

3R - 198

REPORTS

DATE:

1999

SAN JUAN BASIN PIT CLOSURES
San Juan Basin, New Mexico

El Paso Field Services
Pit Closure Reports

RECEIVED

MAR 20 2000

March 2000

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

Prepared For

El Paso Field Services
Farmington, New Mexico

Project 62800158



EPFS GROUNDWATER PITS 1999 CLOSURE REPORT

**JOHN CHARLES #8
Meter/Line ID - 93126**

SITE DETAILS

Legals - Twn: 27N Rng: 9W Sec: 13 Unit: B
NMOCD Hazard Ranking: 40 Land Type: NAVAJO
Operator: TEXACO

PREVIOUS ACTIVITIES

Site Assessment: Jun-94 Excavation: Aug-94 (110 cy) Re-Excavation: Nov-95 (272 cy)
Soil Boring: Feb-97 Monitor Well: Feb-97
Quarterly Sampling Initiated: June-97
Additional Monitoring Wells: Jun-99

All supporting documentation for activities prior to 1999 can be found in the Closure Report submitted in March 1998.

1999 ACTIVITIES

Groundwater Monitoring – Groundwater monitoring was not performed on MW-1 during 1999 because over 4 clean quarters were attained in 1998. One round of groundwater samples were collected from additional monitor wells MW-2 and MW-3.

Monitor Well Installation – The groundwater gradient was estimated based on topography and additional wells were drilled as requested in EPA correspondence dated October 26, 1998.

SUMMARY TABLES

The laboratory data sheets and associated quality assurance/quality control data are presented in Attachment 1.

SITE MAP

A site map showing the groundwater gradient is presented as Figure 1.

GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

The May 20, 1999, geologic logs and well completion diagrams are presented in Attachment 2.

DISPOSITION OF GENERATED WASTES

There were no wastes generated at this site in 1999.

CONCLUSIONS

In March 1998, EPFS submitted this site with all required documentation for closure. Initial closure is not included with this report since it has already been supplied. EPFS has added the additional downgradient monitor wells as requested in the October 26, 1998, letter "Pit Closure Reports."

Monitoring of MW-1 has never shown BTEX constituents above water quality standards. As stated above, MW-2 and MW-3 show no evidence of downgradient BTEX contamination. Based on all the

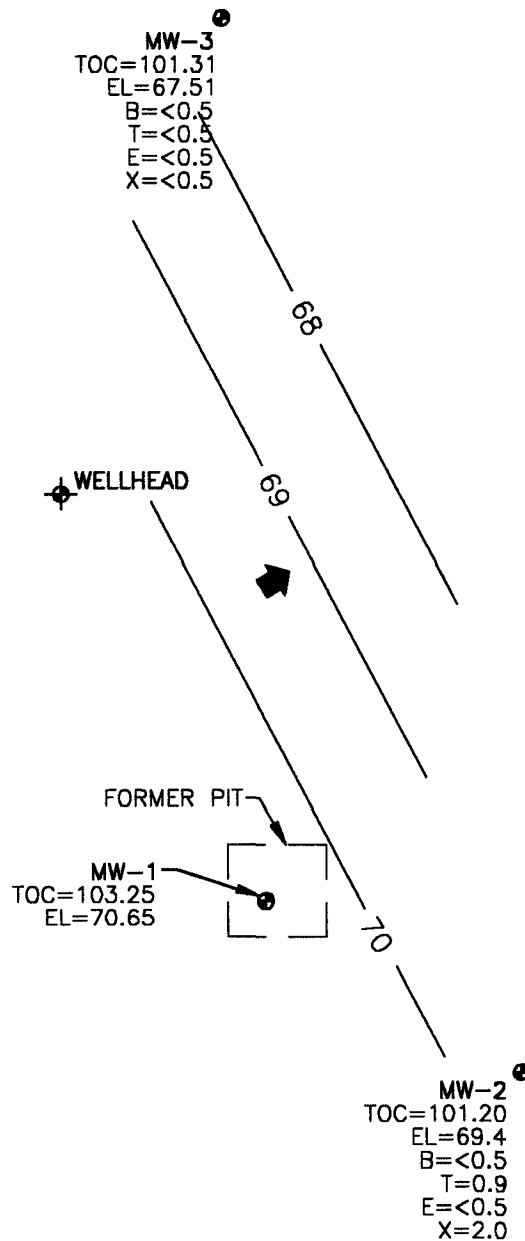
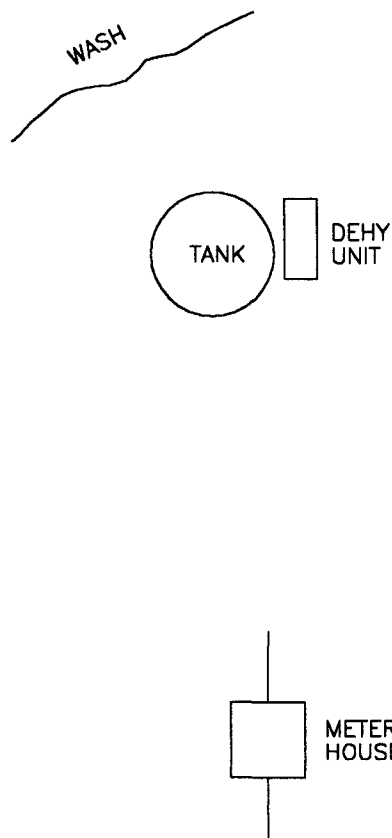
EPFS GROUNDWATER PITS 1999 CLOSURE REPORT

