck Valve Bail moval 🗹 Stabili	ristaltic Pump er zation of Indic	Other Cator Paramete	ers 🗹 Other	bail dry
					·			
Gal/ft v ft of v	ator	C-11	long	water Volun	ne in Well	1	Value -	to be remained
	ater	Gai	ions	Oun	ices		Volume	to be removed
5.85 X .05		2.50	1 X 3			L		.51 ga
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	Set and a set of a s			5.2	black, well bailed dry
COMMENTS:	Well bailed	l dry durin	g purging					
								,
Instrumentation:	🗹 pH Meter	DO Mor	nitor 🗹 C	onductivity Met	er 🗹 Temj	perature Mete	r 🗌 Other	
Water Disposal:	Rio Vista							
Sample ID:	MW-1		. Sa	imple Time:	11:58			
Analysis Requested:	BTEX Other		🗆 Alkalini	ty 🗋 TDS	Cations [Anions	Nitrate 🔲 I	Nitrite 🗌 Metals
Trip Blank:	020609	ƏTB01				Duplica	ate Sample:	

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

_								
Project Name:	roject Name: San Juan Basin			Location: GCU #142E				PW-3
Client:	MWH		Date: <u>12/30/2009</u>			19	Time:	14:35
Project Manager:	Ashley Age	sampler's Name: Ashley Age				er		
Measuring Point:	тос	Depth 1	to Water:	NA	ft	Depth	to Product:	ft
Well Diameter:	2"	Tot	al Depth:	NA	ft	Product	: Thickness:	ft
	Wa	ater Colum	n Height:	NA	ft			
Sampling Method:	Submersib	le Pump [Centrifug	al Pump 🔲 Pe	eristaltic Pump	🗌 Other		
	Bottom Va	lve Bailer [Double C	heck Valve Bail	er			
Criteria:	3 to 5 Cas	ing Volumes c	of Water Rei	noval 🗹 Stabili	zation of India	ator Paramete	ers 🗹 Other	bail dry
· ····								
Gal/ft v ft of y	ator	Call	000	Water Volun	ne in Well	1	Valuma	to be removed
Gal/ICX ICOI W	ater	Gali	ons	Uur			volume	to be removed
								501
Time	nH	sc	Temp	ORP	DO	Turbidity	Vol Evac	
(military)	(su)	(ms)	(°C)	(millivolts)	(mg/L)	(NTU)	VOI EVAC.	Comments/Flow Rate
14.38	6.75	1485	13.2		(***0/ =/		0Z	gray, heavy sheen, strong HC
	6.79	1405	13.2				10	odor
	6.72	1425	13.0				20	black bailing down
····· • •	6.70	1435	13.4				25	black, bailing down
	6.70	1430	13.4				35	
14:52	6.71	1432	13.4				40	dry
Final	67	1/130	13.8				12	clear, black precipitate
15:05	0.7	1450	15.0		6		44	
10000000000 \	2006 9 10 11 19 19 19 19 19 19 19 19 19 19 19 19			Telecology - Handle - House		·	· // (2233+///4	L. CSTERNER AND AN AND AND AND AND AND AND AND AND
COMMENTS:	Well bailed	l dry during	g purging	. Water leve	l indicator 1	too big for s	small diame	ter well.
Instrumentation		— • • • •			— —			
mstrumentation:	ш рн Meter	L DO Mon	itor 🗹 C	onductivity Met	er 🗹 Tem	perature Mete	r 🗀 Other	·
Water Disposal:	Rio Vista							
				. —				
Sample ID:	PW-3		Sa	mple Time:	15:03			
Analysis Requested:					Cations [Nitrato 🗂	Nitrito 🗍 Metals

Lodestar Services, Incorporated PO Box 4465, Burgrav, CO 81302 Diffse (QZQ) P46-1093

Duplicate Sample:

WELL DEVELOPMENT AND SAMPLING LOG

Codestar 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.



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





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 Canevano

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)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.





Table of Contents

8

\$ 2

জ

•

-1-

Section 1: Sample Summary	3
Section 2: Case Narrative/Conformance Summary	4
Section 3: Sample Results	5
3.1: T30413-1: D20609TB01	6
3.2: T30413-2: GCU142E MW-1	7
3.3: T30413-3: JF BELL MW-1	8
3.4: T30413-4: JF BELL MW-6	9
3.5: T30413-5: JF BELL MW-2	10
3.6: T30413-6: JF BELL MW-3	11
Section 4: Misc. Forms	12
4.1: Chain of Custody	13
Section 5: GC Volatiles - QC Data Summaries	17
5.1: Method Blank Summary	18
5.2: Blank Spike Summary	20
5.3: Matrix Spike/Matrix Spike Duplicate Summary	22



Sample Summary

28.5

···.*

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	Matri Code	ix Туре	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 MW3

,







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

Friday, June 12, 2009

Page 1 of 1





Section 3



Sample Results

Report of Analysis



.

	Page 1 of 1							
Client Sample ID:D20609TB01Lab Sample ID:T30413-1Date Sampled:06/02/09Matrix:AQ - Trip Blank WaterDate Received:06/04/09Method:SW846 8021BPercent Solids:n/aProject:San Juan Basin Pit Groundwater Remediation 2008-2009								
Run #1 Run #2	File ID KK031208.D	DF 1	Analyzed 06/09/09	By FI	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GKK1500
Run #1 Run #2	Purge Volume 5.0 ml							
Purgeable	Aromatics						,	
CAS No.	Compound		Result	RL	MDL	Units	Q	
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene m,p-Xylene		ND ND ND ND ND	1.0 1.0 2.0 1.0 1.0	0.21 0.23 0.35 0.55 0.55 0.66	ug/l ug/l ug/l ug/l ug/l ug/l		

Run# 2

Limits

58-125%

73-139%

Run# 1

78% 86%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

CAS No.

