3R - 238

REPORTS

DATE:

2003

3R238

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

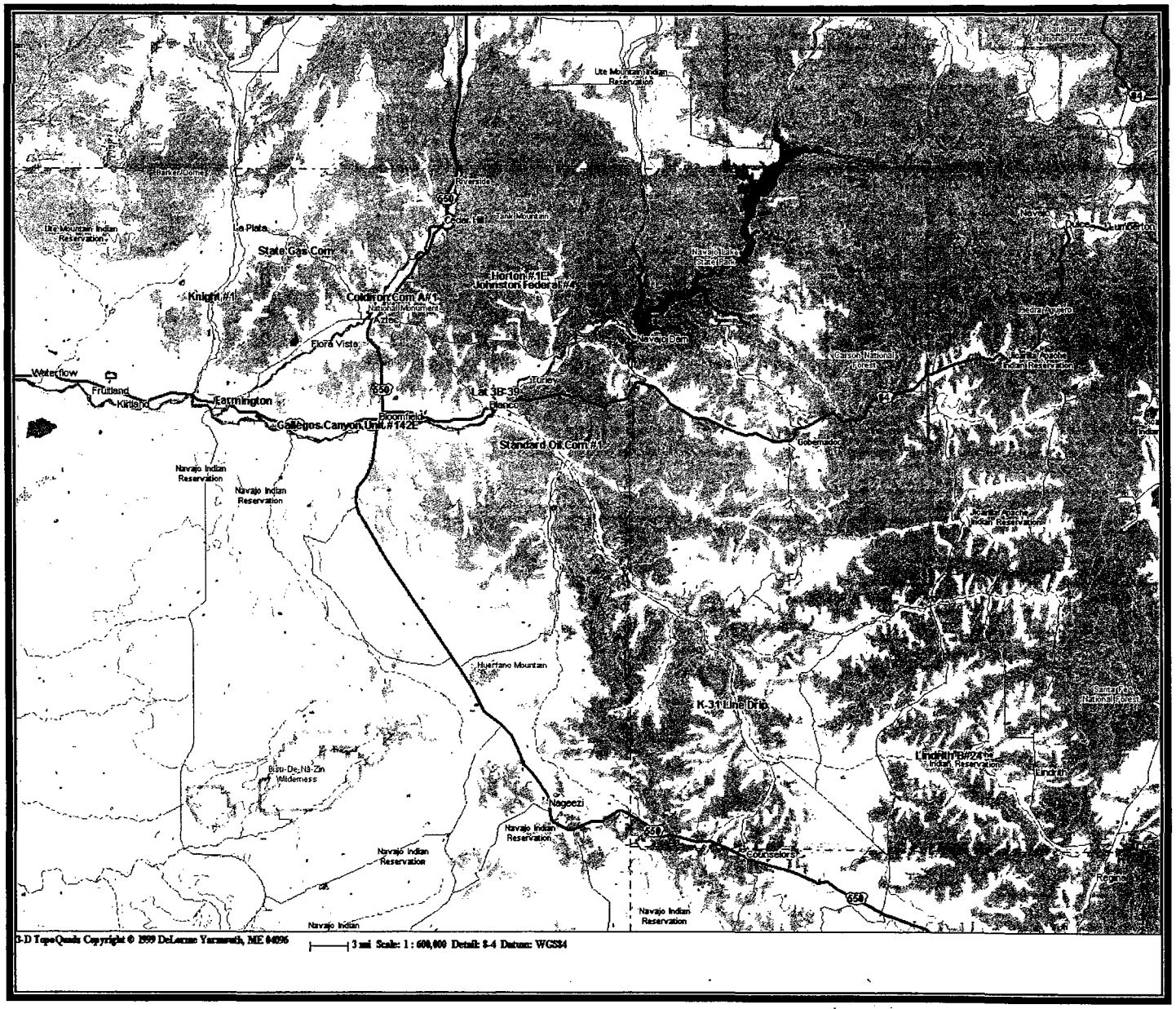
TABLE OF CONTENTS

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

Standard Oil Com #1
Meter Code: 70445

SITE DETAILS

Legal Description:	**Town:**	29N	**Range:**	9W	**Sec:**	36	**Unit:** N
NMOCD Haz Ranking:	30	**Land Type:**	State	**Operator:**	Burlington Resources		

PREVIOUS ACTIVITIES

Site Assessment:	5/94	**Excavation:**	5/94 (60 cy)	**Soil Boring:**	9/95
Monitor Well:	9/95	**Geoprobe:**	7/97	**Additional MWs:**	12/01
Downgradient MWs:	12/01	**Replace MW:**	NA	**Quarterly Initiated:**	11/96
ORC Nutrient Injection:	NA	**Re-Excavation:**	NA	**PSH Removal Initiated:**	NA
Annual Initiated:	NA	**Quarterly Resumed:**	NA		

SUMMARY OF 2003 ACTIVITIES

MW-1: Groundwater sampling was conducted in February and May 2003, and water level monitoring was performed quarterly during 2003.

MW-2: Annual groundwater sampling and quarterly water level monitoring was performed during 2003.

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

MW-4: Quarterly water level monitoring was performed during 2003.

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

SITE MAPS

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

SUMMARY TABLES AND GRAPHS

- Analytical data are summarized in Table 1, and historic data are presented graphically in Figures 3 through 6.

- Laboratory reports are presented in Attachment 1.
- Field documentation is presented in Attachment 2.

GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

No subsurface activities were performed at this site during 2003.

DISPOSITION OF GENERATED WASTES

No wastes were generated at this site during 2003.

