3R - 190

REPORTS

DATE:
2003

3R190

elpaso Field Services

Certified Mail: #7002 0510 0000 0307 7497

February 26, 2004

RECEIVED

MAR 03 2004

Oil Conservation Division
Environmental Bureau

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

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,

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

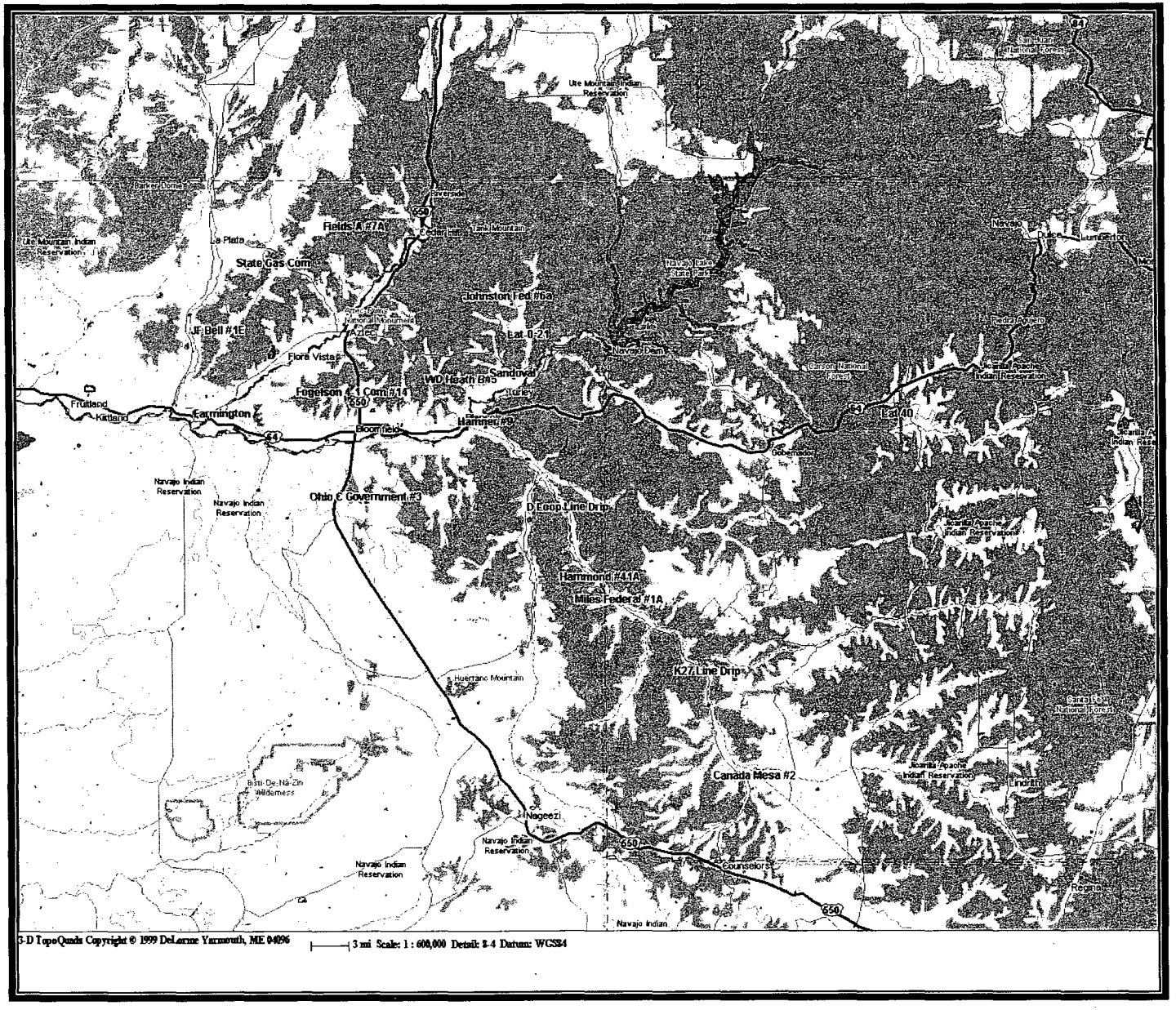
EL PASO FIELD SERVICES

TABLE OF CONTENTS

elpaso

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

Hamner #9
Meter Code: 97213

SITE DETAILS

Legal Description:	**Town:**	29N	**Range:**	9W	**Sec:**	20	**Unit:** A
NMOCD Haz Ranking:	30	**Land Type:**	Federal	**Operator:**	Amoco Production Company		

PREVIOUS ACTIVITIES

Site Assessment:	5/94	**Excavation:**	5/94	**Soil Boring:**	8/95
Monitor Well:	8/95	**Geoprobe:**	8/96	**Additional MWs:**	9/99
Downgradient MWs:	9/99	**Replace MW:**	NA	**Quarterly Initiated:**	11/96
ORC Nutrient Injection:	11/02	**Re-Excavation:**	NA	**PSH Removal Initiated:**	NA
Annual Initiated:	8/00	**Quarterly Resumed:**	NA		

SUMMARY OF 2003 ACTIVITIES

MW-1: Semi-annual groundwater sampling and water level monitoring were performed in May and November 2003.

MW-2: Semi-annual water level monitoring was performed during 2003.

MW-3: Semi-annual water level monitoring was performed during 2003.

Site-Wide Activities: No site activities were performed at this site during 2003.

SITE MAP

Site maps (May and November) are attached in Figures 1 and 2.

SUMMARY TABLES AND GRAPHS

- Analytical data from 2003 are summarized in Table 1, and historic data are shown graphically on Figures 3 through 5.
- Laboratory reports are presented in Attachment 1.
- Field documentation is presented in Attachment 2.

Hamner #9
Meter Code: 97213

GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

No subsurface activities were performed at this site during 2003.

DISPOSITION OF GENERATED WASTES

No wastes were generated at this site during 2003.