information gathered at this site, minimal impact to groundwater has occurred at this site. Therefore, EPFS requests closure of this site.

Since this site is on Navajo land, EPFS assumes the Navajo Environmental Protection Agency has jurisdiction of this site and will either approve or deny closure of this site.

RECOMMENDATIONS

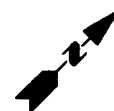
- EPFS requests closure of this site.
- Following approval for closure, MW-1, MW-2 and MW-3 will be abandoned using OCD approved abandonment procedures.



LEGEND

- MW-1 MONITORING WELL NUMBER AND APPROXIMATE LOCATION
- TOC TOP OF CASING ELEVATION
- EL GROUNDWATER ELEVATION
- ➔ APPROXIMATE GROUNDWATER GRADIENT
- 68— GROUNDWATER POTENTIOMETRIC SURFACE
- B BENZENE (ug\L)
- T TOLUENE (ug\L)
- E ETHYL BENZENE (ug\L)
- X XYLENE (ug\L)

NOTE: Well locations are to scale, production equipment location and dimensions are approximate.



COL 20990A-003



TITLE:
JOHN CHARLES #8
METER 93126
JUNE 8, 1999

DWN:	DES.:
CJG	CI
CHKD:	APPD:
CI	
DATE:	REV.:
02/11/00	0

PROJECT NO.:	20990
EPFS GW PITS	
FIGURE 1	

TABLE 1

Sample #	Meter/ Line #	Site Name	Sample Date	MTV #	Project	Benzene (PPB)	Toluene (PPB)	Ethyl Benzene (PPB)	Total Xylenes (PPB)	Total BTEX
970212	93126	John Charles #8	03/13/97	1	Phase II Drilling-Initial	< 1	= 13	= 2.8	= 54.3	= 71
970560	93126	John Charles #8	06/12/97	1	Sample 4 - 1st Qtr	< 1	< 1	< 1	= 4.01	= 4
971006	93126	John Charles #8	03/26/98	1	Sample 4 - 2nd Qtr	< 1	< 1	< 1	= 5.9	= 6
971274	93126	John Charles #8	03/26/98	1	Sample 4 - 3rd Qtr	< 1	< 1	< 1	< 3	< 6
980258	93126	John Charles #8	03/26/98	1	Sample 4 - 4th Qtr	< 1	< 1	< 1	< 3	< 6
990269	93126	John Charles #8	06/08/99	2	Sample 4 - 1st Qtr	< 0.5	= 0.9	< 0.5	= 2	= 3
990270	93126	John Charles #8	06/08/99	3	Sample 4 - 1st Qtr	< 0.5	< 0.5	< 0.5	< 0.5	< 2