ISOCONCENTRATION MAPS

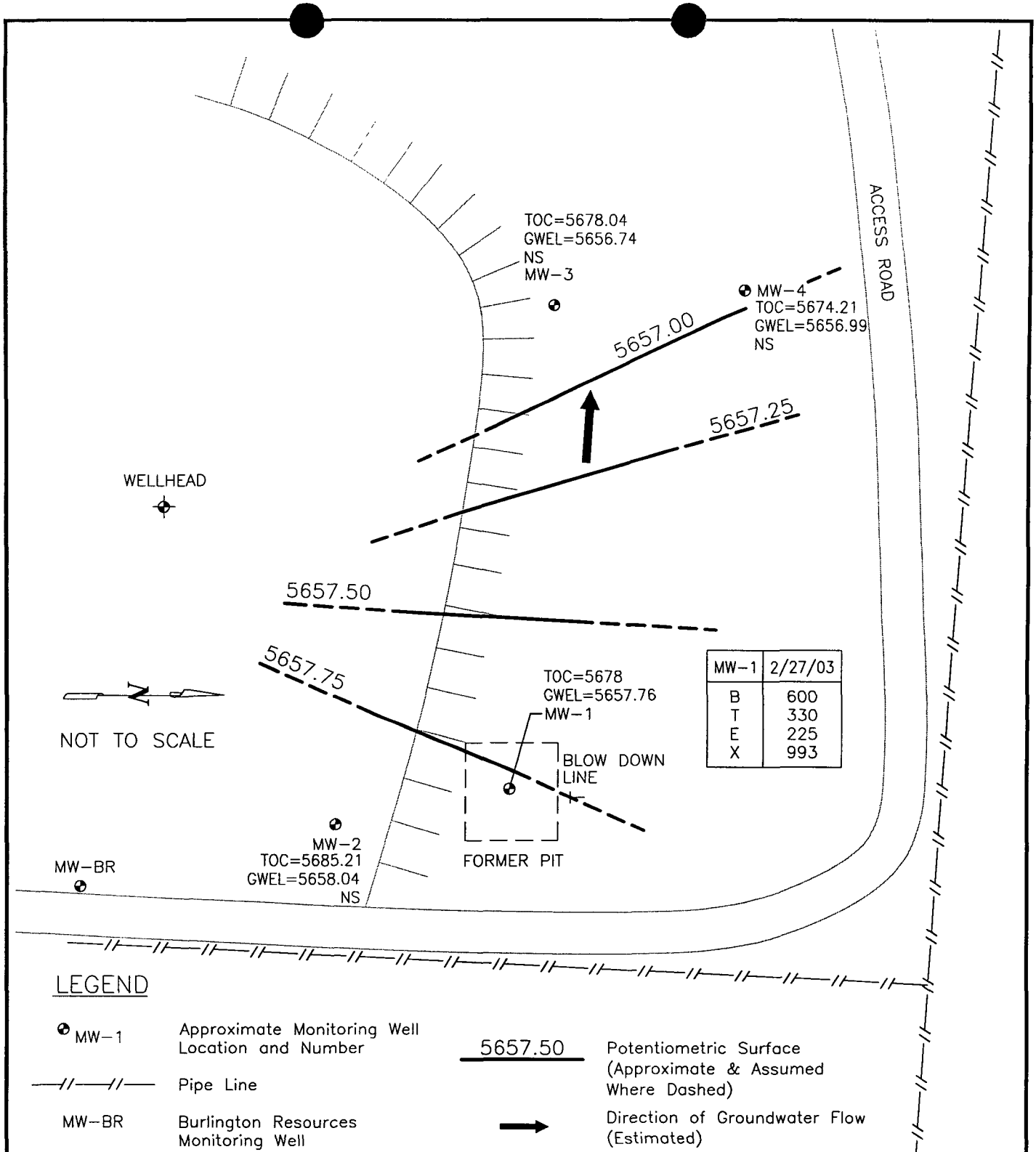
No isoconcentration maps were prepared for this site, however, the attached site maps present water level and analytical data collected during 2003.

CONCLUSIONS

- Benzene concentrations in samples collected from MW-1 during 2003 were above NMWQCC standards; 600 µg/L (February 2003) and 230 µg/L (May 2003).
- The benzene concentration in the sample collected from upgradient well MW-2 during 2003 was above standards; 673 µg/L (May 2003).
- The groundwater flow direction at this site trends to the west.

RECOMMENDATIONS

- EPFS recommends that sampling at MW-1 and MW-2 be performed on an annual basis until BTEX concentrations approach closure criteria. These wells will then be scheduled for either quarterly or semi-annual sampling until four consecutive samples are below closure standards
- EPFS recommends that annual water level monitoring be performed during 2003 at all wells.

