3R - 155

REPORTS

DATE:

2003

3R155

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

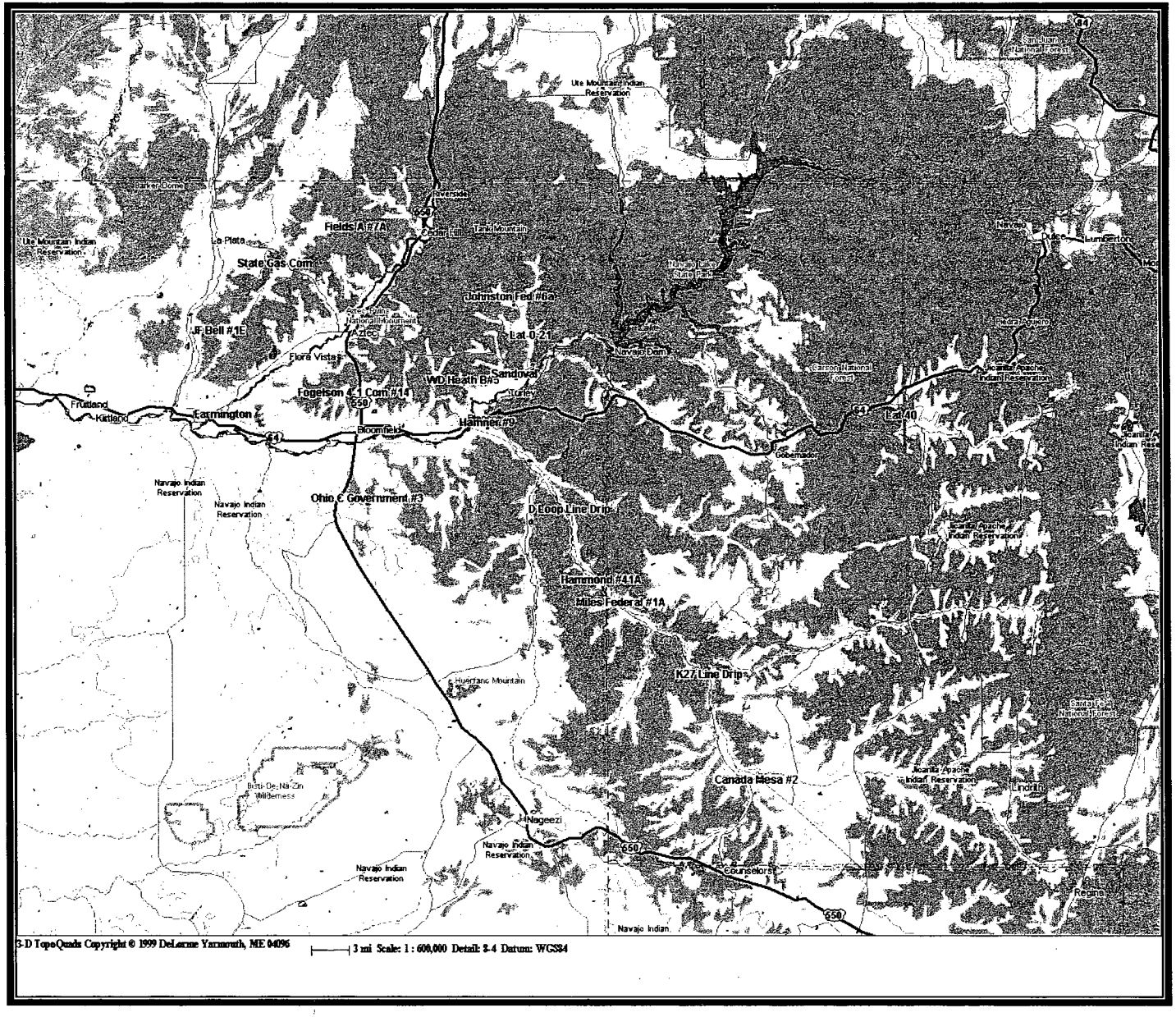
EL PASO FIELD SERVICES

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

Canada Mesa #2
Meter Code: 87640

SITE DETAILS

Legal Description:	**Town:**	24N	**Range:**	6W	**Sec:** 24	**Unit:**	I
NMOCD Haz Ranking:	40	**Land Type:**	Federal	**Operator:**	Merrion Oil & Gas Company		

PREVIOUS ACTIVITIES

Site Assessment:	7/94	**Excavation:**	8/94	**Soil Boring:**	8/95
Monitor Well:	8/95	**Geoprobe:**	NA	**Additional MWs:**	10/00
Downgradient MWs:	10/00	**Replace MW:**	NA	**Quarterly Initiated:**	8/95
ORC Nutrient Injection:	NA	**Re-Excavation:**	NA	**PSH Removal Initiated:**	8/97
Annual Initiated:	11/00	**Quarterly Resumed:**	NA		

SUMMARY OF 2003 ACTIVITIES

MW-1: Quarterly monitoring was conducted at this well for free-product recovery. Free-product was detected and removed during the second, third and fourth quarters of 2003. No free-product was detected in the first quarter. MW-1 was redeveloped in June 2003 in an attempt to enhance free-product recovery.

MW-2: Annual groundwater sampling was performed in December 2003. Quarterly water level monitoring was performed.

MW-3: Annual groundwater sampling was performed in December 2003. Quarterly water level monitoring was performed.

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

SITE MAPS

Site maps (March, June, September and December) are attached in Figures 1 through 4.

Canada Mesa #2
Meter Code: 87640

SUMMARY TABLES AND GRAPHS

- Groundwater analytical data for 2003 are summarized in Table 1, and historic data are presented graphically in Figures 5 through 7.
- Free-product recovery data in 2003 from MW-1 are summarized in Table 2 and are presented graphically in Figure 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 both water level and analytical data collected during 2003.

