3R - 197

REPORTS

DATE:
2003

3R197

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
NAVAJO SITES VOLUME III

EL PASO FIELD SERVICES

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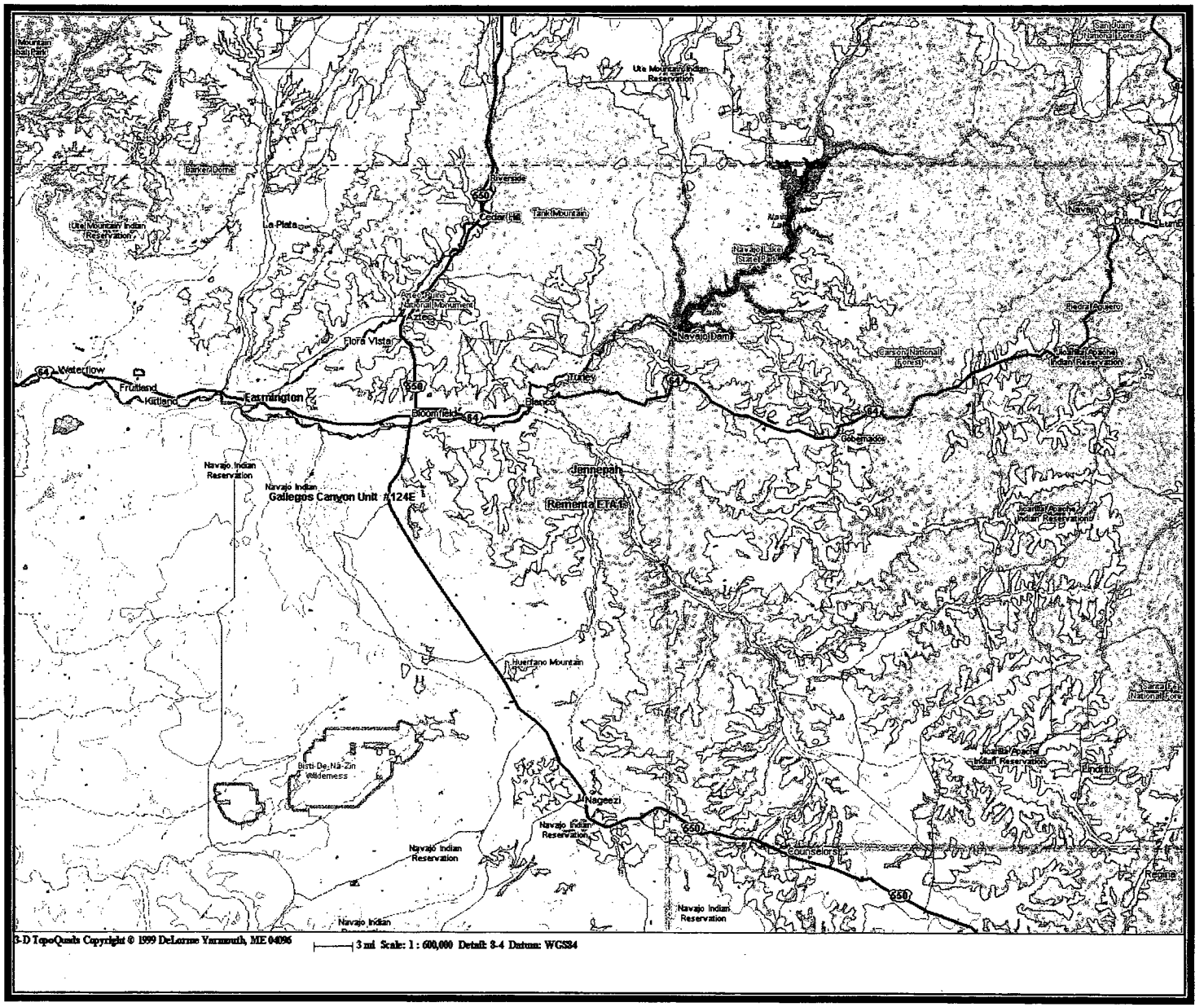
MWH
MONTGOMERY WATSON HARZA

Navajo 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

2003 ANNUAL GROUNDWATER REPORT
NAVAJO SITES VOLUME III

EL PASO FIELD SERVICES

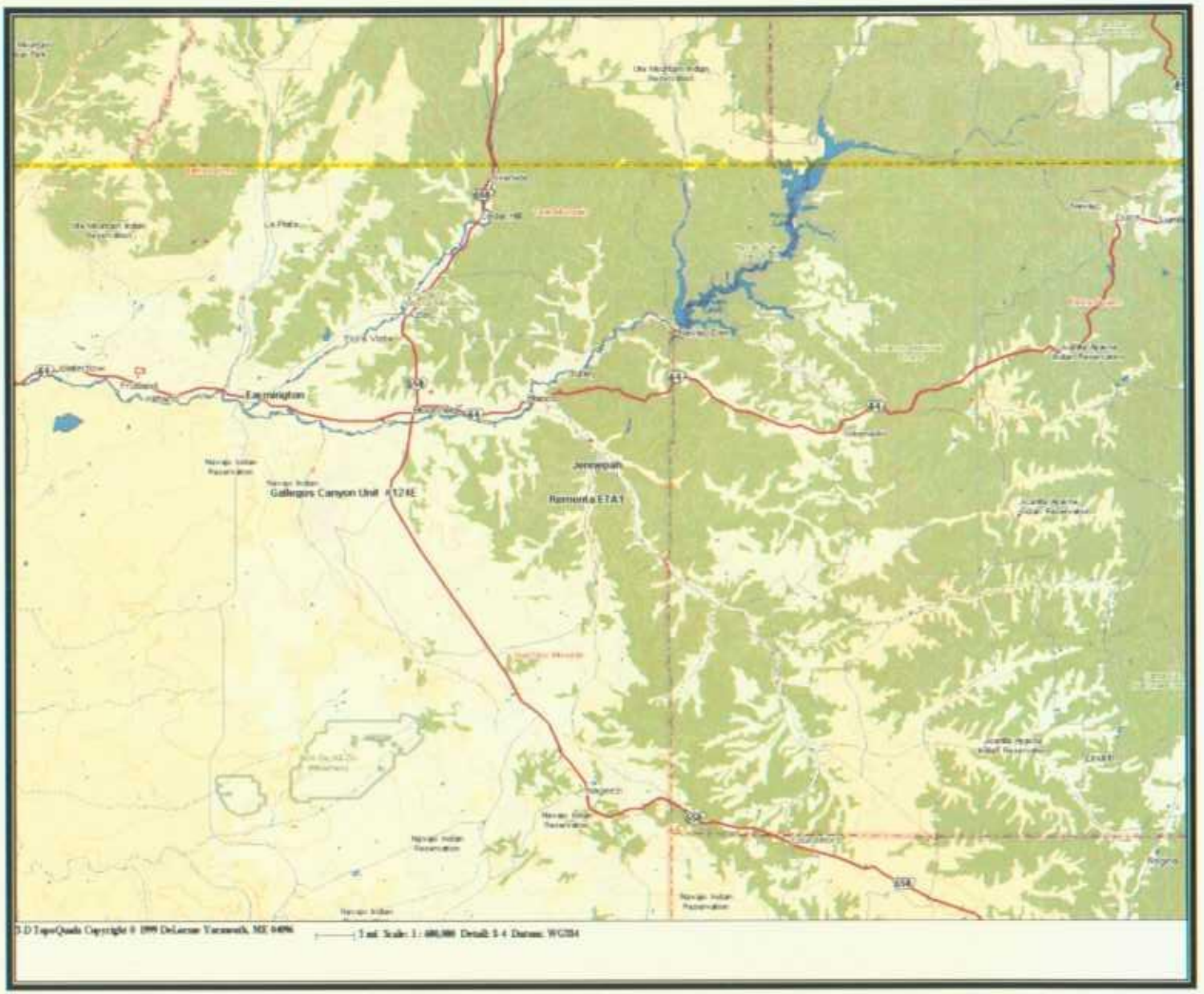
TABLE OF CONTENTS

METER or LINE ID	SITE NAME	TOWNSHIP	RANGE	SECTION	UNIT
71816	Jennepah #1	28N	09W	36	H
95608	Gallegos Canyon Unit #124E	28N	12W	35	N

elpaso

MWH
MONTGOMERY WATSON HARZA

Navajo Groundwater Site Map



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PIT CLOSURE REPORT
JENNAPAH #1
METER CODE 71816

FEBRUARY 2004

TABLE OF CONTENTS

EPFS GROUNDWATER SITES
2003 CLOSURE REPORT

Jennepah #1
Meter Code: 71816

SITE DETAILS

Legal Description:	**Town:**	28N	**Range:**	9W	**Sec:**	36	**Unit:** H
NMOCD Haz Ranking:	40	**Land Type:**	Navajo	**Operator:**	Amoco Production		

PREVIOUS ACTIVITIES

Site Assessment:	May /94	**Excavation:**	Jun/94 (70 cy)	**Soil Boring:**	Feb/97
Monitor Well:	Feb/97	**Geoprobe:**	NA	**Additional MWs:**	May/99
Downgradient MWs:	May/99	**Replace MW:**	NA	**Quarterly Initiated:**	Jun/97
ORC Nutrient Injection:	Jun/98	**Re-Excavation:**	Nov/95 (234 cy)	**PSH Removal Initiated:**	Mar/01 (MW-1)
Annual Initiated:	NA	**Quarterly Resumed:**	NA		

Following the initial site assessment in May 1994 (see Appendix A), the existing pit was excavated to a depth of 12 feet below ground surface (bgs). Approximately 70 cubic yards (cy) of source material were removed and disposed of at the Envirotech land farm. The head space soil reading from the bottom of the excavation was 314 ppm and no groundwater was encountered. Soil analytical for the sample was as follows: benzene, 1.1 mg/kg; toluene, 43 mg/kg; ethylbenzene, 10 mg/kg; total xylenes, 110 mg/kg; total BTEX, 164 mg/kg; and total petroleum hydrocarbons (TPH), 3,380 mg/kg (see Appendix B).

A phase II soil re-excavation was conducted in November 1995. The surficial dimensions of the re-excavated area were 19 feet by 19 feet, and the depth was 19 feet bgs. Approximately 234 cy of source material were removed and disposed of at the Envirotech land farm. The headspace soil reading from the bottom of the excavation was 208 ppm and no groundwater was encountered. Soil analytical data for the sample were as follows: benzene, < 0.5 mg/kg; toluene, 4.4 mg/kg; ethylbenzene, 5.7 mg/kg; total xylenes, 48.5 mg/kg; total BTEX, 58.6 mg/kg; and total petroleum hydrocarbons (TPH), 828 mg/kg (see Appendix B).

In February 1997, a soil boring was drilled in the center of the pit to a depth of 32 feet bgs. A soil sample was collected from the interval from 20 to 22 feet bgs. The headspace soil reading from the sample was 2000 ppm, and the analytical data for the soil sample were as follows: benzene, < 0.5 mg/kg; toluene, < 0.5 mg/kg; ethylbenzene, < 0.5 mg/kg; total xylenes, < 1.5 mg/kg; total BTEX, 3 mg/kg; and total petroleum hydrocarbons (TPH), 311 mg/kg (see Appendix C). Groundwater was encountered in the borehole at 22 feet bgs, and monitoring well MW-1 was constructed and screened from 15

to 30 feet bgs (see Appendix D). Groundwater sampling was initiated in 1997. Periodically in 1999 through 2001, a small amount of free-product was detected and removed from MW-1. A total of approximately 0.5 gallons was removed during this period.

In June 1998, oxygen releasing compound (ORC) slurry was injected into the subsurface via three borings, each containing 10 pounds of ORC for a total of 30 pounds. Appendix E contains the injection borelogs and ORC boring location map.

Monitoring wells MW-2 and MW-3 were drilled and installed in May 1999. MW-2 was placed to the northwest of MW-1 and MW-3 was placed to the southwest of MW-1. Both wells were installed to a total depth of 30 feet bgs, with screened intervals between 15 and 13 feet bgs. Initial groundwater samples were collected from these wells in 1999 and analytical data for BTEX compounds were all below detection limits. Subsequent samples collected from these wells in January 2001 also indicated BTEX concentrations below the detection limits. Historic analytical data for monitoring wells MW-1, MW-2 and MW-3 are presented in Table 1. Because analytical data reports from prior years has been submitted in previous annual reports, only the analytical data reports for 2003 are included with this report as Appendix F. Similarly, field documentation for 2003 activities are included in Appendix G.

SUMMARY OF 2003 ACTIVITIES

MW-1: Quarterly groundwater sampling and water level monitoring was performed in 2003. First quarter analytical results for benzene and total xylenes were above NMWQCC standards. However, BTEX analytical results from the second, third and fourth quarters were all below standards, representing three consecutive quarters of data below closure standards.

MW-2: Quarterly water level monitoring was performed, and groundwater samples were collected for closure in June and December 2003. BTEX concentrations during both of these sampling events were below analytical detection limits and closure standards.

MW-3: Quarterly water level monitoring was performed, and groundwater samples were collected for closure in June and December 2003. BTEX concentrations during both of these sampling events were below analytical detection limits and closure standards.

SITE MAPS

Site maps (March, June, September and December) are attached in figures 1 through 4, which present 2003 analytical data and the locations of the former pit and monitoring wells.

SUMMARY TABLES AND GRAPHS

Historic analytical data (1997 through present) are summarized in Table 1 and presented graphically in Figures 5 through 7 for wells MW-1, MW-2 and MW-3, respectively.

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

EPFS excavated a total of 304 cy of source material from the former pit during 1994 and 1995. A confirmation soil sample from the pit following the final excavation indicated a benzene concentration below the detection limit (< 0.5 mg/kg). A monitoring well, MW-1, was installed in the former pit in 1997, and analytical data indicated benzene and total xylenes concentrations (39.4 and 785 µg/L, respectively) above standards. Concentrations fluctuated between 1997 and early 2003, until June 2003 when concentrations of BTEX compounds consistently fell below closure standards. BTEX concentrations were below closure standards in MW-1 for three consecutive quarters in 2003. Historic BTEX concentrations in MW-2 and MW-3, including samples collected in June and December 2003, have consistently been below analytical detection limits.

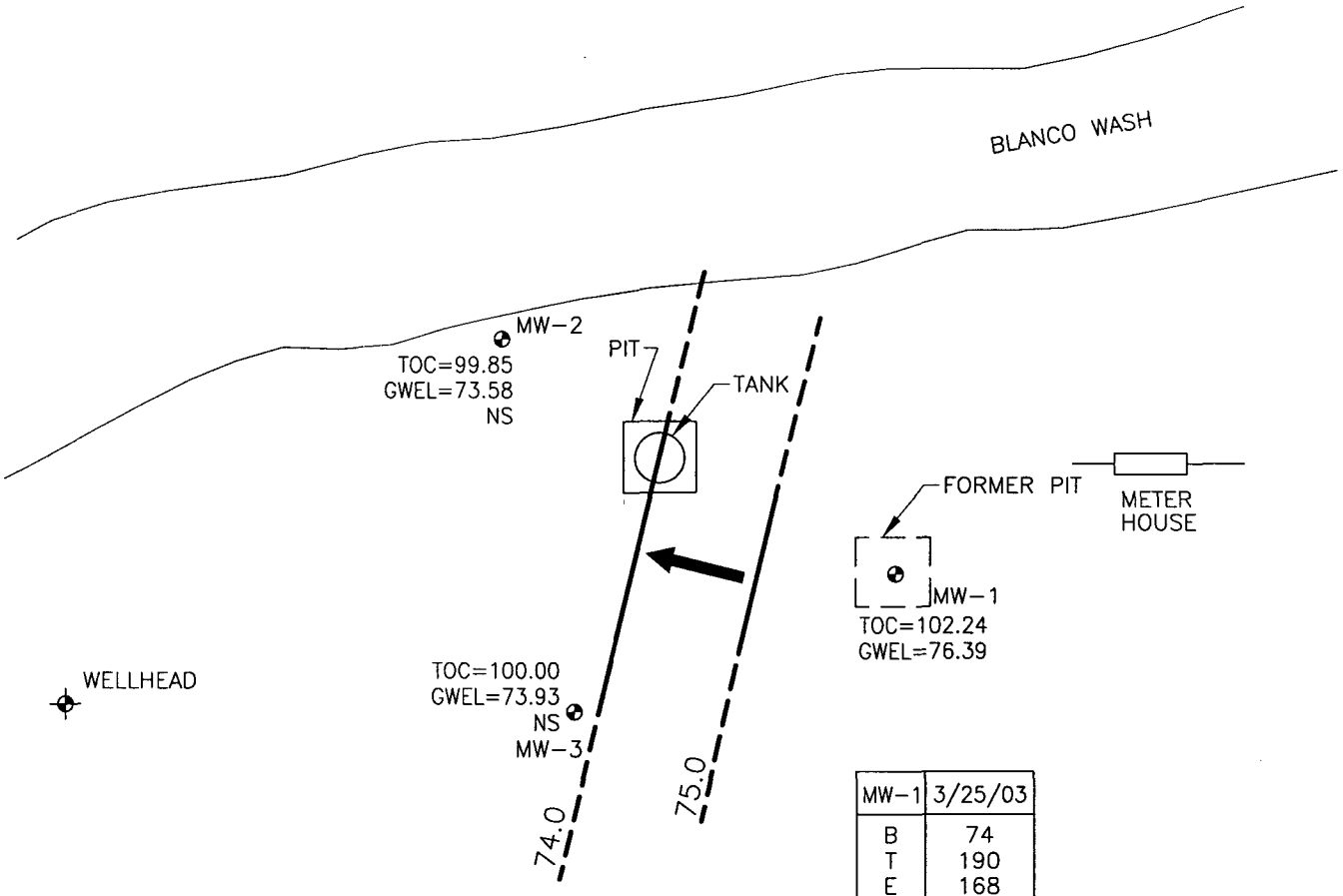
Minimal impact to groundwater exists at this site. Based on the data presented in this, and previous annual reports, the site poses minimal risk to human health and the environment. Furthermore, no potential receptors exist within 1,000 feet of the site and the majority of source material has been removed from the former EPFS pit. Therefore, EPFS requests that this site be closed, and MW-1, MW-2 and MW-3 be approved for abandonment.

RECOMMENDATIONS

- Navajo Nation EPA closure criteria have been met. EPFS requests closure of this site.
- Following NNEPA and USEPA approval for closure, MW-1, MW-2 and MW-3 will be abandoned in accordance with the approved Monitoring Well Abandonment Plan.