ATTACHMENT 1
1999 GROUNDWATER ANALYTICAL



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	PC-004	990269
MTR CODE SITE NAME:	93126	John Charles #8
SAMPLE DATE TIME (Hrs):	6/8/99	1030
PROJECT:	Monitor Well Inatallation	
DATE OF BTEX EXT. ANAL:	NA	6/14/99
TYPE DESCRIPTION:	MW-2	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	<0.5	PPB	1			
TOLUENE	0.9	PPB	1			
ETHYL BENZENE	<0.5	PPB	1			
TOTAL XYLENES	2.0	PPB	1			
TOTAL BTEX	3	PPB				

—BTEX is by EPA Method 8021 Modified —

The Surrogate Recovery was at 105 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

This sample was analyzed by Pinnacle Laboratories, Albuquerque, NM.

Approved By:

John Larcher

Date:

6/21/99



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	PC-005	990270
MTR CODE SITE NAME:	93126	John Charles #8
SAMPLE DATE TIME (Hrs):	6/8/99	1105
PROJECT:	Monitor Well Installation	
DATE OF BTEX EXT. ANAL:	NA	6/14/99
TYPE DESCRIPTION:	MW-3	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	<0.5	PPB	1			
TOLUENE	<0.5	PPB	1			
ETHYL BENZENE	<0.5	PPB	1			
TOTAL XYLENES	<0.5	PPB	1			
TOTAL BTEX	<2.0	PPB				

—BTEX is by EPA Method 8021 Modified —

The Surrogate Recovery was at 89 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

This sample was analyzed by Pinnacle Laboratories, Albuquerque, NM.

Approved By:

John Larch

Date:

6/21/99

PHILIP

Chain of Custody Record

4000 Monroe Road
Farmington, NM 87401
(505) 326-2262 Phone
(505) 326-2388 FAX

COC Serial No. C 2470

Project Name		EPFS GW Inv	
Project Number		20990 Phase Task 1000.99	
Samplers		Paul Cheney	
Laboratory		Name	
Location		Location	
Sample Number (and depth)	Date	Time	Matrix
PC-004	6/8	1030	H ₂ O
PC-005	6/8	1105	H ₂ O
PC-006	6/8	1202	H ₂ O
PC-007	6/8	1300	H ₂ O
PC-008	6/8	1335	H ₂ O
PC-009	6/8	1410	H ₂ O
PC-010	6/8	1440	H ₂ O
Trip blank	6/8	1441	H ₂ O
Trip blank #2	6/8	1442	H ₂ O

Total Number of Bottles	Type of Analysis and Bottle	Comments
2	X	John Charles #8
2	X	MW-2
2	X	John Charles #8
2	X	MW-3
2	X	Ramona et al #1
2	X	MW-2
2	X	Ramona et al #1
2	X	MW-3
2	X	Charles #1 #2
2	X	MW-1
2	X	Charles #1 #2
2	X	MW-2
2	X	Charles #1 #2
2	X	MW-3
1	X	
1	X	

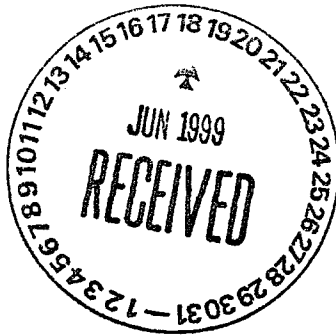
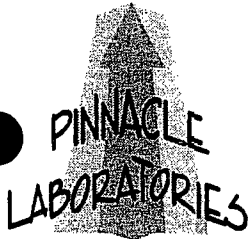
BTX (2-40m/100's)

MC# 931 93126 75155 75155 70804 70804 70804

Relinquished by: <i>atp</i>		Received By:	
Signature	Date	Signature	Date
<i>Paul Cheney</i>	6/9/99	<i>John Charles</i>	6/9/99
<i>Paul Cheney</i>	6/9/99	<i>John Charles</i>	6/9/99

Time	Time
10:04	10:04
10:25	10:33 AM

Samples Iced: ☒ Yes ☐ No	Carrier:
Preservatives (ONLY for Water Samples) ☐ Cyanide Sodium hydroxide (NaOH) ☐ Volatile Organic Analysis Hydrochloric acid (HCl) ☐ Metals Nitric acid (HNO ₃) ☐ TPH (418.1) Sulfuric acid (H ₂ SO ₄) ☐ Other (Specify) _____ ☐ Other (Specify) _____	Shipping and Lab Notes: TEMP 40°F In Tact