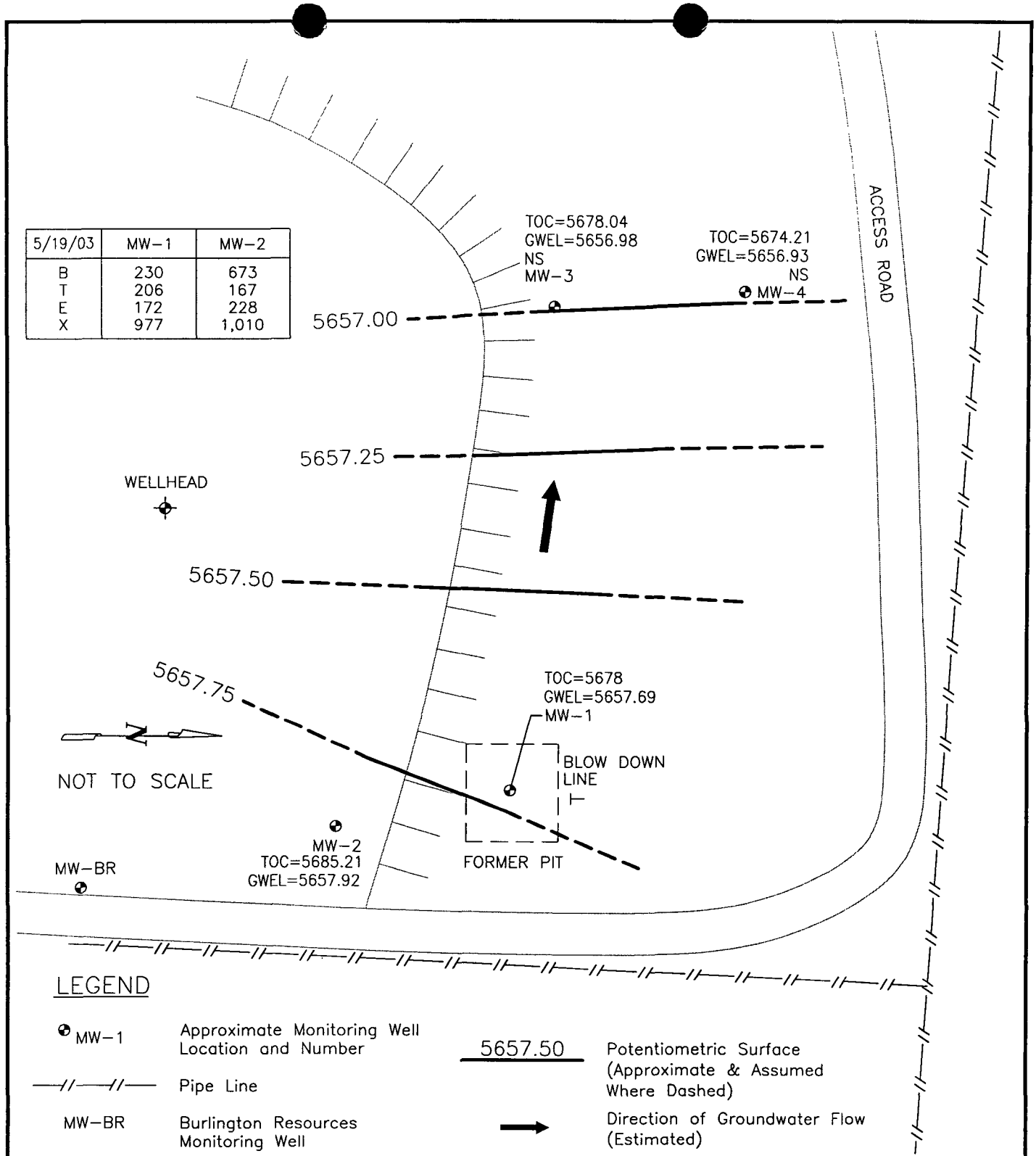


standardoil_03.dwg

STANDARD OIL COM #1, METER 70445
FEBRUARY 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 1



standardoil_03.dwg

STANDARD OIL COM #1, METER 70445
MAY 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

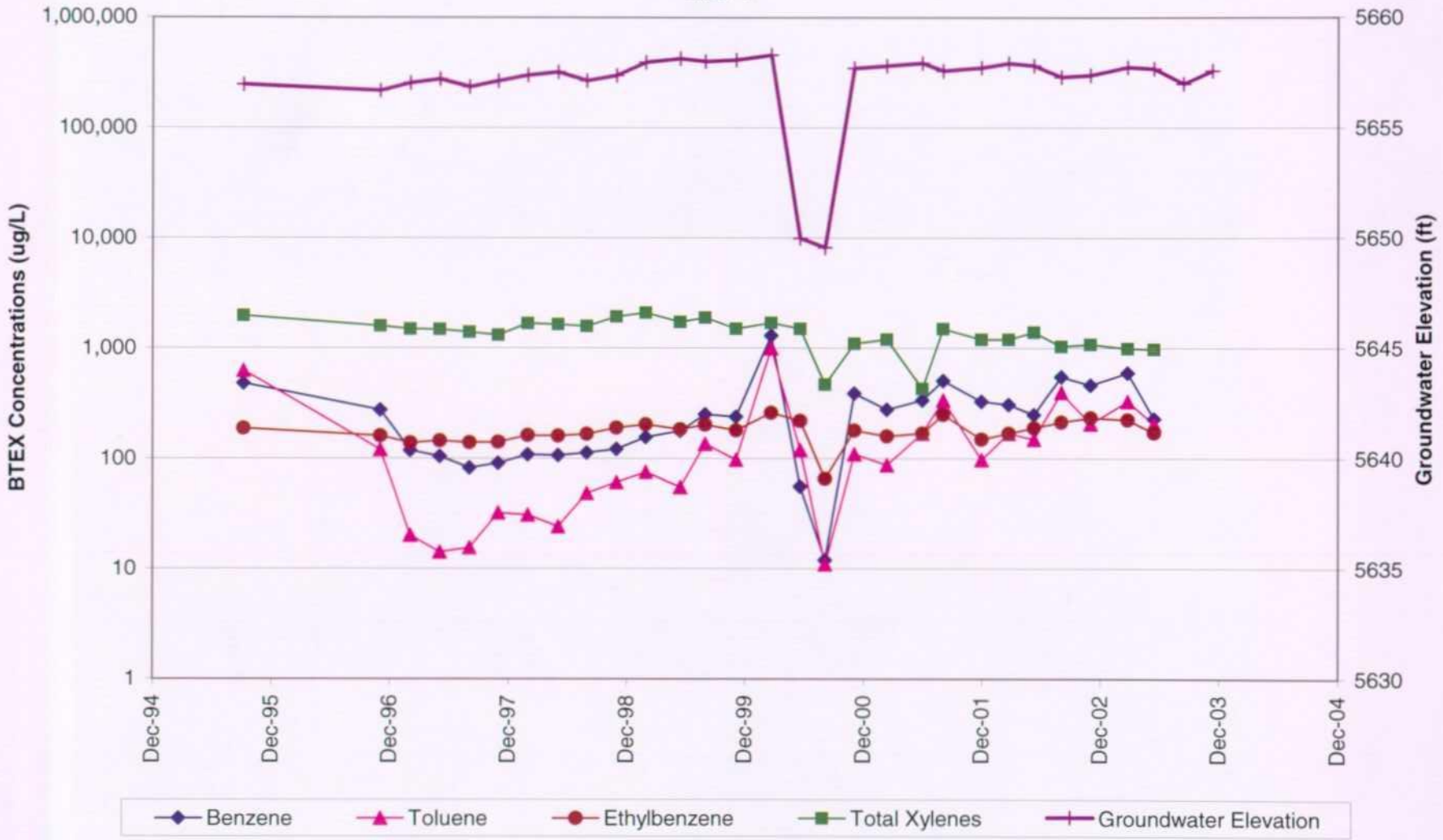
FIGURE 2

TABLE 1

SUMMARY OF BTEX COMPOUNDS IN 2003 GROUNDWATER SAMPLES
STANDARD OIL COM #1 (METER #70445)

