3R - 210

REPORTS

DATE:

2003

El Paso Field Services

San Juan Basin Pit Program
Lat 3B-39 Line Drip Meter # LD146

Closure Report 2003

September 2003

MWH

614 Reilly Ave.
Farmington, NM 87401

Table of Contents

EPFS GROUNDWATER SITES
2003 CLOSURE REPORT

Lat 3B-39 Line Drip
Meter Code: LD146

SITE DETAILS

LEGAL DESCRIPTION: **Twn:** 29N **Rng:** 9W **Sec:** 10 **Unit:** M

NMOCD Haz Ranking: 40 **Land Type:** Fee **Operator:** EPFS

PREVIOUS ACTIVITIES

Site Assessment: 1/94	**Excavation:** 1/95 (60 cy)	**Soil Boring:** 9/95
Monitor Well: 9/95	**Geoprobe:** 11/96	**Additional MWs:** 11/00
Downgradient MWs: 11/00	**Replace MW:** NA	**Quarterly Initiated:** 11/96
ORC Nutrient Injection: NA	**Re-Excavation:** NA	**PSH Removal Initiated:** NA
Annual Initiated: NA	**Quarterly Resumed:** NA	

SITE HISTORY AND CHARACTERIZATION

The Lat 3B-39 Line Drip site location is shown on Figure 1. Following the initial site assessment on January 9, 1995 the existing pit was excavated on January 23, 1995, to a depth of 12 feet beneath ground surface (bgs). Approximately 60 cubic yards of source material were removed and disposed of at the Tierra land farm. The headspace photoionization detector (PID) measurement of soil from the bottom of the excavation was 433 parts per million (ppm). Groundwater was not encountered in the excavation. Analytical data for the soil sample were as follows: Benzene: < 2.66 milligrams per kilogram (mg/kg); Toluene: 86.5 mg/kg; Ethyl benzene: 25.6 mg/kg; Total Xylenes: 281 mg/kg; Total BTEX: 394 mg/kg; and total petroleum hydrocarbons (TPH) by EPA Method 418.1: 6940 mg/kg. Analytical data reports are included in Appendix A.

Monitoring well, MW-1, was drilled and completed on September 11, 1995. A soil sample was collected from the depth interval at 28 to 30 feet bgs. The headspace PID reading of soil from the bottom of the borehole was 190 ppm. Soil analytical data for the sample were as follows: Benzene: < 2 mg/kg; Toluene: 8.9 mg/kg; Ethyl benzene: 13.2 mg/kg; Total Xylenes: 143 mg/kg; Total BTEX: 165 mg/kg; and TPH: 4270 mg/kg. Analytical data reports are included in Appendix B.

A groundwater sample was collected from MW-1 on September 26, 1995. Analytical data for the water sample were as follows: Benzene: 179 ppb; Toluene: 518 ppb; Ethyl benzene: 572 ppb; and Total Xylenes: 6100 ppb. Analytical data reports are included in Appendix B.

A Geoprobe® study was done on November 21, 1995. Figure 2 presents approximate probe hole locations). Water samples were collected from each of the three probe holes

and MW-1 and analyzed for BTEX compounds. Analytical results of the samples from the three probe holes were below NMWQCC standards for BTEX. Analytical data reports are included in Appendix C.

The site is located near the base of a sandstone ridge, with topographically higher areas to the north and an ephemeral wash (flowing east to west) located directly to the south (see Figure 1 for site topography). Surface water in the project area flows directly south towards the wash, and therefore any surface release would likely be transported in that direction. Also, groundwater flow in this region typically mimics local site topography, and therefore groundwater flow to the south/southwest across the site (towards the wash) would also be expected. For these reasons, two additional monitoring wells, MW-2 and MW-3, were drilled and completed to the south of MW-1 on November 21, 2000 (Figure 2). Water samples were collected on December 1, 2000, and analytical results of samples from both monitoring wells were below NMWQCC standards for BTEX compounds. Analytical data reports are included in Appendix D. Based on water level measurements from the three wells and recent survey data, the hydraulic gradient between the three wells is extremely flat (approximately 0.005 ft/ft) across the site.

Historical groundwater data from MW-1, MW-2 and MW-3 are included in Table 1. Figure 3 presents historical and current BTEX concentrations for MW-1. Previous analytical data reports (pre-2003) were submitted in prior annual reports, and therefore only analytical data and sampling forms for the three quarters of 2003 are included in this report. The following appendices are included: Appendix A, Excavation; Appendix B, MW-1 Well Logs/Completions and Analytical Data Reports; Appendix C, Geoprobe® Investigation; and Appendix D, MW-2 and MW-3 Well Logs/Completions and Analytical Data Reports.

SUMMARY OF 2003 ACTIVITIES

The first quarter groundwater sample from MW-1 was taken on January 27, 2003. The Benzene concentration was 8.4 ppb, Toluene was 1.9 ppb, Ethyl benzene was 239 ppb, and Total Xylenes were 593.8 ppb. The analytical data report is included in Appendix D. The second quarter sample for MW-1 was taken on April 27, 2003. Benzene and Toluene concentrations were below detection (ND), Ethyl benzene was 164 ppb, and Total Xylenes were 452 ppb. The analytical data report is included in Appendix E. The third quarter sample for MW-1 and closure samples for MW-2 and MW-3 were taken on June 16, 2003 (MW-1) and June 29, 2003 (MW-2 and MW-3). The third quarter sample for MW-1 was the fourth consecutive quarter with Benzene below the NMWQCC standard of 10 ppb.

Analytical data are as follows (Appendix E):

- MW-1: Benzene and Toluene were ND, Ethyl benzene was 58.6 ppb, and Total Xylenes were 137 ppb;
- MW-2: Benzene, Toluene, Ethyl benzene, and Total Xylenes were all ND; and
- MW-3: Benzene, Toluene, Ethyl benzene, and Total Xylenes were all ND.

SUMMARY TABLES AND GRAPHS

Table 1 presents historic to present BTEX analytical data for MW-1, MW-2, and MW-3. Figure 3 shows historic to present BTEX data graphically over time for MW-1.

SITE MAP

A site map (Figure 1) is included and shows the previous Geoprobe® and the temporary well point locations.

GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

Analytical data reports, well completion diagrams and geologic logs are appended for MW-1 (Appendix B) and MW-2/MW-3 (Appendix D).

DISPOSITION OF GENERATED WASTES

No wastes were generated at this site for 2003.

ISOCONCENTRATION MAPS

Isoconcentration maps were not generated for this site.

Lat 3B-39 Line Drip
Meter Code: LD146

CONCLUSIONS

EPFS initially excavated approximately 60 cubic yards of source material in January 1995 from the former pit eliminating the majority of the source. Groundwater collected from MW-1 in September 1995 had a benzene level of 179 ppb. Over the next eight years benzene levels in groundwater continued to decline to below New Mexico Water Control Commission (NMWQCC) standards.

The beginning of four clean consecutive quarters began with the October 2002 quarterly sample and ended with the third quarter of 2003 (June 2003). MW-2 and MW-3 were sampled for closure on June 29, 2003. BTEX concentrations from both monitoring wells were non-detect (<0.5 µg/l) for all BTEX compounds. Based on the last four consecutive quarters below NMWQCC standards EPFS requests final closure of this site

RECOMMENDATIONS

> EPFS requests closure of this site.

> Following approval for closure, MW-1, MW-2, and MW-3 will be abandoned in accordance with the approved the EPFS Monitoring Well Abandonment Plan.

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit 1 copy to appropriate District Office and 1 copy to the Santa Fe Office

(Revised 3/9/94)

PIT REMEDIATION AND CLOSURE REPORT

Operator: El Paso Field Services Telephone: 505-599-2104

Address: 614 Reilly Ave. Farmington, NM 87401

Facility Or: Lat 3B-39 Lin Drip Meter # LD146
Well Name

Location: Unit or Qtr/Qtr Sec M Sec 10 T 27N R 9W County San Juan County, New Mexico

Pit Type: Separator_____ Dehydrator _____ Other X (Line Drip)

Land Type: BLM ___, State _____, Fee X Other _____

Pit Location: Pit dimensions: length 18 feet, width 18 feet, depth 5 feet
(Attach diagram)

Reference: wellhead ___, other Dogleg

Footage from reference: 514 feet

Direction from reference: 180 Degrees _____East North X
of
_____West South_____

Depth To Ground Water (Vertical distance from contaminants to seasonal high water elevation of ground water.)	Less than 50 feet 50 feet to 99 feet Greater than 100 feet	(20 points) (10 points) (0 points) 20
Wellhead Protection Area: (Less than 200 feet from a private domestic water source, or; less than 1000 feet from all other water sources.)	Yes No	(20 points) (0 points) 0
Distance To Surface Water: (Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches.)	Less than 200 feet 200 feet to 1000 feet Greater than 1000 feet	(20 points) (10 points) (0 points) 20

RANKING SCORE (TOTAL POINTS): 40

Date Remediation Started: 1/23/1995 Date completed: 1/23/1995

Remediation Method: (Check all appropriate sections.) Excavation X Approx. cubic yards 60

Landfarmed ___ Insitu Bioremediation _____

Other _____

_____

Remediation Location: (i.e. landfarmed onsite, name and location of offsite facility) Onsite _____ Offsite Tierra

Bloomfield, New Mexico

General Description of Remedial Action: Soil was black first 3 feet turn gray, has strong hydrocarbon odor.

Ground Water Encountered: No X Yes _____ Depth _____

Final Pit: Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)

Sample location Composite from all four sides and center of pit

Sample depth 12 feet

Sample Date 1/23/1995 Sample time 1000

Sample Results

Benzene(ppb) <2.66 mg/kg

Total BTEX(ppb) 394 mg/kg

Field headspace(ppm) 433 ppm

TPH 6940 mg/kg

Ground Water Sample: Yes _____ No X (If yes, attach sample results)

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Date 8/22/03

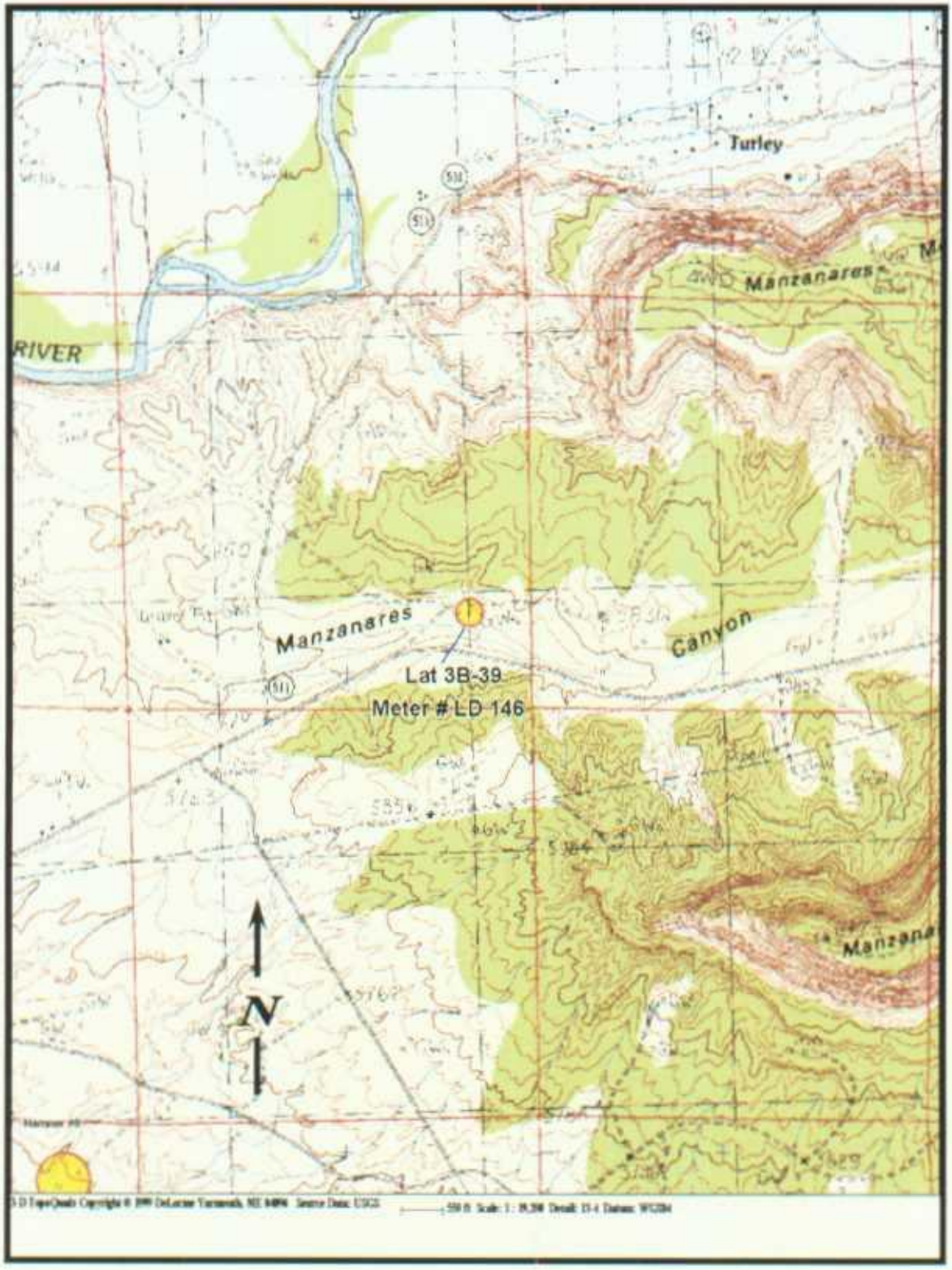
Signature _____ Printed Name and Title Scott Pope, Senior Environmental Scientist

