

3R - 161

# REPORTS

DATE:

1999

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**Certified Mail:** #Z 213 707 666 (Box 1 of 2)  
#Z 213 707 664 (Box 2 of 2)

March 24, 2000

Mr. William C. Olson  
New Mexico Oil Conservation Division  
2040 S. Pacheco  
Santa Fe, NM 87504

**RECEIVED**

MAR 25 2000

ENVIRONMENTAL BUREAU  
OIL CONSERVATION DIVISION

**RE: 1999 Pit Project Annual Groundwater Report**

Dear Mr. Olson:

In accordance with reporting requirements, El Paso Field Services (EPFS) has enclosed annual updates for the 32 remaining groundwater impacted locations that were identified during our pit closure project of 1994 / 1995.

Of the 32 reports, EPFS hereby requests closure of 4 of these locations. The 4 sites EPFS is requesting closure on are presented in one separate binder entitled "San Juan Basin Pit Closures, El Paso Field Services, Pit Closure Reports".

The Jaquez Com. C #1 and Jaquez Com. E #1 site is included in a separate report which is entitled "Jaquez Com. C #1 and Jaquez Com. E #1 Annual Report for Soil and Groundwater Remediation".

EPFS has also included for your information five Navajo sites in a separate binder and a separate report for the Bisti Flare Pit #1.

If you have any questions concerning the enclosed reports or closure requests, please call me at (505) 599-2124.

Sincerely,

  
Scott T. Pope P.G.  
Senior Environmental Scientist

xc: Mr. Denny Foust, NMOCD, Aztec - w / enclosures; **Certified Mail # Z 213 707 667**  
Mr. Bill Liesse, BLM - w / enclosures; **Certified Mail # Z 213 707 668**  
Mr. John Jaquez, - w / Jaquez enclosures; **Certified Mail # Z 213 707 669**  
Ms. Charmaine Tso, Navajo EPA - w / enclosures; **Certified Mail # Z 213 707 670**

**SAN JUAN BASIN PIT CLOSURES**  
**San Juan Basin, New Mexico**

**El Paso Field Services**  
**Pit Closure Reports**

**March 2000**

**RECEIVED**

MAR 20 2000

ENVIRONMENTAL BUREAU  
OIL CONSERVATION DIVISION

**Prepared For**

**El Paso Field Services**  
**Farmington, New Mexico**

**Project 62800158**



# EPFS GROUNDWATER PITS 1999 CLOSURE REPORT

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**CHARLEY PAH #2**  
**Meter/Line ID - 70804**

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## SITE DETAILS

**Legals - Twn: 27N      Rng: 9W**  
**NMOCD Hazard Ranking: 60**  
**Operator: TEXACO**

**Sec: 12**

**Unit: B**  
**Land Type: NAVAJO**

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## PREVIOUS ACTIVITIES

**Site Assessment: Jun-94**

**Excavation: Aug-94 (80 cy)**

**Soil Boring: Feb-97**

**Monitor Wells: May-99**

**Sampling Initiated: Jun-99**

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

## 1999 ACTIVITIES

**Annual Groundwater Monitoring** - Annual groundwater monitoring was conducted during June of 1999.

**Monitor Well Installation** - Three monitoring wells were installed in May and June of 1999. The groundwater gradient flows to the east at this site.

## SUMMARY TABLES

Groundwater analytical data are presented in Table 1. Copies of the laboratory data sheets and associated quality assurance/quality control data are presented in Attachment 1.

## SITE MAP

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

## GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

The May 21, 1999, geologic logs and well completion diagrams are presented as Attachment 2.

## DISPOSITION OF GENERATED WASTES

There were no wastes generated at this site in 1999.

## CONCLUSIONS

On June 14, 1994, a site assessment was conducted at this site. One pit was located and was found dry. On August 17, 1994, the pit was excavated to approximately 12 feet in depth with final PID readings of 283 ppm. Soil analytical results from the excavation were benzene < 0.5 mg/kg, total BTEX 98.9 mg/kg, and TPH 368 mg/kg.

In February 1997, one soil boring was completed and a soil sample collected at 20 feet bgs. Groundwater was contacted at 20 feet bgs and rose to 16.5 feet bgs. Analytical results of the soil sample were benzene < 0.5 mg/kg, total BTEX < 3.0 mg/kg, and TPH < 10.0 mg/kg. The site was submitted for closure in 1998.

