

3R - 186

REPORTS

DATE:

2003

32186



Certified Mail: #7002 0510 0000 0307 7497

February 26, 2004

RECEIVED

MAR 03 2004

Mr. William C. Olson
New Mexico Oil Conservation Division
1220 St. Francis Dr.
Santa Fe, NM 87504

**Oil Conservation Division
Environmental Bureau**

RE: 2003 Pit Project Annual Groundwater Report

Dear Mr. Olson:

In accordance with reporting requirements, El Paso Field Services (EPFS) has enclosed annual reports for the 24 remaining groundwater impacted sites that were identified during our pit closure project of 1994 / 1995.

EPFS has organized the 24 Annual Reports (Volumes 1, 2 and 3) by land type. Volume 1 contains Annual Reports for sites found on Federal land. Volume 2 contains Non Federal sites and Volume 3 contains sites on Navajo land. Of the 24 reports submitted, EPFS is requesting closure of one site located on Navajo lands (Jennepah #1). EPFS understands closure of groundwater sites on Navajo lands falls under jurisdiction of the Navajo Nation Environmental Protection Agency and original documents have been submitted to them for review. Other Navajo sites are included in the report for your information.

If you have any questions concerning the enclosed reports, please call me at (505) 599-2124.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott T. Pope".

Scott T. Pope P.G.
Senior Environmental Scientist

xc: Mr. Denny Foust, NMOCD, Aztec - w / enclosures; **Certified Mail # 7002 0510 0000 0307 7473**
Mr. Bill Liesse, BLM - w / enclosures (federal sites only), **Certified Mail # 7002 0510 0000 0307 7466**

**2003 ANNUAL GROUNDWATER REPORT
FEDERAL SITES VOLUME I
EL PASO FIELD SERVICES**

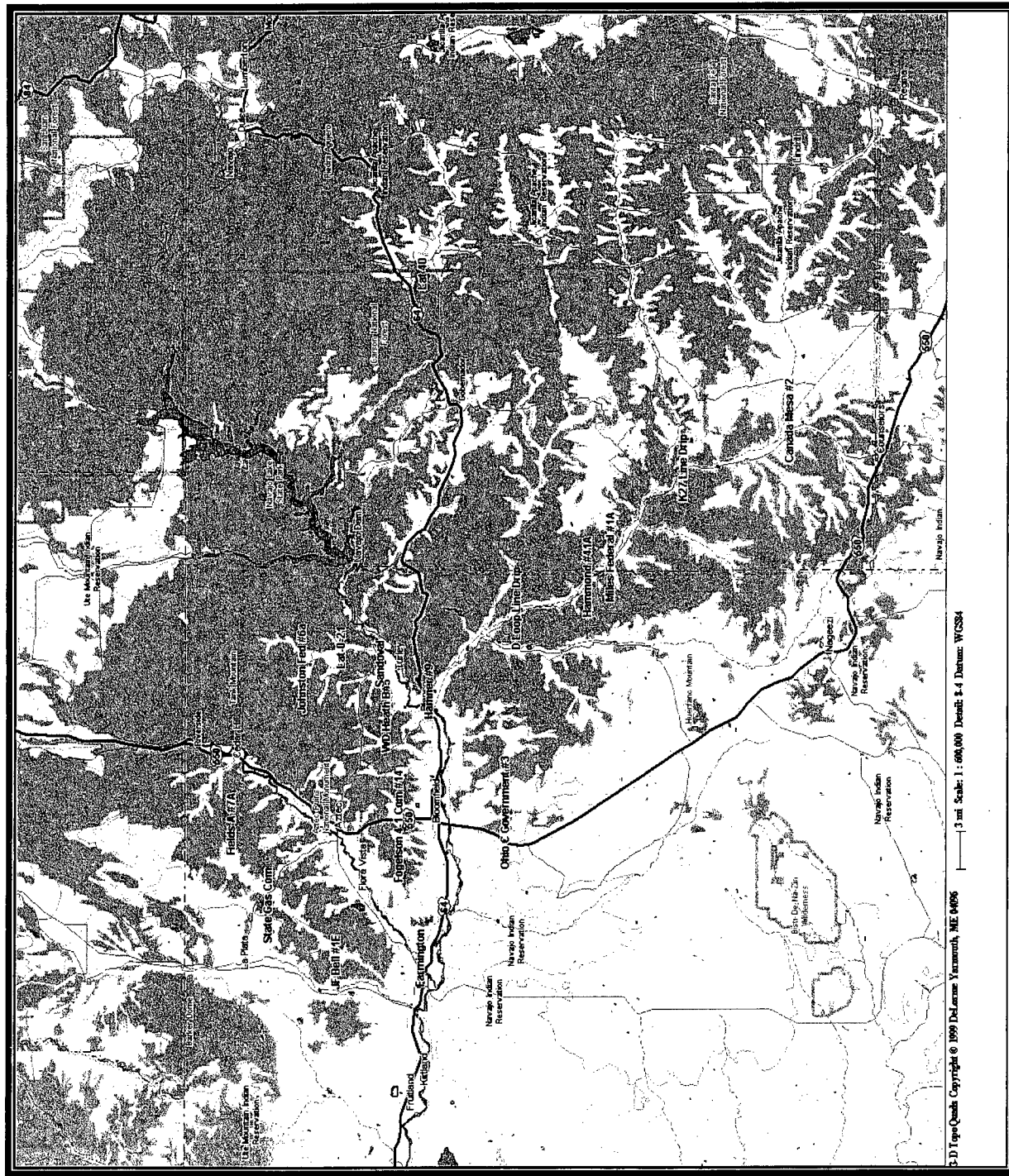
TABLE OF CONTENTS

METER or LINE ID	SITE NAME	TOWNSHIP	RANGE	SECTION	UNIT
89961	Fields A#7A	32N	11W	34	E
89232	Johnston Fed #6A	31N	09W	35	F
94715	James F. Bell #1E	30N	13W	10	P
89620	Sandoval GC A #1A	30N	09W	35	C
LD151	Lat 0-21 Line Drip	30N	09W	12	O
73220	Fogelson 4-1 Com. #14	29N	11W	4	P
97213	Hamner #9	29N	09W	20	A
LD174	LAT L 40	28N	04W	13	H
89894	Hammond #41A	27N	08W	25	O
94810	Miles Fed 1A	26N	07W	5	F
LD072	K27 LD072	25N	06W	4	E
87640	Canada Mesa #2	24N	06W	24	I



MWH
MONTGOMERY WATSON HARZA

Federal Groundwater Site Map



LIST OF ACRONYMS

B	benzene
btoc	below top of casing
E	ethylbenzene
EPFS	El Paso Field Services
ft	foot/feet
GWEL	groundwater elevation
ID	identification
MW	monitoring well
PSH	phase-separated hydrocarbons
NMWQCC	New Mexico Water Quality Control Commission
T	toluene
TOC	top of casing
NA	not applicable
NE	not established
NM	not measured
NMOCD	New Mexico Oil Conservation Division
NS	not sampled
ORC	oxygen-releasing compound
ppb	parts per billion
µg/L	micrograms per liter
X	total xylenes

**EPFS GROUNDWATER SITES
2003 ANNUAL GROUNDWATER REPORT**

**Hammond #41A
Meter Code: 89894**

SITE DETAILS

Legal Description:	Town: 27N	Range: 8W	Sec: 25	Unit: O
NMOCD Haz Ranking: 40	Land Type:	Federal	Operator:	R&G Drilling Company

PREVIOUS ACTIVITIES

Site Assessment:	6/94	Excavation:	7/94	Soil Boring:	7/95
Monitor Well:	5/97	Geoprobe:	11/96	Additional MWs:	9/99
Downgradient MWs:	9/99	Replace MW:	NA	Quarterly Initiated:	6/97
ORC Nutrient Injection:	7/98	Re-Excavation:	5/97	PSH Removal Initiated:	NA
Annual Initiated:	9/99	Quarterly Resumed:	NA		

SUMMARY OF 2003 ACTIVITIES

Closure was requested for this site during 2002, as detailed in the *Pit Closure Report-Hammond #41A*, submitted on November 27, 2002. Supporting documentation is provided with that report. EPFS discontinued quarterly monitoring pending closure approval. In response to the report, NMOCD requested that a temporary monitoring well be installed and sampled prior to granting final closure. This well (TMW-1) was installed and sampled in August 2003. A second closure request was submitted to NMOCD on September 2, 2003, but was denied due to a total xylenes concentration of 625 µg/L, which is above the NMOCD standard of 620 µg/L. All other BTEX concentrations were below standards.