460-00-4

98-08-8

.

E = Indicates value exceeds calibration range

Surrogate Recoveries

4-Bromofluorobenzene

aaa-Trifluorotoluene

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



	Page 1 of 1						
Client Sam Lab Samp Matrix: Method: Project:	nple ID: GCU142E MW-1 le ID: T30413-2 AQ - Ground Wat SW846 8021B San Juan Basin Pit	er 1 Groundwater I	Remediation	Date S Date F Percer 2008-20	Sampled: Received at Solids 109	06/02/09 06/04/09 n/a	
Run #1 Run #2	File ID DF KK031217.D 1	Analyzed 06/09/09	By FI	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GKK1500
Run #1 Run #2	Purge Volume 5.0 ml					· · .	
Purgeable	Aromatics						
CAS No.	Compound	Result	RL	MDL	Units	Q	
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene m,p-Xylene	35.3 ND 0.75 1.4 0.67 0.68	1.0 1.0 2.0 1.0 1.0	0.21 0.23 0.35 0.55 0.55 0.66	ug/l ug/l ug/l ug/l ug/l ug/l]]]	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its		
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	78% 88%	1999 2014 - 1997	58-1 73-1	25% 39%		

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



- · 145 S. *

.f 1

3.2

Surrogate Recoveries

4-Bromofluorobenzene

aaa-Trifluorotoluene

CAS No.

460-00-4

98-08-8

			nopo		1415515			ruge i oi i
Client Sam Lab Sampl Matrix: Method: Project:	uple ID: JF BEL le ID: T30413 AQ - G SW846 San Jua	L MW-1 3-3 6round Wa 8021B 11 Basin P	ter it Groundwater	Remediatio	Date S Date I Percen on 2008-20	Sampled: Received nt Solids 009	06/03/09 : 06/04/09 : n/a	
Run #1 Run #2	File ID KK031221.D	DF 250	Analyzed 06/09/09	By FI	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GKK1500
Run #1 Run #2	Purge Volume 5.0 ml	·						
Purgeable	Aromatics							
CAS No.	Compound		Result	RL	MDL	Units	. Q	
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene m,p-Xylene		7120 25200 1270 13800 3040 10700	250 250 250 500 250 250	52 56 87 140 140 170	ug/l ug/l ug/l ug/l ug/l ug/l		

Run#1

83%

89%

Limits

58-125%

73-139%

Run# 2

Report of Analysis

MDL - Method Detection Limit

ND = Not detected 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



Page 1 of 1

	Page 1 of 1						
Client Sam Lab Samp Matrix: Method: Project:	nple ID: JF BELL MW-6 le ID: T30413-4 AQ - Ground Wa SW846 8021B San Juan Basin F	ater Pit Groundwater R	emediation	Date S Date I Percent 2008-20	Sampled: Received nt Solids)09	06/03/09 : 06/04/09 : n/a	
Run #1 Run #2	File ID DF KK031218.D 1	Analyzed 06/09/09	By FI	Prep D n/a	Date	Prep Batch n/a	Analytical Batch GKK1500
Run #1 Run #2	Purge Volume 5.0 ml						
Purgeable	Aromatics						
CAS No.	Compound	Result	RL	MDL	Units	Q	
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene m,p-Xylene	0.45 2.1 ND 1.5 ND 1.5	1.0 1.0 2.0 1.0 1.0	0.21 0.23 0.35 0.55 0.55 0.66	ug/l ug/l ug/l ug/l ug/l ug/l	J	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its		
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	82% 90%		58-1 73-1	25% 39%		

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



3.4 .4

. • •

	Page 1 of 1							
Client Sam Lab Sampl Matrix: Method: Project:								
Run #1 Run #2	File ID KK031219.D	DF 1	Analyzed 06/09/09	By FI	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GKK1500
Run #1 Run #2	Purge Volume 5.0 ml							
Purgeable	Aromatics							
CAS No.	Compound		Result	RL	MDL	Units	Q	
71-43-2 108-88-3 100-41-4	Benzene Toluene Ethylbenzene		0.30 1.1 ND	1.0 1.0 1.0	0.21 0.23 0.35	ug/l ug/l ug/l	J	
1330-20-7 95-47-6	Xylenes (total) o-Xylene m,p-Xylene		0.84 ND 0.84	2.0 1.0 1.0	0.55 0.55 0.66	ug/l ug/l ug/l]]	
CAS No.	Surrogate Recov	veries	Run# 1	Run# 2	Lim	its		

	C C		
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





	Page 1 of 1			
Client Sam Lab Samp Matrix: Method: Project:	aple ID: JF BELL MW-3 le ID: T30413-6 AQ - Ground Wat SW846 8021B San Juan Basin Pit	er Groundwater Remediati	Date Sampled: 06/03/09 Date Received: 06/04/09 Percent Solids: n/a on 2008-2009	
Run #1 Run #2	File IDDFKK031253.D25	Analyzed By 06/10/09 FI	Prep Date Prep Batch n/a n/a	Analytical Batch GKK1501
Run #1 Run #2	Purge Volume 5.0 ml			
Purgeable	Aromatics			
CAS No.	Compound	Result RL	MDL Units Q	
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene m,p-Xylene	54925ND257502573205043.725728025	5.2 ug/l 5.6 ug/l 8.7 ug/l 14 ug/l 14 ug/l 17 ug/l	
CAS No.	Surrogate Recoveries	Run# 1 Run#	2 Limits	
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	88% 92%	58-125% 73-139%	

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

i.

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



.

