3R - 202

REPORTS

DATE:

2003

3R202

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**

El Paso Field Services
614 Reilly Ave. Farmington, NM 87401

2003 ANNUAL GROUNDWATER REPORT
FEDERAL SITES VOLUME I

EL PASO FIELD SERVICES

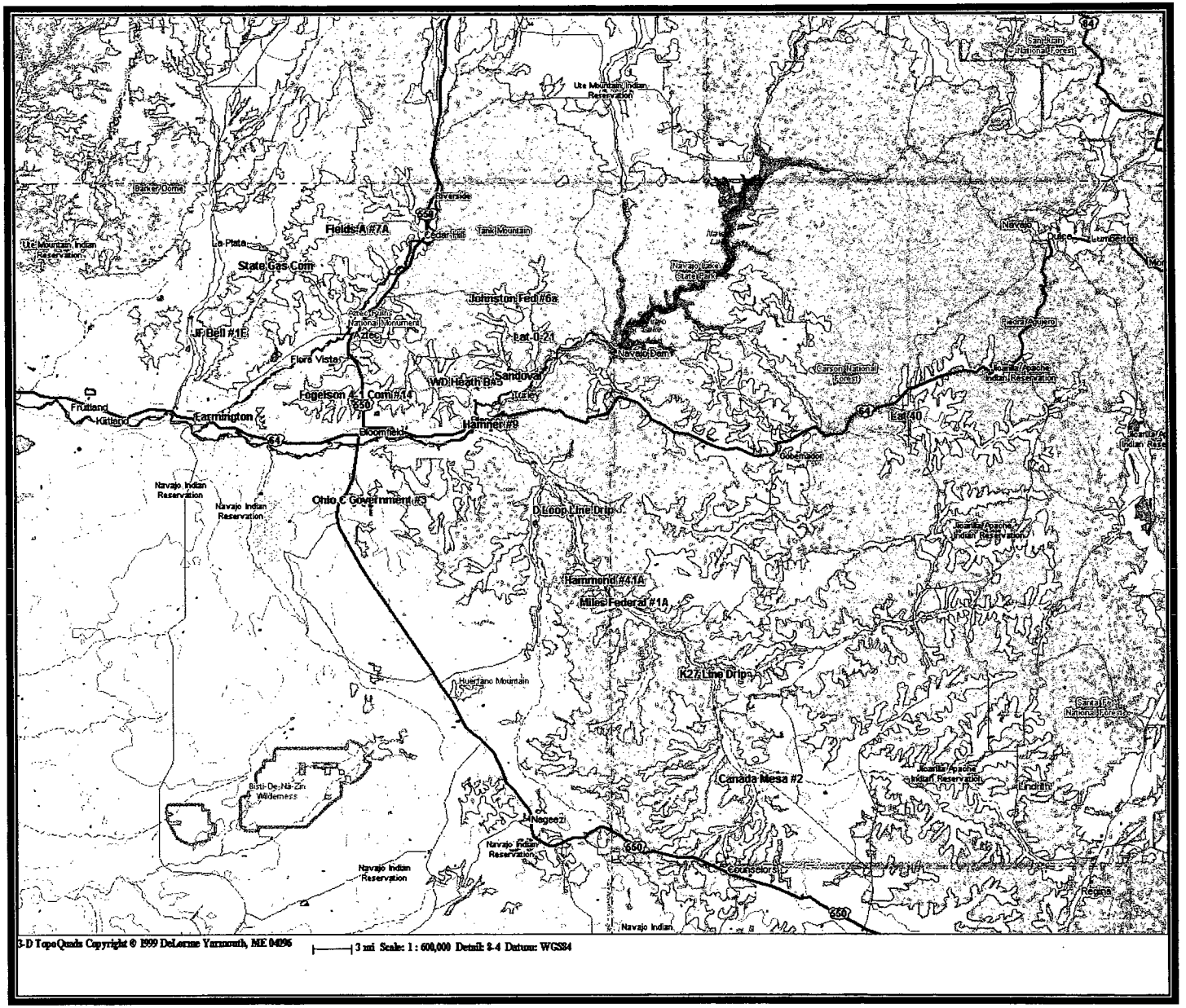
TABLE OF CONTENTS

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

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

Johnston Fed #6A
Meter Code: 89232

SITE DETAILS

Legal Description:	**Town:**	31N	**Range:**	9W	**Sec:**	35	**Unit:** F
NMOCD Haz Ranking:	40	**Land Type:**	Federal	**Operator:**	Burlington Resources		

PREVIOUS ACTIVITIES

Site Assessment:	8/94	**Excavation:**	9/94 (80cy)	**Soil Boring:**	8/95
Monitor Well:	8/95	**Geoprobe:**	NA	**Additional MWs:**	12/95
Downgradient MWs:	6/00	**Replace MW:**	NA	**Quarterly Initiated:**	4/96
ORC Nutrient Injection:	NA	**Re-Excavation:**	NA	**PSH Removal Initiated:**	7/97
Annual Initiated:	NA	**Quarterly Resumed:**	NA		

SUMMARY OF 2003 ACTIVITIES

MW-1: Quarterly free-product recovery and water level monitoring were performed during 2003. This well was redeveloped in June 2003.

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

MW-3: Annual groundwater sampling was attempted in June 2003; however, due to the presence of free-product in this well, no sample was collected. Free-product was removed from this well in June and September. Quarterly water level monitoring was performed during 2003. This well was redeveloped in June 2003.

MW-4: Annual groundwater sampling and quarterly water level monitoring were performed during 2003.

MW-5: Quarterly free-product recovery and water level monitoring were performed during 2003. This well was redeveloped in June in an attempt to increase free-product recovery.

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

SITE MAP

A site map (June) is attached in Figure 1.

Johnston Fed #6A
Meter Code: 89232

SUMMARY TABLES AND GRAPHS

- Analytical data for 2003 are summarized in Table 1, and historic data are presented graphically in Figures 2 through 6.
- Product recovery data for 2003 are summarized in Table 2, and historic data are presented graphically in Figures 7 through 9.
- Laboratory Reports are presented in Attachment 1.
- Field documentation is presented in Attachment 2.

GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

No subsurface activities were performed at this site during 2003.

DISPOSITION OF GENERATED WASTES

All phase-separated hydrocarbons were disposed of at the EPFS Kutz Separator located in Bloomfield, New Mexico.

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

- Free-product recovery efforts at MW-1 resulted in removal of approximately 0.58 gallons of free-phase hydrocarbons bringing the cumulative total recovered to data to 4.87 gallons.
- Free-product was measured for the first time in MW-3 during June 2003. A total of 0.17 gallons of free-phase hydrocarbons were removed during 2003.
- The annual groundwater sample from MW-4 indicated BTEX concentrations at or near the detection limits.
- Free-product was measured for the first time in MW-5 during September 2002 (0.03 gallons removed). A total of 0.11 gallons of free-phase hydrocarbons were removed during 2003.
- Redevelopment of wells did not appear to significantly increase free-product recovery.