Monitoring well TMW-1 was sampled again in November 2003. During this sampling event, both benzene (19 µg/L) and total xylenes (1,200 µg/L) concentrations were above standards. TMW-1 was completed as a permanent monitoring well with a steel surface casing and locking cap in February 2004.

SITE MAPS

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

**EPFS GROUNDWATER SITES
2003 ANNUAL GROUNDWATER REPORT**

**Hammond #41A
Meter Code: 89894**

SUMMARY TABLES AND GRAPHS

- Analytical data from TMW-1 are summarized in Table 1, and historic data for all wells are presented graphically in Figures 3 through 6.
- Laboratory reports are presented in Attachment 1.
- Field documentation is presented in Attachment 2.

GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

The geologic log and well completion diagram for TMW-1 were submitted to NMOCD with the September 2003 closure request letter, and are included in Attachment 3.

DISPOSITION OF GENERATED WASTES

Soil cuttings from drilling were spread at the drill site. Drilling fluid was not used.

ISOCONCENTRATION MAPS

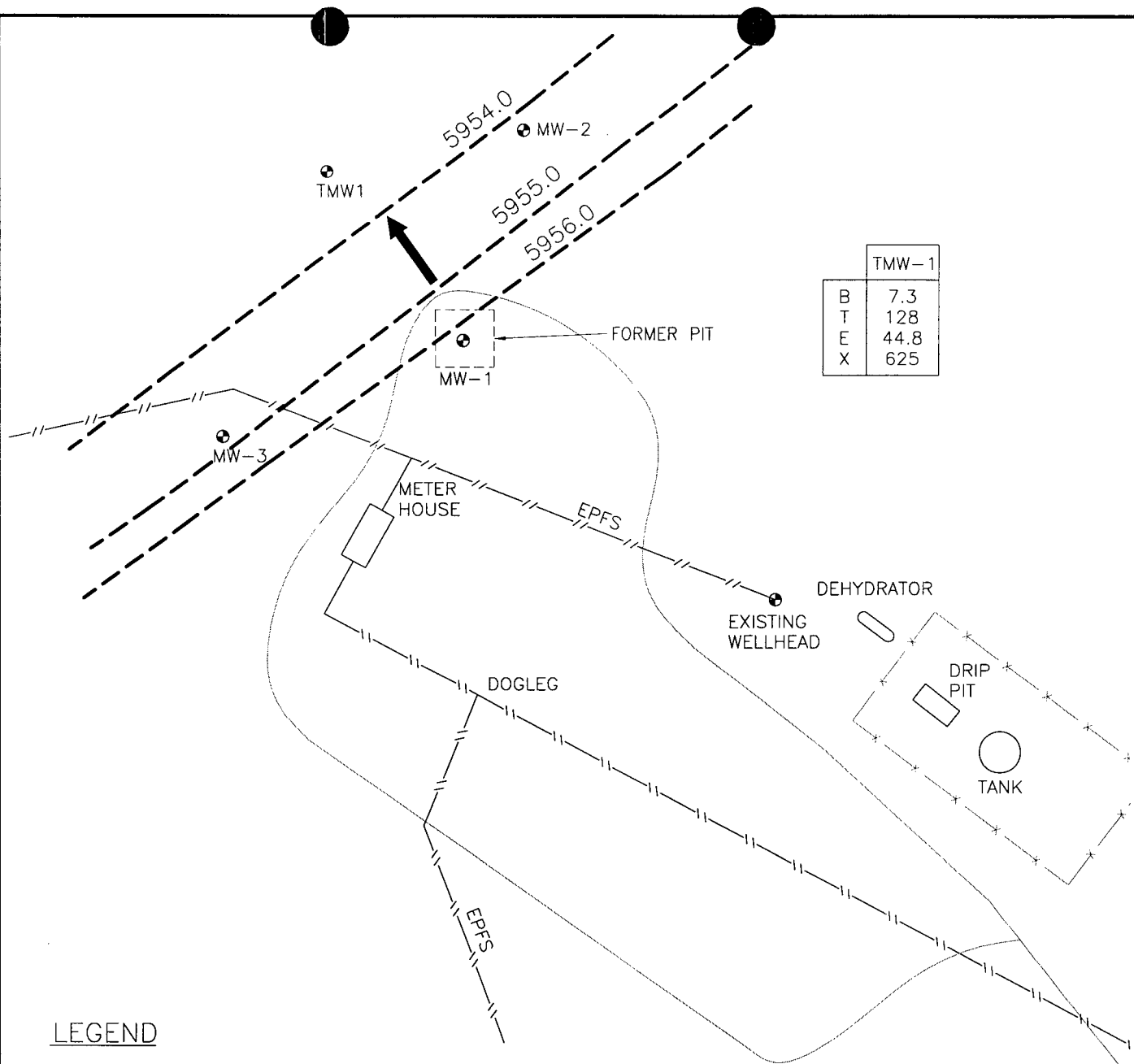
No isoconcentration maps were prepared for this site, however, the attached site maps present both the water level and analytical data collected during 2003.

CONCLUSIONS

- Benzene and total xylenes concentrations were above standards in TMW-1 in samples collected in 2003.

RECOMMENDATIONS

- Based on NMOCD's October 20, 2003 letter rejecting site closure, TMW-1 will be sampled quarterly until four consecutive quarters of cleanup criteria have been achieved.
- Because historic samples have indicated that these wells have achieved closure standards, MW-1, MW-2 and MW-3 will be sampled again only at final closure.
- Once closure has been granted, all monitoring wells will be plugged and abandoned in accordance with the approved well abandonment plan.

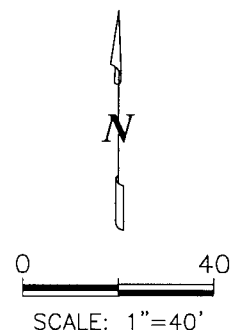


TMW-1	
B	7.3
T	128
E	44.8
X	625

LEGEND

- MW-1 Approximate Monitoring Well Location and Number
- Road
- Fence Line
- Pipe Line
- 6566.0 Potentiometric Surface (Assumed Where Dashed)
- Direction of Groundwater Flow
- GWEL Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
- TOC Top of Casing