TABLE 1 BTEX

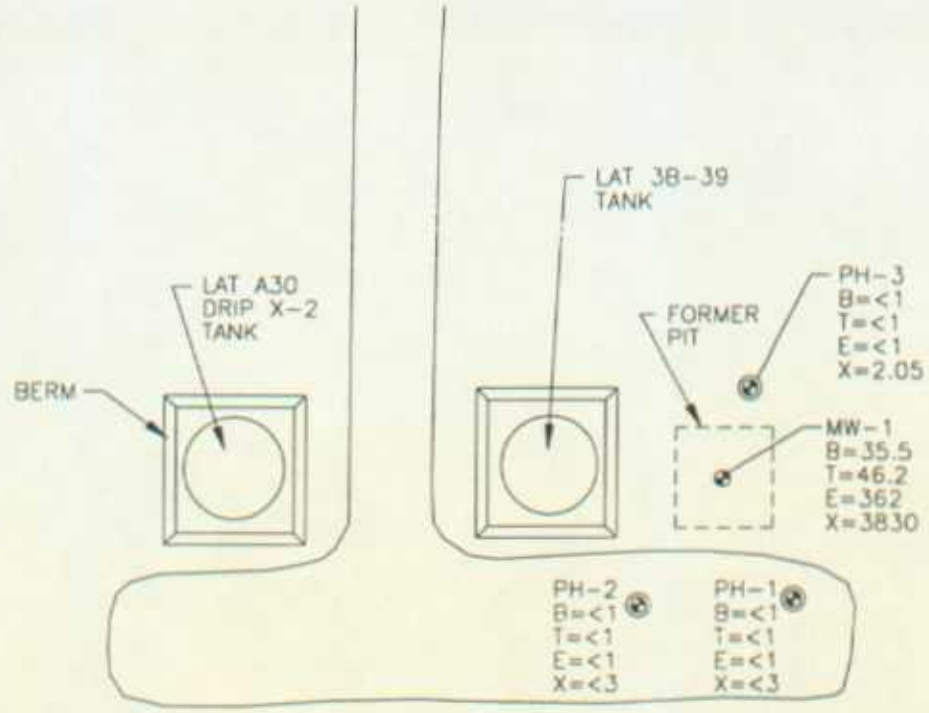
Lat 3B-39

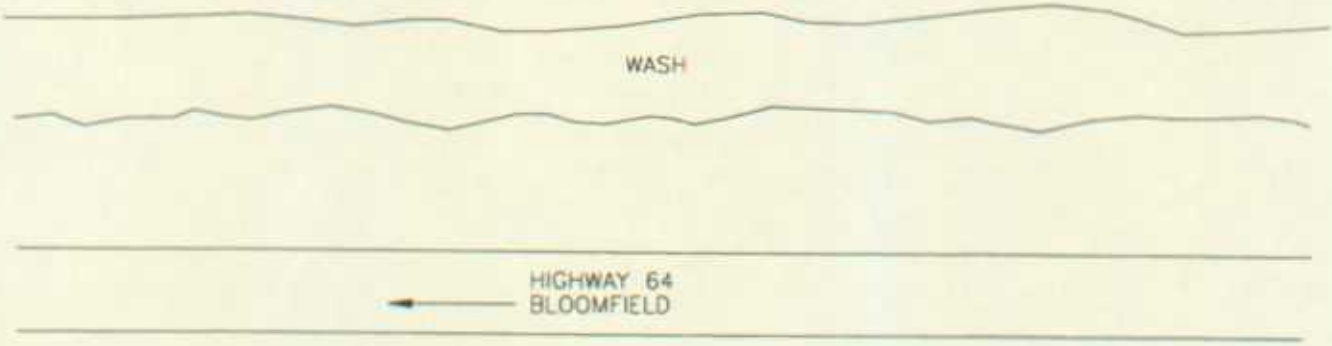
Line Drip LD 146

Sample #	Site Name	Sample Date	MW#	Benzene µg/l	Ethyl Benzene µg/l	Toluene µg/l	Total Xylenes µg/l
947551	Lat 3B-39 Line Drip	September 26, 1995	1	179	572	518	6100
960929	Lat 3B-39 Line Drip	November 8, 1996	1	42.7	311	<1	2490
970086	Lat 3B-39 Line Drip	February 11, 1997	1	36.8	241	<1	2050
970413	Lat 3B-39 Line Drip	May 8, 1997	1	23.7	170	10.9	1420
970809	Lat 3B-39 Line Drip	August 5, 1997	1	12.8	117	18.2	1150
971184	Lat 3B-39 Line Drip	November 4, 1997	1	35.5	362	46.2	3830
980551	Lat 3B-39 Line Drip	August 6, 1998	1	9.45	202	13.4	1920
980770	Lat 3B-39 Line Drip	November 3, 1998	1	23.3	367	16.9	3850
990024	Lat 3B-39 Line Drip	February 2, 1999	1	7.92	409	21.0	7306
990247	Lat 3B-39 Line Drip	May 19, 1999	1	7.13	381	14.9	4630
990380	Lat 3B-39 Line Drip	August 30, 1999	1	<10	290	54.0	6500
990443	Lat 3B-39 Line Drip	November 9, 1999	1	<5	340	21.0	5900
1460002	Lat 3B-39 Line Drip	February 24, 2000	1	30	470	25.0	5000
LAT0005	Lat 3B-39 Line Drip	May 25, 2000	1	<0.5	600	<0.5	6800
1460008	Lat 3B-39 Line Drip	August 1, 2000	1	<10	630	<10	5900
1460011	Lat 3B-39 Line Drip	November 7, 2000	1	<25	500	<25	4500
1460201	Lat 3B-39 Line Drip	February 12, 2001	1	<13	440	<13	3800
1460104	Lat 3B-39 Line Drip	April 3, 2001	1	22	560	12	4300
1460107	Lat 3B-39 Line Drip	July 3, 2001	1	<0.5	43	2.3	3500
146-0110	Lat 3B-39 Line Drip	October 1, 2001	1	<13	560	<13	5000
146-0201-MW1	Lat 3B-39 Line Drip	January 3, 2002	1	11	320	<5.0	2300
146-0204-MW1	Lat 3B-39 Line Drip	April 2, 2002	1	<10	400	<10	3000
02-3933-3	Lat 3B-39 Line Drip	July 18, 2002	1	29	651	72	3839
02-5228-2	Lat 3B-39 Line Drip	October 1, 2002	1	10	302	4	1059
03-1361-2	Lat 3B-39 Line Drip	January 27, 2003	1	8.4	239	1.9	593
T4247-2	Lat 3B-39 Line Drip	April 27, 2003	1	ND	164	ND	452
T4891-1	Lat 3B-39 Line Drip	July 16, 2003	1	ND	58.6	ND	137
T4989-2	Lat 3B-39 Line Drip	July 29, 2003	2	ND	ND	ND	ND
1460012	Lat 3B-39 Line Drip	December 1, 2000	2	<0.5	<0.5	<0.5	<0.5
T4989-1	Lat 3B-39 Line Drip	July 29, 2003	3	ND	ND	ND	ND
1460012	Lat 3B-39 Line Drip	December 1, 2000	3	<0.5	<0.5	<0.5	0.5



Lat 3B-39 Line Drip LD146 Site Location Map	Figure 1





LEGEND

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

NOT TO SCALE

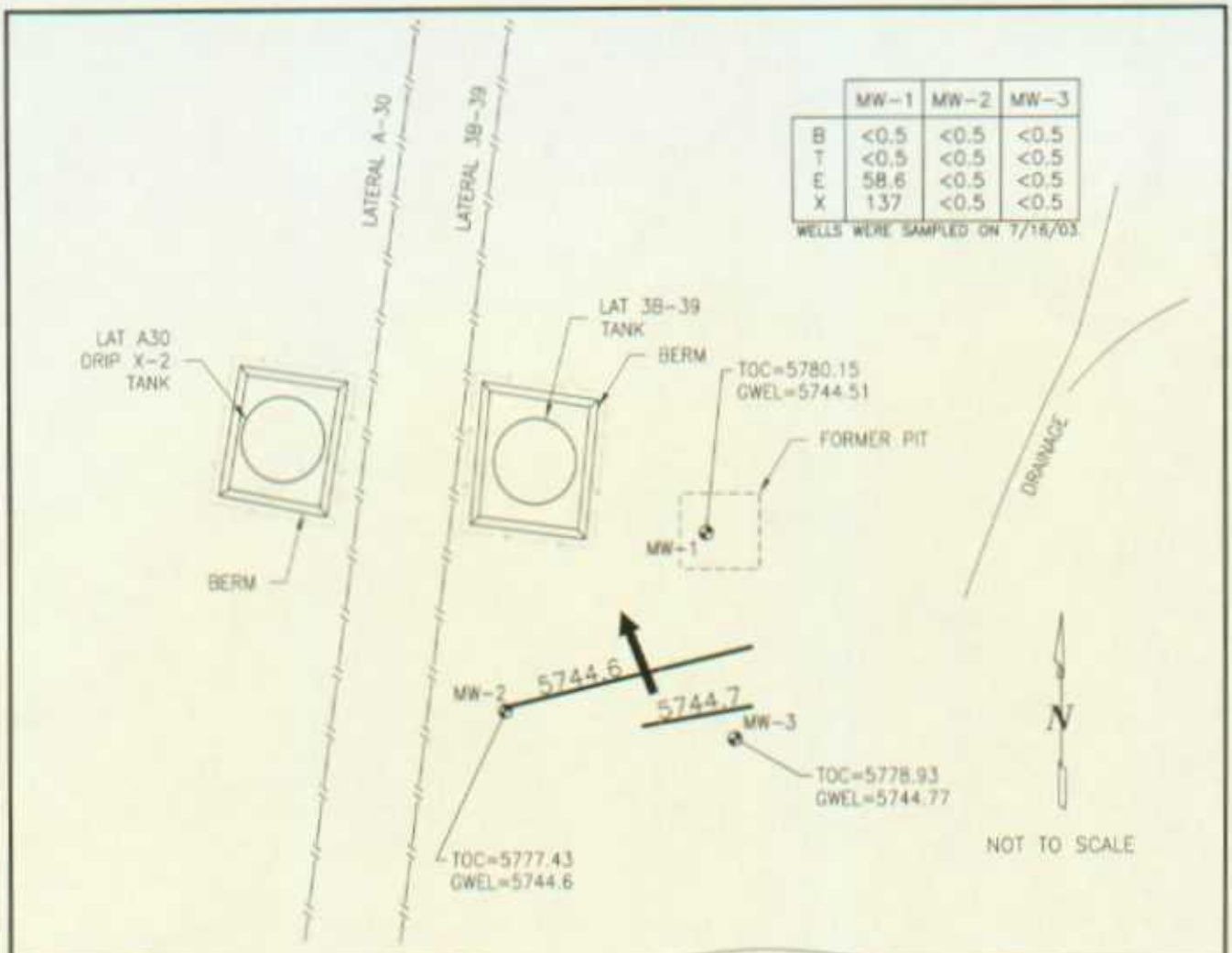
N

PHILIP SERVICES CORP

TITLE:
LAT 3B-39 LINE DRIP
LD146

DWN:	DES:	PROJECT NO.: 17520
TMM	CC	EPFS GW PITS
CHKD:	APPD:	
CC		
DATE:	REV.:	FIGURE 2
1/9/97	0	

COL. 173086-001



	MW-1	MW-2	MW-3
B	<0.5	<0.5	<0.5
T	<0.5	<0.5	<0.5
E	58.6	<0.5	<0.5
X	137	<0.5	<0.5

WELLS WERE SAMPLED ON 7/16/03

LEGEND

MW-1	Approximate Monitoring Well Location and Number		
	Fence Line	5746	Potentiometric Surface (Approximate & Assumed Where Dashed)
	Pipe Line		
B	Benzene (µg/L)	→	Direction of Groundwater Flow (Estimated)
T	Toluene (µg/L)		
E	Ethylbenzene (µg/L)	GWEL	Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
X	Total Xylenes (µg/L)	TOC	Top of Casing

LATERAL 3B-39, LD146
JULY, 2003

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 3

Figure 4
BTEX Concentration and Groundwater Elevation vs. Time
Lat 3B-39 (Meter #LD146)
MW-1

FIELD PIT SITE ASSESSMENT FORM

GENERAL

Meter: NA Location: Lat 3B - 39 (146)
Operator #: NA Operator Name: EPNG P/L District: Bloomfield
Coordinates: Letter: M Section 16 (10) Township: 29 Range: 9
Or Latitude _____ Longitude _____
Pit Type: Dehydrator ___ Location Drip: ___ Line Drip: ✓ Other: _____
Site Assessment Date: 1/9/94 Area: 10 Run: 53

SITE ASSESSMENT

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

Land Type: BLM ☐ (1) State ☐ (2) Fee ☒ (3) Indian _____

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

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

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

TOTAL HAZARD RANKING SCORE: 40 **POINTS**

REMARKS

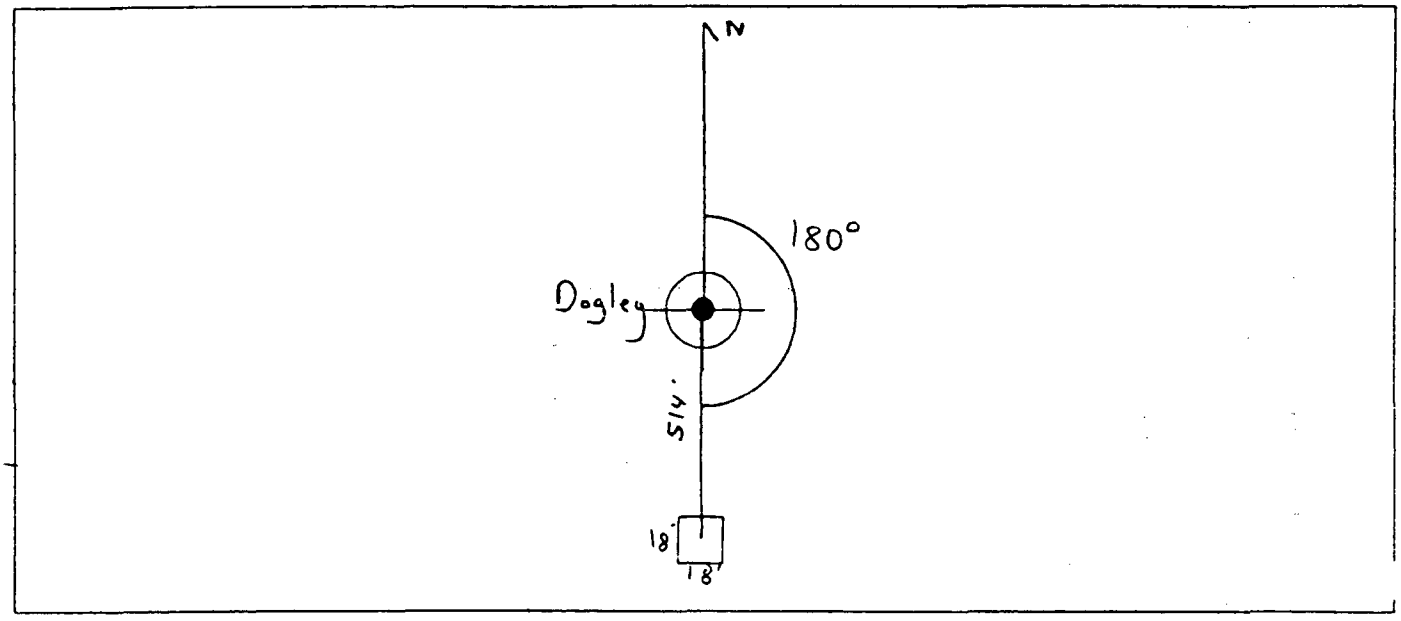
Remarks : Redline Book - Inside Vulnerable Zone Topo - Inside
Pit "run sheet" says pit in Sec 16. Is in 10 as verified by topo & Redline book

ORIGINAL PIT LOCATION

ORIGINAL PIT LOCATION

Original Pit : a) Degrees from North 180° Footage from ~~Wellhead~~ Dogleg 514'

b) Length : 18' Width : 18' Depth : 5'



REMARKS

Remarks :

Pictures @ 1326 11-13 Roll-1

To get to pit turn left at A.L. Elliott B-2, then take next left.