ISOCONCENTRATION MAPS

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

CONCLUSIONS

- In November 2002 (following the November 2002 sampling event), oxygen releasing compound (ORC) slurry was injected into the subsurface near MW-1 (see maps for injection point locations). Following ORC injection in November 2002, the benzene concentration in MW-1 decreased to 31 µg/L in May 2003, compared to the pre-injection concentration of 73 µg/L in November 2002. However, in November 2003, the benzene concentration fluctuated back up to 66 µg/L.

- Historically, analytical results from samples collected at MW-1 indicate that benzene concentrations are continuing to decrease from concentrations of 198 and 559 µg/L in 1995 and 1996, respectively, when sampling was first initiated at this site, to concentrations of 31 µg/L and 66 µg/L in 2003.

- Ethylbenzene, toluene, and total xylenes concentrations at MW-1 were below NMWQCC standards in 2003.

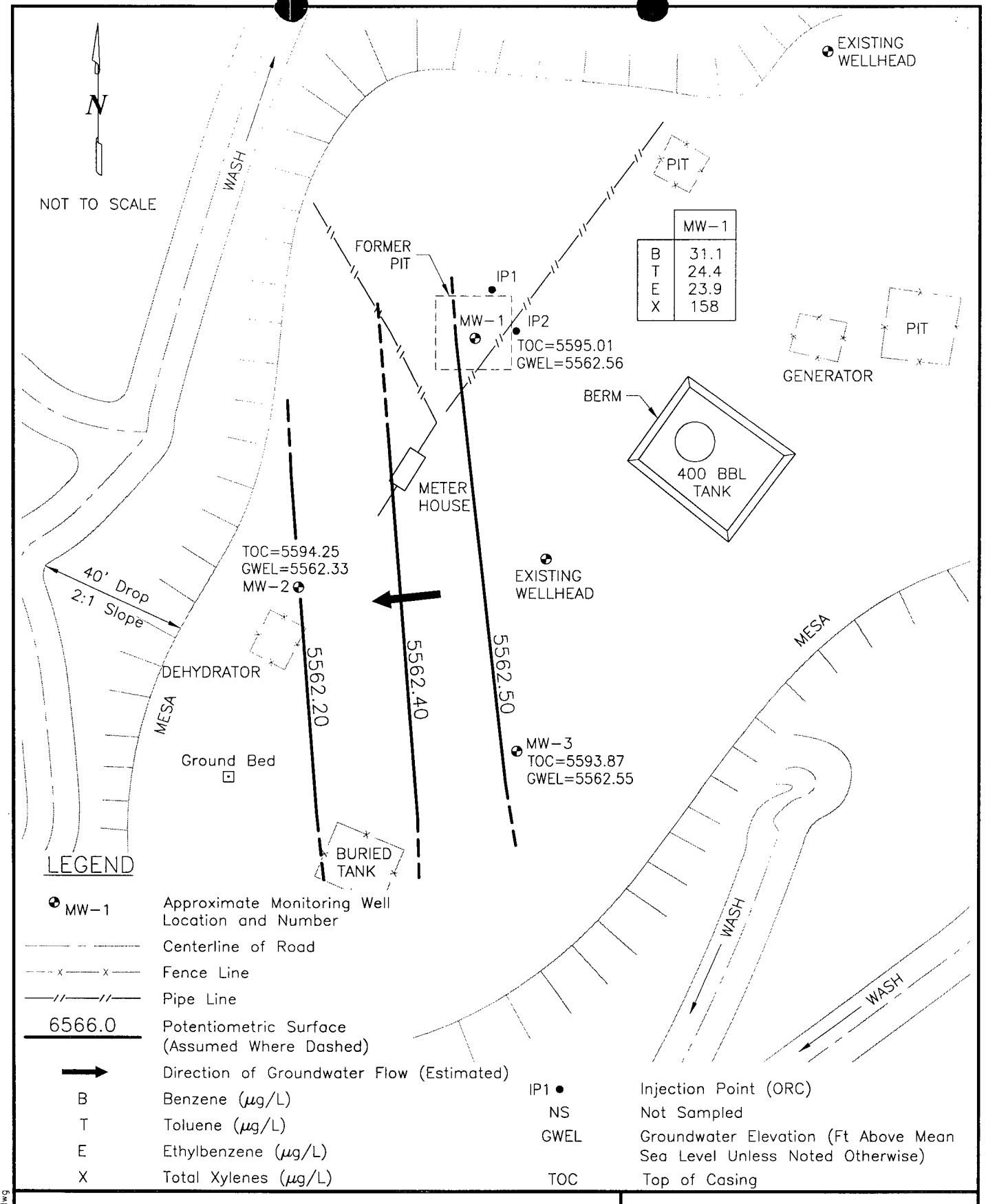
- BTEX concentrations in MW-2 and MW-3 have been below analytical detection limits in samples collected between 1999 and 2002.

- The groundwater flow direction at this site is to the west.

RECOMMENDATIONS

- EPFS will continue semi-annual sampling at MW-1. When BTEX concentrations approach cleanup criteria, sampling at MW-1 will be scheduled on a quarterly basis.

- EPFS will continue to perform semi-annual water level monitoring at MW-2 and MW-3. Because four consecutive annual sampling events at MW-2 and MW-3 indicated BTEX concentrations below detection limits, EPFS recommends that these wells be sampled at closure only.