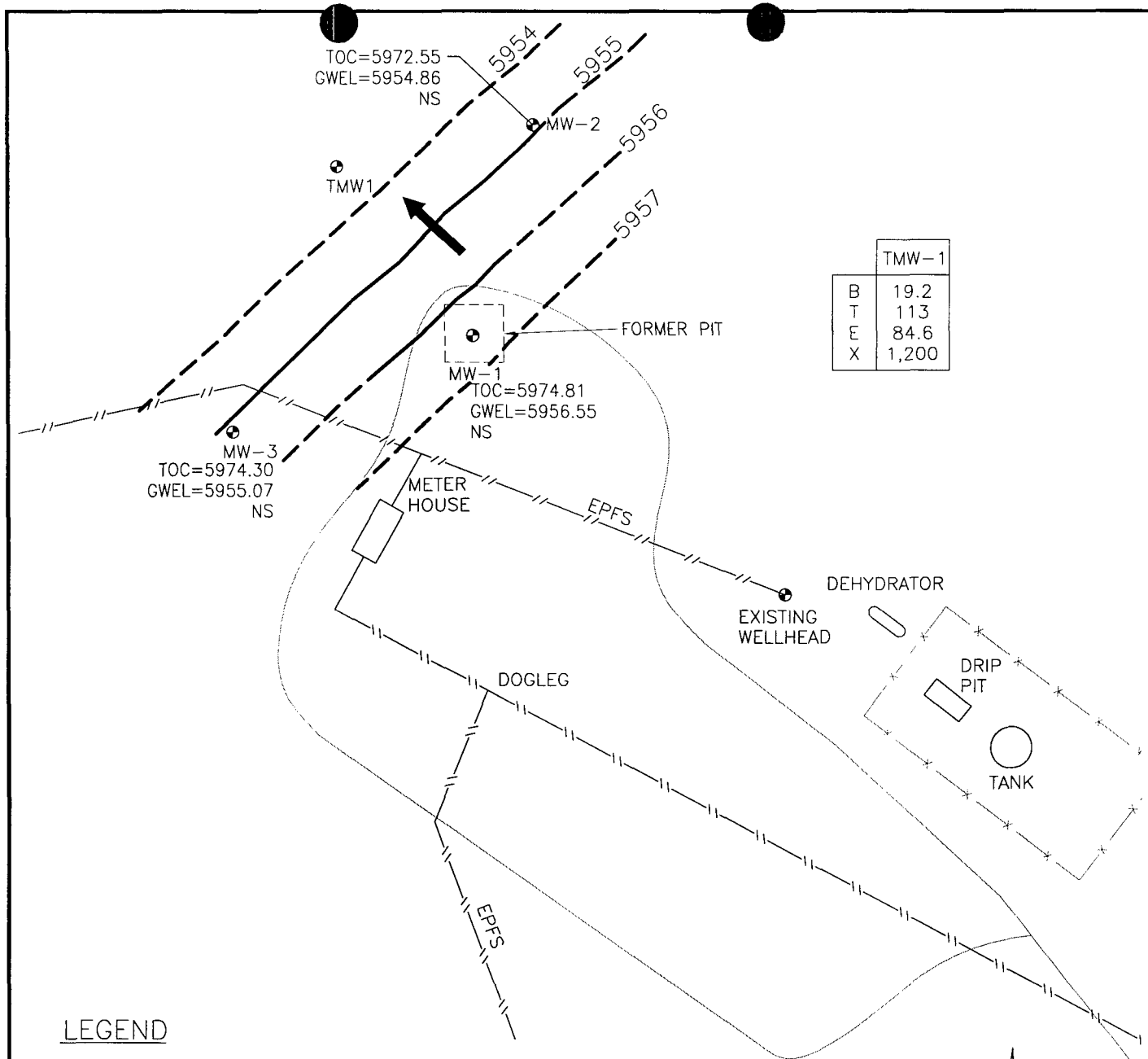
- B Benzene ($\mu\text{g/L}$)
- T Toluene ($\mu\text{g/L}$)
- E Ethylbenzene ($\mu\text{g/L}$)
- X Total Xylenes ($\mu\text{g/L}$)
- NS Not Sampled



HAMMOND #41 A, METER 89894
AUGUST 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 1

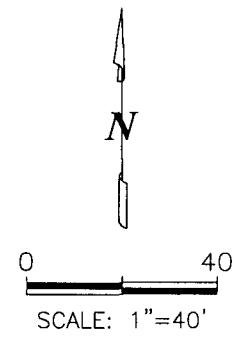


TMW-1	
B	19.2
T	113
E	84.6
X	1,200

LEGEND

- MW-1 Approximate Monitoring Well Location and Number
- Road
- Fence Line
- Pipe Line
- 6566.0 Potentiometric Surface (Assumed Where Dashed)
- Direction of Groundwater Flow
- GWEL Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
- TOC Top of Casing

- B Benzene ($\mu\text{g/L}$)
- T Toluene ($\mu\text{g/L}$)
- E Ethylbenzene ($\mu\text{g/L}$)
- X Total Xylenes ($\mu\text{g/L}$)
- NS Not Sampled



HAMMOND #41 A, METER 89894
NOVEMBER 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 2

hammond41a_8-03.dwg

TABLE 1

SUMMARY OF BTEX COMPOUNDS IN 2003 GROUNDWATER SAMPLES
HAMMOND #41A (METER #89894)

Site Name	Monitoring Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft btoc)
Hammond #41A	TMW1	8/13/2003	7.3	128	44.8	625	17.22
Hammond #41A	TMW1	11/15/2003	19.2	113	84.6	1,200	16.40

