3R - 207

REPORTS

DATE:
2003

3R207

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
NON-FEDERAL SITES VOLUME II

EL PASO FIELD SERVICES

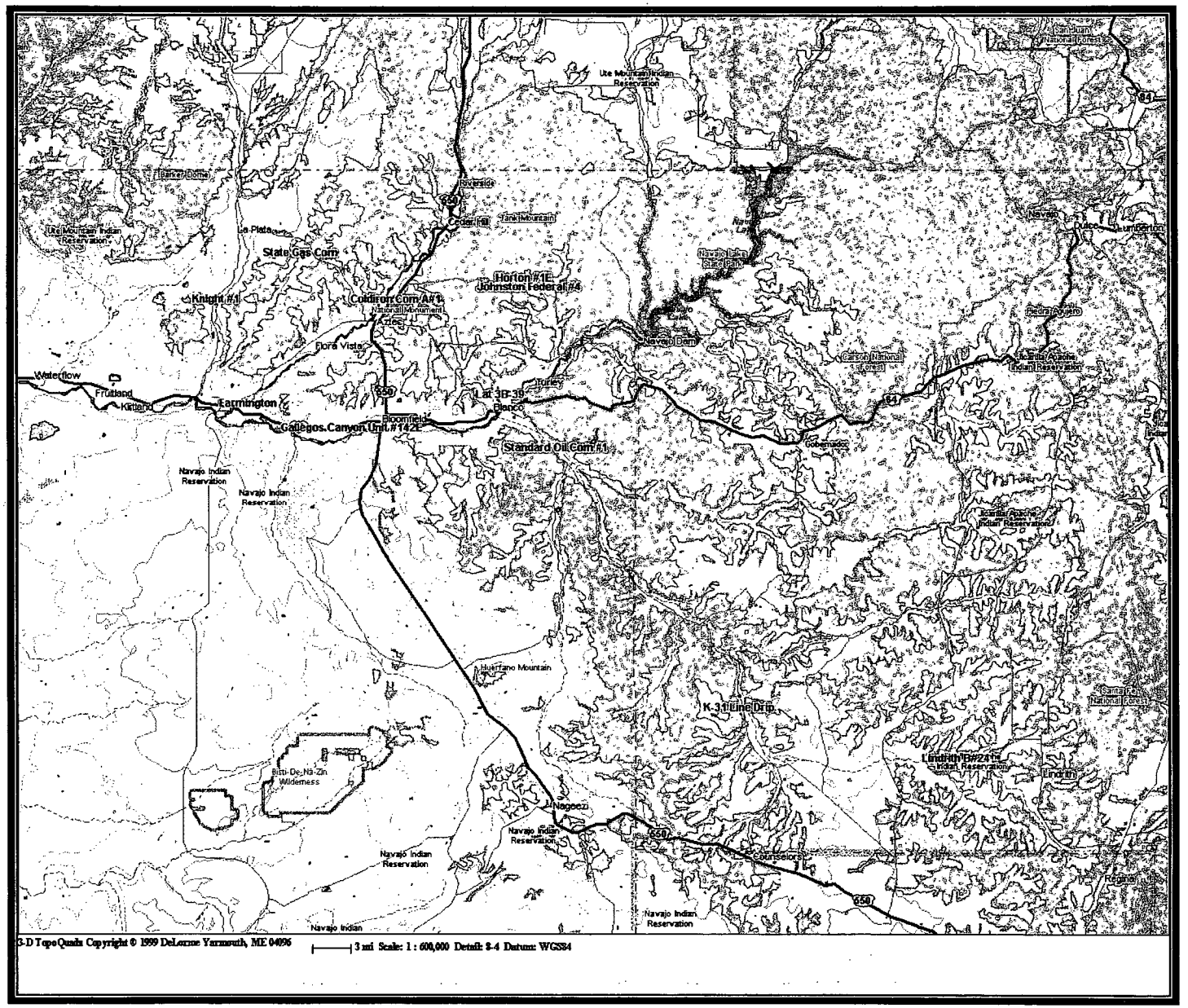
TABLE OF CONTENTS

METER or LINE ID	SITE NAME	TOWNSHIP	RANGE	SECTION	UNIT
71669	State Gas Com N #1	31N	12W	16	H
70194	Johnston Fed #4	31N	09W	33	H
93388	Horton #1E	31N	09W	28	H
72556	Knight #1	30N	13W	5	A
73551	Coldiron A #1	30N	11W	2	K
03906	GCU Com A #142E	29N	12W	25	G
70445	Standard Oil Com #1	29N	09W	36	N
LD087	K-31 Line Drip	25N	06W	16	N
94967	Lindrith B #24	24N	03W	9	N

elpaso

MWH
MONTGOMERY WATSON HARZA

Non - 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

Knight #1
Meter Code: 72556

SITE DETAILS

Legal Description: **Town:** 30N **Range:** 13W **Sec:** 5 **Unit:** A

NMOCD Haz Ranking: 30 **Land Type:** Fee **Operator:** Fuller Petroleum Inc.

PREVIOUS ACTIVITIES

Site Assessment:	1/95	**Excavation:**	1/95 (60 cy)	**Soil Boring:**	10/95
Monitor Well:	10/95	**Geoprobe:**	1/97	**Additional MWs:**	11/00
Downgradient MWs:	12/95	**Replace MW:**	NA	**Quarterly Initiated:**	4/96
ORC Nutrient Injection:	11/96	**Re-Excavation:**	NA	**PSH Removal Initiated:**	9/01
Annual Initiated:	NA	**Quarterly Resumed:**	NA		

SUMMARY OF 2003 ACTIVITIES

MW-1: Free-product recovery and water level measurements were performed quarterly. MW-1 was redeveloped in June 2003 in an attempt to increase free-product recovery.

MW-2: Annual groundwater sampling (September) and quarterly water level measurements were performed during 2003.

MW-3: Free-product recovery and water level measurements were performed quarterly in 2003. MW-3 was redeveloped in June 2003 in an attempt to increase free-product recovery.

MW-4: Annual groundwater sampling (September) and quarterly water level measurements were performed during 2003.

MW-5: Quarterly water level measurements were performed during 2003.

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

SITE MAP

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

Knight #1
Meter Code: 72556

SUMMARY TABLES AND GRAPHS

- Analytical data from 2003 are summarized on Table 1, and historic data are presented graphically in Figures 2 through 6.
- Free-product recovery data for 2003 are summarized on Table 2, and historic data are presented graphically in Figures 7 and 8.
- 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 the potentiometric surface and analytical data collected during 2003.