TABLE 1
SUMMARY OF HISTORIC BTEX COMPOUNDS IN GROUNDWATER SAMPLES
JENNEPAH #1 (METER #71816)

Site Name	Monitoring Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Groundwater Elevation (ft btoc)
Jennepah #1	MW-1	3/13/1997	39.4	352	89.2	785	76.56
Jennepah #1	MW-1	6/10/1997	10.3	53.5	28.4	233	76.69
Jennepah #1	MW-1	9/25/1997	21	185	51.2	520	77.02
Jennepah #1	MW-1	12/5/1997	23.4	211	73.5	674	77.24
Jennepah #1	MW-1	3/26/1998	18.5	171	69.1	701	77.33
Jennepah #1	MW-1	6/2/1998	12.3	134	62.2	548	77.10
Jennepah #1	MW-1	9/10/1998	20.7	165	105	882	77.50
Jennepah #1	MW-1	12/15/1998	9.8	79	61	460	77.84
Jennepah #1	MW-1	3/16/1999	8.2	79.5	64.7	437	77.87
Jennepah #1	MW-1	6/14/1999	9.6	110	70	520	77.70
Jennepah #1	MW-1	9/20/1999	9	310	200	1,900	76.19
Jennepah #1	MW-1	12/13/1999	< 1.0	17	73	550	76.11
Jennepah #1	MW-1	3/16/2000	1.3	32	58	470	76.16
Jennepah #1	MW-1	6/12/2000	< 1.0	18	52	430	76.16
Jennepah #1	MW-1	9/25/2000	41	350	300	2,400	75.71
Jennepah #1	MW-1	12/12/2000	210	1,200	1,900	14,000	75.76
Jennepah #1	MW-1	12/17/2001	< 1.0	15	32	260	76.54
Jennepah #1	MW-1	3/18/2002	< 1.0	7.3	13	150	76.21
Jennepah #1	MW-1	6/5/2002	11	< 1.0	14	94	76.01
Jennepah #1	MW-1	9/17/2002	32	52	27	140	72.25
Jennepah #1	MW-1	12/23/2002	27.4	67.1	62.5	338	76.44
Jennepah #1	MW-1	3/25/2003	74	190	168	788	76.39
Jennepah #1	MW-1	6/24/2003	< 1.0	< 1.0	< 1.0	44.1	76.12
Jennepah #1	MW-1	9/23/2003	< 1.0	< 1.0	< 1.0	38.1	76.45
Jennepah #1	MW-1	12/16/2003	< 1.0	< 1.0	< 1.0	19	76.78
Jennepah #1	TW2	5/11/1999	< 1.0	< 1.0	< 1.0	< 3.0	not surveyed
Jennepah #1	MW-2	1/29/2001	< 1.0	< 1.0	< 1.0	< 3.0	75.47
Jennepah #1	MW-2	6/24/2003	< 1.0	< 1.0	< 1.0	< 3.0	73.30
Jennepah #1	MW-2	12/16/2003	< 1.0	< 1.0	< 1.0	< 3.0	73.93
Jennepah #1	TW3	5/11/1999	< 1.0	< 1.0	< 1.0	< 3.0	not surveyed
Jennepah #1	MW-3	1/29/2001	< 1.0	< 1.0	< 1.0	< 3.0	75.88
Jennepah #1	MW-3	6/24/2003	< 1.0	< 1.0	< 1.0	< 3.0	73.64
Jennepah #1	MW-3	12/16/2003	< 1.0	< 1.0	< 1.0	< 3.0	74.12



MW-1	3/25/03
B	74
T	190
E	168
X	788

LEGEND

MW-1	Approximate Monitoring Well Location and Number
B	Benzene (μg/L)
T	Toluene (μg/L)
E	Ethylbenzene (μg/L)
X	Total Xylenes (μg/L)
NS	Not Sampled
GWEL	Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
TOC	Top of Casing
75.0	Potentiometric Surface (Approximate & Assumed Where Dashed)
→	Direction of Groundwater Flow (Estimated)

N

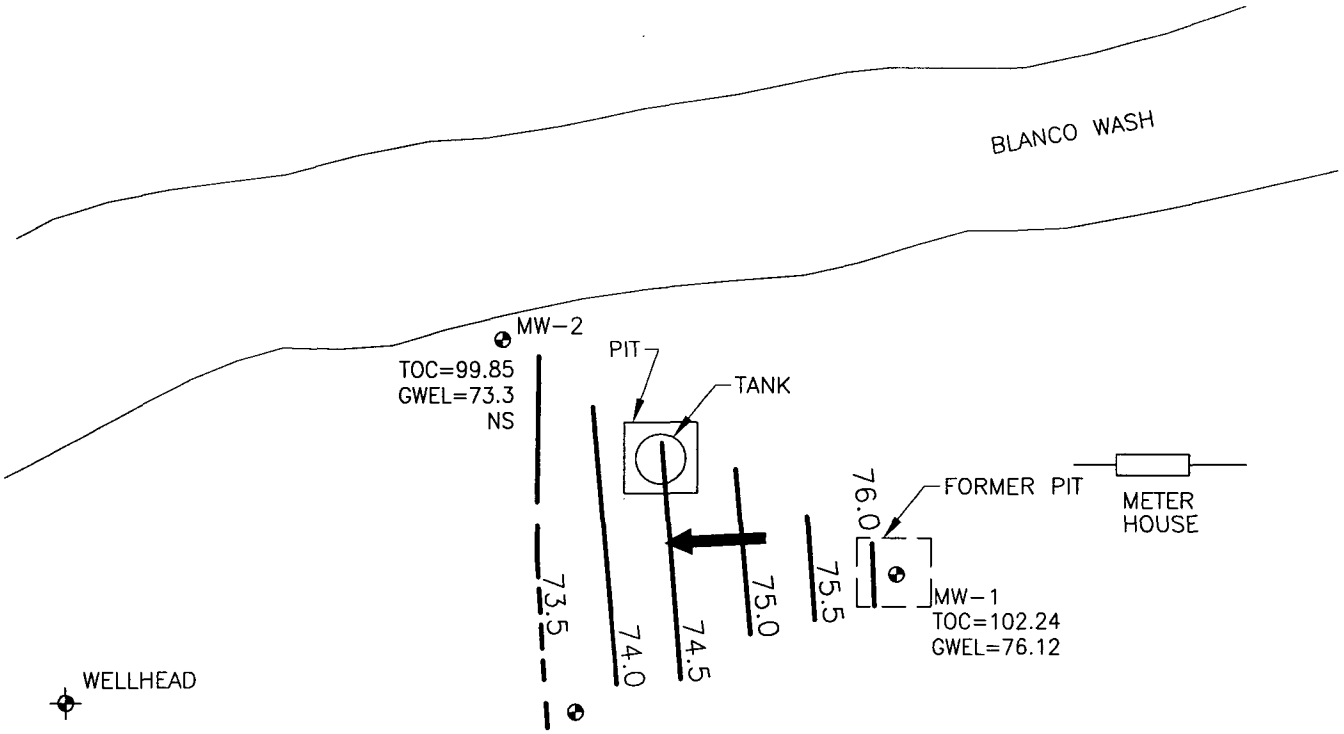
NOT TO SCALE

jennapah_03.dwg

JENNAPAH #1, METER 71816
MARCH 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 1



	MW-1	MW-2	MW-3
B	<1.0	<1.0	<1.0
T	<1.0	<1.0	<1.0
E	<1.0	<1.0	<1.0
X	44.1	<3.0	<3.0

LEGEND

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

N

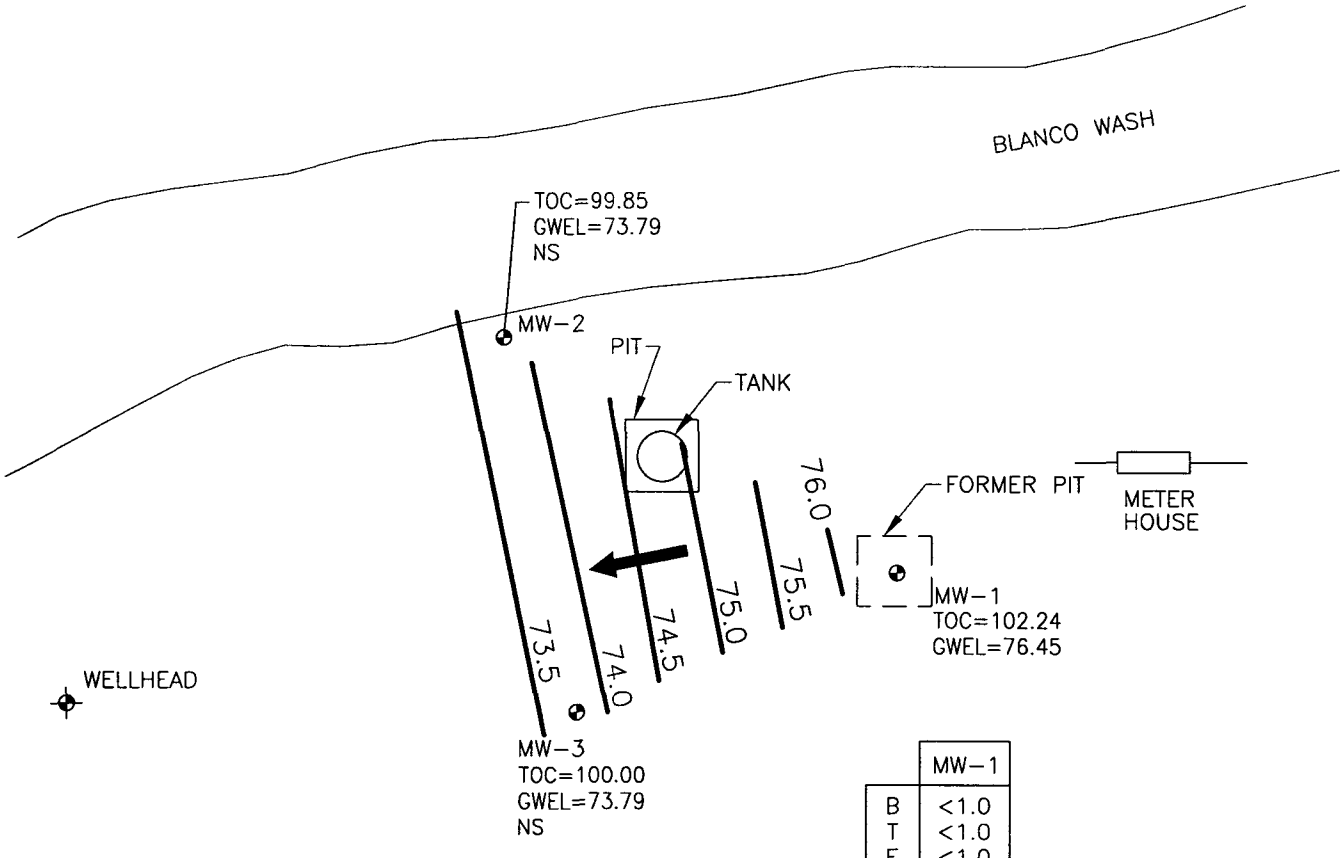
NOT TO SCALE

jennapah_03.dwg

JENNAPAH #1, METER 71816
JUNE 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 2



	MW-1
B	<1.0
T	<1.0
E	<1.0
X	38.1

LEGEND

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

N

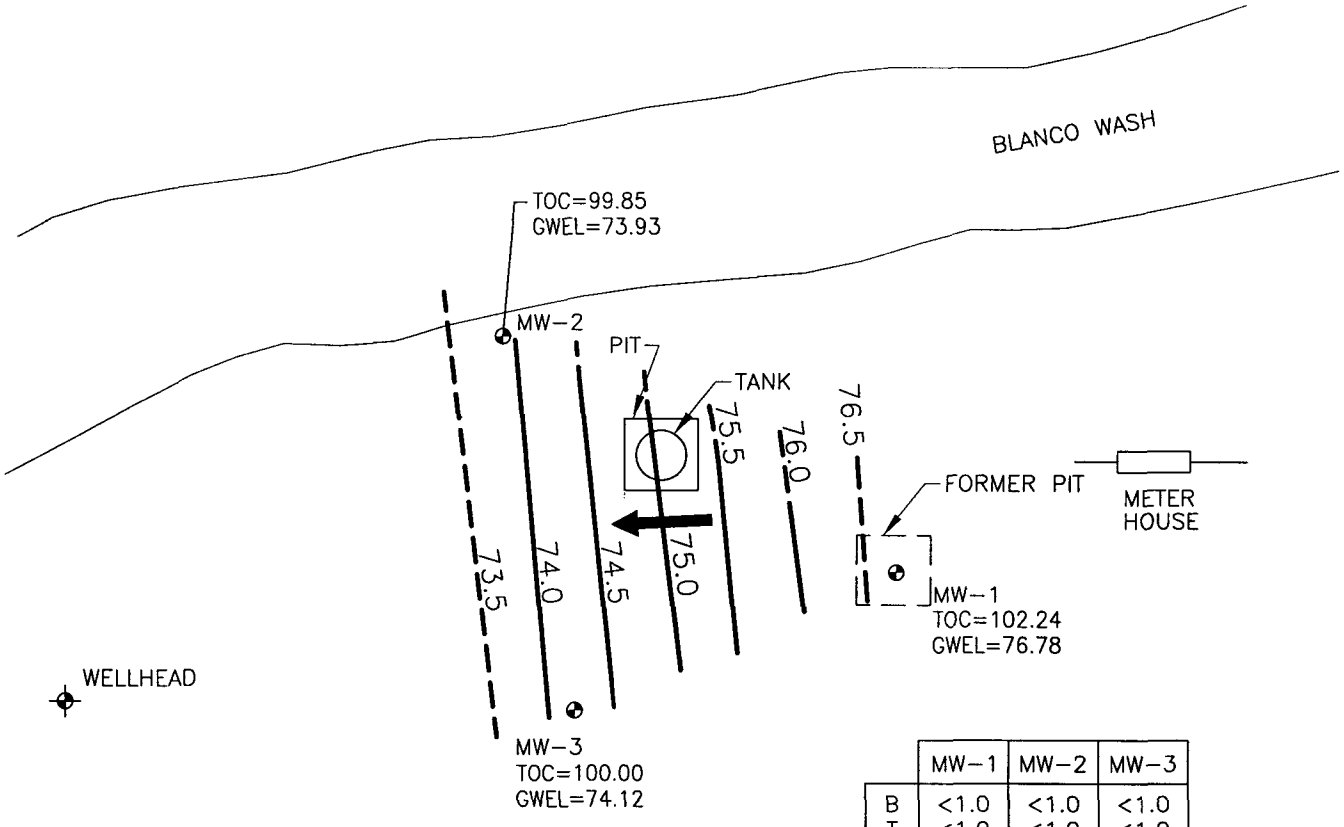
NOT TO SCALE

jennapah_03.dwg

JENNAPAH #1, METER 71816
SEPTEMBER 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 3



	MW-1	MW-2	MW-3
B	<1.0	<1.0	<1.0
T	<1.0	<1.0	<1.0
E	<1.0	<1.0	<1.0
X	19J	<3.0	<3.0

LEGEND

MW-1	Approximate Monitoring Well Location and Number
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.
J	Value Estimated. May Be Biased High.
GWEL	Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
TOC	Top of Casing
75.6	Potentiometric Surface (Assumed Where Dashed)
→	Direction of Groundwater Flow (Estimated)

N

NOT TO SCALE

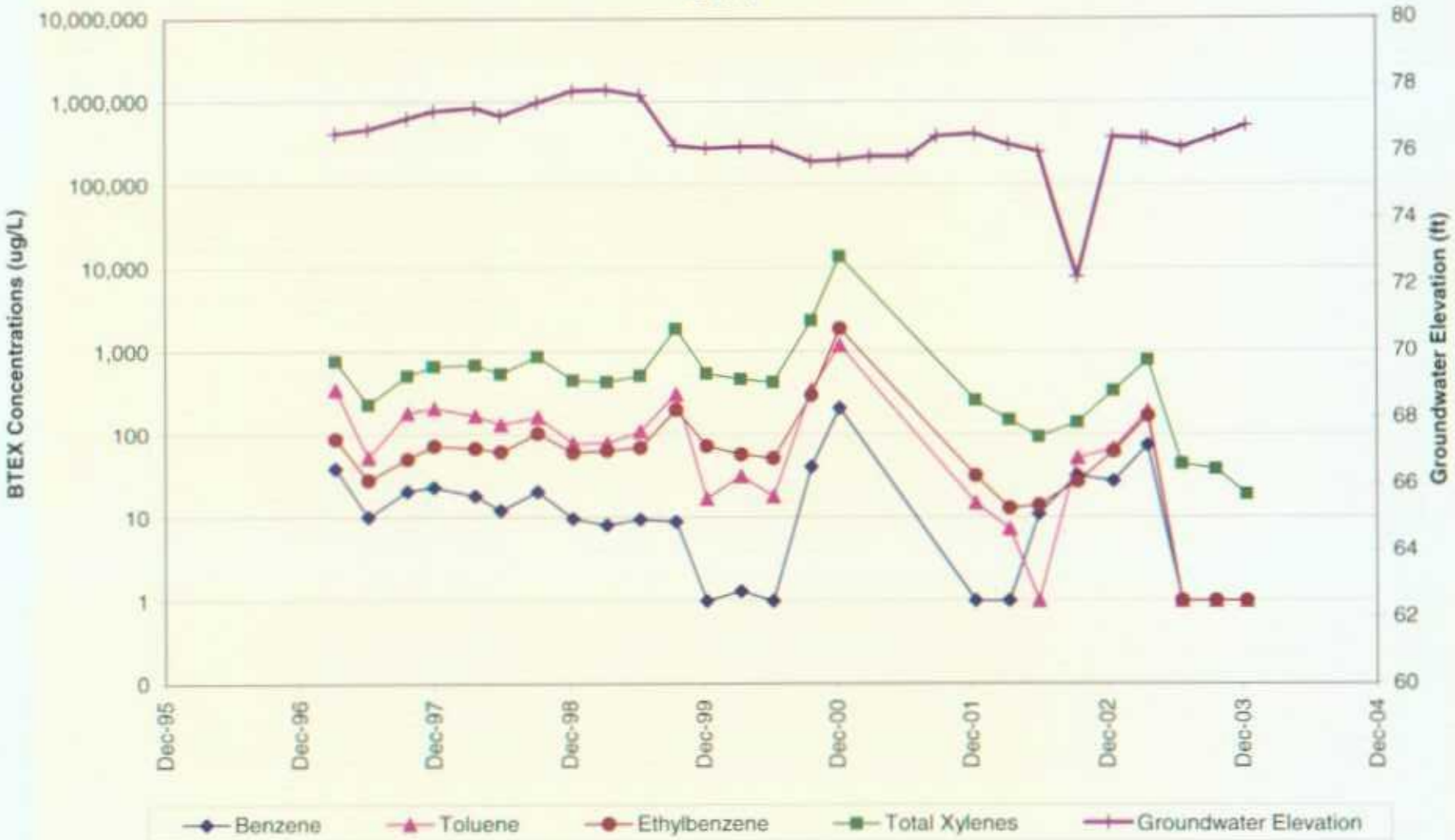
jennapah_03.dwg

JENNAPAH #1, METER 71816
DECEMBER 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 4

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

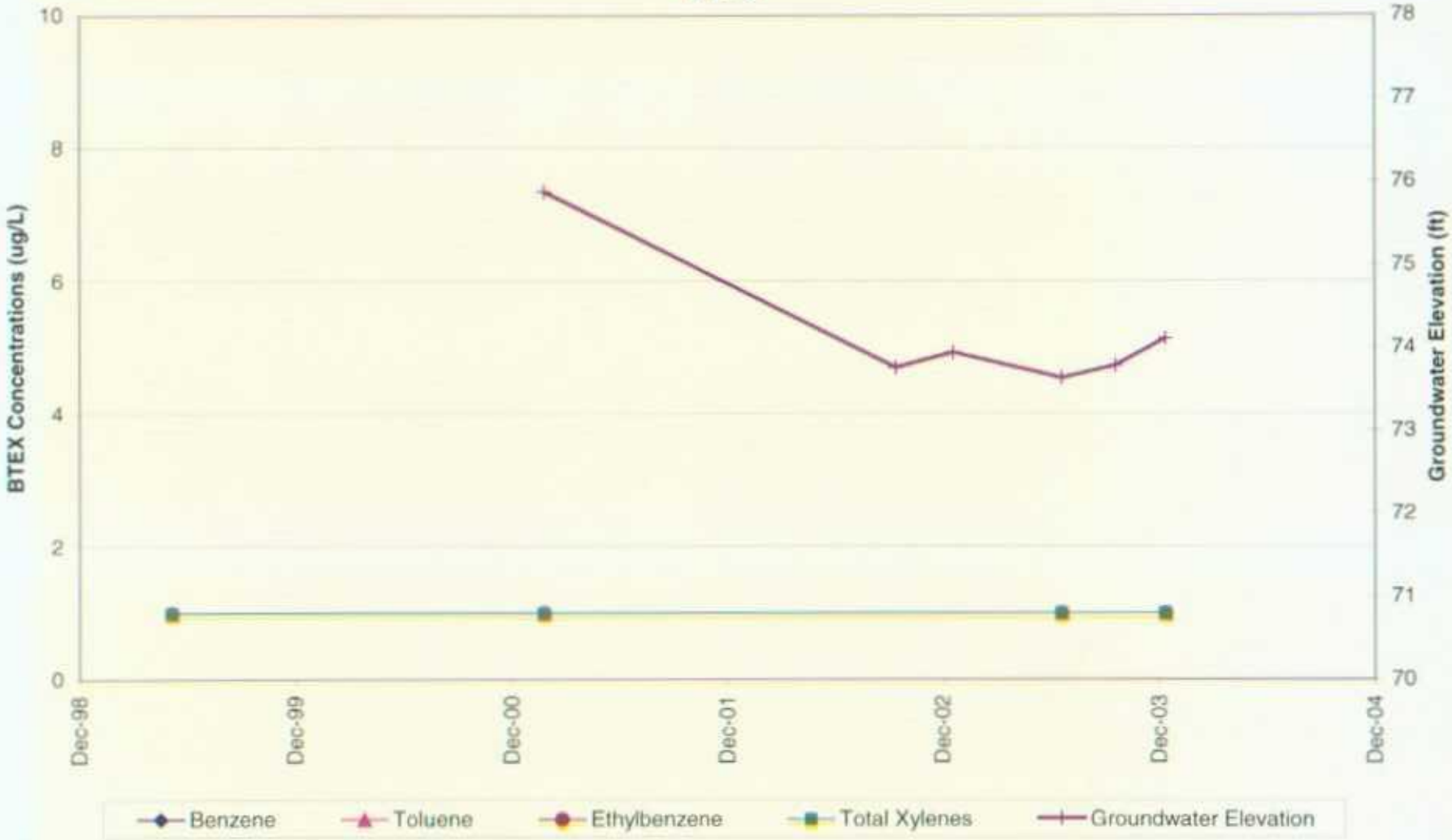


2003 Jennepah.xls,Jennepah MW1

FIGURE 6
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
JENNEPAH #1
MW-2

2003 Jennepah.xls,Jennepah MW2

FIGURE 7
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
JENNEPAH #1
MW-3



2003 Jennepah.xls,Jennepah MW3

APPENDIX A

PHASE I PIT SITE ASSESSMENT
(1994)