FIGURE 3
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
HAMMOND #41A
MW-1

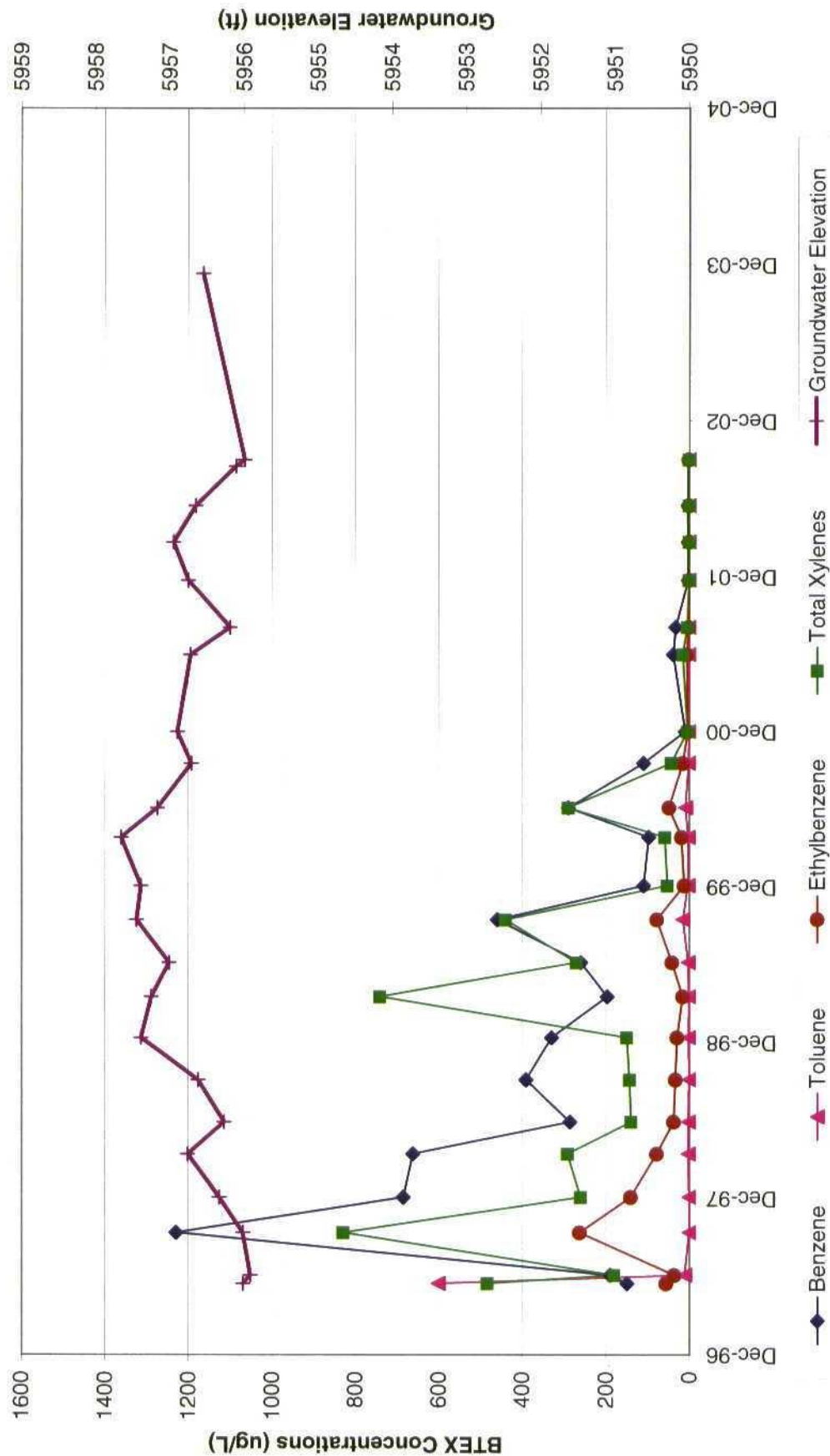


FIGURE 4
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
HAMMOND #41A
MW-2

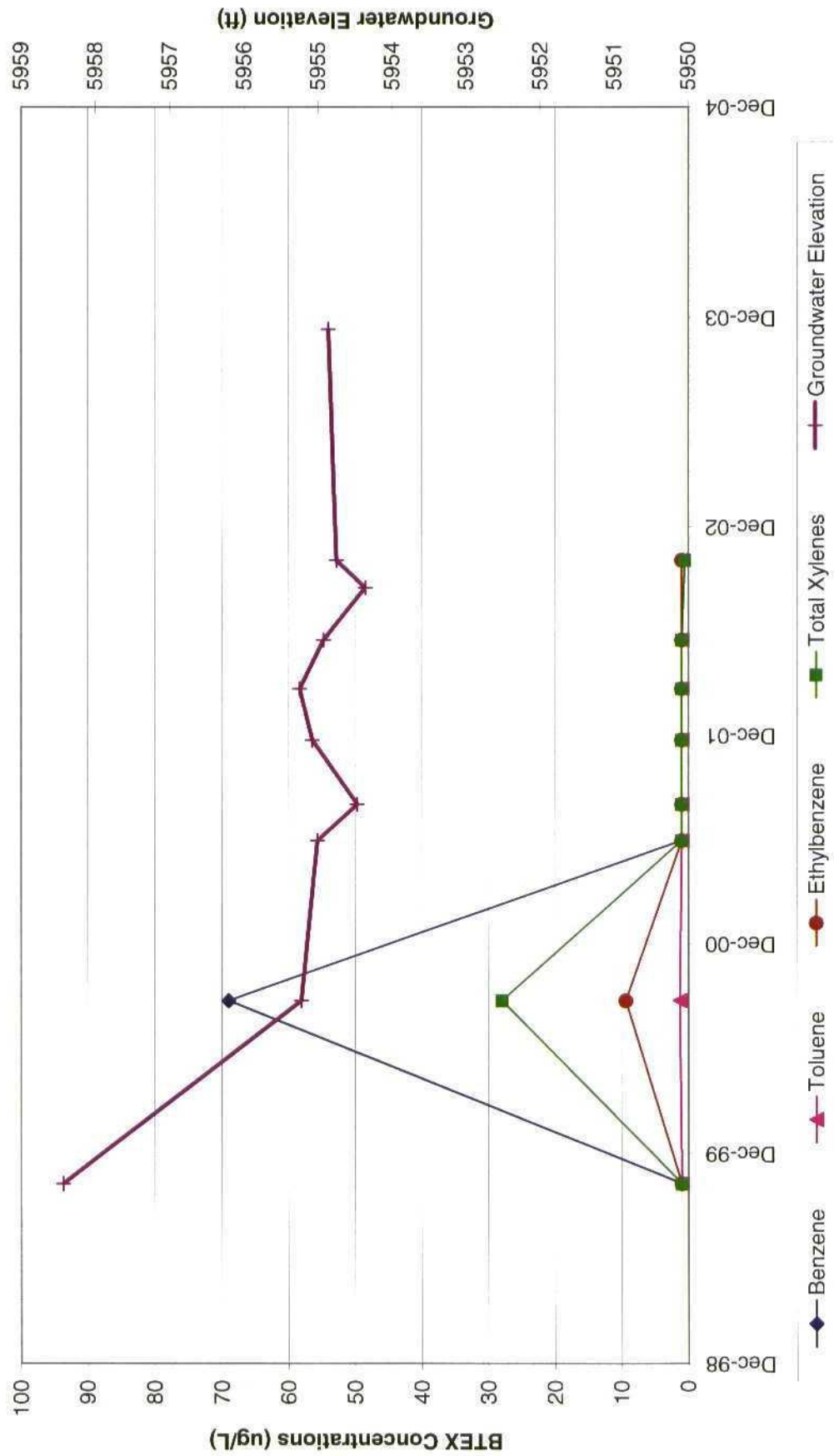


FIGURE 5
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
HAMMOND #41A
MW-3

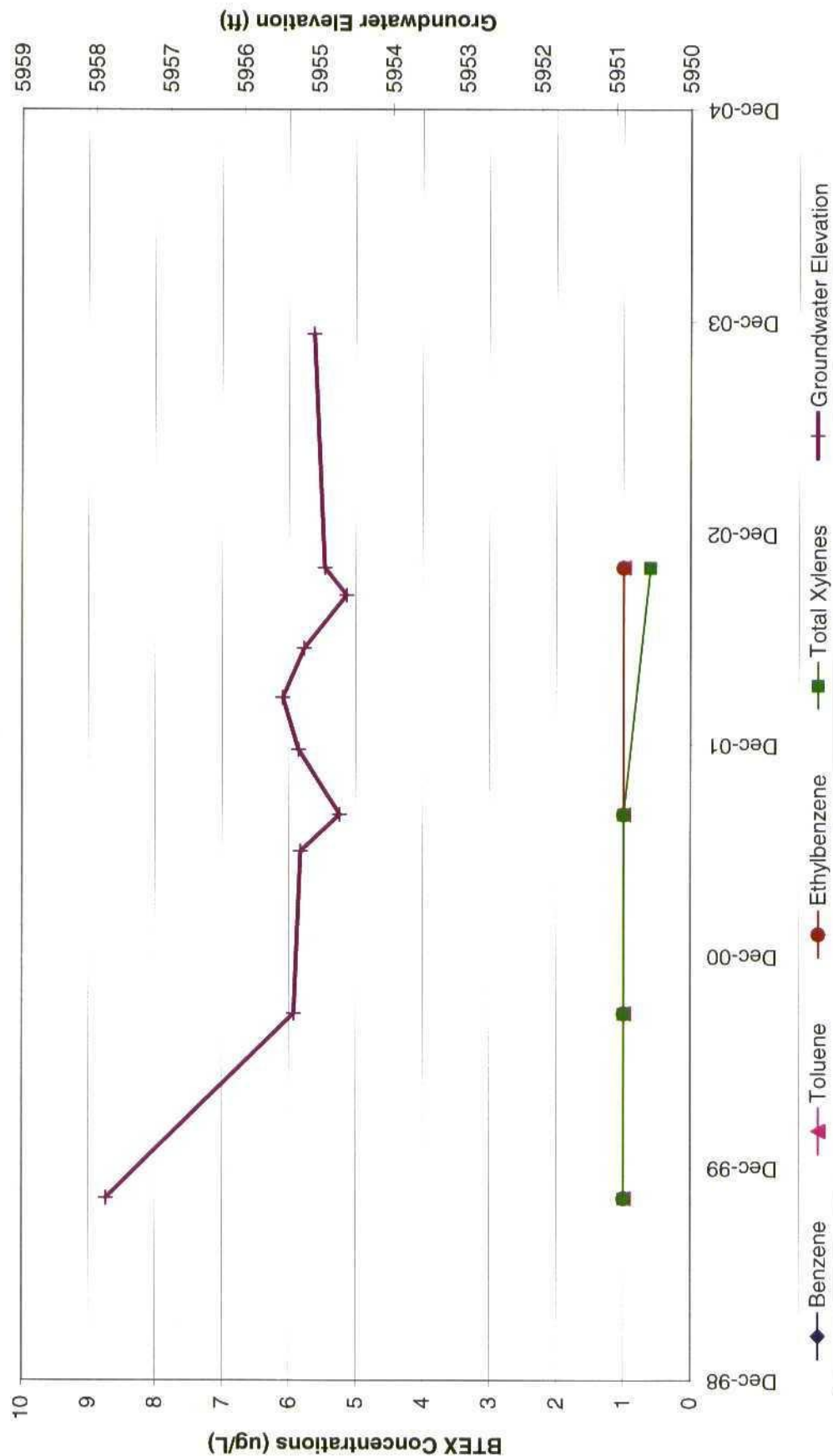
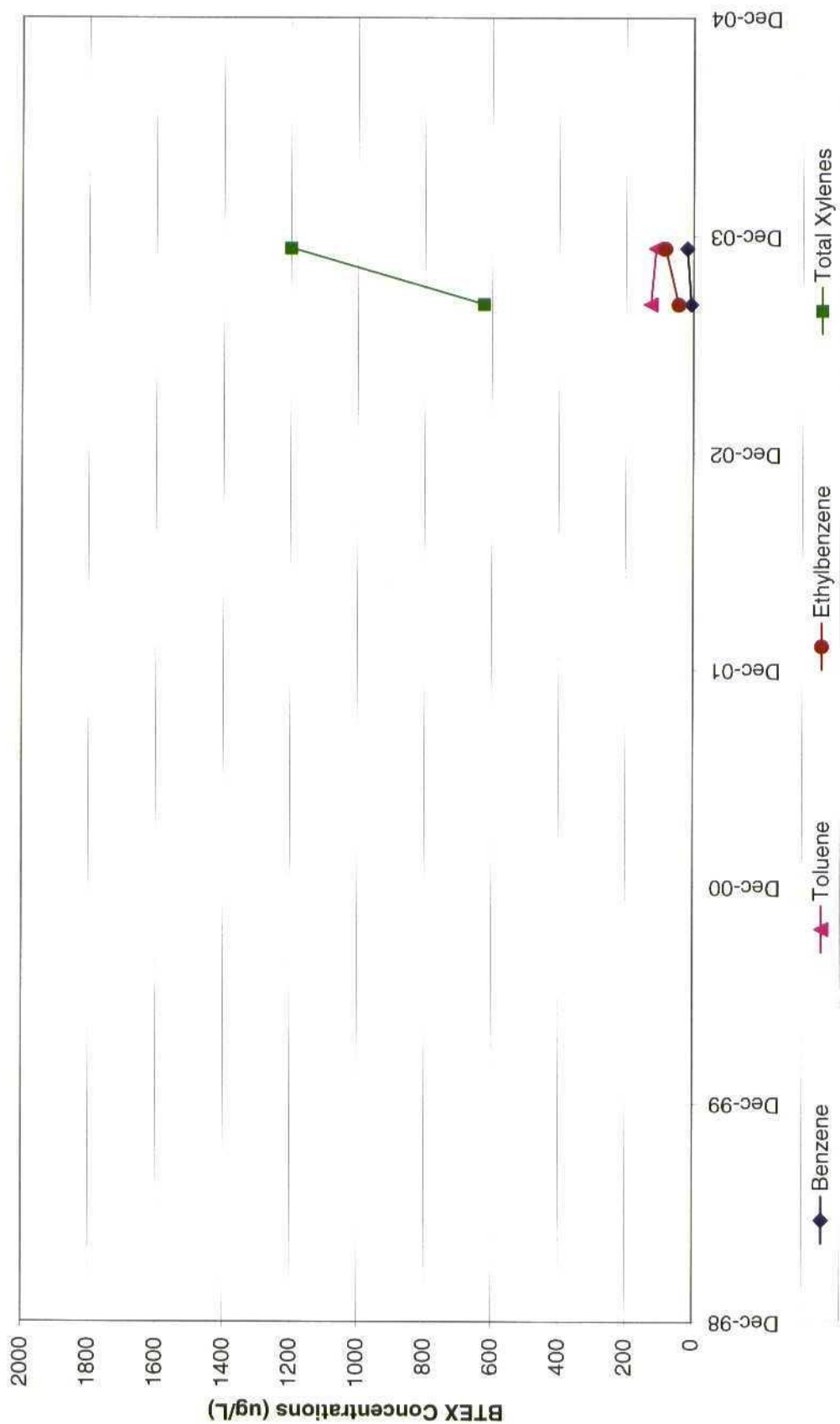