# **EPFS GROUNDWATER PITS 1999 CLOSURE REPORT**

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On October 26, 1998, the US Environmental Protection Agency requested that groundwater sampling was necessary at and downgradient of the former pit site before closure can be approved.

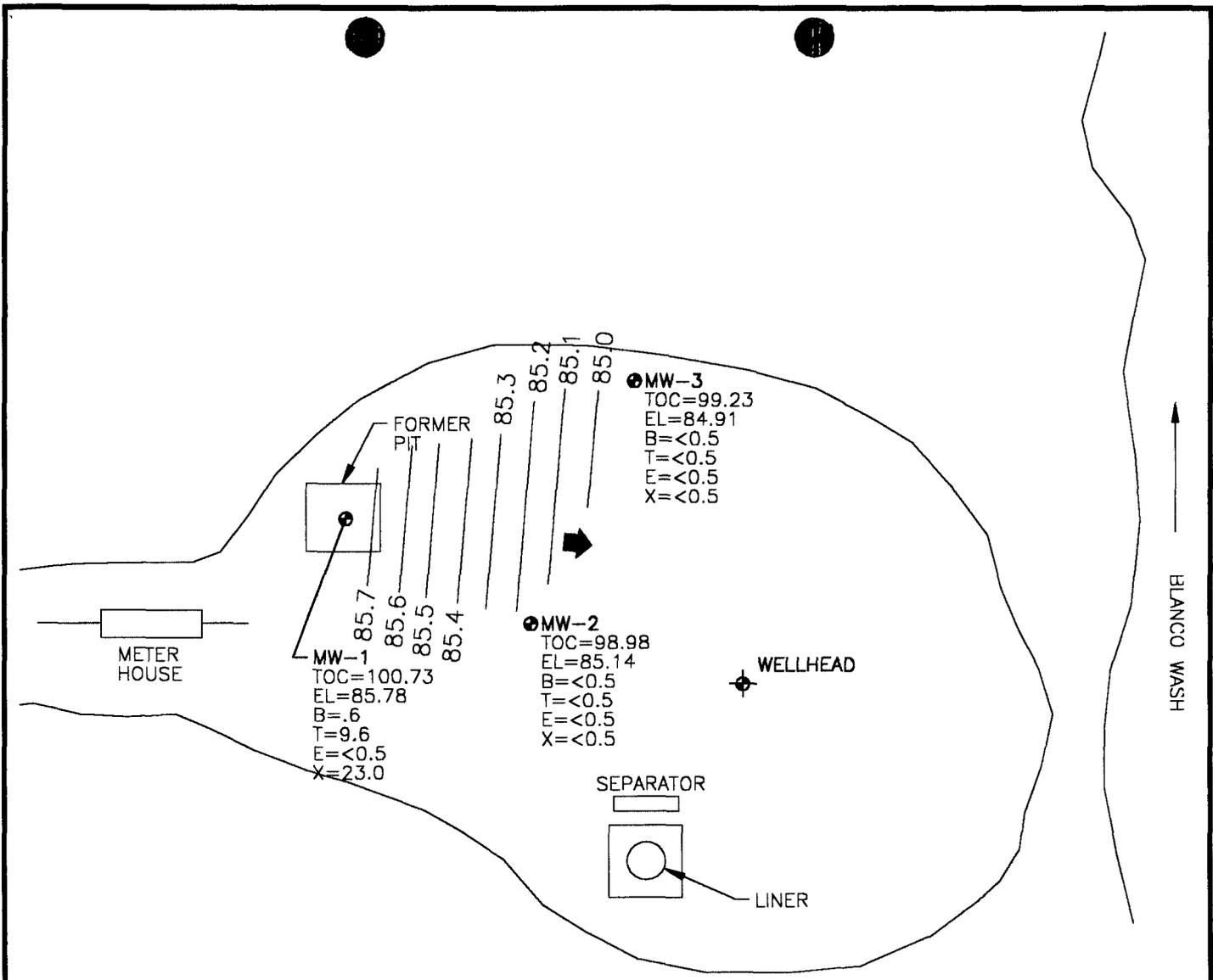
Three monitor wells were drilled in 1999 and show the groundwater flow trends toward the east. Analytical results of groundwater samples from MW-1 located in the former pit area show levels of BTEX constituents below the New Mexico Groundwater Standards. Downgradient wells MW-2 and MW-3 were below detection levels for all BTEX constituents.