• · ', ·

່ດ ເ



Section 4

Misc. Forms **Custody Documents and Other Forms**

Includes the following where applicable:

• Chain of Custody



		-			CH	AI	Ń (F (CI	US	ST	`O	D	Y									
10165 I	Laboratorie Harwin, Suite 150	- Houston,	TX 7	7036 -	713-27	1-47(00 fa	x: '	713	-27	71-4	770)	FED	8693	88	750	819	17 Rot	tie Order utest Job		- 3		Page _1_ of 2
														S.R.		Tak	d illing		<u> 1</u>	1) 11		235		
any Name	/ Reporting Information	J13147.94	1791.3 AL	Project No	MER PI	nject in	formatic	7			<u>第二日</u>	<u> 4</u> 43	F) 16 (2)	25 1 76		<u> 1</u>	100,000		rquester	d Analys	<u>es</u>		9 <u>4</u> 26	DW - Drinking Water
4				EPTPC	San Juan	Basin	Pil GW	/ Re	medi	iatio	n 20	08-2	009		2		[]				1	{ }	1	GW - Ground Water
t Contact		E-Mail		Bill to		arciditt.			Invold	te Alt	tn.			-14			1 1		Í		ł			WW - Wastewater
Smith	jed.smith(2mwhglobal.c	om	El Paso	Corp		_	Nor	ma F	Ram	nos				Š.	1							- 1	SQ - Soll
15				Address										٦.	6	1	1 1		1		1	11		SL - Sludge
California Stre	eet, Suite 2900	·		1001 La	ouisiana S	treet, R	m S19	04B							<u>e</u>									OI - OI
	State		Zip	City				State	•				Zlp		5 0		{				1			LIQ - Liquid
/er			80202	HOU				17		-			7002	43	3		1 1			i		í I	- 1	SOL - Other Solid
		Fax No		Phone No								rax N	σ.								1			
291-2276			<u> </u>	Client Bui	ahara Ordar									-1 6	6)	1 1	1 1	- 1		1		11		
and 1	Ichan		•	West	_A/A.s	. G.	اليرينم	í o		- ^		,			5	11						11		
109 0			.	Collectin	-/10/11	, <u>,</u>	T		imbe	L of u	Dress	n éd	hotile		ē			- 1			1		- {	
utest	Field ID / Point of Collection	n		Gondone	<u></u>		#of	۲ï	πT	8	3 8	18	T T	<u></u>	ŭ		1	1			1		ľ	
	·	·	<u> </u>	ate	Time	Matrix	bottles	¥.	ž	ŧ,	<u> 1</u>	Ĩ	¥	ç i	n									CAB USE ONLY
DZ	0609TBB	1	0602	.09	0655	60	12	X	}					١×			l i	1			1	11	1	
· GCL	IIUNE MILL)	DLA'	1 AQ	1100	Cu.)	2	X				1		10	X T	\top								
-1000	LIAC UIN-	≁	0000	07	11.30	00		H	-+-	╈	-	+	\vdash	-+ r	4-	+					+	+	-+	
·			Ļ					\square		+				_ <u>_</u>	$ \rightarrow $							\vdash		
											1													
									ΓT	T		T										ТТ		
										+	+	+-				+					+			
			<u> </u>		├			\vdash		+-		+	\vdash	_	_					{	+	┟╾╾┟╴		
										_Ĺ														
ľ			l		[.]	l						[- (l	
			1		<u> </u>		<u> </u>	1		╈	1	1-		-†-			f				1		-	
					┝───				-+-	+			\vdash	-+		\vdash		-+	_+		+	╉┈╉	-+	
			L				1															\square		
<u>王波 Tur</u>	naround Time (Business days)	A STATE OF	AND SHIT		in the second	Data	Deliverab	le Info	matio	n it	19時よ	Aller	the -	展習者	1. A. A.	記述が	144		Comme	ints / Ren	larks	Į.	2018) 1919	
X 10 Day STA	NUARD	Approved By:/ D	ste:			vercial "/	~	\Box	TRR	P-13									ł s	amples a	re recel	ved unpr	reserve	d, please notify
A Day Pire	н					nerciel "E	3°	닏	EOD	Form	nat		_						<u>. MY</u>	VH regard	ling hol	ding tim	efti	
3 Day EMF	RGENCY					uta Past	30.0	ب	Une		_		_											
2 Day EMF	RGENCY	-				a rack	-4-								+-									
1 Day EME	RGENCY				C	uncial *# *	- R	h 0-	łv															
Cither					Comm	welat "R"	" Result	13 C II	Standa	ard Ce	с				-⊣									
eal time analy	rtical data available via l	ablink						•																
art for the state	84	MPLE CUSTODY	MUST BE D	OCUMENT	ED BELOW E	ACH TIN	E SAMP	LES (CHAN	GE P	OSSE	SION	, INĆL	DING	COURIER	DELIVE	RY		192	N	and the second	14-1	4 , 2	
inquiated by Samoly	· · · · · · · · · · · · · · · · · · ·	1/2/na	Data Hora:	In	Received By					R	elinqui		50	~		Date T	6 C	1.		Nived By:	/	141	'	
Imp Up	v	<u> </u>	107	$\overline{\mathcal{O}}$	1					2	1	Ŀ	14	Ŷ	ئـ	~~	٣	<u>~)</u>	22	A	4X	{:≯-	_	\rightarrow
unqueres by:			Cluse Time:		Received By			-		1	alindju	Uned B	y:			Date T	ime:		Hee	NUMBY:	•	~		\mathcal{O}
Inquished by:			Date Time:		3					-14			• • • • • • • •		Bern	nue de la tra	and another		4		~		Contr	
					a active dy					ľ	- mody	J481 P					. • endu				Ś	ē :	2	2 2 (