FIELD PIT SITE ASSESSMENT FORM

GENERAL

Meter: 71816 Location: Jennapah No 1
Operator #: 0207 Operator Name: Amoco P/L District: Blanco
Coordinates: Letter: H Section 36 Township: 28 Range: 9
Or Latitude _____ Longitude _____
Pit Type: Dehydrator ___ Location Drip: ✓ Line Drip: ___ Other: _____
Site Assessment Date: 5/17/94 Area: 03 Run: 02

SITE ASSESSMENT

NMOCD Zone: (From NMOCD Maps) Inside ☒ (1) Outside ☐ (2)

Land Type: BLM ☐ (1) State ☐ (2) Fee ☐ (3) Indian Navajo Tribe

Depth to Groundwater
Less Than 50 Feet (20 points) ☒ (1)
50 Ft to 99 Ft (10 points) ☐ (2)
Greater Than 100 Ft (0 points) ☐ (3)

Wellhead Protection Area :
Is it less than 1000 ft from wells, springs, or other sources of fresh water extraction? , or ; Is it less than 200 ft from a private domestic water source? ☐ (1) YES (20 points) ☒ (2) NO (0 points)

Horizontal Distance to Surface Water Body
Less Than 200 Ft (20 points) ☒ (1)
200 Ft to 1000 Ft (10 points) ☐ (2)
Greater Than 1000 Ft (0 points) ☐ (3)
Name of Surface Water Body Blanco Canyon
(Surface Water Body : Perennial Rivers, Major Wash, Streams, Creeks, Irrigation Canals, Ditches, Lakes, Ponds)
Distance to Nearest Ephemeral Stream ☒ (1) < 100' (Navajo Pits Only)
☐ (2) > 100'

TOTAL HAZARD RANKING SCORE: 40 **POINTS**

REMARKS

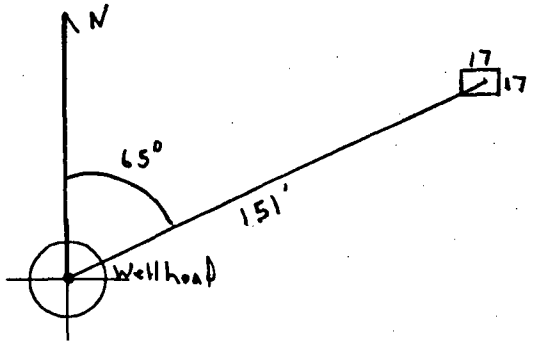
Remarks : Redline & Valv - Inside
3 pits Will Dig & Haul | Pit Dry
Dig & Haul

ORIGINAL PIT LOCATION

ORIGINAL PIT LOCATION

Original Pit : a) Degrees from North 65° Footage from Wellhead 151'

b) Length : 17' Width : 17' Depth : 1'



REMARKS

Remarks :

Pictures @ 10:00 (19~22)

End Dump

Completed By:

Cory Chase
Signature

5/17/94
Date

APPENDIX B

PIT EXCAVATION AND SOIL SAMPLE RESULTS (1994, 1995)

FIELD PIT REMEDIATION/CLOSURE FORM

GENERAL

Meter: 71816 Location: JENNAPAH NO#1

Coordinates: Letter: H Section 36 Township: 28 Range: 9

Or Latitude _____ Longitude _____

Date Started : 6-1-94 Area: 03 Run: 82

FIELD OBSERVATIONS

Sample Number(s): KP #73 _____ _____ _____

Sample Depth: 12' Feet

Final PID Reading 314 PID Reading Depth 12' Feet

Yes No

Groundwater Encountered ☐ (1) ☒ (2) Approximate Depth _____ Feet

CLOSURE

Remediation Method :

Excavation ☒ (1) Approx. Cubic Yards 70

Onsite Bioremediation ☐ (2)

Backfill Pit Without Excavation ☐ (3)

Soil Disposition:

Envirotech ☐ (1) ☒ (3) Tierra

Other Facility ☐ (2) Name: _____

Pit Closure Date: 6-1-94 Pit Closed By: B.O.I

REMARKS

Remarks : SOME LINE MARKERS. STARTED REMEDIATING 12' SOIL DARK GRAY. SMELL BAD. AT 12 SOIL STILL THE SAME. PID 314.

Signature of Specialist: Kelly Padilla

(SP3191) 04/07/94

El Paso Natural Gas Company

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT - Soil

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	KP 73	945329
MTR CODE | SITE NAME:	71814	N/A
SAMPLE DATE | TIME (Hrs):	6-1-94	1123
SAMPLED BY:	N/A	
DATE OF TPH EXT. | ANAL.:	6-2-94	6/2/94
DATE OF BTEX EXT. | ANAL.:	6/6/94	6/7/94
TYPE | DESCRIPTION:	VC	BROWN GRAY COARSE SAND

REMARKS: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q	M(g)	V(ml)
BENZENE	1.1	MG/KG	25			
TOLUENE	43	MG/KG	25			
ETHYL BENZENE	10	MG/KG	25			
TOTAL XYLENES	110	MG/KG	25			
TOTAL BTEX	164	MG/KG				
TPH (418.1)	3380	MG/KG			1.99	28
HEADSPACE PID	314	PPM				
PERCENT SOLIDS	93.5	%				

– TPH is by EPA Method 418.1 and BTEX is by EPA Method 8020 –

he Surrogate Recovery was at 35 % for this sample All QA/QC was acceptable.

arrative:
ATI results attached. Surrogate recovery was outside ATI QC limits due to matrix interference.

F = Dilution Factor Used

pproved By: John Fowler Date: 7/14/94

Analytical **Technologies,** Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. **406313**

June 30, 1994

El Paso Natural Gas
P.O. Box 4990
Farmington, NM 87499

Project Name/Number: PIT CLOSURE 24324

Attention: John Lambdin

On **06/03/94**, Analytical Technologies, Inc., (ADHS License No. AZ0015), received a request to analyze **non-aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

This report is being reissued to correct the client I.D. for ATI #406313-03 on the results page.

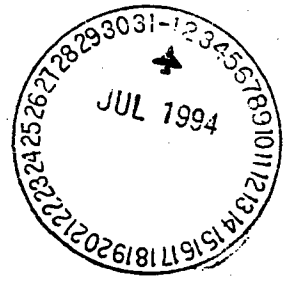
This report is being reissued in part to correct notations for samples: 945329, 945332 and 94533.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jd

Enclosure



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST : BTEX (EPA 8020)

CLIENT : EL PASO NATURAL GAS ATI I.D.: 406313

PROJECT # : 24324

PROJECT NAME : PIT CLOSURE

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
13	945329	NON-AQ	06/01/94	06/06/94	06/07/94	25
14	945330	NON-AQ	06/01/94	06/06/94	06/07/94	1
15	945331	NON-AQ	06/01/94	06/06/94	06/07/94	1

PARAMETER	UNITS	13	14	15
BENZENE	MG/KG	1.1	<0.25	<0.025
TOLUENE	MG/KG	43	<0.25	<0.025
ETHYLBENZENE	MG/KG	10	0.035	<0.025
TOTAL XYLENES	MG/KG	110	0.37	0.054
SURROGATE:				
BROMOFLUOROBENZENE (%)		35*	98	94

*OUTSIDE ATI QUALITY CONTROL LIMITS DUE TO MATRIX INTERFERENCE

****
Test Method for
Oil and Grease and Petroleum Hydrocarbons
in Water and Soil

Perkin-Elmer Model 1600 FT-IR
Analysis Report
****

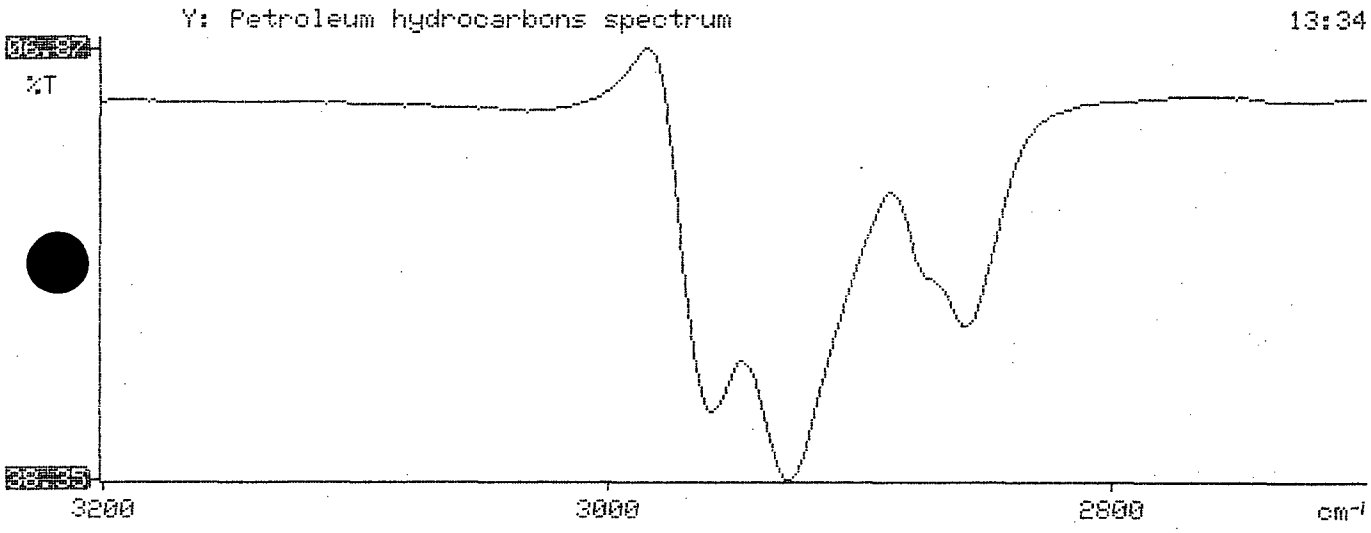
94/06/02 13:34

Sample identification
945329

Initial mass of sample, g
1.990

Volume of sample after extraction, ml
28.000

Petroleum hydrocarbons, ppm
3382.929
Net absorbance of hydrocarbons (2930 cm-1)
0.410



El Paso Natural Gas Company

CHAIN OF CUSTODY RECORD

Page _____ of _____

PROJECT NUMBER	PROJECT NAME
11957	Pit Closure Project # 24324

SAMPLERS: (Signature) Kelly Padilla

DATE: 6-1-94

	LAB ID	DATE	TIME	MATRIX	SAMPLE NUMBER	TOTAL NUMBER OF CONTAINERS	SAMPLE TYPE	REQUESTED ANALYSIS: TPH EPA 418.1	BTEX EPA 8020		SEQ			CONTRACT LABORATORY P. O. NUMBER / REMARKS
94	S329	6-1-94	1122	Soil	KP #73	1	VC	X	X		65			
94	S330	6-1-94	1150	Soil	KP #74	1	VG	X	X		66			
94	S331	6-1-94	1220	Soil	KP #75	1	VG	X	X		67			
94	S332	6-1-94	1534	Soil	KP #76	1	VC	X	X		68			
94	S333	6-1-94	1646	Soil	KP #77	1	VC	X	X		69			

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Kelly Padilla	6-1-94 1830	Brenda Kiess 2800	Brenda Kiess	6/2/94 1015	
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED OF LABORATORY BY: (Signature)

REQUESTED TURNAROUND TIME:
☐ ROUTINE ☐ RUSH _____

CARRIER CO.

BILL NO.:

SAMPLE RECEIPT REMARKS

CHARGE CODE

RESULTS & INVOICES TO:

FIELD SERVICES LABORATORY
EL PASO NATURAL GAS COMPANY
P. O. BOX 4990
FARMINGTON, NEW MEXICO 87499
505-599-2144 FAX: 505-599-2261

White - Testing Laboratory Canary - EPNG Lab Pink - Field Sampler

FM-08-0565A (Rev. 03-9

FIELD PIT REMEDIATION/CLOSURE FORM/PHASE II

GENERAL

Meter: 71816 Location: Jennapah No. 1

Coordinates: Letter: H Section 36 Township: 28 Range: 9

Or Latitude _____ Longitude _____

Date Started : 11/16/95 Area: 03 Run: 82

FIELD OBSERVATIONS

Sample Number(s): JK140 _____ _____ _____

Sample Depth: 19' Feet

Final PID Reading 208.0 PID Reading Depth 19 Feet

Yes No

Groundwater Encountered ☐ (1) ☒ (2) Approximate Depth _____ Feet

Final Dimensions: Length 19' Width 19' Depth 19'

CLOSURE

Remediation Method :

Excavation ☒ (1) Approx. Cubic Yards 234 LT 12/1/95

Onsite Bioremediation ☐ (2)

Backfill Pit Without Excavation ☐ (3)

Overburden Cubic Yards 60 yds

Soil Disposition:

Envirotech ☒ (1) ☐ (3) Tierra

Other Facility ☐ (2) Name: _____

Pit Closure Date: 11-17-95 LT 12/01/95 Pit Closed By: PhiLiP

REMARKS

Remarks : Pit Pid Readings (N-89.5)(S-25.2)(E-16.4)(W-16.1)
Less Than 100' From Ephemral Strem.
No Fence E.P.N.G Alton James on site

Signature of Specialist: James K. Kirj

(SP3195) 05/01/95

El Paso Natural Gas Company

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT - Soil Samples Inside the GWV Zone

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	JK140	947790
MTR CODE | SITE NAME:	71816	Jenna Pah No. 1
SAMPLE DATE | TIME (Hrs):	11-16-95	1130
PROJECT:	Phase I Navajo	
DATE OF TPH EXT. | ANAL.:	11/17/95	
DATE OF BTEX EXT. | ANAL.:	11/20/95	11/20/95
TYPE | DESCRIPTION:	VG	Brown Sand

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q	M(g)	V(ml)
BENZENE	< 0.5	MG/KG				
TOLUENE	4.4	MG/KG				
ETHYL BENZENE	5.7	MG/KG				
TOTAL XYLENES	48.5	MG/KG				
TOTAL BTEX	58.6	MG/KG				
TPH (418.1)	828	MG/KG			2.05	28
HEADSPACE PID	208	PPM				
PERCENT SOLIDS	77.6	%				

-- TPH is by EPA Method 418.1 and BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 103 % for this sample All QA/QC was acceptable.

Narrative:

DF = Dilution Factor Used

Approved By: _____ Date: 11/21/95

BTEX SOIL SAMPLE WORKSHEET

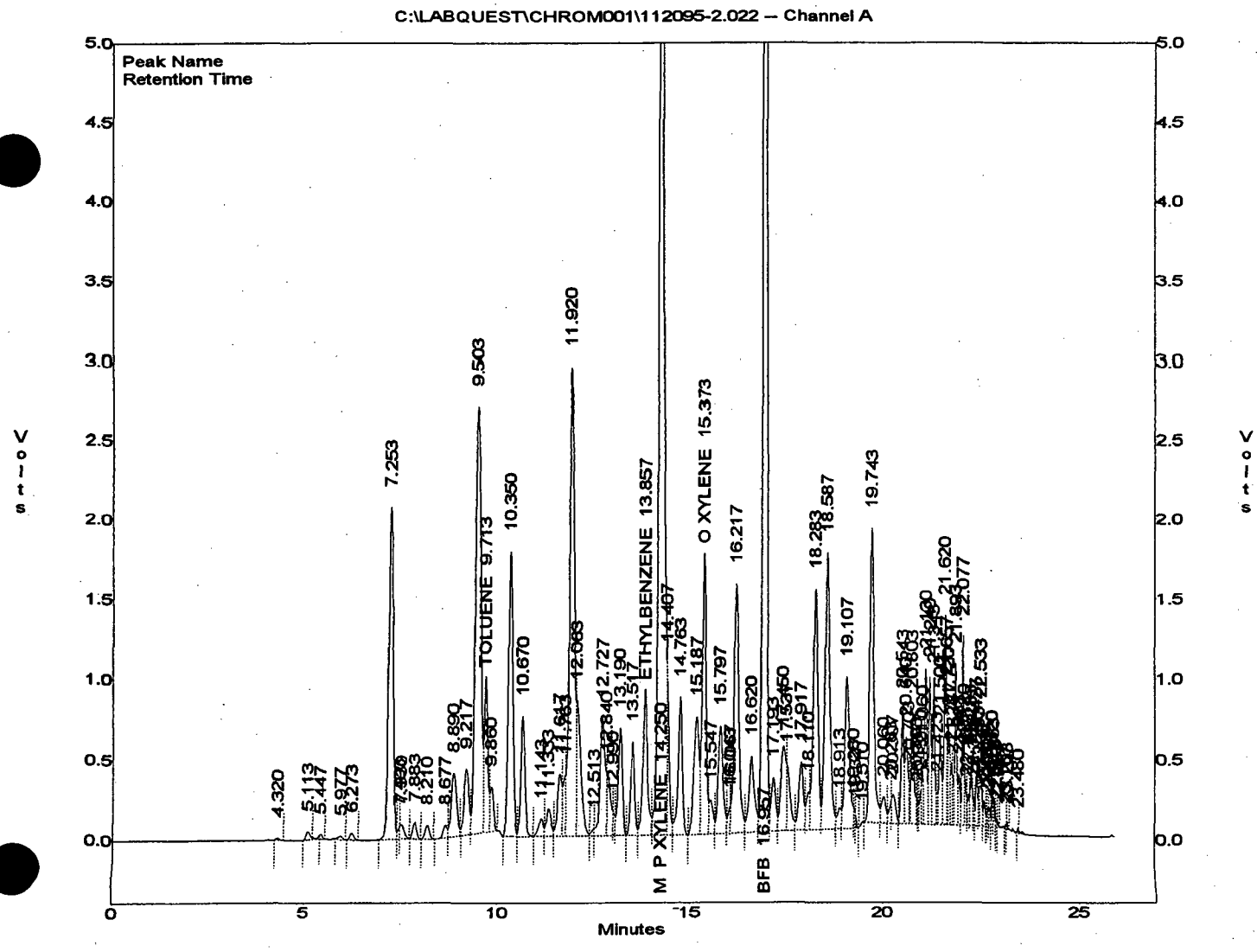
File	947790	**Date Printed**	11/21/95		
Soil Mass (g)	5.10	**Multiplier (L/g)**	0.00098		
Extraction vol. (mL)	10	**CAL FACTOR (Analytical):**	200		
Shot Volume (uL)	50	**CAL FACTOR (Report):**	0.19608		
		DILUTION FACTOR:	**1**	**Det. Limit**	
Benzene (ug/L)	0.00	**Benzene (mg/Kg):**	**0.000**	0.490	
Toluene (ug/L)	22.43	**Toluene (mg/Kg):**	**4.398**	0.490	
Ethylbenzene (ug/L)	29.32	**Ethylbenzene (mg/Kg):**	**5.749**	0.490	
p & m-xylene (ug/L)	197.42	p & m-xylene (mg/Kg):	38.710	0.980	
o-xylene (ug/L)	49.75	o-xylene (mg/Kg):	9.755	0.490	
		Total xylenes (mg/Kg):	**48.465**	1.471	
		Total BTEX (mg/Kg):	**58.612**		