Based on the soil excavation analytical data, the soil boring analytical data, the monitoring well groundwater sampling analytical data, and the groundwater gradient data, soil and groundwater have been below standards since sampling was initiated. 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**

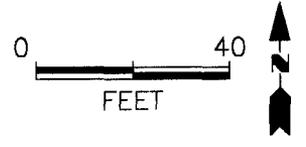
- EPFS requests closure of this site.
- Following approval for closure, MW-1, MW-2, and MW-3 will be abandoned in accordance with the Monitoring Well Abandonment Plan.



**LEGEND**

- MW-1 MONITORING WELL NUMBER AND APPROXIMATE LOCATION
- TOC TOP OF CASING ELEVATION
- EL GROUNDWATER ELEVATION
- ➔ APPROXIMATE GROUNDWATER GRADIENT
- 85.0 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 20990C-002



TITLE:  
 CHARLEY PAH #2  
 METER 70804  
 JUNE 8, 1999

|                   |             |
|-------------------|-------------|
| DWN:<br>CJG       | DES.:<br>CI |
| CHKD:<br>CI       | APPD:       |
| DATE:<br>02/11/00 | REV.:<br>0  |

PROJECT NO.: 20990  
 EPFS GW PITS  
 FIGURE 1

**TABLE 1**

| Sample # | Meter/<br>Line # | Site Name      | Sample<br>Date | MW<br># | Project                     | Benzene<br>(PPB) | Toluene<br>(PPB) | Ethyl<br>Benzene<br>(PPB) | Total<br>Xylenes<br>(PPB) | Total<br>BTEX |
|----------|------------------|----------------|----------------|---------|-----------------------------|------------------|------------------|---------------------------|---------------------------|---------------|
| 990273   | 70804            | Charley Pah #2 | 06/08/99       | 1       | Sample 4 - Initial Sampling | = 0.6            | = 9.6            | < 0.5                     | = 23                      | = 33          |
| 990274   | 70804            | Charley Pah #2 | 06/08/99       | 2       | Sample 4 - Initial Sampling | < 0.5            | < 0.5            | < 0.5                     | < 0.5                     | < 2           |
| 990275   | 70804            | Charley Pah #2 | 06/08/99       | 3       | Sample 4 - Initial Sampling | < 0.5            | < 0.5            | < 0.5                     | < 0.5                     | < 2           |

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**ATTACHMENT 1**  
**1999 GROUNDWATER ANALYTICAL**

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**FIELD SERVICES LABORATORY  
ANALYTICAL REPORT  
PIT CLOSURE PROJECT**

**SAMPLE IDENTIFICATION**

|                            | Field ID                  | Lab ID         |
|----------------------------|---------------------------|----------------|
| SAMPLE NUMBER:             | PC-008                    | 990273         |
| MTR CODE   SITE NAME:      | 70804                     | Charley PAH #2 |
| SAMPLE DATE   TIME (Hrs):  | 6/8/99                    | 1335           |
| PROJECT:                   | Monitor Well Inatallation |                |
| DATE OF BTEX EXT.   ANAL.: | NA                        | 6/14/99        |
| TYPE   DESCRIPTION:        | MW-1                      | Water          |

Field Remarks: \_\_\_\_\_

**RESULTS**

| PARAMETER     | RESULT | UNITS | QUALIFIERS |   |  |  |
|---------------|--------|-------|------------|---|--|--|
|               |        |       | DF         | Q |  |  |
| BENZENE       | 0.6    | PPB   | 1          |   |  |  |
| TOLUENE       | 9.6    | PPB   | 1          |   |  |  |
| ETHYL BENZENE | <0.5   | PPB   | 1          |   |  |  |
| TOTAL XYLENES | 23.0   | PPB   | 1          |   |  |  |
| TOTAL BTEX    | 33.2   | PPB   |            |   |  |  |

-BTEX is by EPA Method 8021 Modified -

The Surrogate Recovery was at 83 % 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 Sanchez Date: 6/21/99