n se childre de la servición de fr

T30413: Chain of Custody Page 1 of 4⁻



4.1

	•																									
X			- 				CH	AI	N	01	F (CU	JS	T	O	DY										
5	ACLU	IES	<u> </u>													FEDEX	Tractino I				Bott	Order C	ontrol #		P	age at of at
	Labo 10165 Herwin	Suite 1	- e s - 50 - E	Jouston	TX 7	7036	713_22	11_47	00 Fa		713	271	1_47	70		86	138	850	819	27						
	10105 11ai win,	Suite 1	50-1	iouston	, 1. ,	/030-	- 715-27	1-4/	00 12	ал.	/13-	· • •	1-4/	/0		Accutes	(Quota il				Accu	test Job 4				
																inite a	1. C	e Las	理論	法规	编辑	(and the	潮時間		њ¢У	
motory Na	Client / Reporting	Informati	on R	2001年時時	年间。这种社	Project N	·····································	roject In	formati	<u>••</u> //		NACH 11		54-54 		H TRACE	1344556	<u> 2382</u>	1.2	Requ	lested	Analyse	69	9.9. A.		Matrix Codes
νн						EPTPC	San Juar	DF C	PltGV		media	- / / ation	2008	3-20	09	2										GW - Ominal Water
ect Conte	ict		E	-Mall		Bill to					involce	Attn			:	١ <u>جَّ</u>							1			WW - Wastewater
1 Smith		jed.sn	nith@m	whglobal.c	om	El Paso	о Согр			No	ma R	amo	os.			8										30 - Soli
885						Addresa		_								~		ł								St Sludge
1 Calif	omia Street, Suite 29	900			71-	1001 Lo	ouisiana S	treet, F	m S19	904B	<u> </u>					E E	I í				1					OI - OII
ver	31. C	0			80202	Hou				TX				77	ZIP 7002	l è							1			LIQ - Liquid
ne No.				Fax No		Phone No).						Fa	x No.		1										
3-291-2	276				1											1.2							1			
plers's N	ame (1.1					Client Pu	rchase Order								~	1 🖫										
In	1 Urban					West	-ALA	<u>P-G</u>	COUM	dk	2cm	- Ć	207	7		l ä										
cutest	Field ID /	Point of Co	liection			Collectio	on I	{		<u>⊢</u> N	umber		reserv T ਵ T	ed b	ottles	۱×									-	
mple #	160107		- Account			ate	Time	Matrix	# Of bottles	9	2	1 S	1 S	1	NON NO	E										LAB USE ONLY
2	TF Bell	mi	N-1		060	309	0940	(HI)	3	X		Τ		Т		X							1			
άt	T = 3-11	nu	3-6		010	209	1000	100	13	V		+		+		1					+	+				
		1-14	20		10.64	507	Nus	60	2	5	<u>+</u> +-	+-	┼╌┨	-+		15	┝─┼				- `-	+		┿╼┼╍		
λ	J F Bell	<u></u>	0-2	-	1060	301	1/025	Įω	2	Č.	\square	+	\downarrow		_	X						_		┝╌┝╴	_i	•
6	JF-Bell	Mu	<u>1-3</u>		060	309	1118	64	3	X						IX.										
								1		Г		Ţ_												TT		<u>.</u>
							1		1	\uparrow		+-		+							+	+			-+	-
							1	<u> </u>					+	┿	+		\vdash		_	_			_	╞╴╞╴	-	
					·		I	<u> </u>	<u> </u>				┿┿	_		[_		_		<u> </u>		\square	_	
							L									<u> </u>										•
												1											1			
					· ·		<u> </u>			+			+++	-+	_								1			
¥1,587,	Turnaround Time (8	Business day	(B)		· 第5975年			Data) Dekverat) Ne Info	mation	140	1	1	-	ferni Ser	The state	in Baile	23		Xommen	ts / Rema	arks		14332	SALAR STATES
x	10 Day STANDARD		,	Approved By:/ D	ale:		Com	nercial "/	N *		TRRP	-13									Here			und und und		nieses netthe
	7 Day						X Com	nercial "I	3") EDD I	Form	n		_						MWH	regard	ing hole	ding time!	iserved I/I	, please noury
	4 Day RUSH		-				Redu	ced Tier	1		Other				-											
	3 Day EMERGENCY		-				Full E	Dets Pack	9 9 9								└──									
<u> </u>	1 Day EMERGENCY		-																							
	Other		-				Comm	erciat "A' orciat "R'	- Kesu Resu	its & '	ny Standar	4 0 0														
Real (me analytical data a	vallable	via Labi	link							val	- 40					1									
6.H) (199	和我们和学校会中的 社		SAMPL	E CUSTODY	MUST BE D	OCUMENT	ED BELOW	EACH TIN	E SAMP	LES	CHANG	E PO	SSESS	ION, I	NCLUD	ING COL	RIER DE	LIVERY	/		前編		14187			90949 (SR(4)92
Relinguier	ad by Sampler:		ila	69	Jule Time:	- 110	Received By					Rei	Inquiett 1	nd 8y: 9	ς.,		(.)	ste Time Ci	้ด.	~	Rece	wed Byor		1		/
Relinguish	NY:		Y-	<u> </u>	Date Time	1010	A1 Becabard Bi					2	Inhuleh	<u> </u>	17		6.4		<u> </u>)	2	<u>_</u>	_L	\sim		★
6	7		•				3	•				4	ange of h	-3 sy:			u	810 (1893			4	460 BÀ:			Ĺ	\mathcal{I}
					Date Time:		Received By					Cui	stody Se	al F			Preserve	d where	applicabl	•	-17		Onj	ica C	ociar T	
Relinquish	a by:																									