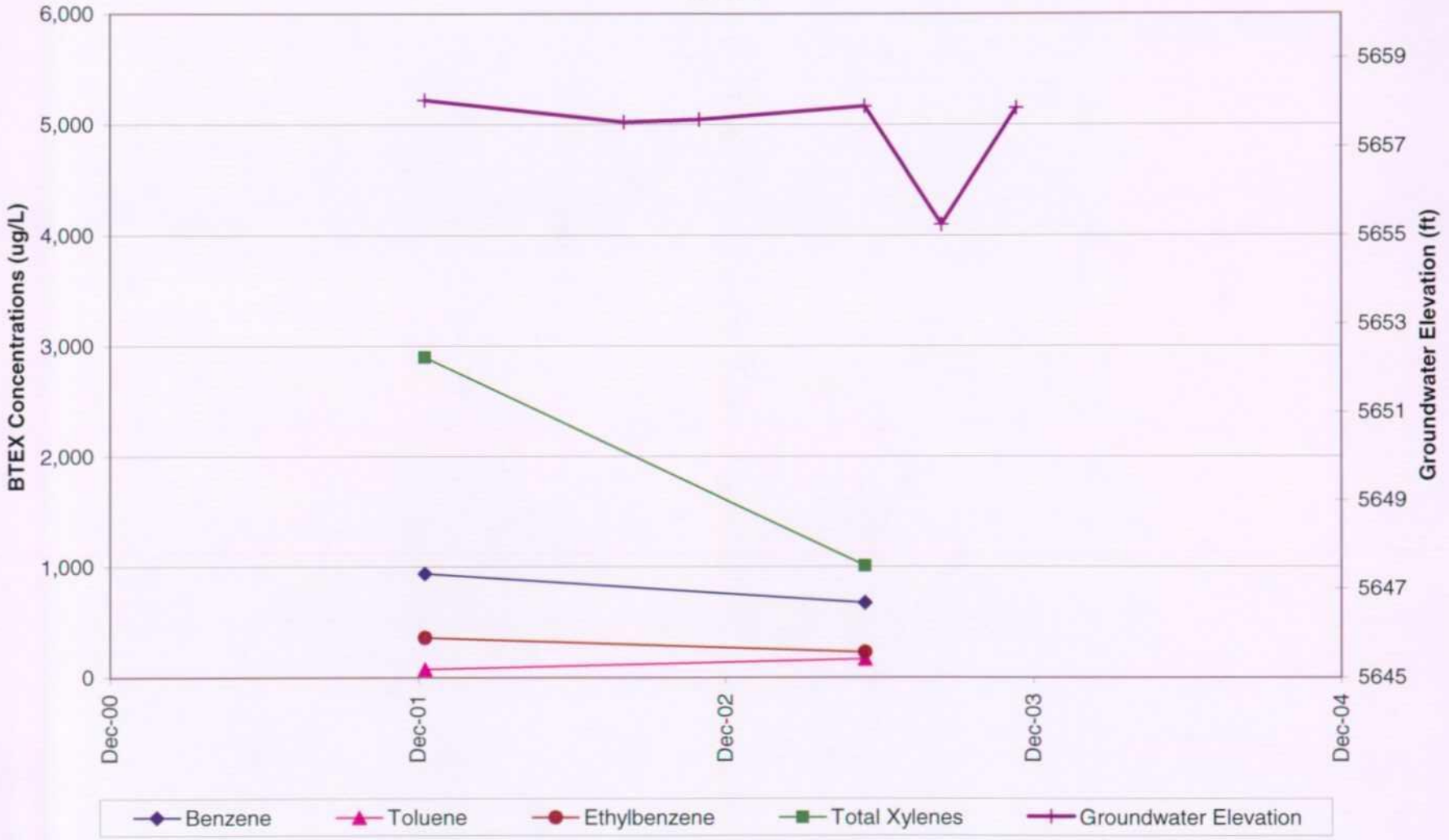
Site Name	Monitoring Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft btoc)
Standard Oil Com #1	MW-1	2/27/2003	600	330	225	993	20.24
Standard Oil Com #1	MW-1	5/19/2003	230	206	172	977	20.31
Standard Oil Com #1	MW-2	5/19/2003	673	167	228	1,010	27.29

FIGURE 3
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
STANDARD OIL COM #1
MW-1



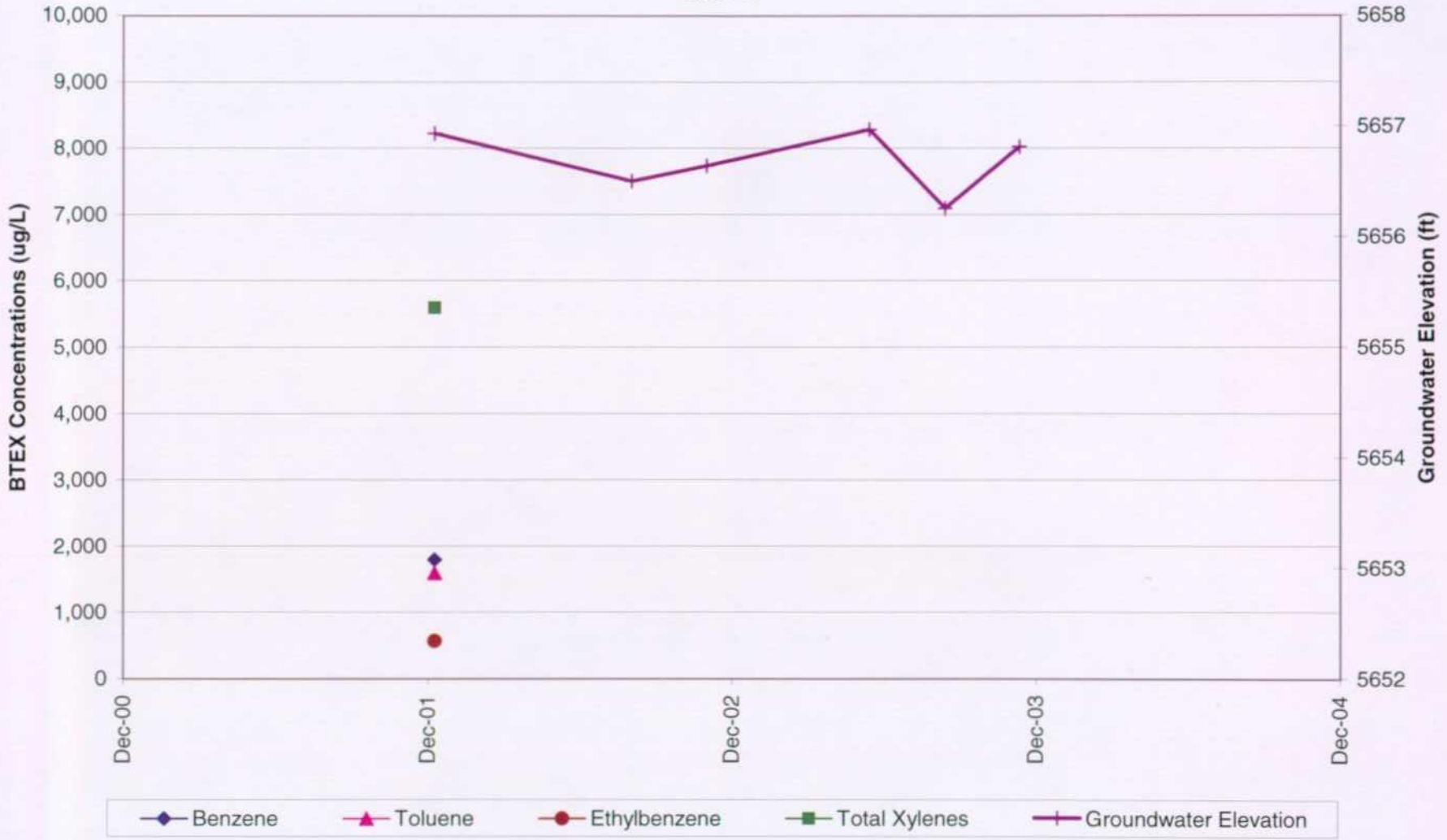
2003 Std Oil Com.xls,StdOilCom MW1

FIGURE 4
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
STANDARD OIL COM #1
MW-2