CONCLUSIONS

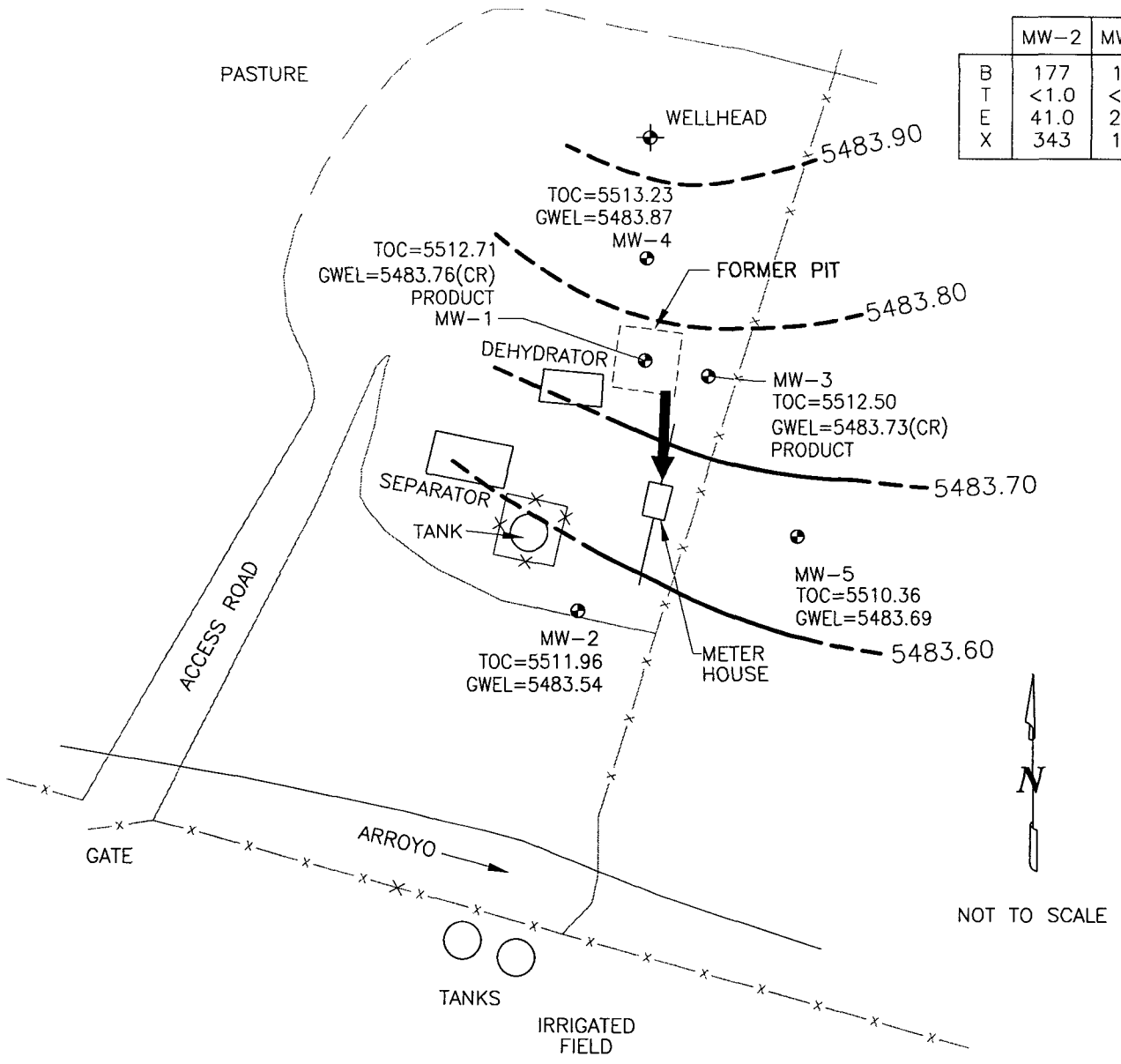
- Free-product recovery efforts at MW-1 resulted in removal of approximately 0.11 gallons of free-phase hydrocarbons during 2003 bringing the cumulative total volume recovered to date to 0.33 gallons. Redevelopment of this well in June did not result in any significant increase in free-product recovery.
- Laboratory results from the annual sample collected at MW-2 during September indicated a benzene concentration of 177 µg/L.
- Free-product recovery efforts at MW-3 resulted in removal of approximately 0.008 gallons of free-phase hydrocarbons during 2003 bringing the cumulative total volume recovered to date to 0.62 gallons. Redevelopment of this well in June did not result in any significant increase in free-product recovery.
- Laboratory results from the annual sample collected at upgradient well MW-4 during 2003 indicated an increasing benzene concentration trend up to 192 µg/L.
- The groundwater flow direction trends to the south/southeast.

RECOMMENDATIONS

- EPFS will continue free-product recovery efforts at MW-1 and MW-3 on a semi-annual basis. 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.

- EPFS will continue annual groundwater sampling and semi-annual water level monitoring at MW-2 and MW-4 until concentrations of BTEX constituents approach closure criteria. These wells will then be scheduled for quarterly sample collection until closure criteria have been met.

- Because historical analytical data have indicated that BTEX concentrations are below or near detection limits at MW-5, EPFS recommends that this well not be sampled until closure. Water level monitoring at this well will continue on a semi-annual basis.



	MW-2	MW-4
B	177	192
T	<1.0	<1.0
E	41.0	26.3
X	343	194

LEGEND

MW-1	Approximate Monitoring Well Location and Number
———	Centerline of Road
——//——//——	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.
5483.70	Potentiometric Surface (Assumed Where Dashed)
→	Direction of Groundwater Flow (Estimated)
GWEL	Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
PRODUCT	Free-Product Measured in Well
TOC	Top of Casing
CR	Water Level Has Been Corrected for Free-Product

knight_03.dwg

KNIGHT #1, METER 72556
SEPTEMBER 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 1

TABLE 1

SUMMARY OF BTEX COMPOUNDS IN 2003 GROUNDWATER SAMPLES
KNIGHT #1 (METER #72556)

Site Name	Monitoring Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft btoc)
Knight #1	MW-2	9/17/2003	177	< 1.0	41.0	343	28.42
Knight #1	MW-4	9/17/2003	192	< 1.0	26.3	194	29.36

TABLE 2

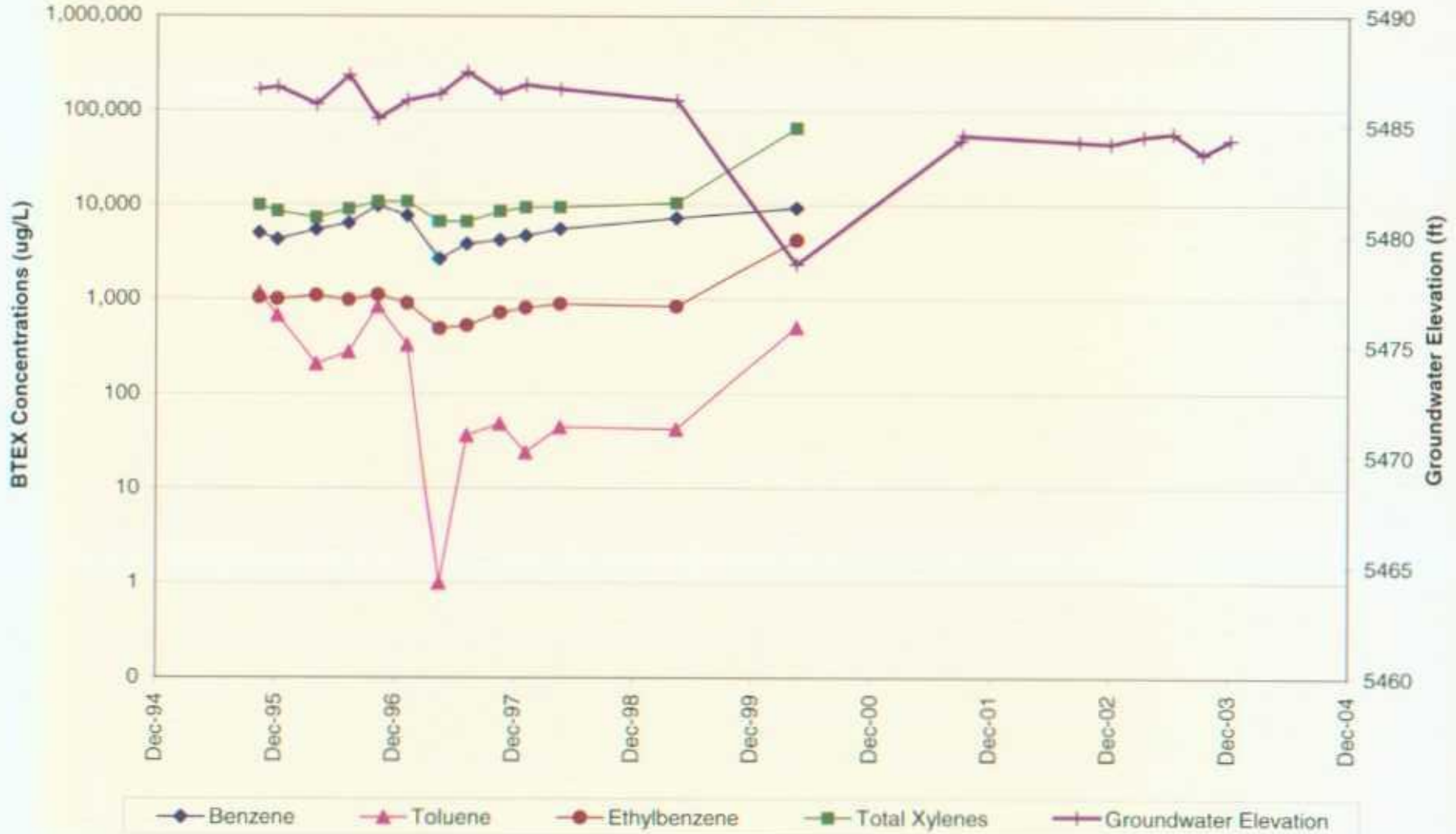
SUMMARY OF FREE-PRODUCT REMOVAL DURING 2003
KNIGHT #1 (METER #72556)