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

Pinnacle Lab ID number 906049
June 16, 1999

EL PASO FIELD SERVICES
770 WEST NAVAJO
FARMINGTON, NM 87401

Project Name TEMPORARY WELLS
Project Number 24324

Attention: JOHN LAMBDIN

On 6/11/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

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

Kimberly D. McNeill
Project Manager

MR: mt

Enclosure

H. Mitchell Rubenstein, Ph. D.
General Manager

*Reviewed & Accepted
J. Sanchez 6/21/99*



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT	: EL PASO FIELD SERVICES	PINNACLE ID	: 906049
PROJECT #	: 24324	DATE RECEIVED	: 6/11/99
PROJECT NAME	: TEMPORARY WELLS	REPORT DATE	: 6/16/99

PIN	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	990269 mc# 93126, John Charles #8 MW-2	AQUEOUS	6/8/99
02	990270 " " " " " MW-3	AQUEOUS	6/8/99
03	990271 mc# 75155, Remedy et al #1, MW-2	AQUEOUS	6/8/99
04	990272 " " " " " MW-3	AQUEOUS	6/8/99
05	990273 mc# 70804, Charley Pan #2, MW-1	AQUEOUS	6/8/99
06	990274 " " " " " MW-2	AQUEOUS	6/8/99
07	990275 " " " " " MW-3	AQUEOUS	6/8/99
08	990276 TRIP BLANK	AQUEOUS	6/8/99
09	990277 TRIP BLANK	AQUEOUS	6/8/99



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : EL PASO FIELD SERVICES
PROJECT # : 24324
PROJECT NAME : TEMPORARY WELLS

PINNACLE I.D.: 906049

SAMPLE		MATRIX	DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.		SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	990269	AQUEOUS	6/8/99	NA	6/14/99	1
02	990270	AQUEOUS	6/8/99	NA	6/14/99	1
03	990271	AQUEOUS	6/8/99	NA	6/14/99	1
PARAMETER		DET. LIMIT	UNITS	990269	990270	990271
BENZENE		0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE		0.5	UG/L	0.9	< 0.5	< 0.5
ETHYLBENZENE		0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES		0.5	UG/L	2.0	< 0.5	< 0.5

SURROGATE:

BROMOFLUOROBENZENE (%)

105

89

88

SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:

N/A



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GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : EL PASO FIELD SERVICES
PROJECT # : 24324
PROJECT NAME : TEMPORARY WELLS

PINNACLE I.D.: 906049

SAMPLE		MATRIX	DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.		SAMPLED	EXTRACTED	ANALYZED	FACTOR
04	990272	AQUEOUS	6/8/99	NA	6/14/99	1
05	990273	AQUEOUS	6/8/99	NA	6/14/99	1
06	990274	AQUEOUS	6/8/99	NA	6/14/99	1
PARAMETER		DET. LIMIT	UNITS	990272	990273	990274
BENZENE		0.5	UG/L	0.8	0.6	< 0.5
TOLUENE		0.5	UG/L	< 0.5	9.6	< 0.5
ETHYLBENZENE		0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES		0.5	UG/L	0.5	23	< 0.5

SURROGATE:

BROMOFLUOROBENZENE (%)

97

83

93

SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:

N/A



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Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : EL PASO FIELD SERVICES
PROJECT # : 24324
PROJECT NAME : TEMPORARY WELLS

PINNACLE I.D.: 906049

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
07	990275	AQUEOUS	6/8/99	NA	6/14/99	1
08	990276 TRIP BLANK	AQUEOUS	6/8/99	NA	6/14/99	1
09	990277 TRIP BLANK	AQUEOUS	6/8/99	NA	6/14/99	1

PARAMETER	DET. LIMIT	UNITS	990275	990276 TRIP BLANK	990277 TRIP BLANK
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5	< 0.5	< 0.5

SURROGATE:
BROMOFLUOROBENZENE (%) 97 99 105
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
N/A