CONCLUSIONS

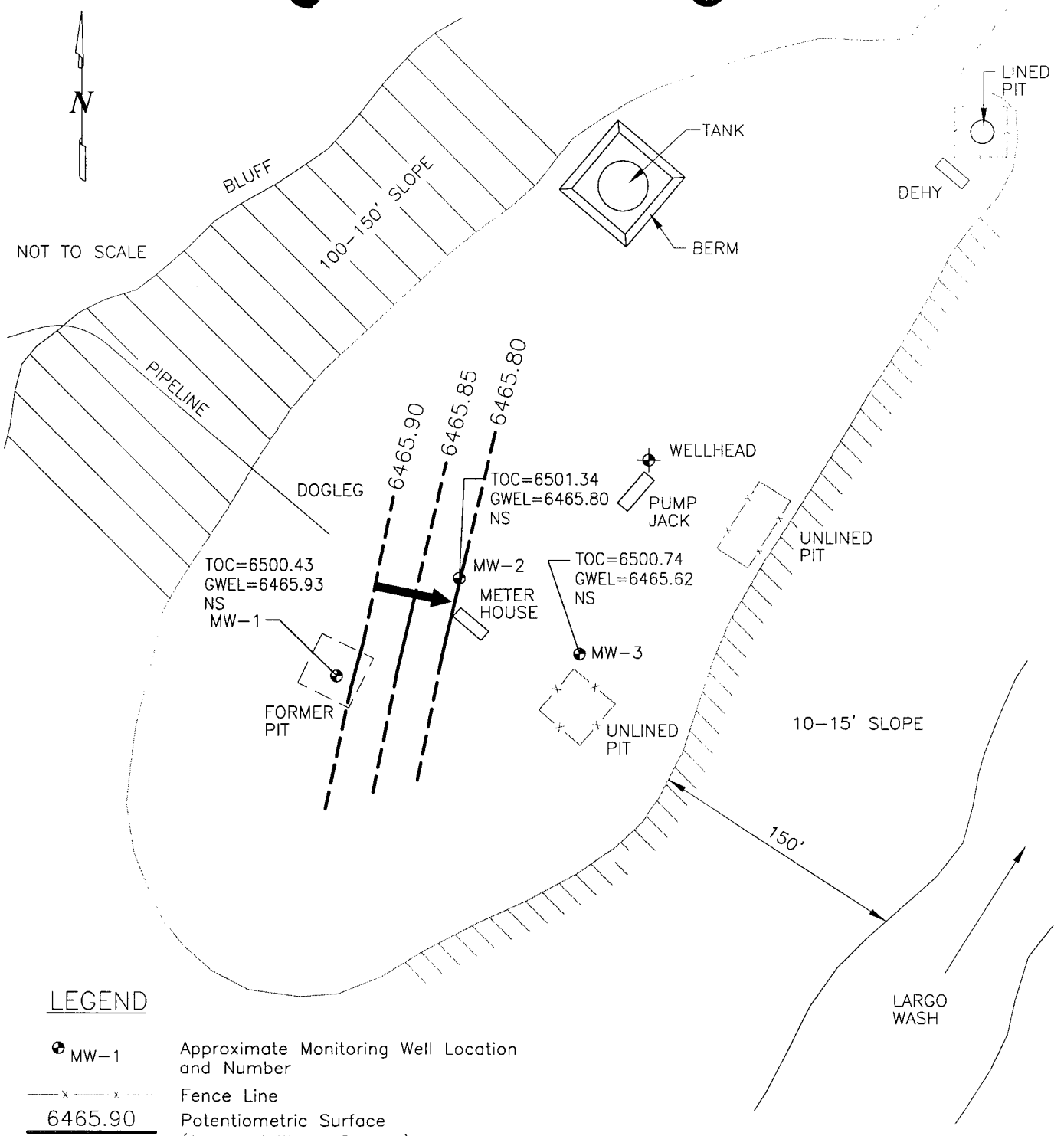
- Free-product recovery from MW-1 removed approximately 1.3 gallons of free-phase hydrocarbons in 2003, bringing the cumulative total recovered to date to approximately 38 gallons.
- Redevelopment of MW-1 in June resulted in increased product thickness/recovery in September and December 2003.
- The benzene concentration in MW-2 significantly decreased from 3,200 µg/L (at installation in November 2000) to 22 and 129 µg/L in March and December 2002, respectively, and to 10 µg/L in December 2003. Ethylbenzene, toluene and total xylenes concentrations were below NMWQCC standards during 2002 and 2003.
- The benzene concentration in MW-3 decreased slightly from 880 µg/L (November 2000) to 503 µg/L in December 2003. Total xylenes concentration remained above NMWQCC standards in 2003; Ethylbenzene and toluene concentrations were below standards.
- The groundwater flow direction is generally to the east at this site.

RECOMMENDATIONS

- EPFS recommends that quarterly free-product removal activities continue at MW-1. 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 this well during 2004.

- EPFS will continue sampling MW-2 and MW-3 on an annual basis.

- Once free-product recovery efforts are completed at MW-1, this well will be sampled on an annual basis until sample results approach closure criteria. The well will then be scheduled for quarterly sampling until closure criteria are met.



LEGEND

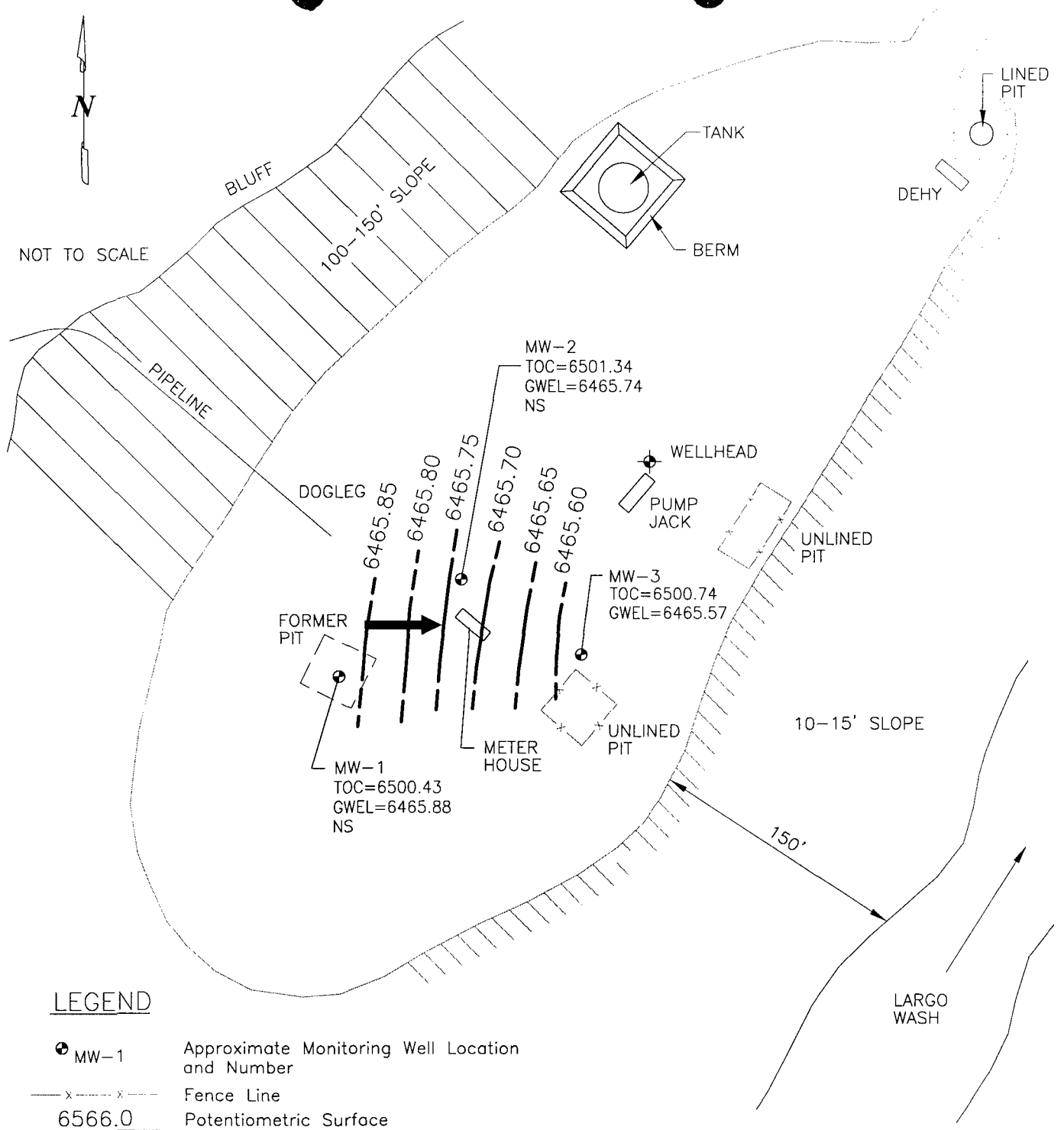
MW–1	Approximate Monitoring Well Location and Number
x x	Fence Line
6465.90	Potentiometric Surface (Assumed Where Dashed)
→	Direction of Groundwater Flow
GWEL	Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
TOC	Top of Casing
NS	Not Sampled

canadamesa_03.dwg

CANADA MESA #2, METER 87640
MARCH 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 1