EL PASO NATURAL GAS
EPA METHOD 8020 - BTEX SOILS

File : C:\LABQUEST\CHROM001\112095-2.022
Method : C:\LABQUEST\METHODS\1-112095.MET
Sample ID : 947790,5.10G,50U
Acquired : Nov 21, 1995 04:44:04
Printed : Nov 21, 1995 05:10:33
User : MARLON

Channel A Results

COMPONENT	RET TIME	AREA	CONC (ug/L)
BENZENE	5.603	0	0.0000
TOLUENE	9.713	6451324	22.4339
ETHYLBENZENE	13.857	7569423	29.3195
M & P XYLENE	14.250	59948040	197.4217
O XYLENE	15.373	12657514	49.7518
BFB	16.957	68031680	103.3437



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**********************************************************
*                    Test Method for                     *
*      Oil and Grease and Petroleum Hydrocarbons         *
*                  in Water and Soil                     *
*                                                        *
*          Perkin-Elmer Model 1600 FT-IR                 *
*                   Analysis Report                      *
**********************************************************
*
 95/11/17  16:33
*
*  Sample identification
 947790
*
*  Initial mass of sample, g
 2.050
*
*  Volume of sample after extraction, ml
 28.000
*
*  Petroleum hydrocarbons, ppm
 827.542
*  Net absorbance of hydrocarbons (2930 cm-1)
 0.113
*
*
*
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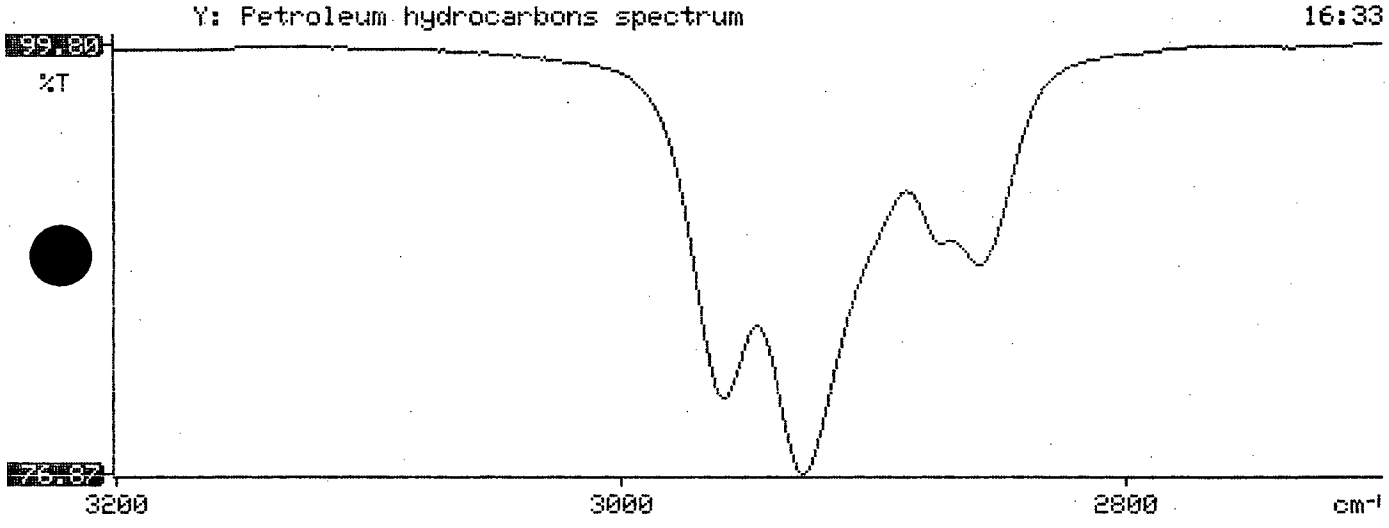


BTEX SOIL SAMPLE WORKSHEET

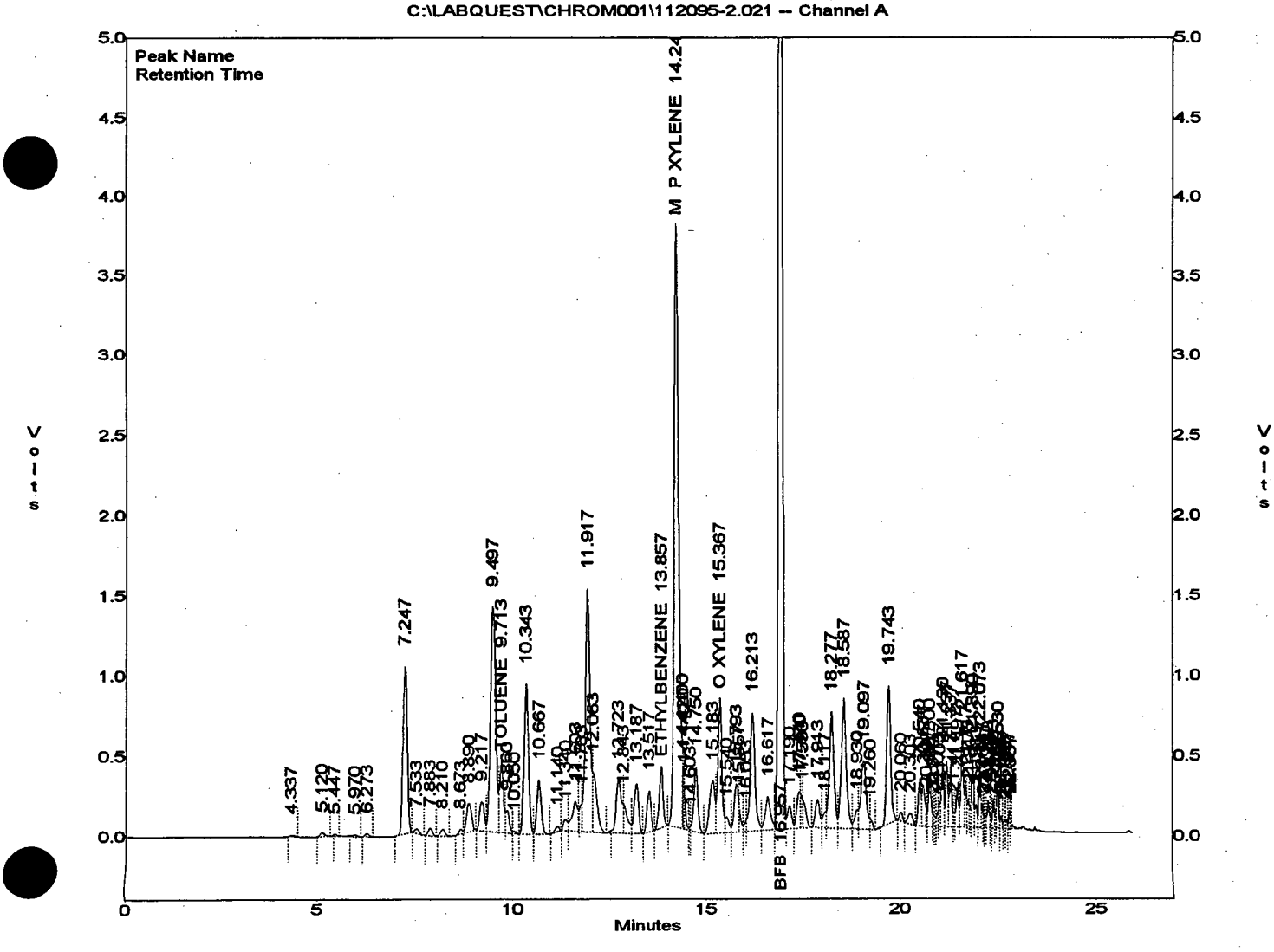
File	: 947790	**Date Printed**	: 11/21/95		
Soil Mass (g)	: 5.10	**Multiplier (L/g)**	: 0.00098		
Extraction vol. (mL)	: 10	**CAL FACTOR (Analytical):**	400		
Shot Volume (uL)	: 25	**CAL FACTOR (Report):**	0.39216		
		DILUTION FACTOR:	**2**	**Det. Limit**	
Benzene (ug/L)	: 0.00	**Benzene (mg/Kg):**	**0.000**	0.980	
Toluene (ug/L)	: 10.88	**Toluene (mg/Kg):**	**4.267**	0.980	
Ethylbenzene (ug/L)	: 11.29	**Ethylbenzene (mg/Kg):**	**4.427**	0.980	
p & m-xylene (ug/L)	: 97.57	p & m-xylene (mg/Kg):	38.263	1.961	
o-xylene (ug/L)	: 25.20	o-xylene (mg/Kg):	9.882	0.980	
		Total xylenes (mg/Kg):	**48.145**	2.941	
		Total BTEX (mg/Kg):	**56.839**		

EL PASO NATURAL GAS
EPA METHOD 8020 - BTEX SOILS

File : C:\LABQUEST\CHROM001\112095-2.021
Method : C:\LABQUEST\METHODS\1-112095.MET
Sample ID : 947790,5.10G,25U
Acquired : Nov 21, 1995 04:04:55
Printed : Nov 21, 1995 04:31:22
User : MARLON

Channel A Results

COMPONENT	RET TIME	AREA	CONC (ug/L)
BENZENE	5.603	0	0.0000
TOLUENE	9.713	3036492	10.8803
ETHYLBENZENE	13.857	2738793	11.2927
M & P XYLENE	14.240	30203248	97.5742
O XYLENE	15.367	5965838	25.1995
BFB	16.957	64555352	98.0630



El Paso Natural Gas Company

CHAIN OF CUSTODY RECORD

Page 1 of 1

PROJECT NUMBER	PROJECT NAME
# 24324	Pit Closure Project

SAMPLERS: (Signature) James K. Kirby DATE: 11/16/95

LAB ID	DATE	TIME	MATRIX	FIELD ID	TOTAL NUMBER OF CONTAINERS	SAMPLE TYPE	REQUESTED ANALYSIS: TPH EPA 418.1	BTEX EPA 8020	LAB PID			SEQUENCE #	REMARKS
94 7790	11/16/95	11:30	Soil	JK140	1	G	X	X					Jenna Pah No. 1 meter 71816

CONTRACT LABORATORY P. O. NUMBER

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
James K. Kirby	11/16/95 17:30	Julie Dudde	Julie Dudde	11/17/95 11:05	
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED OF LABORATORY BY: (Signature)

REQUESTED TURNAROUND TIME:
☐ ROUTINE ☐ RUSH

CARRIER CO.

BILL NO.:

SAMPLE RECEIPT REMARKS

CHARGE CODE

RESULTS & INVOICES TO:

FIELD SERVICES LABORATORY
EL PASO NATURAL GAS COMPANY
P. O. BOX 4990
FARMINGTON, NEW MEXICO 87499

505-599-2144 FAX: 505-599-2261

White - *Testing Laboratory* Canary - *EPNG Lab* Pink - *Field Sampler*

FM-08-0565 A (Rev. 05-94)

APPENDIX C

SOIL BORING SAMPLE RESULTS
(1997)

EPFS

EL PASO FIELD SERVICES
FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	DRC6	970112
MTR CODE | SITE NAME:	71816	Jennapha #1
SAMPLE DATE | TIME (Hrs):	2/14/97	900
PROJECT:	PHASE IIIDrilling 20-22'	
DATE OF TPH EXT. | ANAL.:	2/24/97	2/24/97
DATE OF BTEX EXT. | ANAL.:	2/26/97	2/26/97
TYPE | DESCRIPTION:	VG	Brown sand

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q	M(g)	V(ml)
BENZENE	<0.5	MG/KG				
TOLUENE	<0.5	MG/KG				
ETHYL BENZENE	<0.5	MG/KG				
TOTAL XYLENES	<1.5	MG/KG				
TOTAL BTEX	<3	MG/KG				
TPH (418.1)	311	MG/KG				
HEADSPACE PID	2000+	PPM				
PERCENT SOLIDS	96.5	%				

– TPH is by EPA Method 418.1 and BTEX is by EPA Method 8020 –

The Surrogate Recovery was at 98.1 % for this sample All QA/QC was acceptable.

Narrative:

Headspace reading was overange.

DF = Dilution Factor Used

Approved By: John Tabor INGVZPIT.XLS Date: 3-4-97

BTEX SOIL SAMPLE WORKSHEET

File	: 970112	Date Printed	: 3/4/97		
Soil Mass (g)	: 5.34	Multiplier (L/g)	: 0.00094		
Extraction vol. (mL)	: 10	CAL FACTOR (Analytical):	200		
Shot Volume (uL)	: 50	CAL FACTOR (Report):	0.18727		
		DILUTION FACTOR:	1	Det. Limit	
Benzene (ug/L)	: 0.00	Benzene (mg/Kg):	**0.000**	0.468	
Toluene (ug/L)	: 0.00	Toluene (mg/Kg):	**0.000**	0.468	
Ethylbenzene (ug/L)	: 0.00	Ethylbenzene (mg/Kg):	**0.000**	0.468	
p & m-xylene (ug/L)	: 2.67	p & m-xylene (mg/Kg):	0.500	0.936	
o-xylene (ug/L)	: 6.57	o-xylene (mg/Kg):	1.230	0.468	
		Total xylenes (mg/Kg):	**1.730**	1.404	
		Total BTEX (mg/Kg):	**1.730**		

EL PASO FIELD SERVICES LABORATORY
EPA METHOD 8020 - BTEX

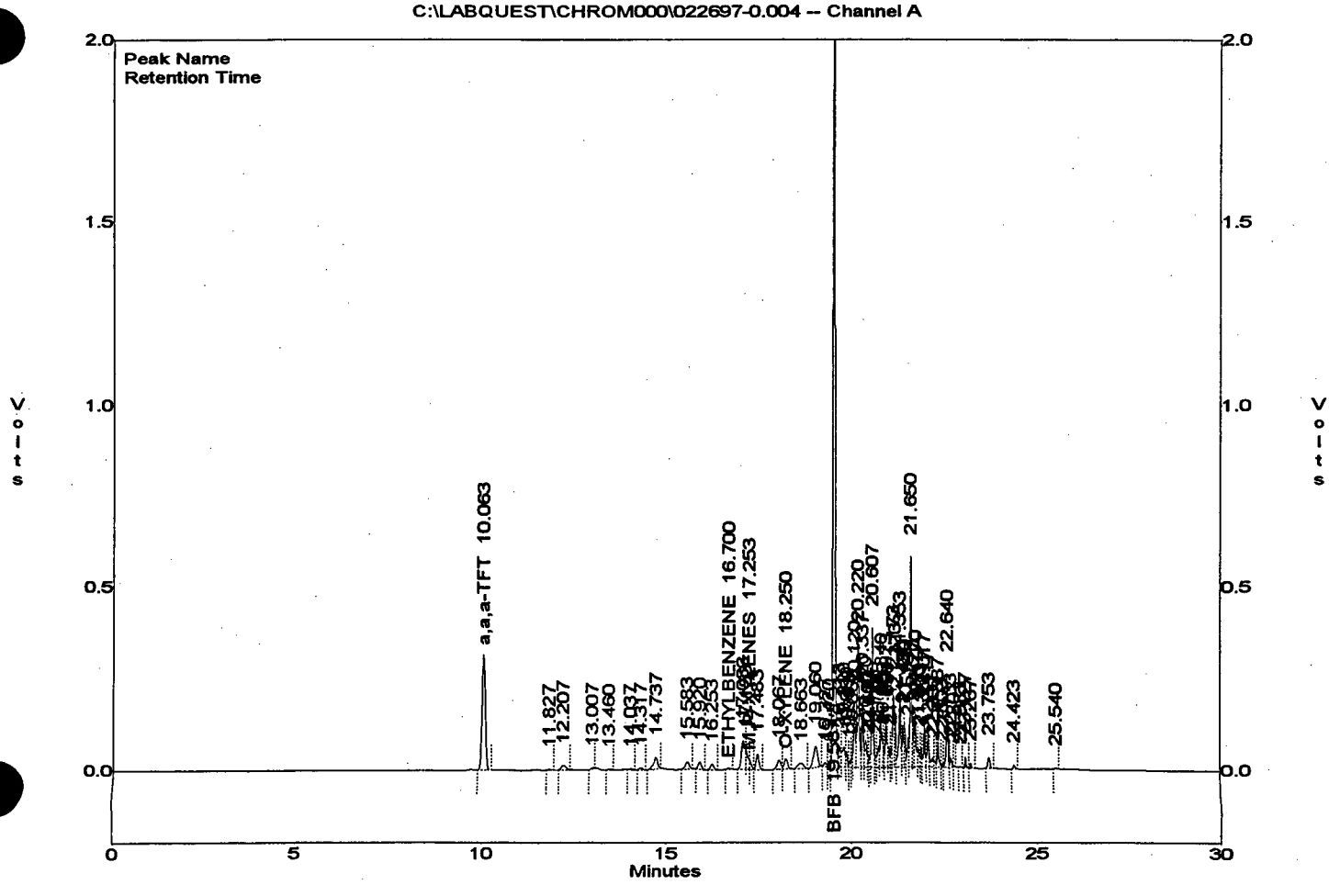
File : C:\LABQUEST\CHROM000\022697-0.004
Method : C:\LABQUEST\METHODS\0-013197.MET
Sample ID : 970112,5.34G,50U
Acquired : Feb 26, 1997 12:50:31
Printed : Feb 26, 1997 13:20:59
User : MARLON

Channel A Results

COMPONENT	RET TIME	AREA	CONC (ug/L)
BENZENE	7.800	0	0.0000
a,a,a-TFT	10.063	1946979	89.0386
TOLUENE	12.470	0	0.0000
ETHYLBENZENE	16.700	20378	0.9270
M,P-XYLENES	17.253	86794	2.6655
O-XYLENE	18.250	179474	6.5656
BFB	19.567	8045092	98.1185