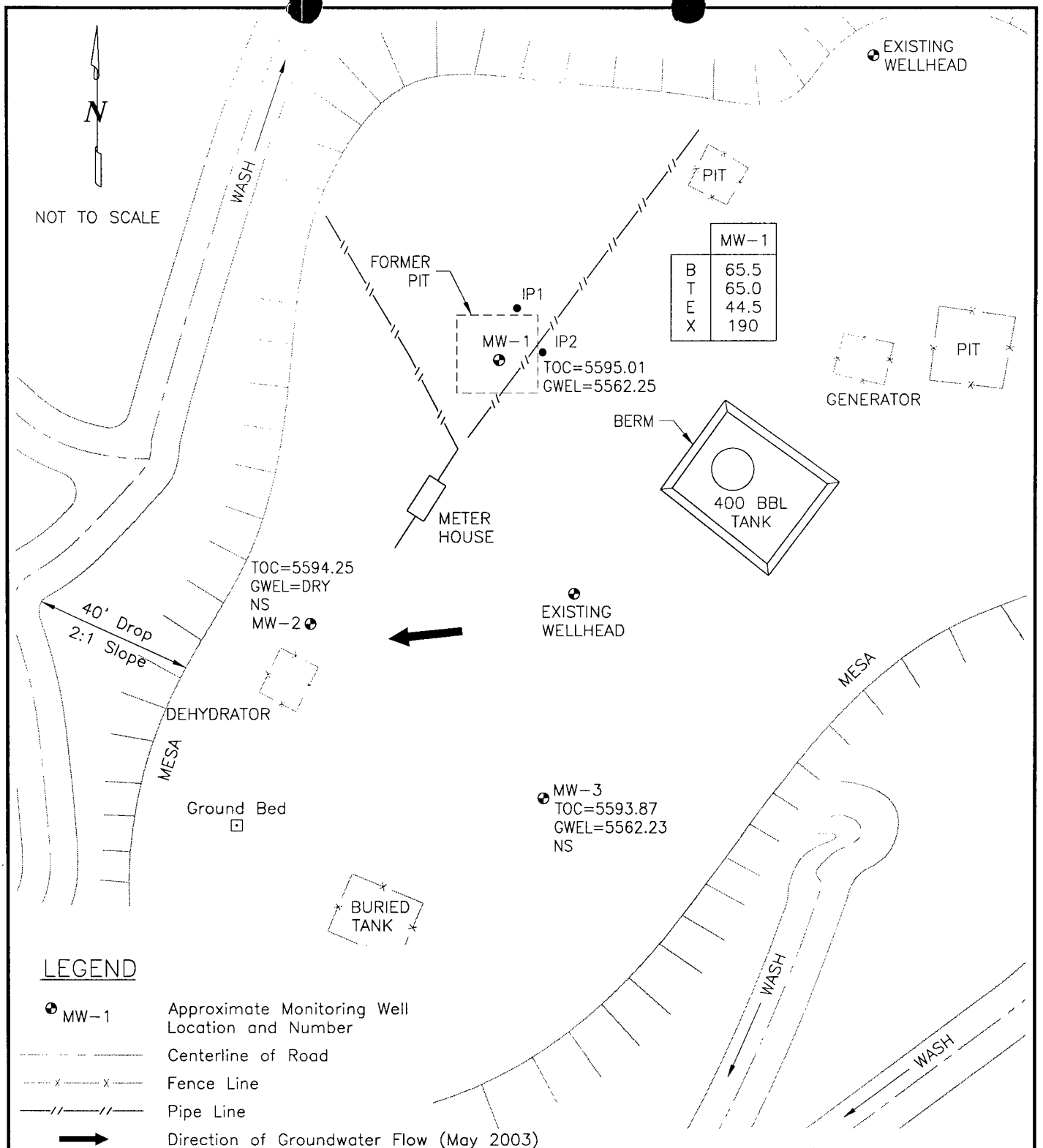


hamner9_03.dwg

HAMNER #9, METER 97213
MAY 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 1



LEGEND

MW-1	Approximate Monitoring Well Location and Number
	Centerline of Road
x x	Fence Line
// //	Pipe Line
→	Direction of Groundwater Flow (May 2003)
B	Benzene (μg/L)
T	Toluene (μg/L)
E	Ethylbenzene (μg/L)
X	Total Xylenes (μg/L)
IP1	Injection Point (ORC)
NS	Not Sampled
GWEL	Groundwater Elevation (Ft Above Mean Sea Level Unless Noted Otherwise)
TOC	Top of Casing

hamner9_03.dwg

HAMNER #9, METER 97213
NOVEMBER 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