Completed By:

Cory Chase
Signature

1/9/95
Date cmc 1/9/95

FIELD PIT REMEDIATION/CLOSURE FORM

GENERAL

Meter: N/A Location: LAT 38-39

Coordinates: Letter: M Section 10 Township: 29 Range: 9

Or Latitude _____ Longitude _____

Date Started : 1-23-95 Run: 10 53

FIELD OBSERVATIONS

Sample Number(s): MK330 _____ _____ _____

Sample Depth: 12' Feet

Final PID Reading 433 PID Reading Depth 12' Feet

	Yes	No
Groundwater Encountered	☐	☒

Approximate Depth _____ Feet

CLOSURE

Remediation Method :

Excavation	☒	Approx. Cubic Yards 60
Onsite Bioremediation	☐	
Backfill Pit Without Excavation	☐	

Soil Disposition:

Envirotech	☐	☒	Tierra
Other Facility	☐	Name:	

Pit Closure Date: 1-23-95 Pit Closed By: BEI

REMARKS

Remarks : soil was Black 1st 3' Turn gray Has Strong Hydrocarbon odor

Signature of Specialist: Morgan Killion

(SP3181) 03/16/94

El Paso Natural Gas Company

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

SAMPLE IDENTIFICATION

LD146

	Field ID	Lab ID
SAMPLE NUMBER:	MK 330	946589
MTR CODE | SITE NAME:	Lat. 38-39 Line Drip	N/A
SAMPLE DATE | TIME (Hrs):	1-23-95	1000
SAMPLED BY:	N/A Phase I	
DATE OF TPH EXT. | ANAL.:	1-28-95	1-28-95
DATE OF BTEX EXT. | ANAL.:	1/28/95	1/28/95
TYPE | DESCRIPTION:	VC	Dark Brown fine sand

REMARKS: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q	M(g)	V(ml)
BENZENE	<2.66	MG/KG	0.53121		2.51	20
TOLUENE	86.5	MG/KG				
ETHYL BENZENE	25.6	MG/KG				
TOTAL XYLENES	281	MG/KG				
TOTAL BTEX	394	MG/KG				
TPH (418.1)	6940	MG/KG			0.380	28
HEADSPACE PID	433	PPM				
PERCENT SOLIDS	92.5	%				

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

The Surrogate Recovery was at 86.6 % for this sample All QA/QC was acceptable.

Narrative: _____

DF = Dilution Factor Used

Approved By: _____ Date: 2-22-95

MONITORING WELL INSTALLATION RECORD

LD146

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(606) 326-2262 FAX (606) 326-2388

Borehole # _____
Well # _____
Page 1 of 1

Project Name EPNG Pits

Project Number 14509 Phase 6000-77
Project Location LAT 38-39

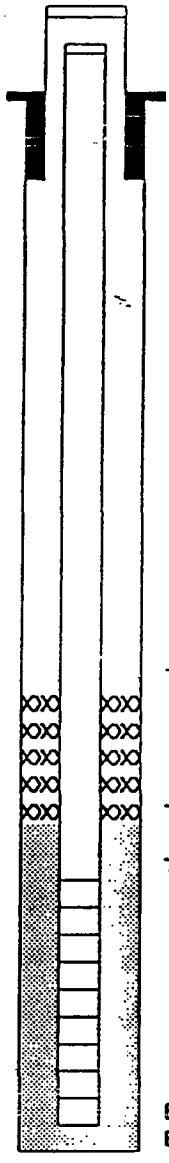
On-Site Geologist Jeff Kindley
Personnel On-Site M. Donahue, J. Johnson, J. John
Contractors On-Site _____
Client Personnel On-Site _____

Elevation _____
Well Location S10, T29, R9, M
GWL Depth _____
Installed By M. Donahue

Date/Time Started 09/11/95 0830
Date/Time Completed 09/11/95 1230

Depths in Reference to Ground Surface

Item	Material	Depth
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		
Bottom of Permanent Borehole Casing		
Top of Concrete		
Bottom of Concrete		
Top of Grout	Cement Slurry	5
Bottom of Grout	Cement Slurry	19
Top of Well Riser	4 inch Schedule 40 PVC	+2.5
Bottom of Well Riser	4 inch schedule 40 PVC	24
Top of Well Screen	4 inch .010 inch slotted schedule	24 ~~34~~
Bottom of Well Screen	40 PVC	39
Top of Peltonite Seal	Enviroplug No 8 Bentonite	19
Bottom of Peltonite Seal	11	21
Top of Gravel Pack	CSSI 1020 Silica Sand	21
Bottom of Gravel Pack	11	39
Top of Natural Cave-In		39
Bottom of Natural Cave-In		41
Top of Groundwater		31
Total Depth of Borehole		41



Top of Protective Casing _____
Top of Riser +2.5
Ground Surface 0

Top of Seal 19

Top of Gravel Pack 21

Top of Screen 24

Bottom of Screen 39
Bottom of Borehole 41

Comments: _____

Geologist Signature Jeffrey Kindley

RECORD OF SUBSURFACE EXPLORATION

L0146

Borehole # BH-1
Well #
Page 1 of 1

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

Project Name EPNG Pits
Project Number 14509 Phase 6000.77
Project Location LAT 38-39

Elevation
Borehole Location S10, T29, R9, M
GWL Depth
Logged By Jeff W. Kindley
Drilled By Mike Donahue
Date/Time Started 09/11/95 0830
Date/Time Completed 09/11/95 1230

Well Logged By Jeff W. Kindley
Personnel On-Site M. Donahue, Z. Johnson, J. Johnson
Contractors On-Site
Client Personnel On-Site

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

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S	Drilling Conditions & Blow Counts
0				Backfill to 12'						
5										
10										
15										
20										
25	1	23-25	1.4/2.0	SW, DKBR SAND, coarse grained, moist, medium dense, hydrocarbon odor					172/181	0902 23 blows per Foot
30	2	28-30	1.4/2.0	S.A.A.					176/190	0915 22 blows per Foot • Water on rods at 31 feet.
35	3	33-35		Not able to collect sample					NS	0928 20 blows per Foot
40	4	38-40		Not able to collect sample.					N.S	

Comments: Groundwater encountered at 31 feet. Sample collected From 28 to 30 feet (JWK, 61). Boring terminated at 41 feet and monitoring well installed.

Geologist Signature Jeffrey Kindley

PHILIP ENVIRONMENTAL Water Sampling Data

LD196

Location No. _____

Serial No. WSD- _____

Group List Number _____

Sample Type: ☑ Groundwater ☐ Surface Water ☐ Other _____ Date 9/26/95

Project Name EPNG Pits Project No. 14509

Project Manager CM Chance Phase.Task No. 6003 .77

Site Name Lat 3B-39 Line Drip QM-SID-T29-R9

Sampling Specifications

Requested Sampling Depth Interval (feet) Upper 3'

Requested Wait Following Development/Purging (hours) NA

Initial Measurements

Time Elapsed From Final Development/Purging (hours) .5 hr

Initial Water Depth (feet) 36.32'

Nonaqueous Liquids Present (Describe) None (Product Odor)

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

Date	Time	Sampler Initials	Water Quality Readings: Temp. (°C)	pH	DO (mg/L)	Cond. (µmhos/cm)	Water Collection Data: Volume Removed (gallons)	Removal Rate (gal/min)	Pump Intake Depth (feet)	Bail	Final Water Depth (feet)	Notes (Explain in Comments Below)
See Well Development Log												

Sample Containers

Container Type: G = Clear Glass; A = Amber Glass; P = Plastic; V = VOA Vial (Glass); O = Other (Specify)

Preservatives: H = HCl; N = HNO_3; S = H_2SO_4; A = NaOH; O = Other (Specify); — = None

Analytical Parameter List	Container: Number	Type	Volume (mL)	Field Filtered: Yes	No	Preserved	Cooled During Collection: Yes	No	Comments
BTEX	2	V	40		✓	HCL, 4°C	✓		CMC 120 1615 hr
TDS	1	P			✓	4°C	✓		CMC 120 "

Filter Type _____ Chain-of-Custody Form Number EPNG COC

Comments GW had no visible product, slight odor when sampled. Sample sent to EPNG lab.

Signature Cmy Chance Date 9/26/95 Reviewer _____ Date _____

Form A0202 Rev. 02/24/94

PHILIP ENVIRONMENTAL Well Development and Purging Data

☑ Development ☐ Purging Well Number MW-1

Serial No. WDPD- Page 1 of 1

Project Name EPNG PITS Project Manager CM Chance Project No. 14509

Client Company EPNG Phase.Task No. 6007 .77

Site Name Lat 3B-39 Line Drip Site Address QM-S1D-T29-R9

Development Criteria

☑ 3 to 5 Casing Volumes of Water Removal
☐ Stabilization of Indicator Parameters
☐ Other _____

Methods of Development

Pump
☐ Centrifugal
☐ Submersible
☐ Peristaltic

Bailer
☑ Bottom Valve
☐ Double Check Valve
☐ Stainless-steel Kemmerer

☐ Other _____

Water Volume Calculation

Initial Depth of Well (feet) 41.31' TOR
Initial Depth to Water (feet) 36.32' TOR
Height of Water Column in Well (feet) _____
Diameter (inches): Well ____ Gravel Pack ____

Item	Water Volume in Well: Cubic Feet	Water Volume in Well: Gallons	Gallons to be Removed
Well Casing		3.25 x 5	16.28
Gravel Pack			
Drilling Fluids		5 x 5	25.0
Total			41.28

Instruments

Serial No. (If applicable)

☑ pH Meter _____
☐ DO Monitor _____
☑ Conductivity Meter _____
☑ Temperature Meter _____
☐ Other _____

Water Disposal

_____

Water Removal Data

	Date	Time	Development Method: Pump	Development Method: Bailer	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons): Increment	Water Volume Removed (gallons): Cumulative	Product Volume Removed (gallons): Increment	Product Volume Removed (gallons): Cumulative	Temperature °F	pH	Conductivity (umhos/cm) X1000	Dissolved Oxygen (mg/L)	Comments
	9/26/95	1449						5	5			68.1	7.21	1.56		Br, v. silty
*		1459						2.5	7.5			66.4	7.18	1.50		AA
*		1520						2.5	10			66.6	6.50	1.61		Much less silt, Br
*		1536						2.5	12.5			69.8	6.96	1.46		Lt br, sl silty
*		1548					37.3'	2.5	15			70.5	6.98	1.17		AA

Circle the date and time that the development criteria are met.

Comments Product odor on initial bail. * Bailed dry. (After 7.5 gal/10 gal). Let well sit 15 min to recharge. Bailed dry after 12.5 gal. Bailed dry 4 times removing 15 gal. Will let well recharge & sample. Final water depth taken after sampling

Developer's Signature(s) Cory Chance Date 9/26/95 Reviewer _____ Date _____

Form 6101 Rev. 03/21/94

El Paso Natural Gas Company

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT - Water

SAMPLE IDENTIFICATION

SAMPLE NUMBER:	947551
FIELD ID:	CMC120
MTR CODE:	LD146
SAMPLE DATE:	09-26-95
SAMPLE TYPE:	W (MW)
SITE NAME:	Lat. 3B-39 Line Drip
PROJECT:	Phase II MW
DATE OF BTEX ANALYSIS:	9/27/95

FIELD COMMENTS: _____

EPA Method 8020 (BTEX) RESULTS

PARAMETER	RESULT	QUALIFIER	WQCC LIMIT PPB
TDS - TOTAL DISSOLVED SOLIDS (PPM)	546		None
BENZENE (PPB)	179	D (X 10)	10
TOLUENE (PPB)	518	D (X 10)	740
ETHYL BENZENE (PPB)	572	D (X10)	750
TOTAL XYLENES (PPB)	6,100	D1, D (X20)	620
SURROGATE % RECOVERY		Allowed Range 80 to 120 %	

NOTES: Result for m/p xylene was above calibration range.

Approved By: John Labde

9-3-95
Date

El Paso Natural Gas Company

Phase II Drilling's

CHAIN OF CUSTODY RECORD

Page 1 of 1

PROJECT NUMBER	PROJECT NAME
# 24324	Pit Closure Project

SAMPLERS: (Signature) Cory Chavez DATE: 9/26/95

LAB ID	DATE	TIME	MATRIX	FIELD ID	TOTAL NUMBER OF CONTAINERS	SAMPLE TYPE	TPH EPA 418.1	BTEX EPA 8020	LAB PID	TDS		SEQUENCE #	REMARKS
947548	9/26/95	1310	Water	CMC118	3	W		V		V		1	Lat L-4D Line Drip LD174
947549	"	NA	"	CMC118 RLB 9/26/95	1	B		✓				1	Trip Blank "
947550	"	1315	"	CMC119	3	D		✓		✓		1	Dup "
947551	9/26/95 RLB 9/27/95	1615	Water RLB 9/27/95	CMC120	3	W		V		✓		2	Lat 3B-39 Line Drip LD146

Cory Chavez 9/26/95

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Cory Chavez	9/26/95 1630		Julie Dirth	9/27/95 9:05	
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED OF LABORATORY BY: (Signature)

REQUESTED TURNAROUND TIME:
☐ ROUTINE ☐ RUSH

CARRIER CO.

BILL NO.:

SAMPLE RECEIPT REMARKS

CHARGE CODE

RESULTS & INVOICES TO:

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

505-599-2144 FAX 505-599-2261

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

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

El Paso Natural Gas Company

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

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	GWK61	947443
MTR CODE | SITE NAME:	LD146	Lat. 3B-39
SAMPLE DATE | TIME (Hrs):	09-11-95	0915
PROJECT:	Phase II Drilling	
DATE OF TPH EXT. | ANAL.:	9-12-95	9/12/95 mdr 9/20/95
DATE OF BTEX EXT. | ANAL.:	9/12/95	9/15/95
TYPE | DESCRIPTION:	VG	Light brown sand & clay

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q	M(g)	V(ml)
BENZENE	< 2	MG/KG	4	D		
TOLUENE	8.9	MG/KG	4	D		
ETHYL BENZENE	13.2	MG/KG	4	D		
TOTAL XYLENES	143	MG/KG	4	D		
TOTAL BTEX	165	MG/KG	4	D		
TPH (418.1)	4170	MG/KG			2.03	28
HEADSPACE PID	190	PPM				
PERCENT SOLIDS	94.2	%				

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

The Surrogate Recovery was at 98% for this sample All QA/QC was acceptable.

Narrative:

ATI Results for mod 8015 attached (3850).