**FIELD SERVICES LABORATORY  
ANALYTICAL REPORT  
PIT CLOSURE PROJECT**

**SAMPLE IDENTIFICATION**

|                                   | Field ID                  | Lab ID         |
|-----------------------------------|---------------------------|----------------|
| <b>SAMPLE NUMBER:</b>             | PC-009                    | 990274         |
| <b>MTR CODE   SITE NAME:</b>      | 70804                     | Charley PAH #2 |
| <b>SAMPLE DATE   TIME (Hrs):</b>  | 6/8/99                    | 1410           |
| <b>PROJECT:</b>                   | Monitor Well Inatallation |                |
| <b>DATE OF BTEX EXT.   ANAL.:</b> | NA                        | 6/14/99        |
| <b>TYPE   DESCRIPTION:</b>        | MW-2                      | 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 93 % 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 Lardie*

Date: \_\_\_\_\_

6/21/99

**FIELD SERVICES LABORATORY  
ANALYTICAL REPORT  
PIT CLOSURE PROJECT**

**SAMPLE IDENTIFICATION**

|                                   | Field ID                  | Lab ID         |
|-----------------------------------|---------------------------|----------------|
| <b>SAMPLE NUMBER:</b>             | PC-010                    | 990275         |
| <b>MTR CODE   SITE NAME:</b>      | 70804                     | Charley PAH #2 |
| <b>SAMPLE DATE   TIME (Hrs):</b>  | 6/8/99                    | 1440           |
| <b>PROJECT:</b>                   | Monitor Well Inatallation |                |
| <b>DATE OF BTEX EXT.   ANAL.:</b> | NA                        | 6/14/99        |
| <b>TYPE   DESCRIPTION:</b>        | 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 97 % 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 L. ...*

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    |            | Total Number of Bottles | Type of Analysis and Bottle | Comments         |
|---------------------------|----------------|------------|-------------------------|-----------------------------|------------------|
|                           | Project Number | Phase Task |                         |                             |                  |
| Samplers                  | Paul Cheney    |            |                         |                             |                  |
| Laboratory                |                |            |                         |                             |                  |
| Sample Number (and depth) | Date           | Time       | Matrix                  |                             |                  |
| PC-004                    | 6/8            | 1030       | H <sub>2</sub> O        | X                           | John Charles #8  |
| PC-005                    | 6/8            | 1105       | H <sub>2</sub> O        | X                           | MW-2             |
| PC-006                    | 6/8            | 1202       | H <sub>2</sub> O        | X                           | John Charles #8  |
| PC-007                    | 6/8            | 1300       | H <sub>2</sub> O        | X                           | MW-3             |
| PC-008                    | 6/8            | 1335       | H <sub>2</sub> O        | X                           | Ramirez et al #1 |
| PC-009                    | 6/8            | 1410       | H <sub>2</sub> O        | X                           | MW-2             |
| PC-010                    | 6/8            | 1440       | H <sub>2</sub> O        | X                           | Ramirez et al #1 |
| Trip blank                | 6/8            | 1441       | H <sub>2</sub> O        | X                           | MW-3             |
| Trip blank #2             | 6/8            | 1442       | H <sub>2</sub> O        | X                           | CHARLEY #10 #2   |

BTEX (2-40ml Vials)

MW #  
931  
932  
75155  
75155  
70804  
70804  
70804

| Relinquished by:   |        | Received By:       |        |
|--------------------|--------|--------------------|--------|
| Signature          | Date   | Signature          | Date   |
| <i>[Signature]</i> | 6/9/99 | <i>[Signature]</i> | 6/9/99 |
| <i>[Signature]</i> | 6/9/99 | <i>[Signature]</i> | 6/9/99 |

**Samples Iced:**  Yes  No

**Preservatives (ONLY for Water Samples)**

Cyanide ..... Sodium hydroxide (NaOH)

Volatile Organic Analysis ..... Hydrochloric acid (HCl)

Metals ..... Nitric acid (HNO<sub>3</sub>)

TPH (418.1) ..... Sulfuric acid (H<sub>2</sub>SO<sub>4</sub>)

Other (Specify) \_\_\_\_\_

Other (Specify) \_\_\_\_\_

**Shipping and Lab Notes:**  
TEMP 40°F  
IN TACT

**Carrier:** \_\_\_\_\_

**Airbill No.** \_\_\_\_\_



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.