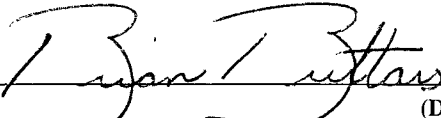
FIGURE 6
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
HAMMOND #41A
TMW-1



ATTACHMENT 1
LABORATORY REPORTS

(Page 1 of 2)

(Page 1 of 2)

Analytical Method/Analytes:	<u>SW-846 8021B (BTEX)</u>	Sample Collection Date(s):	<u>11/15/03</u>
Laboratory:	<u>Accutest</u>	MWH Job Number:	<u>EPC-SJRB</u> <u>(Groundwater)</u>
Batch Identification:	<u>T6102</u>	Matrix:	<u>Water</u>
MS/MSD Parent(s) ^(a) :	<u>None</u>	Field Replicate Parent(s):	<u>None</u>
Validation Complete:	<u></u> <u>12-04-03</u> (Date/Signature)		

[illegible]

DATA VALIDATION WORKSHEET

(Page 2 of 2)

Analytical Method: SW-846 8021B (BTEX) **MWH Job Number:** EPC-SJRB (Groundwater)

Laboratory: Accutest **Batch Identification:** T6102

Validation Criteria							
Sample ID	Hammond 41A MW-1	151103TB 01					
Lab ID	T6102-01	T6102-02					
Holding Time	A	A					
Analyte List	A	A					
Reporting Limits	A	A					
Surrogate Spike Recovery	A	A					
Trip Blank	A	A					
Equipment Rinseate Blanks	N/A	N/A					
Field Duplicate/Replicate	N/A	N/A					
Initial Calibration	N	N					
Initial Calibration Verification (ICV)	N	N					
Continuing Calibration Verification (CCV)	N	N					
Method Blank	A	A					
Laboratory Control Sample (LCS)	A	A					
Laboratory Control Sample Duplicate (LCSD)	N	N					
Matrix Spike/Matrix Spike Dup. (MS/MSD)	N/A	N/A					
Retention Time Window	N	N					
Injection Time(s)	N	N					
Hardcopy vs. Chain-of-Custody	A	A					
EDD vs. Hardcopy	N	N					
EDD vs. Chain of Custody	N	N					

(a) List QC batch identification if different than Batch ID

A indicates validation criteria were met

A/L indicates validation criteria met based upon Laboratory's QC Summary Form

X indicates validation criteria were not met

N indicates data review were not a project specific requirement

N/A indicates criteria are not applicable for the specified analytical method or sample

N/R indicates data not available for review

NOTES:



12/02/03

Technical Report for

Montgomery Watson

EPFS San Juan Basin Groundwater Site

D-MWH-04-01-03-MSG-01

Accutest Job Number: T6102

Report to:

Montgomery Watson

brian.buttars@us.mwhglobal.com

ATTN: Brian Buttars

Total number of pages in report: 12



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.


Ron Martino
Laboratory Manager

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.

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Sample Summary

Montgomery Watson

Job No: T6102

EPFS San Juan Basin Groundwater Site
Project No: D-MWH-04-01-03-MSG-01

Sample Number	Collected Date	Time By	Received	Matrix Code Type	Client Sample ID
T6102-1	11/15/03	10:10 MN	11/18/03	AQ Water	HAMMOND 41A TMW-1
T6102-2	11/15/03	07:00 MN	11/18/03	AQ Water	151103TB01

Report of Analysis

Client Sample ID: HAMMOND 41A TMW-1
 Lab Sample ID: T6102-1
 Matrix: AQ - Water
 Method: SW846 8021B
 Project: EPFS San Juan Basin Groundwater Site

Date Sampled: 11/15/03
 Date Received: 11/18/03
 Percent Solids: n/a

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK006190.D	20	11/28/03	BC	n/a	n/a	GKK332
Run #2							

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	19.2	20	ug/l	J
108-88-3	Toluene	113	20	ug/l	
100-41-4	Ethylbenzene	84.6	20	ug/l	
1330-20-7	Xylenes (total)	1200	60	ug/l	
95-47-6	o-Xylene	259	20	ug/l	
	m,p-Xylene	937	40	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	85%		64-121%
98-08-8	aaa-Trifluorotoluene	86%		71-121%