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)
Knight #1	MW-1	3/20/03	28.05	28.14	0.09	0.06	0.29
Knight #1	MW-1	6/19/03	28.00	28.02	0.02	0.03	0.32
Knight #1	MW-1	9/17/03	28.95	28.965	0.015	0.008	0.33
Knight #1	MW-1	12/9/03	28.30	28.315	0.015	0.008	0.34
Knight #1	MW-3	6/19/03	NA	27.81	0.00	0.00	0.61
Knight #1	MW-3	9/17/03	28.76	28.79	0.03	0.008	0.62
Knight #1	MW-3	12/9/03	NA	28.11	0.00	0.00	0.62

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

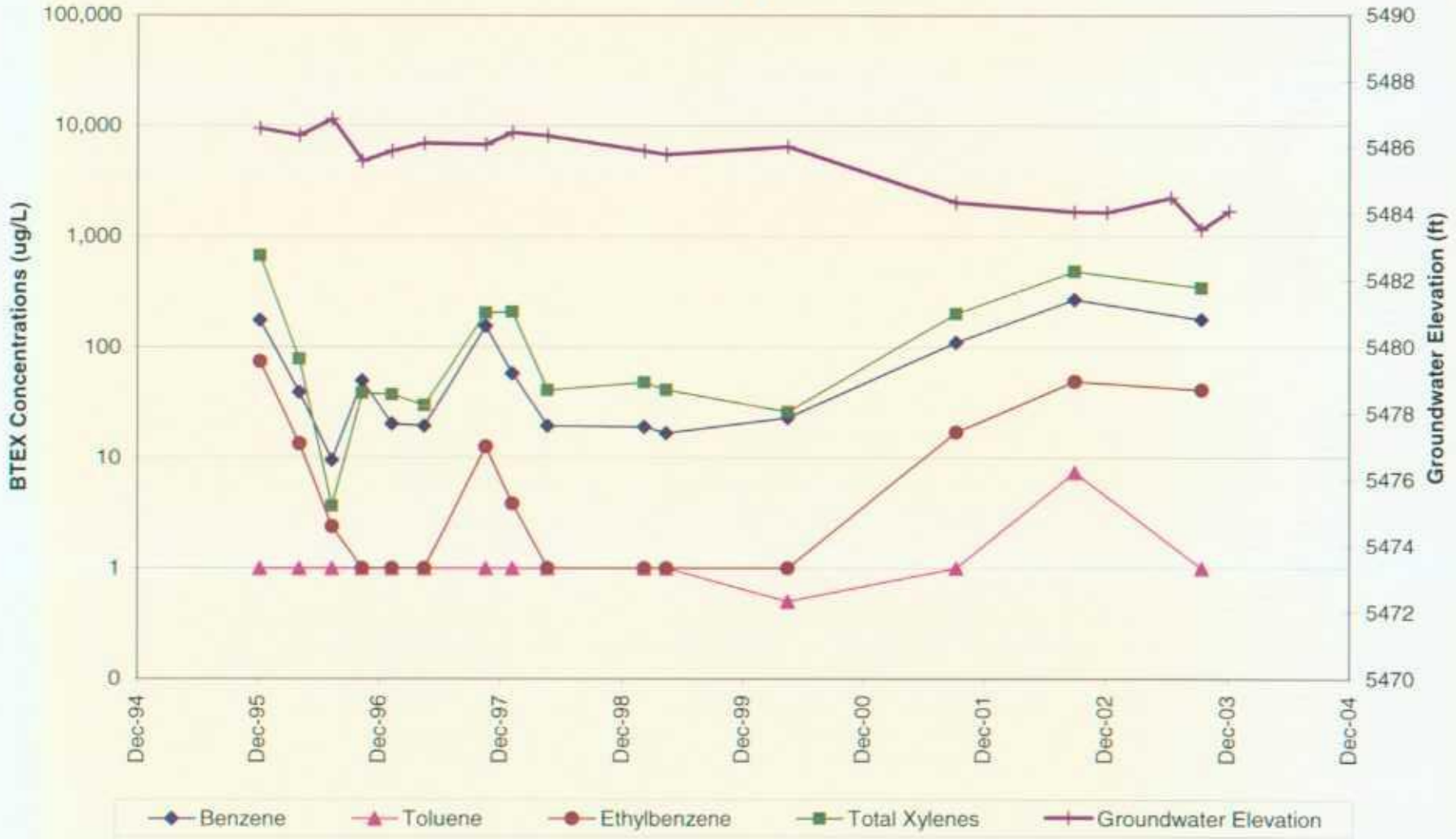
Some trace product detected in bailer from MW-3 in December; however, there was no measureable product thickness.