T30413: Chain of Custody Page 2 of 4



4.1 4

	SAMPLE INSPECTION FORM	Л
Accutest Job Number: T 3 04 13	Client: <u>Mw/4</u> Da	ate/Time Received: 6-9-9 91
# of Coolers Received: Ther	mometer #:	rature Adjustment Factor:O3
Cooler Temps: #1: 2, 3 C #2:	#3: #4: #5: #	6: #7: #8:
Method of Delivery: FEDEX UPS	Accutest Courier Greyhound D	elivery Other
Airbill Numbers:	<u>.</u>	
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 Summary of Discrepancies:	THP BLANK INFORMATION THP 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 S035 kits? Number of lab-filtered metals?	
TECHNICIAN SIGNATURE/DATE:	RIFIED BY: D. CORRECTIVE ACTIONS	9 2 • • • • • • • • •
By Accutest Representative:	a and a second	Via: Phone Email
Client Instructions:		
(Amwelkenformisemplemenegement		· · · · · · · · · · · · · · · · · · ·

.

T30413: Chain of Custody Page 3 of 4



4.1 **4**

		- 2-112		U		LL 111		LUU	. .						
)B #:		5091>					DATE/TIM	E RECE	EIVED:		6.4-9	915	~		
(ENT:	A	1WIF						_ ' INI	TIALS:	<u> </u>	C				
OOLER# S	AMPLE ID	. FIELD ID)		DATI	E	MATRIX	v	OL	BOTTLE #	LOCATION	PRES	SERV	P	н
1	1	TripBl	ant	-				4.	~!	1-2	VR	1 5 C	3 4 7 8	<2	>12
<u>_</u>	2	(-CN 142 E	- mu-1	6.	2-9	1158	_ الما	42	<u>~1</u>	1-3	VR		7 8	<2	>12
+-+	3	JF BELL	Mw-	6-3-	9	940	<u> </u>	-	1		VR	5 6	7 8	<2	>12
	Y		-6		ļ	<u> (v)</u>			ļ	/	1	5 6	7 8	<2	>12
+-+	$\sum_{i=1}^{n}$		-2			1025	[+		$\frac{5}{5}$ $\frac{6}{6}$	78	<2	>12
	_6		-3			<u> 1/3</u>				+	<i> </i>	$\frac{5}{1}$	7 8	<2	>12
												<u>5</u> 1 2	7 8		
				· · ·				<u> </u>				5 8	7 8 34	47	>12
		·····										5 6 1 2	7 8	<2	>12
			••••••••••••••••••••••••••••••••••••••			<u> </u>						<u>56</u> 12	7 <u>8</u> 34	<2	>12
				•	••••		19					<u>56</u> 12	3 4	<2	>12
			· · · · · · · · · · · · · · · · · · ·	<u>+</u>		-6-	K -1		· • • •			1 2	3 4	<2	>12
				1~	Ć.	<u></u>				1		1 2	3 4	<2	>12
	<u> </u>			1								1 2	3 4	<2	>12
				-								1 2 5 6	3 4 7 8	<2	>12
			/							a.		1 2 5 6	34 78	<2	>12
	**											1 2 5 6	34 78	<2	>12
												1 2 5 8	3 4 7 8	<2	>12
		Ľ		_								1 2 5 6	3 4 7 8	<2	>12
							1					2 5 6	7 8	<2	>12
		1										1 2	· 3 4	<2	>12

.

T30413: Chain of Custody Page 4 of 4





. .,

Section 5

জ

QC D	ita Summaries
Include	the following where applicable:
meruue	
• Meth	d Blank Summaries
 Meth Blank Matri 	d Blank Summaries Spike Summaries & Spike and Duplicate Summaries
 Meth Blank Matri 	d Blank Summaries Spike Summaries & Spike and Duplicate Summaries



Method Blank Summary Job Number: T30413

Account: Project:	MWHCODE M San Juan Basin	Iontgome Pit Grou	ery Watson Indwater Remedi	iation 200	08-2009		
Sample GKK1500-MB	File ID KK031207.J	DF D 1	Analyzed 06/09/09	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GKK1500
The QC report	ed here applies	to the fo	llowing samples	s:	• • • • •	Method: SW84	6 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%



Page 1 of 1

5.1.1

Method: SW846 8021B

Method Blank Summary

Job Number: Account: Project:	130413 MWHCODE Montge San Juan Basin Pit G	omery Watson roundwater Remedi	iation 20(08-2009		
Sample GKK1501-MB	File ID DF KK031240.D1	Analyzed 06/10/09	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GKK1501
The QC report	ed here applies to the	e following samples	5:		Method: SW84	6 8021B

T30413-6

Л

CAS No.	Compound	Result	RL	MDL	Units Q	
71-43-2 100-41-4 108-88-3 1330-20-7 95-47-6	Benzene Ethylbenzene Toluene Xylenes (total) o-Xylene m,p-Xylene	ND ND ND ND ND ND	1.0 1.0 2.0 1.0 1.0 1.0	0.21 0.35 0.23 0.55 0.55 0.66	ug/l ug/l ug/l ug/l ug/l ug/l	
CAS No.	Surrogate Recoveries		Limit	s		
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	77% 85%	58-12 73-13	5% 9%		

19 of 23 ACCUTEST. T30413 Laboratories

 $\phi_{i}(z_{i})$



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 repor	ted here applies	s to the fo	llowing sample	s:	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
55-47-0	m,p-Xylene	40	36.2	· 91	84-116
CAS No.	Surrogate Recoveries	BSP	Li	mits	
460-00-4	4-Bromofluorobenzene	81%	58	8-125%	
98-08-8	aaa-Trifluorotoluene	87 %	73	-139%	

20 of 23 T30413 Laboratacies

5.2.1

Blank Spike Summary

Job Number:	: T30413								
Account:	MWHCODE Montgomery Watson								
Project:	San Juan Basin Pit Groundwater Remediation 2008-2009								
Sample	File ID I	DF Analyzed	By	Prep Date	Prep Batch	Analytical Batch			
GKK1501-BS	KK031236.D1	06/10/09	FI	n/a	n/a	GKK1501			
The QC report T30413-6	ed here applies to	the following samples	Method: SW846 8021B						

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene Ethylbenzene	20	17.6	88	86-121
108-88-3	Toluene	20	17.7	89	87-117
1330-20-7 95-47-6	Xylenes (total) o-Xylene	60 20	51.9 17.3	87 .87	85-115 87-116
·	m,p-Xylene	40	34.6	87	84-116
CAS No.	Surrogate Recoveries	BSP	Li	mits	
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	81% 85%	58 58 73	-125% -139%	

.....