Channel A Group Results

COMPONENT	RET TIME	AREA	CONC (ug/L)
TOTAL XYLENES		266269	9.2311



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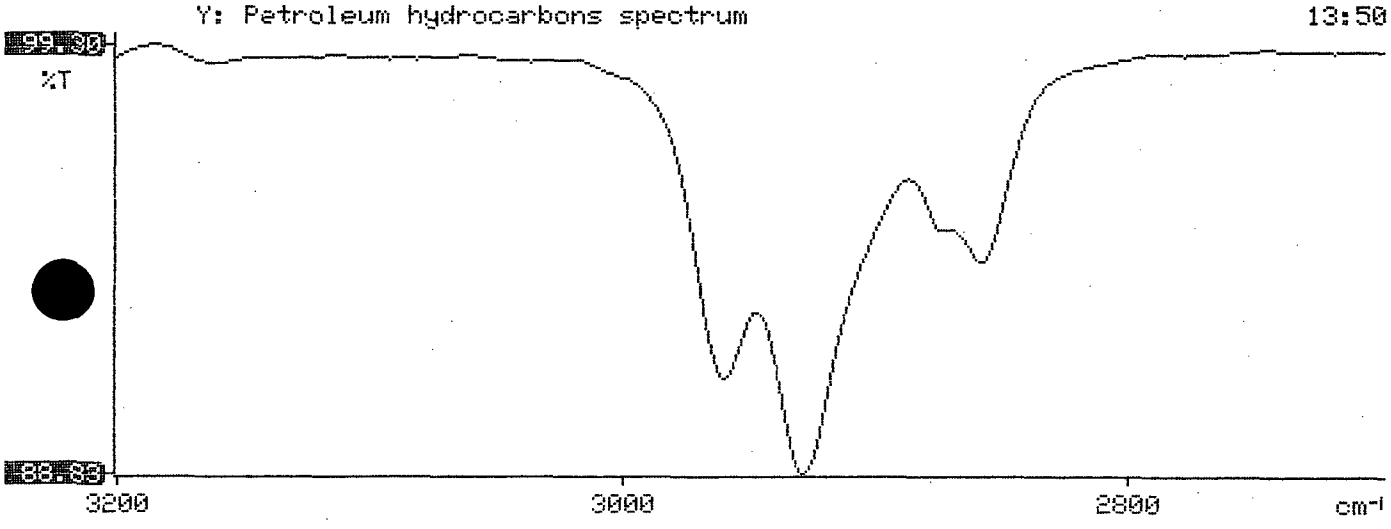
**********************************************************
*                    Test Method for                     *
*      Oil and Grease and Petroleum Hydrocarbons         *
*                  in Water and Soil                     *
*                                                        *
*             Perkin-Elmer Model 1600 FT-IR              *
*                    Analysis Report                     *
**********************************************************
*
 97/02/24  13:50
*
*  Sample identification
 970112
*
*  Initial mass of sample, g
 2.370
*
*  Volume of sample after extraction, ml
 28.000
*
*  Petroleum hydrocarbons, ppm
 310.520
*  Net absorbance of hydrocarbons (2930 cm-1)
 0.047
*
*
*
```



El Paso Natural Gas Company

A 2234

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Type and No. of Sample Containers	Requested Analysis: Preservation Technique		Requested Analysis: BTEX	Requested Analysis: TPH		Remarks
17520	EPNG PIT PROJECT							
Samplers: (Signature)	Date: 2/14/97							
SEQ / Date / Time / Comp. / GRAB / Sample Number								
10/12 2/14 0900	X DRC 6	6L/2	ICE	VG	X	X		JENNAPAH #1 - 71816 (20'-22' BGS)

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	2/14/97 1530	Lauri Dean 11:25 am			
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
				2-18-97 1140	Marla Armenta
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:	

Carrier Co: | Carrier Phone No. | Date Results Reported / by: (Signature)

Air Bill No.:

APPENDIX D

MONITORING WELL BORELOGS AND WELL CONSTRUCTION FORMS (1997, 1999)

MONITORING WELL INSTALLATION RECORD

Borehole # 1
Well # 1
Page 1 of 1

Philip Environmental Services, Inc.
4000 Monroe Rd.
Farmington, NM 87401
(505) 326-2262 FAX (505) 326-2388

Project Name EPFS GW PITS
Project Number 17520 Phase 6005.77
Site Location JENNAPAH #1
T16

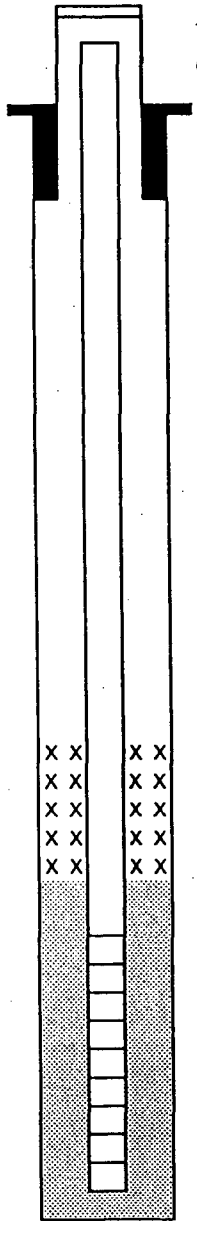
Elevation
Well Location H/S36/T28/R9
GWL Depth 22' BGS
Installed By M. McNOHUE

On-Site Geologist D. CESARK
Personnel On-Site D. CHARLEY
Contractors On-Site
Client Personnel On-Site

Date/Time Started 2-14-17 / 0830
Date/Time Completed " / 1130

Depths in Reference to Ground Surface

Item	Material	Depth (feet)
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		N/A
Bottom of Permanent Borehole Casing		N/A
Top of Concrete		
Bottom of Concrete		
Top of Grout		-0-
Bottom of Grout		+12'
Top of Well Riser	SCH 40 PVC	+3'
Bottom of Well Riser	"	- 17
Top of Well Screen	.010 SLOT	- 17'
Bottom of Well Screen	"	- 32'
Top of Peltonite Seal	ENVIROPLUG	12'
Bottom of Peltonite Seal	"	- 14'
Top of Gravel Pack	10-20 SAND	- 14'
Bottom of Gravel Pack	"	- 32'
Top of Natural Cave-In		- 32'
Bottom of Natural Cave-In		- 32'
Top of Groundwater		- 22'
Total Depth of Borehole		- 32'



Top of Protective Casing
Top of Riser +3'
Ground Surface -0'

Top of Seal - 12'
Top of Gravel Pack - 14'
Top of Screen - 17'
Bottom of Screen - 32'
Bottom of Borehole - 32'

Comments:

Geologist Signature

MWINSTAL.wk1

RECORD OF SUBSURFACE EXPLORATION

Borehole # BH-
Well #
Page 1 of 1

PHILIP ENVIRONMENTAL SERVICES INC.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name EPFS GW PITS
Project Number 17520 Phase 6001.77
Project Location JENN. FAH #1 - 71816

Elevation
Borehole Location Ltr H - S36 T28 R9
GWL Depth 22' BGS
Logged By D Cesark
Drilled By M Donohue
Date/Time Started 2/14/97 - 0830
Date/Time Completed " - 1130

Well Logged By D Cesark
Personnel On-Site D. CHARLEY
Contractors On-Site
Client Personnel On-Site

Drilling Method 4 1/4" ID HSA
Air Monitoring Method PID, CGI

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S/H	Drilling Conditions & Blow Counts
0				BACKFILL TO 19'						<TIME>
20	1	20-22'	24"	SILTY-SAND, SAND SILT MIXTURE. HC STAINING (OLIVE-GRAY) & STRONG HC ODOR. GWE 22' BGS. OVER-DRILLED THROUGH HIGHLY COMMINATED SOIL (BLACK) W/ STRONG HC ODOR TO 32' BGS. SET WELL					171/2,000+ (OVERRANGE)	<0900>
40										

Comments: TD = 32'. GW ENCOUNTERED @ 22' BGS. DRC 6 COLLECTED IMMED. ABOVE GW SUBMITTED TO LAB FOR TPH & BTEX ANALYSES. BORING COMPLETED AS A WELL — PLEASE REFER TO MW INSTALL. RECORD.

Geologist Signature

NITORING WELL INSTALLATION RECO

p Environmental Services Corp.
Monroe Road
Mexico 87401
FAX (505) 326-2388

Borehole # 2
Well # MW2
Page 1 of 1

Project Name EPFS GW Inv.
Project Number 20990 Phase 1000
Project Location Jennepatt #1

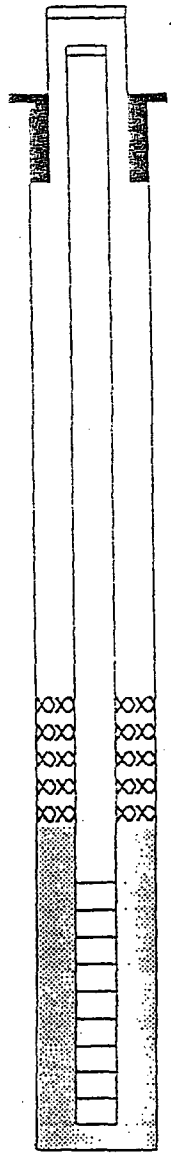
On-Site Geologist P. Cheney
Personnel On-Site K. Padilla, D. Padilla
Contractors On-Site –
Client Personnel On-Site –

ation
l Location
L Depth 22
alled By K. Padilla

e/Time Started 5/4/99
e/Time Completed 5/4/99

Depths in Reference to Ground Surface

Item	Material	Depth
Top of Protective Casing		N.A.
Bottom of Protective Casing		N.A.
Top of Permanent Borehole Casing		N.A.
Bottom of Permanent Borehole Casing		N.A.
Top of Concrete		N.A.
Bottom of Concrete		N.A.
Top of Grout		N.A.
Bottom of Grout		N.A.
Top of Well Riser		+1
Bottom of Well Riser		15
Top of Well Screen		15
Bottom of Well Screen		30
Top of Peltonite Seal		N.A.
Bottom of Peltonite Seal		N.A.
Top of Gravel Pack		13
Bottom of Gravel Pack		30
Top of Natural Cave-In		N.A.
Bottom of Natural Cave-In		N.A.
Top of Groundwater		22
Total Depth of Borehole		30



Top of Protective Casing –
Top of Riser +1
Ground Surface –

Top of Seal N.A.
Top of Gravel Pack 13
Top of Screen 15
Bottom of Screen 30
Bottom of Borehole 30

Comments: Temporary Completion

Geologist Signature Paul Cheney

RECORD OF SUBSURFACE EXPLORATION

Borehole # 2
Well # MW-2
Page 1 of 1

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name
Project Number Phase
Project Location Jennapah

Elevation
Borehole Location
GWL Depth 22.5'
Logged By P. Cheney
Drilled By K. Padilla
Date/Time Started 5/4/99
Date/Time Completed 5/4/99 - temp. completion

Well Logged By P. Cheney
Personnel On-Site K. Padilla, D. Padilla
Contractors On-Site
Client Personnel On-Site

Drilling Method 4 1/2" ID HSA
Air Monitoring Method PID

Depth (Feet)		Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU BZ	BH	SS	Drilling Conditions & Blow Counts S/HS = Sample Headspace
0				- Surface: reddish yellow medium grained sand, unconsolidated			0			
5				- 5' (from cuttings) med. grained reddish brown sand, unconsolidated, damp						
10	1	10 12	20"	med. to coarse grained sand, reddish brown w/pea gravel			0			BC = 14 S/HS = 0.1
15	2	15 17		reddish brown sandy clay w/ limonite staining. Moist, Low plasticity, soft			0			BC = 14 S/HS = 0.6
20	3	20 22		reddish brown coarse sand, unconsolidated		▽	0			BC = 24 S/HS = 0.3
25		25 27		yellowish brown coarse sand, unconsolidated, wet at 25'! water level rose to 22.5' after five minutes		▽	0			BC = 15 S/HS = 0.7
30				- TD = 30'						
35										
40										

Comments: Saturated at 25'. After ~5 minutes, WL rose to 22.5'. Set temp. well with 15' screen, 15' riser. Sand pack to 13'. Open B.H. to surface. Bailed 10 gallons from well

Geologist Signature Paul Cheney

MONITORING WELL INSTALLATION RECORD

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Borehole # 3
Well # MW-3
Page 1 of 1

Project Name EPFS GW Inv.
Project Number 20990 Phase 1000
Project Location Jennepah #1

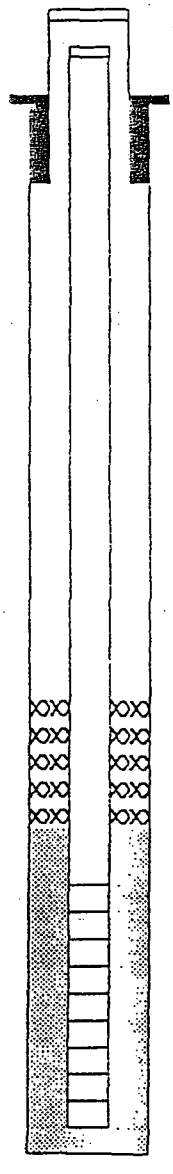
Elevation
Well Location
GWL Depth 23
Installed By K. Padilla

Date/Time Started 5/4/99
Date/Time Completed 5/4/99

On-Site Geologist P. Cheney
Personnel On-Site K. Padilla, D. Padilla
Contractors On-Site -
Client Personnel On-Site -

Depths in Reference to Ground Surface

Item	Material	Depth
Top of Protective Casing		N.A.
Bottom of Protective Casing		N.A.
Top of Permanent Borehole Casing		N.A.
Bottom of Permanent Borehole Casing		N.A.
Top of Concrete		N.A.
Bottom of Concrete		N.A.
Top of Grout		N.A.
Bottom of Grout		N.A.
Top of Well Riser		+1
Bottom of Well Riser		15
Top of Well Screen		15
Bottom of Well Screen		30
Top of Peltonite Seal		N.A.
Bottom of Peltonite Seal		N.A.
Top of Gravel Pack		13
Bottom of Gravel Pack		30
Top of Natural Cave-In		N.A.
Bottom of Natural Cave-In		N.A.
Top of Groundwater		23
Total Depth of Borehole		30



Top of Protective Casing N.A.
Top of Riser +1
Ground Surface

Top of Seal N.A.

Top of Gravel Pack 13
Top of Screen 15

Bottom of Screen 30
Bottom of Borehole 30

Comments: Temporary completion

Geologist Signature Paul Cheney

RECORD OF SUBSURFACE EXPLORATION

Borehole # 3
Well # MW-3
Page of

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name EPFS
Project Number Phase
Project Location Jennepah #1

Elevation
Borehole Location
GWL Depth
Logged By P. Cheney
Drilled By K. Padilla
Date/Time Started 5/4
Date/Time Completed 5/4

Well Logged By P. Cheney
Personnel On-Site K. Padilla, D. Padilla
Contractors On-Site
Client Personnel On-Site

Drilling Method 4 1/4" HSA
Air Monitoring Method PID

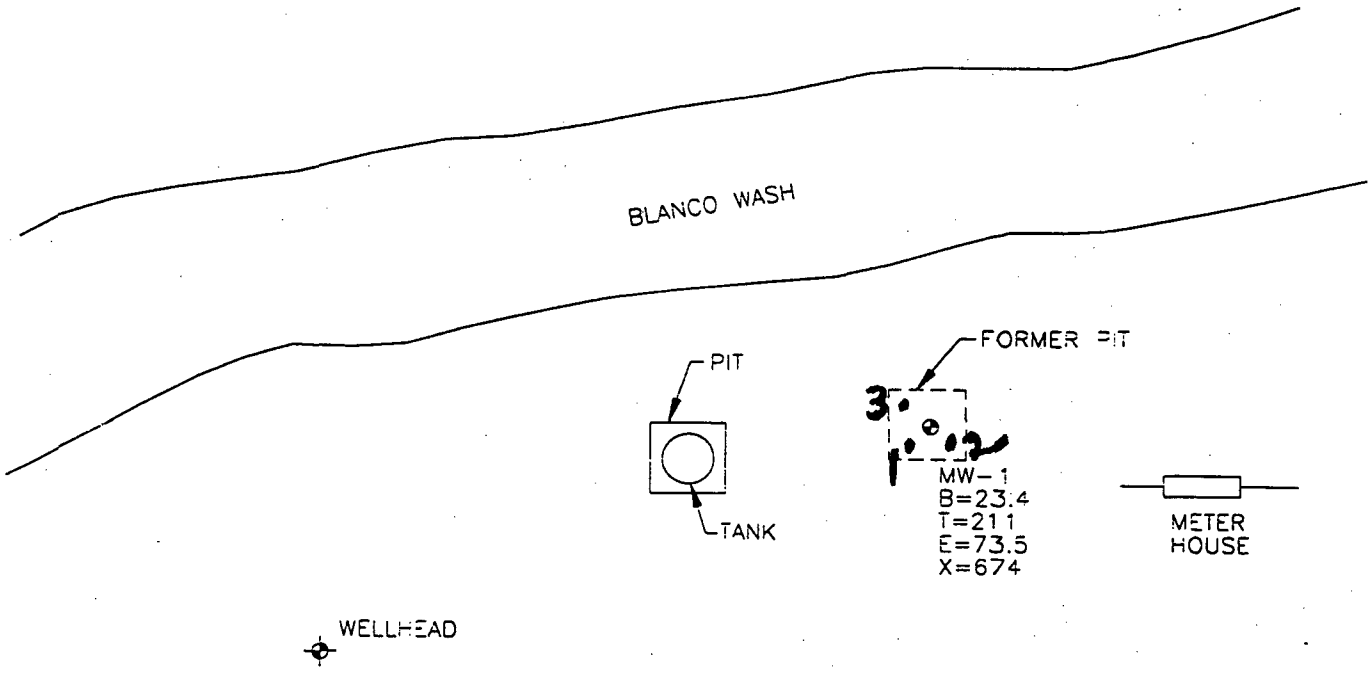
Depth (Feet)		Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU BZ	BH	SS	Drilling Conditions & Blow Counts
0				surface: reddish yellow medium grained sand						
5				5' (from cuttings) reddish brown sand, unconsolidated						
10	1	10-12	24"	yellowish brown med. grained sand, unconsolidated			0		0	BC=22 S/HS=5.4
15	2	15-17	18"	yellowish brown medium grained sand			0		0	BC=20 S/HS=3.2
20	3	20-22	18"	yellowish brown coarse grained sand, ≈ 5% pea-gravel			0		0	BC=21 S/HS=1
25		25-27	24"	very coarse grained yellowish brown sand. Saturated at 25' several 1" - 1½" gravel rocks						
30				TD=30'						
35										
40										

Comments: Saturated at 25' WL Rose to ≈ 23' after 5 minutes. Set temp well with 15' screen, 15' riser, sand pack to 13', open BH to surface. Used 5gallon bucket as a well protector

Geologist Signature Paul Cheney

APPENDIX E

ORC INJECTION BORLOGS AND LOCATION MAP (1998)



LEGEND

MW-1	APPROXIMATE MONITORING WELL LOCATION AND NUMBER
B	BENZENE (ug\L)
T	TOLUENE (ug\L)
E	ETHYL BENZENE (ug\L)
X	XYLENE (ug\L)
ug\L	MICROGRAMS PER LITER

NOT TO SCALE

PHILIP SERVICES CORP

TITLE:
JENNAPAH #1
71816

DWN: TMM	DES.: CC	PROJECT NO.: 17520	
CHKD: CC	APPD:	EPFS GW PITS	
DATE: 1/19/98	REV.: 0	FIGURE 1	

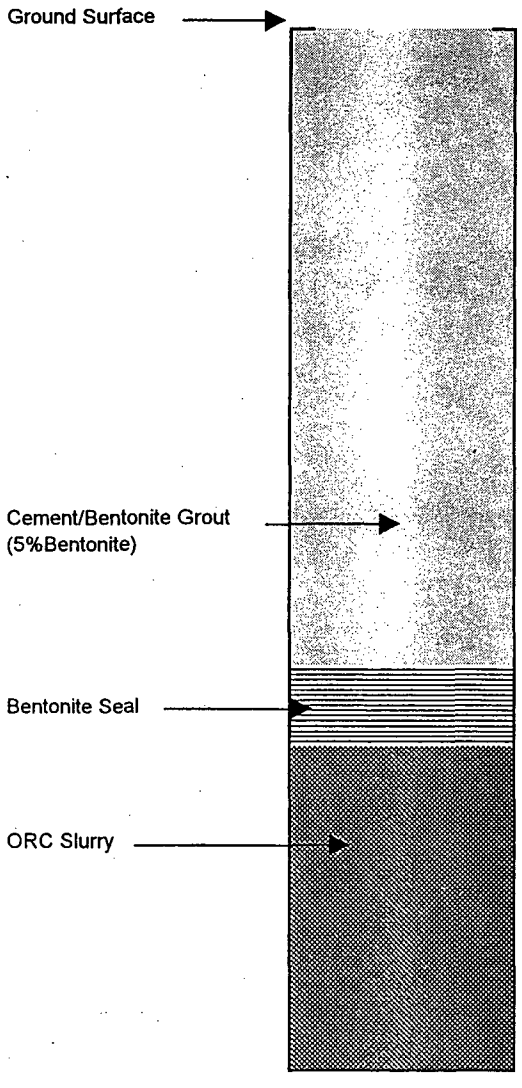
COL. 17520BN-001

NUTRIENT INJECTION

PHILIP SERVICES CORP.
4000 Monroe Rd.
Farmington, NM 87401
(505) 326-2262 FAX (505) 326-2388

Project Name	EPFS GW Pits	BH #	BH-1
Project Number/Phase	17520 9000	BH Location	SW of MW-1
Driller	K. Padilla	Site Name	Jennapah #1 7/8/16
Date/Time Started	7/8/98		
Date/Time Completed	7/8/98		

BOREHOLE



Top of Grout	0'
Top of Bentonite	19'
Top of Slurry	21'
Top of Groundwater	22'
Depth of Borehole	32'

Comments: 10 pounds ORC 2 gal water. Bentonite seal hydrated w/ 5 gal potable water

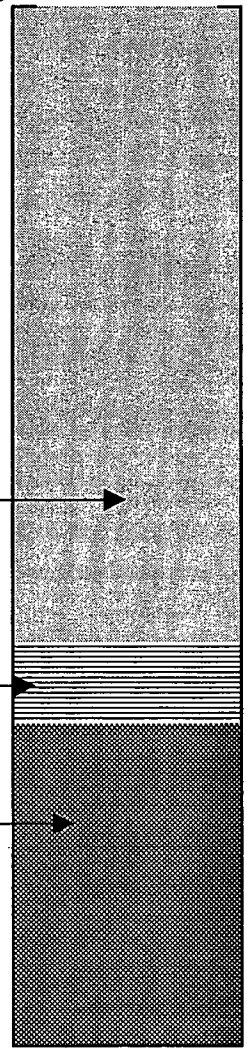
Drillers Signature Cory Chandler

NUTRIENT INJECTIO

PHILIP SERVICES CORP.
4000 Monroe Rd.
Farmington, NM 87401
(505) 326-2262 FAX (505) 326-2388

Project Name	EPFS GW PITS	BH #	2
Project Number/Phase	17520 9000	BH Location	SE of MW1
Driller	K. Padilla	Site Name	Jennapah #1 71816
Date/Time Started	7/8/98		
Date/Time Completed	7/8/98		

BOREHOLE



Top of Grout	0'
Top of Bentonite	19'
Top of Slurry	21'
Top of Groundwater	22'
Depth of Borehole	27'

Comments: 10 pounds ORC 2 gal water. Bentonite hydrated w/ 5 gal potable water.

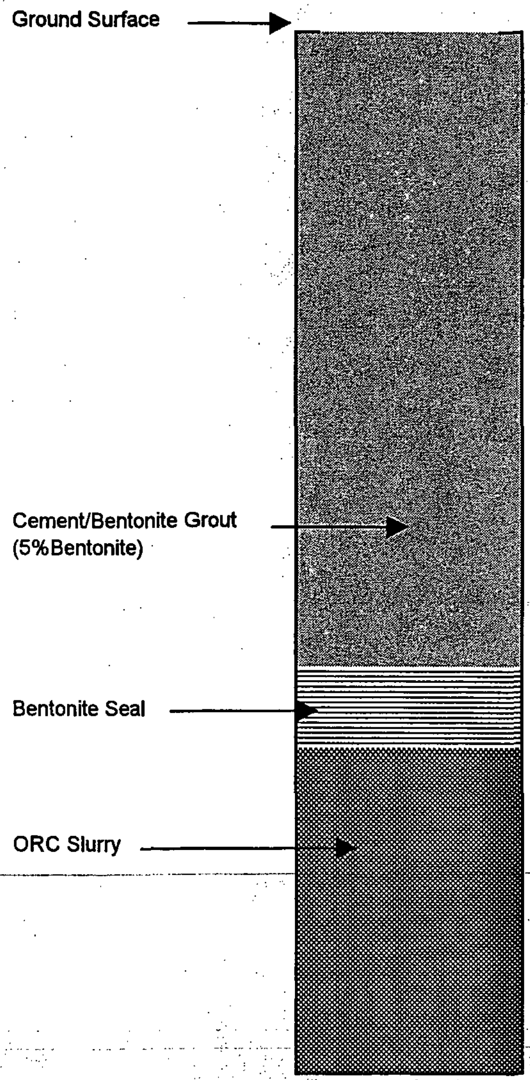
Drillers/Geologist Signature Greg Clary

NUTRIENT INJECTION

PHILIP SERVICES CORP.
4000 Monroe Rd.
Farmington, NM 87401
(505) 326-2262 FAX (505) 326-2388

Project Name	EPFS GW Pits	BH #	3
Project Number/Phase	17520 9000	BH Location	NW of MW1
Driller	K. Padilla	Site Name	Jennapah #1 71816
Date/Time Started	7/8/98		
Date/Time Completed	7/8/98		

BOREHOLE



Top of Grout	0'
Top of Bentonite	19'
Top of Slurry	21'
Top of Groundwater	22'
Depth of Borehole	27'

Comments: 10 ~~gal~~ pounds ORC, 2 gal water. Seal hydrated w/5 gal potable water

Drillers/Geologist Signature

APPENDIX F

LABORATORY REPORTS
(2003)

DATA VALIDATION WORKSHEET

Analytical Method/Analytes: SW-846 8021B (BTEX) **Sample Collection Date(s):** 12/16/03

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

Batch Identification: T6395 **Matrix:** Water

MS/MSD Parent(s)[(a)]: T6395-04 **Field Replicate Parent(s):** None

Validation Complete: [signature] 1-7-04 (Date/Signature)

Foot Notes	Site ID	Sample ID	Lab. ID	Hits (Y/N)	Quals.	Comments
1,6,8,9	Trip Blank	161203TB01	T6395-01	N		
2,6,8,9	Jennapah	MW-2	T6395-02	N		
3,6,8,9	Jennapah	MW-3	T6395-03	N		
4,5,6, 7,8,9, 10,11, 12,13	Jennapah	MW-1	T6395-04	Y	J J	Xylenes (total) @ 19 T µg/l m/p-Xylene @ 19 T µg/l

DATA VALIDATION WORKSHEET

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

Laboratory: Accutest **Batch Identification:** T6395

Validation Criteria								
Sample ID	**161203TB 01**	**Jennapah MW-2**	**Jennapah MW-3**	**Jennapah MW-1**				
Lab ID	**T6395-01**	**T6395-02**	**T6395-03**	**T6395-04**				
Holding Time	A	A	A	A				
Analyte List	A	A	A	A				
Reporting Limits	A	A	A	A				
Surrogate Spike Recovery	A[1]	A[2]	A[3]	A[4,5]				
Trip Blank	A	A	A	A				
Equipment Rinseate Blanks	N/A	N/A	N/A	N/A				
Field Duplicate/Replicate	N/A	N/A	N/A	N/A				
Initial Calibration	N	N	N	N				
Initial Calibration Verification (ICV)	N	N	N	N				
Continuing Calibration Verification (CCV)	N	N	N	N				
Method Blank	A[6]	A[6]	A[6]	A[6,7]				
Laboratory Control Sample (LCS)	A[8,9]	A[8,9]	A[8,9]	A[8,9,10,11]				
Laboratory Control Sample Duplicate (LCSD)	N	N	N	N				
Matrix Spike/Matrix Spike Dup. (MS/MSD)	N/A	N/A	N/A	A[12,13]				
Retention Time Window	N	N	N	N				
Injection Time(s)	N	N	N	N				
Hardcopy vs. Chain-of-Custody	A	A	A	A				
EDD vs. Hardcopy	N	N	N	N				
EDD vs. Chain of Custody	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:

1) Surrogate percent recovery for aaa-Trifluorotoluene outside acceptance criteria @ 131% (71-121), indicating a possible high bias. Only one surrogate outside acceptance criteria, no analytes detected in the sample, no data qualified.

2) Surrogate percent recovery for aaa-Trifluorotoluene outside acceptance criteria @ 129% (71-121), indicating a possible high bias. Only one surrogate outside acceptance criteria, no analytes detected in the sample, no data qualified.

3) Surrogate percent recovery for aaa-Trifluorotoluene outside acceptance criteria @ 126% (71-121), indicating a possible high bias. Only one surrogate outside acceptance criteria, no analytes detected in the sample, no data qualified.

4) Surrogate percent recovery outside acceptance criteria for the following compounds:
   a) 4-Bromofluorobenzene @ 125% (64-121), indicating a possible high bias. No analytes detected in the sample associated with Run #1, no data qualified.
   b) aaa-Trifluorotoluene @ 191% (71-121), indicating a possible high bias. No analytes detected in the sample associated with Run #1, no data qualified.

DATA VALIDATION WORKSHEET

5) Surrogate percent recovery for 4-Bromofluorobenzene outside acceptance criteria @ 122% (64-121), indicating a possible high bias. Only one surrogate outside acceptance criteria, no data qualified.

6) Surrogate percent recovery for aaa-Trifluorotoluene outside acceptance criteria @ 126% (71-121), indicating a possible high bias. Only one surrogate outside acceptance criteria, no analytes detected in the sample, no data qualified.

7) Surrogate percent recovery outside acceptance criteria for the following compounds:
   a) 4-Bromofluorobenzene @ 137% (64-121), indicating a possible high bias. No analytes detected in the sample, no data qualified.
   b) aaa-Trifluorotoluene @ 130% (71-121), indicating a possible high bias. No analytes detected in the sample, no data qualified.

8) Surrogate percent recovery for aaa-Trifluorotoluene outside acceptance criteria @ 126% (71-121), indicating a possible high bias. Only one surrogate outside acceptance criteria, no data qualified.

9) LCS percent recovery outside acceptance criteria for the following compounds (GKK338-BS):
   a) Ethylbenzene @ 118% (82-115), indicating a possible high bias. Analyte not detected in associated samples, no data qualified.
   b) Toluene @ 119% (77-116), indicating a possible high bias. Analyte not detected in associated samples, no data qualified.
   c) o-Xylene @ 129% (78-114), indicating a possible high bias. Analyte not detected in associated samples, no data qualified.