D Dilution Factor Used

Approved By: _____ Date: 9-18-95

El Paso Natural Gas Company

Phase II Drilling

CHAIN OF CUSTODY RECORD

Page 1 of 1

PROJECT NUMBER	PROJECT NAME
14509	Pit Closure Project # 24324

SAMPLERS: (*Signature*) Jeffrey Kindley — DATE: September 11, 1995

LAB ID	DATE	TIME	MATRIX	SAMPLE NUMBER	TOTAL NUMBER OF CONTAINERS	SAMPLE TYPE	TPH EPA 418.1	BTEX EPA 8020			PID HS # (ppm)	SEQ #	REMARKS
74 7443	09/11/95	0915	SOIL	JWK61	1	VG	✓	✓			190	55	Lat 3B-39 28-30 feet LD146
74 7444	09/11/95	1429	SOIL	JWK62	1	VG	✓	✓			0	56	3B-52 LINE DRIP LD150 18-20 feet
74 7445	09/11/95	1640	Soil	JWK 63	1	VG	✓	✓			15	57	3B-40 LINE DRIP 18-20 feet LD107

RELINQUISHED BY: (*Signature*)	DATE/TIME	RECEIVED BY: (*Signature*)	RELINQUISHED BY: (*Signature*)	DATE/TIME	RECEIVED BY: (*Signature*)
Jeffrey Kindley 34°F	09/11/95 1830	Julie Dodd	Julie Dodd	9/12/95 8:30	
RELINQUISHED BY: (*Signature*)	DATE/TIME	RECEIVED BY: (*Signature*)	RELINQUISHED BY: (*Signature*)	DATE/TIME	RECEIVED OF LABORATORY BY: (*Signature*)
					Rhonda Bays

REQUESTED TURNAROUND TIME:
☐ ROUTINE ☐ RUSH

CARRIER CO.

BILL NO.:

SAMPLE RECEIPT REMARKS

CHARGE CODE

RESULTS & INVOICES TO:

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

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

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

08-0565A (Rev. 03-94)

SITE ACTIVITIES

21-Feb-97

Meter/Line #: LDi46

Location/Line #: Lat 3B-39 Line Drip

MW#:

Depth to GW:

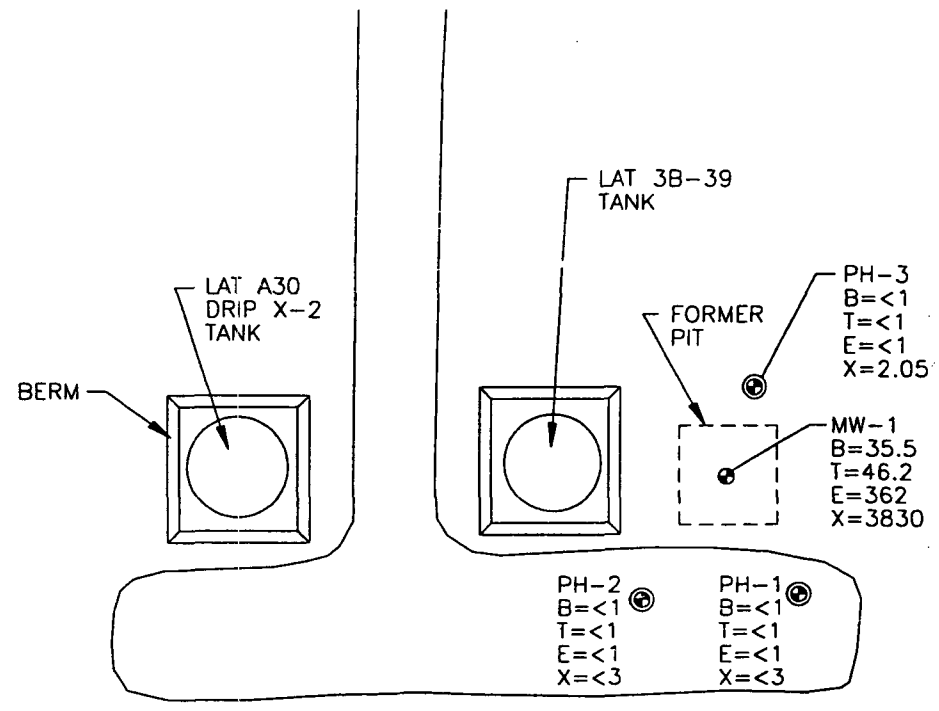
Depth to Product:

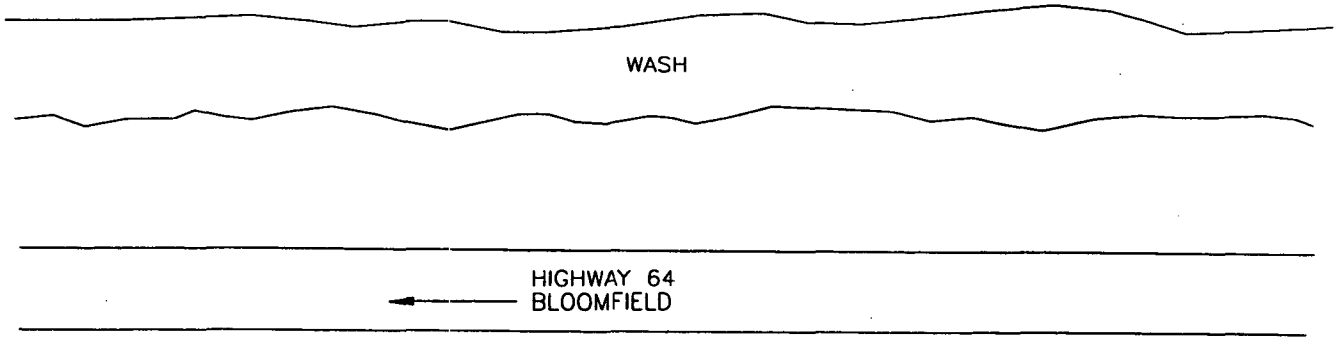
Product Thickness:

Date: 11/18/96

Activity: Geoprobe

Comments: Collect GW samples from 3 probe holes. Could not install piezos due to depth of water and geology.





LEGEND

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

NOT TO SCALE

N

PHILIP SERVICES CORP

TITLE:

LAT 3B-39 LINE DRIP
LD146

DWN:	DES.:
TMM	CC
CHKD:	APPD:
CC	
DATE:	REV.:
1/9/97	0

PROJECT NO.: 17520
EPFS GW PITS

FIGURE 2

COL. 17520BG-001

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC263	948026
MTR CODE | SITE NAME:	LD146	Lat 3B-39 Line Drip
SAMPLE DATE | TIME (Hrs):	11/21/96	900
PROJECT:	Geoprobe	
DATE OF BTEX EXT. | ANAL.:	11/28/96	11/28/96
TYPE | DESCRIPTION:	PH1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	<1	PPB				
TOLUENE	<1	PPB				
ETHYL BENZENE	<1	PPB				
TOTAL XYLENES	<3	PPB				
TOTAL BTEX	<6	PPB				

–BTEX is by EPA Method 8020 –

The Surrogate Recovery was at 95.7 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Approved By: _____ Date: 12/4/96

948026.XLS,12/3/96

El Paso Natural Gas Company

A 2334

CHAIN OF CUSTODY RECORD

Project No.	Project Name
1697	EPFS GW PITS

Samplers: (Signature) Cory Chavez

Date: 11/21/96

	Date	Time	Comp.	GRAB	Sample Number	Type and No. of Sample Containers	Preservation Technique	Requested Analysis: BTEX	Requested Analysis: PAH	Remarks
	11/21/96	-		-	TRIP BLANK	1	HCL/4°C	X		TRIP BLANK
948026		0900		✓	CMC263	2		X		PH1 Lat 3B-39 LD146
948027		0945		✓	CMC264	2		X		PH2
948028		1155		✓	CMC265	2		X		PH3
948029		1400			CMC266	3 ~~CMC 11/21/96~~		X	X	PZ1 TRK 2B DripX-1 LD153 → STRONG Prod. odor. Potential Free Prod.
948030		1425			CMC267	2		X		PZ2 (slight odor, reacted w/HCL) (@
948031		1435			CMC268	2		X		PZ3 (strong odor, reacted w/HCL)
948032	↓	1510			CMC269	2	↓	X		PH1

CMC 11/21/96

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Cory Chavez	11/21/96 1700				
Morgan Killion	11-22-96 1355			11-22-96 1355	Marla Ortiz
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:	

Carrier Co:

Carrier Phone No.

Date Results Reported / by: (Signature)

Air Bill No.:

san juan repro Form 71-55 A

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC264	948027
MTR CODE | SITE NAME:	LD146	Lat 3B-39 Line Drip
SAMPLE DATE | TIME (Hrs):	11/21/96	945
PROJECT:	Geoprobe	
DATE OF BTEX EXT. | ANAL.:	11/28/96	11/29/96
TYPE | DESCRIPTION:	PH2	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	<1	PPB				
TOLUENE	<1	PPB				
ETHYL BENZENE	<1	PPB				
TOTAL XYLENES	<3	PPB				
TOTAL BTEX	<6	PPB				

–BTEX is by EPA Method 8020 –

The Surrogate Recovery was at 92.5 % for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

Narrative:

Approved By: John Taddie Date: 12/4/96

948027.XLS,12/3/96

El Paso Natural Gas Company

A 2334

CHAIN OF CUSTODY RECORD

Project No.	Project Name
16297	EPFS GW PITS

Samplers: (Signature) Cory Chavez Date: 11/21/96

	Date	Time	Comp.	GRAB	Sample Number	Type and No. of Sample Containers	Preservation Technique	Requested Analysis: BTEX	Requested Analysis: PAH	Remarks
	11/21/96	-		-	TRIP BLANK	1	HCL/4°C	X		TRIP BLANK
948026		0900		✓	CMC263	2		X		PH1 Lat-3B-39 LD146
948027		0945		✓	CMC264	2		X		PH2
948028		1155		✓	CMC265	2		X		PH3
948029		1400			CMC266	3		X	X	PZ1 TRK 2B DripX-1 LD153 → STRONG Prod. odor. Potential free Prod.
948030		1425			CMC267	2		X		PZ2 (slight odor, reacted w/ HCL)
948031		1435			CMC268	2		X		PZ3 (strong odor, reacted w/ HCL)
948032	↓	1510			CMC269	2	↓	X		PH1

CMC 11/21/96

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Cory Chavez	11/21/96 1700				
Morgan Killian	11-22-96 1355			11-22-96 1355	Marla Armenta
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:	

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

san juan repro Form 71-55 A

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC265	948028
MTR CODE | SITE NAME:	LD146	Lat 3B-39 Line Drip
SAMPLE DATE | TIME (Hrs):	11/21/96	1155
PROJECT:	Geoprobe	
DATE OF BTEX EXT. | ANAL.:	11/29/96	11/29/96
TYPE | DESCRIPTION:	PH3	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	<1	PPB				
TOLUENE	<1	PPB				
ETHYL BENZENE	<1	PPB				
TOTAL XYLENES	2.05	PPB				
TOTAL BTEX	2.05	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 94.4 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Approved By: John Laulu Date: 12/4/96

948028.XLS,12/3/96

El Paso Natural Gas Company

A 2334

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Type and No. of Sample Containers	Preservation Technique	Requested Analysis: BTEX	Requested Analysis: PAH	Remarks
16297	EPFS GW PITS					

Samplers: (Signature) Cory Chance Date: 11/21/96

	Date	Time	Comp.	GRAB	Sample Number							
	11/21/96	-		-	TRIP BLANK	1	HCL/4°C	X				TRIP BLANK
948026		0900		✓	CMC263	2		X				PH1 Lat 3B-39 LD146
948027		0945		✓	CMC264	2		X				PH2
948028		1155		✓	CMC265	2		X				PH3
948029		1400			CMC266	3		X	X			PZ1 TRK 2B Drip X-1 LD153 → STRONG Prod. odor. Potential Free Prod.
948030		1425			CMC267	2		X				PZ2 (slight odor, reacted w/ HCL)
948031		1435			CMC268	2		X				PZ3 (strong odor, reacted w/ HCL)
948032	↓	1510			CMC269	2	↓	X				PH1

CMC 11/21/96

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Cory Chance	11/21/96 1700				
Morgan Killion	11-22-96 1355			11-22-96 1355	Marla Ortiz

Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:

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

san juan repro Form 71-55 A

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

Well # MW-3
Page 1 of 1

Project Name EPFS Drilling
Project Number 62800219 Cost Code
Project Location LAT 36-39 Line Drip

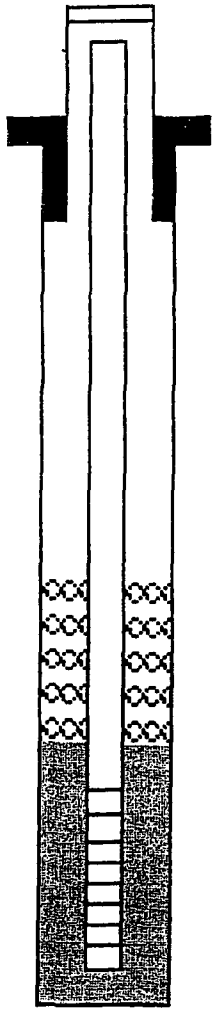
Elevation
Well Location L: S: T: R:
GWL Depth 28.2'
Installed By Danny Padilla

On-Site Geologist Don Fernald
Personnel On-Site Danny Padilla, Ryan LeFebre
Contractors On-Site NONE
Client Personnel On-Site NONE

Date/Time Started 11-21-00 1:30 P.M
Date/Time Completed 11-21-00 3:00 P.M

Depths in Reference to Ground Surface

Item	Material	Depth (feet)
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		
Bottom of Permanent Borehole Casing		
Top of Concrete		
Bottom of Concrete		
Top of Grout	3/4" Bentonite	
Bottom of Grout	"	15.8'
Top of Well Riser	2" Sch 40 PVC	+3
Bottom of Well Riser	2" PVC	19.5
Top of Well Screen	0.010 SCREEN	19.5'
Bottom of Well Screen	"	34.5'
Top of Peltonite Seal		15.8'
Bottom of Peltonite Seal		17.8'
Top of Gravel Pack	10-20 SAND	17.8'
Bottom of Gravel Pack	"	~34.5'
Top of Natural Cave-In		
Bottom of Natural Cave-In		
Top of Groundwater		28.2'
Total Depth of Borehole		35'



Top of Protective Casing
Top of Riser
Ground Surface 0

Top of Seal 15.8'

Top of Gravel Pack 17.8'
Top of Screen 19.5'

SCREEN IS SILTED IN ~ 1'

Bottom of Screen 34.5'
Bottom of Borehole 35'

Comments:

Geologist Signature

RECORD OF SUBSURFACE EXPLORATION

Borehole #
Well # MW-3
Page 1 of 1

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

Project Name EPFS Drilling
Project Number 62800219 Cost Code
Project Location LAT 36-39 Line Drip

Elevation
Borehole Location SW. of MW-1
GWL Depth
Logged By Don Fernald
Drilled By Danny Padilla
Date/Time Started 12:35 P.M 11-21-00
Date/Time Completed 1:30 P.M 11-21-00

Well Logged By
Personnel On-Site
Contractors On-Site None
Client Personnel On-Site

Drilling Method Hollow Stem Auger
Air Monitoring Method PID

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	PID Air Monitoring ~~Units: NDD~~ BZ	BH	S	Drilling Conditions & Blow Counts
0				Initiated sampling @ 15' bgs.						
5										
10										
15										
		X	14"	Dark yellowish-orange fine grained silty sand. Dry			2.6			
20										
		X	18"	Dark yellowish-orange fine grained silty sand (moist)			5.1			
25										
		X	12"	Dark yellowish-orange fine grained silty sand (very moist)			3.6			
30										
		X	14"	Dark yellowish-orange fine grained silty sand (water)			2.8			
35										
40				Terminated boring @ 35' bgs & converted to MW-3						

Comments:

Geologist Signature Don Fernald

J:\Z Misc folders\Drilling\1-40ft

PHILIP ENVIRONMENTAL

WELL DEVELOPMENT AND PURGING DATA

Well Number MW 03 ☑ Development ☐ Purging

Serial No. WDPD-

Project Name EPFS well Developing Project Manager Lisa winn Project No. 62900219

Client Company EL paso Field Services Phase.Task No. 350002

Site Name LAT 3B 39 (LD146) Site Address Rural San Juan CO.