LEGEND

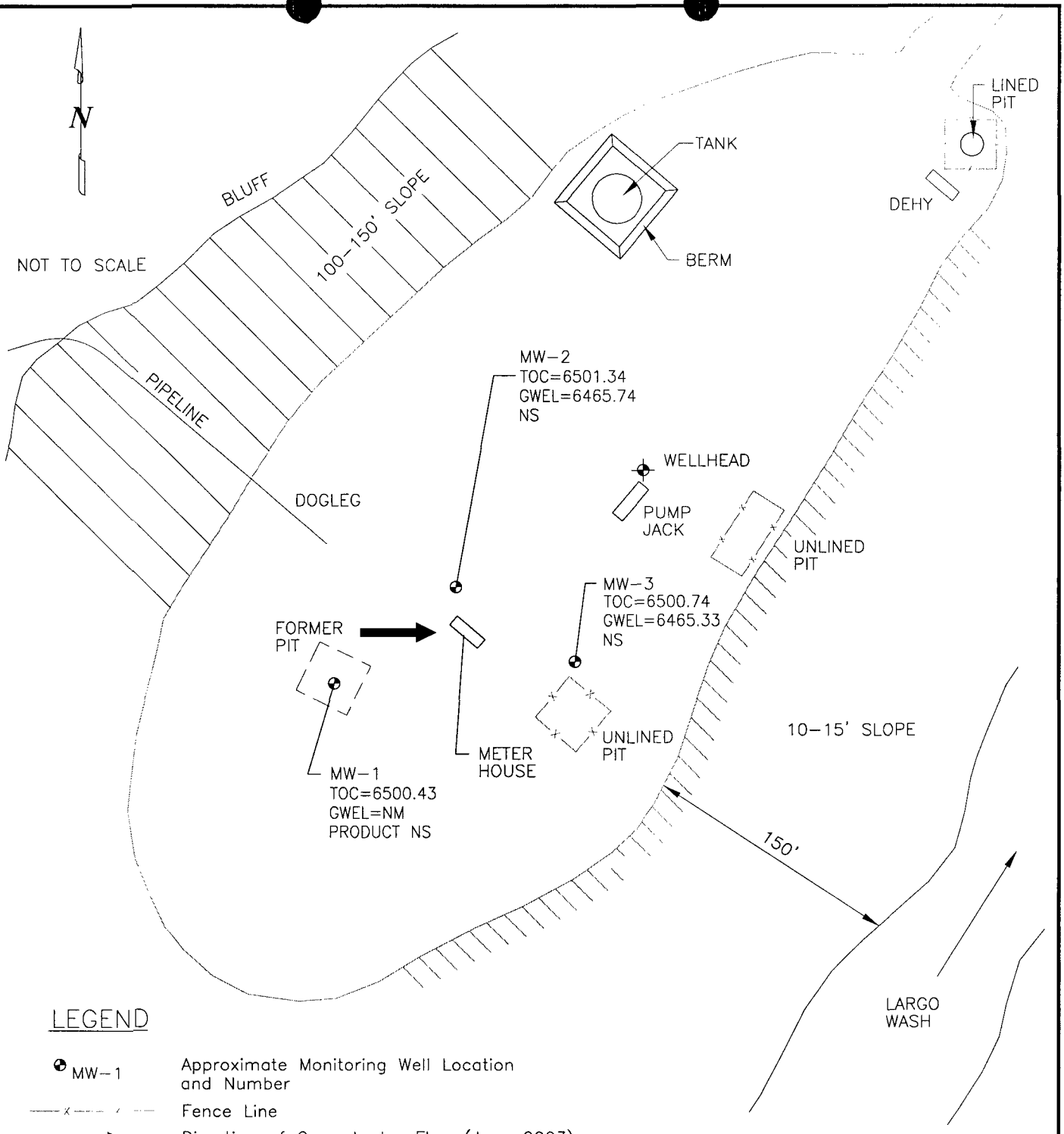
MW–1	Approximate Monitoring Well Location and Number
x ---- x	Fence Line
6566.0	Potentiometric Surface (Assumed Where Dashed)
→	Direction of Groundwater Flow
GWEL	Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
TOC	Top of Casing
NS	Not Sampled

canadamesa_03.dwg

CANADA MESA #2, METER 87640
JUNE 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 2



LEGEND

MW–1	Approximate Monitoring Well Location and Number
	Fence Line
	Direction of Groundwater Flow (June 2003)
GWEL	Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
TOC	Top of Casing
NM	Not Measured
NS	Not Sampled

Note: Static water level was not measured in MW–1 in September 2003. Therefore, groundwater flow direction arrow is based on June 2003 water levels.

