3R - <u>197</u>

REPORTS

DATE: 2003

Certified Mail: #7002 0510 0000 0307 7497

February 26, 2004

Mr. William C. Olson New Mexico Oil Conservation Division 1220 St. Francis Dr. Santa Fe, NM 87504 RECEIVED

JR197 paso Field Services

MAR 03 2004

Oil Conservation Division Environmental Bureau

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

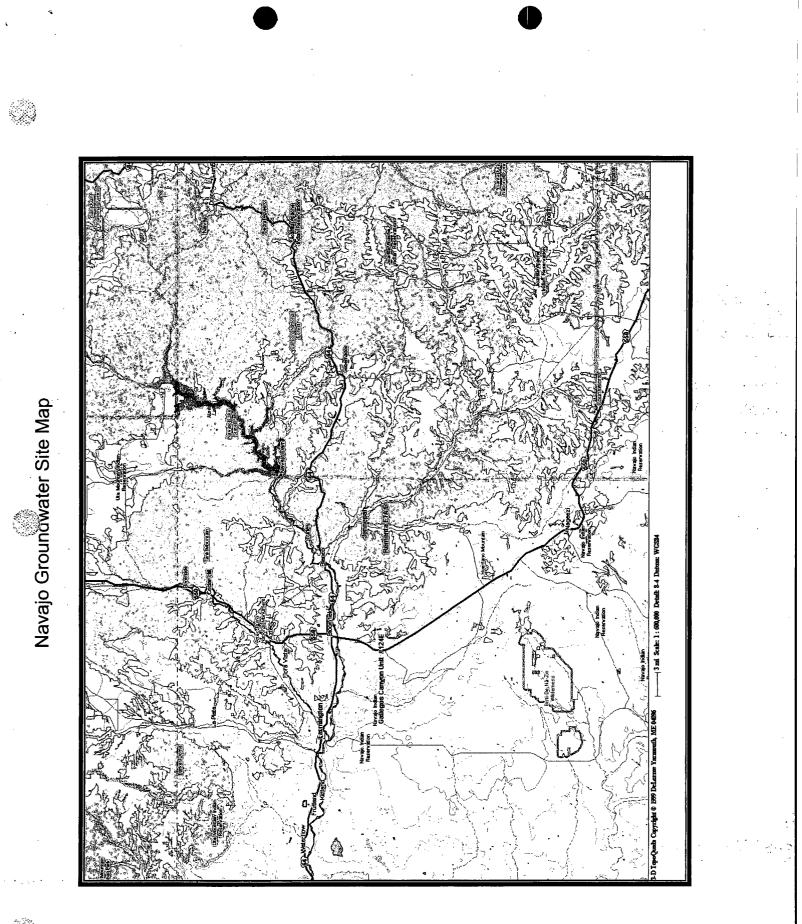
TABLE OF CONTENTS

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

· · · · · ·



MWH MONTGOMERY WATSON HARZA



LIST OF ACRONYMS

В	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
Т	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



1

2003 Annual Groundwater Report El Paso Field Services March 2003

2003 ANNUAL GROUNDWATER REPORT NAVAJO SITES VOLUME III

EL PASO FIELD SERVICES

TABLE OF CONTENTS

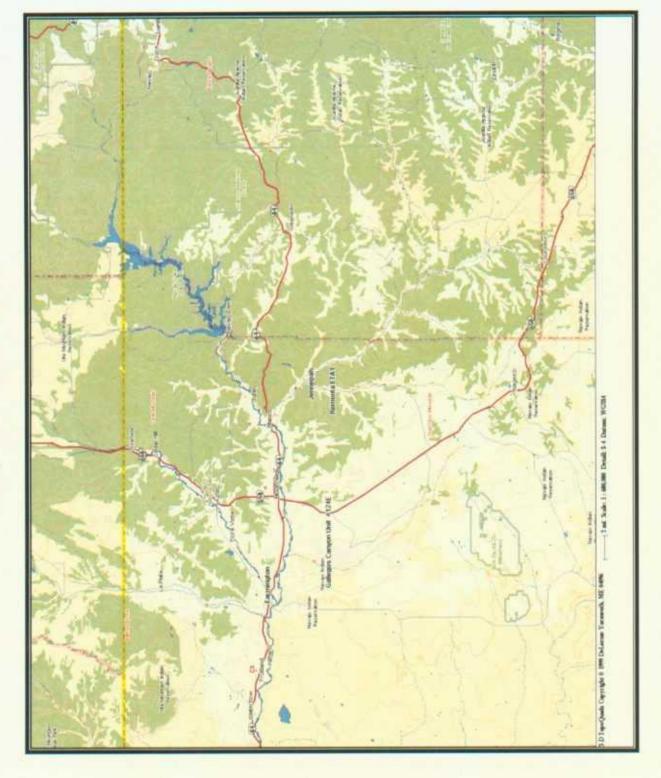
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Navajo Groundwater Site Map



LIST OF ACRONYMS

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2003 Annual Groundwater Report El Paso Field Services March 2003 PIT CLOSURE REPORT JENNAPAH #1 METER CODE 71816 -

FEBRUARY 2004

> Jennepah #1 Meter Code: 71816

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EPFS Groundwater Sites Closure Report, Jennapah #1 Meter Code 71816

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Figures

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- Figure 2: Jennapah #1, June 2003
- Figure 3: Jennapah #1, September 2003
- Figure 4: Jennapah #1, December 2003
- Figure 5: Historic BTEX Concentrations and Groundwater Elevations, MW-1
- Figure 6: Historic BTEX Concentrations and Groundwater Elevations, MW-2
- Figure 7: Historic BTEX Concentrations and Groundwater Elevations, MW-3
- Appendix A: Phase I Pit Site Assessment (1994)
- Appendix B: Pit Excavation and Soil Sample Results (1994, 1995)

✤ Appendix C: Soil Boring Sample Results (1997)

- Appendix D: Monitoring Well Borelogs and Well Construction Forms (1997, 1999)
- Appendix E: ORC Injection Borelogs and Location Map (1998)
- Appendix F: Laboratory Reports (2003)
- Appendix G: Field Documentation (2003)



Jennepah #1 Meter Code: 71816

SITE DETAILS

Legal Description:	Town	a: 28N Rang	ge: 9W	Sec: 36 1	U nit: H
NMOCD Haz Ranking:	40	Land Type: Navajo	Operator	: Amoco Production	1
PREVIOUS ACT	<u> TIVITIES</u>		1 104		
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

Jennepah #1 Meter Code: 71816

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 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.

> Jennepah #1 Meter Code: 71816

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 μ g/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.

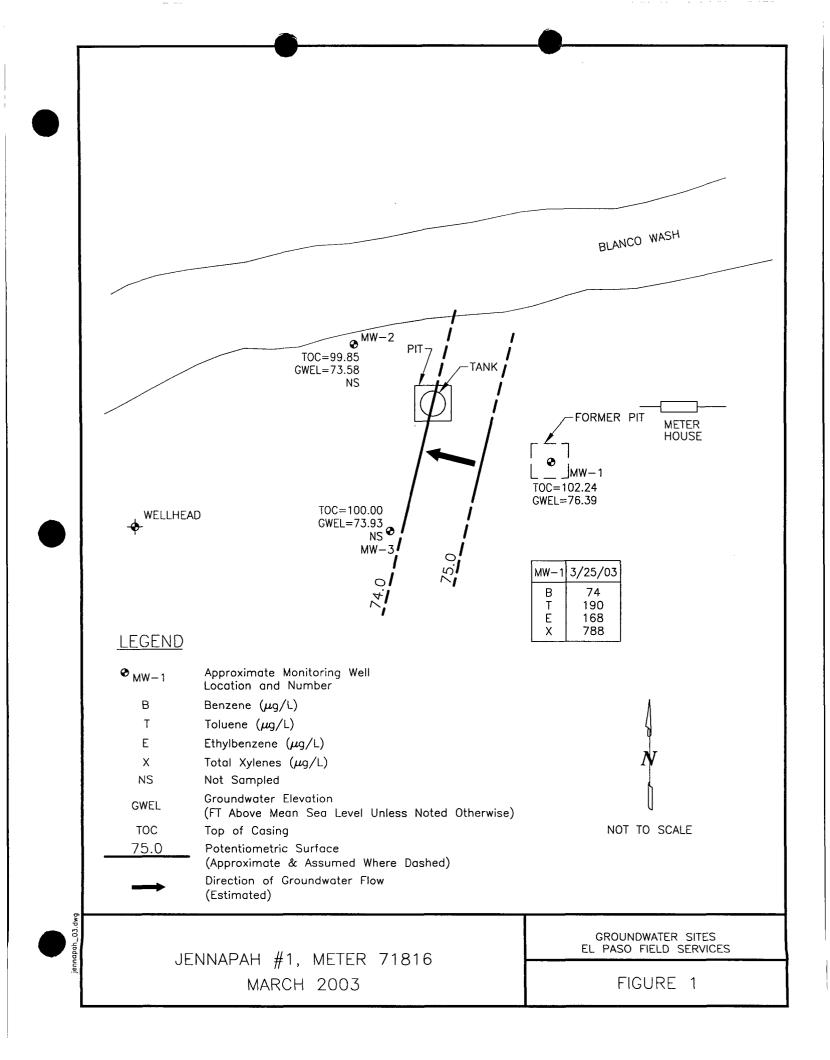
RECOMMENDATIONS

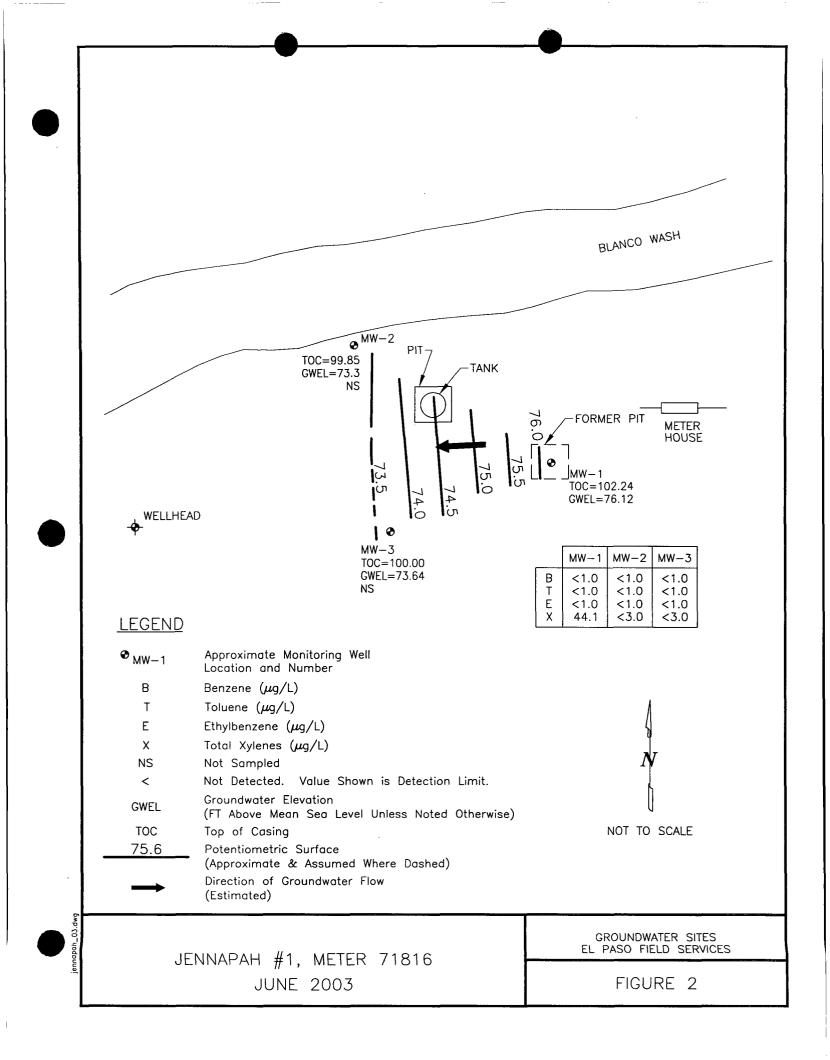
- Navajo Nation EPA closure criteria have been met. EPFS requests closure of this site.
- Following NNEPA and USEPA approval for closure, MW-1, MW-2 and MW-3 will be abandoned in accordance with the approved Monitoring Well Abandonment Plan.

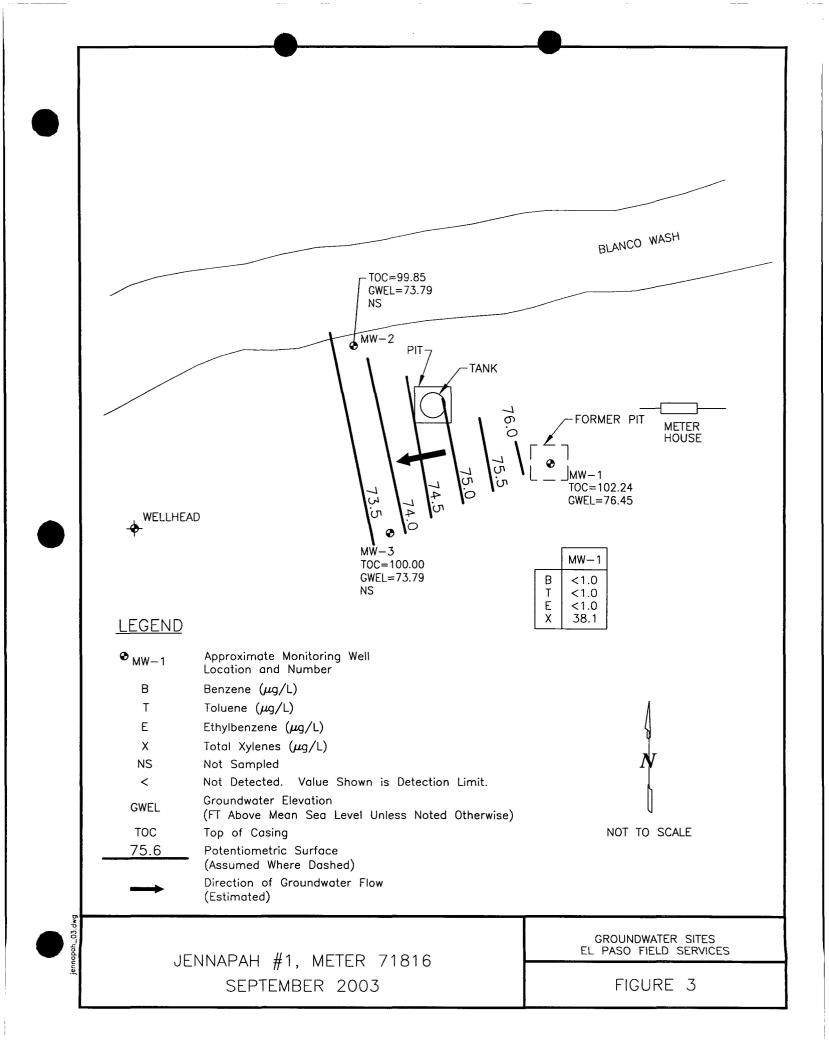
TABLE 1

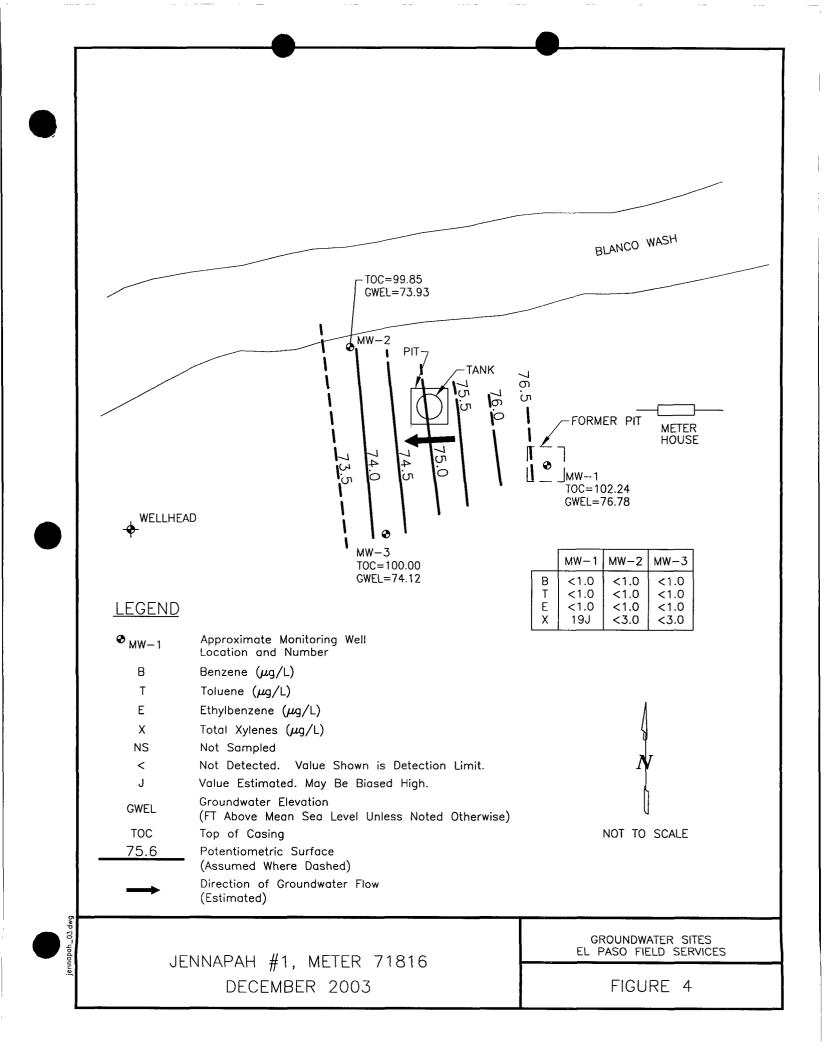
SUMMARY OF HISTORIC BTEX COMPOUNDS IN GROUNDWATER SAMPLES JENNEPAH #1 (METER #71816)