Development Criteria

☑ 3 to 5 Casing Volumes of Water Removal
☑ Stabilization of Indicator Parameters
☐ Other

Methods of Development

Pump
☐ Centrifugal
☐ Submersible
☐ Peristaltic

Bailer
☑ Bottom Valve
☐ Double Check Valve
☐ Stainless-steel Kemmerer

☐ Other

Water Volume Calculation

Initial Depth of Well (feet) 38.28
Initial Depth to Water (feet) 32.86
Height of Water Column in Well (feet) 5.42
Diameter (inches): Well 2" Gravel Pack

Item	Water Volume in Well: Cubic Feet	Water Volume in Well: Gallons	Gallons to be Removed
Well Casing	5.42	0.88X3	2.64
Gravel Pack			
Drilling Fluids			
Total			2.64

Instruments Serial No. (if applicable)

☑ pH Meter Hydac
☐ DO Monitor
☑ Conductivity Meter Hydac
☑ Temperature Meter Hydac
☐ Other

Water Disposal

Kutz Seperator Bloomfield NM

Water Removal Data

Date	Time	Development Method: Pump	Development Method: Bailer	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons): Increment	Water Volume Removed (gallons): Cumulative	Product Volume Removed (gallons): Increment	Product Volume Removed (gallons): Cumulative	Temperature (°C)	pH	Conductivity (mmhos/cm)	Dissolved Oxygen (mg/L)	Comments
12-01-00	1550		X				.75	.75			12.8	5.39	960		Clear no odor Conductivity X 100

Circle the date and time that the development criteria are met.

Comments AFTER Bailing Approximately .75 Gallons Bailed well Dry STill muddy STarted adding potable water working with .5 gallon increments finished cleaning silT out of Bottom of well used 2 gallons Total Bailed Dry/1428 Let Recover 1505 water Level 35.08

Developer's Signature(s) Chris A May Date 12-01-00 Reviewer [signature] Date 12/4/00

Sampled 13Tex 1555

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

Well # MW-2
Page 1 of 1

Project Name EPFS Drilling
Project Number 62800219 Cost Code
Project Location LAT 3B-39

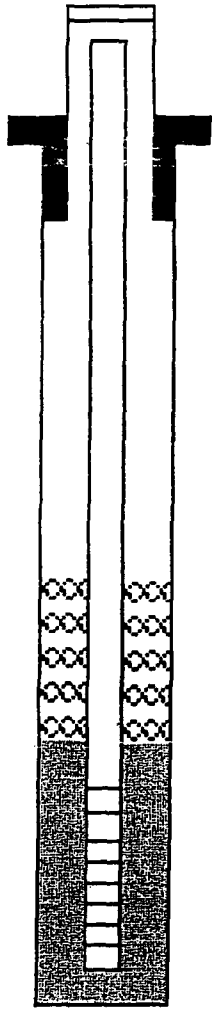
Elevation
Well Location L: S: T: R:
GWL Depth 30' bgs
Installed By Danny Padilla

On-Site Geologist Don Fernald
Personnel On-Site Danny Padilla, Ryan LeFebre
Contractors On-Site NONE
Client Personnel On-Site NONE

Date/Time Started 11-21-00 10:30 AM
Date/Time Completed 11-21-00 12:15 A.M.

Depths in Reference to Ground Surface

Item	Material	Depth (feet)
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		
Bottom of Permanent Borehole Casing		
Top of Concrete		
Bottom of Concrete		
Top of Grout		
Bottom of Grout		15.9'
Top of Well Riser		0
Bottom of Well Riser		20'
Top of Well Screen	0.010	20'
Bottom of Well Screen	"	35'
Top of Peltonite Seal	3/4" bentonite	15.9'
Bottom of Peltonite Seal	"	18.4'
Top of Gravel Pack	10-20	18.4'
Bottom of Gravel Pack	10-20	35.7'
Top of Natural Cave-In		
Bottom of Natural Cave-In		
Top of Groundwater		29.8'
Total Depth of Borehole		35'



Top of Protective Casing
Top of Riser
Ground Surface 0

Top of Seal 15.9'

Top of Gravel Pack 18.4'
Top of Screen 20.0

Bottom of Screen 35
Bottom of Borehole 35

Comments:

Geologist Signature

RECORD OF SUBSURFACE EXPLORATION

Well # MW-2
Page 1 of 1

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

Project Name EPFS Drilling
Project Number 62800219 Cost Code
Project Location CAT 3B-39 Line Drip

Elevation
Borehole Location SE of Former Pit
GWL Depth 30' bgs
Logged By Don Fernald
Drilled By Danny Padilla
Date/Time Started 11/21/00 @ 8:10 AM
Date/Time Completed 11/21/00 @ 10:30 AM

Well Logged By Don Fernald
Personnel On-Site Danny Padilla, Ryan Lefebre
Contractors On-Site None
Client Personnel On-Site NONE

Drilling Method Hollow Stem Auger
Air Monitoring Method PID

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	PID Air Monitoring Units: ppm BZ	BH	S	Drilling Conditions & Blow Counts
0				Initiated sampling @ 15' bgs						
5										
10										
15		X	16"	Dark yellowish-orange fine grained silty-sand. Dry			2.3			
20		X	16"	Dark yellowish-orange fine grained silty-sand Dry			2.9			
25		X	16"	Dark yellowish-orange fine silty-sand (moist)			4.9			
30		X	9"	Dark yellowish-orange fine silty-sand (wet) water @ ~23' bgs			8.0			
35				Boring terminated @ 35' bgs. converted to MW-2						
40										

Comments:

Geologist Signature Don Fernald

PHILIP ENVIRONMENTAL

Well Number MW 02

Serial No. WDPD-

☑ Development ☐ Purging

WELL DEVELOPMENT AND PURGING DATA

Page 1 of 1

Project Name EPFS well Development | Project Manager LISA winn | Project No. 62900219

Client Company El paso Field Services | Phase.Task No. 350002

Site Name LAT 36 39 (LD146) | Site Address Rural San Juan CO.

Development Criteria

☐ 3 to 5 Casing Volumes of Water Removal

☑ Stabilization of Indicator Parameters

☐ Other

Methods of Development

Pump	Bailer
☐ Centrifugal	☑ Bottom Valve
☐ Submersible	☐ Double Check Valve
☐ Peristaltic	☐ Stainless-steel Kemmerer

☐ Other

Water Volume Calculation

Initial Depth of Well (feet) 36.68

Initial Depth to Water (feet) 31.55

Height of Water Column in Well (feet) 5.13

Diameter (inches): Well 2" Gravel Pack

Item	Water Volume in Well: Cubic Feet	Water Volume in Well: Gallons	Gallons to be Removed
Well Casing	5.13	0.83 x 3	2.49
Gravel Pack			
Drilling Fluids			
Total			2.49

Instruments

	Serial No. (if applicable)
☑ pH Meter	Hydac
☐ DO Monitor	
☑ Conductivity Meter	Hydac
☑ Temperature Meter	Hydac
☐ Other	

Water Disposal

K-22 Separator Bloomfield N.M.

Water Removal Data

Date	Time	Development Method: Pump	Development Method: Bailer	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons): Increment	Water Volume Removed (gallons): Cumulative	Product Volume Removed (gallons): Increment	Product Volume Removed (gallons): Cumulative	Temperature (°C)	pH	Conductivity (mmhos/cm)	Dissolved Oxygen (mg/L)	Comments
12-01-00	1620		X				.5	.5			11.2	5.44	8.09		Clear NO ODOR Conductivity x 100

Circle the date and time that the development criteria are met.

Comments AFTer Bailing Approximately .75 Gal. Bailed well Dry-Started ADDing potable water in .5 gallon increments ADDed 3 gal Potable water Total. Bailed Dry at 1545. 1615 water Level 34.36 Sampled for BTEX 1625

Developer's Signature(s) Chris A. May Date 12-01-00 Reviewed L Will Date 12/4/00

F:\NEWFORM\PE_A0101.DOT

Gulf Coast
ACCUTEST.
Laboratories

08/13/03

Technical Report for

Montgomery Watson

EPFS San Juan Basin Groundwater Site

Accutest Job Number: T4989

Report to:

El Paso

lynn.benally@elpaso.com

ATTN: Lynn Benally

Total number of pages in report: 9

ACCREDITED IN ACCORDANCE WITH nelac

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

Ron Martino
Laboratory Manager

Sample Summary

Montgomery Watson

Job No: T4989

EPFS San Juan Basin Groundwater Site

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
T4989-1	07/29/03	06:20	MJH	07/30/03	AQ	Ground Water	LAT3B-39 MW-3
T4989-2	07/29/03	07:10	MJH	07/30/03	AQ	Ground Water	LAT3B-39 MW-2
T4989-3	07/29/03	06:00	MJH	07/30/03	AQ	Trip Blank Water	290703TB01

Accutest Laboratories

Report of Analysis

Client Sample ID:	LAT3B-39 MW-3		
Lab Sample ID:	T4989-1	Date Sampled:	07/29/03
Matrix:	AQ - Ground Water	Date Received:	07/30/03
Method:	SW846 8021B	Percent Solids:	n/a
Project:	EPFS San Juan Basin Groundwater Site		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK005559.D	1	08/04/03	BC	n/a	n/a	GKK296
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	89%		64-121%
98-08-8	aaa-Trifluorotoluene	80%		71-121%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	LAT3B-39 MW-2		
Lab Sample ID:	T4989-2	Date Sampled:	07/29/03
Matrix:	AQ - Ground Water	Date Received:	07/30/03
Method:	SW846 8021B	Percent Solids:	n/a
Project:	EPFS San Juan Basin Groundwater Site		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK005562.D	1	08/04/03	BC	n/a	n/a	GKK296
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	95%		64-121%
98-08-8	aaa-Trifluorotoluene	92%		71-121%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	290703TB01		
Lab Sample ID:	T4989-3	Date Sampled:	07/29/03
Matrix:	AQ - Trip Blank Water	Date Received:	07/30/03
Method:	SW846 8021B	Percent Solids:	n/a
Project:	EPFS San Juan Basin Groundwater Site		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK005558.D	1	08/04/03	BC	n/a	n/a	GKK296
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	90%		64-121%
98-08-8	aaa-Trifluorotoluene	85%		71-121%

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

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Blank Spike Summary

Job Number: T4989
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK296-BS	KK005555.D	1	08/04/03	BC	n/a	n/a	GKK296

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

T4989-1, T4989-2, T4989-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	20.6	103	74-119
100-41-4	Ethylbenzene	20	20.0	100	82-115
108-88-3	Toluene	20	20.0	100	77-116
1330-20-7	Xylenes (total)	60	60.8	101	79-115
95-47-6	o-Xylene	20	20.3	102	78-114
	m,p-Xylene	40	40.6	102	79-116

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

Method Blank Summary

Job Number: T4989
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK296-MB	KK005557.D	1	08/04/03	BC	n/a	n/a	GKK296

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

T4989-1, T4989-2, T4989-3

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

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	94%	64-121%
98-08-8	aaa-Trifluorotoluene	86%	71-121%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T4989
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T4989-1MS	KK005560.D	1	08/04/03	BC	n/a	n/a	GKK296
T4989-1MSD	KK005561.D	1	08/04/03	BC	n/a	n/a	GKK296
T4989-1	KK005559.D	1	08/04/03	BC	n/a	n/a	GKK296

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

T4989-1, T4989-2, T4989-3

CAS No.	Compound	T4989-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		20	17.0	85	16.6	83	2	64-124/16
100-41-4	Ethylbenzene	ND		20	17.7	89	17.2	86	3	64-123/14
108-88-3	Toluene	ND		20	17.6	88	17.1	86	3	64-120/13
1330-20-7	Xylenes (total)	ND		60	53.5	89	51.7	86	3	66-118/18
95-47-6	o-Xylene	ND		20	17.9	90	17.2	86	4	65-119/20
	m,p-Xylene	ND		40	35.6	89	34.5	86	3	66-120/14

CAS No.	Surrogate Recoveries	MS	MSD	T4989-1	Limits
460-00-4	4-Bromofluorobenzene	90%	92%	89%	64-121%
98-08-8	aaa-Trifluorotoluene	80%	82%	80%	71-121%

CHAIN OF CUSTODY # 290703MN01

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

FED-EX Tracking # 835603257099 | Bottle Order Control #
Accutest Quote # | Accutest Job #

Client / Reporting Information

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

Project Information

Project Name: San Juan Basin Groundwater
Street:
City: State:
Project #:
Fax #:
Client Purchase Order #:

Requested Analysis

BTEX

Matrix Codes

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

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Collection Time	Sampled By	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	None	NaHSO4	MeOH	Encore	BTEX	LAB USE ONLY
1	Lat 36-39 MW-3		7-29-03	0620	MN	WG	2	2								X	
2	Lat 36-39 MW-2		7-29-03	0710	MN	WG	2	2								X	
3	290703TB01		7-29-03	0600	MN	WG	1	1								X	

Turnaround Time (Business Days)

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

Approved By: / Date:

Emergency & Rush T/A data available VIA LabLink

Data Deliverable Information

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

Commercial "A" = Results Only

Comments / Remarks

T4984

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

Relinquished by Sampler:	Date Time:	Received by:	Relinquished by	Date Time:	Received by:
1	7/29/03 1200	1	2	7-30-03 0902	2
Relinquished by:	Date Time:	Received by:	Relinquished by	Date Time:	Received by:
3		3	4		4
Relinquished by:	Date Time:	Received by:	Custody Seal #	Preserved where applicable	On Ice
5		5		[ ]	[X]