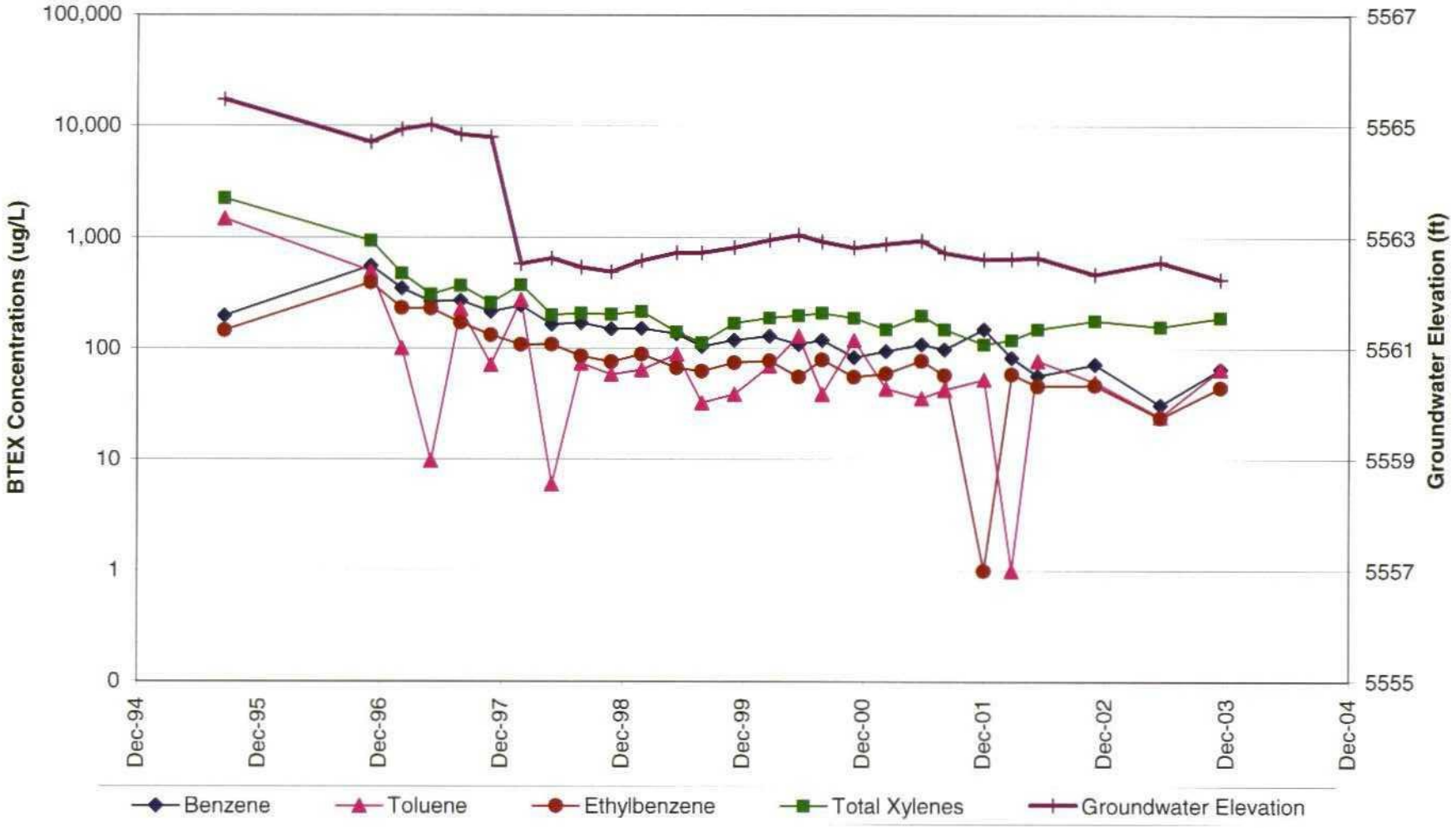
FIGURE 2

TABLE 1

SUMMARY OF BTEX COMPOUNDS IN 2003 GROUNDWATER SAMPLES
HAMNER #9 (METER #97213)

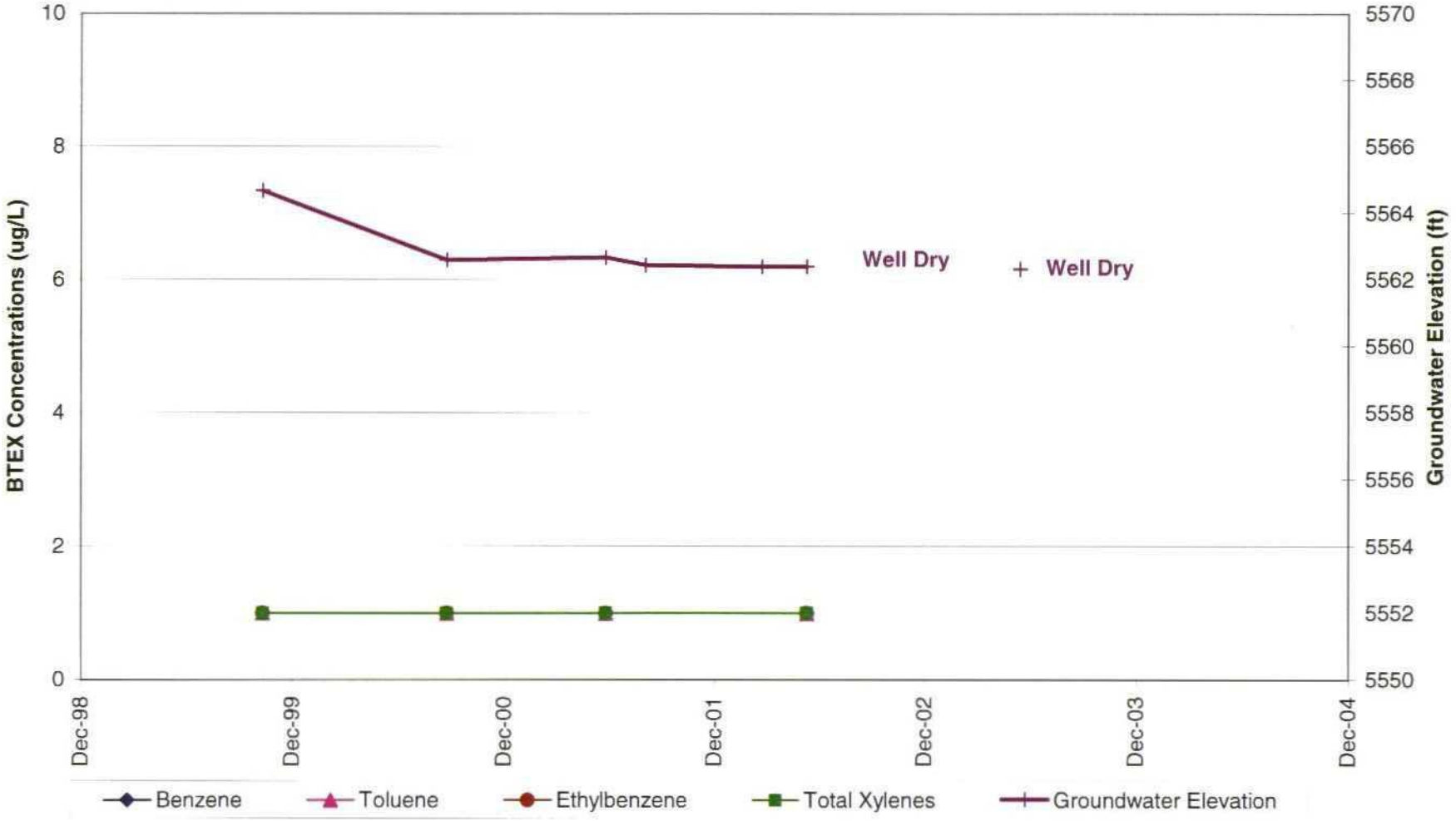
Site Name	Monitoring Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft btoc)
Hamner #9	MW-1	5/19/2003	31.1	24.4	23.9	158	32.45
Hamner #9	MW-1	11/15/2003	65.5	65.0	44.5	190	32.76