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

Report of Analysis

Page 1 of 1

Client Sample ID:	151103TB01	Date Sampled:	11/15/03
Lab Sample ID:	T6102-2	Date Received:	11/18/03
Matrix:	AQ - Water	Percent Solids:	n/a
Method:	SW846 8021B		
Project:	EPFS San Juan Basin Groundwater Site		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK006187.D	1	11/28/03	BC	n/a	n/a	GKK332
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	
	m,p-Xylene	ND	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	79%		64-121%
98-08-8	aaa-Trifluorotoluene	78%		71-121%

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

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

[illegible]

T6102: Chain of Custody

Page 1 of 2



SAMPLE RECEIPT LOG

JOB #:

DATE/TIME RECEIVED:

118030915

CLIENT:

MWH EL PASO

INITIAL S:

29

Condition/Variance (Circle "Y" for yes and "N" for no. If "N" is circled, see variance for explanation):

1. ☒ Sample received in undamaged condition.
2. ☒ Sample received with proper pH.
3. ☒ Sample received within temp. range.
4. ☒ Sample received in proper containers.
5. ☒ Sample volume sufficient for analysts.
6. ☒ Chain of Custody matches sample IDs on containers.
7. ☒ Custody seal received intact and tamper evident on cooler.
8. ☒ Custody seal received intact and tamper evident on bottles.
9. ☒ Custody seal received with chain of custody.

[illegible]

LOCATION: Wl: Walk-In VR: Volatile Refrig. SUB: Subcontract EF: Encore Freezer

PRESERVATIVES: 1: None 2: HCL 3: HNO3 4: H2SO4 5: NAOH 6: Other

Comments:

~~pH of waters checked excluding volatiles~~

~~pH of soils N/A~~

Delivery method: Courier:

Tracking#:

Method of sample disposal: (circle one)	Accutest disposal	Hold	Return to Client
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100			

COOLER TEMP. 1.8°C

COOLER TEMP. 7.0
COOLER TEMP.

Form: SMA012

GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: T6102
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK332-MB	KK006186.D	1	11/28/03	BC	n/a	n/a	GKK332

The QC reported here applies to the following samples:

Method: SW846 8021B

T6102-1, T6102-2

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	
	m,p-Xylene	ND	2.0	ug/l	

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	77%
98-08-8	aaa-Trifluorotoluene	77%

Blank Spike Summary

Page 1 of 1

Job Number: T6102
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK332-BS	KK006185.D 1		11/28/03	BC	n/a	n/a	GKK332

The QC reported here applies to the following samples:

Method: SW846 8021B

T6102-1, T6102-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	19.0	95	74-119
100-41-4	Ethylbenzene	20	19.5	98	82-115
108-88-3	Toluene	20	19.0	95	77-116
1330-20-7	Xylenes (total)	60	58.8	98	79-115
95-47-6	o-Xylene	20	19.6	98	78-114
	m,p-Xylene	40	39.2	98	79-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	97%	64-121%
98-08-8	aaa-Trifluorotoluene	90%	71-121%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: T6102
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T6104-1MS ^a	KK006193.D 20		11/28/03	BC	n/a	n/a	GKK332
T6104-1MSD ^a	KK006194.D 20		11/28/03	BC	n/a	n/a	GKK332
T6104-1 ^a	KK006192.D 20		11/28/03	BC	n/a	n/a	GKK332

The QC reported here applies to the following samples:

Method: SW846 8021B

T6102-1, T6102-2

CAS No.	Compound	T6104-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	401		400	764	91	769	92	1	64-124/16
100-41-4	Ethylbenzene	755		400	1110	89	1110	89	0	64-123/14
108-88-3	Toluene	308		400	668	90	684	94	2	64-120/13
1330-20-7	Xylenes (total)	4700		1200	5750	88	5680	82	1	66-118/18
95-47-6	o-Xylene	1080		400	1430	88	1420	85	1	65-119/20
	m,p-Xylene	3620		800	4320	88	4260	80	1	66-120/14

CAS No.	Surrogate Recoveries	MS	MSD	T6104-1	Limits
460-00-4	4-Bromofluorobenzene	84%	84%	84%	64-121%
98-08-8	aaa-Trifluorotoluene	93%	97%	94%	71-121%

(a) Sample was not preserved to a pH < 2; reported results are considered minimum values.

(Page 1 of 2)

(Date/Signature)

[illegible]

DATA VALIDATION WORKSHEET
(Page 2 of 2)

Analytical Method: SW-846 8021B (BTEX) **MWH Job Number:** EPC-SJRB (Groundwater)

Laboratory: Accutest **Batch Identification:** T5132

Validation Criteria								
Sample ID	Charlie P2W TMW	Hammond 44A MW-4	130803TB 01					
Lab ID	T5132-01	T5132-02	T5132-03					
Holding Time	A	A	A					
Analyte List	A	A	A					
Reporting Limits	A	A	A					
Trip Blank	A	A	A					
Equipment Rinseate Blanks	N/A	N/A	N/A					
Field Duplicate/Replicate	N/A	N/A	N/A					
Surrogate Spike Recovery	A	A ¹	A					
Initial Calibration	N	N	N					
Initial Calibration Verification (ICV)	N	N	N					
Continuing Calibration Verification (CCV)	N	N	N					
Laboratory Control Sample (LCS)	A	A	A					
Laboratory Control Sample Duplicate (LCSD)	N	N	N					
Method Blank	A	A	A					
Matrix Spike/Matrix Spike Dup. (MS/MSD)	A ^{2,3,4}	N/A	N/A					
Retention Time Window	N	N	N					
Injection Time(s)	N	N	N					
Hardcopy vs. Chain-of-Custody	A	A	A					
EDD vs. Hardcopy	N	N	N					
EDD vs. Chain of Custody	N	N	N					

(a) List QC batch identification if different than Batch ID

A indicates validation criteria were met

A/L indicates validation criteria met based upon Laboratory's QC Summary Form

X indicates validation criteria were not met

N indicates data review were not a project specific requirement

N/A indicates criteria are not applicable for the specified analytical method or sample

N/R indicates data not available for review

NOTES:

- 1) Surrogate percent recovery outside acceptance criteria for aaa-Trifluorotoluene @ 125% (71-121). Only one surrogate outside acceptance criteria, no data qualified.
- 2) Matrix spike surrogate percent recoveries outside acceptance criteria for aaa-Trifluorotoluene @ 141% (71-121). Only one surrogate outside acceptance criteria, data quality not affected.
- 3) Matrix spike percent recovery for Benzene outside acceptance criteria @ 146% (64-124), indicating a possible high bias. Analyte not detected in parent sample, no data qualified.
- 4) Matrix spike/matrix spike duplicate (MS/MSD) relative percent difference (RPD) outside acceptance criterion @ 27% (16). Analyte not detected in parent sample, no data qualified.



CHAIN CUSTODY # 130803 and 130805

FED-EX Tracking # 835603757103	Bottle Order Control #
Accutest Quote #	Accutest Job #

[illegible]



Gulf Coast
ACCUTEST.
Laboratories

08/27/03

Technical Report for

Montgomery Watson

EPFS San Juan Basin Groundwater Site

Accutest Job Number: T5132

Report to:

MWH

pamela.j.anderson@us.mwhglobal.com

ATTN: Pam Anderson

Total number of pages in report: 9



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.