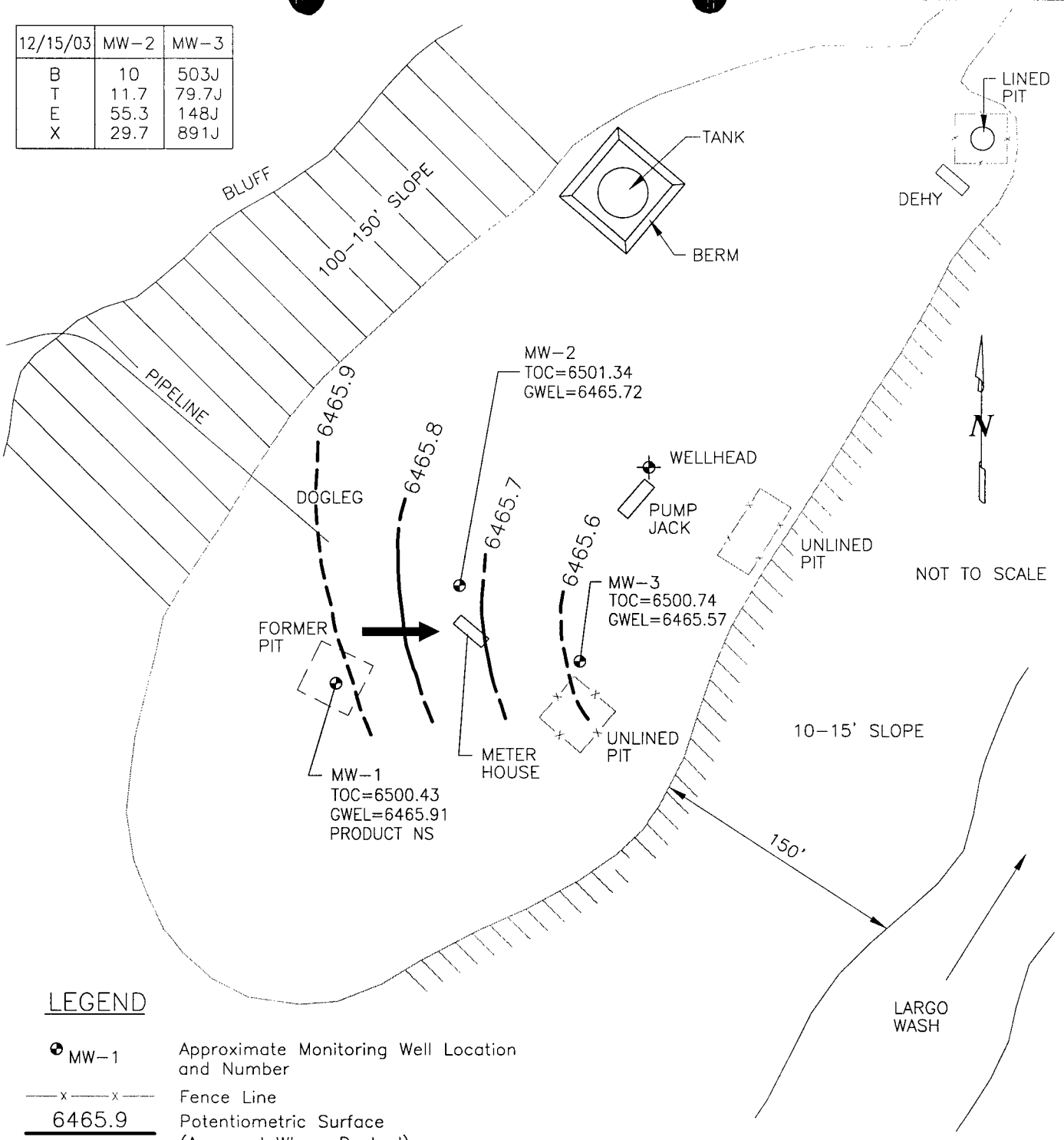
canadamesa_03.dwg

CANADA MESA #2, METER 87640
SEPTEMBER 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 3

12/15/03	MW-2	MW-3
B	10	503J
T	11.7	79.7J
E	55.3	148J
X	29.7	891J



LEGEND

MW-1	Approximate Monitoring Well Location and Number
x x	Fence Line
6465.9	Potentiometric Surface (Assumed Where Dashed)
→	Direction of Groundwater Flow
GWEL	Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
TOC	Top of Casing
NM	Not Measured

B	Benzene (µg/L)
T	Toluene (µg/L)
E	Ethylbenzene (µg/L)
X	Total Xylenes (µg/L)
NS	Not Sampled
J	Value Estimated. May Be Biased High.

canadamesa_03.dwg

CANADA MESA #2, METER 87640
DECEMBER 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 4

TABLE 1

SUMMARY OF BTEX COMPOUNDS IN 2003 GROUNDWATER SAMPLES
CANADA MESA #2 (METER #87640)

Site Name	Monitoring Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft btoc)
Canada Mesa #2	MW-2	12/15/2003	10	11.7	55.3	29.7	35.63
Canada Mesa #2	MW-3	12/15/2003	503	79.7	148	891	35.17

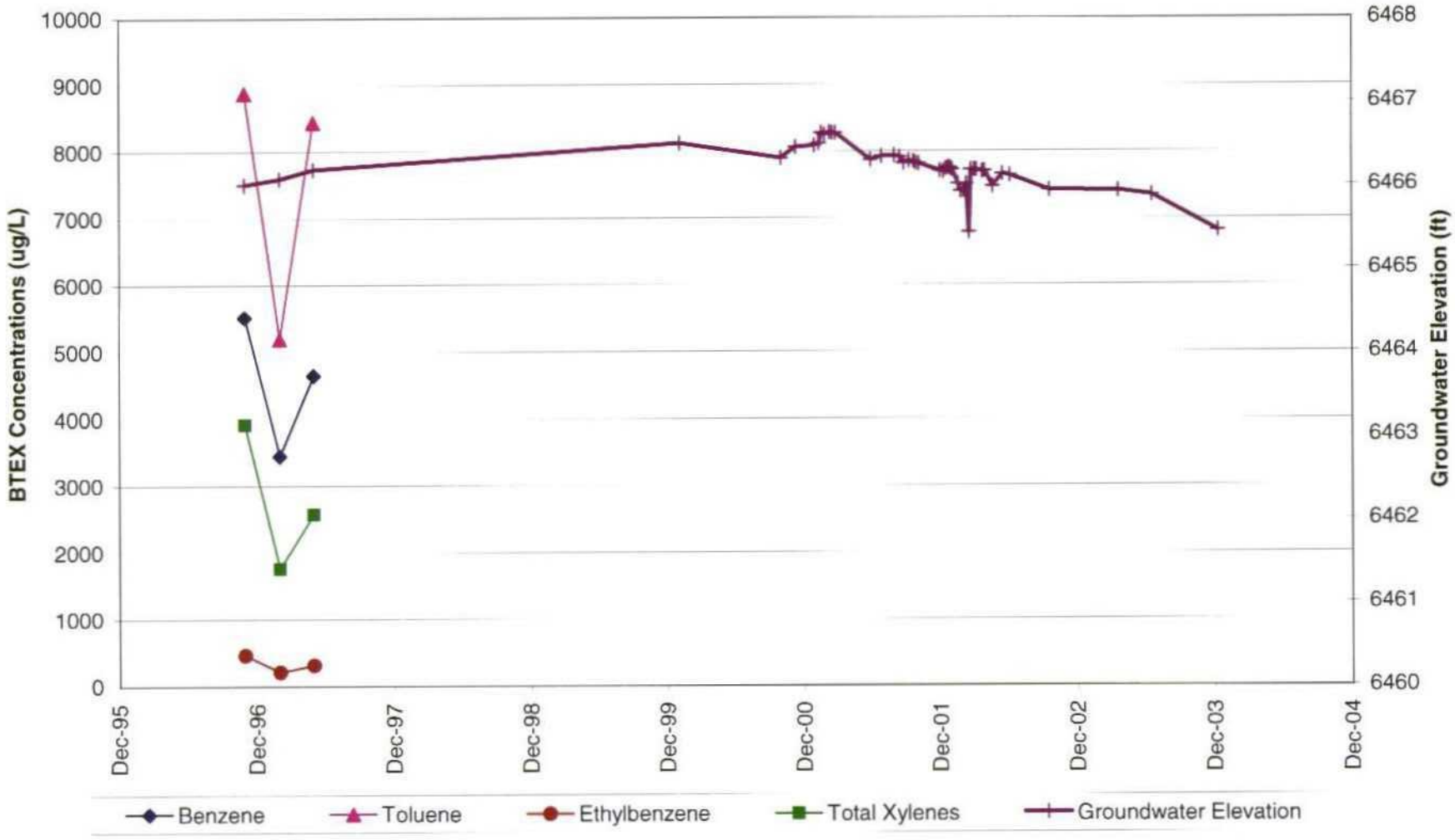
TABLE 2

SUMMARY OF FREE-PRODUCT REMOVAL DURING 2003
CANADA MESA #2 (METER #87640)