10) Surrogate percent recovery outside acceptance criteria for the following compounds:
   a) 4-Bromofluorobenzene @ 130% (64-121), indicating a possible high bias. This explains the high percent recovery for associated analytes, no data qualified.
   b) aaa-Trifluorotoluene @ 124% (71-121), indicating a possible high bias. This explains the high percent recovery for associated analytes, no data qualified.

11) LCS percent recovery outside acceptance criteria for the following compounds (GKK339-BS):
   a) Xylenes (total) @ 117% (79-115), indicating a possible high bias. Qualify associated sample hits with "J" flags indicating the data are estimated and possibly biased high.
   b) o-Xylene @ 117% (78-114), indicating a possible high bias. Analyte not detected in associated samples, no data qualified.
   c) m/p-Xylenes @ 117% (79-116), indicating a possible high bias. Qualify associated sample hits with "J" flags indicating the data are estimated and possibly biased high.

12) MS/MSD surrogate percent recoveries outside acceptance criteria for the following compounds:
   a) 4-Bromofluorobenzene @ 135% % 133% (64-121), indicating a possible high bias. This helps to explain the high percent recovery for associated analytes, no data qualified.
   b) aaa-Trifluorotoluene @ 171% & 168% (71-121), indicating a possible high bias. This helps to explain the high percent recovery for associated analytes, no data qualified.

13) MS/MSD percent recovery outside acceptance criteria for the following compounds:
   a) Toluene @ 138% & 171% (64-120), indicating a possible high bias. Analyte not detected in associated samples, no data qualified.

Gulf Coast
ACCUTEST.
Laboratories

01/07/04

Technical Report for

Montgomery Watson

EPFS San Juan Basin Groundwater Site

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

Accutest Job Number: T6395

Report to:

Montgomery Watson

brian.buttars@us.mwhglobal.com

ATTN: Brian Buttars

Total number of pages in report: **18**

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

Table of Contents

Sections: 1 2 3 4

-1-

Accutest Laboratories

Sample Summary

Montgomery Watson

Job No: T6395

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

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
T6395-1	12/16/03	07:00	MN	12/18/03	AQ	Ground Water	161203TB01
T6395-2	12/16/03	09:25	MN	12/18/03	AQ	Ground Water	JENNAPAH MW-2
T6395-3	12/16/03	09:52	MN	12/18/03	AQ	Ground Water	JENNAPAH MW-3
T6395-4	12/16/03	10:40	MN	12/18/03	AQ	Ground Water	JENNAPAH MW-1

Accutest Laboratories

Report of Analysis

Client Sample ID:	161203TB01		
Lab Sample ID:	T6395-1	Date Sampled:	12/16/03
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]	KK006296.D	1	12/29/03	BC	n/a	n/a	GKK338
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	121%		64-121%
98-08-8	aaa-Trifluorotoluene	131% [b]		71-121%

(a) Confirmed by GC/MS
(b) High bias spike.

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:	JENNAPAH MW-2		
Lab Sample ID:	T6395-2	Date Sampled:	12/16/03
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]	KK006298.D	1	12/30/03	BC	n/a	n/a	GKK338
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	119%		64-121%
98-08-8	aaa-Trifluorotoluene	129% [b]		71-121%

(a) Confirmed by GC/MS
(b) High bias spike.

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:	JENNAPAH MW-3		
Lab Sample ID:	T6395-3	Date Sampled:	12/16/03
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]	KK006299.D	1	12/30/03	BC	n/a	n/a	GKK338
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	118%		64-121%
98-08-8	aaa-Trifluorotoluene	126% [b]		71-121%

(a) Confirmed by GC/MS
(b) High bias spike.

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:	JENNAPAH MW-1		
Lab Sample ID:	T6395-4	Date Sampled:	12/16/03
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]	KK006300.D	1	12/30/03	BC	n/a	n/a	GKK338
Run #2	KK006316.D	10	12/30/03	BC	n/a	n/a	GKK339

	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	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)	19 [b]	30	10	ug/l	
95-47-6	o-Xylene	ND [b]	10	5.0	ug/l	
	m,p-Xylene	19 [b]	20	10	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	125% [c]	122%	64-121%
98-08-8	aaa-Trifluorotoluene	191% [c]	119%	71-121%

(a) Confirmed by GC/MS
(b) Result is from Run# 2
(c) High bias spike.

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

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ACCUTEST. Laboratories

CHAIN OF CUSTODY 161203MN01

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

FED-EX Tracking #: 842152945351
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: T6395

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 Nee

Project Information

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

Requested Analysis: BTEX

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Date	Time	Sampled By	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	BTEX	LAB USE ONLY
1	161203TB01		121603	0700	MN	WG	1	1								X	
2	Jennapah MW-2		121603	0925	MN	WG	2	2								X	
3	Jennapah MW-3		121603	0952	MN	WG	2	2								X	
4	Jennapah MW-4		121603	1040	MN	WG	2	2								X	

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

Turnaround Time (Business Days)

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

Approved By: / Date:

Emergency & Rush T/A data available VIA LabLink

Data Deliverable Information

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

Commercial "A" = Results Only

Comments / Remarks

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

Relinquished by	Date Time	Received by	Relinquished by	Date Time	Received by
1 Sampler: MN 1200	12.17.03	1	2		2
3		3	4		4
5		5	Custody Seal #	Preserved where applicable ☐ / On Ice ☐	Cooler Temp.

3.1

3

T6395: Chain of Custody
Page 1 of 3

ACCUTEST.

SAMPLE RECEIPT LOG

JOB #: T6395 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	1	12-16-03	WTB	40ml	VRef	1(2)3,4,5,6	U, <2, >12, (NA)
2-4	1-2	↓	GW	↓	↓	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

Comments: See Variance Memo

(pH of waters checked excluding volatiles)

pH of soils N/A

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

T6395: Chain of Custody

Page 2 of 3

ACCUTEST.

VARIANCE MEMO
SAMPLE LOG-IN

SAMPLE(S) _____ DATE 12-18-03
PROJECT _____
FILED BY TBastro LAB NO. T6395

VARIANCE - Check applicable items(s):

_____ Insufficient sample sent for proper analysis; received approx. _____
1 of 2 Sample bottle received broken and/or cap not intact. for Sx # 2 (Jennapeh MW-2)
_____ Samples received without paperwork; paperwork received without samples.
_____ Samples received without proper refrigeration, when it has been deemed necessary. Temperature at receipt: _____
_____ Illegible sample number or label missing from bottle.
_____ Numbers on sample not the same as numbers on paper work.
_____ Incomplete instructions received with sample(s) ie.,no request for analysis, no chain of custody, incomplete billing instructions, no due date, etc. Temperature at reciept: _____
_____ Samples received in improper container or lacking proper preservation.
_____ Physical characteristics different than those on sampling sheets; Describe: _____
_____ Rush samples on hold because of incomplete paperwork.
_____ Other (specify) _____

CORRECTIVE ACTION TAKEN

Scott Pope Person Contacted
_____ Client informed verbally.
_____ Client informed by memo/letter.
_____ Samples processed as is.
_____ Samples preserved by lab.
_____ Client will resample and resubmit.
X By phone.
_____ Samples processed for information only and noted on report.
_____ Samples processed with higher detection limits accepted.
_____ Samples rejected.

Notes: Left message

ROUTING

TITLE	DATE	INITIALS	CORRECTED?
Sample Manager:	12-18-03	TB	
Login:			
Project Manager:	12-18-03	KS	

Comments:

Form: SM006

T6395: Chain of Custody
Page 3 of 3

3.1

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: T6395
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK338-MB	KK006295.D	1	12/29/03	BC	n/a	n/a	GKK338

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

T6395-1, T6395-2, T6395-3, T6395-4

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	118%	64-121%
98-08-8	aaa-Trifluorotoluene	126%* [a]	71-121%

(a) High bias spike.

Method Blank Summary

Job Number: T6395
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK339-MB	KK006315.D	1	12/30/03	BC	n/a	n/a	GKK339

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

T6395-4

CAS No.	Compound	Result	RL	MDL	Units	Q
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	137%* [a]	64-121%
98-08-8	aaa-Trifluorotoluene	130%* [a]	71-121%

(a) High bias spike.

Blank Spike Summary

Job Number: T6395
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK338-BS [a]	KK006294.D	1	12/29/03	BC	n/a	n/a	GKK338

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

T6395-1, T6395-2, T6395-3, T6395-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	21.6	108	74-119
100-41-4	Ethylbenzene	20	23.5	118*	82-115
108-88-3	Toluene	20	23.7	119*	77-116
1330-20-7	Xylenes (total)	60	68.7	115	79-115
95-47-6	o-Xylene	20	25.8	129*	78-114
	m,p-Xylene	40	42.9	107	79-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	121%	64-121%
98-08-8	aaa-Trifluorotoluene	126%* [b]	71-121%

(a) High bias spike but no compound were reported with it's associated samples.
(b) High bias spike.

Blank Spike Summary

Job Number: T6395
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK339-BS [a]	KK006313.D	1	12/30/03	BC	n/a	n/a	GKK339

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

T6395-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
1330-20-7	Xylenes (total)	60	70.3	117*	79-115
95-47-6	o-Xylene	20	23.4	117*	78-114
	m,p-Xylene	40	46.9	117*	79-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	130%* [a]	64-121%
98-08-8	aaa-Trifluorotoluene	124%* [a]	71-121%

(a) High bias spike.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T6395
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T6395-4MS	KK006301.D	1	12/30/03	BC	n/a	n/a	GKK338
T6395-4MSD	KK006302.D	1	12/30/03	BC	n/a	n/a	GKK338
T6395-4 [a]	KK006300.D	1	12/30/03	BC	n/a	n/a	GKK338

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

T6395-1, T6395-2, T6395-3, T6395-4

CAS No.	Compound	T6395-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		20	22.6	113	22.4	112	1	64-124/16
100-41-4	Ethylbenzene	ND		20	21.9	110	30.5	153*	33*	64-123/14
108-88-3	Toluene	ND		20	27.5	138*	34.1	171*	21*	64-120/13
1330-20-7	Xylenes (total) Not Applicable	39		60	96.0	94	105	109	9	66-118/18
95-47-6	o-Xylene	39		20	34.2	-26*	37.0	-12*	8	65-119/20
	m,p-Xylene	ND		40	61.8	155*	68.1	170*	10	66-120/14

CAS No.	Surrogate Recoveries	MS	MSD	T6395-4	Limits
460-00-4	4-Bromofluorobenzene	135%* [b]	133%* [b]	125%* [b]	64-121%
98-08-8	aaa-Trifluorotoluene	171%* [b]	168%* [b]	191%* [b]	71-121%

(a) Confirmed by GC/MS
(b) High bias spike.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T6395
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T6396-4MS [a]	KK006320.D	100	12/30/03	BC	n/a	n/a	GKK339
T6396-4MSD	KK006321.D	100	12/30/03	BC	n/a	n/a	GKK339
T6396-4 [b]	KK006319.D	100	12/30/03	BC	n/a	n/a	GKK339

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

T6395-4

CAS No.	Compound	T6396-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
1330-20-7	Xylenes (total)	219	J	6000	6220	96	6870	107	10	66-118/18
95-47-6	o-Xylene	ND		2000	2010	101	2190	110	9	65-119/20
	m,p-Xylene	219		4000	4220	94	4680	106	10	66-120/14

CAS No.	Surrogate Recoveries	MS	MSD	T6396-4	Limits
460-00-4	4-Bromofluorobenzene	124%*	119%	125%* [c]	64-121%
98-08-8	aaa-Trifluorotoluene	4%*	111%	117%	71-121%

(a) High RPD due to poor purging of the MS.
(b) Confirmed by GC/MS. Samples were not preserved.
(c) High bias spike.

DATA VALIDATION WORKSHEET

Analytical Method/Analytes: SW-846 8021B (BTEX) **Sample Collection Date(s):** 09/23/03

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

Batch Identification: T5436 **Matrix:** Water

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

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

Foot Notes	Site ID	Sample ID	Lab. ID	Hits (Y/N)	Quals.	Comments
None	Jennapah	MW-1	T5436-01	Y		Xylenes (total) @ 38.1 µg/l o-Xylene @ 4.4 µg/l m,p-Xylene @ 33.6 µg/l
None	Trip Blank	230903TB01	T5436-02	N		

DATA VALIDATION WORKSHEET
(Page 2 of 2)

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

Laboratory: Accutest **Batch Identification:** T5436

Validation Criteria								
Sample ID	**Jennapah MW-1**	**230903TB 01**						
Lab ID	**T5436-01**	**T5436-02**						
Holding Time	A	A						
Analyte List	A	A						
Reporting Limits	A	A						
Trip Blank	A	A						
Equipment Rinseate Blanks	N/A	N/A						
Field Duplicate/Replicate	N/A	N/A						
Surrogate Spike Recovery	A	A						
Initial Calibration	N	N						
Initial Calibration Verification (ICV)	N	N						
Continuing Calibration Verification (CCV)	N	N						
Laboratory Control Sample (LCS)	A	A						
Laboratory Control Sample Duplicate (LCSD)	N	N						
Method Blank	A	A						
Matrix Spike/Matrix Spike Dup. (MS/MSD)	N/A	N/A						
Retention Time Window	N	N						
Injection Time(s)	N	N						
Hardcopy vs. Chain-of-Custody	A	A						
EDD vs. Hardcopy	N	N						
EDD vs. Chain of Custody	N	N						

(a) List QC batch identification if different than Batch ID
A indicates validation criteria were met
A/L indicates validation criteria met based upon Laboratory's QC Summary Form
X indicates validation criteria were not met
N indicates data review were not a project specific requirement
N/A indicates criteria are not applicable for the specified analytical method or sample
N/R indicates data not available for review

NOTES:

CHAIN OF CUSTODY # 230903MNØ1

ACCUTEST Laboratories

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

FED-EX Tracking # 835603757125 | Bottle Order Control #

Accutest Quote # | Accutest Job #

Client / Reporting Information

Company Name: IAA El Paso/MWH
Address: 614 Reilly
City: Farmington State: NM Zip: 87401
Project Contact: Scott Pope E-mail:
Phone #: 505 599 2124
Sampler's Name: MJN

Project Information

Project Name: Groundwater
Street: Jennapah
City: State:
Project #:
Fax #:
Client Purchase Order #:

Requested Analysis

BTEX

Matrix Codes

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

LAB USE ONLY

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Collection Time	Sampled By	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	None	NaHSO4	MeOH	ENCORE	BTEX
	Jennapah MW-1		9/23/03	0910	MN	WG	2	2								2
	230903TB01		9/23/03	0700	MN	WG	2 M	2 M								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

T5436

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 9/23/03	1400	1	2		2
Relinquished by:	Date Time:	Received by:	Relinquished by:	Date Time:	Received by:
3	9/24/03 0900	3	4		4
Relinquished by:	Date Time:	Received by:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp.
5		5		☐	☑ 3.8°C

Gulf Coast
ACCUTEST.
Laboratories

09/30/03

Technical Report for

Montgomery Watson

EPFS San Juan Basin Groundwater Site

Accutest Job Number: T5436

Jennapah

Report to:

MWH

pamela.j.anderson@us.mwhglobal.com

ATTN: Pam Anderson

Total number of pages in report: 8

ACCREDITED IN ACCORDANCE WITH nelac

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

Ron Martino
Laboratory Manager

Accutest Laboratories

Sample Summary

Montgomery Watson

Job No: T5436

EPFS San Juan Basin Groundwater Site

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
T5436-1	09/23/03	09:10	MJN	09/24/03	AQ	Ground Water	JENNAPAH MW-1
T5436-2	09/23/03	07:00	MJN	09/24/03	AQ	Trip Blank Water	230903TB01

Accutest Laboratories

Report of Analysis

Client Sample ID:	JENNAPAH MW-1		
Lab Sample ID:	T5436-1	Date Sampled:	09/23/03
Matrix:	AQ - Ground Water	Date Received:	09/24/03
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	KK005868.D	1	09/30/03	BC	n/a	n/a	GKK316
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)	38.1	3.0	ug/l	
95-47-6	o-Xylene	4.4	1.0	ug/l	
	m,p-Xylene	33.6	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	100%		64-121%
98-08-8	aaa-Trifluorotoluene	113%		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:	230903TB01		
Lab Sample ID:	T5436-2	Date Sampled:	09/23/03
Matrix:	AQ - Trip Blank Water	Date Received:	09/24/03
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	KK005865.D	1	09/30/03	BC	n/a	n/a	GKK316
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	92%		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: T5436