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 906049
BLANK I. D.	: 061499	DATE EXTRACTED	: N/A
CLIENT	: EL PASO FIELD SERVICES	DATE ANALYZED	: 6/14/99
PROJECT #	: 24324	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: TEMPORARY WELLS		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATE:

BROMOFLUOROBENZENE (%)

89

SURROGATE LIMITS: (80 - 120)

CHEMIST NOTES:

N/A



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 906049
MSMSD #	: 906049-02	DATE EXTRACTED	: N/A
CLIENT	: EL PASO FIELD SERVICES	DATE ANALYZED	: 6/14/99
PROJECT #	: 24324	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: TEMPORARY WELLS	UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	20.0	20.9	105	21.3	107	2	(80 - 120)	20
TOLUENE	<0.5	20.0	20.5	103	21.6	108	5	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	20.4	102	21.7	109	6	(80 - 120)	20
TOTAL XYLENES	<0.5	60.0	59.1	99	62.7	105	6	(80 - 120)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: John Lambdin
 COMPANY: El Paso Field Services
 ADDRESS: 720 West Nighthawk
 PHONE: Farmington NM 87401
 (505) 599-2144
 FAX: (505) 599-2261
 BILL TO: (Same as above)
 COMPANY:
 ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	8021 (BTEX) ☒ MTBE ☒ TMS ☒ TME	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	NUMBER OF CONTAINERS
990269	6/5/99	1030	Water	01				X																					2
990270		1105		02				X																					2
990271		1202		03				X																					2
990272		1300		04				X																					2
990273		1335		05				X																					2
990274		1416		06				X																					2
990275		1446		07				X																					2
990276 (Trp. Blk)		1441		08				X																					1
990277 (Trp. Blk)	6/8/99	1442	Water	09				X																					1

PROJECT INFORMATION

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

RELINQUISHED BY

RELINQUISHED BY

PROJ NO: 24324

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

Signature: John Lambdin Date: 6/10/99

Signature: Date:

PROJ NAME: Temporary Wells

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

Printed Name: John Lambdin Date: 6/10/99

Printed Name: Date:

PO NO: NA

METHANOL PRESERVATION ☐

Company: El Paso Field Services

Company:

SHIPPED VIA: Fed-X

COMMENTS: FIXED FEE ☐

Signature: Date:

Signature: Date:

SAMPLE RECEIPT

NO. CONTAINERS: 16

RECEIVED BY: Signature: Date:

RECEIVED BY: (LAB) Signature: Date:

CUSTODY SEALS: ☒ N/NA

RECEIVED INTACT: YES

Printed Name: Date:

Printed Name: Date:

BLUE

35

Company: American Environmental Network (NM), Inc.

Company: American Environmental Network (NM), Inc.

ATTACHMENT 2
MONITOR WELL INSTALLATION

RECORD OF SUBSURFACE EXPLO. ON

Philip Environmental Services Corp.

4000 Monroe Road

Farmington, New Mexico 87401

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

Borehole #

2

Well #

MW-2

Page

of

Project Name

EPFS GW Inventory

Project Number

20990 Phase 1000

Project Location

John Charles #8

Well Logged By

P. Cheney

Personnel On-Site

P. Cheney, K. Padilla, B. Padilla

Contractors On-Site

Client Personnel On-Site

Drilling Method

4 1/4" HSA

Air Monitoring Method

PIO

Elevation

Borehole Location

GWL Depth

Logged By

P. Cheney

Drilled By

K. Padilla

Date/Time Started

5/7/99 0900

Date/Time Completed

5/7/99 1200

Depth (Feet)	Sample Interval	Sample Type & Recovery (Inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU			Drilling Conditions & Blow Counts
						BZ	BH	S	
0			Surface: yellowish brown, medium grained silty sand w/10% coarse sand (from cuttings)						
5									
10	10-12	18"	light yellowish brown, fine to medium grained sand, poorly sorted, loose, dry			0.0	0.0	0.0	RC = 10 S/H = 6.4
15	15-17	18"	yellowish brown, medium to fine grained sand, poorly sorted, loose, dry			0.0	0.0	0.0	RC = 10 S/H = 10.2
20	20-22		yellowish brown fine grained sand, damp, some calcite cementing			0.0		0.0	RC = 11 S/H = 7.9
25	25-27	18"	yellowish brown fine grained silty sand, poorly sorted			0.0		0.0	RC = 9 S/H = 11.1
30	30-32	12"	30-31 approx 6" black sandy clay, strong odor, below other 1" yellowish brown, fine to med grained sand, loose, poorly sorted			0.0		2.4	RC = 50 S/H = 349
35	35-37	8"	wet at 32' yellowish brown fine to med. grained poorly sorted sand TN = 40' Set 15' screen, 30' Riser, 8 sacks sand			0.0		2.5	RC = 50 S/H = 35
40									