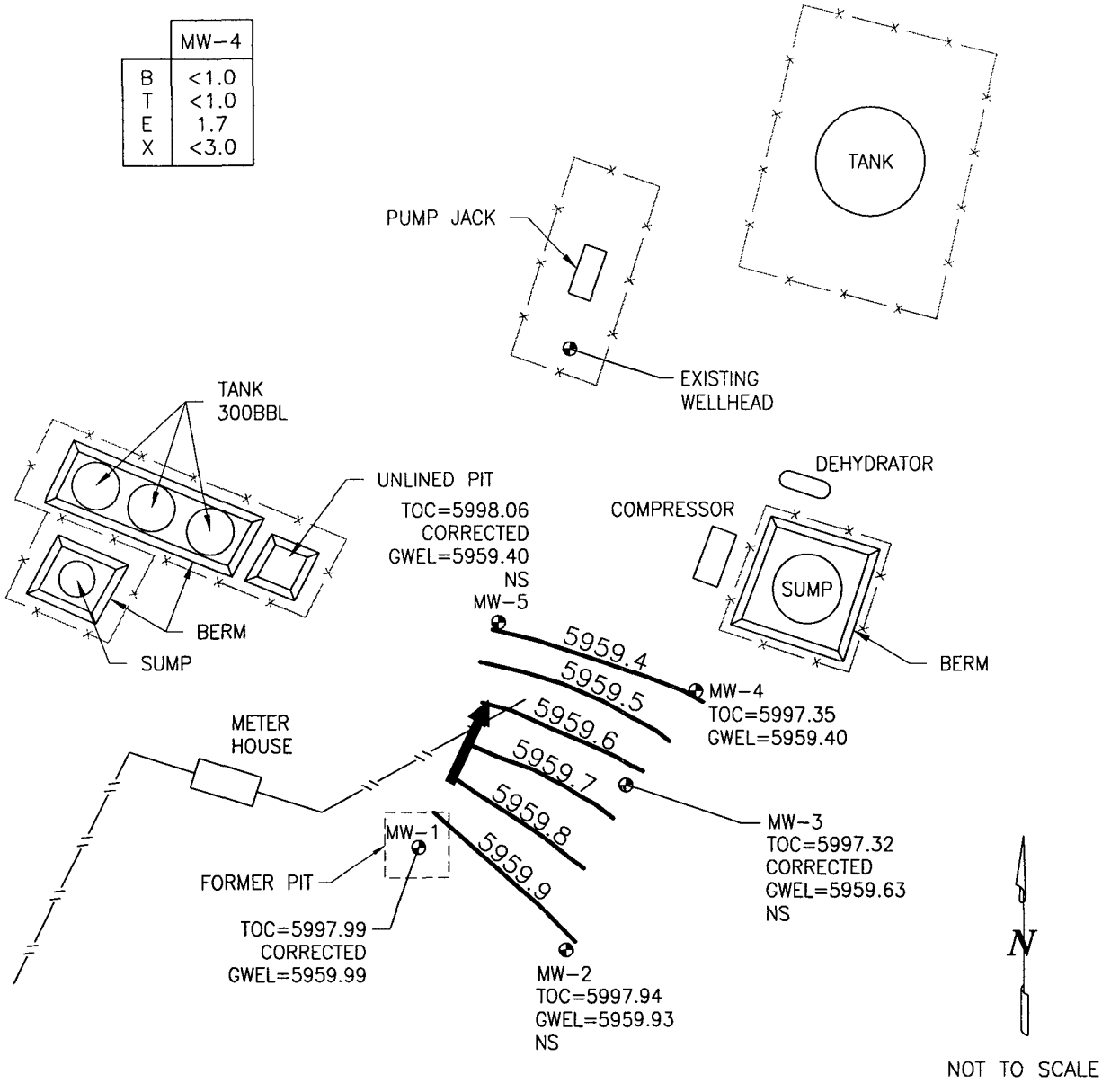
Johnston Fed #6A
Meter Code: 89232

RECOMMENDATIONS

- EPFS will continue quarterly free-product recovery efforts at MW-1, MW-3 and MW-5. EPFS will evaluate passive free-product removal methodologies (i.e., hand bailing, passive skimmers, or hydrocarbon-absorbent material socks) and frequencies for most efficient free-product removal from these wells during 2004.

- BTEX concentrations in MW-2 have been below closure standards for four quarters (1997 – 2002); therefore, EPFS will sample MW-2 at closure.

- EPFS will continue annual groundwater sampling and quarterly groundwater level measurements at MW-4.



LEGEND

MW-1	Approximate Monitoring Well Location and Number
x x	Fence Line
// //	Pipe Line
B	Benzene (µg/L)
T	Toluene (µg/L)
E	Ethylbenzene (µg/L)
X	Total Xylenes (µg/L)
NS	Not Sampled
<	Not Detected. Value Shown is Detection Limit.
GWEL	Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
TOC	Top of Casing
5960	Potentiometric Surface (Approximate & Assumed Where Dashed)
→	Direction of Groundwater Flow (Estimated)

johnsonfed6_03.dwg

JOHNSTON FEDERAL #6A, METER 89232
JUNE 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 1

TABLE 1

SUMMARY OF BTEX COMPOUNDS IN 2003 GROUNDWATER SAMPLES
JOHNSTON FED #6A (METER #89232)

Site Name	Monitoring Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft btoc)
Johnston Fed #6A	MW-4	6/18/2003	< 1.0	< 1.0	1.7	< 3.0	37.95