٠.

. . .



Page 1 of 1

5.2.2

Matrix Spike/Matrix Spike Duplicate Summary Job Number: T30413

Sample	File ID	DF	Analyzed	Bv	Prep Date	Prep Batch					
Project:	San Juan Basin Pit Groundwater Remediation 2008-2009										
Account:	MWHCODE Montgomery Watson										
Job Number:	130413										

Sample	File ID DF	Analyzed	ву	Prep Date	Prep Batch	Analytical Batch
T30595-1MS	KK031213.D1	06/09/09	FÍ	n/a	n/a	GKK1500
T30595-1MSD	KK031214.D1	06/09/09	FI	n/a	n/a	GKK1500
T30595-1	KK031209.D1	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/1 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	13.0	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		84-116/13
CAS No.	Surrogate Recoveries	MS	MSD	Т30	595-1	Limits			
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	84% 90%	82% 86%	80% 87%	5	58-125% 73-139%	, , ,		



5.3.1 5



Matrix Spike/Matrix Spike Duplicate Summary

Job Numbe Account: Project:	er: 130413 MWHCODE Montgom San Juan Basin Pit Gro	ery Watson undwater Re	emed	iation 20	08-2009					
Sample	File ID DF	Analyz	zed	By	Pre	p Date	Prep I	Batch	Analytic	al Batch
T30744-1M	IS KK031246.D1	06/10/	09	FÍ	n/a	•	n/a		GKK1501	
T30744-1M	ISD KK031247.D1	06/10/	09	FI	n/a		n/a		GKK1501	
T30744-1	KK031241.D1	06/10/	09	FI	n/a		n/a		GKK150)1
The QC re	ported here applies to the f	ollowing sam	nple	s:]	Method:	SW846	8021B	
T30413-6										
		T30744	-1	Spike	MS	MS	MSD	MSD		Limits
CAS No.	Compound	ug/l	Q	ug/l	ug/l	%	ug/l	%	RPD	Rec/RPD
71-43-2	Benzene	4.1		20	26.9	114	26.0	110](3 1 10)	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	$1 \sim 1$	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	ТЗ	0744-1	Limits			
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	91% 156%*-	a	91% 153%*	a 13	% 3%	58-125 73-139	% %		

(a) Outside control limits due to matrix interference.



Page 1 of 1

5.3.2 5

e-Hardcopy 2.0 **Automated Report**



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





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.

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)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

Gulf Coast • 10165 Harwin Drive • Suite 150 • Houston, TX 77036 • tel: 713-271-4700 • fax: 713-271-4770 • http://www.accutest.com

1 of 17

Paul K Canevand

Laboratory Director

Paul Canevaro



Table of Contents

-

23

থ্য

-1-

Section 1: Sample Summary	3
Section 2: Case Narrative/Conformance Summary	4
Section 3: Sample Results	5
3.1: T45026-1: MW-1	6
3.2: T45026-2: MW-2	7
3.3: T45026-3: PW-3	8
3.4: T45026-4: TRIP BLANK	9
Section 4: Misc. Forms	10
4.1: Chain of Custody	11
Section 5: GC Volatiles - QC Data Summaries	14
5.1: Method Blank Summary	15
5.2: Blank Spike Summary	16
5.3: Matrix Spike/Matrix Spike Duplicate Summary	17



Sample Summary

.

Montgomery Watson

GCU 142

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



_

Job No: T45026





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



Laboral

4 of 17 JTEST.

Tage Tol T



÷.•

Section 3



Sample Results

Report of Analysis



			.		5			8
Client Sam Lab Sampl Matrix: Method: Project:	aple ID: MW-1 le ID: T45026 AQ - G SW846 GCU 1	5-1 round Wa 8021B 42	iter		Date S Date F Percer	Sampled: Received: nt Solids:		
Run #1 Run #2	File ID KK033923.D	DF 20	Analyzed 01/05/10	By FI	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GKK1618
Run #1 Run #2	Purge Volume 5.0 ml							
Purgeable	Aromatics							
CAS No.	Compound		Result	RL	MDL	Units	Q	
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene		597 10.7 26.5 159 29.3	20 20 20 40 20	7.2 5.6 5.0 19 7.1	ug/l ug/l ug/l ug/l ug/l	J	

130 20

Run# 1

97% 106% 11

Run# 2

ug/l

Limits

58-125%

73-139%

Report of Analysis

ND = Not detected MDL - Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range

m,p-Xylene

Surrogate Recoveries

4-Bromofluorobenzene

aaa-Trifluorotoluene

CAS No.