Site Name	Monitoring	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	Groundwater Elevation
	Well		(ng/L)	(ng/L)	(ng/L)	(ug/L)	(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	62	61	460	77.84
Jennepah #1	I-WM	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	6	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	I-WM	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



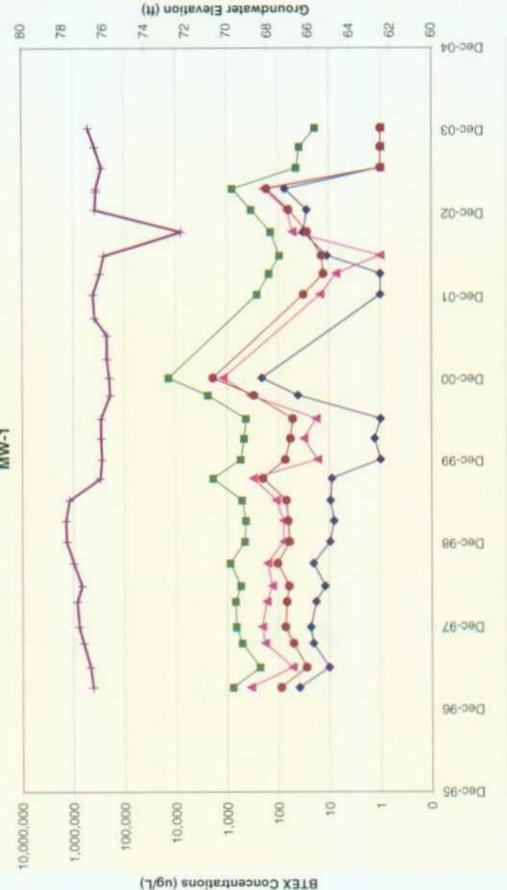








HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS **JENNEPAH #1** FIGURE 5 I-WW



2003 Jennepah.xls, Jennepah MW1

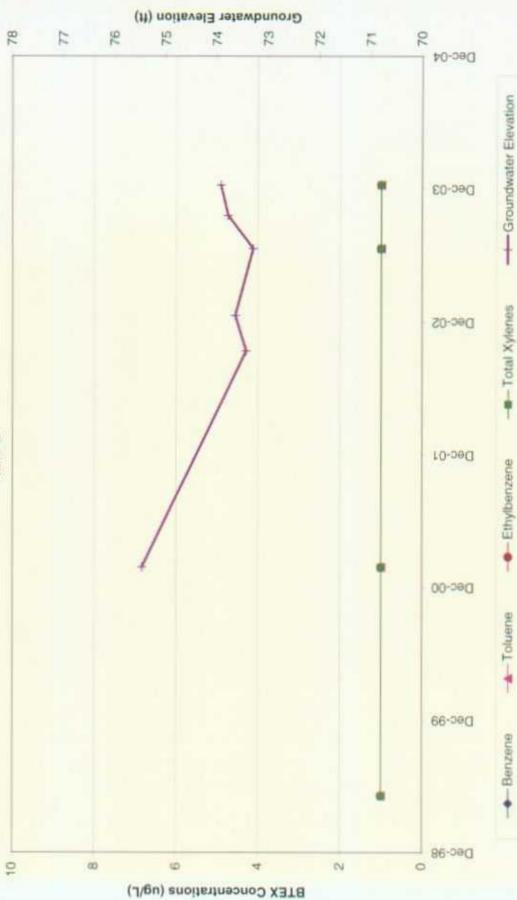
- Ethylbenzene

- Toluene

----------Benzene

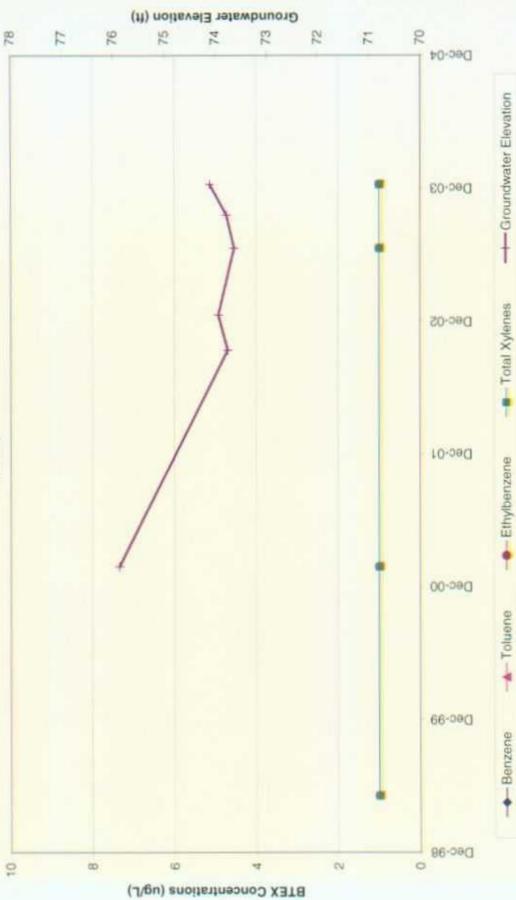












APPENDIX A

PHASE I PIT SITE ASSESSMENT (1994)

FIELD PIT SITE ASSESSMENT FORM

GENERAL	Meter: 71816_Location: Jennapah No 1 Operator #: 0207_ Operator Name: Amore P/L District: Blanco Coordinates: Letter: H_Section 36 Township: 28 Range: 1_ Or Latitude Longitude Pit Type: Dehydrator Location Drip: V_Line Drip:Other: Site Assessment Date: S/17/94 Area: 02 Run: 22
	NMOCD Zone:Land Type:BLM(1)(From NMOCDState(2)Maps)Inside(1)Fee(3)Outside(2)IndianNevajo Tribe
	Depth to GroundwaterLess Than 50 Feet (20 points)(1)50 Ft to 99 Ft (10 points)(2)Greater Than 100 Ft (0 points)(3)
ASSESSMENT	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)
SITE ASS	Horizontal Distance to Surface Water Body Less Than 200 Ft (20 points) X (1) 200 Ft to 1000 Ft (10 points) (2) Greater Than 1000 Ft (0 points) (3) Name of Surface Water Body Banco 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 ⁻
REMARING	Remarks: Redfine + Vuln - Inside
MA	Jpits Will DigdHaul / Pit Dry DigdHaul
RE	(SP3190) 04/08/94

ORIGINAL PIT LOCATION Original Pit : a) Degrees from North <u>65</u> Footage from Wellhead <u>15</u> b) Length : <u>17</u> Width : <u>17</u> Depth : <u>1</u> **ORIGINAL PIT LOCATION** N N 650 51 JWell hoad Remarks : Pictures @ 10:00(19-22) Endpunp REMARKS Completed By: 5/17/94 Signature Date

APPENDIX B

PIT EXCAVATION AND SOIL SAMPLE RESULTS (1994, 1995)

FIEL PIT REMEDIATION/CLOSUES FORM

GENERA	Meter: <u>718/6</u> Location: <u>JeknaPAH</u> <u>No</u> #1 Coordinates: Letter: <u>H</u> Section <u>36</u> Township: <u>28</u> Range: <u>9</u> Or Latitude Longitude Date Started : <u>6-1-94</u> Area: <u>03</u> Run: <u>82</u>
FIELD OBSERVATIONS	Sample Number(s): <u>KP 73</u> Sample Depth: <u>12</u> Feet Final PID Reading <u>314</u> PID Reading Depth <u>12</u> Feet Yes No Groundwater Encountered (1) (2) Approximate Depth Feet
CLOSURE	Remediation Method : Excavation Image: Comparison of the second definition of the second de
REMARKS	Remarks: <u>SOMe Line markels</u> , <u>Started Remediating 15</u> <u>Soil DRAK Gray Smell BAD. At 12 Soil Still the SAME.</u> <u>Pip 314</u> .
	Signature of Specialist: <u>July Pably</u> -2-

FIELD SERVICES LABORATORY ANALYTICAL REPORT PIT CLOSURE PROJECT - Soil 40

PIT CLUSUKE PROJECT - Sol

SAMPLE IDENTIFICATION

Field ID Lab ID SAMPLE NUMBER: 945329 KP 73 N/A MTR CODE | SITE NAME: 71814 SAMPLE DATE | TIME (Hrs): 6-1-91 122 SAMPLED BY: N/A DATE OF TPH EXT. | ANAL .: 6-2-94 6110194 DATE OF BTEX EXT. | ANAL .: BROWN STAY COARSE JANO TYPE | DESCRIPTION: VC

REMARKS:

RESULTS PARAMETER RESULT UNITS QUALIFIERS DF Ω M(g) V(ml) 25 1. BENZENE MG/KG 43 TOLUENE MG/KG ETHYL BENZENE 10 MG/KG 10 TOTAL XYLENES MG/KG 66 TOTAL BTEX MG/KG 28 1.99 3 380 **TPH (418.1)** MG/KG **HEADSPACE PID** PPM 314 43,5 PERCENT SOLIDS % - TPH is by EPA Method 418.1 and BTEX is by EPA Method 8020 -35 % for this sample All QA/QC was acceptable. he Surrogate Recovery was at arrative: was outside ATI ttar recovern Surroaate limits ms enco. Aue F = Dilution Factor Used

pproved By:

Date:



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



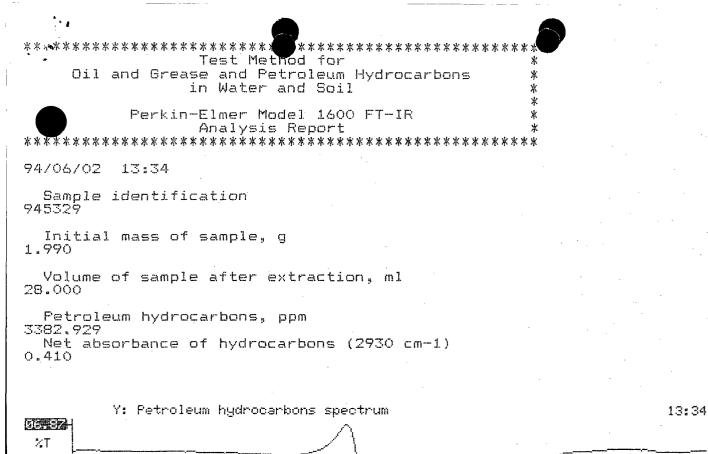
Corporate Offices: 5550 Morehouse Drive San Diego, CA 92121 (619) 458-9141

Analytical **Technologies,** Inc.

GAS CHROMATOGRAPHY RESULTS

TEST	: BTEX (EPA	8020)				;
CLIENT	: EL PASO N	ATURAL GA	AS	ATI I.D.:	406313	•
PROJECT #	: 24324					
PROJECT NAME	: PIT CLOSU	RE				
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
TAL XYLENES			MG/KG	110	0.37	0.054
SURROGATE:	·					
BROMOFLUOROBEN	NZENE (%)			35*	98	94

*OUTSIDE ATI QUALITY CONTROL LIMITS DUE TO MATRIX INTERFERENCE



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4	NAME OSUre	PROJECT NAME Pit Closure Project # 24324		SH:		REQUES	REQUESTED ANALYSIS	ş	CONT"ACT LABORATORY P. O. NUMBER
1.		DATE:	55 -						
₹ F	MATRIX	SAMPLE NU		· · · · · · · · · · · · · · · · · · ·	9T A93	RT8 A93	\$:5 \$		REMARKS
54 53 29 6-1-94 122	lios	KP#73		١	X	X	رح		
	(ios	Kf# 74		Ve	X	X	66		
245221 B-1-94 1220	Soil	KP# 75		ÝĠ	× ,	×	67		
94 53 32 6194 1534	Soil	KP#76		νc	X J	X	68		
94 1 44 19 22 23 46	Soil	KP#77		Ϋ́ς	X	, X	69		
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RELINQUISHED BY: (Signature)			RECEIVED BY: (Signature)	9		RELINQUISHE	RELINQUISHED BY: (Signature)	6	DATETTIME RECEIVED OF LABORATORY BY: (Signature)
									Tom Link
REQUESTED TURNAROUND TIME: COUTINE CONSH		SAM	SAMPLE RECEIPT REMARKS	ARKS			-	RESULTS & INVOICES TO:	FIELD SERVICES LABORATORY
CARRIER CO.									EL PASO NATURAL GAS COMPANY P. O. BOX 4990
BILL NO.:		CHA	CHARGE CODE					505-599-2144	FARMINGTON, NEW MEXICO 87499 FAX: 505-599-2261
isting Laboratory	Canary - EPNG Lab	Lab Pink - Field Sempler							EM-08-0565A (Rev. 03-9-

FIELD PIT REMEDIATION/CLOSURE FORM/PHASE II

Meter: 71816 Location: Jenna Pah No. GENERAL Coordinates: Letter: # Section 36 Township: 28 Range: 7 Latitude _____ Longitude _____ Or Date Started : 11/16/95 Area: 03 Run: 82 **OBSERVATIONS** Sample Number(s): <u>JX140</u> Sample Depth: ______ Feet Final PID Reading ______ PID Reading Depth ______ Feet Yes No Groundwater Encountered $\Box(1)$ $\boxtimes(2)$ Approximate Depth _____ Feet ELD Final Dimensions: Length ____9___ Width ___9___ Depth __9___ Remediation Method : \boxtimes (1) Approx. Cubic Yards <u>234</u> ur ^{12/1}/45 Excavation $\square(2)$ Onsite Bioremediation Backfill Pit Without Excavation \Box (3) Overburden Cubic Yards <u>60</u> Yds **JLOSURF** Soil Disposition: Envirotech 🛛 🖾 (1) 🗌 (3) Tierra Other Facility (2) Name: _____ Pit Closure Date: 11-17-95 LT Malles Pit Closed By: Philip FMARKS Remarks: <u>Pit Pid Readings W-89.5) 5-25.2) (E-16.4)</u> W-16.1) Less Than 100' From EPhemral Strem. Alton James FP D Fence Signature of Specialist: (SP3195) 05/01/95



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):	11-110-95	1130
PROJECT:	Phase I Navajo	
DATE OF TPH EXT. ANAL.:	11/17/95	
DATE OF BTEX EXT. ANAL.:	11/20/95	"/20/95
TYPE DESCRIPTION:	VG	Brown sand

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS		QUALIFIE	RS	
			DF	Q	M(g)	V(ml)
BENZENE	く 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	%				

by EPA Method 418.1 and BTEX is by EPA Method 8020 --2

The Surrogate Recovery was at Narrative:

for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

Approved By:

11/21/95 Date: ____

BTEX SOIL SAMPLE WORKSHEET

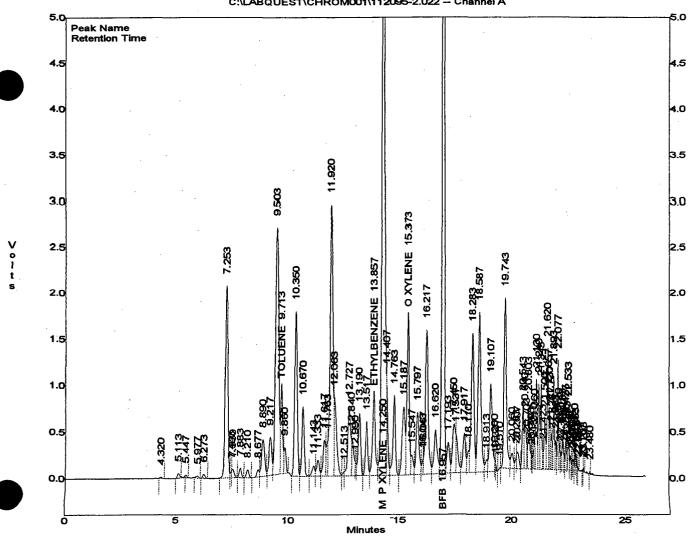
Fil	e :	947790	Date Printed :	11/21/95
Soil Mas	s (g):	5.10	Multiplier (L/g) :	0.00098
Extraction vo	I. (mL) :	10	CAL FACTOR (Analytical):	200
Shot Volume (uL) :		50	CAL FACTOR (Report):	0.19608
			DILUTION FACTOR:	1 Det. Limit
Benzene	(ug/L) :	0.00	Benzene (mg/Kg):	0.000 0.490
Toluene	(ug/L) :	22.43	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