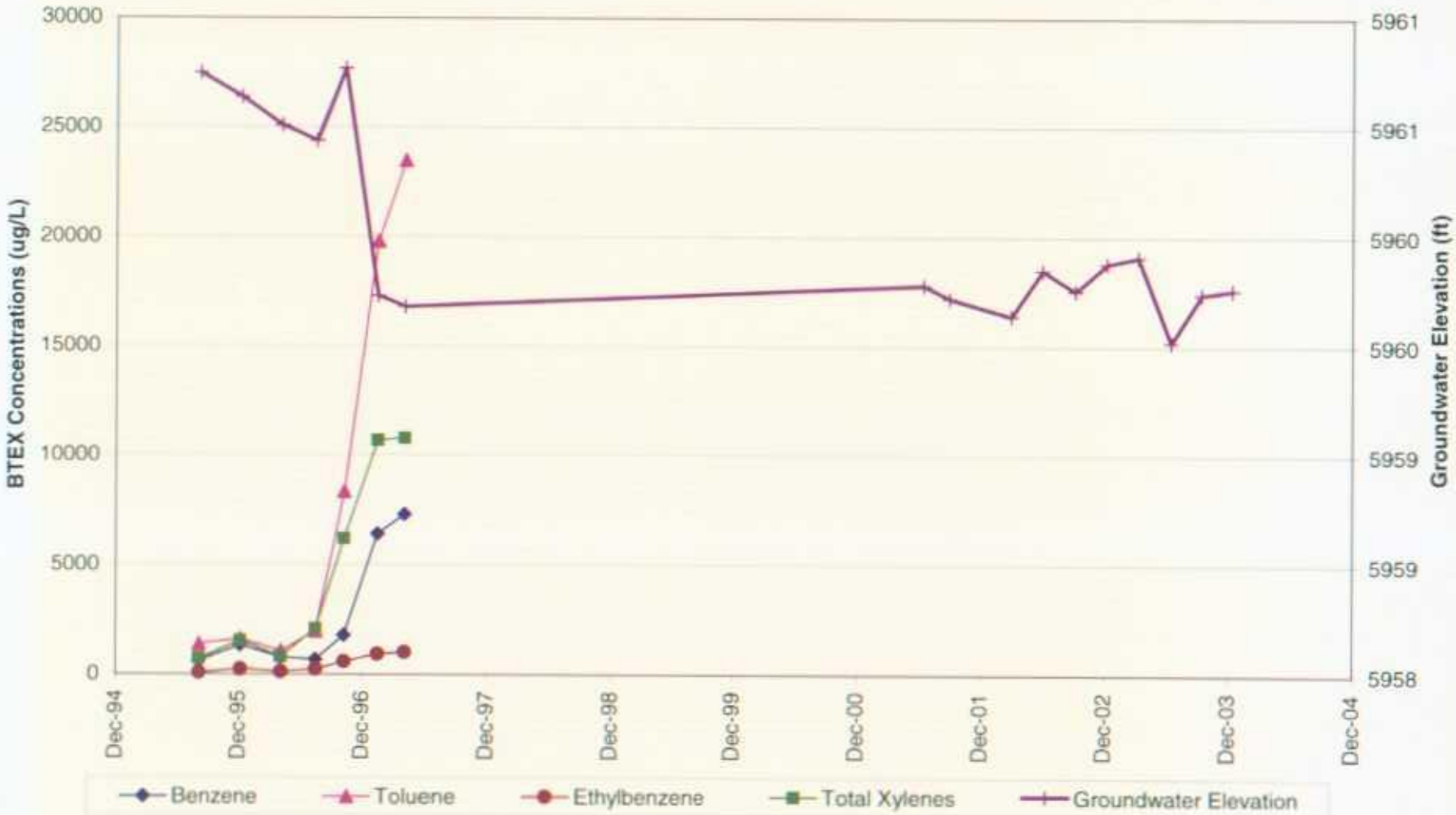
TABLE 2

SUMMARY OF FREE-PRODUCT REMOVAL DURING 2003
JOHNSTON FED #6A (METER #89232)

Site Name	Monitoring Well	Removal Date	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Product Thickness (feet)	Volume of Product Removed (gallons)	Cummulative Volume of Product Removed (gallons)
Johnston Fed #6A	MW-1	3/14/03	37.95	38.08	0.13	0.10	4.38
Johnston Fed #6A	MW-1	6/18/03	37.88	38.47	0.59	0.40	4.78
Johnston Fed #6A	MW-1	9/16/03	38.17	38.25	0.08	0.06	4.84
Johnston Fed #6A	MW-1	12/17/03	38.13	38.23	0.10	0.02	4.87
Johnston Fed #6A	MW-3	3/14/03	NA	37.66	0.00	0.00	0.00
Johnston Fed #6A	MW-3	6/18/03	37.63	37.87	0.24	0.15	0.15
Johnston Fed #6A	MW-3	9/16/03	37.87	37.885	0.015	0.02	0.17
Johnston Fed #6A	MW-3	12/17/03	NA	37.8	0.00	0.00	0.17
Johnston Fed #6A	MW-5	3/14/03	38.60	38.71	0.11	0.02	0.05
Johnston Fed #6A	MW-5	6/18/03	38.62	38.85	0.23	0.06	0.11
Johnston Fed #6A	MW-5	9/16/03	38.83	38.88	0.05	0.02	0.13
Johnston Fed #6A	MW-5	12/17/03	38.74	38.75	0.01	0.01	0.14

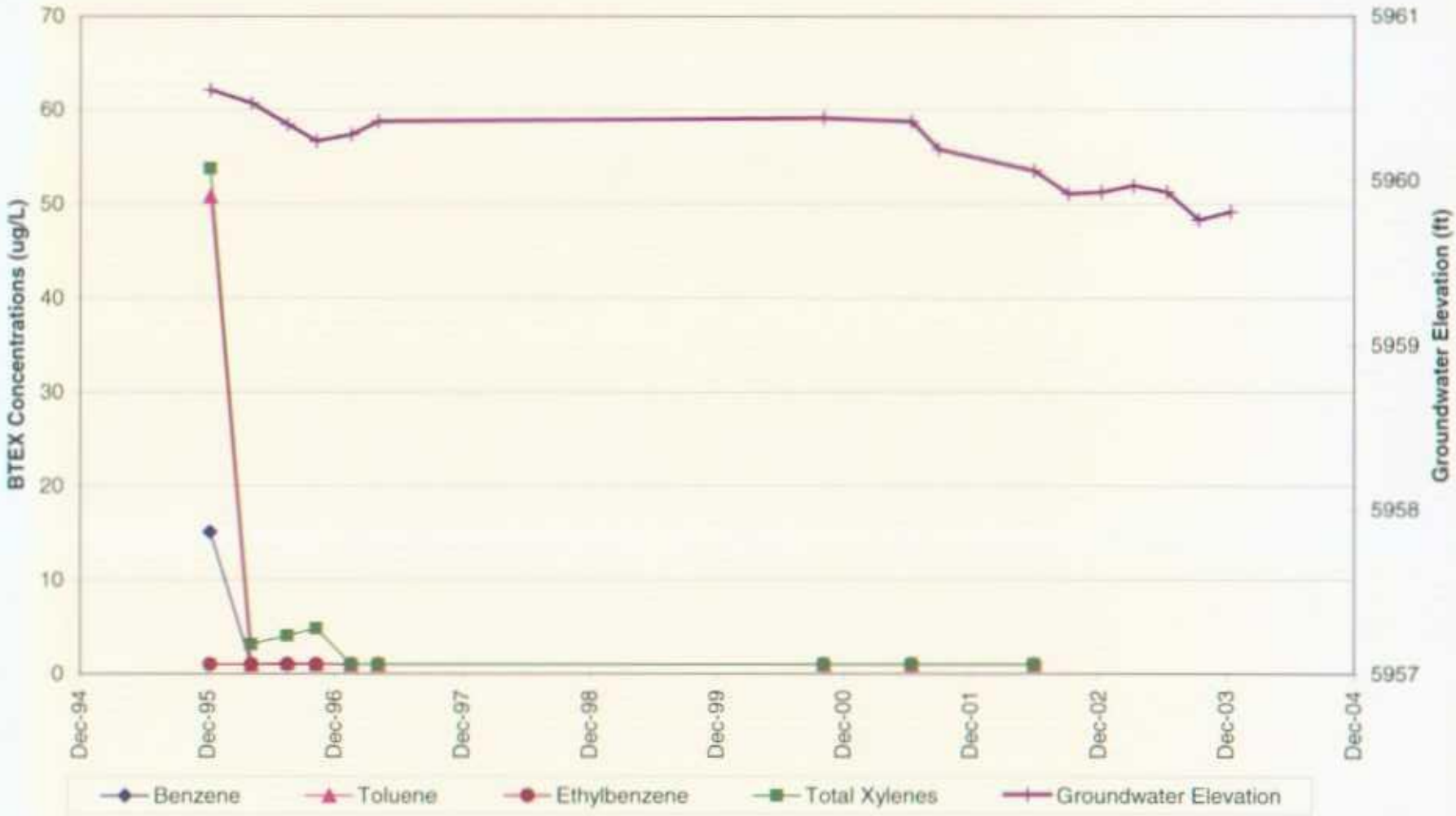
MW-1, MW-3 and MW-5 were redeveloped in June 2003.