Ron Martino
Laboratory Manager

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Sample Summary

Montgomery Watson

Job No: T5132

EPFS San Juan Basin Groundwater Site

Sample Number	Collected Date	Time By	Received	Matrix Code Type	Client Sample ID
T5132-1	08/13/03	08:40 MN	08/14/03	AQ Ground Water	CHARLIE PAH4 TMW
T5132-2	08/13/03	10:20 MN	08/14/03	AQ Ground Water	HAMMOND 44A TMW-1
T5132-3	08/13/03	07:00 MN	08/14/03	AQ Ground Water	130803TB01

Report of Analysis

Page 1 of 1

Client Sample ID: CHARLIE PAH4 TMW
 Lab Sample ID: T5132-1
 Matrix: AQ - Ground Water
 Method: SW846 8021B
 Project: EPFS San Juan Basin Groundwater Site

Date Sampled: 08/13/03
 Date Received: 08/14/03
 Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK005653.D	1	08/22/03	BC	n/a	n/a	GKK302
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	
	m,p-Xylene	ND	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	98%		64-121%
98-08-8	aaa-Trifluorotoluene	102%		71-121%

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

Report of Analysis

Page 1 of 1

Client Sample ID:	HAMMOND 44A TMW-1	Date Sampled:	08/13/03
Lab Sample ID:	T5132-2	Date Received:	08/14/03
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8021B		
Project:	EPFS San Juan Basin Groundwater Site		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK005650.D	1	08/22/03	BC	n/a	n/a	GKK302
Run #2	KK005651.D	20	08/22/03	BC	n/a	n/a	GKK302

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	7.3	1.0	ug/l	
108-88-3	Toluene	128 ^a	20	ug/l	
100-41-4	Ethylbenzene	44.8	1.0	ug/l	
1330-20-7	Xylenes (total)	625 ^a	60	ug/l	
95-47-6	o-Xylene	155 ^a	20	ug/l	
	m,p-Xylene	470 ^a	40	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	105%	98%	64-121%
98-08-8	aaa-Trifluorotoluene	125%	100%	71-121%

(a) Result is from Run# 2

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

Report of Analysis

Page 1 of 1

Client Sample ID:	130803TB01	Date Sampled:	08/13/03
Lab Sample ID:	T5132-3	Date Received:	08/14/03
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8021B		
Project:	EPFS San Juan Basin Groundwater Site		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK005646.D	1	08/22/03	BC	n/a	n/a	GKK302
Run #2	KK005652.D	1	08/22/03	BC	n/a	n/a	GKK302

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	
	m,p-Xylene	ND	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	93%	93%	64-121%
98-08-8	aaa-Trifluorotoluene	101%	102%	71-121%

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

GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Blank Spike Summary

Page 1 of 1

Job Number: T5132
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK302-BS	KK005644.D	1	08/22/03	BC	n/a	n/a	GKK302

The QC reported here applies to the following samples:

Method: SW846 8021B

T5132-1, T5132-2, T5132-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	20.8	104	74-119
100-41-4	Ethylbenzene	20	20.7	104	82-115
108-88-3	Toluene	20	20.8	104	77-116
1330-20-7	Xylenes (total)	60	61.3	102	79-115
95-47-6	o-Xylene	20	20.3	102	78-114
	m,p-Xylene	40	41.0	103	79-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	99%	64-121%
98-08-8	aaa-Trifluorotoluene	100%	71-121%

Method Blank Summary

Page 1 of 1

Job Number: T5132
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK302-MB	KK005645.D	1	08/22/03	BC	n/a	n/a	GKK302

The QC reported here applies to the following samples:

Method: SW846 8021B

T5132-1, T5132-2, T5132-3

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	
	m,p-Xylene	ND	2.0	ug/l	

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	96% 64-121%
98-08-8	aaa-Trifluorotoluene	99% 71-121%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: T5132
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T5132-1MS	KK005648.D 1		08/22/03	BC	n/a	n/a	GKK302
T5132-1MSD	KK005649.D 1		08/22/03	BC	n/a	n/a	GKK302
T5132-1	KK005653.D 1		08/22/03	BC	n/a	n/a	GKK302

The QC reported here applies to the following samples:

Method: SW846 8021B

T5132-1, T5132-2, T5132-3

CAS No.	Compound	T5132-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		20	29.2	146*	22.2	111	27*	64-124/16
100-41-4	Ethylbenzene	ND		20	21.7	109	21.9	110	1	64-123/14
108-88-3	Toluene	ND		20	20.3	102	21.5	108	6	64-120/13
1330-20-7	Xylenes (total)	ND		60	63.0	105	64.5	108	2	66-118/18
95-47-6	o-Xylene	ND		20	20.8	104	21.4	107	3	65-119/20
	m,p-Xylene	ND		40	42.3	106	43.1	108	2	66-120/14

CAS No.	Surrogate Recoveries	MS	MSD	T5132-1	Limits
460-00-4	4-Bromofluorobenzene	99%	101%	98%	64-121%
98-08-8	aaa-Trifluorotoluene	141%* a	103%	102%	71-121%

(a) Outside control limits due to matrix interference.



ACCUTEST.

SAMPLE RECEIPT LOG

JOB #: **TS132**

DATE/TIME RECEIVED: **8-14-03 0900**

CLIENT: **MWH**

INITIALS: **EJ**

Condition/Variance (Circle "Y" for yes and "N" for no. If "N" is circled, see variance for explanation):

1. ☒ Y ☐ N Sample received in undamaged condition.
2. ☒ Y ☐ N Samples received within temp. range.
3. ☒ Y ☐ N Sample received with proper pH.
4. ☒ Y ☐ N Sample received in proper containers.
5. ☒ Y ☐ N Sample volume sufficient for analysis.
6. ☒ Y ☐ N Sample received with chain of custody.
7. ☒ Y ☐ N Chain of Custody matches sample IDs on containers.
8. ☒ Y ☐ N Custody seal received intact and tamper evident on cooler.
9. ☒ Y ☐ N Custody seal received intact and tamper evident on bottles.

SAMPLE or FIELD ID	BOTTLE #	DATE SAMPLED	MATRIX	VOLUME	LOCATION	PRESERV.	PH
1	1-2	8-13-03	L	2X NOML	VR	1,2,3,4,5,6	U, <2, >12, NA
2	1-2	↓	↓	2X NOML	↓	1,2,3,4,5,6	U, <2, >12, NA
3	1	↓	↓	1X NOML	↓	1,2,3,4,5,6	U, <2, >12, NA
8-14-03						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA

LOCATION: WI: Walk-In VR: Volatile Refrig. SUB: Subcontract EF: Encore Freezer

PRESERVATIVES: 1: None 2: HCL 3: HNO3 4: H2SO4 5: NAOH 6: Other

pH of waters checked excluding volatiles

pH of soils N/A

Comments:

Delivery method: Courier: **PED-EX**

Tracking#: **SEE ATTACHED**

COOLER TEMP: **4.8°C**

COOLER TEMP: _____

COOLER TEMP: _____

COOLER TEMP: _____

Method of sample disposal: (circle one) Accutest disposal Hold Return to Client

Form: SM012



CHAIN CUSTODY # 130803 rev D/

10165 Harwin Drive, Ste. 150, Houston, TX 77036
TEL: 713-271-4700 FAX: 713-271-4770
www.accutest.com

Laboratories

[illegible]

ATTACHMENT 2
FIELD DOCUMENTATION

WELL DEVELOPMENT AND SAMPLING LOG

Project No.: 30001.0 Project Name: SJB Groundwater Client: MWH/EL Paso
 Location: Hammond 41A Well No: TMW-1 Development Sampling
 Project Manager MJN Date 11/15/03 Start Time 0939 Weather Sunny 40s
 Depth to Water 16.40 Depth to Product na Product Thickness na Measuring Point TOC
 Water Column Height 9.79 Well Dia. 2"

Sampling Method: Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other ☐
 Bottom Valve Bailer ☒ Double Check Valve Bailer ☐ Stainless-Steel Kemmerer ☐

Criteria: 3 to 5 Casing Volumes of Water Removal ☒ stabilization of Indicator Parameters ☒ Other or bail dry

Gal/ft x ft of water	Water Volume in Well		Gal/oz to be removed
	Gallons	Ounces	
9.79 x 0.16	1.57 x 3		4.7

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gallons)	Comments/ Flow rate
0945	7.76	1480	57.6				0.5	dark dark gray, slight sheen
	7.8	1460	57.9				1	
	7.78	1480	57.8				1.5	
	7.77	1510	57.8				2.0	
	7.65	1560	57.8				3.0	light gray
	7.65	1670	57.9				4.0	
	7.70	1780	57.8				5.0	
	7.70	1870	57.8				5.5	
	7.66	1930	57.8				6.0	
	7.67	1970	57.9				6.5	
1001	7.70	2000	58.2				7.0	light light gray