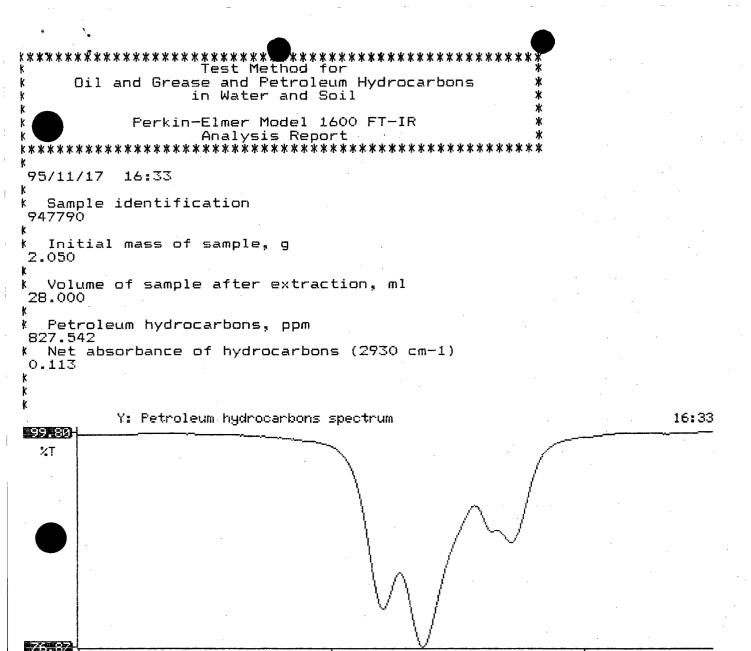
File	:	C:\LABQUEST\CHROM001\112095-2.022
Method	:	C:\LABQUEST\METHODS\1-112095.MET
mple ID	:	947790,5.10G,50U
cquired	:	Nov 21, 1995 04:44:04
Printed	:	Nov 21, 1995 05:10:33
User	:	MARLON

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



C:\LABQUEST\CHROM001\112095-2.022 -- Channel A



Cm⁻¹

BTEX SOIL SAMPLE WORKSHEET

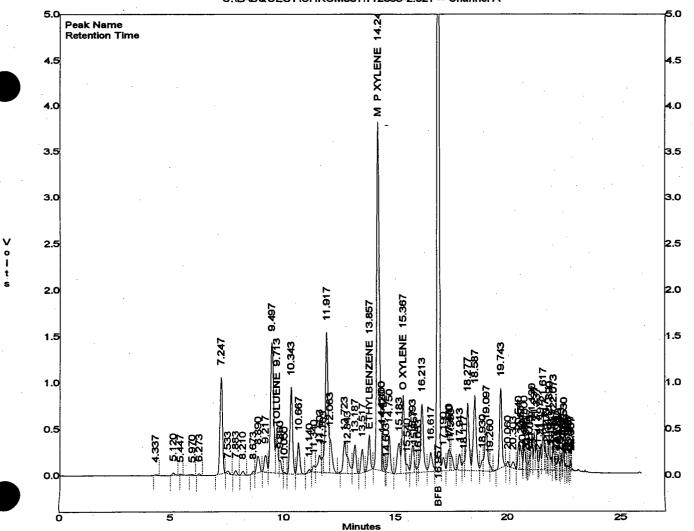
Fil	e :	947790	Date Printed :	11/21/95
Soil Mas	s (g):	5.10	Multiplier (L/g) :	0.00098
Extraction vo	I. (mL) :	10	CAL FACTOR (Analytical):	400
Shot Volum	e (uL) :	25	CAL FACTOR (Report):	0.39216
			DILUTION FACTOR:	2 Det. Limit
Benzene	(ug/L) :	0.00	Benzene (mg/Kg):	0.000 0.980
Toluene	(ug/L) :	10.88	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
ample ID	:	947790,5.10G,25U
quired	:	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



C:\LABQUEST\CHROM001\112095-2.021 -- Channel A

Pageof	CONTRACT LABORATORY P. O. NUMBER		REMARKS	Jenna Pan No. 1 Meter 21816										DATE/TIME 32 RECEIVED BY: (Signature)			EL PASO NATURAL GAS COMPANY P. O. BOX 4990	FARMINGTON, NEW MEXICO 87499	1973-988-500C W41
		њ IEИCE	ŧ ∩o∃s										/	lature)	nature)	RESULTS & INVOICES TO:		505-599-2144	
CHAIN OF CUSTODY RECORD	REQUESTED ANALYSIS	8020 EX			,						/	/			REJNOUISHED BY: (Signature)		•		
HAIN OF CU		алмесе туре 418.1	IT A93	(L L	·					/	/								
Ū	ଟେଅ ଅପ୍ର	BMUN JA NIATNOC	101 0F C	1					\square					Signature)	Signature)	PT REMARKS	•		
		DATE: 75-	/ FIELD ID	54/40										77.30 RECEIVED BY: (Signature)	RECEIVED BY: (Signature)	SAMPLE RECEIPT REMARK		CHARGE CODE	
4 WW NEW S	e Project	//	MATRIX	6 Sort 0										25° DATE/TIME	DATE/TIME				1
Natural Gas Company	PROJECT NAME Pit Çlosure Project	X. Herlin		05:11 - 545M	./	/								//	nature)	JND TIME: SH		·	
	PROJECT NUMBER 1	samplers: (Signature)		OPLT 4P			-				-			RELIVIOUISHED BY: (Signature)	BECINQUISHED BY: (Signature)		CARRIER CO.	BILL NO.:	

APPENDIX C SOIL BORING SAMPLE RESULTS (1997)

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 IIID	rilling 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		QUALIFIE	RS	
			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			1000-0000000000000000000000000000000000	
HEADSPACE PID	2000+	РРМ				
PERCENT SOLIDS	96.5	%				
· ·	- TPH is by EPA Method	418.1 and BTEX is by EPA M	ethod 8020 -			
The Surrogate Recovery was at Narrative:	98.1	% for this sample	All QA/QC	was accepta	ble.	
Heppace reading was overange.						
DF = Dilution Factor Used				·····		
Approved By: Approved By:	wich:	INGVZPIT.XLS	Date:	3-4-97	. ·	

BTEX SOIL SAMPLE WORKSHEET

Fil	e :	970112	Date Printed :	3/4/97
Soil Mas	s (g):	5.34	Multiplier (L/g) :	0.00094
Extraction vo	l. (mL) :	10	CAL FACTOR (Analytical):	200
Shot Volum	e (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 LOCATORY

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

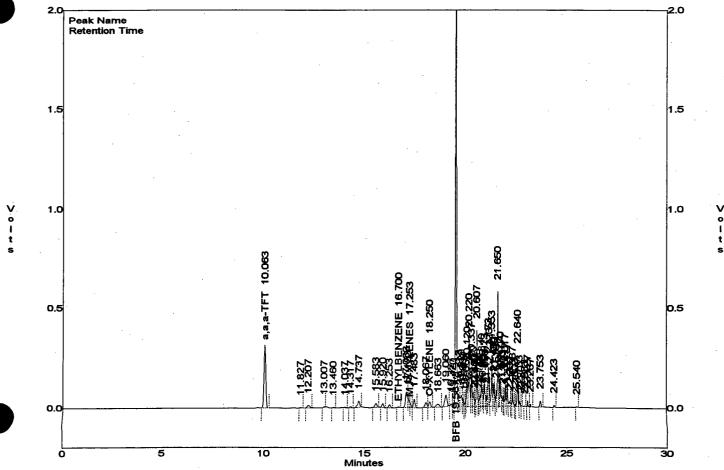
Channel A Results

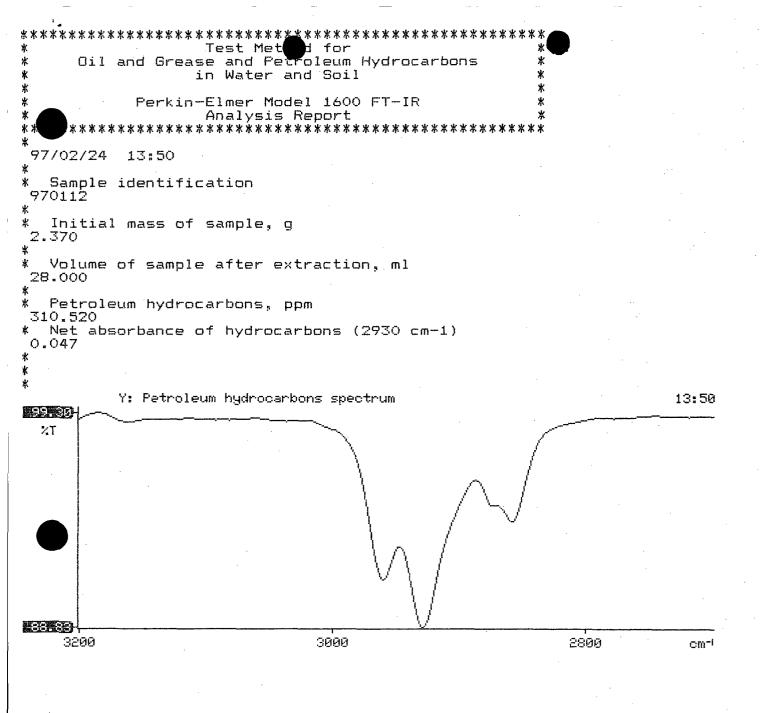
COMPONENT	RET TIME	AREA	CONC (ug/L)
BENZENE	7.800	0	0.0000
a,a,a-TFT	10.063	1946979	89.0386
TOLUENE	12.470	0	0.0000
ETHYLBENZENE	16.700	20378	0.9270
M, P-XYLENES	17.253	86794	2.6655
O-XYLENE	18.250	179474	6.5656
BFB	19.567	8045092	98.1185

Channel A Group Results

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

C:\LABQUEST\CHROM000\022697-0.004 -- Channel A







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Project No.	Project Name	0 1	ECNIZ DIT DONTET		Type				Requested Analysis	ested	
Samplers: (Signature)	1 X			Date: ン/14/G フ	and No. Sample	- Sed	BUDINE NOT			Remarks	
SEG Date	Time	Comp. GRAB		Sample Number	Contain- ers			AS IS	X-O-Y AN		
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Relinquished by: (Signature)	ignature)		Date/Time	ceived by: (Signature)		Relinquished by: (Signature)	red by: (S	Signature		Date/Time Received by: (Signature)	
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telinquished by: (Signature)	ignature)		Date/Time	Received for Laboratory by: (Signature)	ignature)	ä	Date/Time	æ	Remarks:		
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\ir Bill No.:		1	· · ·			ļ	1				

APPENDIX D

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

Borehole # / MONITORING WELL INSTALLATION RECORD Page 🖊 Philip Environmental Services, Inc. 4000 Monroe Rd. GW PITS **Project Name** Farmington, NM 87401 Phase 6005.77 **Project Number** (505) 326-2262 FAX (605) 326-2388 Site Location ESARK **On-Site Geologist** \mathbf{N} Elevation CHARLES Personnel On-Site Well Location **Contractors On-Site GWL Depth Client Personnel On-Site** Installed By Date/Time Started 1. 0930 Date/Time Completed Depths in Reference to Ground Surface **Top of Protective Casing** Top of Riser Item Material Depth Ground Surface (feet) **Top of Protective Casing** Bottom of Protective Casing Top of N/A Permanent Borehole Casing Bottom of N/A Permanent Borehole Casing Top of Concrete **Bottom of Concrete** OTop of Grout 12 **Bottom of Grout** +3 XA40 PIC Top of Well Riser .1 17 Bottom of Well Riser 12' Top of Well Screen CICSU Top of Seal хх ХХ ġŔ 32 хх хх Bottom of Well Screen хх хх 12' NIICUEUIL хх хх Top of Peltonite Seal - 14' хх хх Top of Gravel Pack 14' ż٠ Bottom of Peltonite Seal -12 Top of Screen 14 10-22SAND -Top of Gravel Pack 32 ł۲. ~ Bottom of Gravel Pack 32 Top of Natural Cave-In 32 Bottom of Natural Cave-In 22 Top of Groundwater Bottom of Screen **Bottom of Borehole** 32 -Total Depth of Borehole

Comments:

MWINSTAL.wk1

ATION RECORD OF SUBSURFACE EXPL

PHILIP ENVIRONMENTAL SERVICES INC.

4000	Monre	oe Ra	ad		
Farmir	ngton,	New	Mexico	87401	
(606)	326-2	262	FAX (60	56) 326 -	2388

Elevation Ltr H - S36 T28- R-7 **Borehole Location** GWL Depth 22' BGS Logged By D Cesark Drilled By M Donohue Date/Time Started 2/14 Date/Time Completed

•	Borehole # Well #
	Page 1
Project Name EPFS GW	PITS
Project Number 17520	Phase
Project Location JENN,7	<u> Рани (</u>
Well Logged By D_C	esark
Personnel On-Site	· CHAEL
Contractors On-Site	

Borehole # BH Well # Page ITS Phase 6001.77

71811

sark CHAPLE

Client Personnel On-Site

Drilling Method Air Monitoring Method

4 1/4" ID HSA PID, CGI

Depth Sample USCS Lithology Air Monitoring Drilling Conditions Depth Sample Sample Туре & Sample Description Units: PPM & Blow Counts (Feet) Number Interval Recovery Classification System: USCS Symbol Change (feet) ΒZ вн C-IMEZ (inches) O 1H BACKFILL 5 TĊ 191 10 15 20 171/ 209007 2007 (CUERANGE 20-22'24" SILTY-SAND, SANDSILT 1 OLIVE GRAY) + STEONG IK 25 ODOR. GWE 22' BES. 30 OVER-DRILLED THROUGH HIGHLY COUNTMINATED SCIL (BLACIE) WSTECNE OFE ODIL TO 32'BES. SET 35 WELL 40 TD=32'. GW ENCOUNTERED (22'BES, DEC 6 COLLECTED IMMED. ABOVE GW SUBMITTED TO LAB FRE TPH + BTER ANALYSES. BORING-COMPLETED AS A WELL - PLINSE REFER TO MW INSTAL ALCORD. Comments: **Geologist Signature**

NITORING WELL INSTALLATION RECO Well # p Environmental Services Corp. Page of Monroe Road EW Inv EPFS Project Name w Mexico 87401 32 FAX (506) 326-2388 Project Number 20990 Phase 1000 ±, Project Location Jennepatt Picheney On-Site Geologist nota' Personnel On-Site r. Partille A Paulille Location Contractors On-Site L Depth Client Personnel On-Site Paulitte ailed By K e/Time Started 14199 5. e/Time Completed 4/94 Top of Protective Casing)epths in Reference to Ground Surface t^{1} Top of Riser Ground Surface Depth tem Material N.A. Top of Protective Casing N.A. Bottom of Protective Casing Top of Permanent Borehole N.A. Casing Sottom of Permanent Borehole N.A. Casing N,A. Top of Concrete NA. Bottom of Concrete N.A. Grout To N.A. Bottom of Grout +1 Top of Well Riser 15 **Bottom of Well Riser** 15 Top of Seal N.A. Top of Well Screen xx xx 30 ∞ $\infty \alpha$ Bottom of Well Screen ХX N.A. ∞ Top of Peltonite Seal 13 Top of Gravel Pack ∞d N.A. Bottom of Peltonite Seal 15 Top of Screen 13 Top of Gravel Pack 30 Bottom of Gravel Pack N.A. Top of Natural Cave-In N.A. Bottom of Natural Cave-in 22 Bottom of Screen 30 Top of Groundwater Bottom of Borehole 30

Comments: Temporary Completion

Total Depth of Borehole

Geologist Signature

30

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RECORD OF SUBSURFACE EXPLO ION

Philip Environmental Services Corp. 4000 Mionroe Road

Farmington, New Mexico 87401

Borehole Location

Elevation

GWL Depth

Logged By

05) 326-2262 FAX (505) 326-2388

Project	Name
Project	Number

t Name	<u> </u>
t Number	Phas
t Location	Vennolsh

Borehole #	ŧ	
Well #		m
Page	1	of

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Projec Well Logged By Personnel On-Site Contractors On-Site **Client Personnel On-Site**

 \mathcal{H} 4 1/21 IΟ IFA

P. Chene,

K

PID

Padilla

Phase

Drilling Method Air Monitoring Method

Drilled By K Parli Date/Time Started 4199 51 Date/Time Completed 5/4/99-temp. completion

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Depth (Feet)		- 1	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)		r Monitoring Inits: NDU BH		Drilling Conditions & Blow Counts \$/115 = Sample Headspoor
E	0				- Surface: reddict yellow medium growined sund unconsclidents			٥			
	5				- 5' (from outting s) med. grained reddich brown sand unconsolidated, damp						
	10	1	10 12	20''	med. to coarse grained sand, reddish brown w/pea gravel			٥			BC = 14 s/its = 0.1
	15	2	15 17		reddish brown sandy elay w/ limonize staining. Moist, Low plasticity, soft			D			BC= 14 SMS = 0.6
	20	3	26 22		reddish brown coarse sand, unconsolidated		~~~~	0			BC= 24 s/115= 0.3
	25		25 27		yellowish brown coarse sand, unconsolidated, wet at 25! water level rose to 12.5 after five minutes		- Ven	0			Bc= 15 s/HS= 0.7
	30		i		- TD= 30'						
	35			-							
	40										
Commen	tə:	<u>ا من المن من ا</u> من المن من المن من المن من المن م	Uith	nated 151 allone	screen, 15 niser. Sand po	s, u cr	16 13	s e 1 Cospe	0.,	.5 - x	Set temp. we suchace. Brile

5/6/99\Drillog.xls

MONITORING WELL INST Phillip Environmental Services Corp 4000 Morroe Road		ORD	•				Borehole Well # Page	# 3 <u></u>	
A New Mexico 87401					Proje	ect Name	EPFS	GW Inu	<u>.</u>
-2262 FAX (506) 326-2368				•		ect Number	20190	Phase //	000
					-	ect Location	Jennepa		
Elevation Vell Location						Site Geologist sonnel On-Site	F. Par	theney .	A:I
WL Depth 23						tractors On-Sit nt Personnel C			
Date/Time Started	· 6								
Date/Time Completed	19								
		و_ الكراني الأراني	7		.				ي و و و و و و و و و و و و و و و و و و و
Depths in Reference to Ground S	นก์ลดอ				===	Top of Prote Top of Riser		N.A. +1	
item	Material	Depth				Ground Sur	ace		
Top of Protective Casing		N.A.							
Bottom of Protective Casing		N.A.							
Top of Permanent Borehole Casing		NA.							
Bottom of Permanent Borehole Casing		NA.							
		NA.						•	
	<u> </u>	N A							•
pm of Concrete	1	NA.						<u>.</u>	
Top of Grout		N.A.							
Bottom of Grout		+1							-
Top of Well Riser			- -						
Bottom of Well Riser		15							
Top of Well Screen		15		xx	xx	Top of Seal		N.A.	
Bottom of Well Screen	<u> </u>	30		200	xxx XXX				
Top of Peltonite Seal		,,A		xxx		Top of Grav	el Pack	/ ₹	
Bottom of Peltonite Seal		. N. A.				Top of Scree		<u>_/3</u> _/5_	
Top of Gravel Pack		13				i op of oore			
Bottom of Gravel Pack	· · · · · · · · · · · · · · · · · · ·	30							
Top of Natural Cave-In	·	N.A.							
Bottom of Natural Cave-In		NA			-				
Top of Groundwater		23		F		Bottom of S	neen	30	
Total Depth of Borehole	·····	30			3	Bottom of B	orehole	30	

Geologist Signature

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RECORD OF SUBSURFACE EXPLOR

Philip Environmental Services Corp.