2003 Std Oil Com.xls,StdOilCom MW2

FIGURE 5
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
STANDARD OIL COM #1
MW-3



2003 Std Oil Com.xls,StdOilCom MW3

FIGURE 6
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
STANDARD OIL COM #1
MW-4

2003 Std Oil Com.xls,StdOilCom MW4

ATTACHMENT 1

LABORATORY REPORTS

DATA VALIDATION WORKSHEET

(Page 1 of 2)

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

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

Batch Identification: T4354 **Matrix:** Water

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

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

Foot Notes	Site ID	Sample ID	Lab. ID	Hits (Y/N)	Quals.	Comments
None	Trip Blank	190503TB02	T4354-01	N		
None	Std. Oil	MW-1	T4354-02	Y		Benzene @ 230 µg/l Toluene @ 206 µg/l Ethylbenzene @ 172 µg/l Xylenes (total) @ 977 µg/l o-Xylene @ 318 µg/l m,p-Xylene @ 659 µg/l
None	Std. Oil	MW-2	T4354-03	Y		Benzene @ 673 µg/l Toluene @ 167 µg/l Ethylbenzene @ 228 µg/l Xylenes (total) @ 1010 µg/l o-Xylene @ 92.8 µg/l m,p-Xylene @ 915 µg/l

DATA VALIDATION WORKSHEET

(Page 2 of 2)

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

Laboratory: Accutest **Batch Identification:** T4354

Validation Criteria								
Sample ID	**190503TB 02**	**Std. Oil MW-1**	**Std. Oil MW-2**					
Lab ID	**T4354-01**	**T4354-02**	**T4354-03**					
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	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:

Gulf Coast
ACCUTEST.
Laboratories

05/27/03

Technical Report for

Montgomery Watson

EPFS San Juan Basin GS

Accutest Job Number: T4354

Report to:

lynn.benally@elpaso.com

Total number of pages in report: 9

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: T4354

EPFS San Juan Basin GS

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
T4354-1	05/19/03	07:00 MN	05/21/03	AQ	Trip Blank Water	19053TB02
T4354-2	05/19/03	14:22 MN	05/21/03	AQ	Water	STANDARD OIL MW-1
T4354-3	05/19/03	15:40 MN	05/21/03	AQ	Water	STANDARD OIL MW-2

Accutest Laboratories

Report of Analysis

Client Sample ID:	19053TB02		
Lab Sample ID:	T4354-1	Date Sampled:	05/19/03
Matrix:	AQ - Trip Blank Water	Date Received:	05/21/03
Method:	SW846 8021B	Percent Solids:	n/a
Project:	EPFS San Juan Basin GS		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK005166.D	1	05/21/03	BC	n/a	n/a	GKK270
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	93%		64-121%
98-08-8	aaa-Trifluorotoluene	91%		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:	STANDARD OIL MW-1		
Lab Sample ID:	T4354-2	Date Sampled:	05/19/03
Matrix:	AQ - Water	Date Received:	05/21/03
Method:	SW846 8021B	Percent Solids:	n/a
Project:	EPFS San Juan Basin GS		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK005168.D	50	05/21/03	BC	n/a	n/a	GKK270
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	230	50	ug/l	
108-88-3	Toluene	206	50	ug/l	
100-41-4	Ethylbenzene	172	50	ug/l	
1330-20-7	Xylenes (total)	977	150	ug/l	
95-47-6	o-Xylene	318	50	ug/l	
	m,p-Xylene	659	100	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	84%		64-121%
98-08-8	aaa-Trifluorotoluene	87%		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:	STANDARD OIL MW-2		
Lab Sample ID:	T4354-3	Date Sampled:	05/19/03
Matrix:	AQ - Water	Date Received:	05/21/03
Method:	SW846 8021B	Percent Solids:	n/a
Project:	EPFS San Juan Basin GS		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK005169.D	50	05/21/03	BC	n/a	n/a	GKK270
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	673	50	ug/l	
108-88-3	Toluene	167	50	ug/l	
100-41-4	Ethylbenzene	228	50	ug/l	
1330-20-7	Xylenes (total)	1010	150	ug/l	
95-47-6	o-Xylene	92.8	50	ug/l	
	m,p-Xylene	915	100	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	81%		64-121%
98-08-8	aaa-Trifluorotoluene	82%		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: T4354
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

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

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

T4354-1, T4354-2, T4354-3

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

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

Method Blank Summary

Job Number: T4354
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

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

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

T4354-1, T4354-2, T4354-3

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

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T4354
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

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

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

T4354-1, T4354-2, T4354-3

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

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

CHAIN OF CUSTODY

ACCUTEST Laboratories

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

FED-EX Tracking # 836557 901 603 | Bottle Order Control #
Accutest Quote # | Accutest Job #

Client / Reporting Information

Company Name: Montgomery Watson / 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: Martin Nee

Project Information

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

Requested Analysis

BTEX

Matrix Codes

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

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	LAB USE ONLY
1	FIO503TBD2		5-19-03	0700	MW	WG	1	X								
2	Standard Oil MW-1		5-19-03	1422	MW	WG	2	X								
3	Standard Oil MW-2		5-19-03	1540	MW	WG	2	X								

Turnaround Time (Business Days)

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

Approved By: / Date:

Emergency & Rush T/A data available VIA LabLink

Data Deliverable Information

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

Commercial "A" = Results Only

Comments / Remarks

T4354

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

Relinquished by Sampler:	Date/Time: 5-20-03 0800	Received by:	Relinquished by	Date Time:	Received by:
1		1	2		2
Relinquished by:	Date Time: 5-21-03 0905	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	Cooler Temp 3.4°C
5		5				