460-00-4

98-08-8

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



Page 1 of 1

	Page 1 of 1						
Client Sam Lab Sampl Matrix: Method: Project:	aple ID: MW-2 le ID: T45026-2 AQ - Grou SW846 802 GCU 142	nd Water 21B		Date S Date I Percer	Sampled: Received: nt Solids:	12/30/09 12/31/09 n/a	
Run #1 Run #2	File ID D KK033924.D 10	F Analyzed 00 01/05/10	By FI	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GKK1618
Run #1 Run #2	Purge Volume 5.0 ml						
Purgeable	Aromatics						
CAS No.	Compound	Result	RL	MDL	Units	Q	
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene m,p-Xylene	6660 6750 764 6210 1050 5160	100 100 200 100 100	36 28 25 93 36 57	ug/l ug/l ug/l ug/l ug/l ug/l		
CAS No.	Surrogate Recove	ries Run# 1	Run# 2	Lim	its		
460-00-4 98-08-8	4-Bromofluoroben aaa-Trifluorotoluer	zene 102% ne 116%		58-1 73-1	25% 39%		

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



3.2

			nalysis		Page 1 of 1		
Client San Lab Samp Matrix: Method: Project:	mple ID: PW-3 ble ID: T45020 AQ - C SW846 GCU 1	5-3 Ground Wa 5 8021B 42	ater		Date Sampl Date Receiv Percent Sol	led: 12/30/09 ved: 12/31/09 ids: n/a	
Run #1 Run #2	File ID KK033925.D	DF 50	Analyzed 01/05/10	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GKK1618
Run #1 Run #2	Purge Volume 5.0 ml						
Purgeable	Aromatics						
CAS No.	Compound		Result	RL	MDL Uni	its Q	

0110 1.00	e ompound		100		Onno	Ň
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	Lim	its	
460-00-4	4-Bromofluorobenzene	100%	-	58-1	25%	
98-08-8	aaa-Trifluorotoluene	122%	en)	73-1	39%	

,

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 Sam Lab Sampl Matrix: Method: Project:	aple ID: TRIP B le ID: T45026 AQ - T SW846 GCU 14	LANK -4 rip Blank V 8021B 42	Vater		Date S Date I Percer	Sampled: Received nt Solids					
Run #1 Run #2	File ID KK033909.D	DF 1	Analyzed 01/05/10	By FI	Prep D n/a	Date	Prep Batch n/a	Analytical Batch GKK1618			
Run #1 Run #2	Purge Volume 5.0 ml										
Purgeable	Aromatics										
CAS No.	Compound		Result	RL	MDL	Units	Q				
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene m,p-Xylene		ND ND ND ND ND ND	1.0 1.0 2.0 1.0 1.0	0.36 0.28 0.25 0.93 0.36 0.57	ug/l ug/l ug/l ug/l ug/l ug/l					
CAS No.	Surrogate Rec	overies	Run# 1	Run# 2	Lim	its	·				
460-00-4 98-08-8	4-Bromofluoro aaa-Trifluoroto	benzene luene	93% 108%		58-1 73-1	25% 39%					

· · .

. . .

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





Section 4



Custody Documents and Other Forms

Includes the following where applicable:

• Chain of Custody





CHAIN OF CUSTODY

	Laboratories 10165 Harwin, Suite 150 -	Houston, TX 7	7036 -	713-25	1-47	00 £	IX: 7	713.	.27	1-4'	770	1	FED	-7-6	39	<u>86</u>	91	392	Bottle	Order Co	introi 4	-	715	
	10105 Hurmin, Butte 100 -	11003001, 170 7	7050-	110 41	1 47	00 11		15	- 44 7 .	1-4	//0		Accu	nat Gu		10442-06		1010121212	Accute System Total	N 001 28	Cristian (1)	1	45	026
Manufacture and a second	Client / Reporting Information	STATES CARE AND	Carl + Parts	Anne Michigan Information Must represent a service and the service of the service						1999-00 1999-00	1220-14 5-14547	19-2-11 19-15-4		26682400 921	Reque	sted A	nalvse	POPDAN	1000	an a	Matrix Codes			
Company N		and and the state of the second	Project N	ect Name / No.					ano-Lav.	1.000	-	T				1	T	1	Ť-	1	1	DW - Drinking Water		
MWH			GC	GCU Htz									1 2									1		GW - Ground Water
Project Con	tact	E-Mall	BIII to ¹		1.			nvolce	Attn					. 1	ļ						1			WW - Westewater
Jert Smith	ied smith@u	mwhalobal com	FI Paso	Com			Nor	na R	ame				1					1						80 - Sol
Address	i jed.eriting	intrigio bandoni	Address	oorp			14011		- anne				1 4		1	1	1			· ·	1	1		SL - Sludgo
1801 Cal	ifornia Street Suite 2000		10011	wiejana S	traat E	om 610							i c	:						1				01-01
City	State	Zip	City	//////////////////////////////////////			State					Zip	- 6								i i]		LiQ - Liquid
Denver	co	80202	Hou				τх				7	7002										Í		SQL - Other Solid
Phone No.		Fax No.	Phone No							F	ax No		- 킁											
303-201-	2276																		1	1			1	
Samplers's	Name		Client Pur	chase Order	#					_			-1 @	•					{	1		Į –		
			V	VO 9-	129	3							802											
Accutest		· · · · · · · · · · · · · · · · · · ·	Collectio	<u>n</u>			Nu	mber	of p	eser	ved	boltles							1		1			
Sample #	Field ID / Point of Collection		ale	Time	Matrix	# of bottles	₽ İ	J I	Į	NCOHI	09141	Head								ļ	ľ			LAB USE ONLY
1	Mhi-1	177	D. 61	147.5	GW	3	17	-	+		Î			1		1		-			<u> </u>			
2	MIN -2	112-	30-109	1503	Givil	3	17	1	\uparrow	\square		-		1-		1			1	1	1			
3	PW-3	12-1	30-09	1503	Gw	1			1-	\vdash			1	7						1				
	····																				1			
									Τ			1-	-	+										
								1	-	Γ														
																			1		1			
													1	1-								Γ		
						<u> </u>		T					-							1		<u> </u>		
									T	Π														
和政治教育的法理	Tumeround Time (Business days)	のないないのである。		10000000000000000000000000000000000000	Data	Jelivorab!	e Infor	mation	544	51931	(chian	200	1000	57 25	Sec. 4	24438	<u>لة</u>	Co	ញាភាមភាព	/ Rama	rks		いい	en fer versen se
X	10 Day STANDARD	Approved By:/ Date:		Come	vercial "/	4 "		TRRP	-13					-					H sam	nies an	n raceli	ad un		ed, plasse optify
	7 Day			X Com	nercial "E	3" .		EDD F	orma	ıt				L					MWH	regardi	ng hala	ling tir	nelli	
	4 Day RUSH			Redui	ed Tier	1		Other			-	_												
	3 Day EMERGENCY			Fuli D	ata Pack	age								L										
	2 Day EMERGENCY																							
	1 Day EMERGENCY			Comm	erclat "A"	P Resul	ls Only	1																
	Olher -		•	Comm	rcial "B	" = Resul	ts & 6t	andar	4 QC					-										
Real (ime analytical data available via La	ablink																						
NAMES AND	SAM	PLE CUSTODY MUST BE D	OCUMENT	BELOW	ACH TIM	ESAMP	LES CH	IANG	E POS	SES	SION,	INCLU	DING C	DURIE	RDEL	VERY		an.	6566	ists (G)	Hours A		思知的法	eretik de de Person Pros
1 UL	War K GOPA	Data Tima: 11a	12-30-5 30	TReceived By:					2	nquist Fi	ud By	F.	,		2/		9	700	2	⊁	-	ς.		\rightarrow
Relinquist	ved by: ()	Date Time:		Received By:					Rell	ngulai	red By	:			Dat	Time:			Receiv	ed By:				
3				3					4										4					
Relinguist	ed by:	Dala Time:		Received By:					Cus	lody S	eni #			Pres	erved v	/hera ap	plicable				Da I S	່?	Cooler .D	Temp.
3				19	_																	~ ~	-	