4000 Monroe Read Fermington, New Mexico 87401 105) 326-2262 FAX (505) 326-2388

Elevation	· · · ·	
Borehole Location		
GWL Depth		· .
Logged By	P. Cheney	
Drilled By	K. Padilla	
Date/Time Started		
Date/Time Compl	eted 514	

	Borehole # Well # Page	<u>3</u> <u>mw</u> -	3
EPFS		•	
	Phase		
.lonhe	eah #1		
<u>P.</u>	cheney		
	Do ALL	A Vall	4

Personnel On-Site Contractors On-Site Client Personnel On-Site

Project Number Project Location

Well Logged By

Drilling Method

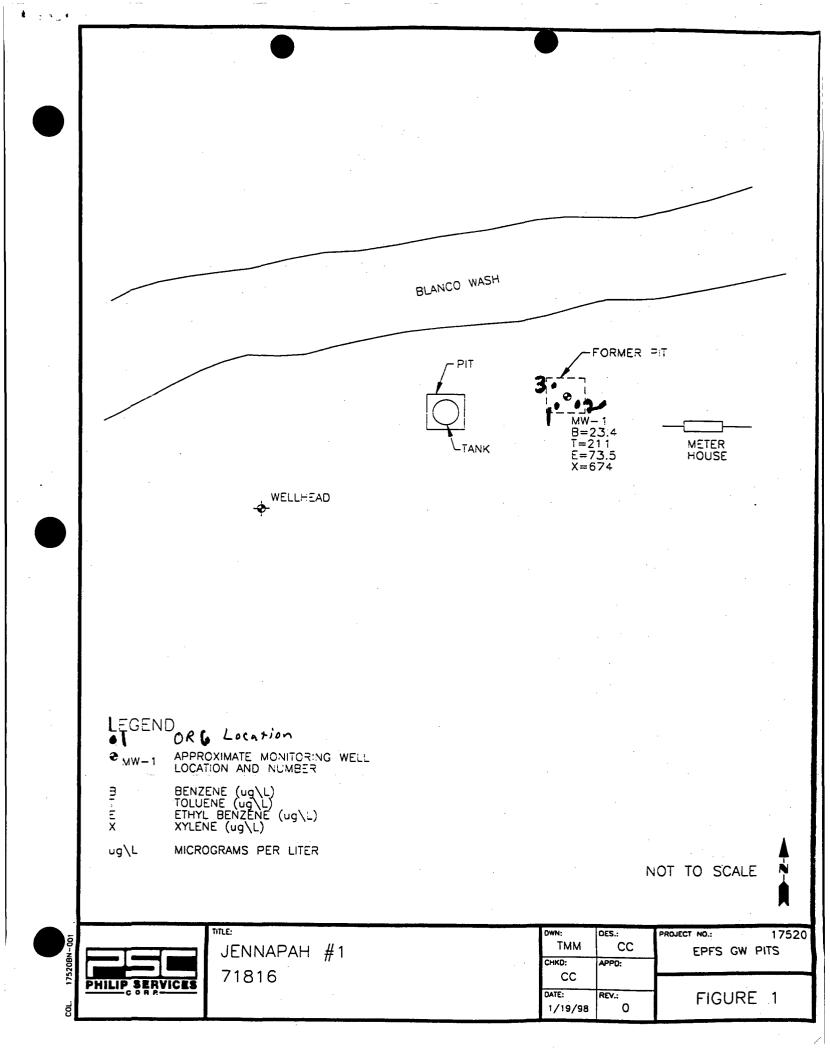
n ISA 1/4 4 ナり

Air Monitoring Method

Depth (Feet)		Sample Interval	Semple Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)		Monitor nits: ND	U ·	Drilling Conditions & Blow Counts
Ē			(IFICT)(188)	-surface: reddish yellow medium grained sund			84	ВН	<u>s</u> <u>s</u>	
5				5' (from cuttings) red dich brown Gand, m con solidated						
10 	1	- 10	24"	yellowish brown medigrained sandy, unconsolidated			D		D ::	BC= 22 S/HS = 514
- 15	1.2	-15 -17	18"	yellowish hown medium grained Sand			0		0	βc= 2 0 s/115= 3.2
20	3	-20 -22	18"	yellowish brown coarse grained sand, 25% pea-gravel			0		.0	BC=Z1 SHS=1
<u>2</u> 5 		- 25 - 27		very coarse stained yellinich prown sund. Saturated at 25' several 1" + 14" gravel rocks						
35				TD= 30 (
40										
Comments:		Satur Uirn backe		creen 15 riser, seril pack of	a Hz	r <u>s</u> npen	min BIt	~+CS	6 2	et time well a. Used Sgall
5/6/99\Drill	-			Geologist Sig	nature	Pa	l	_ C	ん	~~~~

APPENDIX E

ORC INJECTION BORLOGS AND LOCATION MAP (1998)



NUTRIENT INJECTION



PHILIP SERVICES CORP. 4000 Monroe Rd. Farmington, NM 87401

(505) 326-2262 FAX (505) 326-2388

EPES GW Pits **Project Name** BH# of MW-1 Project Number/Phase LD 9000 BH Location 71816 Driller Site Name Jennapah#1 Date/Time Started Date/Time Completed BOREHOLE Ground Surface Top of Grout Cement/Bentonite Grout (5%Bentonite) 19' Top of Bentonite **Bentonite Seal** 211 Top of Slurry 22' ORC Slurry Top of Groundwater 37 Depth of Borehole comments: 10 pounds ORC 2 gal water, Dentmite seal hydrated w/ Sgal potable Water **Drillers** Signature

NUTRIENT INJECTIO

PHILIP SERVICES CORP.

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

EPFS GWPITS Project Name BH # of MWI Project Number/Phase **BH** Location 9 000 0 Jennapah #1 71816 Driller Site Name Date/Time Started Date/Time Completed BOREHOLE \mathbf{O} Ground Surface Top of Grout Cement/Bentonite Grout (5%Bentonite) 19' Top of Bentonite **Bentonite Seal** Top of Slurry ORC Slurry Top of Groundwater aa 27 Depth of Borehole comments: 10 pounds ORC agal water Bentonite hydrated w/ Petable water <u>5 AA</u> Drillers/Geologist Signature

NUTRIENT INJECTIC

PHILIP SERVICES CORP.

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

EPFS GW Pits Project Name BH# **Project Number/Phase** 9000 **BH Location** D M Driller Site Name mpah#1 71816 Date/Time Started Date/Time Completed BOREHOLE 0' Ground Surface Top of Grout Cement/Bentonite Grout (5%Bentonite) 19' Top of Bentonite **Bentonite Seal** 21' Top of Slurry 22, ORC Slurry Top of Groundwater Depth of Borehole gal potable Comments: 10 get pounds ORC Drillers/Geologist Signature

APPENDIX F LABORATORY REPORTS (2003)

	DATA VALIDATION WORKSHEET (Page 1 of 3)									
Analytical Method/Analytes:	SW-846 8021B (BTEX)	Sample Collection Date(s): _	12/16/03							
Laboratory: _	Accutest	MWH Job Number: _	EPC-SJRB							

Batch Identification: ______ T6395

Matrix:	Water
TARGE OF TAXE	114001

(Groundwater)

MS/MSD Parent(s) ^(a) :	T6395-04	Field Replicate Parent(s):	None

Foot		· ·		Hits		
Notes	Site ID	Sample ID	Lab. ID	(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	Xylenes (total) @ 19 T μg/l m/p-Xylene @ 19 T μg/l
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DATA VALIDATION WORKSHEET

(Page 2 of 3)

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	А	A	A	A			
Analyte List	Α	A	A	A			·
Reporting Limits	А	A	A	Α			
Surrogate Spike Recovery	A ¹	A ²	A ³	A ^{4,5}			
Trip Blank	A	A	A	Α	•		
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	Α	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.
- Surrogate percent recovery for aaa-Trifluorotoluene outside acceptance criteria @ 129% (71-121), indicating a possible high bias. 2) Only one surrogate outside acceptance criteria, no analytes detected in the sample, no data qualified.
- 3) Surrogate percent recovery for an a-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.
- Surrogate percent recovery outside acceptance criteria for the following compounds: 4)
 - 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

(Page 3 of 3)

- 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 gualified.



Gulf Coast

Laboratories

e-Hardcopy 2.0 Automated Report

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



Ron Martino Laboratory Manager

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.

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Gulf Coast • 10165 Harwin Drive • Suite 150 • Houston, TX 77036 • tel: 713-271-4700 • fax: 713-271-4770 • http://www.accutest.com



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Sections:

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Sample Summary

Montgomery Watson

Job No: T6395

3 of 18

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

Sample Number	Collected Date	Time By	Received	Matr Code		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

		Repo	rt of An	alysis	i.		Page 1 of 1
Client Sam Lab Sampl Matrix: Method: Project:			ter Site	Date F	Sampled Received at Solids	l: 12/18/03	
Run #1 ^a Run #2	File ID DF KK006296.D 1	Analyzed 12/29/03	By BC	Prep Da n/a		Prep Batch n/a	Analytical Batch GKK338
Run #1 Run #2	Purge Volume 5.0 ml	· .	<u></u>				
Purgeable	Aromatics						
CAS No.	Compound	Result	RL	MDL	Units	Q	
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene m,p-Xylene	ND ND ND ND ND	1.0 1.0 3.0 1.0 2.0	0.50 0.50 0.50 1.0 0.50 1.0	ug/l ug/l ug/l ug/l ug/l ug/l		
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	its		
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	121% 131% ^ь		64-12 71-12			

(a) Confirmed by GC/MS

(b) High bias spike.



ND = Not detected MDL - Method Detection Limit RL = Reporting LimitE = 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



		Repo	rt of An	Page 1 of				
Client Sam Lab Sampl Matrix: Method: Project:		er	er Site	d: 12/16/03 d: 12/18/03 ls: n/a				
Run #1 ^a Run #2	File ID DF KK006298.D 1	Analyzed 12/30/03	By BC	Prep Da n/a	ate	Prep Batch n/a	Analytical Batch GKK338	
Run #1 Run #2	Purge Volume 5.0 ml							
Purgeable	Aromatics		,					
CAS No.	Compound	Result	RL	MDL	Units	Q		
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene m,p-Xylene	ND ND ND ND ND	1.0 1.0 3.0 1.0 2.0	0.50 0.50 0.50 1.0 0.50 1.0	ug/l ug/l ug/l ug/l ug/l ug/l			
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	its			
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	119% 129% ^b		64-12 71-12		· .		
(a) Confirm	and by CC/MS						e	

(a) Confirmed by GC/MS

(b) High bias spike.



ND = Not detectedMDL - 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



		Repo	ort of An	alysis		Page 1 of 1				
Client Sam Lab Samp Matrix: Method: Project:		er	ter Site	Date Sampled: Date Received: Percent Solids:	12/16/03 12/18/03 n/a					
Run #1 ^a Run #2	File ID DF KK006299.D 1	Analyzed 12/30/03	By BC		rep Batch /a	Analytical Batch GKK338				
Run #1 Run #2	Purge Volume 5.0 ml					······································				
Purgeable	Aromatics		-							
CAS No.	Compound	Result	RL	MDL Units	Q					
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene m,p-Xylene	ND ND ND ND ND	1.0 1.0 3.0 1.0 2.0	0.50 ug/l 0.50 ug/l 0.50 ug/l 1.0 ug/l 1.0 ug/l 1.0 ug/l						
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits						
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	118% 126% ^b		64-121% 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



Page 1 of 1

2.3

		Repo	Report of Analysis											
Client Sam Lab Sampl Matrix: Method: Project:		ler	er Site	Date S Date I Percer	· · · · · · · · · · · · · · · · · · ·									
Run #1 ^a Run #2	File ID DF KK006300.D 1 KK006316.D 10	Analyzed 12/30/03 12/30/03	By BC BC	Prep D n/a n/a	ate	Prep Batch n/a n/a	Analytical Batch GKK338 GKK339							
Run #1 Run #2	Purge Volume 5.0 ml 5.0 ml						· · · · ·							
Purgeable A	Aromatics													
CAS No.	Compound	Result	RL	MDL	Units	Q								
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene m,p-Xylene	ND ND ND 19 ^b ND ^b 19 ^b	1.0 1.0 1.0 30 10 20	0.50 0.50 0.50 10 5.0 10	ug/l ug/l ug/l ug/l ug/l ug/l									
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its									
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	125% ^c 191% ^c	122% 119%		21% 21%		· · ·							

(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



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Custody Documents and Other Forms

Includes the following where applicable:

• Chain of Custody





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	Client / Reporting Information	on (I Name		Pi	roject In	lormatio	n					1 1		×	Requ	ested An	alysis				Matrix Codes
impany Na	1230		Frojec	BLF	Ex.	s /	SVC	vn	d n	wt.	on						1.	11					GW - Ground Wat
dress ,	11 0-11		Street																				WW - Water
6	14 Reiling	Zip	City				Star						4	11	1	1	ł	1 1		1			SW - Surface Wal
Fas	mington NM 8	7401 "	Gity				\$(a	8															SO - Soil
ject Cont	act, / D	E-mail	Projec	1#									1	[[[Í	1	н. 1				SL - Sludge
See	stt Pope		-										┛.				1						01-08
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ccutest ample #	Field ID / Point of Collection	SUMMA		Conection	Samuel	1	±		5 8		# 3	7. 7	$\neg \varnothing$						1	1		ļ	WP - Wipe
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2	Tennsoshmu -2		12/603	0925	mN	WG	2	2	_	\square			1^			1_							
3	Jennigh mw-3		12160	0952	mn	WG	2	2		1_1			X										
4	Tennanah must		12/68	1040	m	W6	2	Z				ΙT	X		Γ								
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quished by		Date Tene	loceived by.						4 Cusady S	and #				-	wed where			4 On los				ooler Tarn	

T6395: Chain of Custody Page 1 of 3



3.1

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	×	PRESERV. PH		1,2,3,4,5,6 U, <2, >12, NA	Memo		COOLER TEMP: COOLER TEMP:	Form: SM012													
0330	If "N" is circled, see variance for explanation): N Samples received within temp. range. N N Sample received in proper containers. ON Sample received with chain of custody containers. Ment on cooler. 	+		1	-			-	-				_`_		-			Briance	0	41	Client
	e variance for s received wil received with received with	4/0 T	\rightarrow						N	V								e Freezer See		COOLER TEMP: COOLER TEMP:	Return to Client
SAMPLE RECEIPT LOG ME RECEIVED: <u>/2-(8-6</u>	N" is circled, see ON Sample ON Sample ON Sample tainers. ent on cooler.	N/TR	GW							Y V	02	0						act EF: Encore Freezen DH 6: Other Comments:			osal Hold
SAMPLE RECEIPT LOG DATE/TIME RECEIVED: <u>/2-(8-0</u> 3 INITIALS		1 1 - 16 M 2	~							N/C	X							SUB: Subcontract 4: H2SO4 5: NAOH			e) Accutest disp
TEST 35 P480	Variance (Circle "Y" for yes and "N" for no. Sample received in undarnaged condition. Sample received with proper pH. Sample volume sufficient for analysis. Chain of Custody matches sample IDs on Custody seal received intact and tamper e Custody seal received intact and tamper e	BOI ILE #	C-1											/				VR: Volatile Refrig. e 2: HCL 3: HNO3 uding volatiles		i i i i i i i i i i i i i i i i i i i	posal: (circle one
ACCUT Jos #: 1639	Condition/Variance (Circle "Y" for yes and "N" for no. 1. Y (N) Sample received in undarmaged condition. 3. Y (M) Sample received with proper pH. 5. (N) Sample received with proper pH. 7. (N) Chain of Custody matches sample IDs on 8. Y (M) Custody seal received intact and tamper e 9. Y (M) Custody seal received intact and tamper e	SAMPLE OF FIELU ID	4-6			-												LOCATION: WI: Walk-In VR: Volatile PRESERVATIVES: 1: None 2: HCL 3: pt <u>4 of waters</u> checked excluding volatiles	pH of soils N/A	Delivery method: Courler:_ Tracking#:	Method of sample disposal: (circle one) Accutest disposal