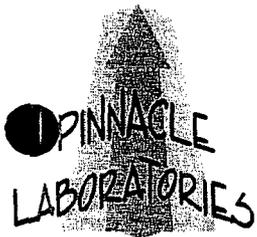
Kimberly D. McNeill  
Project Manager

H. Mitchell Rubenstein, Ph. D.  
General Manager

MR: mt

Enclosure

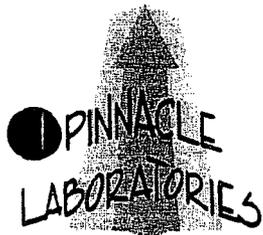
*Reviewed & Accepted  
J. Sanchez 6/21/99*



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

| LN | CLIENT DESCRIPTION                      | MATRIX  | DATE COLLECTED |
|----|---|---------|----------------|
| 1  | 990269 mc# a3126, John Charles #8 MW-2  | AQUEOUS | 6/8/99         |
| 2  | 990270 " " " " " MW-3                   | AQUEOUS | 6/8/99         |
| 3  | 990271 mc# 75155, Amanda et al #1, MW-2 | AQUEOUS | 6/8/99         |
| 4  | 990272 " " " " " , MW-3                 | AQUEOUS | 6/8/99         |
| 5  | 990273 mc# 70804, Charley Pan #2, MW-1  | AQUEOUS | 6/8/99         |
| 6  | 990274 " " " " " MW-2                   | AQUEOUS | 6/8/99         |
| 7  | 990275 " " " " " MW-3                   | AQUEOUS | 6/8/99         |
| 8  | 990276 TRIP BLANK                       | AQUEOUS | 6/8/99         |
| 9  | 990277 TRIP BLANK                       | AQUEOUS | 6/8/99         |



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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 | DATE        | DATE    | DATE    | DIL.      |          |        |
|--------|-------------|---------|---------|-----------|----------|--------|
| D. #   | CLIENT I.D. | MATRIX  | 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



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

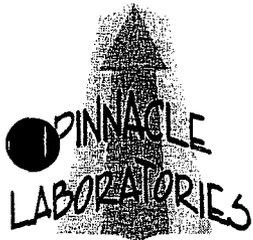
PINNACLE I.D.: 906049

| SAMPLE | DATE    | DATE      | DATE     | DIL.   |
|--------|---------|-----------|----------|--------|
| D. #   | SAMPLED | EXTRACTED | ANALYZED | FACTOR |
| 4      | 6/8/99  | NA        | 6/14/99  | 1      |
| 5      | 6/8/99  | NA        | 6/14/99  | 1      |
| 6      | 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



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

GAS CHROMATOGRAPHY RESULTS

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

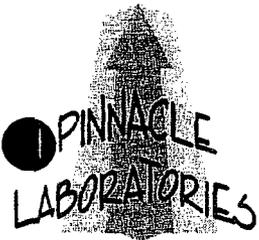
PINNACLE I.D.: 906049

| SAMPLE | DATE   | DATE | DATE    | DIL. |
|--------|--------|------|---------|------|
| SAMPLE | DATE   | DATE | DATE    | DIL. |
| SAMPLE | DATE   | DATE | DATE    | DIL. |
| 7      | 6/8/99 | NA   | 6/14/99 | 1    |
| 8      | 6/8/99 | NA   | 6/14/99 | 1    |
| 9      | 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             |
| OXYLENES     | 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  
 MSMSD # : 906049-02  
 CLIENT : EL PASO FIELD SERVICES  
 PROJECT # : 24324  
 PROJECT NAME : TEMPORARY WELLS