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)
Canada Mesa #2	MW-1	3/25/03	NA	34.50	0.00	0.00	36.69
Canada Mesa #2	MW-1	6/22/03	34.48	34.55	0.07	0.05	36.74
Canada Mesa #2	MW-1	9/15/03	34.65	34.97	0.32	0.05	36.79
Canada Mesa #2	MW-1	12/15/03	34.41	34.98	0.57	1.25	38.04

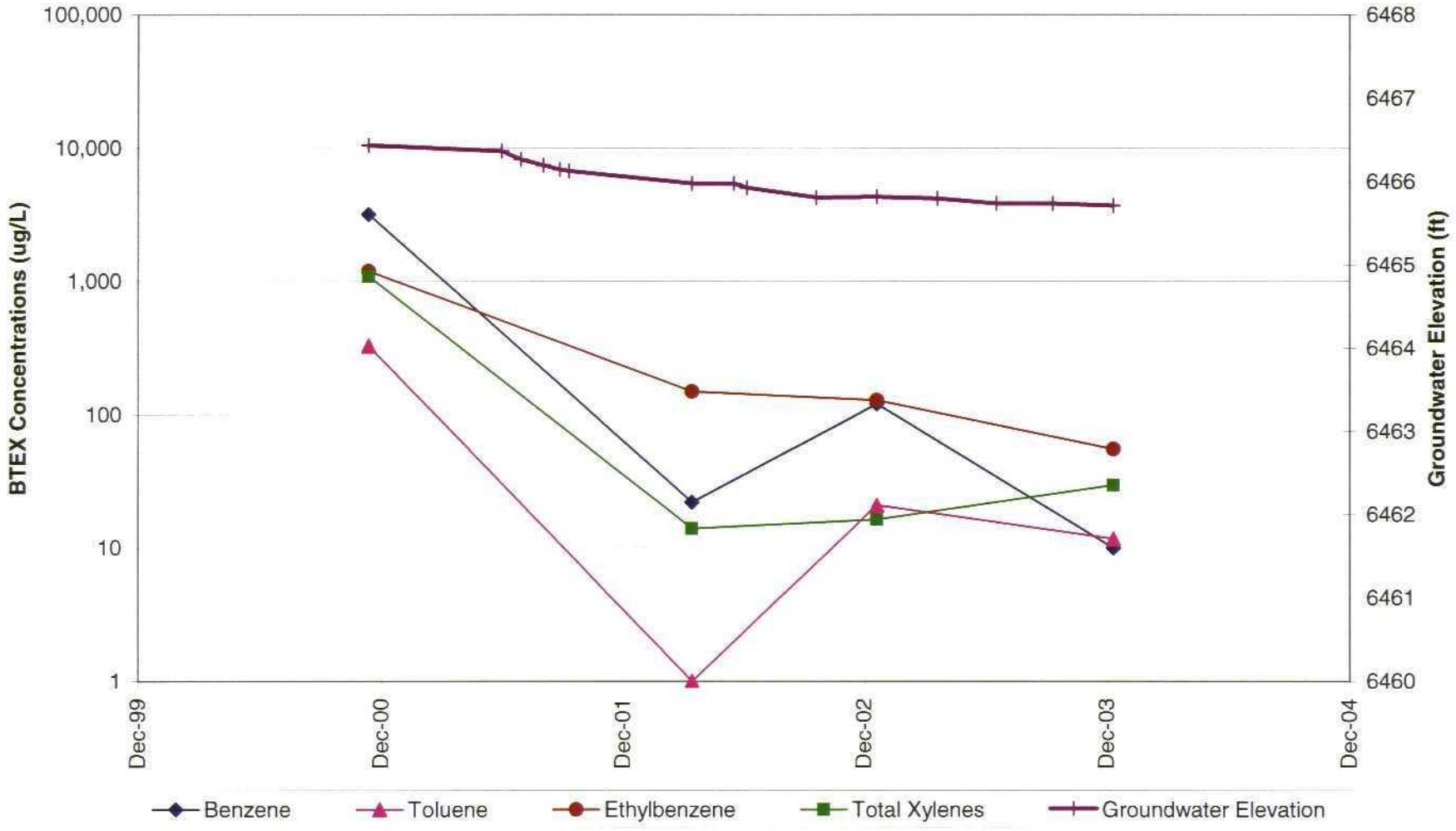
MW-1 contains a passive skimmer for free-product removal.

FIGURE 5
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
CANADA MESA #2
MW-1