T6395: Chain of Custody Page 2 of 3



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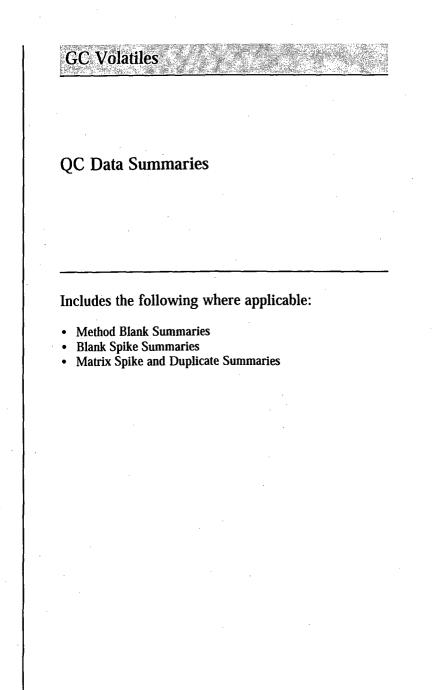
	6395	prox. # 2. (Jennapek MW-2) out samples. in	s, iervation.		By phone. Samples processed for informa- tion only and noted on report. Samples processed with higher detection limits accepted. Samples rejected.	
VARIANCE MEMO SAMPLE LOG-IN	LAB NO.	- Check applicable items(s): received approx. Insufficient sample sent for proper analysis; received approx. Sample bottlereceived broken and/or cap not intact. for $\leq x \notin 2$. (Jerna pek $mw.2$) 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) ieno 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. Physicial characteristics different than those on sampling sheets:	incomplete paperwork.		CORRECTED?
	Bustro	VARJANCE - Check applicable items(s): Insufficient sample sent for proper analysis; Insufficient sample sent for proper analysis; Sample bottlereceived broken and/or cap no Samples received without paperwork; paperwork; paperwork; Samples received without proper refrigeration deemed necessary. Temperature at receipt:	Illegible sample number or label missing from bottle. Numbers on sample not the same as numbers on ps Incomplete instructions received with sample(s) ie.,n for analysis, no chain of custody, incomplete billing i no due date, etc. Temperature at reciept: Samples received in improper container or lacking p Physical characteristics different than those on samp	Describe: Rush samples on hold because of incomplete paperwork. Other (specify)	VE ACTION TAKEN VE ACTION TAKEN Client informed verbally. Client informed by memo/letter. Samples processed as is. Samples preserved by lab. Client will resample and resubmit. <i>mc 5549</i>	DATE INITIALS 13-16-03 70 12-18-03 KS
ACCUTEST.	SAMPLE(S) PROJECT FILED BY	VARIANCE - Check Insufficien North Samples r Samples r Samples r deemed n	Illegible sample n Numbers on sam Incomplete instru for analysis, no d no due date, etc. Samples received Physical characte	Describe: Rush samples Other (specify)	Scott Pope Person C Scott Rope Person C Client informed by mei Client informed by mei Samples processed as Samples preserved by mei Samples preserved by mei Client will resample an Notes: Client will resample an	ROUTING TITLE Sample Manager: 16 Login: Project Manager: Comments:

T6395: Chain of Custody Page 3 of 3



3.1 **(**

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Method Blank Summary

Job Number: Account: Project:	T6395 MWHSLCUT Montg EPFS San Juan Basir		Site			
Sample GKK338-MB	File ID DF KK006295.D 1	Analyzed 12/29/03	By BC	Prep Date n/a	Prep Batch n/a	Analytical Batch GKK338
The QC repor	ted here applies to the	e following sam	ples:		Method: SW	/846 8021B

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

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 100-41-4 108-88-3 1330-20-7 95-47-6	Benzene Ethylbenzene Toluene Xylenes (total) o-Xylene m,p-Xylene	ND ND ND ND ND ND	1.0 1.0 3.0 1.0 2.0	0.50 0.50 0.50 1.0 0.50 1.0	ug/l ug/l ug/l ug/l ug/l ug/l	
CAS No.	Surrogate Recoveries		Limit	S		
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	118% 126%* ª	64-12 71-12			

(a) High bias spike.



Method Blank Summary

Job Numbe Account: Project:	r: T6395 MWHSLCUT Montg EPFS San Juan Basin		ite				
Sample GKK339-M	File ID DF B KK006315.D1	Analyzed 12/30/03	By BC	Prep 1 n/a	Date	Prep Batch n/a	Analytical Batch GKK339
The QC rep	ported here applies to the	following samp	oles:			Method: SW	846 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		Limi	ts			
460-00-4	4-Bromofluorobenzene	137%* ^a	64-12	21%			
400-00-4		130%* a	71-12				

(a) High bias spike.

Blank Spike Summary

Project:	EPFS San J	luan Basin	Groundwater S	Site			
Sample GKK338-BS ^a	File ID KK006294.	DF D1	Analyzed 12/29/03	By BC	Prep Date n/a	Prep Batch n/a	Analytical Batch 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
71-43-2 100-41-4 108-88-3 1330-20-7 95-47-6	Benzene Ethylbenzene Toluene Xylenes (total) o-Xylene m,p-Xylene	20 20 20 60 20 40	21.6 23.5 23.7 68.7 25.8 42.9	108 118* 119* 115 129* 107	74-119 82-115 77-116 79-115 78-114 79-116
CAS No. 460-00-4 98-08-8	Surrogate Recoveries 4-Bromofluorobenzene aaa-Trifluorotoluene	BSP 121% 126%* [†]	64-	nits 121% 121%	

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



Page 1 of 1

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Blank Spike Summary Job Number: T6395

File ID DF ^a KK006313.D1	Analyzed 12/30/03	By BC		-	Prep Batch n/a	Analytical Batch GKK339
orted here applies to t	he following sar	nples:			Method: SW	/846 8021B
Compound	Spike ug/l	BSP ug/l	BSP %	Limits		
Xylenes (total) o-Xylene m,p-Xylene	60 20 40	70.3 23.4 46.9	117* 117* 117*	79-115 78-114 79-116		
	MWHSLCUT Mon EPFS San Juan Bas File ID DF a KK006313.D1 Orted here applies to the Compound Xylenes (total) D-Xylene	MWHSLCUT Montgomery Watsor EPFS San Juan Basin Groundwater File ID DF Analyzed AKK006313.D1 12/30/03 Orted here applies to the following sar Compound Spike Ug/l Kylenes (total) Orted 20	MWHSLCUT Montgomery Watson EPFS San Juan Basin Groundwater Site File ID DF Analyzed By a KK006313.D1 12/30/03 BC orted here applies to the following samples: Spike BSP Compound Spike BSP Xylenes (total) 60 70.3 o-Xylene 20 23.4	MWHSLCUT Montgomery Watson EPFS San Juan Basin Groundwater Site File ID DF Analyzed By Pr a KK006313.D1 12/30/03 BC n/ orted here applies to the following samples: Compound Spike BSP BSP Kylenes (total) 60 70.3 117* o-Xylene 20 23.4 117*	MWHSLCUT Montgomery Watson EPFS San Juan Basin Groundwater Site a File ID DF Analyzed By Prep Date a KK006313.D1 12/30/03 BC n/a orted here applies to the following samples: Compound Spike BSP BSP Compound 60 70.3 117* 79-115 Ortey (total) 60 70.3 117* 78-114	MWHSLCUT Montgomery Watson EPFS San Juan Basin Groundwater Site File ID DF Analyzed By Prep Date Prep Batch a KK006313.D1 12/30/03 BC n/a n/a orted here applies to the following samples: Method: SW Compound Spike BSP BSP Limits 60 70.3 117* 79-115 o-Xylene 20 23.4 117* 78-114

CAS No.Surrogate RecoveriesBSPLimits460-00-44-Bromofluorobenzene130%* a64-121%98-08-8aaa-Trifluorotoluene124%* a71-121%

(a) High bias spike.



Page 1 of 1

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Matrix Spike/Matrix Spike Duplicate Summary Job Number: T6395

 Job Number:
 16395

 Account:
 MWHSLCUT Montgomery Watson

 Project:
 EPFS San Juan Basin Groundwater Site

Sample T6395-4MS T6395-4MSD T6395-4 ^a	File ID KK006301 KK006302 KK006300	.D1	Analyzed 12/30/03 12/30/03 12/30/03	By BC BC BC	Prep Date n/a n/a n/a	Prep Batch n/a n/a n/a	Analytical Batch GKK338 GKK338 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
71-43-2 100-41-4 108-88-3 1330-20-7 95-47-6	Benzene Ethylbenzene Toluene Xylenes (total) <i>Not Applical</i> o-Xylene m,p-Xylene	ND ND ND 39 ND	20 20 20 60 20 40	22.6 21.9 27.5 96.0 34.2 61.8	113 110 138* 94 -26* 155*	22.4 30.5 34.1 105 37.0 68.1	112 153* 171* 109 -12* 170*	1 33* 21* 9 8 10	64-124/16 64-123/14 64-120/13 66-118/18 65-119/20 66-120/14
CAS No. 460-00-4 98-08-8	Surrogate Recoveries 4-Bromofluorobenzene aaa-Trifluorotoluene	MS 135%* ^b 171%* ^b	MSD 133%* 168% [*]	^b 125	395-4 ;%* b %* ^b	Limits 64-1219 71-1219	-		

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



Page 1 of 1

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Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T6395 Account: MWHSLCUT Montgomery Watson EPFS San Juan Basin Groundwater Site Project: By BC Prep Date **Prep Batch** Analytical Batch Sample File ID DF Analyzed GKK339 T6396-4MS a 12/30/03 KK006320.D100 n/a n/a T6396-4MSD KK006321.D100 12/30/03 BC n/a n/a GKK339 T6396-4 ^b KK006319.D100 12/30/03 BC n/a n/a **GKK339**

The QC reported here applies to the following samples:

T6395-4

CAS No. 1330-20-7	Compound Xylenes (total)	T6396-4 ug/l 219	Q	Spike ug/l 6000	MS ug/l 6220	MS % 96	MSD ug/l 6870	MSD % 107	RPD	Limits Rec/RPD 66-118/18
95-47-6	o-Xylene m,p-Xylene	ND 219 219	J	2000 4000	2010 4220	90 101 94	2190 4680	110 106	9 10	65-119/20 66-120/14
CAS No.	Surrogate Recoveries	MS		MSD	Т6	396-4	Limits			
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	124%* 4%*		1 19% 111%		5%* ^c 7%	64-1219 71-1219			

(a) High RPD due to poor purging of the MS.

(b) Confirmed by GC/MS. Samples were not preserved.

(c) High bias spike.



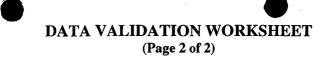
Page 1 of 1

Method: SW846 8021B

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Analy	ytical Method/A	nalytes:SW-8	846 8021B (BT	EX) San	nple Colle	ction Date(s): _	09/23/03
	Labo	oratory:	Accutest		MWH	Job Number: _	EPC-SJRB (Groundwate
	Batch Identif	fication:	T5436			Matrix: _	Water
	MS/MSD Par	rent(s) ^(a) :	None	Fie	eld Replic	ate Parent(s): _	None
Vali	idation Com	plete:	pm Tu			<u>30-03</u>)	
Foot Notes	Site ID	Sample ID	Lab. ID	Hits (Y/N)	Ouals.	Com	iments
None	Jennapah	MW-1	T5436-01	Y		Xylenes (total) o-Xylene @ 4. m,p-Xylene @	@ 38.1 µg/l 4 µg/l
None	Trip Blank	230903TB01	T5436-02	N			55.0 µg/1
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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	Α					
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	Α					
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 CUSTODY	CUSTODY # 230903mv41
	10165 Harwin Drive, Ste. TEL 711, 711, 4700	EDEX Tracking # まちち 6 03 フテフルン Bottle Order Control #
Labor	www.accutest.com	Accutest Quote # Accutest Job #
Client / Reporting Information	an Project Information B.4	Requested Analysis Matrix Codes
Company Range BI Day 1011	Project Name / Survey in / 12 12 tech	DW - Drinking Water
Address		GW - Gound Water
1014Ker II	VENNEDEL	SW - Surface Wahe
From ingthe NM 87201	City State	SO - Soil
Project Contact H Program	Project #	SL - Studge
Phone # 17 CL	Fax#*	
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Accutest Field ID / Point of Collection SUMMA #	otties	
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Other		
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	Sample Custody must be documented below each time samples change possession. Including counter delivery. Received by:	courier delivery. (5.1) Dete Time Received by:
100H Calcal	2	
9/24/03	all and	
Refinquished by: Date Time: Receiption of the Second Se	dired Dr.	Preserved where applicable On Ior Cooler Temp.



09/30/03

Technical Report for

Montgomery Watson

EPFS San Juan Basin Groundwater Site

Accutest Job Number: T5436

Report to:

MWH

pamela.j.anderson@us.mwhglobal.com

ATTN: Pam Anderson

Total number of pages in report: 8

and/or state specific certification programs as applicable.



Jennapah

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference Ron Martino Laboratory Manager

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.

Sample Summary

Montgomery Watson

Job No: T5436

EPFS San Juan Basin Groundwater Site

Sample Number	Collected Date	Time By	Received	Matr Code		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

Client Sample ID: JENNAPAH MW-1 Lab Sample ID: T5436-1 Date Sampled: 09/23/03 AQ - Ground Water Date Received: 09/24/03 Matrix: Method: SW846 8021B Percent Solids: n/a EPFS San Juan Basin Groundwater Site Project: File ID DF Analyzed By Prep Date **Prep Batch** Analytical Batch KK005868.D 09/30/03 BC GKK316 Run #1 1 n/a n/a Run #2 **Purge Volume** Run #1 5.0 ml Run #2 **Purgeable Aromatics** RL CAS No. Compound Result 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 Xylenes (total) 38.1 1330-20-7 3.0 ug/l 95-47-6 o-Xylene 4.4 1.0 ug/l 33.6 2.0 m,p-Xylene 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

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



Report of Analysis

Report of Analysis

Page 1 of 1

Client Sam Lab Sample Matrix: Method: Project:			er Site	Date Sample Date Receiv Percent Soli	ed: 09/24/03	
Run #1 Run #2	File ID DF KK005865.D 1	Analyzed 09/30/03	By BC	Prep Date n/a	Prep Batch n/a	Analytical Batch GKK316
Run #1 Run #2	Purge Volume 5.0 ml					:
Purgeable A	Aromatics					
CAS No.	Compound	Result	RL	Units Q		
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene m,p-Xylene	ND ND ND ND ND	1.0 1.0 3.0 1.0 2.0	ug/l ug/l ug/l ug/l ug/l ug/l		
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		· •
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	92% 94%		64-121% 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



QC Data Summaries

Includes the following where applicable:

• Method Blank Summaries

Blank Spike Summaries

• Matrix Spike and Duplicate Summaries

Blank Spike Summary

Job Numbe Account: Project:							
Sample GKK316-BS	File ID DF S KK005863.D 1	Analyzed 09/30/03	By BC	Pi n/	rep Date 'a	Prep Batch n/a	Analytical Batch GKK316
The QC re	ported here applies to the	following sar	nples:			Method: SW	846 8021B
T5436-1, T	5436-2						
		Spike	BSP	BSP			
CAS No.	Compound	ug/l	ug/l	%	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	Li	mits	× .		
460-00-4	4-Bromofluorobenzene	93%	64	-121%			
98-08-8	aaa-Trifluorotoluene	96%		-121%			

Method Blank Summary

Job Numbe Account: Project:	er: T5436 MWHSLCUT Montgo EPFS San Juan Basin		iite			Tuge I v
Sample GKK316-M	File ID DF B KK005864.D 1	Analyzed 09/30/03	By BC	Prep Date n/a	Prep Batch n/a	Analytical Batch GKK316
				· ·		
The QC re	ported here applies to the	following sam	ples:		Method: SW	/846 8021B
T5436-1, T	5436-2					
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		Limi	ts		· .
460-00-4	4-Bromofluorobenzene	89%	64-12	21%		
98-08-8	aaa-Trifluorotoluene	94%	71-12			

Matrix Spike/Matrix Spike Duplicate Summary Job Number: T5436

T5436	-
MWHSLCUT Montgomery	Watson
EPFS San Juan Basin Group	ndwater 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

Page 1 of 1

T5436-1, T5436-2

Account:

Project:

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	Ō	66-120/14
CAS No.	Surrogate Recoveries	MS	MSD	T 5	i 403-2	Limits			·
460-00-4	4-Bromofluorobenzene	92%	90%	90	%	64-121	%		
98-08-8	aaa-Trifluorotoluene	92%	91%	92	%	71-121	%		