Cooler Temp. 5.8°C

ACCUTEST

SAMPLE RECEIPT LOG

JOB #: T4989 DATE/TIME RECEIVED: 7-30-03 0900

CLIENT: ______ INITIALS: EJ

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

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

SAMPLE or FIELD ID	BOTTLE #	DATE SAMPLED	MATRIX	VOLUME	LOCATION	PRESERV.	PH
1	1-2	7-29-03	L	2X40mL	BTEX	1,2,3,4,5,6	U, <2, >12, NA
2	1-2	↓	↓	↓	BTEX	1,2,3,4,5,6	U, <2, >12, NA
3	1	↓	↓	1X40mL	BTEX	1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA

7-30-03 EJ

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

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

Comments: ______

pH of waters checked excluding volatiles

pH of soils N/A

Delivery method: Courier: FED-EX

Tracking#: SEE ATTACHED

COOLER TEMP: 5.8°C COOLER TEMP: ______

COOLER TEMP: ______ COOLER TEMP: ______

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

Form: SM012

CHAIN OF CUSTODY # 290703MN01

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

FED-EX Tracking # 835603257099 | Bottle Order Control #
Accutest Quote # | Accutest Job #

Client / Reporting Information

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

Project Information

Project Name: San Juan Basin
Street: Groundbed
City: State:
Project #:
Fax #:
Client Purchase Order #:

Requested Analysis: BTEX

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

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Time	Sampled By	Matrix	# of bottles	Preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	LAB USE ONLY
	Lat 3B-39 MW-3		7.29.03	0620	MN	WG	2	2								X
	Lat 3B-39 MW-2		7.29.03	0710	MN	WG	2	2								X
	290703TB01		7.29.03	0600	MN	WG	1	1								X

Turnaround Time (Business Days)

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

Approved By: / Date:

Emergency & Rush T/A data available VIA LabLink

Data Deliverable Information

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

Commercial "A" = Results Only

Comments / Remarks

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

Relinquished by Sampler:	Date Time:	Received by:	Relinquished by	Date Time:	Received by:
1	7/29/03 1200	1	2		2
Relinquished by: 3	Date Time:	Received by: 3	Relinquished by: 4	Date Time:	Received by: 4
Relinquished by: 5	Date Time:	Received by: 5	Custody Seal #	Preserved where applicable ☐	On Ice ☐ Cooler Temp.

DATA VALIDATION WORKSHEET

Analytical Method/Analytes: SW-846 8021B (BTEX) **Sample Collection Date(s):** 07/29/03

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

Batch Identification: T4989 **Matrix:** Water

MS/MSD Parent(s)[a]: T4989-01 **Field Replicate Parent(s):** None

Validation Complete: Bryan Bytton 8-13-03 (Date/Signature)

Foot Notes	Site ID	Sample ID	Lab. ID	Hits (Y/N)	Quals.	Comments
None	Lat 3B-39	MW-3	T4989-01	N		
None	Lat 3B-39	MW-2	T4989-02	N		
None	Trip Blank	290703TB01	T4989-03	N		

DATA VALIDATION WORKSHEET

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

Laboratory: Accutest **Batch Identification:** T4989

Validation Criteria								
Sample ID	**Lat 3B-39 MW-3**	**Lat 3B-39 MW-2**	**290703TB 01**					
Lab ID	**T4989-01**	**T4989-02**	**T4989-03**					
Holding Time	A	A	A					
Analyte List	A	A	A					
Reporting Limits	A	A	A					
Trip Blank	A	A	A					
Equipment Rinseate Blanks	N/A	N/A	N/A					
Field Duplicate/Replicate	N/A	N/A	N/A					
Surrogate Spike Recovery	A	A	A					
Initial Calibration	N	N	N					
Initial Calibration Verification (ICV)	N	N	N					
Continuing Calibration Verification (CCV)	N	N	N					
Laboratory Control Sample (LCS)	A	A	A					
Laboratory Control Sample Duplicate (LCSD)	N	N	N					
Method Blank	A	A	A					
Matrix Spike/Matrix Spike Dup. (MS/MSD)	A	N/A	N/A					
Retention Time Window	N	N	N					
Injection Time(s)	N	N	N					
Hardcopy vs. Chain-of-Custody	A	A	A					
EDD vs. Hardcopy	N	N	N					
EDD vs. Chain of Custody	N	N	N					

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

NOTES:

CHAIN OF CUSTODY # 290703MN01

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

FED-EX Tracking # 835603257099 | Bottle Order Control #
Accutest Quote # | Accutest Job #

Client / Reporting Information

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

Project Information

Project Name: San Juan Basin
Street: Groundwater
City: State:
Project #:
Fax #:
Client Purchase Order #:

Requested Analysis

BTEX

Matrix Codes

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

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Collection Time	Sampled By	Matrix	# of bottles	Number of preserved Bottles: HCl	H2SO4	HNO3	NaOH	None	NaHSO4	MeOH	EnCore	LAB USE ONLY
1	Lat 36-39 MW-3		7-29-03	0610	MN	WG	2	2								X
2	Lat 36-39 MW-2		7-29-03	0710	MN	WG	2	2								X
3	290703TB01		7-29-03	0600	MN	WG	1	1								X

Turnaround Time (Business Days)

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

Approved By: / Date:

Emergency & Rush T/A data available VIA LabLink

Data Deliverable Information

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

[ ] EDD Format

Commercial "A" = Results Only

Comments / Remarks

T4989

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

Relinquished by Sampler:	Date Time:	Received by:	Relinquished by	Date Time:	Received by:
1	7/29/03 1200	1	2	7-30-03 0900	2
3	Date Time:	3	4	Date Time:	4
5	Date Time:	5	Custody Seal #	Preserved where applicable [ ]	On Ice [X] Cooler Temp. 5.5

WELL DEVELOPMENT AND SAMPLING LOG

Project No: 30000.0 Project Name: STB Groundwater Client: MWH

Location: Lot 3B-39 Well No: MW-2 Development ☐ Sampling ☒

Project Manager MTN Date 7-29-03 Start Time 0628 Weather 70s pc

Depth to Water 32.85 Depth to Product — Product Thickness — Measuring Point TOC

Water Column Height 4.503 Well Dia. 2"

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

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

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

Gal/ft x ft of water	Water Volume In Well		Gal. to be removed
	Gallons	Ounces	
4.503 x .16	x 3		2760z

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
0637	6.71	564	14.0				20	clear
	7.36	572	14.7				52	
	7.42	556	14.8				78	
	7.52	530	15.2				94	turn Sitly w/fine sand
	7.52	539	15.2				102	wells baling down
0656	7.48	579	14.9				110	well bailed dry

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
0656	7.48	579	14.9					110	well bailed dry

COMMENTS: _____

INSTRUMENTATION: pH Meter ☒ _____ Temperature Meter ☒ _____

DO Monitor ☐ _____ Other ☐ _____

Conductivity Meter ☒ _____

Water Disposal Kutz

Sample ID Lot 3B-39 Sample Time 0710 BTEX ☒ VOCs ☐ Alkilinity ☐

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

Total Phosphorus ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐

MS/MSD _____ BD _____ BD Name/Time _____ TB 29JUL03TB01

WELL DEVELOPMENT AND SAMPLING LOG

Project No: 30000.0 Project Name: SJB Groundwater Client: MWH

Location: Lot 33-39 Well No: MW-3 Development ☐ Sampling ☒

Project Manager MJN Date 7-29-03 Start Time 0552 Weather AC 60s

Depth to Water 34.70 Depth to Product — Product Thickness — Measuring Point TOC

Water Column Height 4.058 Well Dia. 2"

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

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

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

Gal/ft x ft of water	Water Volume In Well		Gal (oz) to be removed
	Gallons	Ounces	
4.058 x .16	x 3		249 oz

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal. oz)	Comments/ Flow rate
0603	6.84	584	17.3				22	clear
	7.15	513	15.8				52	
	7.17	513	15.4				72	tan silty
0614	7.25	511	15.1				84	
0616	7.43	510	15.0				88	well has bailed dry

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
0616	7.43	510	15.0					88	well bailed dry

COMMENTS:

INSTRUMENTATION: pH Meter ☒ ____ Temperature Meter ☒ ____

DO Monitor ☐ ____ Other ☐ ____

Conductivity Meter ☒ ____

Water Disposal Kutz

Sample ID Lot 33-39 MW3 Sample Time 0620 BTEX ☒ VOCs ☐ Alkilinity ☐

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

Total Phosphorus ☐ ____ ☐ ____ ☐ ____ ☐ ____ ☐

MS/MSD ____ BD ____ BD Name/Time ____ TB 290703TB91

CHAIN OF CUSTODY #160703MN02

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

FED-EX Tracking # 836557900629 | Bottle Order Control #
Accutest Quote # | Accutest Job #

Client / Reporting Information

Company Name: MWH / EL Paso
Address: 6014 Reilly Ave
City: Farmington State: NM Zip: 87401
Project Contact: Lynn Benally E-mail:
Phone #: 505 599 2178
Sampler's Name: Martin Nee

Project Information

Project Name: San Juan Basin
Street: Groundwater
City: Site LAT 3B-39 State:
Project #:
Fax #:
Client Purchase Order #:

Requested Analysis

BTEX

Matrix Codes

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

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Collection Time	Sampled By	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	BTEX	LAB USE ONLY
	LAT 3B-39 MW-1		7-16-03	1210	MW	WG	2	2								X	
	160703TB02		7-16-03	0700	MW	WG	1	1								X	

Turnaround Time (Business Days)

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

Approved By: / Date:

Emergency & Rush T/A data available VIA LabLink

Data Deliverable Information

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

Commercial "A" = Results Only

Comments / Remarks

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

Relinquished by Sampler:	Date Time:	Received by:	Relinquished by	Date Time:	Received by:
1	7-16-03 1600		2		2
Relinquished by:	Date Time:	Received by:	Relinquished by:	Date Time:	Received by:
3		3	4		4
Relinquished by:	Date Time:	Received by:	Custody Seal #	Preserved where applicable	On Ice	Cooler Temp.
5		5		[ ]	[ ]	

WELL DEVELOPMENT AND SAMPLING LOG

Project No: 30008 Project Name: SanJuanBasin Client: MWH

Location: Lot 3B-39 Well No: MW-1 Development ☐ Sampling ☒

Project Manager MJN Date 7-16-03 Start Time 1144 Weather 95+

Depth to Water 35.64 Depth to Product — Product Thickness — Measuring Point TOC

Water Column Height 5.72 Well Dia. 4"

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

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

Criteria: 3 to 5 Casing Volumes of Water Removal ☒ Sabilization of Indicator Parameters ☒ Other turbidity

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	
5.72 x .65	3.71 x 3		11.15 Gal

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1129	6.44	974	23.6				1	clear
	6.48	868	20.9				2	
	6.48	877	20.1				3	
	6.56	859	20.2				4.25	well is bailing down
	6.56	824	19.9				4.75	
	6.57	788	19.1				5.25	
	6.60	769	18.8				5.75	clear
1157	6.74	771	19.2				6.25	well bailed dry

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
1157	6.74	771	19.2					6.25	well bailed dry

COMMENTS:

INSTRUMENTATION: pH Meter ☒ _____ Temperature Meter ☒ _____

DO Monitor ☐ _____ Other ☐ _____

Conductivity Meter ☒ _____

Water Disposal Kutz

Sample ID Lot 3B-39/MW-1 Sample Time 1210 BTEX ☒ VOCs ☐ Alkilinity ☐

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

Total Phosphorus ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐

MS/MSD _____ BD _____ BD Name/Time _____ TB 160703TB02

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** July 16, 2003
Site Name Lat 3B 39

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-1	1111	-	35.64	-	-
MW-2		-	32.83	-	-
MW-3		-	34.16	-	-

Comments

Sampled MW-1 for BTEX

Signature: *Martin J. Nee* Date: July 16, 2003

DATA VALIDATION WORKSHEET

Analytical Method/Analytes: SW-846 8021B (BTEX) **Sample Collection Date(s):** 07/16/03

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

Batch Identification: T4891 **Matrix:** Water

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

Validation Complete: Brian Buttars 7-28-03 (Date/Signature)

Foot Notes	Site ID	Sample ID	Lab. ID	Hits (Y/N)	Quals.	Comments
1	Lat 3B-39	MW-1	T4891-01	Y		Ethylbenzene @ 58.6 µg/l Xylenes, total @ 137 µg/l m,p-Xylenes @ 137 µg/l
1	Trip Blank	160703TB02	T4891-02	Y		Toluene @ 0.62 T µg/l

DATA VALIDATION WORKSHEET

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

Laboratory: Accutest **Batch Identification:** T4891

Validation Criteria								
Sample ID	**Lat 3B-39 MW-1**	**160703TB 02**						
Lab ID	**T4891-01**	**T4891-02**						
Holding Time	A	A						
Analyte List	A	A						
Reporting Limits	A	A						
Trip Blank	A[1]	A[1]						
Equipment Rinseate Blanks	N/A	N/A						
Field Duplicate/Replicate	N/A	N/A						
Surrogate Spike Recovery	A	A						
Initial Calibration	N	N						
Initial Calibration Verification (ICV)	N	N						
Continuing Calibration Verification (CCV)	N	N						
Laboratory Control Sample (LCS)	A	A						
Laboratory Control Sample Duplicate (LCSD)	N	N						
Method Blank	A	A						
Matrix Spike/Matrix Spike Dup. (MS/MSD)	N/A	N/A						
Retention Time Window	N	N						
Injection Time(s)	N	N						
Hardcopy vs. Chain-of-Custody	A	A						
EDD vs. Hardcopy	N	N						
EDD vs. Chain of Custody	N	N						

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

NOTES:

1) The following compounds were detected in the trip blank (160703TB02):
   a) Toluene @ 0.62 T µg/l, analyte not detected in associated sample, no data qualified.