FIGURE 2
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
JOHNSTON FEDERAL #6A
MW-1



2003 Johnston Fed 6A.xls,JFed 6A MW1

FIGURE 3
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
JOHNSTON FEDERAL #6A
MW-2

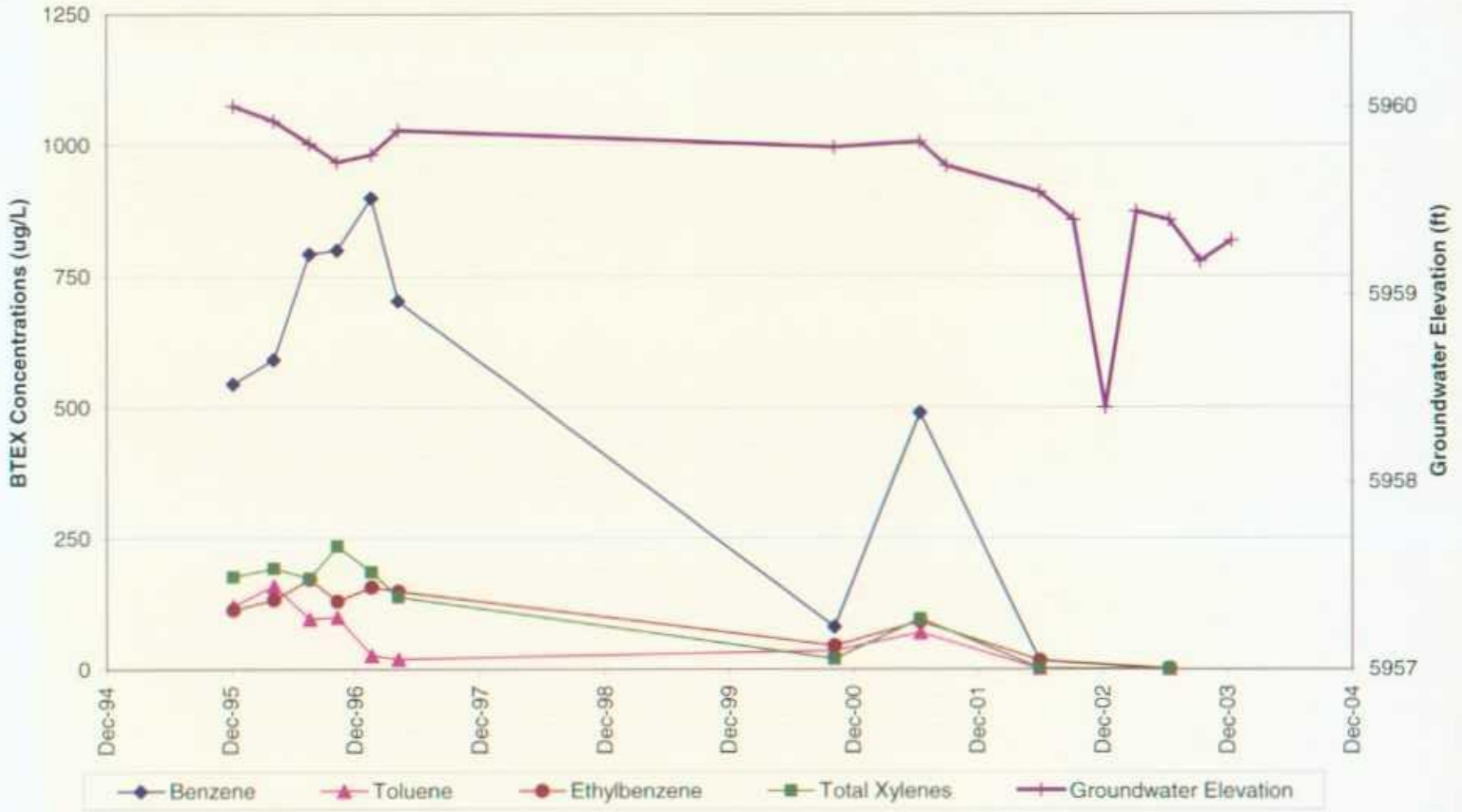


2003 Johnston Fed 6A.xls,JFed 6A MW2

FIGURE 4
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
JOHNSTON FEDERAL #6A
MW-3