PINNACLE I.D. : 906049  
 DATE EXTRACTED : N/A  
 DATE ANALYZED : 6/14/99  
 SAMPLE MATRIX : AQUEOUS  
 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: 770 West WYATTO Farmington, NM 87401  
 PHONE: (505) 899-3144  
 FAX: (505) 599-2261  
 BILL TO: (Same as above)  
 COMPANY:  
 ADDRESS:

| SAMPLE ID        | DATE   | TIME | MATRIX | LAB ID | ANALYSIS REQUEST  | NUMBER OF CONTAINERS |
|------------------|--------|------|--------|--------|---|----------------------|
| 990269           | 6/5/99 | 1030 | Water  | 01     | Petroleum Hydrocarbons (418.1) TRPH   | 2                    |
| 990270           |        | 1105 |        | 02     | (MOD.8015) Diesel/Direct Inject   | 2                    |
| 990271           |        | 1202 |        | 03     | (M8015) Gas/Purge & Trap  | 2                    |
| 990272           |        | 1300 |        | 04     | 8021 (BTEX)/8015 (Gasoline)   | 2                    |
| 990273           |        | 1335 |        | 05     | 8021 (BTEX) <del>8015</del> <del>8015</del> <del>8015</del> <del>8015</del> <del>8015</del> | 2                    |
| 990274           |        | 1416 |        | 06     | 8021 (TCL)  | 2                    |
| 990275           |        | 1446 |        | 07     | 8021 (EDX)  | 2                    |
| 990276 (Trp Blk) |        | 1441 |        | 08     | 8021 (HALO)   | 2                    |
| 990277 (Trp Blk) | 6/8/99 | 1442 | Water  | 09     | 8021 (CUST)   | 1                    |
|                  |        |      |        |        | 504.1 EDB <input type="checkbox"/> / DBCP <input type="checkbox"/>                          |                      |
|                  |        |      |        |        | 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:   |                      |

**PROJECT INFORMATION**  
 PROJ NO: AH 21324  
 PROJ NAME: Temporary Wells  
 P.O. NO: N/A  
 SHIPPED VIA: Fed-X  
 SAMPLE RECEIPT  
 NO. CONTAINERS: 16  
 CUSTODY SEALS: (Y) N/A  
 RECEIVED INTACT: YES  
 BLUE STAMP: 32

**PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS**  
 (RUSH)  24hr  48hr  72hr  1 WEEK (NORMAL)   
 CERTIFICATION REQUIRED:  NM  SDWA  OTHER  
 METHANOL PRESERVATION   
 COMMENTS: FIXED FEE

**RELINQUISHED BY:**  
 Signature: John Lambdin Time: 1500  
 Printed Name: John Lambdin Date: 6/10/99  
 Company: El Paso Field Services

**RECEIVED BY:**  
 Signature: [Signature] Time: 1  
 Printed Name: [Name] Date: [Date]  
 Company: [Company]

**RELINQUISHED BY:**  
 Signature: [Signature] Time: 2  
 Printed Name: [Name] Date: [Date]  
 Company: American Environmental Network (NM), Inc.

**RECEIVED BY:**  
 Signature: [Signature] Time: 0950  
 Printed Name: [Name] Date: 6/10/99  
 Company: American Environmental Network (NM), Inc.

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**ATTACHMENT 2**  
**MONITOR WELL INSTALLATION**

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RECORD OF SUBSURFACE EXP ATION

MW-1 (estimated center of old pit)

Philip Services Corporation

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

File # 1  
MW-1  
Page 1 of 2

Project Name PNM ~~Water Treatment~~ EPFS  
Project Number 20791 Phase 8888  
Project Location ~~Ritchard #2~~ Charley PAH #2

Elevation \_\_\_\_\_  
Borehole Location L-1 S-2 T-30N R-8W  
GWL Depth \_\_\_\_\_  
Logged By P. Cheney  
Drilled By K. Padilla  
Date Started 5/21/99 0830  
Date Completed 5/21/99 1000

On-Site Geologist ~~C. Kelly~~  
Personnel On-Site K. Padilla, ~~Anthony~~ D. Padilla  
Contractors On-Site \_\_\_\_\_  
Client Personnel On-Site ~~R. Burman~~  
Drilling Method 4 1/4 ID HSA  
Air Monitoring Method PID