FIGURE 2
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
KNIGHT #1
MW-1



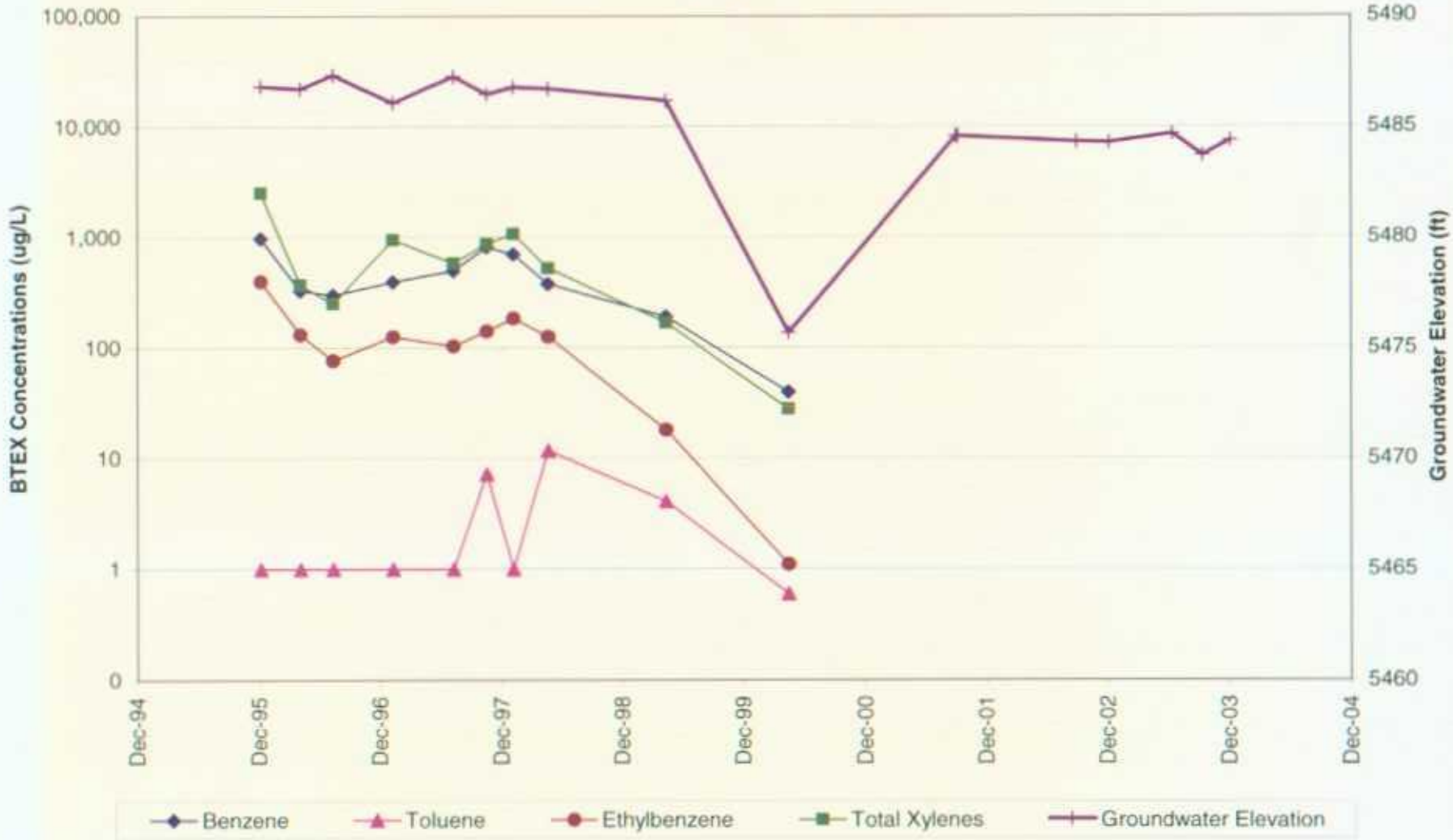
2003 Knight.xls,Knight MW1

FIGURE 3
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
KNIGHT #1
MW-2



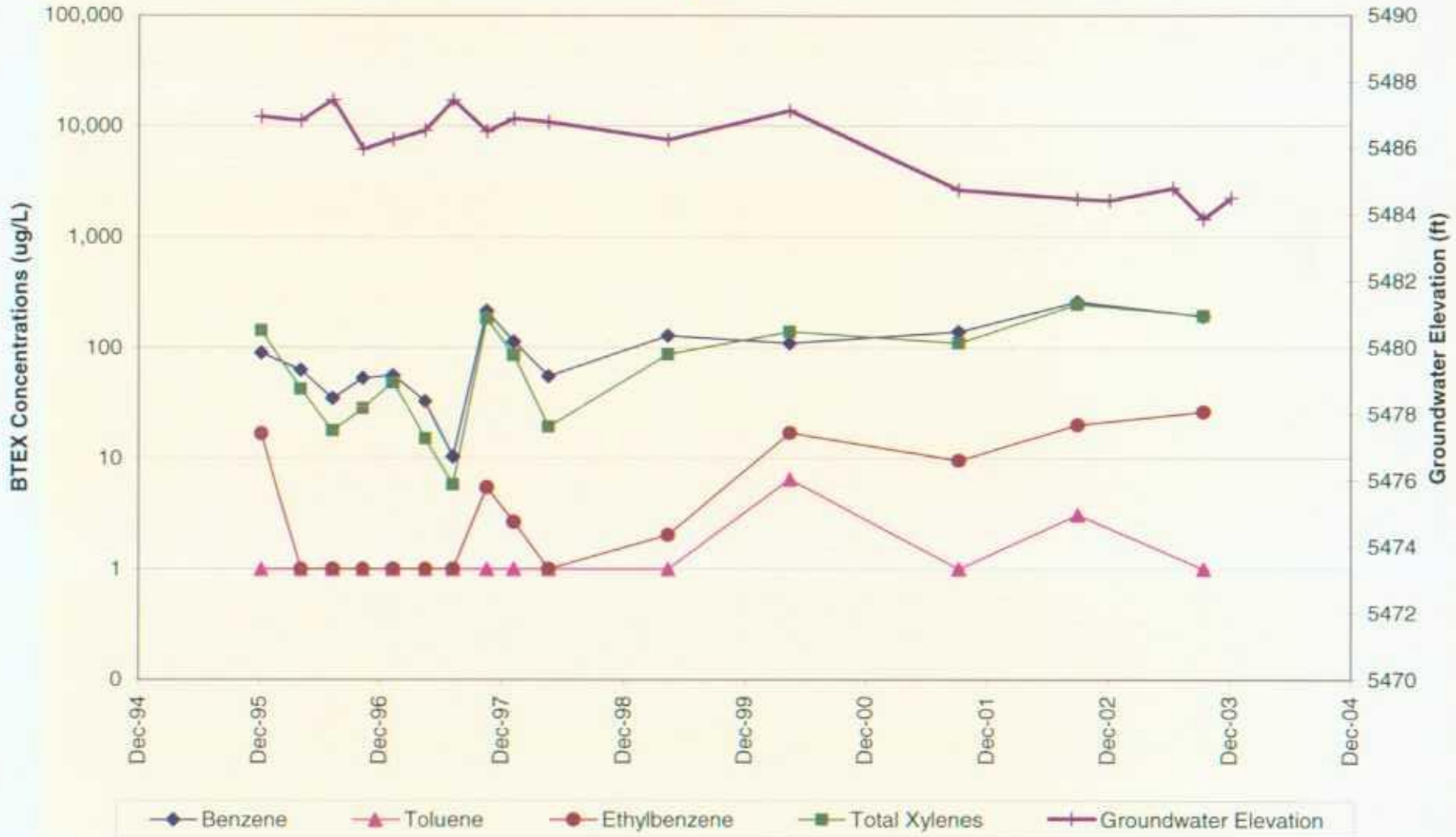
2003 Knight.xls,Knight MW2

FIGURE 4
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
KNIGHT #1
MW-3



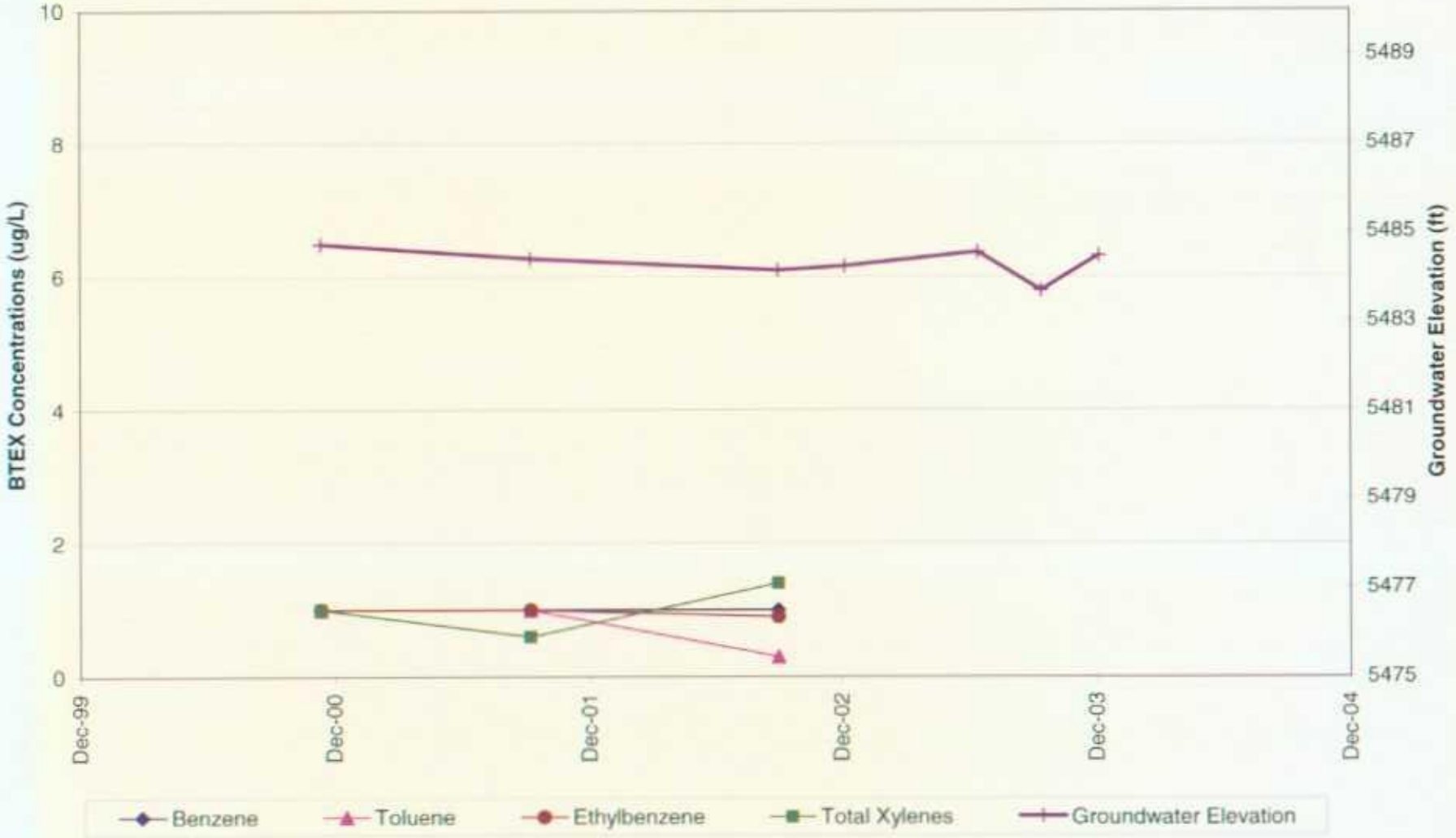
2003 Knight.xls,Knight MW3

FIGURE 5
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
KNIGHT #1
MW-4



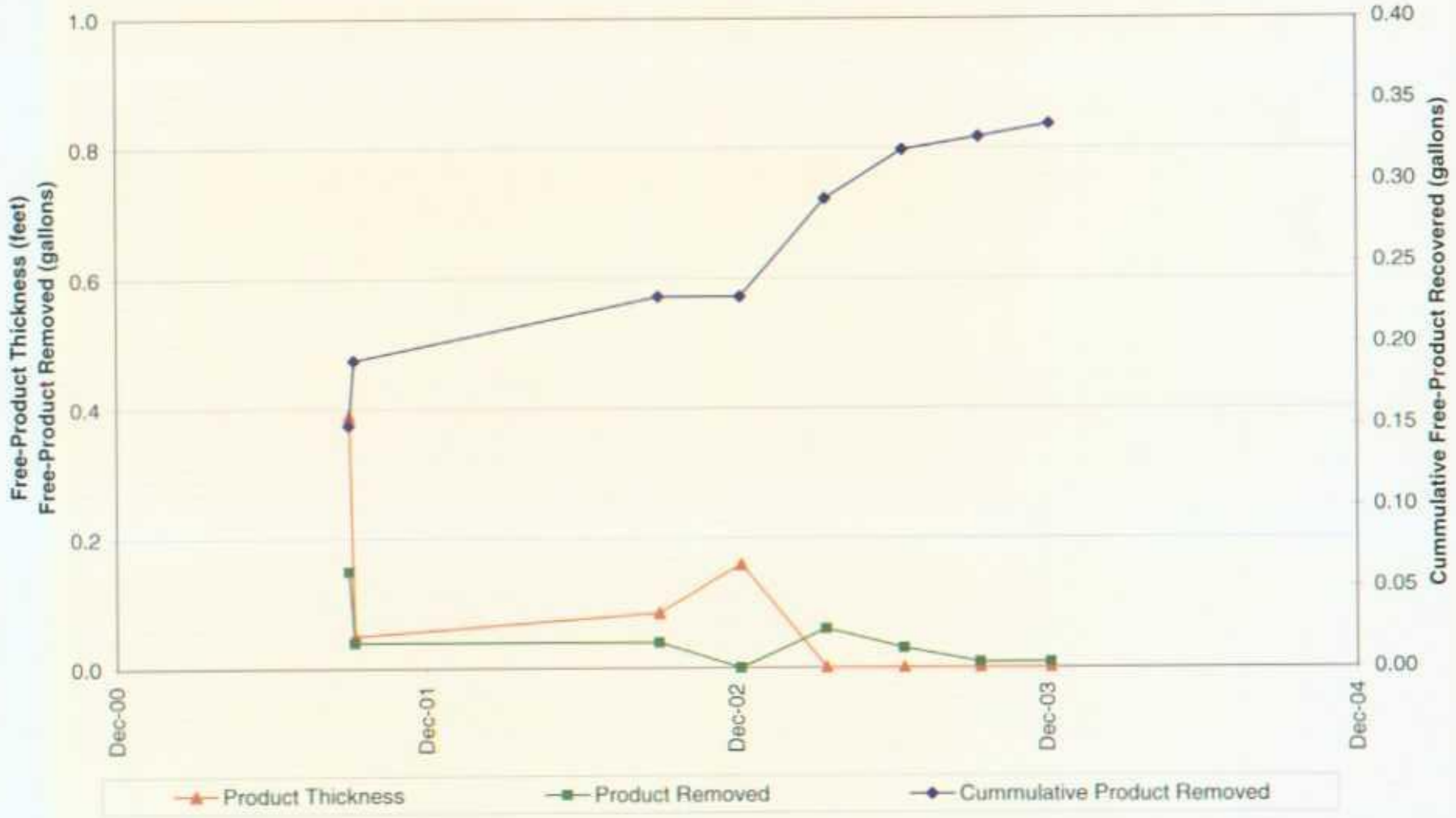
2003 Knight.xls,Knight MW4

FIGURE 6
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
KNIGHT #1
MW-5



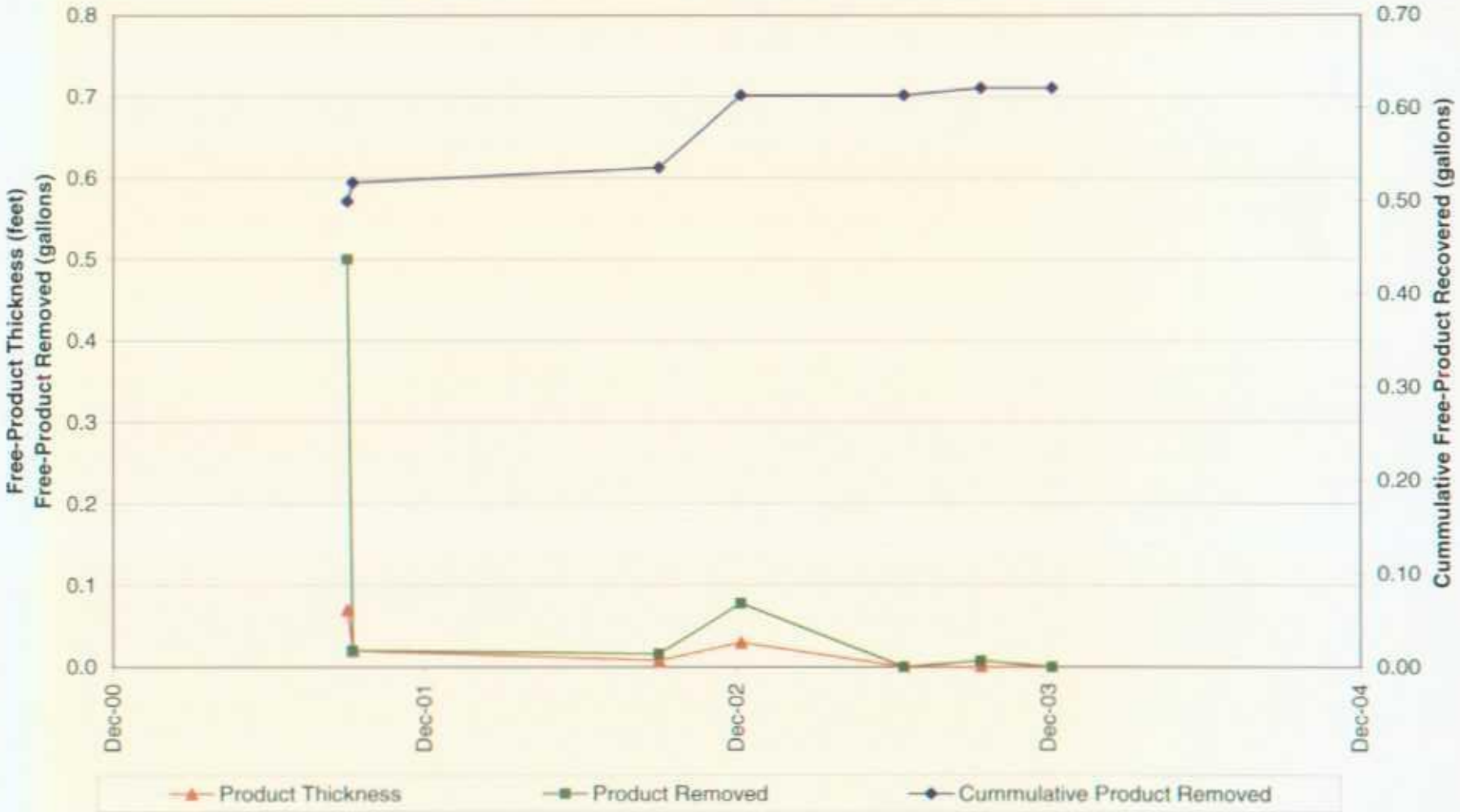
2003 Knight.xls,Knight MW5

FIGURE 7
HISTORIC FREE-PRODUCT RECOVERY
KNIGHT #1
MW-1



2003 Knight.xls, Knight PR1

FIGURE 8
HISTORIC FREE-PRODUCT RECOVERY
KNIGHT #1
MW-3



2003 Knight.xlsm Knight PR3

ATTACHMENT 1

LABORATORY REPORTS

DATA VALIDATION WORKSHEET

Analytical Method/Analytes: SW-846 8021B (BTEX) **Sample Collection Date(s):** 09/17/03

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