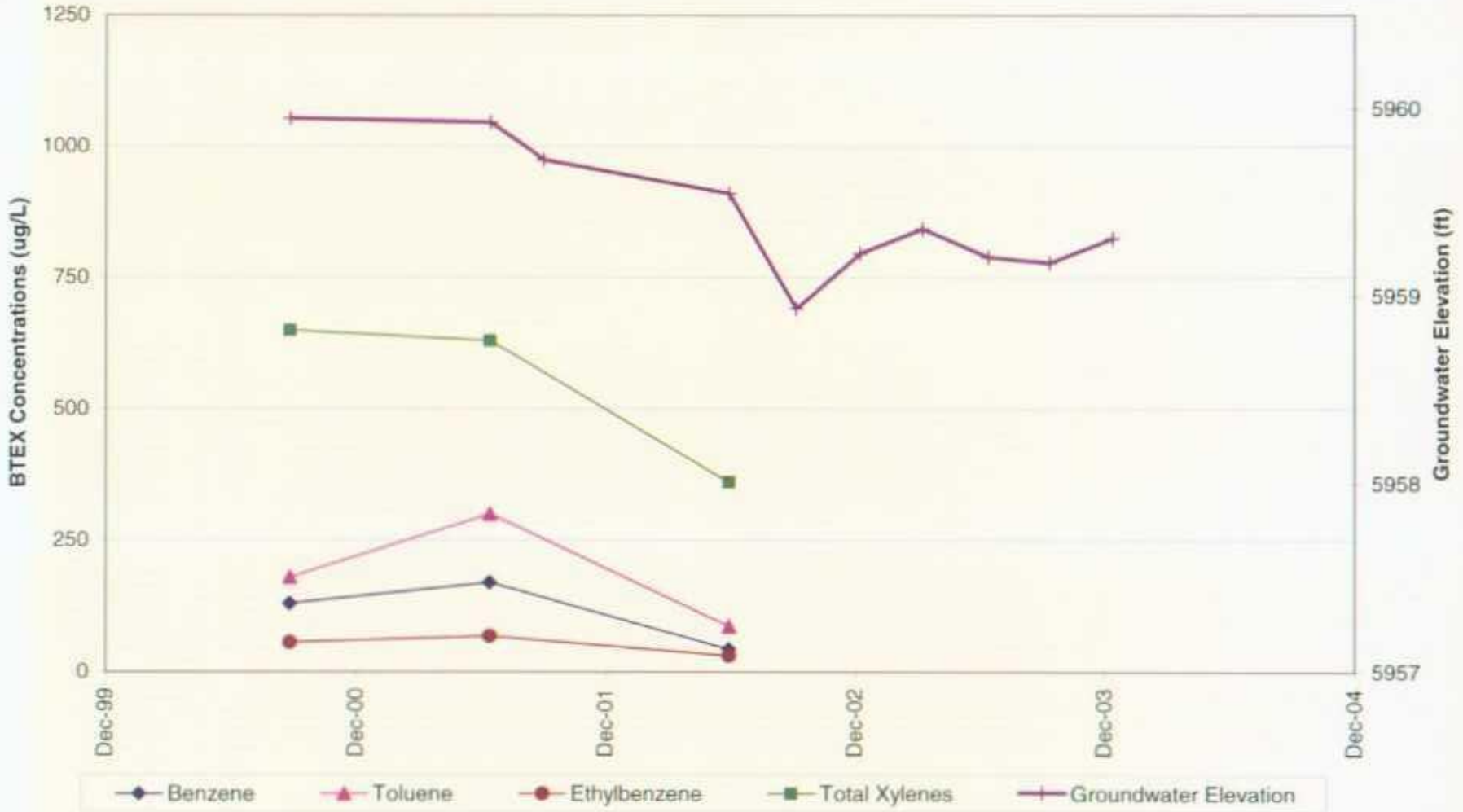
2003 Johnston Fed 6A.xls,JFed 6A MW3

FIGURE 5
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
JOHNSTON FEDERAL #6A
MW-4



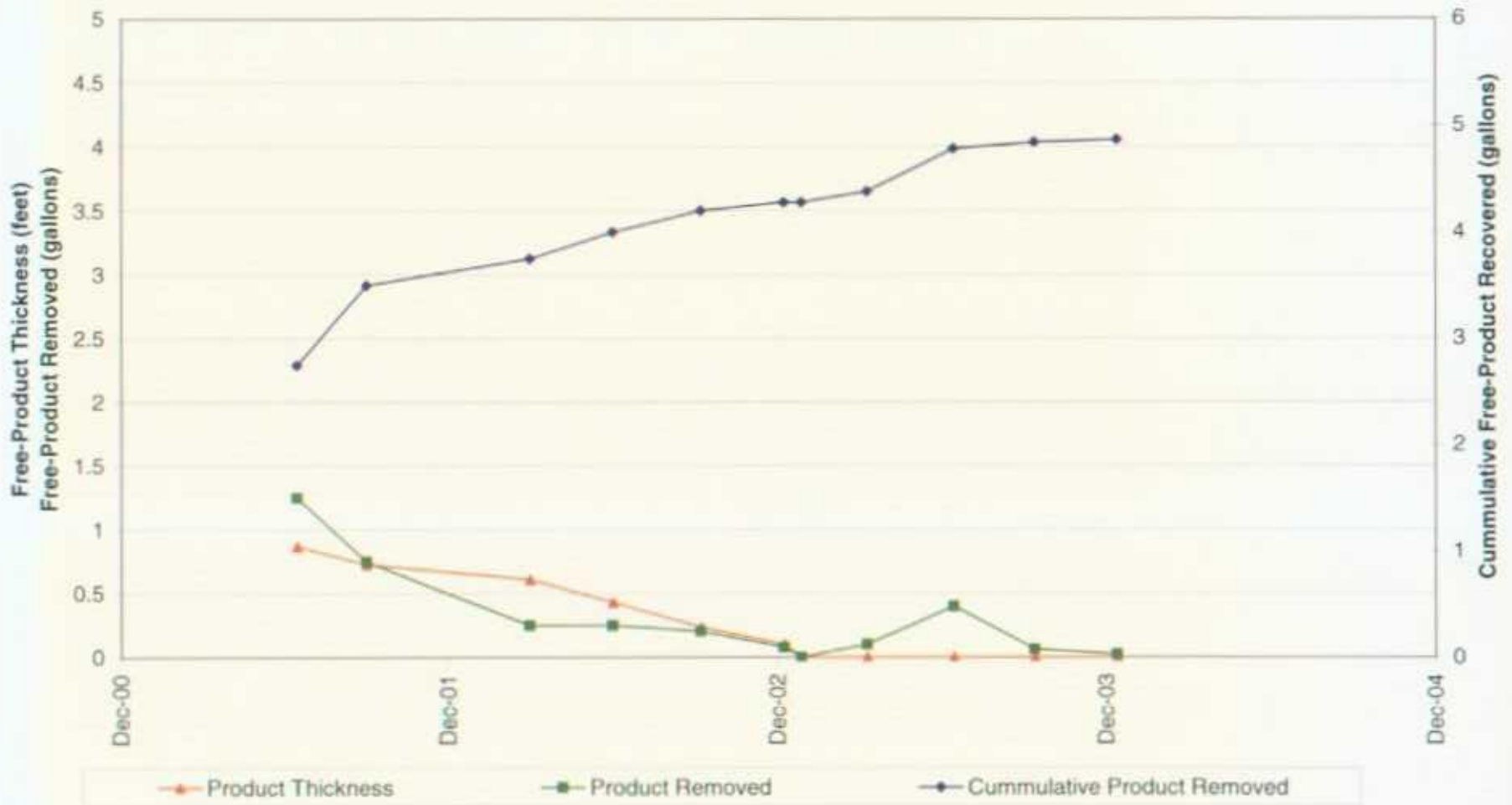
2003 Johnston Fed 6A.xls,JFed 6A MW4

FIGURE 6
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
JOHNSTON FEDERAL #6A
MW-5