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK316-BS	KK005863.D	1	09/30/03	BC	n/a	n/a	GKK316

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

T5436-1, T5436-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	19.5	98	74-119
100-41-4	Ethylbenzene	20	19.7	99	82-115
108-88-3	Toluene	20	19.0	95	77-116
1330-20-7	Xylenes (total)	60	57.8	96	79-115
95-47-6	o-Xylene	20	19.0	95	78-114
	m,p-Xylene	40	38.9	97	79-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	93%	64-121%
98-08-8	aaa-Trifluorotoluene	96%	71-121%

Method Blank Summary

Job Number: T5436
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK316-MB	KK005864.D	1	09/30/03	BC	n/a	n/a	GKK316

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

T5436-1, T5436-2

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

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	89%	64-121%
98-08-8	aaa-Trifluorotoluene	94%	71-121%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T5436
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T5403-2MS	KK005869.D	10	09/30/03	BC	n/a	n/a	GKK316
T5403-2MSD	KK005870.D	10	09/30/03	BC	n/a	n/a	GKK316
T5403-2	KK005867.D	10	09/30/03	BC	n/a	n/a	GKK316

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

T5436-1, T5436-2

CAS No.	Compound	T5403-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	150		200	343	97	342	96	0	64-124/16
100-41-4	Ethylbenzene	ND		200	201	101	200	100	0	64-123/14
108-88-3	Toluene	77.2		200	268	95	269	96	0	64-120/13
1330-20-7	Xylenes (total)	12.6	J	600	606	99	603	98	0	66-118/18
95-47-6	o-Xylene	ND		200	198	99	197	99	1	65-119/20
	m,p-Xylene	ND		400	408	102	406	102	0	66-120/14

CAS No.	Surrogate Recoveries	MS	MSD	T5403-2	Limits
460-00-4	4-Bromofluorobenzene	92%	90%	90%	64-121%
98-08-8	aaa-Trifluorotoluene	92%	91%	92%	71-121%

CHAIN CUSTODY #230903MN01

ACCUTEST Laboratories

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

FED-EX Tracking # 835603757125 | Bottle Order Control #

Accutest Quote # | Accutest Job #

Client / Reporting Information

Company Name: AKA El Paso/MWH
Address: 614 Reilly
City: Farmington State: NM Zip: 87401
Project Contact: Scott Pope E-mail:
Phone #: 505 599 2124
Sampler's Name: MJN

Project Information

Project Name: Groundwater
Street: Jennapah
City: State:
Project #:
Fax #:
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	BTEX	LAB USE ONLY
	Jennapah MW-1		9/23/03	0910	MN	GW	2	2								2	
	230903TB01		9/23/03	0700	MN	GW	2	2								1	
							M	W									

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

T5436

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 9/23/03	1400	1	2		2
Relinquished by:	Date Time:	Received by:	Relinquished by:	Date Time:	Received by:
3	9/24/03 0900	3	4		4
Relinquished by:	Date Time:	Received by:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp.
5		5		[ ]	[X] 3.8°C

ACCUTEST.

SAMPLE RECEIPT LOG

JOB #: T5436 DATE/TIME RECEIVED: 9/24/03 0900

CLIENT: MWH / EL PASO INITIALS: VS

Condition/Variance (Circle "Y" for yes and "N" for no. If "N" is circled, see variance for explanation):

1. (Y) N Sample received in undamaged condition.
2. (Y) N Samples received within temp. range.
3. Y (NA) Sample received with proper pH.
4. (Y) N Sample received in proper containers.
5. (Y) N Sample volume sufficient for analysis.
6. (Y) N Sample received with chain of custody.
7. (Y) N Chain of Custody matches sample IDs on containers.
8. (Y) N Custody seal received intact and tamper evident on cooler.
9. Y (NA) Custody seal received intact and tamper evident on bottles.

SAMPLE or FIELD ID	BOTTLE #	DATE SAMPLED	MATRIX	VOLUME	LOCATION	PRESERV.	PH
1	1	9/23/03	GW	VOA	VREF	(1) 2,3,4,5,6	U, <2, >12, (NA)
1	2	↓	↓	↓	↓	1 (2) 3,4,5,6	U, <2, >12 (NA)
2	1	↓	↓	↓	↓	1 (2) 3,4,5,6	U, <2, >12, (NA)
						~~1,2,3,4,5,6~~	~~U, <2, >12, NA~~
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
			VS			1,2,3,4,5,6	U, <2, >12, NA
		9/24/03				1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						~~1,2,3,4,5,6~~	~~U, <2, >12, NA~~

LOCATION: WI: Walk-In VR: Volatile Refrig. SUB: Subcontract EF: Encore Freezer

PRESERVATIVES: 1: None 2: HCL 3: HNO3 4: H2SO4 5: NAOH 6: Other

pH of waters checked excluding volatiles

pH of soils N/A

Comments: _____

Delivery method: Courier: Fed EX Tracking#: _____

COOLER TEMP: 3.8°C COOLER TEMP: _____

COOLER TEMP: _____ COOLER TEMP: _____

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

Form: SM012

DATA VALIDATION WORKSHEET

Analytical Method/Analytes:	SW-846 8021B (BTEX)	**Sample Collection Date(s):**	06/24/03
Laboratory:	Accutest	**MWH Job Number:**	EPC-SJRB (Groundwater)
Batch Identification:	T4642	**Matrix:**	Water
MS/MSD Parent(s)[a]:	None	**Field Replicate Parent(s):**	None

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

Foot Notes	Site ID	Sample ID	Lab. ID	Hits (Y/N)	Quals.	Comments
None	Trip Blank	240603TB01	T4642-01	N		
None	Jennepah	MW-1	T4642-02	Y		Xylenes, total @ 44.1 µg/l m,p-Xylenes @ 44.1 µg/l
None	Jennepah	MW-2	T4642-03	N		
None	Jennepah	MW-3	T4642-04	N		

DATA VALIDATION WORKSHEET
(Page 2 of 2)

Analytical Method:	SW-846 8021B (BTEX)	**MWH Job Number:**	EPC-SJRB (Groundwater)
Laboratory:	Accutest	**Batch Identification:**	T4642

Validation Criteria								
Sample ID	240603TB 01	Jennepah MW-1	Jennepah MW-2	Jennepah MW-3				
Lab ID	T4642-01	T4642-02	T4642-03	T4642-04				
Holding Time	A	A	A	A				
Analyte List	A	A	A	A				
Reporting Limits	A	A	A	A				
Trip Blank	A	A	A	A				
Equipment Rinseate Blanks	N/A	N/A	N/A	N/A				
Field Duplicate/Replicate	N/A	N/A	N/A	N/A				
Surrogate Spike Recovery	A	A	A	A				
Initial Calibration	N	N	N	N				
Initial Calibration Verification (ICV)	N	N	N	N				
Continuing Calibration Verification (CCV)	N	N	N	N				
Laboratory Control Sample (LCS)	A	A	A	A				
Laboratory Control Sample Duplicate (LCSD)	N	N	N	N				
Method Blank	A	A	A	A				
Matrix Spike/Matrix Spike Dup. (MS/MSD)	N/A	N/A	N/A	N/A				
Retention Time Window	N	N	N	N				
Injection Time(s)	N	N	N	N				
Hardcopy vs. Chain-of-Custody	A	A	A	A				
EDD vs. Hardcopy	N	N	N	N				
EDD vs. Chain of Custody	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:

Gulf Coast
ACCUTEST.
Laboratories

06/27/03

Technical Report for

Montgomery Watson

EPFS San Juan Basin GS

Accutest Job Number: T4642

Report to:

El Paso

lynn.benally@elpaso.com

ATTN: Lynn Benally

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

Sample Summary

Montgomery Watson

Job No: T4642

EPFS San Juan Basin GS

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
T4642-1	06/24/03	06:00	MJN	06/25/03	AQ	Trip Blank Water	240603TB01
T4642-2	06/24/03	08:17	MJN	06/25/03	AQ	Water	JENNEPAH MW-1
T4642-3	06/24/03	09:15	MJN	06/25/03	AQ	Water	JENNEPAH MW-2
T4642-4	06/24/03	08:44	MJN	06/25/03	AQ	Water	JENNEPAH MW-3

Accutest Laboratories

Report of Analysis

Client Sample ID:	240603TB01		
Lab Sample ID:	T4642-1	Date Sampled:	06/24/03
Matrix:	AQ - Trip Blank Water	Date Received:	06/25/03
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	KK005318.D	1	06/25/03	BC	n/a	n/a	GKK280
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	103%		64-121%
98-08-8	aaa-Trifluorotoluene	103%		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:	JENNEPAH MW-1		
Lab Sample ID:	T4642-2	Date Sampled:	06/24/03
Matrix:	AQ - Water	Date Received:	06/25/03
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	KK005332.D	1	06/26/03	BC	n/a	n/a	GKK281
Run #2	KK005319.D	5	06/25/03	BC	n/a	n/a	GKK280

	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	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)	44.1	3.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	
	m,p-Xylene	44.1	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	233% [a]	111%	64-121%
98-08-8	aaa-Trifluorotoluene	490% [a]	117%	71-121%

(a) 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:	JENNEPAH MW-2		
Lab Sample ID:	T4642-3	Date Sampled:	06/24/03
Matrix:	AQ - Water	Date Received:	06/25/03
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	KK005326.D	1	06/26/03	BC	n/a	n/a	GKK280
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	106%		64-121%
98-08-8	aaa-Trifluorotoluene	106%		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:	JENNEPAH MW-3		
Lab Sample ID:	T4642-4	Date Sampled:	06/24/03
Matrix:	AQ - Water	Date Received:	06/25/03
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	KK005327.D	1	06/26/03	BC	n/a	n/a	GKK280
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	95%		64-121%
98-08-8	aaa-Trifluorotoluene	95%		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: T4642
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK280-BS	KK005308.D	1	06/25/03	BC	n/a	n/a	GKK280

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

T4642-1, T4642-2, T4642-3, T4642-4

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	20.4	102	82-115
108-88-3	Toluene	20	19.8	99	77-116
1330-20-7	Xylenes (total)	60	60.2	100	79-115
95-47-6	o-Xylene	20	19.8	99	78-114
	m,p-Xylene	40	40.3	101	79-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	99%	64-121%
98-08-8	aaa-Trifluorotoluene	96%	71-121%

Blank Spike Summary

Job Number: T4642
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK281-BS	KK005330.D	1	06/26/03	BC	n/a	n/a	GKK281

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

T4642-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	20.9	105	74-119
100-41-4	Ethylbenzene	20	20.8	104	82-115
108-88-3	Toluene	20	20.6	103	77-116
1330-20-7	Xylenes (total)	60	62.1	104	79-115
95-47-6	o-Xylene	20	20.6	103	78-114
	m,p-Xylene	40	41.4	104	79-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	97%	64-121%
98-08-8	aaa-Trifluorotoluene	95%	71-121%

Method Blank Summary

Job Number: T4642
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK280-MB	KK005309.D	1	06/25/03	BC	n/a	n/a	GKK280

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

T4642-1, T4642-2, T4642-3, T4642-4

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	106%	64-121%
98-08-8	aaa-Trifluorotoluene	107%	71-121%

Method Blank Summary

Job Number: T4642
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK281-MB	KK005331.D	1	06/26/03	BC	n/a	n/a	GKK281

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

T4642-2

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

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	102%	64-121%
98-08-8	aaa-Trifluorotoluene	101%	71-121%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T4642
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T4643-4MS	KK005336.D	1	06/26/03	BC	n/a	n/a	GKK281
T4643-4MSD	KK005337.D	1	06/26/03	BC	n/a	n/a	GKK281
T4643-4	KK005335.D	1	06/26/03	BC	n/a	n/a	GKK281

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

T4642-2

CAS No.	Compound	T4643-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		20	21.4	107	21.2	106	1	64-124/16
100-41-4	Ethylbenzene	ND		20	21.9	110	21.5	108	2	64-123/14
108-88-3	Toluene	ND		20	21.2	106	21.1	106	0	64-120/13
1330-20-7	Xylenes (total)	ND		60	64.6	108	63.1	105	2	66-118/18
95-47-6	o-Xylene	ND		20	21.3	107	20.8	104	2	65-119/20
	m,p-Xylene	ND		40	43.3	108	42.2	106	3	66-120/14

CAS No.	Surrogate Recoveries	MS	MSD	T4643-4	Limits
460-00-4	4-Bromofluorobenzene	99%	100%	98%	64-121%
98-08-8	aaa-Trifluorotoluene	95%	98%	95%	71-121%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T4642
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T4644-2MS	KK005314.D	1	06/25/03	BC	n/a	n/a	GKK280
T4644-2MSD	KK005315.D	1	06/25/03	BC	n/a	n/a	GKK280
T4644-2	KK005311.D	1	06/25/03	BC	n/a	n/a	GKK280

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

T4642-1, T4642-2, T4642-3, T4642-4

CAS No.	Compound	T4644-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		20	20.9	105	20.9	105	0	64-124/16
100-41-4	Ethylbenzene	ND		20	20.2	101	19.8	99	2	64-123/14
108-88-3	Toluene	ND		20	19.5	98	19.3	97	1	64-120/13
1330-20-7	Xylenes (total)	ND		60	31.8	53*	28.0	47*	13	66-118/18
95-47-6	o-Xylene	ND		20	14.2	71	12.9	65	10	65-119/20
	m,p-Xylene	ND		40	17.7	44*	15.1	38*	16*	66-120/14

CAS No.	Surrogate Recoveries	MS	MSD	T4644-2	Limits
460-00-4	4-Bromofluorobenzene	102%	114%	109%	64-121%
98-08-8	aaa-Trifluorotoluene	100%	113%	111%	71-121%

CHAIN OF CUSTODY #240603MN01

ACCUTEST Laboratories

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

FED-EX Tracking # 836857900581 | Bottle Order Control #

Accutest Quote # | Accutest Job #

Client / Reporting Information

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

Project Information

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

Requested Analysis

BTEX

Matrix Codes

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

LAB USE ONLY: WP

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Time	Sampled By	Matrix	# of bottles	HCl	NaOH	ZnAc	H2SO4	None	NaHSO4	MeOH	Encore	BTEX
1	@240603TB01		6-24-03	0600	MW	WQ	1	X								X
2	Jennepah MW-1		6-24-03	0817	MW	WG	2	2								X
3	Jennepah MW-2		6-24-03	0915	MW	WG	2	2								X
4	Jennepah MW-3		6-24-03	0844	MW	WG	2	2								X

T4642

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

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	6-24-03 1600hrs	1	2	6/25/03 8:30	2 Alejandra Luna
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 / Cooler Temp.
5		5			X 3.8 °C

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF INSPECTION

Address (EPA Regional Office)	Inspection Contractor	Firm To Be Inspected
Region 9 Environmental Inspection Agency 75 Hawthorne Street (WTR-9) San Francisco, CA 94105	Navajo EPA UIC Program P.O. Box 1999 Shiprock NM 87420-	[illegible]

Date 6-24-03	Notice of inspection is hereby given according to Section 1445(b) of the Safe Drinking Water Act (42 U.S.C. §300 f et seg.).
Hour [illegible]	

Reason For Inspection

For the purpose of inspecting records, files, papers, processes, controls and facilities, and obtaining samples to determine whether the person subject to an applicable underground injection control program has acted or is acting in compliance with the Safe Drinking Water Act and any applicable permit or rule.

UIC staff witnessed and monitored groundwater sampling at: [illegible] #1, [illegible] 20-603-782 [illegible] #1, #2 and MW3, SW/4 NE/4 Sec 30 T28N, R9W San Juan County NM, [illegible] MW #3, Sec 1, Sec 13, T2?N R?W [illegible] County, NM. [illegible] for each [illegible] total 12 [illegible] the laboratory. Results [illegible] UIC office later.

Section 1445(b) of the SDWA (42 U.S.C. §300 j-4 (b) is quoted on the reverse of this form.

Receipt of this Notice of Inspection is hereby acknowledged.

Firm Representative	Date	Inspector
[signature]	6-24-03	[illegible]

USEPA - Region IX (White) NEPA-GPCP (Yellow) Operator (Pink)

DATA VALIDATION WORKSHEET

Analytical Method/Analytes: SW-846 8021B (BTEX) **Sample Collection Date(s):** 03/25/03

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

Batch Identification: 03-02406 **Matrix:** Water

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

Validation Complete: Brian Buttars 4-23-03 (Date/Signature)

Foot Notes	Site ID	Sample ID	Lab. ID	Hits (Y/N)	Quals.	Comments
1	Jennepah	MW-1	03-02406-01	Y	B	Toluene @ 190 µg/l
1	Trip Blank	250303MN-1	03-02406-02	Y		Toluene @ 0.2 T µg/l

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 #: 801-032406
Collected by: MJN
Collected on: 03/25/03

Received: 03/26/03
Extracted: N/A
Tested: 03/28/03
Reported: 03/31/03

Sample Description: Water
Project Description: 220013 San Juan Basin

Analysis of Water Samples

Component Analyzed	Method	Unit	PQL	Analysis Result MW-1 03-02406-1	TB 03-02406-2
BTXE					
Dilution Factor				5	1
BENZENE	8021B	µg/L	0.5	74	<0.5
ETHYLBENZENE	8021B	µg/L	0.5	168	<0.5
TOLUENE	8021B	µg/L	0.5	190	0.2J
O-XYLENE	8021B	µg/L	0.5	576	<0.5
M,P-XYLENE	8021B	µg/L	1	212	<1

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

CHAIN OF CUSTODY RECORD/LAB WORK REQUEST

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

Chain of Custody ID 250303MN-1
Page 1 of 1
Air Bill No. 835603757044

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 MJN
(print clearly)

Location ID	Sample ID	Depth Interval (ft)	Date Collected	Time Collected	Matrix [a]	Sampling Technique [b]	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				
GW Jennegah MW-1	MW-1		3-25-03	1053	WG	B	X											
250303MN-1	TB		3-25-03	0650	WQ		X											

2406

[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
		3-25-03	1400
	Paul Kon	3/26/03	0900

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes:
3 Temperature _____