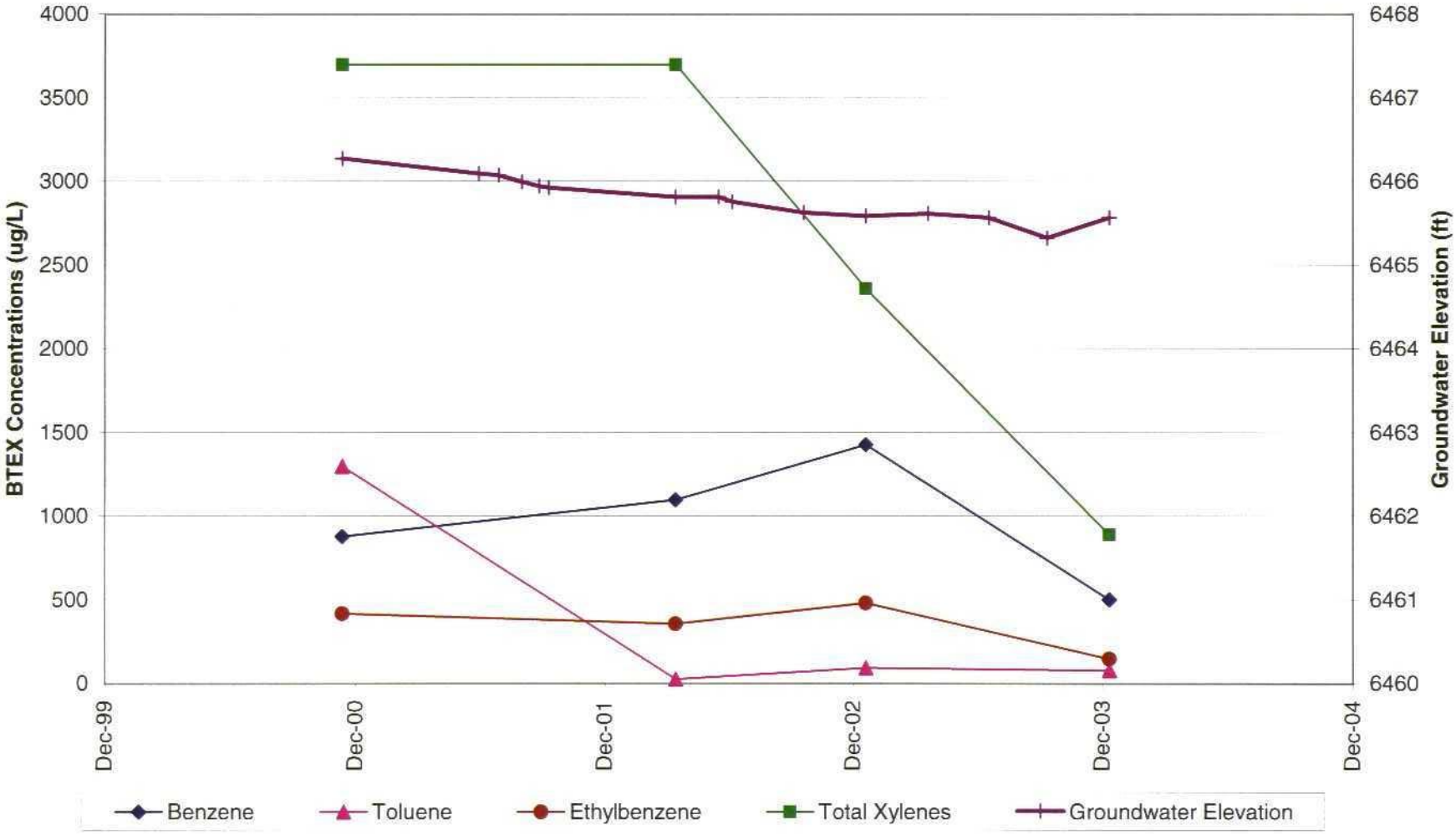
2003 Canada Mesa.xls,Can MW1

FIGURE 6
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
CANADA MESA #2
MW-2



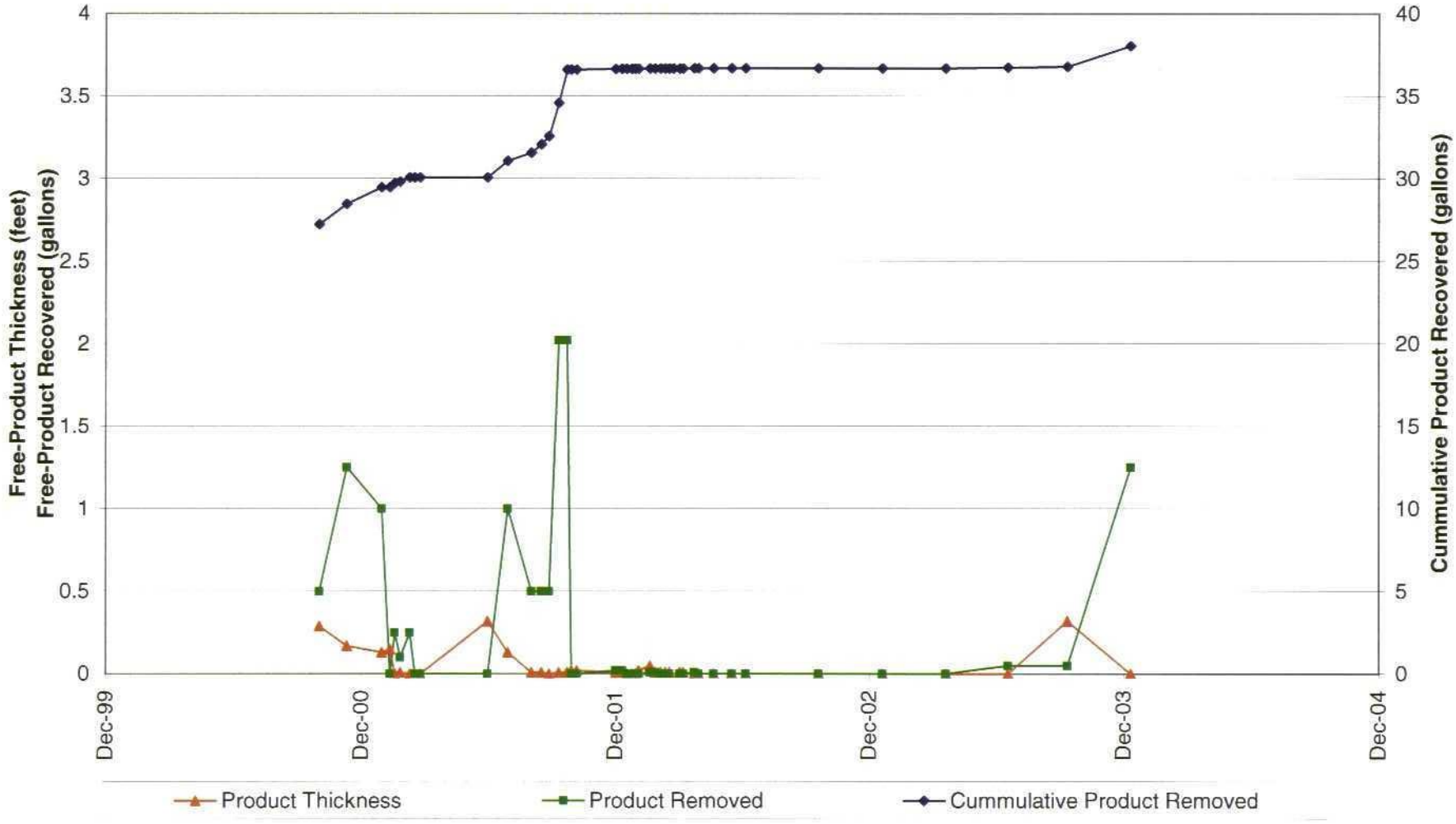
2003 Canada Mesa.xls,Can MW2

FIGURE 7
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
CANADA MESA #2
MW-3



2003 Canada Mesa.xls,Can MW3

FIGURE 8
HISTORIC FREE-PRODUCT RECOVERY
CANADA MESA #2
MW-1



2003 Canada Mesa.xls,Can PR MW1

ATTACHMENT 1

LABORATORY REPORTS

DATA VALIDATION WORKSHEET

Analytical Method/Analytes: SW-846 8021B (BTEX) **Sample Collection Date(s):** 12/15/03

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

Batch Identification: T6394 **Matrix:** Water

MS/MSD Parent(s)[(a)]: T6394-01 **Field Replicate Parent(s):** None

Validation Complete: Brian Buttars - 12/31/03
(Date/Signature)

Foot Notes	Site ID	Sample ID	Lab. ID	Hits (Y/N)	Quals.	Comments
2	Canada Mesa	MW-2	T6394-01	Y		
1,3,4	Canada Mesa	MW-3	T6394-02	Y	J J J J J J	Benzene @ 503 µg/l Toluene @ 79.7 µg/l Ethylbenzene @ 148 µg/l Xylenes (total) @ 891 µg/l o-Xylene @ 375 µg/l m/p-Xylene @ 516 µg/l
None	Trip Blank	151203TB01	T6394-03	N		

DATA VALIDATION WORKSHEET

Analytical Method:	**SW-846 8021B (BTEX)**	**MWH Job Number:**	**EPC-SJRB (Groundwater)**
Laboratory:	**Accutest**	**Batch Identification:**	**T6394**

Validation Criteria								
Sample ID	**Canada Mesa MW-2**	**Canada Mesa MW-3**	**151203TB 01**					
Lab ID	**T6394-01**	**T6394-02**	**T6394-03**					
Holding Time	A	A[1]	A					
Analyte List	A	A	A					
Reporting Limits	A	A	A					
Surrogate Spike Recovery	A[2]	A[3,4]	A					
Trip Blank	A	A	A					
Equipment Rinseate Blanks	N/A	N/A	N/A					
Field Duplicate/Replicate	N/A	N/A	N/A					
Initial Calibration	N	N	N					
Initial Calibration Verification (ICV)	N	N	N					
Continuing Calibration Verification (CCV)	N	N	N					
Method Blank	A	A	A					
Laboratory Control Sample (LCS)	A	A	A					
Laboratory Control Sample Duplicate (LCSD)	N	N	N					
Matrix Spike/Matrix Spike Dup. (MS/MSD)	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) Sample pH at time of analysis was greater than 2 which reduces the holding time from 14 days to 7. Sample analyzed 12 days after sample collection, exceeding holding time by 5 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.