AT A					CH	HA	AIN		CC	LS	GO	بر لا	N H	30	CUSTODY # 230903mv41	24	Ø				
	ACCUTEST				-	0165 Ha TEL	rwin Dr . 713-27	ive, Ste. 1-4700	150, Ho FaX: 71	uston, T. 3-271-4	X 77036 770	FED-EXI 835	10165 Harwin Drive, Ste. 150, Houston, TX 77036 [FEDEX Tracking# TEL. 713-271-4700 EAX: 713-271-4770 8556857577725	75	521	Bottle Ord	Bottle Order Control #	-			
J	Laboratories						\$	WW.accl	www.accufest.com		2	Accutest (Juote #			Accutest Job #	lob #				<u> </u>
	Clent / Reporting Information						Project Information	ormation							Requ	Requested Analysis	rsis		M	Matrix Codes	
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Project Contact	ontact H Porte	E-mail	<u>د</u>	Project #																SL - Sludge	
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Sampler's Name	1 2 1		0	Client Purchase Order #	se Order #							3								AIR - Air SCN - Other Solid	
Accutest	Field ID / Point of Collection	SIMMA #		Collection	tion	╞		Ž	mber of pr	preserved Bottles		18					<u> </u>			WP - Wine	
Sample #		MEOH Val#	al# Dete	l ~		Sampled Matrix	ix bottles	NPOH HCI	HS204 HAND3	HOSHPN BNOW	BICONE HOGH	R .							5	LAB USE ONLY	T
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ACCU		SAMPL	E RECEIPT	LOG	· ·		· .
JOB #:	6	DATE/TIME RECI		124/03	0900		
JOB #:	EL PASO	· · ·		INITIALS:	¥8		
3. Y M Sample rec 5. N Sample volu	eived in undamag eived with proper ume sufficient for stody matches sa al received intact	ed condition. 2.(pH. 4. analysis. 6.(ample IDs on cont and tamper evide	N Sampl N Sampl N Sampl ainers. nt on cooler.	es received v e received in	vithin temp, ra proper contai	nge. ners.	
SAMPLE or FIELD ID	BOTTLE #	DATE SAMPLED	MATRIX	VOLUME	LOCATION	PRESERV.	РН
	1	9/23/03	AW	VOA	VREF	1,2,3,4,5,6	U, <2, >12,
	2					123,4,5,6	U, <2, >12
2	1	V_		\downarrow		1(2,3,4,5,6	U, <2, >12,
·		· · · · · · · · · · · · · · · · · · ·			· · · · · ·	1,2,3,4,5,8	U, <2, ≻12,
						1,2,3,4,5,6	U, <2, 512,
						1,2,3,4,5,6	U, <2, >12,
						1,2,3,4,5,6	U, <2, >12,
						1,2,3,4,5,6	U, <2, >12,
		·				1,2,3,4,5,6	U, <2, >12,
		1.103	VA			1,2,3,4,5,6	U, <2, >12,
		a/24/03	1			1,2,3,4,5,6	U, <2, >12,
	·					1,2,3,4,5,6	U, <2, >12,
						1,2,3,4,5,6	U, <2, >12,
			<u> </u>			1,2,3,4,5,6	U, <2, >12,
	· · · · · · · · · · · · · · · · · · ·	<u> </u>			· · · · · · · · · · · · · · · · · · ·	1,2,3,4,5,6	U, <2, >12,
LOCATION: WI: Walk-In		-		re Freezer		1,2,3,4,5,6	U, <2, >12;
PRESERVATIVES: 1: No)3 4: H2SO4 5: NA		·····		<u></u>	· · · · · · · · · · · · · · · · · · ·
pH of waters checked exc pH of soils N/A	Juding volatiles	-					
elivery method: Cour	ier: Fed Ex			COOLER TEN	AP: 3.8%	COOLER TE	MP:

TO A CTO A	XI A T TO A MICON	WORKSHEET
		WINDEN SHHEFT
DAIA		

(Page 1 of 2)

		1/ A	CW 046 0001D (D				0(104)00
Analy	yucai wiethod	Analytes:	SW-846 8021B (B	IEA) S	sample Col	lection Date(s):	00/24/03
	L	aboratory:	Accutest		MW	H Job Number:	EPC-SJRB
							(Groundwate
	Batch Ider	ntification:	T4642			Matrix:	Water
	MS/MSD F	Parent(s) ^(a) :	None		Field Repl	icate Parent(s):	None
Vali	idation Co	mplete:	5	Brian	Buttar	r - 07/01/03	· · · ·
					(Date/Signati	ure)	
			· .		: 	· · · · · · · · · · · · · · · · · · ·	-
Foot Notes	Site ID	Sample II		Hits (Y/N)	Quals.	Comr	nents
None	Trip Blank	240603TB01	T4642-01	N			
None	Jennepah	MW-1	T4642-02	Y		Xylenes, total @ m,p-Xylenes @	
None	Jennepah	MW-2	T4642-03	N			
None	Jennepah	MW-3	T4642-04	N	· · · ·		
		·					
			· · · · · · · · · · · · · · · · · · ·				
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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	А	Å	 	
Reporting Limits	A	A	A	A		
Trip Blank	A	A	A	А		·
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	А	А		
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	А	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:



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



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

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Sample Summary

Montgomery Watson

Job No: T4642

EPFS San Juan Basin GS

Sample Number	Collected Date	l Time By	Received	Matu Code		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

				Repo	rt of An	alysis		Page 1 of 1	
Client Sam Lab Sampl Matrix: Method: Project:	le ID: 7 A S	W846	l rip Blank V			Date Sampl Date Receiv Percent Sol	ed: 06/25/03		
Run #1 Run #2	File ID KK00531	8.D	DF 1	Analyzed 06/25/03	By BC	Prep Date n/a	Prep Batch n/a	Analytical Batch GKK280	
Run #1 Run #2	Purge Vo 5.0 ml	olume		· .		· · · · ·		<u> </u>	
Purgeable	Aromatics								
CAS No.	Сотрои	ind		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	Ethylber	izene		ND	1.0	ug/l			
1330-20-7	Xylenes	(total)		ND	3.0	ug/l			
95-47-6	o-Xylen	е		ND	1.0	ug/l			
	m,p-Xyl	ene		ND	2.0	ug/l			
CAS No.	Surroga	te Rec	overies	Run# 1	Run# 2	Limits			
460-00-4	4-Bromo	ofluoro	benzene	103%		64-121%			
98-08-8	aaa-Trif	luoroto	luene	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

Client Sam Lab Samp Matrix: Method: Project:			· · ·	Date Samp Date Recei Percent So	ved: 06/25/03	
Run #1 Run #2	File ID DF KK005332.D 1 KK005319.D 5	Analyzed 06/26/03 06/25/03	By BC BC	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GKK281 GKK280
	Purge Volume		·			<u>, </u>
Run #1 Run #2	5.0 ml 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%		

117%

490% a

71-121%

Report of Analysis

(a) Outside control limits due to matrix interference.

aaa-Trifluorotoluene

98-08-8

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

Report of Analysis

Page 1 of 1

Lab Sample Matrix: Method: Project:	ple ID: JENNEPAH M e ID: T4642-3 AQ - Water SW846 8021B EPFS San Juan			Date Sample Date Receiv Percent Soli	ed: 06/25/03	
Run #1 Run #2	File ID DF KK005326.D 1	Analyzed 06/26/03	By BC	Prep Date n/a	Prep Batch n/a	Analytical Batch GKK280
Run #1 Run #2	Purge Volume 5.0 ml	. <u>.</u>		· · · · · · · · · · · · · · · · · · ·		
Purgeable A	Aromatics				· · · · · · · · · · · · · · · · · · ·	
<u> </u>	Aromatics Compound	Result	RL	Units Q	· .	
Purgeable		Result	RL 1.0			
Purgeable A	Compound	•		ug/l	· · · · ·	
Purgeable A CAS No. 71-43-2	Compound Benzene Toluene	ND	1.0			
Purgeable / CAS No. 71-43-2 108-88-3	Compound Benzene Toluene Ethylbenzene	ND ND	1.0 1.0	ug/l ug/l ug/l		
Purgeable / CAS No. 71-43-2 108-88-3 100-41-4	Compound Benzene Toluene Ethylbenzene Xylenes (total)	ND ND ND	1.0 1.0 1.0	ug/l ug/l ug/l ug/l		
Purgeable / CAS No. 71-43-2 108-88-3 100-41-4 1330-20-7	Compound Benzene Toluene Ethylbenzene	ND ND ND ND	1.0 1.0 1.0 3.0	ug/l ug/l ug/l	· · · · · · · · · · · · · · · · · · ·	
Purgeable / CAS No. 71-43-2 108-88-3 100-41-4 1330-20-7	Compound Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene	ND ND ND ND ND	1.0 1.0 1.0 3.0 1.0	ug/l ug/l ug/l ug/l ug/l		
Purgeable / CAS No. 71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Compound Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene m,p-Xylene	ND ND ND ND ND	1.0 1.0 3.0 1.0 2.0	ug/l ug/l ug/l ug/l ug/l ug/l	· · · · · · · · · · · · · · · · · · ·	

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

Client Sam Lab Sampl Matrix: Method: Project:				Date Sampl Date Receiv Percent Sol	ved: 06/25/03	· · · · ·
Run #1 Run #2	File ID DF KK005327.D 1	Analyzed 06/26/03	By BC	Prep Date n/a	Prep Batch n/a	Analytical Batch GKK280
Run #1 Run #2	Purge Volume 5.0 ml	<u> </u>			<u></u>	
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	1. State 1.	
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	· .	
		Run# 1	Run# 2	Limits		
CAS No.	Surrogate Recoveries	Kull# 1	Kull# L	Linnus		
CAS No. 460-00-4	Surrogate Recoveries 4-Bromofluorobenzene	95%	Ruiiπ Z	64-121%		

Report of Analysis

ND = Not detected RL = Reporting Limit E = Indicates value exceeds calibration range

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





Page 1 of 1

Blank	Spik	ke Sum	mary
Job Nur		T4642	

Account: Project:	MWHSLCUT Mont EPFS San Juan Basi					·
Sample GKK280-BS	File ID DF KK005308.D1	Analyzed 06/25/03	By BC	Prep Date n/a	Prep Batch n/a	Analytical Batch 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	9 9	78-114
	m,p-Xylene	40	40.3	101	79-116
CAS No.	Surrogate Recoveries	BSP	Liı	nits	· .
460-00-4	4-Bromofluorobenzene	99%	64-	121%	
98-08-8	aaa-Trifluorotoluene	96%	71-	121%	

•



Blank Spike Summary

Job Number Account: Project:			n				
Sample GKK281-BS	File ID DF KK005330.D 1	Analyzed 06/26/03	By BC	P. n/	rep Date /a	Prep Batch n/a	Analytical Batch GKK281
The QC rep	orted here applies to the	e following sam	mples:			Method: SW	/846 8021B
T4642-2							
		Spike	BSP	BSP			
CAS No.	Compound	ug/l	ug/l	%	Limits		
71-43-2	Benzene	20	20.9	105	74-119	•	
100-41-4	Ethylbenzene	20	20.8	104	82-115		
	Toluene	20	20.6	103	77-116		
1330-20-7	Xylenes (total)	60	62.1	104	79-115		
	o-Xylene	20	20.6	103	78-114		
	m,p-Xylene	40	41.4	104	79-116	•	

Limits

64-121%

71-121%

BSP

97%

95%

CAS No.

460-00-4

98-08-8

Surrogate Recoveries

4-Bromofluorobenzene

aaa-Trifluorotoluene



•



Method Blank Summary Job Number: T4642

Job Number: Account: Project:	T4642 MWHSLCUT Mont EPFS San Juan Basin		,			
Sample GKK280-MB	File ID DF KK005309.D 1	Analyzed 06/25/03	By BC	Prep Date n/a	Prep Batch n/a	Analytical Batch GKK280
The QC repor	ted here applies to th	e following sam	ples:		Method: SW	7846 8021B
T4642-1, T464	2-2, T4642-3, T4642-4	4			· ·	

CAS No.	Compound	Result	RL	Units Q
71-43-2 100-41-4 108-88-3 1330-20-7 95-47-6	Benzene Ethylbenzene Toluene Xylenes (total) o-Xylene m,p-Xylene	ND ND ND ND ND	1.0 1.0 3.0 1.0 2.0	ug/l ug/l ug/l ug/l ug/l ug/l
CAS No.	Surrogate Recoveries		Limi	ts
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	106% 107%	64-12 71-12	

10 of 13

-



Method Blank Summary Job Number: T4642

Account: Project:	MWHSLCUT Mor EPFS San Juan Bas					
Sample GKK281-MB	File ID DF KK005331.D 1	Analyzed 06/26/03	By BC	Prep Date n/a	Prep Batch n/a	Analytical Batch GKK281
The QC repor T4642-2	ted here applies to t	he following sam	ples:		Method: SW	7846 8021B
						•

CAS No.	Compound	Result	RL	Units Q
71-43-2 100-41-4 108-88-3 1330-20-7 95-47-6	Benzene Ethylbenzene Toluene Xylenes (total) o-Xylene m,p-Xylene	ND ND ND ND ND ND	1.0 1.0 3.0 1.0 2.0	ug/l ug/l ug/l ug/l ug/l ug/l
CAS No. 460-00-4 98-08-8	Surrogate Recoveries 4-Bromofluorobenzene aaa-Trifluorotoluene	102% 101%	Limi 64-12 71-12	:1%

11 of 13



Matrix S	Spike/Matrix	Spike	Duplicate	Summary
Job Numbe	r: T4642			

Page 1 of 1

Account: Project:	MWHSLCUT Montge EPFS San Juan Basin								:
Sample	File ID DF	Analyzed	Ву	Prep I	Date	Prep Bat	ch A	Analytical	Batch
T4643-4MS	S KK005336.D1	06/26/03	BC	n/a		n/a	. (GKK281	
T4643-4MS	SD KK005337.D1	06/26/03	BC	n/a		n/a	(GKK281	
T4643-4	KK005335.D1	06/26/03	BC	n/a		n/a	(GKK281	· · ·
The QC re	ported here applies to the	following samp	les:			Method:	SW84	6 8021B	
T4642-2									
		T4643-4	Spike	MS	MS	MSD	MSD	l ·	Limits
CAS No.	Compound	ug/l (Q ug/l	ug/l	%	ug/l	%	RPD	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	66-120/1 4
CAS No.	Surrogate Recoveries	MS	MSD	T4	643-4	Limits		·	· · ·
460-00-4	4-Bromofluorobenzene	99%	100%	98		64-1219			
98-08-8	aaa-Trifluorotoluene	95%	98%	95	%	71-1219	%		

12 of 13



Matrix Spike/Matrix Spike Duplicate Summary Job Number: T4642 Account: MWHSI CUT Matter W

Page 1 of 1

EPFS San Juan B	asin GS				
File ID DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
KK005314.D1	06/25/03	BC	n/a	n/a	GKK280
KK005315.D1	06/25/03	BC	n/a	n/a	GKK280
KK005311.D1	06/25/03	BC	n/a	n/a	GKK280
•	File ID DF KK005314.D1 KK005315.D1	KK005314.D 1 06/25/03 KK005315.D 1 06/25/03	File ID DF Analyzed By KK005314.D 1 06/25/03 BC KK005315.D 1 06/25/03 BC	File ID DF Analyzed By Prep Date KK005314.D 1 06/25/03 BC n/a KK005315.D 1 06/25/03 BC n/a	File IDDFAnalyzedByPrep DatePrep BatchKK005314.D 106/25/03BCn/an/aKK005315.D 106/25/03BCn/an/a

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
100-41-4 108-88-3	Ethylbenzene Toluene	ND ND	20 20	20.2 19.5	101 98	19.8 19.3	99 97	2 1	64-123/14 64-120/13
1330-20-7 95-47- 6	Xylenes (total) o-Xylene	ND ND	60 20	31.8 14.2	53* 71	28.0 12.9	47* 65	13 10	66-118/18 65-119/20
	m,p-Xylene	ND	40	17.7	44*	15.1	38*	16*	66-120/14
CAS No.	Surrogate Recoveries	MS	MSD	T4	644-2	Limits			
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	102% 100%	114% 113%		9% 1%	64-121 71-121			

	•	· .			CHA	IN O		B	ST	OD	¥Ż ₩	0 5	USTODY 24 0603 mv 01	2 Z	1¢				
	ACCUTEST				10165 T	10165 Harwin Drive, Ste. 150, Houston, TX 77036 TEL. 713-271-4700 FAX: 713-271-4770	brive, Ste 71-4700	150, Hoi FAX: 71	iston, T) 3-271-47	<pre>< 77036 70</pre>	FED-EX Tr	scking #	FED-EX Tracking #	1	Bottle Order Control #	ci #			
	Laboratories						WWW.BCC	www.accutest.com		2	Accutest Quote #	uote #			Accutest Job #				
						Project	Project Information							Requested Analysis	Anatysis		Ma	Matrix Codes	
MULH HULH	1 / BL Paso		Project	Project Name		around w	in second	1									DW-1	DW - Drinking Water GW - Ground Water	
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C	er o	107CS	City			5	State				<u> </u>						S MS	SW - Surface Water SO - Soil	
Project Contact	x Benella	E-mail	Project #	#			0										ਯ 	SL - Sludge Oi - Oi	
Phone # 505	5992		Fax#	505	4	55	5112	-			×							LIO - Other Liquid	
Sampler's Name	m T Nee		Client	Client Purchase Order #	ler#						3/.						sor 	AIR - Air SOL - Other Solid	
Accutest Sample #	Field ID / Paint of Collection	SUMMA #	╢	Collection		\vdash		12	Baved		28					-	5	WP - Wipe	
		MEOH Val #		, Line		Matrix bottles		HOSZH EONH	osh¶n 3non	HO3M	*						LAB	LAB USE ONLY	
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3 Retinquished by		Date Time: Re	3 Received by				40	4 Custody Seal #				Preserved where applicable	⊎ applicable	₹ \$		N N	Cooler Temp.		
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	•	NOTICE OF		
Address (EPA Regio Region 9 Environmental Insp 75 Hawthorne San Francisco, CA	pection Agency Street (WTR-9)	Nawayo E Mit P.O. Box	CProgram	
Date <u>6 24 - (</u> Hour		f inspection is he		g to Section 1445(b) of the
Reason For Inspectio	n			
undergro the Safe	und injection con Drinking Water Ac	trol program has ct and any applic	r the person subject acted or is acting in able permit or rule.	compliance with
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ITC .	the l	uter.	•	
Section 1445(b) of the SD	WA (42 U.S.C. §300 j≁	(b) is quoted on the	reverse of this form.	······
Receipt of this Notice	e of Inspection is	hereby acknowle	dged.	
irm Representativ	9	Date		Inspector