T45026: Chain of Custody Page 1 of 3



. .



JOB #:	<u> </u>	T45026	SAMPLE		LOG	12/31	90			
CLIENT:		MWH	INITIALS:					<u> </u>	. <u></u>	
COOLER#	SAMPLE ID	FIELD ID	DATE	MATRIX	VOL	BOTTLE #	LOCATION	PRESERV	P	н
		<u>MU/-1</u>	12/30/09 15.0	3 W	40m	1-3	VR	1 (2) 3 4 5 6 7 8	<2 '	>12
	2	MW-2	12/30/01 14:	25		1-3		1 (2) 3 4 5 8 7 8	<2	>12
	3	pw-3	12/30/09 15:0	3		1	1	1 <u>(2)</u> 3 4 5 6 7 8	<2	>12
Ļ	4	TRIP Blank		\mathbb{N}	HOME	1-2	VR	1 2 3 4	<2	>12
								1 2 3 4 5 6 7 8		>12
								1 2 3 4 5 8 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 B	<2	>12
								1 2 3 4 5 6 7 8	<2	>12
		,				1		1 2 3 4 5 6 7 8	<2	>12
						1		1 2 3 4 5 8 7 8	<2	>12
								1 2 3 4 5 8 7 8	<2	>12
					1	1		1 2 3 4 5 8 7 8	<2	>12
		/			1			1 2 3 4 5 6 7 8	<2	>12
								1 2 3 4 5 6 7 B	<2	>12
								1 2 3 4 5 6 7 8	<2	>12
					1	1	1	1 2 3 4 5 6 7 8	<2	>12
								1 2 3 4 5 6 7 B	<2	>12
								1 2 3 4 5 8 7 8	<2	>12
						1		1 2 3 4 5 6 7 8	<2	>12
	2					1		-1-2 3 4 5 8 7 8	<2	>12

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

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

Ray 8/13/01 000

T45026: Chain of Custody Page 2 of 3

.

.



4.1

T45026: Chain of Custody Page 3 of 3



4.1



Section 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:	T45026
Account:	MWHCODE Montgomery Watson
Project:	GCU 142

Sample	File ID DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1618-MB	KK033908.D1	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
71-43-2 100-41-4 108-88-3 1330-20-7 95-47-6	Benzene Ethylbenzene Toluene Xylenes (total) o-Xylene m,p-Xylene	ND ND ND ND ND ND	1.0 1.0 2.0 1.0 1.0	0.36 0.25 0.28 0.93 0.36 0.57	ug/l ug/l ug/l ug/l ug/l ug/l
CAS No.	Surrogate Recoveries		Limi	ts	
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	99% 109%	58-12 73-13	25% 39%	

• -,

				1	5	5	c)	F	1	;	7
GAC	C		L	J	٦	Π	E		2	3	1	
T45026	1.	9	'n	n	ť	6	ì	Q	r	ï	8	5

÷

5.1.1 5

Blank Spike Summary

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

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch	
GKK1618-BS	KK033905	5.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	Li					
460-00-4	4-Bromofluorobenzene	98%	- 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.D1	01/05/10	FÍ	n/a	n/a	GKK1618
T45011-6MSD	KK033915.D1	01/05/10	FI	n/a	n/a	GKK1618
T45011-6	KK033913.D1	01/05/10	FI	n/a	n/a	GKK1618

The QC reported here applies to the following samples:

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	T4	45011-6	Limits			
460-00-4	4-Bromofluorobenzene	98%	. 99%	.	8%	58-1259	%		
98-08-8	aaa-Trifluorotoluene	108%	109%	.11	2%	73-139	%		



Method: SW846 8021B

Page 1 of 1

5.3.1

থ