FIGURE 3
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
HAMNER #9
MW-1



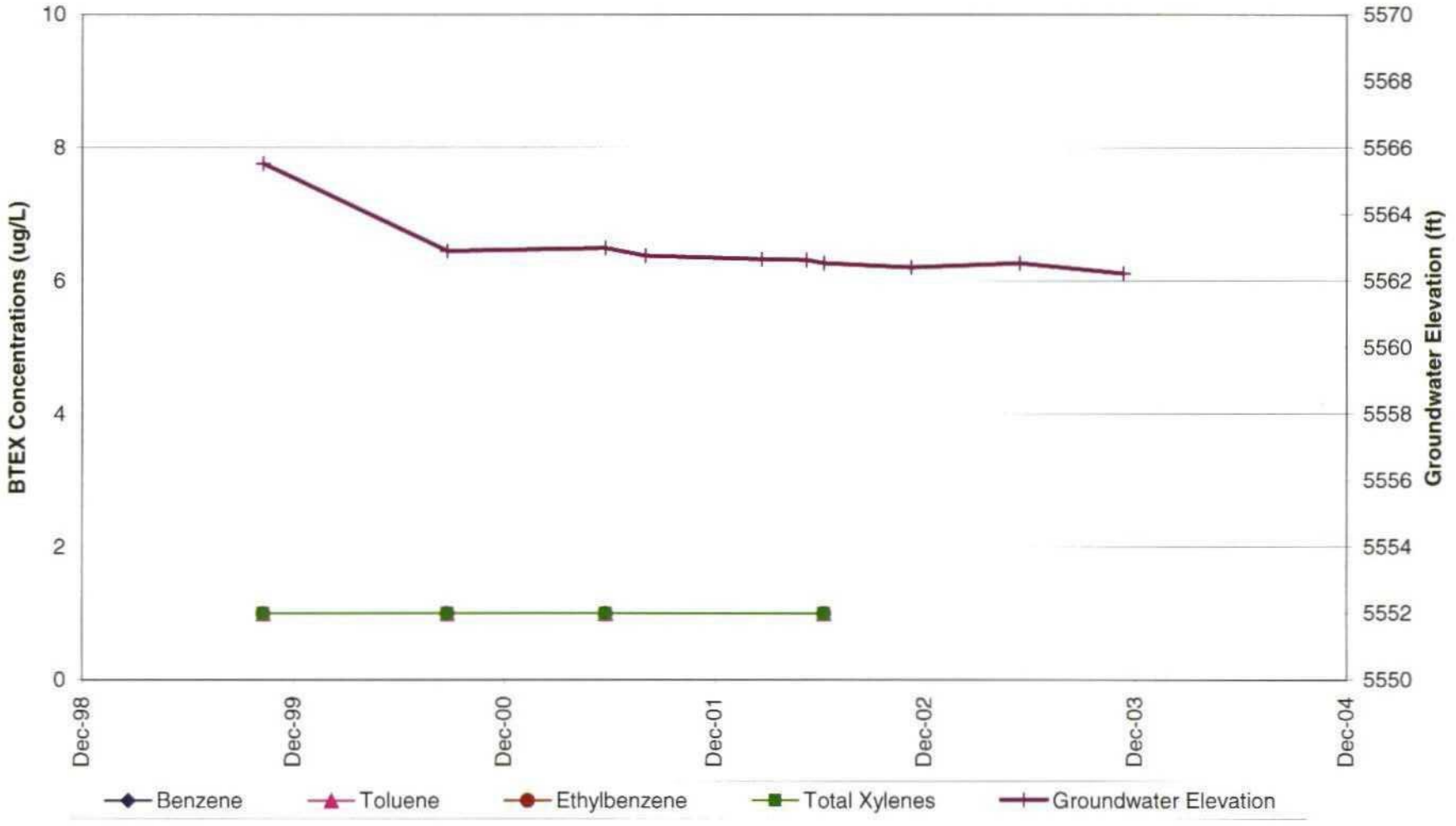
2003 Hamner 9.xls,Hamn MW1

FIGURE 4
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
HAMNER #9
MW-2



2003 Hamner 9.xls,Hamn MW2

FIGURE 5
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
HAMNER #9
MW-3



2003 Hamner 9.xls,Hamn MW3

ATTACHMENT 1

LABORATORY REPORTS

DATA VALIDATION WORKSHEET

Analytical Method/Analytes: SW-846 8021B (BTEX) **Sample Collection Date(s):** 11/15/03

Laboratory: Accutest **MWH Job Number:** EPC-SJRB (Groundwater)

Batch Identification: T6103 **Matrix:** Water

MS/MSD Parent(s)[a]: None **Field Replicate Parent(s):** None

Validation Complete: Brian Buttars 12-04-03 (Date/Signature)

Foot Notes	Site ID	Sample ID	Lab. ID	Hits (Y/N)	Quals.	Comments
1	Hammer #9	MW-1	T6103-01	Y	J	Benzene @ 65.5 µg/l
					J	Toluene @ 65.0 µg/l
					J	Ethylbenzene @ 44.5 µg/l
					J	Xylenes (total) @ 190 µg/l
					J	o-Xylene @ 36.6 µg/l
					J	m/p-Xylene @ 153 µg/l
None	Trip Blank	111503TB02	T6103-02	N		

DATA VALIDATION WORKSHEET

Analytical Method:	SW-846 8021B (BTEX)	**MWH Job Number:**	EPC-SJRB (Groundwater)
Laboratory:	Accutest	**Batch Identification:**	T6103

Validation Criteria								
Sample ID	**Hammer #9 MW-1**	**111503TB 02**						
Lab ID	**T6103-01**	**T6103-02**						
Holding Time	A[1]	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:

1) Sample pH at time of analysis was greater than 2 which reduces the holding time from 14 days to 7. Sample analyzed 13 days after sample collection, exceeding holding time by 6 days, introducing a possible low bias. Qualify associated sample hits with "J" flags, indicating the data are estimated and possibly biased low. Qualify associated sample non-detects with "UJ" flags, indicating possible false negatives.