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**	**July 16, 2003**
Site Name	**Lat 3B 39**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-1	**1111**	-	**35.64**	-	-
MW-2		-	**32.83**	-	-
MW-3		-	**34.16**	-	-

Comments

Sampled MW-1 for BTEX

Signature: *Martin J. Nee* Date: July 16, 2003

Gulf Coast
ACCUTEST
Laboratories

07/28/03

Technical Report for

Montgomery Watson

EPFS San Juan Basin Groundwater Site

Accutest Job Number: T4891

Report to:

El Paso

lynn.benally@elpaso.com

ATTN: Lynn Benally

Total number of pages in report: 8

ACCREDITED IN ACCORDANCE WITH nelac

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

Ron Martino
Laboratory Manager

Accutest Laboratories

Sample Summary

Montgomery Watson

Job No: T4891

EPFS San Juan Basin Groundwater Site

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
T4891-1	07/16/03	12:10	MN	07/17/03	AQ	Ground Water	LAT3B-39 MW-1
T4891-2	07/16/03	07:00	MN	07/17/03	AQ	Ground Water	160703TB02

Accutest Laboratories

Report of Analysis

Client Sample ID:	LAT3B-39 MW-1		
Lab Sample ID:	T4891-1	Date Sampled:	07/16/03
Matrix:	AQ - Ground Water	Date Received:	07/17/03
Method:	SW846 8021B	Percent Solids:	n/a
Project:	EPFS San Juan Basin Groundwater Site		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK005496.D	5	07/24/03	JH	n/a	n/a	GKK290
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	5.0	ug/l	
108-88-3	Toluene	ND	5.0	ug/l	
100-41-4	Ethylbenzene	58.6	5.0	ug/l	
1330-20-7	Xylenes (total)	137	15	ug/l	
95-47-6	o-Xylene	ND	5.0	ug/l	
	m,p-Xylene	137	10	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	82%		64-121%
98-08-8	aaa-Trifluorotoluene	87%		71-121%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	160703TB02		
Lab Sample ID:	T4891-2	Date Sampled:	07/16/03
Matrix:	AQ - Ground Water	Date Received:	07/17/03
Method:	SW846 8021B	Percent Solids:	n/a
Project:	EPFS San Juan Basin Groundwater Site		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK005493.D	1	07/24/03	JH	n/a	n/a	GKK290
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-88-3	Toluene	0.62	1.0	ug/l	J
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	
	m,p-Xylene	ND	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	88%		64-121%
98-08-8	aaa-Trifluorotoluene	91%		71-121%

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

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Blank Spike Summary

Job Number: T4891
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK290-BS	KK005488.D	1	07/24/03	JH	n/a	n/a	GKK290

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

T4891-1, T4891-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	19.6	98	74-119
100-41-4	Ethylbenzene	20	20.1	101	82-115
108-88-3	Toluene	20	19.6	98	77-116
1330-20-7	Xylenes (total)	60	59.1	99	79-115
95-47-6	o-Xylene	20	19.3	97	78-114
	m,p-Xylene	40	39.9	100	79-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	101%	64-121%
98-08-8	aaa-Trifluorotoluene	99%	71-121%

Method Blank Summary

Job Number: T4891
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK290-MB	KK005489.D	1	07/24/03	JH	n/a	n/a	GKK290

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

T4891-1, T4891-2

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

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	93%	64-121%
98-08-8	aaa-Trifluorotoluene	94%	71-121%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T4891
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin Groundwater Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T4890-2MS	KK005491.D	1	07/24/03	JH	n/a	n/a	GKK290
T4890-2MSD	KK005492.D	1	07/24/03	JH	n/a	n/a	GKK290
T4890-2	KK005490.D	1	07/24/03	JH	n/a	n/a	GKK290

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

T4891-1, T4891-2

CAS No.	Compound	T4890-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		20	19.1	96	20.6	103	8	64-124/16
100-41-4	Ethylbenzene	ND		20	19.1	96	20.1	101	5	64-123/14
108-88-3	Toluene	ND		20	18.6	93	19.9	100	7	64-120/13
1330-20-7	Xylenes (total)	ND		60	56.3	94	59.2	99	5	66-118/18
95-47-6	o-Xylene	ND		20	18.3	92	19.4	97	6	65-119/20
	m,p-Xylene	ND		40	37.9	95	39.8	100	5	66-120/14

CAS No.	Surrogate Recoveries	MS	MSD	T4890-2	Limits
460-00-4	4-Bromofluorobenzene	91%	88%	87%	64-121%
98-08-8	aaa-Trifluorotoluene	94%	94%	89%	71-121%

CHAIN OF CUSTODY #160703MN02

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

FED-EX Tracking # 936557900629 | Bottle Order Control #
Accutest Quote # | Accutest Job #

Client / Reporting Information

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

Project Information

Project Name: San Juan Basin
Street: Groundwater
City: Site LAT 36-39 State:
Project #:
Fax #:
Client Purchase Order #:

Requested Analysis

BTEX

Matrix Codes

DW - Drinking Water
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SW - Surface Water
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Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Time	Sampled By	Matrix	# of bottles	Number of preserved Bottles: HCl	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	BTEX	LAB USE ONLY
1	LAT 36-39 MW-1		7-16-03	1210	MN	WG	2	2							X	VOA
2	160703TB02		7-16-03	0700	MN	WG	1	1							X	J

Turnaround Time (Business Days)

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

Approved By: / Date:

Emergency & Rush T/A data available VIA LabLink

Data Deliverable Information

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

Commercial "A" = Results Only

Comments / Remarks

T4891

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

Relinquished by Sampler:	Date Time:	Received by:	Relinquished by	Date Time:	Received by:
1	7-16-03 1640		2	7-17-03 0900	2
Relinquished by:	Date Time:	Received by:	Relinquished by:	Date Time:	Received by:
3		3	4		4
Relinquished by:	Date Time.	Received by:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp.
5		5		☐	X 5.0 °C

ACCUTEST.

SAMPLE RECEIPT LOG

JOB #: T4891 DATE/TIME RECEIVED: 7-17-03 0900

CLIENT: El PARO INITIALS: EJ

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

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

SAMPLE or FIELD ID	BOTTLE #	DATE SAMPLED	MATRIX	VOLUME	LOCATION	PRESERV.	PH
1	1-2	7-16-03	L	2X 40ml	VREF	1,2,3,4,5,6	U, <2, >12, NA
2	1	↓	↓	1X 40ml	↓	1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA

7-17-03 EJ

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

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

Comments:

pH of waters checked excluding volatiles

pH of soils N/A

Delivery method: Courier: FED-EX COOLER TEMP: 5.0°C COOLER TEMP:

Tracking#: SEE ATTACHED COOLER TEMP: COOLER TEMP:

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

Form: SM012

Gulf Coast
ACCUTEST.
Laboratories

05/02/03

Technical Report for

Montgomery Watson

EPFS San Juan Basin GS

San Juan Basin

Accutest Job Number: T4247

Report to:

El Paso

lynn.benally@elpaso.com

ATTN: Lynn Benally

Total number of pages in report: 8

ACCREDITED IN ACCORDANCE WITH nelac

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

Ron Martino
Laboratory Manager

Accutest Laboratories

Sample Summary

Montgomery Watson

Job No: T4247

EPFS San Juan Basin GS
Project No: San Juan Basin

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
T4247-1	04/27/03	07:00	MN	04/29/03	AQ	Trip Blank Water	27040301 TB
T4247-2	04/27/03	13:40	MN	04/29/03	AQ	Ground Water	GWLAT3B-39 MW-1

Accutest Laboratories

Report of Analysis

Client Sample ID:	27040301 TB		
Lab Sample ID:	T4247-1	Date Sampled:	04/27/03
Matrix:	AQ - Trip Blank Water	Date Received:	04/29/03
Method:	SW846 8021B	Percent Solids:	n/a
Project:	EPFS San Juan Basin GS		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK005098.D	1	04/30/03	BC	n/a	n/a	GKK266
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	104%		64-121%
98-08-8	aaa-Trifluorotoluene	100%		71-121%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	GWLAT3B-39 MW-1		
Lab Sample ID:	T4247-2	Date Sampled:	04/27/03
Matrix:	AQ - Ground Water	Date Received:	04/29/03
Method:	SW846 8021B	Percent Solids:	n/a
Project:	EPFS San Juan Basin GS		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK005102.D	1	04/30/03	BC	n/a	n/a	GKK266
Run #2	KK005103.D	5	04/30/03	BC	n/a	n/a	GKK266

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

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	164 [a]	5.0	ug/l	
1330-20-7	Xylenes (total)	452 [a]	15	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	
	m,p-Xylene	452 [a]	10	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	104%	104%	64-121%
98-08-8	aaa-Trifluorotoluene	103%	104%	71-121%

(a) Result is from Run# 2

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

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Blank Spike Summary

Job Number: T4247
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK266-BS	KK005096.D	1	04/30/03	BC	n/a	n/a	GKK266

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

T4247-1, T4247-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	20.2	101	74-119
100-41-4	Ethylbenzene	20	20.3	102	82-115
108-88-3	Toluene	20	20.3	102	77-116
1330-20-7	Xylenes (total)	60	61.3	102	79-115
95-47-6	o-Xylene	20	19.9	100	78-114
	m,p-Xylene	40	41.4	104	79-116

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	95%	64-121%
98-08-8	aaa-Trifluorotoluene	96%	71-121%

Method Blank Summary

Job Number: T4247
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK266-MB	KK005097.D	1	04/30/03	BC	n/a	n/a	GKK266

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

T4247-1, T4247-2

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

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	95%	64-121%
98-08-8	aaa-Trifluorotoluene	94%	71-121%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T4247
Account: MWHSLCUT Montgomery Watson
Project: EPFS San Juan Basin GS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T4247-2MS	KK005104.D	5	04/30/03	BC	n/a	n/a	GKK266
T4247-2MSD	KK005105.D	5	04/30/03	BC	n/a	n/a	GKK266
T4247-2	KK005102.D	1	04/30/03	BC	n/a	n/a	GKK266
T4247-2	KK005103.D	5	04/30/03	BC	n/a	n/a	GKK266

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

T4247-1, T4247-2

CAS No.	Compound	T4247-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		100	102	102	101	101	1	64-124/16
100-41-4	Ethylbenzene	164 [a]		100	264	100	267	103	1	64-123/14
108-88-3	Toluene	ND		100	102	102	101	101	1	64-120/13
1330-20-7	Xylenes (total)	452 [a]		300	755	101	761	103	1	66-118/18
95-47-6	o-Xylene	ND		100	103	103	102	102	1	65-119/20
	m,p-Xylene	452 [a]		200	652	99	659	103	1	66-120/14

CAS No.	Surrogate Recoveries	MS	MSD	T4247-2	T4247-2	Limits
460-00-4	4-Bromofluorobenzene	99%	98%	104%	104%	64-121%
98-08-8	aaa-Trifluorotoluene	99%	99%	103%	104%	71-121%

(a) Result is from Run #2.

CHAIN OF CUSTODY # 270403MW01

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

FED-EX Tracking # 835603757033 | Bottle Order Control #
Accutest Quote # | Accutest Job #

Client / Reporting Information

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

Project Information

Project Name: San Juan Basin
Street:
City: State:
Project #: Groundwater
Fax #:
Client Purchase Order #:

Requested Analysis

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Collection Time	Sampled By	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	None	NaHSO4	MeOH	Encore	BTEX	Matrix Codes
1	270403O1 TB		4/27/03	0700	MW	WQ	1	1								X	
2	SOW LAT 36-89 MW-1		4/27/03	1340	MW	WQ	1	1								X	

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

Turnaround Time (Business Days)

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

Approved By: / Date:

Emergency & Rush T/A data available VIA LabLink

Data Deliverable Information

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

Commercial "A" = Results Only

Comments / Remarks

T4247

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

	Relinquished by Sampler:	Date Time:	Received by:	Relinquished by	Date Time:	Received by:
1	MNee	4-28-03 1100	1	2	4-29-03 0835	2
3	Relinquished by:	Date Time:	Received by:	Relinquished by:	Date Time:	Received by: 4
5	Relinquished by:	Date Time:	Received by: 5	Custody Seal #	Preserved where applicable ☐	On Ice: X Cooler Temp: 4.0

Site Visit

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**	**4-27-03**
Site Name	**Lat 3B 39**		

Well	Time				Dissolved Oxygen
MW-1	**0944**	-	-	-	**1.13**

Comments

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

PRODUCT RECOVERY/WATER LEVEL DATA

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

Project Name_	**San Juan Basin Ground Water**	**Project No.**	**30001.0**
Project Manager	**MJN**		
Client Company	**MWH**	**Date**	**4-27-03**
Site Name	**Lat 3B 39**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-1	1248	-	35.48	-	-
MW-2		-	32.67	-	-
MW-3		-	33.99	-	-

Comments

Signature: *Martin J. Nee* Date: April 27, 2003

WELL DEVELOPMENT AND SAMPLING LOG

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

Location: Lot 38-39 Well No: MW-1 Development ☐ Sampling ☒

Project Manager MJN Date 4-27-03 Start Time 1248 Weather pc 50s

Depth to Water 35.48 Depth to Product — Product Thickness — Measuring Point TOC

Water Column Height 5.87 Well Dia. 4"

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

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

Criteria: 3 to 5 Casing Volumes of Water Removal ☑ Sabilization of Indicator Parameters ☑ Other on build up

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	
.65 x 5.87	3.82 x 3		11.45

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1300	7.23	1200	22°				1	clear
	7.21	990	20.3				2	
	7.11	980	21.5				3	
	6.74	1060	21.9				4	turning grey
	6.99	1210	21.3				4.5	well is bailing down
	7.02	890	21.2				5	
	7.03	880	21.1				5.5	
	7.00	840	20.8				5.75	
	7.02	860	20.7				6	
1340	7.01	850	19.5				6.25	well bailed dry will collect sample

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
1340	7.01	850	19.5					6.25	

COMMENTS:

INSTRUMENTATION: pH Meter ☒ _____ Temperature Meter ☒ _____

DO Monitor ☒ _____ Other ☐ _____

Conductivity Meter ☒ _____

Water Disposal Kutz

Sample ID Lot 38-39 MW-1 Sample Time 1340 BTEX ☒ VOCs ☐ Alkilinity ☐

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

Total Phosphorus ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐

MS/MSD _____ BD _____ BD Name/Time _____ TB 2704301

CHAIN OF CUSTODY # 270403MN01

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

FED-EX Tracking # 835603757033 | Bottle Order Control #

Accutest Quote # | Accutest Job #

Client / Reporting Information

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

Project Information

Project Name: San Juan Basin
Street:
City: State:
Project #: Groundwater
Fax #:
Client Purchase Order #:

Requested Analysis

BTEX

Matrix Codes

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

LAB USE ONLY

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Collection Time	Sampled By	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	Na2SO4	MEOH	ENCORE	BTEX
	270403 01 TB		4/27/03	0700	MN	WQ	1	1								X
	BW LAT 33-39 MW-1		4/27/03	1340	MN	WG	1	1								X

Turnaround Time (Business Days)

- [x] STANDARD — Approved By: / Date:
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [ ] Other

Emergency & Rush T/A data available VIA LabLink

Data Deliverable Information

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

Commercial "A" = Results Only

Comments / Remarks

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

Relinquished by Sampler:	Date Time:	Received by:	Relinquished by	Date Time:	Received by:
	4-28-03 1100	1	2		2
Relinquished by:	Date Time:	Received by:	Relinquished by:	Date Time:	Received by:
		3	4		4
Relinquished by:	Date Time:	Received by:	Custody Seal #	Preserved where applicable ☐	On Ice ☐	Cooler Temp.
		5				