2) Surrogate percent recovery for aaa-Trifluorotoluene outside acceptance criteria @ 151% (71-121), indicating a possible high bias. Only one surrogate outside acceptance criteria, no data qualified.

3) Surrogate percent recovery for Bromofluorobenzene @ 238 % (64-121) and aaa-Trifluorotoluene outside acceptance criteria @ 142% (71-121), indicating a possible high bias. Qualify associated sample hits (Toluene only) with "J" flags, indicating the data are estimated and possibly biased high.

4) Surrogate percent recovery for aaa-Trifluorotoluene outside acceptance criteria @ 145% (71-121), indicating a possible high bias. Only one surrogate outside acceptance criteria, no data qualified.

Gulf Coast
ACCUTEST.
Laboratories

12/30/03

Technical Report for

Montgomery Watson

EPFS San Juan Basin Groundwater Site

151203MN01

Accutest Job Number: T6394

Report to:

Montgomery Watson

brian.buttars@us.mwhglobal.com

ATTN: Brian Buttars

Total number of pages in report: **13**

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

Sample Summary

Montgomery Watson

Job No: T6394

EPFS San Juan Basin Groundwater Site
Project No: 151203MN01

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
T6394-1	12/15/03	14:45	MN	12/18/03	AQ	Ground Water	CANADA MESZ MW-2
T6394-2	12/15/03	15:21	MN	12/18/03	AQ	Ground Water	CANADA MESZ MW-3
T6394-3	12/15/03	07:00	MN	12/18/03	AQ	Ground Water	151203TB01

Report of Analysis

Client Sample ID:	CANADA MESZ MW-2		
Lab Sample ID:	T6394-1	Date Sampled:	12/15/03
Matrix:	AQ - Ground Water	Date Received:	12/18/03
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]	KK006271.D	1	12/27/03	BC	n/a	n/a	GKK336
Run #2	KK006272.D	10	12/27/03	BC	n/a	n/a	GKK336

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	10.0	1.0	0.50	ug/l	
108-88-3	Toluene	11.7	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	55.3	1.0	0.50	ug/l	
1330-20-7	Xylenes (total)	29.7	3.0	1.0	ug/l	
95-47-6	o-Xylene	11.7	1.0	0.50	ug/l	
	m,p-Xylene	18.0	2.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	109%	85%	64-121%
98-08-8	aaa-Trifluorotoluene	151% [b]	106%	71-121%

(a) Confirmed by GC/MS
(b) Outside control limits due to matrix interference.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CANADA MESZ MW-3		
Lab Sample ID:	T6394-2	Date Sampled:	12/15/03
Matrix:	AQ - Ground Water	Date Received:	12/18/03
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]	KK006275.D	1	12/27/03	BC	n/a	n/a	GKK336
Run #2 [b]	KK006276.D	10	12/27/03	BC	n/a	n/a	GKK336

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	503 [c]	10	5.0	ug/l	
108-88-3	Toluene	79.7	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	148 [c]	10	5.0	ug/l	
1330-20-7	Xylenes (total)	891 [c]	30	10	ug/l	
95-47-6	o-Xylene	375 [c]	10	5.0	ug/l	
	m,p-Xylene	516 [c]	20	10	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	238%	92%	64-121%
98-08-8	aaa-Trifluorotoluene	142% [e]	145% [d]	71-121%

(a) Confirmed by GC/MS
(b) Sample was not preserved to a pH < 2; reported results are considered minimum values.
(c) Result is from Run# 2
(d) Outside control limits due to matrix interference. Confirmed by reanalysis.
(e) Elevated reporting limits due to matrix interference.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	151203TB01		
Lab Sample ID:	T6394-3	Date Sampled:	12/15/03
Matrix:	AQ - Ground Water	Date Received:	12/18/03
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	KK006270.D	1	12/27/03	BC	n/a	n/a	GKK336
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	1.0	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	
	m,p-Xylene	ND	2.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	92%		64-121%
98-08-8	aaa-Trifluorotoluene	115%		71-121%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY # 151203MN01

ACCUTEST Laboratories

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

FED-EX Tracking # 849152945351 | Bottle Order Control #
Accutest Quote # | Accutest Job # T6394

Client / Reporting Information

Company Name: 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 Nea

Project Information

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

Requested Analysis

GTEX

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	NaOH	H2SO4	HNO3	NaHSO4	MEOH	ZnOAc	LAB USE ONLY
1	Canada Mesa MW-2		12-503	1445	MN	WG	2	2							X
2	Canada Mesa MW-3		12-503	1521	MN	WG	2	2							X
	~~Canada Mesa MW-4~~		~~12-503~~	~~1600~~	~~MN~~										
3	151203TB01		12-503	0700	MN	WQ	1	1							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"
- [ ] Commercial "B"
- [ ] Reduced Tier 1
- [ ] Full Tier 1
- [ ] TRRP13
- [ ] EDD Format ____

Commercial "A" = Results Only

Comments / Remarks

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 MNea 1200	12-17-03	1 12-18-03 0930	2		2
Relinquished by:	Date Time:	Received by:	Relinquished by	Date Time:	Received by:
3		3	4		4
Relinquished by:	Date Time:	Received by:	Custody Seal #	Preserved where applicable	On Ice: X	Cooler Temp: 1°C
5		5			

T6394: Chain of Custody
Page 1 of 2

ACCUTEST.

SAMPLE RECEIPT LOG

JOB #: T6394 DATE/TIME RECEIVED: 12-18-03 0930

CLIENT: El Paso INITIALS: [illegible]

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 (NA) 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
1-2	1-2	12-15-03	GW	40ml	VRef	1,(2),3,4,5,6	U, <2, >12, (NA)
3	1	↓	WTB	40ml	↓	1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						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

12-18-03

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:
Tracking#:

COOLER TEMP: 1°C COOLER TEMP:
COOLER TEMP: COOLER TEMP:

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

Form: SM012

3.1

T6394: 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: T6394
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK336-MB	KK006269.D	1	12/27/03	BC	n/a	n/a	GKK336

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

T6394-1, T6394-2, T6394-3

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	1.0	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	
	m,p-Xylene	ND	2.0	1.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	90%	64-121%
98-08-8	aaa-Trifluorotoluene	111%	71-121%

Blank Spike Summary

Job Number: T6394
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK336-BS	KK006267.D	1	12/27/03	BC	n/a	n/a	GKK336