Final: Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow Rate
1001	7.70	2000	58.2					7.0	light light gray

COMMENTS:

INSTRUMENTATION: pH Meter ☒ Temperature Meter ☒
 DO Monitor Other _____
 Conductivity Meter ☒

Water Disposal Kutz Sample ID Hammond 41 A TMW-1 Sample Time 1010

BTEX VOCs Alkalinity TDS Cations Anions Nitrate Nitrite Ammonia TKN NMWQCC Metals Total Phosphorus

MS/MSD _____ BD _____ BD Name/Time _____ TB 151103tb01

PRODUCT RECOVERY/WATER LEVEL DATA

Martin J. Nee
PO Box 3861
Farmington, NM 87499-3861
(505)334-2791 (505)320-9675cell

Project Name San Juan Basin Ground Water Project No. 30001.0
Project Manager MJN
Client Company MWH Date 11-15-03
Site Name Hammond 41A

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product thickness	Comments
MW-1	1020	-	18.26		
MW-2		-	17.69	-	-
MW-3			19.23		
TMW	0939		16.40		

Comments

Signature: Martin J. Nee Date: November 15, 2003

✓

Sampling Method: Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other ☐
Bottom Valve Bailer ☒ Double Check Valve Bailer ☐ Stainless-Steel Kemmerer ☐
Criteria: 3 to 5 Casing Volumes of Water Removal ☒ Stabilization of Indicator Parameters ☒ Other *as bail dry*

[illegible]

COMMENTS: Well did not clear up produced V fin
sandy and silt. Could not bail down
well: good produce

INSTRUMENTATION: pH Meter ☒ _____ Temperature Meter ☒ _____
DO Monitor ☐ _____ Other ☐ _____
Conductivity Meter ☒ _____

Water Disposal Kutz

Sample ID N2 Sample Time _____ BTEX ☐ VOCs ☐ Alkalinity ☐

TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Ammonia ☐ TKN ☐ NM WQCC Metals ☐

Total Phosphorus ☐ _____ ☐ _____ ☐ _____ ☐ _____

MS/MSD _____ BD _____ BD Name/Time _____ TB _____

WELL DEVELOPMENT AND SAMPLING LOG

Project No: _____ Project Name: SIB Grand Client: MWH
 Location: Hennard 4 1/2 Well No: MMW-4 Development ☐ Sampling ☒
 Project Manager: MJN Date: 8.13.03 Start Time: 0936 Weather: 803
 Depth to Water: 17'22" Depth to Product: — Product Thickness: — Measuring Point: TOC
 Water Column Height: 688 Well Dia.: 2"

Sampling Method: Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other ☐
 Bottom Valve Bailer ☒ Double Check Valve Bailer ☐ Stainless-Steel Kemmerer ☐
 Criteria: 3 to 5 Casing Volumes of Water Removal ☒ Stabilization of Indicator Parameters ☒ Other _____

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	
<u>6.88 x 16</u>	<u>1-1 x 3</u>		<u>3-3</u>

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
<u>0941</u>	<u>7.63</u>	<u>2530</u>	<u>20</u>				<u>.25</u>	<u>clear</u>
	<u>720</u>	<u>2430</u>	<u>19.1</u>				<u>.5</u>	<u>Silty Sheen</u>
	<u>730</u>	<u>2060</u>	<u>18.7</u>				<u>.75</u>	<u>" "</u>
	<u>729</u>	<u>2010</u>	<u>18.1</u>				<u>1</u>	<u>" "</u>
	<u>739</u>	<u>2230</u>	<u>18.0</u>				<u>2</u>	<u>" "</u>
	<u>743</u>	<u>1940</u>	<u>18.2</u>				<u>3</u>	<u>Silty No Sheen</u>
<u>1013</u>	<u>7.44</u>	<u>1930</u>	<u>18.1</u>				<u>4</u>	<u>" "</u>

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
<u>1013</u>	<u>7.44</u>	<u>1930</u>	<u>18.1</u>					<u>4</u>	

COMMENTS: Makes good water

INSTRUMENTATION: pH Meter ☒ _____ Temperature Meter ☒ _____
 DO Monitor ☐ _____ Other ☐ _____
 Conductivity Meter ☒ _____

Water Disposal _____
 Sample ID: Hennard 4A MW-4 Sample Time: 1020 BTEX ☒ VOCs ☐ Alkalinity ☐

TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Ammonia ☐ TKN ☐ NM WQCC Metals ☐
 Total Phosphorus ☐ _____
 MS/MSD _____ BD _____ BD Name/Time _____ TB 130803TBC

ATTACHMENT 3
GEOLOGIC BORELOG AND
WELL COMPLETION DIAGRAM
HAMMOND 41A, TMW-1

MONITORING WELL LOG FORM

BORING LOCATION <i>Temp Well (X)</i> <i>Bo</i> <i>mw</i>		Project: <u>Hamm</u> Project No: <u>Temp 11</u> Date Drilled: <u>8/6/03</u> Date Completed: <u>8/6/03</u> Logged By: <u>L. Benady</u>		Boring ID: <u>TMW1</u> Northing: _____ Easting: _____ Ground Surface Elevation (ft.): _____ Measuring Point (MP) Elevation (ft.): _____ MP is Top of PVC Casing Datum: NGVD (1929)	
Water Elevation (ft.): _____ Date Measured: _____		Total Depth (ft.): <u>27.9</u> Diameter (in.): <u>2"</u>		Drilling Contractor: <u>Envirotech</u> Drilling Method: <u>HSA</u>	
Screen: Diameter <u>2"</u> Depth _____ Slot Size <u>0.10</u> Casing: Diameter <u>2"</u> Length _____ Type _____ Sand _____ Bentonite Seal _____ Cement Grout Seal _____					

DEPTH (FEET)	GRAIN SIZE			MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	USCS/ASTM CLASSIFICATION	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES								
0										0-5 Sandy Silt light brown	
5						C				5-10 sand w/ little silt light brown	
10						C				sand w/ fine gravels	
15						C				10-15 Light brown	
17						C				17" ground water, SAND	
20						C				15-20 SAND w/ 50% Gravel Grey	
25						C				20-25 SAND w/ 50-60% Gravel Grey	
27						C				25-27 SANDY Clay Grey	
27.9						C				Well cut at 27.9 bgs	

PROJECT NO. _____

- * C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ▲ Elevation of ground water

MONITORING WELL COMPLETION FORM

Project No: Hammond
 Drilling Company: Envirotech
 On Base: ☐ Off Base: ☐

GROUND SURFACE

Concrete Bottom/Grout Top Depth (ft bgs) _____

Blank Casing Top Depth (Riser Bottom; ft bgs) _____

Protective Casing Depth (ft bgs) _____

Grout Type _____

Grout Bottom Depth (Seal Top Depth; ft bgs) 9.9

Seal Material Bentonite

Filter Pack Top (Seal Bottom Depth; ft bgs) 11.8

Fine Sand Size —

Bottom Fine Sand (ft bgs; If applicable) —

Coarse Sand Size 60/40

Blank Casing Bottom (Screen Top; ft bgs) 12.4'

Slot Size 0.10

Screen Bottom (Foot Top; ft bgs) 27.5'

Foot/End Cap Bottom (Well Total Depth; ft bgs) 27.9'

Filter Pack Bottom (ft bgs) 27.9'

Borehole Depth (ft bgs) 27.9'

NOT TO SCALE

Loc ID/Well ID Temp Well #1 Blank Casing Material/Diameter PVC 2"
 Geologist L. Smith Screen Material/Diameter PVC 2"
 Date Construction Started Aug 6, 2003 Protective Casing Type —
 Date Construction Completed Aug 6, 2003 Borehole Diameter 2 inches
 LOC Type (i.e. Monitoring Well) Monitor Well Above Ground Completion ☐ Flush Mount ☐ Temp Well
 Riser Material/Diameter _____ / _____ USCS Classification of Screened Interval _____

PROJECT NO.