Comments:

Geologist Signature

Paul Cheney

MONITORING WELL INSTALLATION RECORD

Tulip Environmental Services Corp.
 000 Monroe Road
 Albuquerque, New Mexico 87401
 (505) 266-2262 FAX (505) 326-2388

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

Project Name EPFS GW Inv.

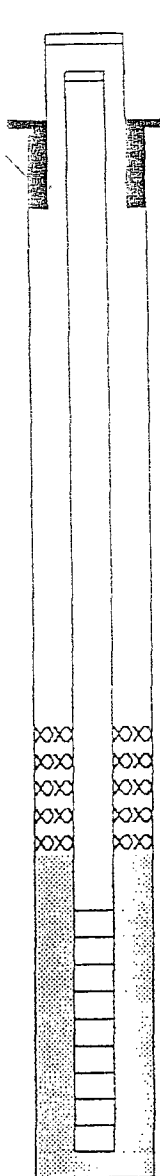
Project Number 20990 Phase 1000
 Project Location John Charles #8

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

Elevation _____
 Well Location _____
 SWL Depth _____
 Installed By K. Padilla
 Date/Time Started 5/20/99
 Date/Time Completed 5/20/99

Depths in Reference to Ground Surface

Item	Material	Depth
Top of Protective Casing		N.A.
Bottom of Protective Casing		N.A.
Top of Permanent Borehole Casing		N.A.
Bottom of Permanent Borehole Casing		N.A.
Top of Concrete		N.A.
Bottom of Concrete		N.A.
Top of Grout		N.A.
Bottom of Grout		N.A.
Top of Well Riser		+1
Bottom of Well Riser		25
Top of Well Screen		25
Bottom of Well Screen		40
Top of Peltonite Seal		N.A.
Bottom of Peltonite Seal		N.A.
Top of Gravel Pack		23
Bottom of Gravel Pack		40
Top of Natural Cave-In		N.A.
Bottom of Natural Cave-In		N.A.
Top of Groundwater		32
Total Depth of Borehole		40



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

Top of Seal N.A.

Top of Gravel Pack 23

Top of Screen 25

Bottom of Screen 40

Bottom of Borehole 40

Comments: Temporary well installation

Geologist Signature

Paul Cheney

RECORD OF SUBSURFACE EXPLORA...

Philip Environmental Services Corp.

4000 Monroe Road

Farmington, New Mexico 87401

326-2282 FAX (506) 326-2388

Finish MW2 at 10' 2
Start #3 at 1209

Borehole #

3

Well #

MW-3

Page

of

Project Name

EPFS Gw Inventory

Project Number

20990 Phase 1000

Project Location

John Charles #8

Elevation

Borehole Location

GWL Depth

Logged By

P. Cheney

Drilled By

K. Padilla

Date/Time Started

5/20/99 1209

Date/Time Completed

5/20/99 1500

Well Logged By

P. Cheney

Personnel On-Site

P. Cheney, K. Padilla, A. Padilla

Contractors On-Site

Client Personnel On-Site

Drilling Method

4 1/4" HSA

Air Monitoring Method

RED

Depth (Feet)	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU			Drilling Conditions & Blow Counts
						BZ	8H	S	
0									
5									
10	10 - 12	2 1/4"	yellowish brown fine to med grained poorly sorted sand, loose, dry		0.0		0.4		BC = 9 S/HS = 4.1
15	15 - 17		same as above		0.0		0.0		BC = 8 S/HS = 6.1
20	20 - 22		yellowish brown fine grained sand, med-well sorted, slightly consolidated		0.0		0.0		BC = 9 S/HS = 17.2
25	25 - 27		yellowish brown fine grained well sorted sand, loose		0.0		0.0		BC = 8 S/HS = 16.3
30	30 - 32	6"	light brown fine grained sand, well sorted		0.0				BC = 4 S/HS = 10.8
35	35 - 37		35-36' light brown fine med grained sand; 36-37' gray fine grained clayey sand						BC = 5 S/HS = 13.2
40			FD = 40' set 15' riser 8 sacks silica sand						