Gulf Coast
ACCUTEST.
Laboratories

12/02/03

Technical Report for

Montgomery Watson

EPFS San Juan Basin Groundwater Site

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

Accutest Job Number: T6103

Report to:

Montgomery Watson

brian.buttars@us.mwhglobal.com

ATTN: Brian Buttars

Total number of pages in report: **12**

ACCREDITED IN ACCORDANCE WITH nelac

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

Ron Martino
Laboratory Manager

Sections: 1 2 3 4

Table of Contents

-1-

Sample Summary

Montgomery Watson

Job No: T6103

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

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
T6103-1	11/15/03	12:10	MN	11/18/03	AQ	Water	HAMMER#9 MW-1
T6103-2	11/15/03	07:00	MN	11/18/03	AQ	Water	111503TB02

Accutest Laboratories

Report of Analysis

Client Sample ID:	HAMMER#9 MW-1		
Lab Sample ID:	T6103-1	Date Sampled:	11/15/03
Matrix:	AQ - Water	Date Received:	11/18/03
Method:	SW846 8021B	Percent Solids:	n/a
Project:	EPFS San Juan Basin Groundwater Site		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	KK006191.D	5	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	65.5	5.0	ug/l	
108-88-3	Toluene	65.0	5.0	ug/l	
100-41-4	Ethylbenzene	44.5	5.0	ug/l	
1330-20-7	Xylenes (total)	190	15	ug/l	
95-47-6	o-Xylene	36.6	5.0	ug/l	
	m,p-Xylene	153	10	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	80%		64-121%
98-08-8	aaa-Trifluorotoluene	82%		71-121%

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	111503TB02		
Lab Sample ID:	T6103-2	Date Sampled:	11/15/03
Matrix:	AQ - Water	Date Received:	11/18/03
Method:	SW846 8021B	Percent Solids:	n/a
Project:	EPFS San Juan Basin Groundwater Site		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK006188.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	85%		64-121%
98-08-8	aaa-Trifluorotoluene	85%		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

CHAIN OF CUSTODY # 111503MW02

ACCUTEST Laboratories

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

FED-EX Tracking # 842252414774 | Bottle Order Control #
Accutest Quote # | Accutest Job #

Client / Reporting Information

Company Name: MWH / El Paso
Address: 6014 Rail Way
City: Farmington State: NM Zip: 87401
Project Contact: Scott Pope E-mail:
Phone #: 505 599 2124
Sampler's Name: M Nee

Project Information

Project Name: San Juan Basin Groundwater
Street:
City: State:
Project #:
Fax #: 505 599 2119
Client Purchase Order #:

Requested Analysis

BTEX

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Collection Time	Sampled By	Matrix	# of bottles	Number of preserved Bottles: HCl	MeOH	HNO3	H2SO4	NONE	NaHSO3	NaOH	ENCORE	LAB USE ONLY
	Hammett #9 MW-1		111503	1210	MW	WG	2	X							X	✓
	111503TB02		111503	0700	MW	WG	1	X								✓

Turnaround Time (Business Days)

- [x] 10 Day STANDARD
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [ ] Other

Approved By: / Date:

Emergency & Rush T/A data available VIA LabLink

Data Deliverable Information

- [ ] Commercial "A"
- [ ] Commercial "B"
- [ ] Reduced Tier 1
- [ ] Full Tier 1
- [ ] TRRP13
- [ ] EDD Format

Commercial "A" = Results Only

Comments / Remarks

* Not Preserved

T6103

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received by:	Relinquished by	Date Time	Received by:
1 1200hrs	111703	1	2		2
Relinquished by:	Date Time:	Received By:	Relinquished by:	Date Time	Received by
3 11/18	0915	3	4		4
Relinquished by	Date Time	Received by	Custody Seal #	Preserved where applicable ☐	On Ice ☒
5		5			Cooler Temp. 1.8°C

T6103: Chain of Custody
Page 1 of 2

ACCUTEST.

SAMPLE RECEIPT LOG

JOB #: T6103 DATE/TIME RECEIVED: 11/18/03 0915

CLIENT: MWH/EL PASO INITIALS: VB

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 (NA) 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 (NA) Custody seal received intact and tamper evident on bottles.

SAMPLE or FIELD ID	BOTTLE #	DATE SAMPLED	MATRIX	VOLUME	LOCATION	PRESERV.	PH
1	1	11/15/03	WW	10A	VREF	1,2,3,4,5,6	U, <2, >12, (NA)
1	2	↓	↓	↓	↓	1,2,3,4,5,6	U, <2, >12, (NA)
2	1	↓	↓	↓	↓	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
		11/18/03	VA			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: Fed Ex

Tracking#:

COOLER TEMP: 1.8°C COOLER TEMP:

COOLER TEMP: COOLER TEMP:

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

Form: SM012

T6103: Chain of Custody
Page 2 of 2

GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: T6103
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

T6103-1, T6103-2

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%	64-121%
98-08-8	aaa-Trifluorotoluene	77%	71-121%

Blank Spike Summary

Job Number: T6103
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

T6103-1, T6103-2

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

Job Number: T6103
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

T6103-1, T6103-2

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.