Batch Identification: T5402 **Matrix:** Water

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

Validation Complete: Brian Buttars 9-30-03
(Date/Signature)

Foot Notes	Site ID	Sample ID	Lab. ID	Hits (Y/N)	Quals.	Comments
None	Knight #1	MW-4	T5402-01	Y		Benzene @ 192 µg/l Ethylbenzene @ 26.3 µg/l Xylenes (total) @ 194 µg/l m,p-Xylene @ 194 µg/l
1	Knight #1	MW-2	T5402-02	Y		Benzene @ 177 µg/l Ethylbenzene @ 41.0 µg/l Xylenes (total) @ 343 µg/l o-Xylene @ 4.0 µg/l m,p-Xylene @ 340 µg/l
None	Trip Blank	170903TB01	T5402-03	N		

DATA VALIDATION WORKSHEET

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

Laboratory: Accutest **Batch Identification:** T5402

Validation Criteria								
Sample ID	**Knight #1 MW-4**	**Knight #1 MW-2**	**170903TB 01**					
Lab ID	**T5402-01**	**T5402-02**	**T5402-03**					
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)	N/A	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 @ 122% (71-121). Only one surrogate outside acceptance criteria, no data qualified.

CHAIN CUSTODY # 170903MN01

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

FED-EX Tracking # 346524484844 | Bottle Order Control #
Accutest Quote # | Accutest Job #

Client / Reporting Information

Company Name: MWH / EL PASO
Address: 614 Reilly
City: Farmington State: NM Zip: 87401
Project Contact: Scott Pope E-mail:
Phone #: 505 599 2124
Sampler's Name: M J Nee

Project Information

Project Name: Groundwater
Street: Knight #1
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	Time	Sampled By	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	BTEX
	Knight #1 MW-4		9.17.03	1040	MN	WG	2	2								2
	Knight #1 MW-2		9.17.03	1110	MN	WG	2	2								2
	170903TB#1		9.17.03	0700	MN	WQ	1	1								1

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

T5402

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 [signature] 1600hrs	9/17/03	1	2		2
Relinquished by:	Date Time:	Received by:	Relinquished by:	Date Time:	Received by:
3	9/18/03 0700	3 [signature]	4		4
Relinquished by:	Date Time:	Received by:	Custody Seal #	Preserved where applicable ☐	On Ice ☑ Y N
5		5			Cooler Temp 2.6 °C

Gulf Coast
ACCUTEST.
Laboratories

09/30/03

Technical Report for

Montgomery Watson

EPFS San Juan Basin Groundwater Site

Accutest Job Number: T5402

Report to:

Knight

MWH

pamela.j.anderson@us.mwhglobal.com

ATTN: Pam Anderson

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

Accutest Laboratories

Sample Summary

Montgomery Watson

Job No: T5402

EPFS San Juan Basin Groundwater Site

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
T5402-1	09/17/03	10:40	MJN	09/18/03	AQ	Water	KNIGHT #1 MW-4
T5402-2	09/17/03	11:10	MJN	09/18/03	AQ	Water	KNIGHT #1 MW-2
T5402-3	09/17/03	07:00	MJN	09/18/03	AQ	Trip Blank Water	170903TB01

Accutest Laboratories

Report of Analysis

Client Sample ID:	KNIGHT #1 MW-4		
Lab Sample ID:	T5402-1	Date Sampled:	09/17/03
Matrix:	AQ - Water	Date Received:	09/18/03
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	KK005812.D	1	09/23/03	BC	n/a	n/a	GKK312
Run #2	KK005855.D	5	09/29/03	BC	n/a	n/a	GKK315

	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	192 [a]	5.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	26.3	1.0	ug/l	
1330-20-7	Xylenes (total)	194 [a]	15	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	
	m,p-Xylene	194 [a]	10	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	106%	90%	64-121%
98-08-8	aaa-Trifluorotoluene	118%	92%	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

Accutest Laboratories

Report of Analysis

Client Sample ID:	KNIGHT #1 MW-2		
Lab Sample ID:	T5402-2	Date Sampled:	09/17/03
Matrix:	AQ - Water	Date Received:	09/18/03
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	KK005813.D	1	09/23/03	BC	n/a	n/a	GKK312
Run #2	KK005856.D	5	09/29/03	BC	n/a	n/a	GKK315

	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	177 [a]	5.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	41.0	1.0	ug/l	
1330-20-7	Xylenes (total)	343 [a]	15	ug/l	
95-47-6	o-Xylene	4.0	1.0	ug/l	
	m,p-Xylene	340 [a]	10	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	107%	90%	64-121%
98-08-8	aaa-Trifluorotoluene	122% [b]	93%	71-121%

(a) Result is from Run# 2
(b) Outside control limits due to matrix interference.

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:	170903TB01		
Lab Sample ID:	T5402-3	Date Sampled:	09/17/03
Matrix:	AQ - Trip Blank Water	Date Received:	09/18/03
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	KK005851.D	1	09/29/03	BC	n/a	n/a	GKK315
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	93%		64-121%
98-08-8	aaa-Trifluorotoluene	94%		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: T5402
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK312-BS	KK005791.D	1	09/22/03	BC	n/a	n/a	GKK312

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

T5402-1, T5402-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
100-41-4	Ethylbenzene	20	22.9	115	82-115
108-88-3	Toluene	20	22.4	112	77-116
95-47-6	o-Xylene	20	22.4	112	78-114

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	115%	64-121%
98-08-8	aaa-Trifluorotoluene	106%	71-121%

Blank Spike Summary

Job Number: T5402
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK315-BS [a]	KK005849.D	1	09/29/03	BC	n/a	n/a	GKK315

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

T5402-1, T5402-2, T5402-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	20.2	101	74-119
100-41-4	Ethylbenzene	20	20.3	102	82-115
108-88-3	Toluene	20	19.8	99	77-116
1330-20-7	Xylenes (total)	60	59.7	100	79-115
95-47-6	o-Xylene	20	19.7	99	78-114
	m,p-Xylene	40	40.0	100	79-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	104%	64-121%
98-08-8	aaa-Trifluorotoluene	102%	71-121%

(a) Spike recoveries were adjusted for double spike.

Method Blank Summary

Job Number: T5402
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK312-MB	KK005792.D	1	09/22/03	BC	n/a	n/a	GKK312

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

T5402-1, T5402-2

CAS No.	Compound	Result	RL	Units	Q
100-41-4	Ethylbenzene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	104%	64-121%
98-08-8	aaa-Trifluorotoluene	101%	71-121%

Method Blank Summary

Job Number: T5402
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK315-MB	KK005850.D	1	09/29/03	BC	n/a	n/a	GKK315

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

T5402-1, T5402-2, T5402-3

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

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T5402
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T5378-1MS	KK005800.D	10	09/22/03	BC	n/a	n/a	GKK312
T5378-1MSD	KK005801.D	10	09/22/03	BC	n/a	n/a	GKK312
T5378-1	KK005797.D	1	09/22/03	BC	n/a	n/a	GKK312
T5378-1	KK005799.D	10	09/22/03	BC	n/a	n/a	GKK312

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

T5402-1, T5402-2

CAS No.	Compound	T5378-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
100-41-4	Ethylbenzene	5.2		200	229	112	230	112	0	64-123/14
108-88-3	Toluene	2.6		200	228	113	227	112	0	64-120/13
95-47-6	o-Xylene	1.4		200	235	117	235	117	0	65-119/20

CAS No.	Surrogate Recoveries	MS	MSD	T5378-1	T5378-1	Limits
460-00-4	4-Bromofluorobenzene	111%	103%	103%	95%	64-121%
98-08-8	aaa-Trifluorotoluene	99%	90%	96%	89%	71-121%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T5402
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T5401-1MS	KK005853.D	5	09/29/03	BC	n/a	n/a	GKK315
T5401-1MSD	KK005854.D	5	09/29/03	BC	n/a	n/a	GKK315
T5401-1	KK005852.D	5	09/29/03	BC	n/a	n/a	GKK315

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

T5402-1, T5402-2, T5402-3

CAS No.	Compound	T5401-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	95.5		100	204	109	207	112	1	64-124/16
100-41-4	Ethylbenzene	ND		100	101	101	103	103	2	64-123/14
108-88-3	Toluene	77.1		100	181	104	184	107	2	64-120/13
1330-20-7	Xylenes (total)	11.7	J	300	297	95	313	100	5	66-118/18
95-47-6	o-Xylene	2.7	J	100	95.4	93	101	98	6	65-119/20
	m,p-Xylene	8.9	J	200	202	97	212	102	5	66-120/14

CAS No.	Surrogate Recoveries	MS	MSD	T5401-1	Limits
460-00-4	4-Bromofluorobenzene	87%	91%	76%	64-121%
98-08-8	aaa-Trifluorotoluene	87%	90%	79%	71-121%

CHAIN CUSTODY# 170903MN#1

ACCUTEST Laboratories

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

FED-EX Tracking # 342524484844 | Bottle Order Control #

Accutest Quote # | Accutest Job #

Client / Reporting Information

Company Name: MWH / EL PASO
Address: 614 Reilly
City: Farmington State: NM Zip: 87401
Project Contact: Scott Popka E-mail:
Phone #: 505 599 2124
Sampler's Name: M J Nee

Project Information

Project Name: Groundwater
Street: Knight #1
City: State:
Project #:
Fax #: 505 599 2119
Client Purchase Order #:

Requested Analysis

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	Time	Sampled By	Matrix	# of bottles	Number of preserved Bottles: HCl	HNO3	H2SO4	NONE	NaHSO4	MEOH	BTEX
	Knight #1 MW-4		9-17-03	1040	MN	WG	2	2						2
	Knight #1 MW-2		9-17-03	1110	MN	WG	2	2						2
	170903TB#1		9-17-03	0700	MN	WQ	1	1						1

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

Commercial "A" = Results Only

Comments / Remarks

T5402

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 1600hrs	9/17/03	1	2		2
Relinquished by: 3	Date Time: 9/18/03 0900	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 2.6°C