| Depth (Feet) | Sample Number | Sample Interval | Sample Type & Recovery (inches) | Sample Description<br>Classification System: USCS                     | USCS Symbol | Depth Lithology Change (feet) | Air Monitoring Units: NDU |     |   | Drilling Conditions & Blow Counts |
|--------------|---------------|-----------------|---------------------------------|---|-------------|-------------------------------|---------------------------|-----|---|-----------------------------------|
|              |               |                 |                                 |   |             |                               | BZ                        | BH  | S |                                   |
| 0            |               |                 |                                 | note pit lamp out, will look by visible and odor                      |             |                               |                           |     |   |                                   |
| 5            | 5             |                 |                                 | light reddish brown, fine grained silty sand, well sorted             |             |                               | 0.0                       | 0.0 |   | BC = 5<br>S/HB = 0.0              |
| 10           | 10            |                 |                                 | gray to dark gray sandy silt, <del>weak</del> strong odor             |             |                               | 0.0                       | 0.0 |   | BC = 15<br>S/HB = 2.1             |
| 15           | 15            |                 |                                 | 16' end of staining   |             |                               |                           |     |   |                                   |
| 17           | 17            |                 |                                 | grayish brown fine grained silty sand, loose, wet at 16'              |             |                               | 0.0                       | 0.0 |   | BC = 16<br>S/HB = 0               |
| 20           | 20            |                 |                                 | reddish brown, med grained sand, fairly well sorted, loose, saturated |             |                               | 0.0                       | 0.0 |   | BC = 5<br>S/HB = 0                |
| 22           | 22            |                 |                                 | Set 15' of screen at 25' - 10, sand pack to 8' (7 sacks) 1-20' rise   |             |                               |                           |     |   |                                   |
| 25           |               |                 |                                 |   |             |                               |                           |     |   |                                   |
| 30           |               |                 |                                 |   |             |                               |                           |     |   |                                   |
| 35           |               |                 |                                 |   |             |                               |                           |     |   |                                   |
| 40           |               |                 |                                 |   |             |                               |                           |     |   |                                   |

Comments:

Geologist Signature

*Paul Cheney*

# MONITORING WELL INSTALLATION RECORD

Philip Environmental Services Corp.  
 4000 Monroe Road  
 Santa Fe, New Mexico 87401  
 (505) 833-2262 FAX (505) 326-2388

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

Project Name EPFS KW Inv

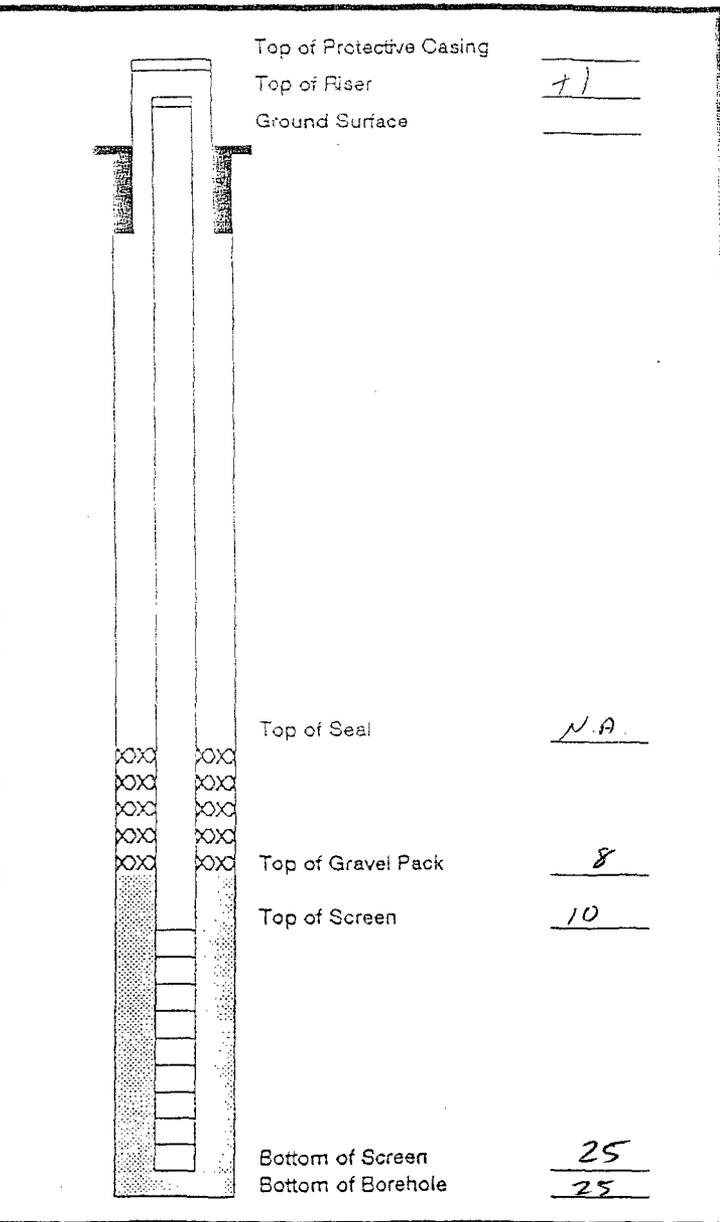
Project Number 20990 Phase 1000  
 Project Location Charity Park #2