DATA VALIDATION WORKSHEET

(Page 1 of 2)

Analytical Method/Analytes: SW-846 8021B (BTEX) **Sample Collection Date(s):** 05/19/03

Laboratory: Accutest **MWH Job Number:** EPC-SJRB (Groundwater)

Batch Identification: T4353 **Matrix:** Water

MS/MSD Parent(s)[a]: None **Field Replicate Parent(s):** None

Validation Complete: Brian Buttars 5-30-03 (Date/Signature)

Foot Notes	Site ID	Sample ID	Lab. ID	Hits (Y/N)	Quals.	Comments
None	Trip Blank	190503TB01	T4353-01	N		
None	Hamner #9	MW-1	T4353-02	Y		Benzene @ 31.1 µg/l Toluene @ 24.4 µg/l Ethylbenzene @ 23.9 µg/l Xylenes (total) @ 158 µg/l o-Xylene @ 42.5 µg/l m,p-Xylene @ 116 µg/l

DATA VALIDATION WORKSHEET

(Page 2 of 2)

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

Laboratory: Accutest **Batch Identification:** T4353

Validation Criteria								
Sample ID	**190503TB 01**	**Hamner #9 MW-1**						
Lab ID	**T4353-01**	**T4353-02**						
Holding Time	A	A						
Analyte List	A	A						
Reporting Limits	A	A						
Trip Blank	A	A						
Equipment Rinseate Blanks	N/A	N/A						
Field Duplicate/Replicate	N/A	N/A						
Surrogate Spike Recovery	A	A						
Initial Calibration	N	N						
Initial Calibration Verification (ICV)	N	N						
Continuing Calibration Verification (CCV)	N	N						
Laboratory Control Sample (LCS)	A	A						
Laboratory Control Sample Duplicate (LCSD)	N	N						
Method Blank	A	A						
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:

Gulf Coast
ACCUTEST.
Laboratories

05/27/03

Technical Report for

Montgomery Watson

EPFS San Juan Basin GS

Accutest Job Number: T4353

Report to:

lynn.benally@elpaso.com

Total number of pages in report: 8

ACCREDITED IN ACCORDANCE WITH nelac

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

Ron Martino
Laboratory Manager

Accutest Laboratories

Sample Summary

Montgomery Watson

Job No: T4353

EPFS San Juan Basin GS

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
T4353-1	05/19/03	07:00	MN	05/21/03	AQ	Trip Blank Water	190503TB01
T4353-2	05/19/03	11:53	MN	05/21/03	AQ	Water	HAMMER NO 9 MW-1

Accutest Laboratories

Report of Analysis

Client Sample ID:	190503TB01		
Lab Sample ID:	T4353-1	Date Sampled:	05/19/03
Matrix:	AQ - Trip Blank Water	Date Received:	05/21/03
Method:	SW846 8021B	Percent Solids:	n/a
Project:	EPFS San Juan Basin GS		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK005165.D	1	05/21/03	BC	n/a	n/a	GKK270
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	90%		64-121%
98-08-8	aaa-Trifluorotoluene	90%		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

Accutest Laboratories

Report of Analysis

Client Sample ID:	HAMMER NO 9 MW-1		
Lab Sample ID:	T4353-2	Date Sampled:	05/19/03
Matrix:	AQ - Water	Date Received:	05/21/03
Method:	SW846 8021B	Percent Solids:	n/a
Project:	EPFS San Juan Basin GS		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK005167.D	1	05/21/03	BC	n/a	n/a	GKK270
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	31.1	1.0	ug/l	
108-88-3	Toluene	24.4	1.0	ug/l	
100-41-4	Ethylbenzene	23.9	1.0	ug/l	
1330-20-7	Xylenes (total)	158	3.0	ug/l	
95-47-6	o-Xylene	42.5	1.0	ug/l	
	m,p-Xylene	116	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	73%		64-121%
98-08-8	aaa-Trifluorotoluene	76%		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

Job Number: T4353
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK270-BS	KK005157.D	1	05/21/03	BC	n/a	n/a	GKK270

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

T4353-1, T4353-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	18.4	92	74-119
100-41-4	Ethylbenzene	20	18.8	94	82-115
108-88-3	Toluene	20	18.5	93	77-116
1330-20-7	Xylenes (total)	60	57.3	96	79-115
95-47-6	o-Xylene	20	18.7	94	78-114
	m,p-Xylene	40	38.6	97	79-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	96%	64-121%
98-08-8	aaa-Trifluorotoluene	94%	71-121%

Method Blank Summary

Job Number: T4353
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK270-MB	KK005158.D	1	05/21/03	BC	n/a	n/a	GKK270

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

T4353-1, T4353-2

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	87%	64-121%
98-08-8	aaa-Trifluorotoluene	86%	71-121%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T4353
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T4330-1MS	KK005162.D	1	05/21/03	BC	n/a	n/a	GKK270
T4330-1MSD	KK005163.D	1	05/21/03	BC	n/a	n/a	GKK270
T4330-1	KK005161.D	1	05/21/03	BC	n/a	n/a	GKK270

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

T4353-1, T4353-2

CAS No.	Compound	T4330-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		20	15.9	80	14.8	74	7	64-124/16
100-41-4	Ethylbenzene	ND		20	16.9	85	16.2	81	4	64-123/14
108-88-3	Toluene	ND		20	17.1	86	16.1	81	6	64-120/13
1330-20-7	Xylenes (total)	ND		60	51.1	85	48.8	81	5	66-118/18
95-47-6	o-Xylene	ND		20	16.8	84	16.1	81	4	65-119/20
	m,p-Xylene	ND		40	34.3	86	32.7	82	5	66-120/14

CAS No.	Surrogate Recoveries	MS	MSD	T4330-1	Limits
460-00-4	4-Bromofluorobenzene	90%	88%	86%	64-121%
98-08-8	aaa-Trifluorotoluene	90%	87%	86%	71-121%

CHAIN OF CUSTODY

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

FED-EX Tracking # 883557901603
Bottle Order Control #
Accutest Quote #
Accutest Job #

Client / Reporting Information

Company Name: Montgomery Watson Harza / ElPaso
Address: 614 Reilly Ave
City: Farmington State: NM Zip: 87401
Project Contact: Lynn Bemsley E-mail:
Phone #: 505 599 2178
Sampler's Name: Martin Nee