ACCUTEST

SAMPLE RECEIPT LOG

JOB #: T5402 DATE/TIME RECEIVED: 9/18/03 0900

CLIENT: El Paso MWH INITIALS: KV

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

SAMPLE or FIELD ID	BOTTLE #	DATE SAMPLED	MATRIX	VOLUME	LOCATION	PRESERV.	PH
1	1-2	9/17/03	WW	VOA	VREF	1,2,3,4,5,6	U, <2, >12, (NA)
2	1-2	↓	↓	↓	↓	1,2,3,4,5,6	U, <2, >12, (NA)
3	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
		9/18/03 KV				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:_____ COOLER TEMP: 2.6°C COOLER TEMP:_____

Tracking#:_____ COOLER TEMP:_____ COOLER TEMP:_____

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

Form: SM012

ATTACHMENT 2

FIELD DOCUMENTATION

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**	**12-9-03**
Site Name	**Knight**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed / comments
MW-1	1216	28.30	28.315	.015	1oz. product
final			32.58		2 gal. water
MW-2		-	27.87	-	collected gw sample
MW-3			28.11		
final			32.17		2 gal. water
MW-4			28.73		
MW-5			25.88		

Comments
There was no measurable product in MW-3. The well was checked by retrieving a bailer and there were product globules so I bailed two gallons. MW-1 is N17E of MW-2.

Signature: *Martin J. Nee* Date: December 9, 2003

WELL DEVELOPMENT AND SAMPLING LOG

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

Location: Knight Well No: MW-4 Development **Sampling**

Project Manager MJN Date 9/17/03 Start Time 1004 Weather Sunny 70s

Depth to Water 29.36 Depth to Product na Product Thickness na Measuring Point TOC

Water Column Height 7.41 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	
7.41 x .65	4.82 x 3		14.45

Time (military)	pH (su)	SC (umhos/cm)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gallons)	Comments/ Flow rate
1007	**6.61**	**1800**	**17.7**				**1**	**clear**
	6.73	**1960**	**16.8**				**2**	
1011	**6.79**	**1870**	**16.5**				**3**	
	6.78	**1830**	**16.5**				**5**	**cloudy**
	6.85	**1700**	**16.4**				**10**	**cloudy**
1031	**6.84**	**1910**	**16.4**				**15**	**cloudy**

Final: Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow Rate
1031	**6.84**	**1910**	**16.4**					**15**	**cloudy**

COMMENTS:

INSTRUMENTATION: pH Meter **X** _____ Temperature Meter **x**

DO Monitor _____ Other _____

Conductivity Meter **X** _____

Water Disposal Kutz Sample ID Knight MW-4 Sample Time 1040

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

MS/MSD _____ BD _____ BD Name/Time _____ TB 170903tb01

WELL DEVELOPMENT AND SAMPLING LOG

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

Location: Knight Well No: MW-2 Development **Sampling**

Project Manager MJN Date 9/17/03 Start Time 1004 Weather Sunny 80s

Depth to Water 28.42 Depth to Product na Product Thickness na Measuring Point TOC

Water Column Height 8.455 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	
8.45 x .65	5.49 x 3		16.48

Time (military)	pH (su)	SC (umhos/cm)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gallons)	Comments/ Flow rate
1045	**6.65**	**1790**	**17.8**				**1**	**clear**
	6.87	**1930**	**17.2**				**2**	
	6.92	**1790**	**17.2**				**3**	**clear**
	6.89	**1730**	**16.9**				**5**	
	6.90	**1790**	**17.1**				**10**	**cloudy**
1105	**7.02**	**2000**	**17.1**				**15**	**well is bailing down**
1107	**6.98**	**1890**	**17.1**				**16.5**	

Final: Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow Rate
1107	**6.98**	**1890**	**17.1**					**16.5**	

COMMENTS:

INSTRUMENTATION: pH Meter **X** _____ Temperature Meter **x**

DO Monitor _____ Other _____

Conductivity Meter **X** _____

Water Disposal Kutz Sample ID Knight MW-2 Sample Time 1010

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

MS/MSD_____ BD_____ BD Name/Time_____ TB 170903tb01

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**	**9-17-03**
Site Name	**Knight**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed / comments
MW-1	0937	28.95	28.965	.015	1oz. product
final			31.29		3 gal. water
MW-2		-	28.42	-	collected gw sample
MW-3		28.76	28.79	0.03	1 oz. product
final			31.82		2.5 gal. water
MW-4			29.36		collected gw sample
MW-5			26.67		

Comments

Signature: *Martin J. Nee* Date: September 17, 2003

WELL DEVELOPMENT AND SAMPLING LOG

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

Location: Knight Well No: MW-3 Development ☒ Sampling ☐

Project Manager MJN Date 6-19-03 Start Time 1151 Weather PC

Depth to Water 27.81 Depth to Product — Product Thickness — Measuring Point TOC

Water Column Height 9.52 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 bail dry

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	
9.52 x .65	6.19 x 3		18.54

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1153			15.3				1	clear w/ product droplets
			15.2				2	
			15.1				3	clear w/ slight gray
			15.1				8	
1217			15.1				11	well bailed dry

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
1217			15.1					11	

COMMENTS: Purged & Surged well would not produce more. water clear throughout. pH/Cond meter not working

INSTRUMENTATION: pH Meter ☒ Temperature Meter ☒

DO Monitor ☐ Other ☐

Conductivity Meter ☒

Water Disposal Kutz

Sample ID NA Sample Time NA BTEX ☐ VOCs ☐ Alkilinity ☐

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: 30001.0 Project Name: San Juan Basin Client: MWH

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

Project Manager MJN Date 6/19/03 Start Time 1120 Weather AC

Depth to Water 28.02 Depth to Product 28.00 Product Thickness .02 Measuring Point TOC

Water Column Height 5.92 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 bailed dry

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1123			19.2				1	Water is clear
			18.5				3	
1140			18.4				4	Water is clear bailed dry

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
1140			18.4					4	

COMMENTS: Surged & Purged but well would not produce purge water. Water is clear. pH/cond meter not working

INSTRUMENTATION: pH Meter ☒ _____ Temperature Meter ☒ _____

DO Monitor ☐ _____ Other ☐ _____

Conductivity Meter ☒ _____

Water Disposal Kutz

Sample ID na Sample Time na BTEX ☐ VOCs ☐ Alkilinity ☐

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

Total Phosphorus ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐

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

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**	**6-19-03**
Site Name	**Knight**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-1	1107	28.00	28.02	.02	4 oz
MW-2		-	27.46	-	-
MW-3		-	27.81	-	-
MW-4			28.43		
MW-5			25.80		

Comments

Redeveloped MW-1 and MW-3. Did not find product in MW-3.

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

Product Recovery and Well Observation Data

Project Name: San Juan Basin
Project Manager: MJN
Client Company: MWH
Site Name: Knight #1

Project No: 220013
Date: 3-20-03

Well	Time	Depth to Water (ft)	Depth to Product (ft)	Total Well Depth (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	0951	28.14	28.05		0.09	0.06g	+1gal water
		29.80	—				end water level
MW-2		27.615	No				
MW-3		27.87	No				
MW-4		28.505	No				
MW-5	0930	25.69	No				

COMMENTS: MW-1 Product is bile yellow w/black stringers. MW-4 is labeled # 3 in field. The locations used for this data is from the 4-19-01 PSC figure

Signature: [signature]

Date: March 20, 2003