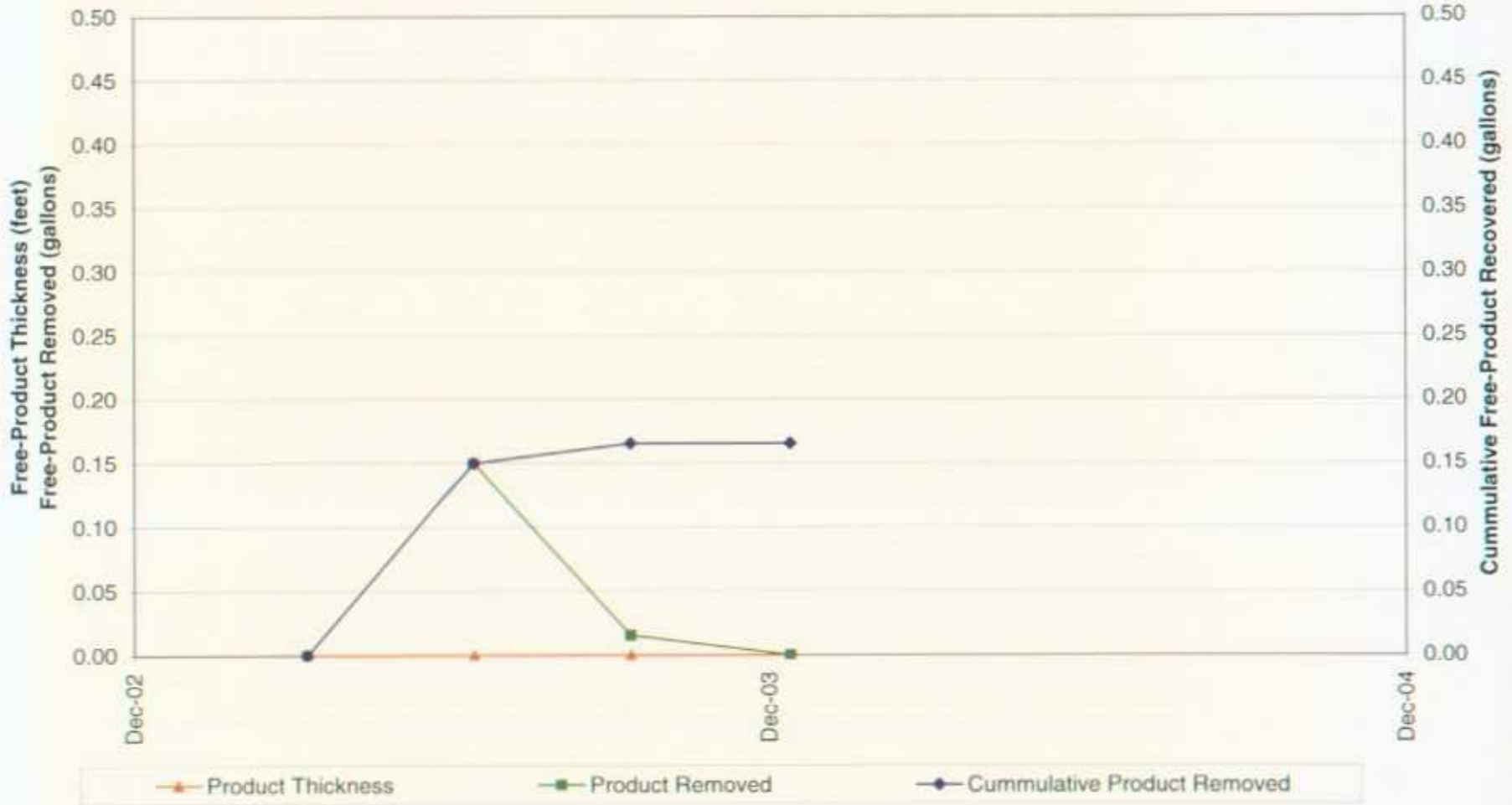
2003 Johnston Fed 6A.xls,JFed 6A MW5

FIGURE 7
HISTORIC FREE-PRODUCT RECOVERY
JOHNSTON FEDERAL #6A
MW-1



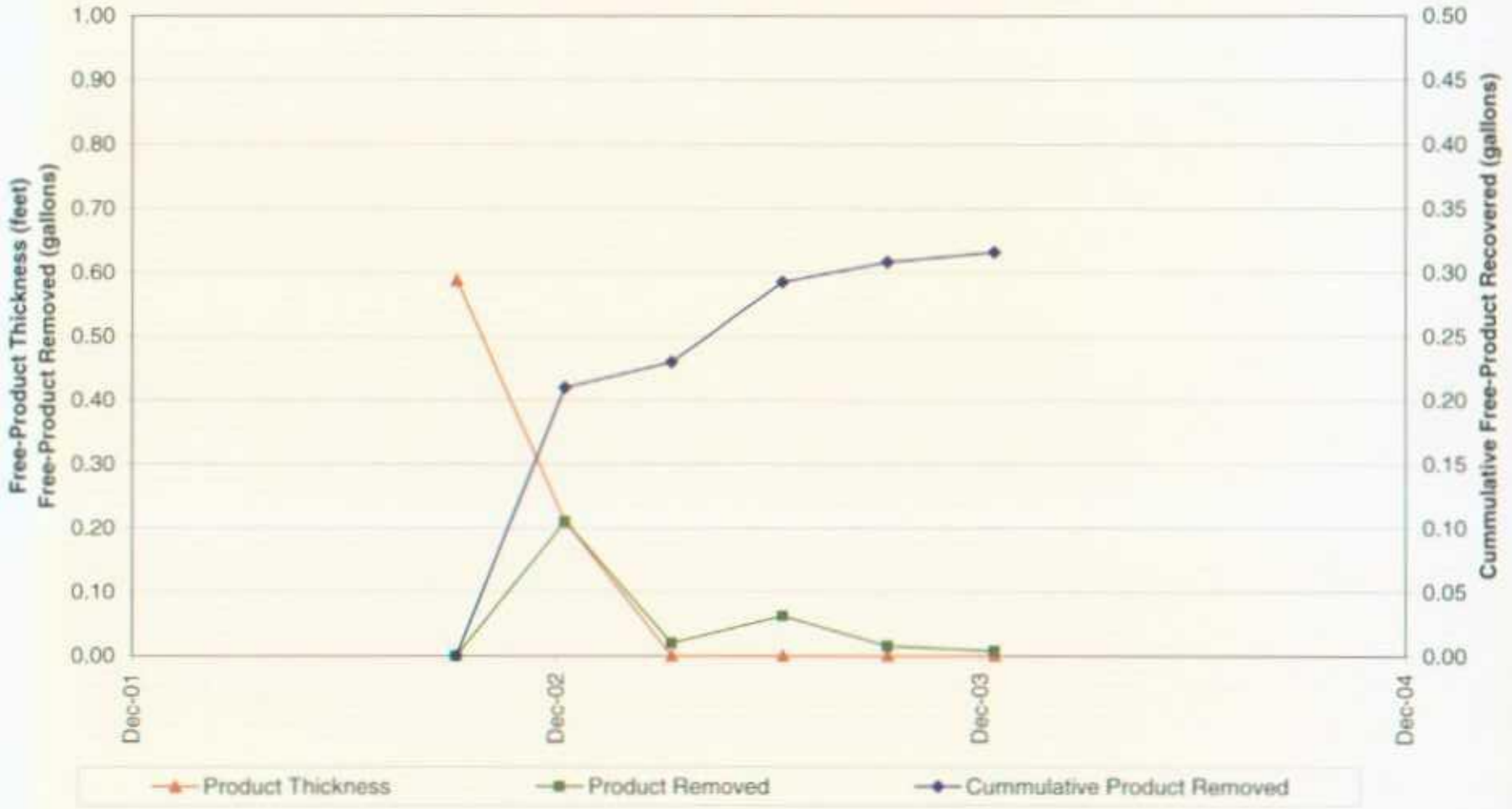
2003 Johnston Fed 6A.xls, JFed6A PR1

FIGURE 8
HISTORIC FREE-PRODUCT RECOVERY
JOHNSTON FEDERAL #6A
MW-3



2003 Johnston Fed 6A.xls, JFed6A PR3

FIGURE 9
HISTORIC FREE-PRODUCT RECOVERY
JOHNSTON FEDERAL #6A
MW-5



2003 Johnston Fed 6A.xls, JFed6A PR5

ATTACHMENT 1

LABORATORY REPORTS

DATA VALIDATION WORKSHEET

Analytical Method/Analytes: SW-846 8021B (BTEX) **Sample Collection Date(s):** 06/18/03

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

Batch Identification: T4610 **Matrix:** Water

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

Validation Complete: Brian Buttars - 07/01/03
(Date/Signature)

Foot Notes	Site ID	Sample ID	Lab. ID	Hits (Y/N)	Quals.	Comments
None	Johnston Fed. #6A	MW-4	T4610-01	Y		Ethylbenzene @ 1.7 μg/l
None	Trip Blank	180603TB02	T4610-02	N		

DATA VALIDATION WORKSHEET

Analytical Method:	SW-846 8021B (BTEX)	**MWH Job Number:**	EPC-SJRB (Groundwater)
Laboratory:	Accutest	**Batch Identification:**	T4610

Validation Criteria								
Sample ID	Johnston Fed. #6A MW-4	180603TB 02						
Lab ID	T4610-01	T4610-02						
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

06/26/03

Technical Report for

Montgomery Watson

EPFS San Juan Basin GS

Accutest Job Number: T4610

Report to:

El Paso

lynn.benally@elpaso.com

ATTN: Lynn Benally

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

Sample Summary

Montgomery Watson

Job No: T4610

EPFS San Juan Basin GS

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
T4610-1	06/18/03	12:30	MJN	06/20/03	AQ	Water	JOHNSTON FEDERAL 614 MW-4
T4610-2	06/18/03	07:00	MJN	06/20/03	AQ	Water	180603TB02

Accutest Laboratories

Report of Analysis

Client Sample ID:	JOHNSTON FEDERAL 614 MW-4		
Lab Sample ID:	T4610-1	Date Sampled:	06/18/03
Matrix:	AQ - Water	Date Received:	06/20/03
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	KK005302.D	1	06/23/03	BC	n/a	n/a	GKK279
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	1.7	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	98%		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:	180603TB02		
Lab Sample ID:	T4610-2	Date Sampled:	06/18/03
Matrix:	AQ - Water	Date Received:	06/20/03
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	KK005293.D	1	06/23/03	BC	n/a	n/a	GKK279
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	99%		64-121%
98-08-8	aaa-Trifluorotoluene	100%		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: T4610
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK279-BS	KK005288.D	1	06/23/03	BC	n/a	n/a	GKK279

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

T4610-1, T4610-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	19.2	96	74-119
100-41-4	Ethylbenzene	20	19.2	96	82-115
108-88-3	Toluene	20	19.0	95	77-116
1330-20-7	Xylenes (total)	60	57.6	96	79-115
95-47-6	o-Xylene	20	19.1	96	78-114
	m,p-Xylene	40	38.5	96	79-116