Comments:

8 sacks silica sand

Geologist Signature

Paul Cheney

MONITORING WELL INSTALLATION RECORD

Philip Environmental Services Corp.

4000 Monroe Road

San Antonio, New Mexico 87401

505 2262 FAX (505) 326-2388

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

Project Name EPFS GW Inv

Project Number 20990 Phase 1000

Project Location John Charles #8

On-Site Geologist P. Cheney

Personnel On-Site K. Padilla, P. Padilla

Contractors On-Site —

Client Personnel On-Site —

Elevation

Well Location

GWL Depth

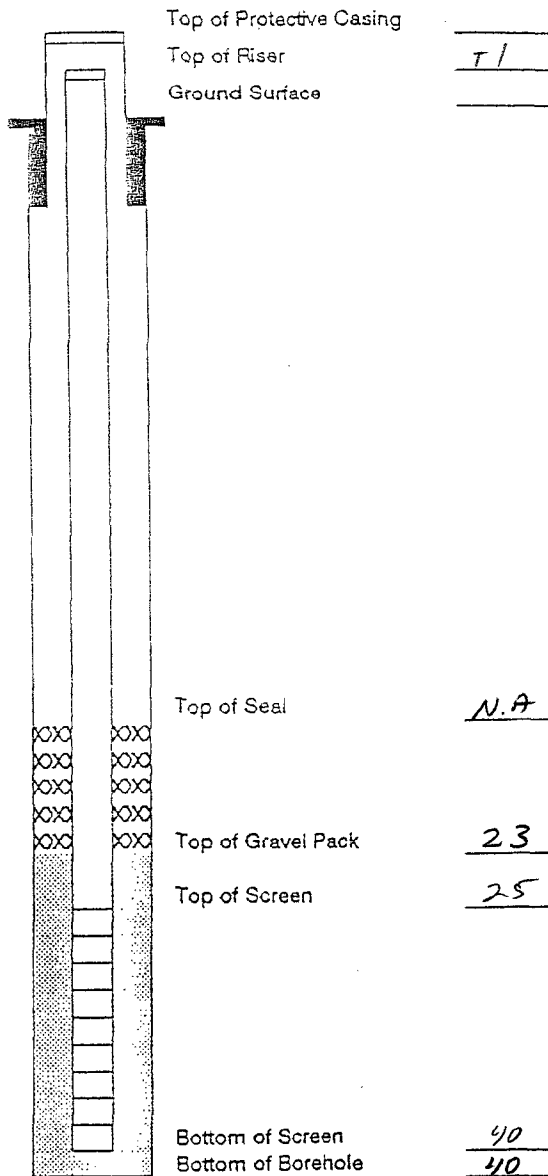
Installed By K. Padilla

Date/Time Started 5/20/99

Date/Time Completed 5/20/99

Depths in Reference to Ground Surface

Item	Material	Depth
Top of Protective Casing		N.A.
Bottom of Protective Casing		N.A.
Top of Permanent Borehole Casing		N.A.
Bottom of Permanent Borehole Casing		N.A.
Top of Concrete		N.A.
Bottom of Concrete		N.A.
Top of Grout		N.A.
Bottom of Grout		N.A.
Top of Well Riser		+1
Bottom of Well Riser		25
Top of Well Screen		25
Bottom of Well Screen		40
Top of Peltonite Seal		N.A.
Bottom of Peltonite Seal		N.A.
Top of Gravel Pack		23
Bottom of Gravel Pack		40
Top of Natural Cave-In		N.A.
Bottom of Natural Cave-In		N.A.
Top of Groundwater		32
Total Depth of Borehole		40



Comments: Temporary well installation

Geologist Signature

Paul Cheney