DATA VALIDATION WORKSHEET

Analytical Method/Analytes: SW-846 8021B (BTEX) **Sample Collection Date(s):** 02/27/03

Laboratory: APCL **MWH Job Number:** EPC-SJRB (Jaquez & GW)

Batch Identification: 03-01958 **Matrix:** Water

MS/MSD Parent(s)[a]: 03-01958-01 **Field Replicate Parent(s):** None

Validation Complete: [signature] 3-28-03 (Date/Signature)

Foot Notes	Site ID	Sample ID	Lab. ID	Hits (Y/N)	Quals.	Comments
None	Jaquez	MW-1	03-01958-01	Y		
None	GW	Standard Oil MW-1	03-01958-02	Y		
None	Jaquez	MW-3	03-01958-03	Y		
None	Jaquez	MW-4	03-01958-04	Y		
None	Jaquez	MW-7	03-01958-05	Y		
None	Jaquez	TB 270203-1	03-01958-06			Bottle broken in shipment

DATA VALIDATION WORKSHEET
(Page 2 of 2)

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

Laboratory: APCL **Batch Identification:** 03-01958

Validation Criteria								
Sample ID	**JA MW-1**	**GW Std. Oil MW-1**	**JA MW-3**	**JA MW-4**	**JA MW-7**	**TB 270203-1**		
Lab ID	**03-01958-01**	**03-01958-02**	**03-01958-03**	**03-01958-04**	**03-01958-05**	**03-01958-06**		
Holding Time	A	A	A	A	A	Sample broken in shipment		
Analyte List	A	A	A	A	A			
Reporting Limits	A	A	A	A	A			
Trip Blank	N/R	N/R	N/R	N/R	N/R			
Equipment Rinseate Blanks	N/A	N/A	N/A	N/A	N/A			
Field Duplicate/Replicate	N/A	N/A	N/A	N/A	N/A			
Initial Calibration	N	N	N	N	N			
Initial Calibration Verification (ICV)	N	N	N	N	N			
Continuing Calibration Verification (CCV)	A	A	A	A	A			
Method Blank	A	A	A	A	A			
Laboratory Control Sample (LCS)	A	A	A	A	A			
Laboratory Control Sample Duplicate (LCSD)	N	N	N	N	N			
Matrix Spike/Matrix Spike Dup. (MS/MSD)	A	N/A	N/A	N/A	N/A			
Surrogate Spike Recovery	A	A	A	A	A			
Retention Time Window	N	N	N	N	N			
Injection Time(s)	N	N	N	N	N			
Hardcopy vs. Chain-of-Custody	A	A	A	A	A			
EDD vs. Hardcopy	N	N	N	N	N			
EDD vs. Chain of Custody	N	N	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:

Applied P & Ch Laboratory
13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

APCL Analytical Report

Submitted to:
Montgomery Watson Harza
Attention: Brian Buttars
10619 South Jordan Gateway
Salt Lake City UT 84095
Tel: (801)617-3200 Fax: (801)617-4200

Service ID #: 801-031958
Collected by: M.J. Nee.
Collected on: 02/27/03

Received: 03/01/03
Extracted: N/A
Tested: 03/03/03
Reported: 03/05/03

Sample Description: Water
Project Description: 220013 San Juan River Basin

Analysis of Water Samples

Component Analyzed	Method	Unit	PQL	Analysis Result MW-1 Jaquez 03-01958-1	MW-1 Standard Oil 03-01958-2
BTXE					
Dilution Factor				1	10
BENZENE	8021B	µg/L	0.5	0.1J	600
ETHYLBENZENE	8021B	µg/L	0.5	<0.5	225
TOLUENE	8021B	µg/L	0.5	0.2J	330
O-XYLENE	8021B	µg/L	0.5	0.3J	329
M,P-XYLENE	8021B	µg/L	1	1	664

Component Analyzed	Method	Unit	PQL	Analysis Result MW-3 Jaquez 03-01958-3	MW-4 Jaquez 03-01958-4	MW-7 Jaquez 03-01958-5
BTXE						
Dilution Factor				1	1	1
BENZENE	8021B	µg/L	0.5	1.3	1.6	0.2J
ETHYLBENZENE	8021B	µg/L	0.5	<0.5	<0.5	<0.5
TOLUENE	8021B	µg/L	0.5	0.8	0.3J	0.2J
O-XYLENE	8021B	µg/L	0.5	1.6	0.3J	<0.5
M,P-XYLENE	8021B	µg/L	1	1J	1	0.9J

PQL: Practical Quantitation Limit. MDL: Method Detection Limit. CRDL: Contract Required Detection Limit
N.D.: Not Detected or less than the practical quantitation limit. "-": Analysis is not required.
J: Reported between PQL and MDL.
Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0

Respectfully submitted,

Dominic Lau
Laboratory Director
Applied P & Ch Laboratory

Applied P & Ch Laboratory
13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

Case Narrative

Project: San Juan River Basin/Hill AFB/220013

For Montgomery Watson Harza

APCL Service No: 03-1958

1. Sample Identification

The sample identifications are listed in the following table:

Montgomery Watson Harza Sample ID	APCL Sample ID
MW-1 Standard Oil	03-01958-2
MW-7 Jaquez	03-01958-5
MW-1 Jaquez	03-01958-1
MW-3 Jaquez	03-01958-3
MW-4 Jaquez	03-01958-4

2. Analytical Methodology

Samples are analyzed by EPA methods
8021B (BTXE),

3. Holding Time

All samples were extracted, digested and analyzed within the holding times defined by the appropriate EPA methods of the analyses.

4. Preservation

All samples were preserved and stored according to the appropriate EPA methods.

5. Tele-log

None

6. Anomaly

(1) Sample receiving:
Sample TB 270203-1 was missing upon receipt, and hence, was not analyzed.

"I certify that these data are technically accurate, complete, and in compliance with the terms and conditions of the contract, for other than the conditions detailed above. Release of the data contained in the hardcopy data package and its electronic data deliverable submitted on diskette had been authorized by the Laboratory Manager or her/his designee, as verified by the following signature."