Product Recovery and Well Observation Data

Project Name: San Juan Basin
Project Manager: Nee
Client Company: MWH
Site Name: ~~Eddy com A#1~~ LAT 3B-39

Project No: 220013
Date: 1-27-03

Well	Time	Depth to Water (ft)	Depth to Product (ft)	Total Well Depth (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-1	1300	35.30	NA	41.35	0	0	WL only
MW-2		32.525	NA		0	0	WL only
MW3		33.82	NA		0	0	WL only

COMMENTS: Sampled MW-1 see other form

Signature: [signature]

Date: 1-27-03

WELL DEVELOPMENT AND SAMPLING LOG

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

Location: LAT 36-39 Well No: MW-1 Development ☐ Sampling ☑

Project Manager Nee Date 1-27-03 Start Time 1336 Weather Clear 50s

Depth to Water 35.3 Depth to Product NA Product Thickness NA Measuring Point TOC

Water Column Height 6.05 Well Dia. 4

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

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

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

Gal/ft x ft of water	Water Volume In Well		Gal/oz to be removed
	Gallons	Ounces	
6.05 x .65	3.93		11.8

Time (military)	pH	SC (umhos/cm)	Temp (°C)	Eh-ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
								Carey
1336	6.72	590	16.8				.5	
	6.75	567	16.2				1	grey
1352	6.80	540	15.2				5	
	6.87	513	14.7				6.75	grey w/blk
1402	6.96	520	14.4				7.5	silt
	7.05	470	14.2				9.38	
1413								Sample

Final:

Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow rate
1413	7.05	470	14.2					9.5 gal	bailed dry

COMMENTS: _____

INSTRUMENTATION: pH Meter ☑ _____ Temperature Meter ☑ _____

DO Monitor ☑ _____ Other ☐ _____

Conductivity Meter ☑ _____

Water Disposal Kutz

Sample ID LAT36-39 MW1 Sample Time 1413 BTEX ☑ VOCs ☐ Alkilinity ☐

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

Total Phosphorus ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐

MS/MSD _____ BD _____ BD Name/Time _____ TB 12703

DATA VALIDATION WORKSHEET

Analytical Method/Analytes: SW-846 8021B (BTEX) **Sample Collection Date(s):** 01/27/03

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

Batch Identification: 03-01361 **Matrix:** Water

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

Validation Complete: Dipne Buttars 3-3-03
(Date/Signature)

Foot Notes	Site ID	Sample ID	Lab. ID	Hits (Y/N)	Quals.	Comments
1	GW	Coldiron Com A#1 MW-1	03-01361-01	Y		Benzene @ 27.8 µg/l
						Ethylbenzene @ 35.0 µg/l
					UB	Toluene @ 1.4 µg/l
						o-Xylene @ 46.8 µg/l
					B	m/p-Xylene @ 130 µg/l
1	GW	Lat 3B-39 MW-1	03-01361-02			Benzene @ 8.4 µg/l
						Ethylbenzene @ 239 µg/l
					UB	Toluene @ 1.9 µg/l
						o-Xylene @ 6.8 µg/l
					B	m/p-Xylene @ 587 µg/l
1	GW	Trip Blank (2) 03	03-01361-03			Toluene @ 0.5 T µg/l
						m/p-Xylene @ 1 µg/l

DATA VALIDATION WORKSHEET

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

Laboratory: APCL **Batch Identification:** 03-01361

Validation Criteria								
Sample ID	**Coldiron Com A#1 MW-1**	**Lat 3B-39 MW-1**	**Trip Blank (2) 03**					
Lab ID	**03-01361-01**	**03-01361-02**	**03-01361-03**					
Holding Time	A	A	A					
Analyte List	A	A	A					
Reporting Limits	A	A	A					
Method Blank	A	A	A					
Trip Blank	A[1]	A[1]	A[1]					
Equipment Rinseate Blanks	N/A	N/A	N/A					
Field Duplicate/Replicate	N/A	N/A	N/A					
Initial Calibration	N	N	N					
Initial Calibration Verification (ICV)	N	N	N					
Continuing Calibration Verification (CCV)	A	A	A					
Laboratory Control Sample (LCS)	A	A	A					
Laboratory Control Sample Duplicate (LCSD)	N	N	N					
Matrix Spike/Matrix Spike Dup. (MS/MSD)	N/A	N/A	N/A					
Surrogate Spike Recovery	A	A	A					
Retention Time Window	N	N	N					
Injection Time(s)	N	N	N					
Hardcopy vs. Chain-of-Custody	A	A	A					
EDD vs. Hardcopy	N	N	N					
EDD vs. Chain of Custody	N	N	N					

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

NOTES:

1) The following analytes were detected in the trip blank:
   a) Toluene @ 0.5T µg/L, qualify all sample concentrations less than or equal to 2.5 µg/L with a "UB" flag and all sample concentrations greater than 2.5 µg/l with a "B" flag.
   b) m/p-Xylene @ 1.0 µg/L, qualify all sample concentrations less than or equal to 5 µg/L with a "UB" flag and all sample concentrations greater than 5 µg/l with a "B" flag.

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

APCL Analytical Report

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

Service ID #: 801-031361
Collected by: M. Hee
Collected on: 01/27/03

Received: 01/29/03
Extracted: N/A
Tested: 01/29-30/03
Reported: 02/06/03

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

Analysis of Water Samples

Component Analyzed	Method	Unit	PQL	Analysis Result: Cold Iron Com A #1 03-01361-1	LAT3B-39 03-01361-2	Trip Blank (2)03 03-01361-3
BTXE						
Dilution Factor				1	1	1
BENZENE	8021B	µg/L	0.5	27.8	8.4	<0.5
ETHYLBENZENE	8021B	µg/L	0.5	35.0	239	<0.5
TOLUENE	8021B	µg/L	0.5	1.4	1.9	0.5J
O-XYLENE	8021B	µg/L	0.5	46.8	6.8	<0.5
M,P-XYLENE	8021B	µg/L	1	130	587	1

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

Respectfully submitted,

Dominic Lau
Laboratory Director
Applied P & Ch Laboratory

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APCL QA/QC Report

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

Service ID #: 801-031361
Collected by: M. Hee
Collected on: 01/27/03
Sample description:
Water
Project: San Juan River Basin /220013

Received: 01/29/03
Tested: 01/29-30/03
Reported: 02/18/03

Analysis of Water

801-031361QC

Component Name	Analysis Batch #	CCV (µg/L)	CCV %Rec	M-Blank	Conc. Unit	SP Level	LCS %Rec	MS %Rec	MSD %Rec	MS/MSD %RPD	Control Limit %Rec	Control Limit %Diff
BTXE												
Benzene	03G1243	100	93	N.D.	µg/L	18.0	87	86	90	5	68-130	31
Toluene	03G1243	100	99	N.D.	µg/L	70.0	88	86	89	4	66-133	33
Ethylbenzene	03G1243	100	101	N.D.	µg/L	18.0	92	91	93	2	65-134	35
m/p-Xylene	03G1243	200	94	N.D.	µg/L	70.0	88	85	87	2	65-134	35
o-Xylene	03G1243	100	95	N.D.	µg/L	25.0	85	89	88	1	65-134	35

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

Respectfully submitted,

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

FORM-2A

Applied P & Ch Laboratory

Surrogate Recovery Summary for Method 8021B

Client Name:	Montgomery Watson Harza	Contract No:		Lab Code:	APCL
Case No:		SAS No:		SDG Number:	031361
Project ID:	San Juan River Basin	Project No:	220013	Sample Matrix:	Water
		Batch No:	03G1243		

#	Client Sample No	Lab Sample ID	S1 % #	TOT OUT
1		03G1243-LCS-01	83	0
2		03G1243-LSD-01	83	0
3	TRIP BLANK (2)03	03-1361-3	86	0
4	10723-TW06-GW01	03-1357-4MS	82	0
5	10723-TW06-GW01	03-1357-4MSD	82	0
6	COLD IRON COM A #1	03-1361-1	113	0
7	LAT3B-39	03-1361-2	129	0
8		03G1243-MB-02	89	0
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

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

Column to be used to flag recovery values:

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

02/06/2003

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

Analysis of Water Samples

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BTXE						
Dilution Factor				1	1	1
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Respectfully submitted,

Dominic Lau
Laboratory Director
Applied P & Ch Laboratory

CHAIN OF CUSTODY RECORD/LAB WORK REQUEST

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

Chain of Custody ID 12703
Page 1 of 1
Air Bill No. 836381674459

MWH
Phone (801) 617-3200 FAX (801) 617-4200
MWH Contact Brian Buttars
Project
Project Number 220013
Date Due
Sampler's Name M Hee
(print clearly)

Location ID	Sample ID	Depth Interval (ft)	Date Collected	Time Collected	Matrix[a]	Sampling Technique[b]	BTEX SW-846 8021B	Alkalinity SM 2320B	TDS USEPA 160.1	NM WQCC Metals SW-846 6010B & 7470A	Cations SW-846 6010B	Anions USEPA 300.0	Nitrate USEPA 300.0	Nitrite USEPA 300.0				
Caldiron Com A #1	MW-1		1-27-03	1114	W	MW	X											
LAT 3B-39	MW-1		1-27-03	1413	W	MW	X											
Trip Blank (2)03							X											

1361

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

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

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

Relinquished by/Affiliation	Received by/Affiliation	Date	Time
1-27-03 1800hrs	C. Thacker 1-28-03 1600 hrs		
C. Thacker 1-28-03 1600 hrs	Paul C 1/29/03 0930		

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes:
3 Temperature _____
4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:
5 Properly Preserved
Y N
Notes:
6 Received Within Holding Times
Y N
Notes:

COC Tape Was:
1 Present on Outer Package
Y N NA
2 Unbroken on Outer Package
Y N NA
3 Present on Sample
Y N NA
4 Unbroken on Sample
Y N NA
Notes:

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

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

Sample Receiving Checklist

APCL ServiceID: 1361 Client Name/Project: Montgomery Watson

1. Sample Arrival

Date/Time Received 1/29/03 0930 Date/Time Opened 1/29/03 0930 By (name): Paul Kay
Custody Transfer: ☐ Client ☐ Golden State ☐ UPS ☐ US Mail ☑ FedEx ☐ APCL Empl: _____

2. Chain-of-Custody (CoC)

☑ With Samples? ☐ Faxed? ☑ Client has Copy? ☐ Signed, dated? By: _____
☑ Project ID? ☑ Analyses Clear? ☐ Hold Samples? #on Hold _____ # Received 3
☑ CoC/Docs Zip-Locked under lid? ☐ Compos.#: _ ☑ #Samples OK? _____
☐ Discrepancies? ☐ Client notified? ☐ Response (attach docs): _____

3. Shipping Container/Cooler

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

4. Sample Preservation

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

5. Holding-time Requirements

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

6. Sample Container Condition

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

7. Turn Around Time

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

8. Sample Matrix

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

9. Pre-Login Check List Completed & OK?

☑ ALL OK? (if not, attach docs) ☐ Client Contact? (Name: _____)Date/Time: _____

Received/Checked by: Paul K Date: 29 Jan 2003 Time: 7:35 a.m.

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

DocumentFile: [ncal.texfiles]smprcl.tex.

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

Sample Login: Check List

03-01361 (0984_1017) (2721900_1017)

01/29/03

Part 1: General Information

☐	Company Information	Name:	*Montgomery Watson Harza*
		Address:	*10619 South Jordan Gateway ,Salt Lake City ,UT 84095*
☐	Project Information	Project Description:	*San Juan River Basin*
			Hill AFB
		Project #:	*1166121.061609*
☐	Billing Information	P.O. #:	
		Bill Address:	*10619 South Jordan Gateway ,Salt Lake City ,UT 84095*
		Lab Project ID:	*1999_0746*
		Client Database #:	*04*
☐	Receiving Information	Who Received Sample?	*Paul Kou*
		Receiving Date/Time:	*01/29/03 0930*
		COC No.	
☐	Shipping Information	Shipping Company	*Express*
		Packing Information:	*Cooler/Ice Chester*
		Cooler Temperature:	*4.2 °C*
☐	Container Information	Container Provider:	*Client*
☐	Sampling Information	Sampling Person:	
		Sampling Company:	*Client*
☐	Turn-Around-Time Option:		*Rush 5 working day(s)*
☐	QC Option:		*QC and Surro. Rep.*
☐	Disposal Option:		*Not specify*

Part 2: Sample Information

Seq. #	Sample ID (on COC)	Sample Sub-ID	APCL Sample ID	Matrix	Cont-tainer	Preser-vative	Vol, ml Am. g	# of Replica	Condition G, L, B	Collected mmddyy	Hold ?	Composite Group	TAT Days	
1	Cold Iron Com A #1	BTXE	03-01361-1	W	V	C	40	2	G	012703	N	0	7	☐
2	LAT3B-39	BTXE	03-01361-2	W	V	C	40	2	G	012703	N	0	7	☐
3	Trip Blank (2)03	BTXE	03-01361-3	W	V	C	40	1	G	012703	N	0	7	☐

Part 3: Analysis Information

Test Items: ☑ *8021B* **BTXE**

Seq. #	Client"s Sample ID (as given on COC)	Sample Sub-ID	APCL Sample ID	Matrix	BTXE	
1	Cold Iron Com A #1	BTXE	03-01361-1	W	X	☐
2	LAT3B-39	BTXE	03-01361-2	W	X	☐
3	Trip Blank (2)03	BTXE	03-01361-3	W	X	☐

Login By En-Yu Paul Kou

Check By PK

CHAIN OF CUSTODY RECORD/LAB WORK REQUEST

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

Chain of Custody ID 12703
Page 1 of 1
Air Bill No. 836381674459

MWH
Phone (801) 617-3200 FAX (801) 617-4200
MWH Contact Brian Buttars
Project
Project Number 220063
Date Due
Sampler's Name M Hee
(print clearly)

Location ID	Sample ID	Depth Interval (ft)	Date Collected	Time Collected	Matrix[a]	Sampling Technique[b]	ANALYSES REQUESTED: BTEX SW-846 8021B	Alkalinity SM 2320B	TDS USEPA 160.1	NM WQCC Metals SW-846 6010B & 7470A	Cations SW-846 6010B	Anions USEPA 300.0	Nitrate USEPA 300.0	Nitrite USEPA 300.0				
Coldiron Com A#1	MW-1		1-27-03	1114	W	MW	X											
LAT 3B-39	MW-4		1-27-03	1413	W	MW	X											
Trip Blank 12703							X											

1361

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

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

Location IDs:
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North Flare Pit=NF
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Relinquished by/Affiliation	Received by/Affiliation	Date	Time
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C. Thacker 1-28-03 1600hrs	Paul C 1/29/03 0930		

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Y N
Notes:

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Notes:

COC Tape Was:

1 Present on Outer Package
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Discrepancies Between Sample Labels and COC Record?
Y N
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