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

Method Blank Summary

Job Number: T4610
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK279-MB	KK005289.D	1	06/23/03	BC	n/a	n/a	GKK279

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

T4610-1, T4610-2

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	99%	64-121%
98-08-8	aaa-Trifluorotoluene	98%	71-121%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T4610
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T4607-2MS	KK005295.D	1	06/23/03	BC	n/a	n/a	GKK279
T4607-2MSD	KK005296.D	1	06/23/03	BC	n/a	n/a	GKK279
T4607-2	KK005294.D	1	06/23/03	BC	n/a	n/a	GKK279

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

T4610-1, T4610-2

CAS No.	Compound	T4607-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	6.5		20	26.8	102	27.6	106	3	64-124/16
100-41-4	Ethylbenzene	17.8		20	38.2	102	39.1	107	2	64-123/14
108-88-3	Toluene	ND		20	20.5	103	21.4	107	4	64-120/13
1330-20-7	Xylenes (total)	1.7	J	60	62.7	102	64.8	105	3	66-118/18
95-47-6	o-Xylene	0.55	J	20	20.7	101	21.4	104	3	65-119/20
	m,p-Xylene	1.2	J	40	42.0	102	43.4	106	3	66-120/14

CAS No.	Surrogate Recoveries	MS	MSD	T4607-2	Limits
460-00-4	4-Bromofluorobenzene	102%	101%	99%	64-121%
98-08-8	aaa-Trifluorotoluene	101%	102%	100%	71-121%

ACCUTEST Laboratories

CHAIN OF CUSTODY # 180603 MN Φ2

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

FED-EX Tracking # 836557 900640
Bottle Order Control #
Accutest Quote #
Accutest Job #

Client / Reporting Information

Company Name: MWH El Paso
Address: 614 Reilly Ave
City: Farmington State: NM Zip: 87401
Project Contact: Lynn Benally E-mail:
Phone #: 505 599 2178
Sampler's Name: M J Nee

Project Information

Project Name: San Juan Basin
~~Street~~ Groundwater
City: State:
Project #:
Fax #:
Client Purchase Order #:

Requested Analysis: BTEX 8020

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Date	Time	Sampled By	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	BTEX 8020	LAB USE ONLY
1	Johnston Federal 6A MW-4		6/16/03	1230	MN	WG	2	2								X	VRLf
2	180603TBΦ2		6/18/03	0700	MN	WG	1	1								X	

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
WP - Wipe

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

T4610

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

Relinquished by Sampler: 1 [signature]	Date Time: 1700 6-18-03	Received by: 1	Relinquished by: 2	Date Time: 8:45 6/20/03	Received by: 2 Alejandra Luna
Relinquished by: 3	Date Time: 6-19-03 MN	Received by: 3	Relinquished by: 4	Date Time:	Received by: 4
Relinquished by: 5	Date Time:	Received by: 5	Custody Seal #	Preserved where applicable ☐	On Ice ☒	Cooler Temp. 5.8°C

ATTACHMENT 2

FIELD DOCUMENTATION

PRODUCT RECOVERY

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**	**12-17-03**
Site Name	**Johnston Federal 6A**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-1	1231	38.13	38.23	0.1	3 oz. product
final		sheen	39.20		2.5 gal. water
MW-2		-	38.13		
MW-3			37.80		
MW-4		-	38.06		
MW-5		38.74	38.75	0.01	<1oz
final		sheen	39.02		2 gal. water