Respectfully submitted,

Regina Kirakozova
Associate QA/QC Director
Applied P & Ch Laboratory

CHAIN OF CUSTODY RECORD/LAB WORK REQUEST

LABORATORY APCL
Contract El Paso Corp., San Jaun River Basin

Chain of Custody ID 280203MNJ02
Page 1 of 1
Air Bill No. 8368 8167 4367

MWH
Phone (801) 617-3200 FAX (801) 617-4200
MWH Contact Brian Buttars
Project San Juan Basin
Project Number 220013
Date Due Standard
Sampler's Name Mo Nee
(print clearly)

Location ID	Sample ID	Depth Interval (ft)	Date Collected	Time Collected	Matrix [a]	Sampling Technique [b]	ANALYSES REQUESTED: BTEX SW-846 8021B	Alkalinity SM 2320B	TDS USEPA 160.1	NM WQCC Metals SW-846 6010B & 7470A	Cations SW-846 6010B	Anions USEPA 300.0	Nitrate USEPA 300.0	Nitrite USEPA 300.0				
Standard Oil Com #1	MW-1		2-27-03	1041	WG	B	X											
Jaquez	M-7		2-27-03	1330	WG	B	X											
Jaquez	M-1		2-27-03	1414	WG	B	X											
Jaquez	M-3		2-27-03	1459	WG	B	X											
Jaquez	M-4		2-27-03	1520	WG	B	X											
TB 270203-1	TB		2-27-03	0700	WG		X											

1958

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered
Notes: Fed-Ex

2 Ambient or Chilled
Notes:

3 Temperature 3.9°C

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Notes:

6 Received Within Holding Times
Y N
Notes:

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

[a] **Matrix:**
SO – Soil
WS – Surface Water
WG – Ground Water
AA – Air
WQ – Trip Blank/ Equipment Blanks
WW – Wastewater

[b] **Sampling Technique:**
Composite=C
Grab=G
Hand Auger=HA
Submersible Pump=SP
Bladder Pump=BP
Bailer=B
Wellhead Faucet=WF
Hydropunch=HP

Location IDs:
Groundwater Sites=GW
Bisti=BI
Jaquez=JA
North Flare Pit=NF
South Flare Pit=SF
San Juan River Plant=SJ

Relinquished by/Affiliation	Received by/Affiliation	Date	Time
		2-28-03	1500
	APCL	3/1/03	1200

Applied P & Ch Laboratory
13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

APCL QA/QC Report

Submitted to:
Montgomery Watson Harza
Attention: Brian Buttars
10619 South Jordan Gateway
Salt Lake City, UT 84095
Tel: (801)617-3200 Fax: (801)617-4200

Service ID #: 801-031958
Collected by: M.J. Nee.
Collected on: 02/27/03
Sample description:
Water
Project: San Juan River Basin /220013

Received: 03/01/03
Tested: 03/03/03
Reported: 03/17/03

Analysis of Water

801-031958QC

Component Name	Analysis Batch #	CCV (µg/L)	CCV %Rec	M-Blank	Conc. Unit	SP Level	LCS %Rec	MS %Rec	MSD %Rec	MS/MSD %RPD	Control Limit %Rec	Control Limit %Diff
BTXE												
Benzene	03G1615	100	97	N.D.	µg/L	18.0	87	91	91	0	71-126	28
Toluene	03G1615	100	101	N.D.	µg/L	70.0	89	91	92	1	70-117	24
Ethylbenzene	03G1615	100	104	N.D.	µg/L	18.0	95	97	98	1	65-131	33
m/p-Xylene	03G1615	200	98	N.D.	µg/L	70.0	90	89	91	2	66-122	28
o-Xylene	03G1615	100	96	N.D.	µg/L	25.0	87	89	90	1	65-130	33

Notation:
ICV – Initial Calibration Verification
CCV – Continuation Calibration Verification
LCS – Lab Control Spike
MS – Matrix Spike
MSD – Matrix Spike Duplicate
ICS – Interference Check Standard
MD – Matrix Duplicate
N.D. – Not detected or less than PQL
CCB – Continuation Calibration Blank
M-blank – Method Blank
SP Level – Spike Level
%Rec – Recovery Percent
%RPD – Relative Percent Differences
%Diff – Control Limit for %RPD
ICP-SD – ICP Serial Dilution
N.A. – Not Applicable

Respectfully submitted,

Regina Kirakozova,
Associate QA/QC Director
Applied P & Ch Laboratory

FORM-2A

Applied P & Ch Laboratory

Surrogate Recovery Summary for Method 8021B

Client Name:	Montgomery Watson Harza	Contract No:		Lab Code:	APCL
Case No:		SAS No:		SDG Number:	031958
Project ID:	San Juan River Basin	Project No:	220013	Sample Matrix:	Water
		Batch No:	03G1615		

#	Client Sample No	Lab Sample ID	S1 %	#	TOT OUT
1		03G1615-LCS-01	89		0
2		03G1615-LSD-01	90		0
3		03G1615-MB-01	84		0
4	MW-1 JAQUEZ	03-1958-1	95		0
5	MW-1 STANDARD OIL	03-1958-2	100		0
6	MW-3 JAQUEZ	03-1958-3	98		0
7	MW-4 JAQUEZ	03-1958-4	96		0
8	MW-7 JAQUEZ	03-1958-5	94		0
9	MW-1 JAQUEZ	03-1958-1MS	88		0
10	MW-1 JAQUEZ	03-1958-1MSD	89		0
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

	QC Control Limit
S1 = 4-BROMO-FLUOROBENZENE (PID)	66-133

Column to be used to flag recovery values:

* – Values outside of contract required QC Limits D – Surrogate diluted out I – Matrix Interference

Applied P & Ch Laboratory
13760 Magnolia Ave. Chino CA 91710
Tel: (909)590-1828 Fax: (909)590-1498

MAR 24 2003

APCL INVOICE 03-01958

at Montgomery Watson

Samples from
Montgomery Watson Harza
10619 South Jordan Gateway
Salt Lake City, UT 84095

Invoice to
Montgomery Watson Harza
10619 South Jordan Gateway
Salt Lake City, UT 84095
Tel. (801)617-3200
Fax (801)617-4200

Project Manager:
Technical Contact: Brian Buttars
Purchase Order No:
Prime Contract No:

Subcontract No:
Project No: 220013
Project Name: San Juan River Basin

SDG Number: 03-01958
SDG Receive Date: 03/01/03

Remit Payment to
Applied P & Ch Laboratory
13760 Magnolia Ave.
Chino CA 91710

Invoice No. 03-01958
Invoice Date: 03/20/2003
Due Date: 04/19/2003
Printed Date: 03/20/2003
Past Due Interest:
1.5% per month