Project Information

Project Name: San Juan Basin
~~Street~~: NW New Mexico
~~City~~ ~~State~~:
Project #:
Fax #: 505 599 2119
Client Purchase Order #:

Requested Analysis

BTEX

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
LAB USE ONLY

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Collection Time	Sampled By	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Requested Analysis: BTEX
1	MO503 TB#1		5-19-03	0700	MW	WQ	1	X								X
2	Hamner no 9 MW-1		5-19-03	1153	MW	WG	2	X								X

Turnaround Time (Business Days)

- [X] 10 Day *STANDARD* — Approved By: / Date:
- [ ] 5 Day *RUSH*
- [ ] 3 Day *EMERGENCY*
- [ ] 2 Day *EMERGENCY*
- [ ] 1 Day *EMERGENCY*
- [ ] Other

Emergency & Rush T/A data available VIA LabLink

Data Deliverable Information

- [ ] Commercial "A" — [ ] EDD Format _____
- [ ] Commercial "B"
- [ ] Reduced Tier 1
- [ ] Full Tier 1
- [ ] TRRP13

Commercial "A" = Results Only

Comments / Remarks

T4353

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received by:	Relinquished by	Date Time:	Received by:
1	~~0800~~ 5-20-03	1	2		2
Relinquished by:	Date Time:	Received by:	Relinquished by:	Date Time	Received by:
3	5-21-03 0905	3	4		4
Relinquished by:	Date Time:	Received by:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp
5		5		[ ]	[X] 3.4°C

ATTACHMENT 2

FIELD DOCUMENTATION

WELL DEVELOPMENT AND SAMPLING LOG

Project No.: 30001.0 Project Name: SJB Groundwater Client: MWH/EL Paso

Location: Hammner 9 Well No: MW-1 Development **Sampling**

Project Manager MJN Date 11/15/03 Start Time 1125 Weather Sunny 50s

Depth to Water 32.76 Depth to Product na Product Thickness na Measuring Point TOC

Water Column Height 8.04 Well Dia. 4"

Sampling Method: Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other ☐

Bottom Valve Bailer x Double Check Valve Bailer ☐ Stainless-Steel Kemmerer ☐

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

Gal/ft x ft of water	Water Volume in Well		Gal/oz to be removed
	Gallons	Ounces	
8.04 x 0.65	5.23 x 3		15.68

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gallons)	Comments/ Flow rate
1132	**7.72**	**12140**	**64.7**				**1**	**grey, HC odor**
	7.66	**12810**	**62.8**				**2**	**clear**
	7.68	**12850**	**62.7**				**3**	
	7.67	**12510**	**60.3**				**5**	**well is bailing down**
1144	**7.68**	**12470**	**60.0**				**6**	
1203	**7.74**	**12720**	**60.4**		**0.89**		**6.5**	**Well has bailed dry**

Final: Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow Rate
1203	**7.74**	**12720**	**60.4**		**0.89**			**6.5**	**Well has bailed dry**

COMMENTS:

INSTRUMENTATION: pH Meter X _____ Temperature Meter x

DO Monitor _____ Other _____

Conductivity Meter X _____

Water Disposal Kutz Sample ID Hamner 9 MW-1 Sample Time 1210

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

MS/MSD _____ BD _____ BD Name/Time _____ TB 151103tb02

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	**Hamner no. 9**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-1	1125	-	32.76	-	-
MW-2 *	1210	-		-	-
MW-3		-	31.64	-	-

Comments

- *** Well is dry. TD: 31.93**
- **The well pad on MW-3 is cracked and has fallen down a couple of inches due to erosion beneath the pad.**

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

WELL DEVELOPMENT AND SAMPLING LOG

Project No: 60001.0 Project Name: San Juan Basin Client: MWH

Location: Hammond Well No: MW-1 Development ☐ Sampling ☑

Project Manager MJM Date 5-15-03 Start Time 1106 Weather Sunny 80s

Depth to Water 32.45 Depth to Product — Product Thickness — Measuring Point TOC

Water Column Height 8.33 Well Dia. 4"

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 ☑ Sabilization of Indicator Parameters ☑ Other on bailer

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	
8.33x6.5	54.145 x 3		16.25

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1127	7.46	14080	24.3				1	clear V. Strong HC
	7.45	14510	25.3				2	Odor degraded
	7.43	14320	23.5				3	
	7.52	13830	24.1				4	
	7.50	14190	23.7				5	
	7.51	13760	22.8				5.5	well bailing down
	7.53	13390	22.7				6.0	
	7.68	14110	22.6				6.17	
	7.65	14140	22.4				6.29	
1149	7.65	14150	23.3				6.36	bailed dry will sample

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
1149	7.65	14150	23.3		3.84 mg/l			6.36	

COMMENTS:

INSTRUMENTATION: pH Meter ☑ ____ Temperature Meter ☑ ____

DO Monitor ☑ ____ Other ☐ ____

Conductivity Meter ☑ ____

Water Disposal Kutz

Sample ID SW Hammond MW-1 Sample Time 1153 BTEX ☑ VOCs ☐ Alkilinity ☐

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

Total Phosphorus ☐ ____ ☐ ____ ☐ ____ ☐ ____ ☐

MS/MSD ____ BD ____ BD Name/Time ____ TB MO503TB01

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**	**5-19-03**
Site Name	**Hamner no. 9**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-1	**1106**	-	**32.45**	-	-
MW-2 *		-	**31.92**	-	-
MW-3		-	**31.325**	-	-

Comments

- *** TD was 31.95 this well is almost dry. There were roots in the bottom. The water that was measured may have been hung up in the cap on the bottom of the well. This may not be a valid ground water measurement.**
- **The well pad on MW-3 is cracked and has fallen down a couple of inches due to erosion beneath the pad. Installed a 2 inch locking cap on MW-3.**

Signature: *Martin J. Nee* Date: May 19, 2003