	DATA VALIDATION WO (Page 1 of 2)	DRKS	
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:	Indre Instle	(Date/Signature)	

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

13760 Magnolia Ave. Chino CA 91710



Tel: (909) 590-1828 Fax: (909) 590-1498 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

APCL Analytical Report

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

				Jenne pahalys MW-1	is Result
Component Analyzed	Method	Unit	PQL	MW-1	ТВ
	•			03-02406-1	03-02406-2
BTXE					
Dilution Factor				5	1
BENZENE	8021B	μg/L	0.5	74	< 0.5
ETHYLBENZENE	8021B	$_{\mu}\mathrm{g/L}$	0.5	168	< 0.5
TOLUENE	8021B	$\mu g/L$	0.5	190	0.2J
O-XYLENE	8021B	$\mu g/L$	0.5	576	< 0.5
M,P-XYLENE	8021B	$\mu g/L$	1	212	<1

PQL: Practical Quantitation Limit. MDL: Method Detection Limit. N.D.: Not Detected or less than the practical quantitation limit. CRDL: Contract Required Detection 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

Laboratory Director Applied P & Ch Laboratory

0 7	CHA	CHAIN OF CUST		I OUT RECORDICAD WORN REQUENT	1	1)		ſ				
LABORATORY A KCC Contract El Paso Corp., San Jaun River Basin MWH								·	•					Chain of Page Air Bill N	Chain of Custody ID <i>ざらざらころがN - 1</i> Page 1 of 1 Air Bill No. <u>8356037570 44</u>
0 FAX (80' Buttans	e								ANAL	ANALYSES REQUESTED	EQUE	STED			LABORATORY USE ONLY
Project 24 V V V V V V V V V V V V V V V V V V	<u>}</u> }		betselloC	betseiloO	<u></u>	2M-846 8021B	aity SM 2320B	1.001 A932	A0747 & 80108 & 7470A	s NSEPA 300.0	0.05EPA 300.0	0.00£ A432U			SAMPLES WERE: 1 Shipped or hand delivered <i>Notes</i> : 2 Ambient or Chilled
Location ID	Sample De ID Inter	Depth Interval (ft)	Date C) əmiT	Matrix		Alkalin				Nitrate	Nitrite			Notes: 3 Temperature
	Han	20	3-25-0310	53	we B	X									4 Received Broken/Leaking
	10	60	3250	0630	もじ	<u>×</u>		_							(Improperly Sealed)
			-							_			-		Notes:
					-			+		_					5 Properly Preserved Y N
								<u> </u>							
								 							6 Received Within Holding Times
											6				Y N Notes:
			-								Y				COC Tape Was:
															ter Pa
		-											_		nbroken
					+			 	+						Package Y N NA
(a) Matrix: AA – Air SO – Soil WQ – Trip Blank/ SO – Suil WQ – Trip Blank/ WS – Surface Water Equipment Blanks WG – Ground Water WW – Wastewater		Sampling Techr Composite=C Grab=G Hand Auger=HA	(•) Sampling Technique: Composite=C Grab=G Hand Auger=HA		Submersible Pump=S Bladder Pump=BP Bailer=B Wellhead Faucet=WF Hydropunch=HP	Submersible Pump=SP Bladder Pump=BP Bailer=B Wellhead Faucet=WF Hydropunch=HP	_	Locatio Ground Bisti=Bl Jaquez [:]	Location IDs: Groundwater { Bisti=BI Jaquez=JA	Location IDs: Groundwater Sites=GW Bisti=BI Jaquez=JA	GW	North Flare Pit=NF South Flare Pit=SF San Juan River Plant=SJ	Pit=NF e Pit=SF čiver Pla	nt=SJ	 3 Present on Sample Y N A Unbroken on Sample Y N
Relinquished by/Affiliation	filiation					Receive	Alyd be	Received by/Affiliation	Ĕ			Date		Time	Notes:
M												3.5	3.25-63 1	00%	Discrepancies Between
						Kur	S					3/26 (03		bq cù	Record?
													╈		Notes:
			-									•			

13760 Magnolia Ave. Chino CA 91710

Tel: (909) 590-1828 Fax: (909) 590-1498

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

Analysis of Water

APCL QA/QC Report

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

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

801-032406QC

Component Name	Analysis Batch #	$_{ m CCV}$	CCV %Rec	M-Blank	Conc. Unit	SP Level	LCS %Rec	MS %Rec	MSD %Rec	MS/MSD %RPD	Contro %Rec	l Limit %Diff
BTXE				······								
Benzene	03G1854	100	90	N.D.	$\mu g/L$	18.0	99	94	97	3	71-126	28
Toluene	03G1854	100	98	N.D.	$\mu g/L$	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.	$\mu g/L$	70.0	96	91	97	6	66-122	28
o-Xylene	03G1854	100	95	N.D.	$\mu g/L$	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: Case No:	Montgomery Watson Harza	Contract No: SAS No:	Lab Code: SDG Number:	APCL 032406
Project ID:	San Juan Basin	Project No: 220013 Batch No: 03G1854	Sample Matrix:	Water
	Client	Lab	S1	TOT
#	Sample No	Sample ID	% #	OUT
1		03G1854-LCS-01	97	. 0
2		03G1854-LSD-01	93	0
3		03G1854-MB-01	100	0
4	TB 250303MN-	03-2406-2	99	0
5 7	nnepah MW-1	03-2406-1	114	0
6	LF821	03-2389-7MS	97	0
7.	LF821	03-2389-7MSD	97	0
8				<u> </u>
9				·····
10				<u> </u>
11				· · · · · · · · · · · · · · · · · · ·
12				
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S1 = 4-BROMO-FLUOROBENZENE (PID)

QC Control Limit 66-133

D - Surrogate diluted out

Column to be used to flag recovery values:

* - Values outside of contract required QC Limits



Tele: (909)590-1828×228

I - Matrix Interference

Мили Vocated Bane, Ban, Ban, Marking, Minute Comparison Мили Vocated Bang, Ban, Marking, Minute Comparison Munu Vocated Bang, Ban, Munu Vocated Bang, Munu Vocated B	Contract El Paso Corp., San Jaun River Basin MWH								•				Chain c Page Air Bill	Chain of Custody ID 250303/11/- Page / of / / Air Bill No. 835603757044
Z. Construction Z. Construction Refer A. Marth W Unit dentary Unit dentary March Unit dentary<	MWH Contact Brian Buttars	1				 		AN	ALYSE	S REQ(JESTE			LABORATORY USE ON
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Territy 32:5:05 10:5:3 14/5 X N 0:5:0:3 17:0 5:3:5:8 0:5:0:5 14/5 X N 0:5:0:3 17:0 5:3:5:8 0:5:0:5 14/5 X N N 0:5:0:3 11:0 5:3:5:8 0:5:0:5 14/5 X N N 0:5:0:3 11:0 5:3:5:8 0:5:0:5 14/5 X N N 1:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0						:							<u> </u>	 A minient or Canilled Notes: 3 Termorature
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An - Air Molecular Plank Constrained North Flare Plank Image Water Composite Submersible PumperSP Location IDs: South Flare Plank Image Water Composite Balacter Balacter Balacter South Flare Plank Image Water Composite Composite South Flare Plank South Flare Plank Image Water Composite Submersible PumperSP Location IDs: South Flare Plank Image Water Composite Submersible PumperSP Location IDs: South Flare Plank Image Water Weilthead FauceFWF Jagez-JA Jagez-JA Jagez-JA Image Water Weilthead FauceFWF Jagez-JA Jagez-JA JageZ-JA Image Water Www - Wasterweiter JageZ-JA JageZ-JA JageZ-JA Image Water Ww - Masterweiter JageZ-JA JageZ-JA JageZ-JA Image Mater Monutch-IPP South Flare Plank JageZ-JA JageZ-JA Image Mater Monutch-IPP South Flare Plank JageZ-JA JageZ-JA		2	3 2	8000		×		_					-	(Improperly Sealed) Y Notes:
A - Alr M - Trip Blank urface Water Equipment Blanks composite C Bailer Bistiell M - Vastewater Bailer Bistiell M - Vastewater Bailer Bistiell M - Vastewater Bailer Bistiell M - Vastewater Bailer Bistiell M - Trip Bistiell M -														
AA -Air Marker Water Under Water Water Water Water Water Water Water Water Water Water Water Manual Blank Composite=C Blater Blater Manual Blank Composite=C Blater Manual Blank Composite=C Blater Blater Manual Blank Composite Blater Manual Blank Composite=C Blater Blater Manual Blank Composite=C Blater Blater Manual Blank Composite=C Blater Manual Blank Composite=C Blater Manual Blank Composite=C Blater Blater Manual Blank Composite=C Blater Blater Manual Blank Composite=C Blater Blater Manual Blank Composite=C Blater Blater Manual Blank Composite=C Blater Blater Manual Blank Composite=C Blater Manual Blank Composite=C Blater Manual Blank Composite=C Blater Manual Blank Composite=C Blater Manual Blank Composite C Blater Manual Blank Composite C Blater Manual Blank Composite C Blater Manual Blank C Blater Manual Blank C Blater Manual Blank C Blater Manual Blank C Blater Manual Blank C Blater Manual Blank C Manual Blank C Manua							<u> </u>	F		╞	-			Notes:
AA-Air % Sampling Technique: Submersible Pump-SP Location IDs: North Flare Pit-FF Image: Water Equipment Blanks Composite=C Bladder Pump-SP Location IDs: North Flare Pit-FF Image: Water Equipment Blanks Composite=C Bladder Pump-SP Coundwater Site=Site North Flare Pit-FF Image: Water Equipment Blanks Composite=C Bladder Pump-SP Coundwater Site=Site North Flare Pit-FF Image: Water Water Water Blanks Composite=C Bladder Pump-SP Coundwater Site=Site North Flare Pit-FF Image: Water Water Water Blanks Composite=C Bladder Pump-SP Coundwater Site=Site North Flare Pit-FF Image: Water Water Water Blanks Composite=C Bladder Pump-SP Coundwater Site=Site North Flare Pit-FF Image: Water Water Water Blanks Composite=C Bladder Pump-SP Coundwater Site=Site North Flare Pit-FF Image: Water Water Blanks Composite=C Bladder FuncerW Bislie=B South Flare Pit-FF Image: Water Water Water Blanks Composite=C Bladder Pump-SP South Flare Pit-FF Image: Water Water Water Water Water Site=Dit Water Mater M			 								_			
Ad - Air Image: Submersible Pump=SP Location IDs: North Flare Pite-NF 0I WG - Trip Blank Image: Submersible Pump=SP Location IDs: North Flare Pite-NF 0I WG - Trip Blank Composite=C Bladder Pump=SP Location IDs: North Flare Pite-NF 0I WG - Trip Blank Composite=C Bladder Pump=SP Conductive Rankes South Flare Pite-NF 0I WG - Trip Blank Composite=C Bladder Pump=SP Groundwater Sites=CW South Flare Pite-NF 0I WG - Trip Blank Composite=C Bladder Pump=SP Groundwater Sites=CW South Flare Pite-NF 0I WG - Trip Blank Composite=C Bladder Pump=SP Groundwater Sites=CW South Flare Pite-NF 0I WG - Trip Blank Composite=C Bladder Pump=SP Groundwater Sites=CW South Flare Pite-NF Nourier WW - Weithead FauceI=WF Bladder Pump=SP Groundwater Sites=CM South Flare Pite-NF Relinerid WW - Weithead FauceI=WF Jaquez=JA Jaquez=JA Jaquez=JA Relinquished by/Affiliation Received by/Affiliation Date Time MMM MMM MMM MMM MMM														Y Notes:
AA - Air Market and the state of the state														COC Tape Was:
and A						-								1 Present on Outer Pack
AA - Air oil Worth Flare Pit=NF (°) Sampling Technique: Submersible Pump=SP Location IDs:: North Flare Pit=NF 3 Present on Sample urface Water Equipment Blanks Composite=C Bladder Pump=BP Groundwater Sites=GW South Flare Pit=SF Y N urface Water Equipment Blanks Grab=G Baller=B Bisti=BI San Juan River Plant=SJ Y N indrace Water Moder Two-Wastewater Hand Auger=HA Wellhead Faucet=WF Jaquez=JA San Juan River Plant=SJ Y N inound Water WW - Wastewater Hand Auger=HA Wellhead Faucet=WF Jaquez=JA A Unbroken on Sample inound Water WW - Wastewater Hand Auger=HA Wellhead Faucet=WF Jaquez=JA A Unbroken on Sample inound Water WW - Wastewater Jaquez=JA Jaquez=JA A Time Y N Reindulshed by/Affiliation Received by/Affiliation Bate Time Time A Notes: Motes Motes 3/26/6rr Bate Size/for Bate Sample												+		Unbroken on Outer Package Y N
Received by/Affiliation Date Time Notes: Received by/Affiliation 3:25:68 / 400 Discrepancies Between Record? 3:26 for 04cov Y Notes: Notes:	oil urface Water Sround Water	ī	Sampling Tec Composite=C Grab=G Hand Auger=H		ibmersible I adder Pumţ ilter=B ∋llhead Fau dropunch≃l	Pump=SP)=BP cet=WF HP		Locatio Groundv Bistj=Bl Jaquez=	n IDs: water Sit	es=GW	Nor Sou San	th Flare Pi th Flare Pi Juan Rive	t=NF t=SF ir Plant=SJ	Present on Sample Y N Unbroken on Sample Y N
100 31260 1400	Relinquished by/Affil	lation				Receive	d by/Affi	liation				Date	Time	
Kon 3126107 base	M See											3.254		Discrepancies Between
						Kul	Z					312610		Record?
														Notes:

l: (909) 590-1828 - Fax: (909) 590-1498	Sample Receiving Checklist
PCL ServiceID	G Client Name/Project: <u>Mantgruey Watsan</u>
. Sample Arrival	
	<u>معنی</u> Date/Time Opened <u>3/26/03 0900</u> By (name): <u>Paul Kan</u> Golden State UPS US Mail FedEx APCL Empl
. Chain-of-Custody (CoC)	
With Samples? Faxed? Project ID? Analyses CoC/Docs Zip-Locked under Iid Discrepancies? Client no	1?
. Shipping Container/Cooler	
Cooler Used? # of Cool Temp °C4.2°C	led by: Tice Blue Ice Dry Ice None
· · · · ·	asured from temp blank if present, otherwise measured from the cooler). Absent Intact ITampered?
. Sample Preservation	
$\Box pH < 2 \qquad \Box pH > if Not, pH = Preserve$	
. Holding-time Requirements	
pH 24hr BACT 6/24 Cl ₂ ASAP Turbidity 48 HT Expired? Client notifier	8hr 🗖 DO ASAP 🔲 Fe(II) ASAP
Type: plastic C Quantity OK? C Caps tight?	Documented? Number: glass Tube: brass/SS Tedlar Bag Leaking? Anomaly? Air Bubbles? Anomaly? Date/Time Preserved?
. Turn Around Time	
RUSH TAT: Jden DStd ((7-10 days) 🔲 Not Marked
. Sample Matrix	
Drinking H20 Other Liq Sc Ground H20 Sludge Fi	
Pre-Login Check List Completed	d & OK?
	Client Contact? (Name:)Date/Time:
Received/Checked by: <u>Part(</u>	Date: 26 Mar 2003 Time: 7:42 a.m.
uples must be analyzed for results to reflect tot uses and may be used to define waste as hazardo	tal concentrations. Results generated outside required of holding times are considered mini ous but not as non-hazardous.
umentFile: [neal.textiles]smprcl.tex.	
rumentfile: [neal.texfiles]smprcl.tex.	

13760 Magnolia Ave. Chino CA 91710 Tel: (909) 590-1828 Fax: (909) 590-1498 Sample Login: Check List

 $\begin{array}{r} 03\text{-}02406 \ (0984\text{-}1043) \ (2721900\text{-}1043) \\ 03/26/03 \end{array}$

Part 1: General Information Company Information Name: Montgomery Watson Harza Address: 10619 South Jordan Gateway ,Salt Lake City ,UT 84095 Project Description: San Juan Basin **Project Information** Hill AFB Project #: 220013 P.O. #: Billing Information Bill Address: 10619 South Jordan Gateway ,Salt Lake City , UT 84095 Lab Project ID: 1999_0746 Client Database #: 04 Paul Kou Who Received Sample? Receiving Information 03/26/03 Receiving Date/Time: 0900 COC No. Shipping Information Shipping Company Express Packing Information: Cooler/Ice Chester Cooler Temperature: 4.2 °C Container Information Container Provider: Client Sampling Person: Sampling Information Client Sampling Company: Turn-Around-Time Option: Rush 5 working day(s)QC and Surro. Rep. QC Option: п Disposal Option: Not specify



Part 2: Sample Information

	Sample ID (on COC)	•	APCL Sample ID	Matrix			-		Condition G, L, B			Composite Group	TAT Days	
1	MW-1 -	втех	03-02406-1	W	v	C	40	2	G	032503	N	0	7	
2	тв 📡	втех	03-02406-2	W	v	С	40	1	G	032503	N	. O .	7	

Part 3: Analysis Information

est Items:	<i>~</i> □ 8021B	BTXE				
Seq.	Client"s Sample ID	Sample	APCL			
#	(as given on COC)	Sub-ID	Sample ID	Matrix	BTXE	
	MW-1	BTEX	03-02406-1	W	x	
2	ТВ	BTEX	03-02406-2	w	x	

Login By <u>En-Yu Paul Kou</u>

Check By _____

03-02406 Check List

Login on 03/26/03

File: TMP001c.tex

Page: 2

13760 Magnolia Ave. Chino CA 91710

Tel: (909) 590-1828 Fax: (909) 590-1498 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



APCL Analytical Report

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

				Jennepah MW-1	is Result
Component Analyzed	Method	Unit	PQL	MW-1	TB
				03-02406-1	03-02406-2
BTXE		·.			
Dilution Factor				5	1
BENZENE	8021B	$_{\mu}\mathrm{g/L}$	0.5	74	< 0.5
ETHYLBENZENE	8021B	$\mu g/L$	0.5	168	< 0.5
TOLUENE	8021B	$\mu g/L$	0.5	190	0.2J
O-XYLENE	8021B	$\mu g/L$	0.5	576	< 0.5
M,P-XYLENE	8021B	$\mu g/L$	1	212	<1

PQL: Practical Quantitation Limit.MDL: Method Detection Limit.N.D.: Not Detected or less than the practical quantitation limit.