Catalog No.	Test Description	Method Code	Sample Matrix	Unit Price, $	Sample Quant.	Subtotal $
002316	BTXE	8021B	Water	40.00	5	200.00
Analytical Service Subtotal						200.00
Total Service Charge						200.00
Please Remit This Amount:						**200.00**

ACCOUNTS PAYABLE
Job #
C/Code C/Type
CC: Acct #
Approved by Brian Buttars
Date 3-28-03
PO/Sub #

JA
4270098.011803
$160.00

GW
4270099.011803
$40.00

Copy A: ORIGINAL INVOICE

***** APCL Invoice Control ID 1999_0746 APCL_00284 0984_0001 APCL Invoice Control ID*****

APCL Financial Department

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**	**11-15-03**
Site Name	**Standard Oil Com no 1**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-1	1053	-	20.41	-	-
MW-2		-	27.33	-	-
MW-3		-	21.22	-	-
MW-4			17.43		

Comments

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

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**	**8-18-03**
Site Name	**Standard Oil Com no 1**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-1	**1542**	-	**20.995**	-	-
MW-2		-	**29.955**	-	-
MW-3		-	**21.78**	-	-
MW-4			**17.99**		

Comments

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

WELL DEVELOPMENT AND SAMPLING LOG

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

Location: Standard Well No: MW-2 Development ☐ Sampling ☒

Project Manager MJN Date 5-19-03 Start Time 1449 Weather Sunny Windy 80s

Depth to Water 27.29 Depth to Product — Product Thickness — Measuring Point TOC

Water Column Height 9.69 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 ORP/Turbidity

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	
9.69 x .16	1.55 x 3		4.65 12

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.) Qtr	Comments/ Flow rate
1501	721	4190	24.7				0.5	clear HC odor
	717	3860	20.5				1.5	sewage odor
	715	3870	19.1				2.5	
	720	3760	19.8				6.5	
	737	4060	18.6				10.5	gray
	734	4360	18.6				14.5	
	737	3930	18.6				18.5	
1529	738	3880	18.6				19.5	

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
1529	738	3880	18.6					19.5	

COMMENTS: _____

INSTRUMENTATION: pH Meter ☒ _____ Temperature Meter ☒ _____

DO Monitor ☐ _____ Other ☐ _____

Conductivity Meter ☒ _____

Water Disposal _____

Sample ID Std Dup MW-2 Sample Time 1540 BTEX ☒ VOCs ☐ Alkilinity ☐

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

Total Phosphorus ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐

MS/MSD _____ BD _____ BD Name/Time _____ TB 030503TB02

WELL DEVELOPMENT AND SAMPLING LOG

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

Location: Standard Oil Well No: MW-1 Development ☐ Sampling ☑

Project Manager MJD Date 5-19-03 Start Time 1307 Weather Sunny 70s

Depth to Water 20.31 Depth to Product — Product Thickness — Measuring Point TOC

Water Column Height 12.52 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 on building

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	
12.52-.65	8.13 x 3		24.414

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1320	722	5800	28				1	clear odorous
	711	3940	255				2	
	713	4090	248				3	
	711	3670	214				7	
	725	3650	206				11	
	730	3680	226				15	
	733	3640	209				19	grey
	739	3630	214				23	
	742	3690	209				24	
1418	740	3580	204				25	dark grey

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
1418	740	3580	204					25	

COMMENTS: _____

INSTRUMENTATION: pH Meter ☒ _____ Temperature Meter ☒ _____

DO Monitor ☐ _____ Other ☐ _____

Conductivity Meter ☒ _____

Water Disposal Kutz

Sample ID Low Standard Oil MW-1 Sample Time 1422 BTEX ☒ VOCs ☐ Alkilinity ☐

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

Total Phosphorus ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐

MS/MSD _____ BD _____ BD Name/Time _____ TB 190563TB02

PRODUCT RECOVERY/WATER LEVEL DATA

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

Project Name_	**San Juan Basin Ground Water**	**Project No.**	**30001.0**
Project Manager	**MJN**		
Client Company	**MWH**	**Date**	**5-19-03**
Site Name	**Standard Oil Com no 1**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-1	1307	-	20.31	-	-
MW-2		-	27.29	-	-
MW-3		-	21.065	-	-
MW-4			17.28		

Comments

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

WELL DEVELOPMENT AND SAMPLING LOG

Project No: 220013 Project Name: San Juan Basin Client: MWH

Location: Standard Oil Com #1 Well No: MW-1 Development ☐ Sampling ☑

Project Manager MJN Date 2-27-03 Start Time 1049 Weather Intermittent Snow

Depth to Water 20.24 Depth to Product No Product Thickness No Measuring Point TOC

Water Column Height 12.56 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 2 bailers

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	
.65 x 12.56	8.16 x 3		24.49 gal

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1004	7.25	2340	12.1				1	White floaters looks
	7.31	2560	12.5				2	like alkali scale
	7.15	2640	12.6				3	
	7.23	2650	12.0				7	
	7.18	2760	12.2				5	
	7.24	2330	11.8				9	
	7.28	3510	12.1				11	
	7.23	4320	12.2				13	Mix & slurry
	7.35	4490	12.4				15	
	7.35	4310	12.5				17	
	7.35	3880	12.9				19	
	7.31	3940	12.9				21	
	7.40	3960	12.8				23	
1036	7.35	4060	12.9				25	

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
1036	7.35	4060	12.9					25	

COMMENTS:

INSTRUMENTATION:

pH Meter ☒ _____ Temperature Meter ☒ _____

DO Monitor ☐ _____ Other ☐ _____

Conductivity Meter ☒ _____

Water Disposal Kutz

Sample ID Standard Oil Com #1 MW-1 Sample Time 1041 BTEX ☑ VOCs ☐ Alkilinity ☐

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

Total Phosphorus ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐

MS/MSD _____ BD _____ BD Name/Time _____ TB TB270203-1

AESE
906 San Juan Blvd.Ste.D
Farmington, NM 87401
505.566.9116(9120fax)

WELL OBSERVATION DATA

Project Name San Juan Basin Project No. 220013

Project Manager MTH Date 2-27-03

Client Company MWH

Site Name Standard Oil Com #1

Well	Time	Depth to Water (ft)	Depth to Product (ft)	Total Well Depth (ft)	Product Thickness (ft)	Comments
MW1	0949	20.24	No			
MW2	0920	27.17	No			
MW3	0930	21.30	No			
MW4	0940	17.22	No			

Comments

Signature Date 2-27-03