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

T6394-1, T6394-2, T6394-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	21.4	107	74-119
100-41-4	Ethylbenzene	20	20.6	103	82-115
108-88-3	Toluene	20	21.0	105	77-116
1330-20-7	Xylenes (total)	60	65.6	109	79-115
95-47-6	o-Xylene	20	21.1	106	78-114
	m,p-Xylene	40	44.5	111	79-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	104%	64-121%
98-08-8	aaa-Trifluorotoluene	119%	71-121%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T6394
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T6394-1MS	KK006273.D	10	12/27/03	BC	n/a	n/a	GKK336
T6394-1MSD	KK006274.D	10	12/27/03	BC	n/a	n/a	GKK336
T6394-1 [a]	KK006271.D	1	12/27/03	BC	n/a	n/a	GKK336
T6394-1	KK006272.D	10	12/27/03	BC	n/a	n/a	GKK336

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

T6394-1, T6394-2, T6394-3

CAS No.	Compound	T6394-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	10.0		200	221	106	219	105	1	64-124/16
100-41-4	Ethylbenzene	55.3		200	243	94	245	95	1	64-123/14
108-88-3	Toluene	11.7		200	214	101	216	102	1	64-120/13
1330-20-7	Xylenes (total)	29.7		600	643	102	660	105	3	66-118/18
95-47-6	o-Xylene	11.7		200	218	103	226	107	4	65-119/20
	m,p-Xylene	18.0		400	425	102	433	104	2	66-120/14

CAS No.	Surrogate Recoveries	MS	MSD	T6394-1	T6394-1	Limits
460-00-4	4-Bromofluorobenzene	93%	95%	109%	85%	64-121%
98-08-8	aaa-Trifluorotoluene	107%	109%	151%* [b]	106%	71-121%

(a) Confirmed by GC/MS
(b) Outside control limits due to matrix interference.

ATTACHMENT 2

FIELD DOCUMENTATION

WELL DEVELOPMENT AND SAMPLING LOG

Project No.: 30001.0 Project Name: San Juan River Plant Client: MWH/EL Paso
Location: Canada Mesa Well No: MW-3 Development **Sampling**
Project Manager MJN Date 12/15/03 Start Time 1456 Weather 30s
Depth to Water 35.17 Depth to Product na Product Thickness na Measuring Point TOC
Water Column Height 7.22 Well Dia. 2"

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	
7.22 x 0.16	1.15 x 3		3.47 gal/444 oz

Time (military)	pH (su)	SC (umhos/cm)	Temp (°f)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (ounces)	Comments/ Flow rate
1500	**7.59**	**6210**	**57.3**				**32**	**clear**
	7.61	**6530**	**57.6**				**64**	**slight gray**
	7.69	**6560**	**57.7**				**96**	**gray**
	7.75	**6960**	**57.4**				**158**	**gray**
	7.81	**7010**	**57.1**				**176**	**well is bailing down**
	7.72	**7290**	**57.2**				**192**	**gray**
	7.70	**7320**	**56.9**				**204**	**gray**
1519	**7.69**	**7270**	**56.9**				**218**	**Well has bailed dry**

Final: Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow Rate
1519	**7.69**	**7270**	**56.9**					**218**	**Well has bailed dry**

COMMENTS:

INSTRUMENTATION: pH Meter **X** _____ Temperature Meter **x**
DO Monitor**X** _____ Other _____
Conductivity Meter **X** _____

Water Disposal Kutz Sample ID Canada Mesa MW-3 Sample Time 1525
BTEX VOCs Alkalinity TDS Cations Anions Nitrate Nitrite Ammonia TKN NMWQCC Metals Total Phosphorus

MS/MSD _____ BD _____ BD Name/Time _____ TB 151203TB01

WELL DEVELOPMENT AND SAMPLING LOG

Project No.: 30001.0 Project Name: San Juan River Plant Client: MWH/EL Paso
Location: Canada Mesa Well No: MW-2 Development **Sampling**
Project Manager MJN Date 12/15/03 Start Time 1411 Weather 30s
Depth to Water 35.625 Depth to Product na Product Thickness na Measuring Point TOC
Water Column Height 3.55 Well Dia. 2"

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	
3.55 x 0.16	0.56 x 3		1.743gal/218 oz

Time (military)	pH (su)	SC (umhos/cm)	Temp (°f)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gallons)	Comments/ Flow rate
1427	**7.18**	**5340**	**62.2**				**64**	**Clear then gray**
	7.26	**5280**	**58.9**				**82**	**did not recover full bailer**
	7.31	**5350**	**58.1**				**96**	**gray, well is bailing down**
	7.34	**5040**	**57.8**				**108**	**gray, well is bailing down**
	7.40	**5410**	**57.8**				**116**	**gray, well is bailing down**
1441	**7.44**	**5400**	**57.5**				**124**	**well has bailed dry**

Final: Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow Rate
1441	**7.44**	**5400**	**57.5**					**124**	**well has bailed dry**

COMMENTS:

INSTRUMENTATION: pH Meter X _____ Temperature Meter x
DO Monitor X _____ Other _____
Conductivity Meter X _____

Water Disposal Kutz Sample ID Canada Mesa MW-2 Sample Time 1445
BTEX VOCs *Alkalinity TDS Cations Anions Nitrate Nitrite Ammonia TKN NMWQCC Metals Total Phosphorus*

MS/MSD _____ BD _____ BD Name/Time _____ TB 151203TB01

WATER LEVEL/PRODUCT RECOVERY 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** 12/15/03
Site Name Canada Mesa

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Total Depth	Product Removed	Comments
MW-1	1407	34.41	34.98		160 ounces	Removed 160 oz product and 8 oz water from skimmer
MW-2		na	35.625			sampled
MW-3		na	35.17			sampled

Comments
Let well recover approximately 2 hrs following removal of skimmer before taking water levels

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

WATER LEVEL/PRODUCT RECOVERY 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** 9-15-03
Site Name Canada Mesa

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Total Depth	Product Removed	Comments
MW-1	1237	* 34.65	* 34.97	45.37	0.5 gal	All water in skimmer. Bailed well by hand and raised skimmer 1 ft. Filter or fittings may be leaking water
MW-2	1240	na	35.60			
MW-3	1247	na	35.41			

Comments
*** Let well recover after removing skimmer and bailing product. It may not have fully recovered before water level reading.**

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

WATER LEVEL/PRODUCT RECOVERY 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** 6-22-03
Site Name Canada Mesa

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Total Depth	Product Removed	Comments
MW-1	19.09	34.48	34.55	45.37	5.76 oz	
MW-2	2016	na	35.60			
MW-3	35.17	na	35.17			

Comments
Set Skimmer.

Signature: *Martin J. Nee* Date: June 22, 2003

Product Recovery and Well Observation Data

Project Name: San Juan Basin
Project Manager: MTN
Client Company: MWH
Site Name: Landa Mesa

Project No: 220013
Date: 3-25-03

Well	Time	Depth to Water (ft)	Depth to Product (ft)	Total Well Depth (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	0810	34.50	No	No	No	No	No Product
MW-2		35.54	—	—	—	—	Water Level
MW-3		35.12	—	—	—	—	Water Level

COMMENTS: Pulled skimmer. Water level may not be static due to recovery following removal of skimmer

Signature: [signature]

Date: 3-25-03