Comments

Signature: Martin J. Nee Date: December 17, 2003

PRODUCT RECOVERY

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**	**9-16-03**
Site Name	**Johnston Federal 6A**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-1	1231	38.17	38.25	0.08	8 oz. product
final		-	39.25		4 gal. water
MW-2		-	38.18		
MW-3		37.87	37.885	0.015	2 oz. product
final		-	39.55		5 gal. water
MW-4		-	38.17		
MW-5		38.83	38.88	0.05	2 oz. product
final		-	39.09		4 gal. water

Comments

Signature: Martin J. Nee Date: September 16, 2003

WELL DEVELOPMENT AND SAMPLING LOG

Project No: 30001.0 Project Name: San Juan Basin Client: MWH

Location: Johnston Fed 6A Well No: MW-5 Development ☒ Sampling ☐

Project Manager MJN Date 6-18-03 Start Time 1429 Weather pc 80s

Depth to Water 38.85 Depth to Product 38.62 Product Thickness ____ Measuring Point TOC

Water Column Height 3.85 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 ☒ Sabilization of Indicator Parameters ☒ Other on Client Instr.

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	
3.85 x .16	.616 x 3		1.848

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1429	7.22	4690					.25	clear
	7.16	4530					1	
	7.04	4400					2	
	6.96	4460					3	
1447	7.00	4510					4	

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
1447	7.00	4510						4	clear Wtr

COMMENTS: ____

INSTRUMENTATION: pH Meter ☒ ____ Temperature Meter ☒ ____

DO Monitor ☐ ____ Other ☐ ____

Conductivity Meter ☒ ____

Water Disposal Kutz

Sample ID N2 Sample Time N2 BTEX ☐ VOCs ☐ Alkilinity ☐

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

Total Phosphorus ☐ ____ ☐ ____ ☐ ____ ☐ ____ ☐

MS/MSD ____ BD ____ BD Name/Time ____ TB N2

WELL DEVELOPMENT AND SAMPLING LOG

Project No: 30001-0 Project Name: San Juan Basin Client: MWH

Location: Huntington Fed 6A Well No: MW-4 Development ☐ Sampling ☒

Project Manager MJN Date 6-18-03 Start Time 1140 Weather PC 80s

Depth to Water 32.95 Depth to Product — Product Thickness — Measuring Point TOC

Water Column Height 10.56 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 bail dry

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	
10.56 x .65	6.86 x 3		20.59

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1143	730	3760	216				1.5	clear HC odor
	727	3700	209				1	
	726	3770	198				1.5	
	730	3980	203				4	
	730	4100	202				6	
	729	4160	207				10	silty
	728	4150	206				15	
	736	4110	204				20	
1223	732	3900	203				21	very silty

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
1223	732	3900	203					21	

COMMENTS: _____

INSTRUMENTATION: pH Meter ☒ _____ Temperature Meter ☒ _____

DO Monitor ☐ _____ Other ☐ _____

Conductivity Meter ☒ _____

Water Disposal Kutz

Sample ID Huntington Fed 6A MW-4 Sample Time 1230 BTEX ☒ VOCs ☐ Alkilinity ☐

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

Total Phosphorus ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐

MS/MSD _____ BD _____ BD Name/Time _____ TB 180603TB002

WELL DEVELOPMENT AND SAMPLING LOG

Project No: 30001.0 Project Name: San Juan Client: MWH

Location: Ignacio Fed 16A Well No: MW-3 Development ☒ Sampling ☐

Project Manager MJN Date 6-18-03 Start Time 1238 Weather PC 80s

Depth to Water 37.86 Depth to Product 37.63 Product Thickness .23 Measuring Point TOC

Water Column Height 8.69 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 clear water

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	
8 x .65	5.63 x 3		17.39

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1302	740	4580	22.9				5	clear
	729	4460	20.2				10	grey milky
	741	4130	20.8				15	Very Very Silty
	749	4010	20.7				30	
1352	748	4000	20.7				35	Silt cleaning up

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
1352	748	4000	20.7					35	

COMMENTS: Removed abundant silt from bottom of well well produces good rate

INSTRUMENTATION: pH Meter ☒ _____ Temperature Meter ☒ _____

DO Monitor ☐ _____ Other ☐ _____

Conductivity Meter ☒ _____

Water Disposal Kutz

Sample ID — Sample Time — BTEX ☐ VOCs ☐ Alkalinity ☐

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

Total Phosphorus ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐

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

WELL DEVELOPMENT AND SAMPLING LOG

Project No: 30001.0 Project Name: San Juan Basin Client: MWH

Location: Johnston Federal #4 Well No: MW-1 Development ☒ Sampling ☐

Project Manager MJN Date 6-18-03 Start Time 1400 Weather pc 80s

Depth to Water 38.47 Depth to Product 37.88 Product Thickness .59 Measuring Point TOC

Water Column Height 11.66 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 or clear water

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	
12-25 x .65	7.96 gal x 3		23.89

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1400	7.24	4010	21.4				10	clear
	7.33	4630	19.9				20	milky grey
	7.39	4690	19.6				25	
1424	7.25	4560	19.6				30	

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous iron	Vol Evac.	Comments/Flow rate
1424	7.25	4560	19.6					35	not milky No silt

COMMENTS: produces good water

INSTRUMENTATION: pH Meter ☒ _____ Temperature Meter ☒ _____

DO Monitor ☐ _____ Other ☐ _____

Conductivity Meter ☒ _____

Water Disposal Ktz

Sample ID Nz Sample Time Nz BTEX ☐ VOCs ☐ Alkilinity ☐

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

Total Phosphorus ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐

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

PRODUCT RECOVERY

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**	**6-18-03**
Site Name	**Johnston Federal 6A**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-1	1124	37.88	38.47	.59	.4
MW-2			38.01		
MW-3		37.63	37.86	.23	.15
MW-4			37.95		
MW-5		38.62	38.85	.23	8oz

Comments
MW-3 was to be sampled for BTEX. Product was found while taking water levels so product recovery was completed and the well was re developed. No groundwater samples were taken.

Signature: *Martin J. Nee* Date: June 18, 2003

Product Recovery and Well Observation Data

Project Name: San Juan Basin
Project Manager: MJN
Client Company: MWH
Site Name: Johnson Federal #6A

Project No: 20013
Date: 3-14-03

Well	Time	Depth to Water (ft)	Depth to Product (ft)	Total Well Depth (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	1214	38.08	37.95	—	.13	.1	.5 gal water
		38.43	38.425		.005		Final
MW-2	1130	37.97	—	—	—	—	
MW3	1145	37.66	—	—	—	—	
MW-4	1200	37.905	—	—	—	—	
MW-5	1230	38.71	38.6	—	.11	20z	.5 gal
		38.73					Final

COMMENTS:

Signature: [signature]

Date: 3-14-03