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:

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 #: 801-032406
Collected by: MJN
Collected on: 03/25/03
Sample description:
Water
Project: San Juan Basin /220013

Received: 03/26/03
Tested: 03/28/03
Reported: 04/21/03

Analysis of Water

801-032406QC

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	03G1854	100	90	N.D.	μg/L	18.0	99	94	97	3	71-126	28
Toluene	03G1854	100	98	N.D.	μg/L	70.0	97	94	97	3	70-117	24
Ethylbenzene	03G1854	100	101	N.D.	μg/L	18.0	87	97	103	6	65-131	33
m/p-Xylene	03G1854	200	95	N.D.	μg/L	70.0	96	91	97	6	66-122	28
o-Xylene	03G1854	100	95	N.D.	μg/L	25.0	95	88	95	8	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:	032406
Project ID:	San Juan Basin	Project No:	220013	Sample Matrix:	Water
		Batch No:	03G1854		

#	Client Sample No	Lab Sample ID	S1 % #	TOT OUT
1		03G1854-LCS-01	97	0
2		03G1854-LSD-01	93	0
3		03G1854-MB-01	100	0
4	TB 250303MN-1	03-2406-2	99	0
5	Jennepah MW-1	03-2406-1	114	0
6	LF821	03-2389-7MS	97	0
7	LF821	03-2389-7MSD	97	0
8				
9				
10				
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

CHAIN OF CUSTODY RECORD/LAB WORK REQUEST

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

Chain of Custody ID 250303MN-1
Page 1 of 1
Air Bill No. 835603757044

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 MJN
(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				
GW Jennegah MW-1	MW-1		3-25-03	1053	WG	B	X											
250303MN-1	TB		3-25-03	0630	WQ		X											

2106

[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
		3-25-03	1400
	Paul Kan	3/26/03	0900

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes:

3 Temperature _____

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:

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

Sample Receiving Checklist

APCL ServiceID: 2406 Client Name/Project: Montgomery Watson

1. Sample Arrival

Date/Time Received 3/26/03 0900 Date/Time Opened 3/26/03 0900 By (name): Paul Ken
Custody Transfer: ☐ Client ☐ Golden State ☐ UPS ☐ US Mail ☑ FedEx ☐ APCL Empl: _____

2. Chain-of-Custody (CoC)

☑ With Samples? ☐ Faxed? ☑ Client has Copy? ☐ Signed, dated? By: _____
☑ Project ID? ☑ Analyses Clear? ☐ Hold Samples? #on Hold _____ # Received 2
☑ CoC/Docs Zip-Locked under lid? ☐ Compos.#: _ ☑ #Samples OK? _____
☐ Discrepancies? ☐ Client notified? ☐ Response (attach docs): _____

3. Shipping Container/Cooler

☑ Cooler Used? # of 1 Cooled by: ☑ Ice ☐ Blue Ice ☐ Dry Ice ☐ None
Temp °C 4.2°C _____ _____ _____ _____ _____
(Cooler temperature measured from temp blank if present, otherwise measured from the cooler).
Cooler Custody Seal? ☐ Absent ☐ Intact ☐ Tampered?

4. Sample Preservation

☐ pH <2 ☐ pH >12
If Not, pH = _____ Preserved by: ☐ Client ☐ APCL ☐ Third Party _____

5. Holding-time Requirements

☐ pH 24hr ☐ BACT 6/24hr ☐ Cr^{VI} 24hr ☐ NO_3^- 48hr ☐ BOD 48hr
☐ Cl_2 ASAP ☐ Turbidity 48hr ☐ DO ASAP ☐ Fe(II) ASAP
☐ HT Expired? ☐ Client notified?

6. Sample Container Condition

☑ Intact? ☐ Broken? ☐ Documented? Number: _____
Type: ☐ plastic ☑ glass ☐ Tube: brass/SS ☐ Tedlar Bag
☑ Quantity OK? ☐ Leaking? ☐ Anomaly?
☑ Caps tight? ☐ Air Bubbles? ☐ Anomaly?
Labels: ☑ Unique ID? ☐ Date/Time ☐ Preserved?

7. Turn Around Time

☑ RUSH TAT: 5 day ☐ Std (7-10 days) ☐ Not Marked

8. Sample Matrix

☐ Drinking H_2O ☑ Other Liq ☐ Soil ☐ Wipe ☐ Polymer ☐ Air ☐ Other: _____
☐ Ground H_2O ☐ Sludge ☐ Filter ☐ Oil/Petro ☐ Paint ☐ W. Water ☐ Extract ☐ Unknown

9. Pre-Login Check List Completed & OK?

☑ ALL OK? (if not, attach docs) ☐ Client Contact? (Name: _____)Date/Time: _____
Received/Checked by: Paul C Date: 26 Mar 2003 Time: 7:42a.m.

*HT: Samples must be analyzed for results to reflect total concentrations. Results generated outside required of holding times are considered minimal values and may be used to define waste as hazardous but not as non-hazardous.

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

Sample Login: Check List

03-02406 (0984_1043) (2721900_1043)

03/26/03

Part 1: General Information

☐ Company Information	Name:	*Montgomery Watson Harza*
	Address:	*10619 South Jordan Gateway ,Salt Lake City ,UT 84095*
☐ Project Information	Project Description:	*San Juan Basin*
		Hill AFB
	Project #:	*220013*
☐ Billing Information	P.O. #:	
	Bill Address:	*10619 South Jordan Gateway ,Salt Lake City ,UT 84095*
	Lab Project ID:	*1999_0746*
	Client Database #:	*04*
☐ Receiving Information	Who Received Sample?	*Paul Kou*
	Receiving Date/Time:	*03/26/03 0900*
	COC No.	
☐ Shipping Information	Shipping Company	*Express*
	Packing Information:	*Cooler/Ice Chester*
	Cooler Temperature:	*4.2 °C*
☐ Container Information	Container Provider:	*Client*
☐ Sampling Information	Sampling Person:	
	Sampling Company:	*Client*
☐ Turn-Around-Time Option:		*Rush 5 working day(s)*
☐ QC Option:		*QC and Surro. Rep.*
☐ Disposal Option:		*Not specify*

Part 2: Sample Information

Seq. #	Sample ID (on COC)	Sample Sub-ID	APCL Sample ID	Matrix	Cont-tainer	Preser-vative	Vol, ml Am. g	# of Replica	Condition G, L, B	Collected mmddyy	Hold ?	Composite Group	TAT Days	
1	MW-1	BTEX	03-02406-1	W	V	C	40	2	G	032503	N	0	7	☐
2	TB	BTEX	03-02406-2	W	V	C	40	1	G	032503	N	0	7	☐

Part 3: Analysis Information

Test Items: ☑ *8021B* **BTXE**

Seq. #	Client"s Sample ID (as given on COC)	Sample Sub-ID	APCL Sample ID	Matrix	BTXE	
1	MW-1	BTEX	03-02406-1	W	X	☐
2	TB	BTEX	03-02406-2	W	X	☐

Login By En-Yu Paul Kou

Check By

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 #: 801-032406
Collected by: MJN
Collected on: 03/25/03

Received: 03/26/03
Extracted: N/A
Tested: 03/28/03
Reported: 03/31/03

Sample Description: Water
Project Description: 220013 San Juan Basin

Analysis of Water Samples

Component Analyzed	Method	Unit	PQL	Analysis Result MW-1 03-02406-1	TB 03-02406-2
BTXE					
Dilution Factor				5	1
BENZENE	8021B	µg/L	0.5	74	<0.5
ETHYLBENZENE	8021B	µg/L	0.5	168	<0.5
TOLUENE	8021B	µg/L	0.5	190	0.2J
O-XYLENE	8021B	µg/L	0.5	576	<0.5
M,P-XYLENE	8021B	µg/L	1	212	<1

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

APPENDIX G

FIELD DOCUMENTATION
(2003)

WELL DEVELOPMENT AND SAMPLING LOG

Project No.: 30001.0 Project Name: SJB Groundwater Client: MWH/EL Paso
Location: Jennapah Well No: MW-3 Development Sampling
Project Manager MJN Date 12/16/03 Start Time 0931 Weather Sunny teens
Depth to Water 25.88 Depth to Product na Product Thickness na Measuring Point TOC
Water Column Height 5.49 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	
5.49 x 0.16	.88 x 3		2.64

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gallons)	Comments/ Flow rate
0934	7.91	1230	53.0				0.25	tan silty
	7.96	1350	53.3				0.75	tan silty
	7.91	1380	53.7				1.0	tan silty
	7.92	1380	52.8				2.0	tan silty
0948	7.94	1390	53.1				3.0	tan silty

Final: Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow Rate
0948	7.94	1390	53.1					3.0	tan silty

COMMENTS: Navajo EPA called and canceled visit, said to proceed without them.

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

Water Disposal Kutz Sample ID Jennapah MW-3 Sample Time 00952

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

MS/MSD _____ BD _____ BD Name/Time _____ TB 161203tb01

WELL DEVELOPMENT AND SAMPLING LOG

Project No.: 30001.0 Project Name: SJB Groundwater Client: MWH/EL Paso
Location: Jennapah Well No: MW-2 Development **Sampling**
Project Manager MJN Date 12/16/03 Start Time 0858 Weather Sunny teens
Depth to Water 25.92 Depth to Product na Product Thickness na Measuring Point TOC
Water Column Height 5.93 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	
5.93 x 0.16	.95 x 3		2.85

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gallons)	Comments/ Flow rate
0904	7.7	1470	54.4				0.25	tan silty
	7.68	1520	54.9				0.5	tan silty
	7.68	1520	55.7				0.75	tan silty
	7.72	1500	54.3				1.75	tan silty
	7.74	1480	53.9				2.75	tan silty
0919	7.76	1450	54.0				3.75	tan silty

Final: Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow Rate
0919	7.76	1450	54.0					3.75	tan silty

COMMENTS: Navajo EPA called and canceled visit, said to proceed without them.

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

Water Disposal Kutz Sample ID Jennapah MW-2 Sample Time 0925

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

MS/MSD_____ BD_____ BD Name/Time_____ TB 161203tb01

WELL DEVELOPMENT AND SAMPLING LOG

Project No.: 30001.0 Project Name: SJB Groundwater Client: MWH/EL Paso
Location: Jennapah Well No: MW-1 Development Sampling
Project Manager MJN Date 12/16/03 Start Time 0958 Weather Sunny teens
Depth to Water 25.46 Depth to Product na Product Thickness na Measuring Point TOC
Water Column Height 8.65 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	
8.65 x 0.65	5.62 x 3		16.86

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gallons)	Comments/ Flow rate
1002	7.22	1420	54.3				1	Clear
	7.27	1420	53.2				2	Clear
	7.33	1390	53.5				3	Clear
	7.47	1350	51.9				10	Clear
	7.56	1310	53.5				15	Clear
	7.59	1360	53.0				16	Clear
1034	7.60	1370	53.3				17	Clear

Final: Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow Rate
1034	7.60	1370	53.3					17	Clear

COMMENTS: Navajo EPA called and canceled visit, said to proceed without them.

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

Water Disposal Kutz Sample ID Jennapah MW-1 Sample Time 1040
BTEX VOCs Alkalinity TDS Cations Anions Nitrate Nitrite Ammonia TKN NMWQCC Metals Total Phosphorus

MS/MSD _____ BD _____ BD Name/Time _____ TB 161203tb01

WELL DEVELOPMENT AND SAMPLING LOG

Project No.: 30001.0 Project Name: SJB Groundwater Client: MWH/EL Paso
Location: Jennapah Well No: MW-1 Development **Sampling**
Project Manager MJN Date 9/23/03 Start Time 0825 Weather Sunny 70s
Depth to Water 25.975 Depth to Product na Product Thickness na Measuring Point TOC
Water Column Height 8.315 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	
8.315 x 0.65	5.400 x 3		16.21

Time (military)	pH (su)	SC (umhos/cm)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gallons)	Comments/ Flow rate
0835	**6.36**	**1230**	**13**				**1**	**Clear**
	6.79	**1340**	**13.5**				**2**	**Clear**
	6.89	**1480**	**13.5**				**3**	**Clear**
0850	**7.10**	**1460**	**13.1**				**8**	**Clear**
	7.05	**1450**	**13.2**				**15**	**Clear**
0901	**7.17**	**1400**	**13.5**				**17**	**Clear**

Final: Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow Rate
0901	**7.17**	**1400**	**13.5**					**17**	**Clear**

COMMENTS: Malvina Clah of the Navajo EPA arrived at 0830 hrs

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

Water Disposal Kutz Sample ID Jennapah MW-1 Sample Time 0910

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

MS/MSD _____ BD _____ BD Name/Time _____ TB 230903tb01

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**	**9-23-03**
Site Name	**Jennapah**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-1	0807	-	25.795	-	-
MW-2		-	26.06	-	-
MW-3		-	26.21	-	-

Comments

Signature: *Martin J. Nee* Date: September 23, 2003

WELL DEVELOPMENT AND SAMPLING LOG

Project No: 30001-0 Project Name: San Juan Basin Client: MW4

Location: Jennepah Well No: MW-3 Development ☒ Sampling ☒

Project Manager MJNee Date 6-24-03 Start Time 0826 Weather 80s Clear

Depth to Water 26.36 Depth to Product — Product Thickness — Measuring Point TOC

Water Column Height 4.85 Well Dia. 2"

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

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

Criteria: 3 to 5 Casing Volumes of Water Removal ☐ Sabilization of Indicator Parameters ☐ Other _____

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	
4.85 x .16	.776 x 3		2.32

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
0831	6.89	1110	17.8				.5	Silty Tan
	7.17	1105	16.7				1	
	7.16	1100	16.2				1.5	
0838	7.15	1090	16.4				2.0	
0840	7.17	1110	16.3				2.5	

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
0840	7.17	1110	16.3					2.5	Silty tan

COMMENTS: Makes good water Navajo Eps onsite

INSTRUMENTATION: pH Meter ☒ _____ Temperature Meter ☒ _____

DO Monitor ☐ _____ Other ☐ _____

Conductivity Meter ☒ _____

Water Disposal Kodz

Sample ID Jennepah mw-3 Sample Time 0844 BTEX ☒ VOCs ☐ Alkilinity ☐

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

Total Phosphorus ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐

MS/MSD _____ BD _____ BD Name/Time _____ TB 240603180#1

WELL DEVELOPMENT AND SAMPLING LOG

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

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

Project Manager MJ Nee Date 6-24-03 Start Time 0850 Weather 80s Clear

Depth to Water 26.55 Depth to Product — Product Thickness — Measuring Point TOC

Water Column Height 5.05 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 or bail dry

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	
5.05 x .16	.808 x 3		2.4z

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
0856	685	1080	17.5				.5	silty
	706	1090	16.4				1	
	708	1120	16.1				1.5	
	704	1090	16.0				2.0	
0909	706	1090	16.3				2.5	

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
0909	706	1090	16.3					2.5	silty

COMMENTS: Makes good water. Navajo EPA onsite

INSTRUMENTATION: pH Meter ☒ ____ Temperature Meter ☒ ____

DO Monitor ☐ ____ Other ☐ ____

Conductivity Meter ☒ ____

Water Disposal Kutz

Sample ID Tennepah Sample Time 0915 BTEX ☒ VOCs ☐ Alkilinity ☐

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

Total Phosphorus ☐ ____ ☐ ____ ☐ ____ ☐ ____ ☐

MS/MSD ____ BD ____ BD Name/Time ____ TB 240603TB#1

WELL DEVELOPMENT AND SAMPLING LOG

Project No: 30009.0 Project Name: San Juan Basin Client: MWH

Location: Jennepah Well No: MW-1 Development ☐ Sampling ☒

Project Manager MJN Date 6-24-03 Start Time 0735 Weather 80s clear

Depth to Water 26.12 Depth to Product — Product Thickness — Measuring Point TOC

Water Column Height 7.99 Well Dia. 4in

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 boiling

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	
7.99 x .65	5.19 x 3		15.58

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
0740	6.63	2080	17.5				1	clear
	7.08	1430	16.5				2	
0752	7.10	1230	16.1				8	
	7.10	1140	16.4				12	
	7.12	1120	16.1				14	
0814	7.17	1110	15.9				16	

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
0814	7.17	1110	15.9					16	clear

COMMENTS: Makes good water did not boil down

INSTRUMENTATION: pH Meter ☒ _____ Temperature Meter ☒ _____

DO Monitor ☐ _____ Other ☐ _____

Conductivity Meter ☒ _____

Water Disposal Kurtz

Sample ID Jennepah MW-1 Sample Time 0817 BTEX ☒ VOCs ☐ Alkilinity ☐

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

Total Phosphorus ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐

MS/MSD _____ BD _____ BD Name/Time _____ TB 240603TB01

WELL DEVELOPMENT AND SAMPLING LOG

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

Location: Jennepah #1 Well No: MW-1 Development ☐ Sampling ☑

Project Manager MTN Date 3-25-03 Start Time 1024 Weather Clear 40s

Depth to Water 25.85 Depth to Product No Product Thickness No Measuring Point TOC

Water Column Height 6.32 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 _____

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	
8.32 x .65	5.4 x 3		16.20

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1024	6.58	1230	21.1				1	clear
	7.02	1140	19.0				2	Grey odiferous
	7.22	1090	17.8				3	sewage smell
	7.12	1070	17.3				4	
	7.25	1080	18.6				6	
	7.30	1240	18.4				8	
	7.35	1070	17.6				10	Grey
	7.39	1210	18.8				12	
	7.39	1090	18.4				14	
	7.38	1110	18.5				16	
1052	7.39	1100	18.5				18	
1053								

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
1052	7.39	1100	18.5					18	

COMMENTS: _____

INSTRUMENTATION: pH Meter ☒ _____ Temperature Meter ☒ _____

DO Monitor ☐ _____ Other ☐ _____

Conductivity Meter ☒ _____

Water Disposal Kutz

Sample ID Jennepah #1 MW-1 Sample Time 1053 BTEX ☒ VOCs ☐ Alkilinity ☐

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

Total Phosphorus ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐

MS/MSD _____ BD _____ BD Name/Time _____ TB 250303MW-1

Product Recovery and Well Observation Data

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

Project No: 220013
Date: 3-13-03

Well	Time	Depth to Water (ft)	Depth to Product (ft)	Total Well Depth (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	0839	25.85	—	—	—	—	
MW-2	0925	26.27	—	—	—	—	
MW-3	0938	26.07	—	—	—	—	

COMMENTS:

Signature: MRB

Date: 3-13-03