CRDL: Contract Required Detection 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, Do

Laboratory Director Applied P & Ch Laboratory

CADHS ELAP No.: 1431

APPENDIX G FIELD DOCUMENTATION (2003)

Project No.:30001.0	Project Name: SJB Groundwater Client: MWH/EL Paso
Location: Jennapah	Well No: <u>MW-3</u> Development <u>Sampling</u>
oject ManagerMJN	Date 12/16/03 Start Time 0931 Weather Sunny teens
Depth to Water25.88_	Depth to Product <u>na</u> Product Thickness <u>na</u> Measuring Point <u>TOC</u>
Water Column Height 5.49	Well Dia2"

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

	Water Volum		
Gal/ft x ft of water	Gallons	Ounces	Gal/oz to be removed
5.49 x 0.16	.88 x 3		2.64
1			

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivotts)	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	····		<u> </u>	0.75	tan silty
	7.91	1380	53.7		<u> </u>		1.0	tan silty
	7.92	1380	52.8			<u> </u>	2.0	tan silty
948	7.94	1390	53.1			· · · · · ·	3.0	tan silty
								· · · · · · · · · · · · · · · · · · ·
						······································	· ·	
			·····					

Final: Time of SC Temp Et	h-ORP D:0 Turbidity Iron	Vol Evac Comments/Flow Rate
Time pH SC Temp Ef 0948 7.94 1390 53.1	<u> </u>	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
Condu	ctivity Meter X	
Water Disposal Kutz	Sample ID_Jennapah	<u>MW-3</u> Sample Time_00952
BTEX VOCs Alkalinity	TDS Cations Anions	Nitrate Nitrite Ammonia TKN NMWQCC Metals Total Phosphorus
MS/MSD	BD	BD Name/Time TB161203tb01

<u></u>			•					·····
Project No.: <u>3</u>	0001.0		Projec	t Name: SJB	Groundw	ater C	lient: <u>MWH/</u>	EL Paso
_ocation:_Je	<u>nnapah</u>		_ w	/ell No: <u>MV</u>	1-2		Devel	lopment Sampling
Project Mana	ıger	MJN						Weather Sunny teer
Depth to Wat	ter2	<u>5.92</u> Dep	th to Produ					uring Point TOC
Water Colum			ll Dia			:		
Sampling Me	thod: Si	ubmersible Pun	np□	Centrifugal	Pump	Peristaltic	Pump 🔲	Other
	D.	ottom Valve Bai	-	Double Che	- Volvo (tainlann Otau	
	D		liei x		CK Valve I		lainiess-olee	el Kemmerer
Criteria: 3 t	o 5 Casi	na Volumes of	Water Rem	noval X stabi	lization of	Indicator Pa	rameters X	Other or bail dry
	•••••							
	<u> </u>			Water Volum	ne in Well			· · · · · · · · · · · · · · · · · · ·
Gal/ft x	ft of wat	er	Gallon	IS	1	Ounces		Gal/oz to be removed
5.93	x 0.16	•	.95 x	3				2.85
		l	·		<u> </u>		l	
Time	рH	SC	Temp	ORP	D.O.	Turbidity	Vol Evac.	Comments/
(military)	(su)	(umhos/cm)	(°F)	(millivolts)	(mg/L)	(NTU)	(gallons)	
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

1.75

2.75

3.75

tan silty

tan silty

tan silty

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

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

54.3

53.9

54.0

7.72

7.74

7.76

0919

1500

1480

INSTRUMENTATION:	pH Meter X DO Monitor	Temperature Meter x Other
1	uctivity Meter X	
Water Disposal Kutz	Sample ID_Jennapah	MW-2 Sample Time0925
BTEX VOCs Alkalinity	TDS Cations Anions	Nitrate Nitrite Ammonia TKN NMWQCC Metals Total Phosphorus
MS/MSD	BD	BD Name/Time TB161203tb01

	<u> </u>		•					
Project No.:	30001.0	·····	Projec	t Name: <u>SJB</u>	Groundwa	ater C	lient: <u>MWH</u>	/EL Paso
Location: Je	ennapah						Deve	elopment Sampling
roject Man								Weather Sunny teen
•					Product TI	hickness <u>na</u>	a Meas	suring Point <u>TOC</u>
Nater Colun	nn Heigh	t <u>8.65</u> Well	Dia	_4"		· ·		
Sampling M	ethod: S	ubmersible Purr	np 🗖	Centrifugal	Pump 🛛	Peristaltic	Pump	Other
	B	ottom Valve Bai	ler x	Double Che	ck Valve I	Bailer 🔲 🛛 Si	tainless-Ste	el Kemmerer
Criteria: 3 t	to 5 Casi	ng Volumes of V	Nater Rem	oval X stabi	lization of	Indicator Pa	rameters X	Other <u>or bail dry</u>
		· · · · · · · · · · · · · · · · · · ·		Water Volum	ne in Well			· · · · · · · · · · · · · · · · · · ·
	<u>t ft of wat</u> x 0.65	er	Gallon 5.62 x			Ounces		Gal/oz to be removed 16.86
0.00			J.02 X	J				10.00
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
		х. Х						
· · · · · · · · · · · · · · · · · · ·								·
	1	· ·		I	I		I	

				the second s		
Final: Time pH	SC Temp	Eh-ORP D.O.	Turbidity Iron		Comments/F	low Rate
<u>1034</u> 7.60	1370 53.3		Turbidity Iron	17	Clear	

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

INSTRUMENTATION:	pH Meter X DO Monitor	Tem Oth	nperature Meter x er
Condu	ctivity Meter X	·····	· · · · · · · · · · · · · · · · · · ·
Water Disposal Kutz	Sample ID_Jennapah	MW-1 Sampl	e Time <u>1040</u>
BTEX VOCs Alkalinity	TDS Cations Anions	Nitrate Nitrite Ammonia TKN	NMWQCC Metals Total Phosphorus
as/MSD	BD	BD Name/Time	TB161203tb01

Project No.:30001	.0	Project Name: <u>SJB Groundwater</u>	Client <u>MWH/EL Paso</u>
Location: Jennap	ah	Well No: <u>MW-1</u>	Development Sampling
pject Manager	MJN	Date9/23/03 Start Tim	ne 0825 Weather Sunny 70s
Depth to Water	<u>25.975</u>	Depth to Product <u>na</u> Product Thickness r	na Measuring Point TOC
Water Column He	ight <u>8.315</u>	Well Dia4"	

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	Gallons	Ounces	Gal/oz to be removed
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			<u></u>	2	Clear
	6.89	1480	13.5	·		· ·	3	Clear
0850	7.10	1460	13.1				8	Clear
	7.05	1450	13.2				15	Clear
<u>0901</u>	7.17	1400	13.5				17	Clear
								· ·

Final: Time pH SC	Temp Eh-ORP	D.O. Turbic	Ferrous lity Iron Vol	I Evac. Comments	S/Flow Rate
<u>0901</u> 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	
Condu	ctivity Meter X	······································	
Water Disposal Kutz	Sample ID_Jennapah	h MW-1 Sample Time 0910	
BTEX VOCs Alkalinity	TDS Cations Anions	s Nitrate Nitrite Ammonia TKN NMWQCC Metals Total Phosph	iorus
MS/MSD	BD	BD Name/Time TB30903tb0	1_

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	-	-
· · · · · · · · · · · · · · · · · · ·		<u></u>			
<u> </u>		+		<u> </u>	
		1 .			

Comments

Signature:

Martin J. Nee

Date:

September 23, 2003

		WELL D	EVELO	OPMENT	AND S	AMPLIN	NG LOG			
Project No:	3000	21-0	Projec	:t Name: 🚿	antra	nBes	Client	mu	VH	
		zzh Well								
		MJN-								: hear
		G. 36 Dept								
		t <u>4.85</u>				C THICKIESS	• <u></u>	Measuring	g FOIR <u></u>	
Sampling M	othod:	Submersible I		Contrifuo	al Dump [] Dorietal) Other [
Sampang M	emou.	Bottom Valve	-	-	-		-			
Criteria: 3 to	o 5 Casi	ng Volumes of								
Gal/ft x ft	ofwato			Water Volum	e In Well			(call	to be rem	
4-85×-1	-	. 776	Gallons		(Dunces		2-32		oved
Time	pH	SC SC		Eh-ORP	D.O.	Turbidity	Vol Evac.		Commen	te/
(military)	ри	(umhos/cm)				(NTU)	(gal.)		Flow rat	
0831	689	1110	178			· · · · · · · · · · · · · · · · · · ·	- 5	3	ilty	Tan
	717	1100	167				_/		0	
	716	1100	<u>16</u> z			<u> </u>	1,5			
0838	<u>7'5</u>	1690	164				2,6			
<u>8840</u>	<u>717</u>	110	163		<u> </u>		2.5			
				. <u> </u>	<u> </u>					
					·					
								<u></u>		
		· · · · · · · · · · · · · · · · · · ·		·		· .			·	
				. <u></u> .	<u></u>					
		<u></u>						<u> </u>		
				· ·						
				· ·	<u> </u>					
		<u></u>		· ·						
<u></u>				· <u> </u>						
inal:										· · · ·
Time	pН	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac	. Comme	nts/Flow rate
0840	712	1110	163			-		2.5	- sitt	ten
			· · · · · ·	,						<u>)</u>
COMMENT	rs:/	Naks a	r <i>o</i> eti	Inst	Ē.	1	Vava	10 2	P2 0.	nsite
· <u>····································</u>		<u>_</u>								
INSTRUMEN	ITATIO			23		Tempe		-		-
		DO N Conductivity	Aonitor Meter		<u> </u>		Oth	ier 🗋		-
Water Dispos	sal k			<u>دع</u>						
		epsh mi	بر ۲-2 Sa	mple Time (0844	С рт	ΈX β2⁄1 ∖	/00 🗖	Alkilinity 🗌	l
	<u>~ ////</u>	/								
	atar P	A								
TDS C C	ations [Nitrate	Nitrite		monia 📋	-	NM WQC	C Metals

Project No: 2	3000	1.0	Projec	t Name: 🖉	entra	n bes	Client:	MWH
Location: Z	nne	12h Well	No: M	W-2		Devel	opment 🗌	Sampling 🗹
			-					Weather 803 Chem
Depth to Wa	ater Za	655 Dep	oth to Pro	duct	Produc	t Thickness	;_ <u> </u>	Measuring Point <u>TOC</u>
		t <u>5,05</u>						
				·		<u> </u>		
Sampling M	ethod:	Submersible	-	-			-	other L⊥ s-Steel Kemmerer □
Criteria: 3 to	o 5 Casi							neters D Other <u>Theild</u>
				Water Volum				
Gal/ft x f			Gallons		(Dunces		Gal/oz to be removed
5-05x			<u>08 x 3</u>			The set of states a		2.42
Time (military)	рН	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	(NTU)	Vol Evac. (gal.)	Comments/ Flow rate
0856	685	1080	175				·5	
	700	1090		:				
	708	1120	16				1.5	
	704	1040	16	·			2.0	
0909	100	1090	163				2.5	·
				·				
	<u> </u>							<u> </u>
<u></u>			<u> </u>					
						<u> </u>	<u> </u>	
		<u></u>				<u> </u>		
<u> </u>		,		· · · · ·				<u></u>
						······································	· · · ·	······································
F inal: Time	pH.	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac. Comments/Flow ra
ABBA	•	1090	163		5.01	landiany		2.5 314
	<u> </u>							
COMMENT	'S:	Make	6 B	od v	votu	/	Valence	ZPA onisite
<u> </u>								<u></u>
INSTRUMEN		N: Dł	I Meter	8		Tempe	erature Met	er 🐼
		DO	Monitor	<u> </u>				er 🔲
M-1 P'			/ Meter	<u> </u>	<u> </u>			•
Water Dispo		$-\nu \neq -$	•		na is	- ·		
Sample ID 🖉	/			mple Time				OCs Alkilinity
TDS 🔲 🖸	ations [Anions		Nitrate	Nitrite	Amı	monia 🔲	TKN INM WQCC Metals
Total Phosp		-				П		

Project No: 3000	1.0	Project Name:	Sentle	nbas	← Client:	MU	171
Location: Jener	Well N	$m\omega - 1$		Devel	opment 🛛	Sampling	n ⊡ ∕∕
Project Manager					•	• -	
Depth to Water_26		h to Product					
Water Column Height	7.99	Vell Dia. 4/1					
·······				7			
Sampling Method:		Pump 🗀 🚬 Centrifu Bailer 🔀 Double	+ -				
Criteria: 3 to 5 Casir							
			ime in Well				to be removed
Gal/ft x ft of water		Gallons 9×3	ļ	Ounces	·	15-5	
<u>7-99×-65</u> Time pH	SC	Temp Eh-ORF	1 > D.O.	Turbidity	Vol Evac.		O Comments/
(military)	(umhos/cm)	(°C) (millivolt		(NTU)	(gal.)		Flow rate
0740 663	2080	175			· /		clean
	1430	165	<u> </u>		-2-9		· .•
<u>6752</u> 710	1230	16					
	1140	118			12		
	110	16				<u> </u>	
0814 77	1110						·····
	<u> </u>				<u> </u>		
· · · · · · · · · · · · · · · · · · ·		<u> </u>	<u> </u>				
<u> </u>		· · · · · · · · · · · · · · · · · · ·					
	<u> </u>	<u> </u>					
			<u> </u>				
							· · · · · · · · · · · · · · · · · · ·
			·····				····-
inal: Time pH	SC	Temp Eh-ORF	Р D.O.	Turbidity	Ferrous Iron	Vol Evac	Comments/Flow ra
0814 717	1110	159	2101			Ko	c/en
			•			<u> </u>	
COMMENTS:	tek as	good u	stu	did	not k	sil	Jown
						e	
INSTRUMENTATION	:	Meter 🕅		Temp	erature Met	er 🛛 🗠	
	DON	Ionitor 🗍		1 cmp		er 🔲	······································
		Meter 🗹					
	STZ MUS		ACI	7 -			· · · · · ·
Sample ID Jenne							
TDS Cations	Anions	Nitrate	Nitrite	🗋 Am	monia 🔲	tkn 🗖	NM WQCC Metals

P

Project No: 220013 Project Name: SanJuan Ban	
Location: Tennepaht Well No: MW-1 Develo	opment 🔲 Sampling 🗹
	ne 1024 Weather Olean 405
pth to Water 2585 Depth to Product $1/0$ Product Thickness	
Water Column Height <u>632</u> Well Dia. <u>4</u> "	
Sampling Method: Submersible Pump Centrifugal Pump Peristal Bottom Valve Bailer Double Check Valve Bailer	
Criteria: 3 to 5 Casing Volumes of Water Removal Sabilization of Indic	
Water Volume In Well	
Gal/ft x ft of water Gallons Ounces	Gal/oz to be removed
8.32×-45 5.4×3	16.20
Time pH SC Temp Eh-ORP D.O. Turbidity (military) (umhos/cm) (°C) (millivolts) (mg/L) (NTU)	Vol Evac. Comments/ (gal.) Flow rate
1024 658 1230 21	1 dem
PZ 1140 19°	2 Carsof odifferous
722 1090 178	3 Sensore Smill
712 1070 173	4
725 1080 186	6
730 1240 184	
735 000 176	10 Brent
739 1210 188	12
739 1090 184	14
738 1110 185	16
1052 739 1100 185	18
1053	
	/ //////
Final: Time pH SC Temp Eh-ORP D.O. Turbidity	Ferrous Iron Vol Evac. Comments/Flow rate
1052 7 ³⁹ 1700 185	
COMMENTS:	
	·
INSTRUMENTATION: pH Meter 🛛 Tempe	erature Meter 🖾
DO Monitor 🔲	Other 🗌
Conductivity Meter $\mathbf{\nabla}$	
Water Disposal KUTZ	
Sample ID Enneron # 1 MW-Sample Time 1053 BT	EX 🛛 VOCs 🗋 Alkilinity 🗋
	monia 🔲 TKN 🗌 NM WQCC Metals 🔲
al Phosphorus	
MS/MSD BD BD Name/Time	ТВ <u>250303MU</u>

Product Recovery and Well Observation Data

	TA
Project Name:	nJuan Basin
Project Manager:	MJN
Client Company:	MWH
Site Name: Jen	

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 <u>85</u> 26 <u>27</u> 26 <u>07</u>					
mw-2	0925	2627	(
mw3	0938	2607		-		-	
	•						
							· · · · · · · · · · · · · · · · · · ·

COMMENTS:

Signature:

Date: 3.13-03