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

Elevation \_\_\_\_\_  
 Well Location \_\_\_\_\_  
 GWL Depth 16'  
 Installed By K. Padilla

Date/Time Started 5/21/99 0830  
 Date/Time Completed 5/21/99 1000

| 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                  |          | 10    |
| Top of Well Screen                    |          | 10    |
| Bottom of Well Screen                 |          | 25    |
| Top of Peltonite Seal                 |          | N.A.  |
| Bottom of Peltonite Seal              |          | N.A.  |
| Top of Gravel Pack                    |          | 8     |
| Bottom of Gravel Pack                 |          | 25    |
| Top of Natural Cave-in                |          | N.A.  |
| Bottom of Natural Cave-in             |          | N.A.  |
| Top of Groundwater                    |          | 16    |
| Total Depth of Borehole               |          | 25    |



Comments: Temporary installation

Geologist Signature Paul Cheney

RECORD OF SUBSURFACE EXPLORATION

Temporary Completion

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

Philip Environmental Services Corp.  
4000 Monroe Road  
Farmington, New Mexico 87401  
(505) 326-2282 FAX (505) 326-2388

Project Name EPFS GW Inv.  
Project Number 20990 Phase 1000.99  
Project Location Charley PAH #2

Elevation \_\_\_\_\_  
Borehole Location \_\_\_\_\_  
GWL Depth \_\_\_\_\_  
Logged By P. Cheney  
Drilled By K. Padilla  
Date/Time Started 5/25/99 0900  
Date/Time Completed 5/25/99 1015

Well Logged By P. Cheney  
Personnel On-Site Cheney, K. Padilla, A. Padilla  
Contractors On-Site \_\_\_\_\_  
Client Personnel On-Site \_\_\_\_\_  
Drilling Method 4 1/4" HSA  
Air Monitoring Method PTD

| Depth (Feet) | Sample Interval | Sample Type & Recovery (inches) | Sample Description<br>Classification System: USCS                              | USCS Symbol | Depth Lithology Change (feet) | Air Monitoring Units: NDU |     |   | Drilling Conditions & Blow Counts |
|--------------|-----------------|---------------------------------|--|-------------|-------------------------------|---------------------------|-----|---|-----------------------------------|
|              |                 |                                 |  |             |                               | BZ                        | BH  | S |                                   |
| 0            |                 |                                 |  |             |                               |                           |     |   |                                   |
| 5            | 5-7             | 24"                             | yellowish brown, fine grained silty sand, poorly sorted, loose dry             |             | 0.0                           |                           | 0.0 |   | BC = 7<br>S/HS = 1.4              |
| 10           | 10-12           | 24"                             | same as 5-7' interval  |             | 0.0                           |                           | 0.0 |   | BC = 1<br>S/HS = 1.9              |
| 15           | 15-17           | 8"                              | grayish brown sandy clay. Soft, low plasticity wet at approx 19'               |             | 0.0                           |                           | 0.0 |   | BC = 4<br>S/HS = 2.6              |
| 20           | 20-22           | 24"                             | brown, fine to medium grained poorly sorted sand with 1/8" gravel              |             | 0.0                           |                           | 0.0 |   | BC = 8<br>S/HS = 3.3              |
| 25           |                 |                                 | TD = 25' SET 15' screen from 25' to 10', sand part to 8' (7 sacks silica sand) |             |                               |                           |     |   |                                   |
| 30           |                 |                                 |  |             |                               |                           |     |   |                                   |
| 35           |                 |                                 |  |             |                               |                           |     |   |                                   |
| 40           |                 |                                 |  |             |                               |                           |     |   |                                   |

Comments:

Geologist Signature

*Paul Cheney*

# MONITORING WELL INSTALLATION RECORD

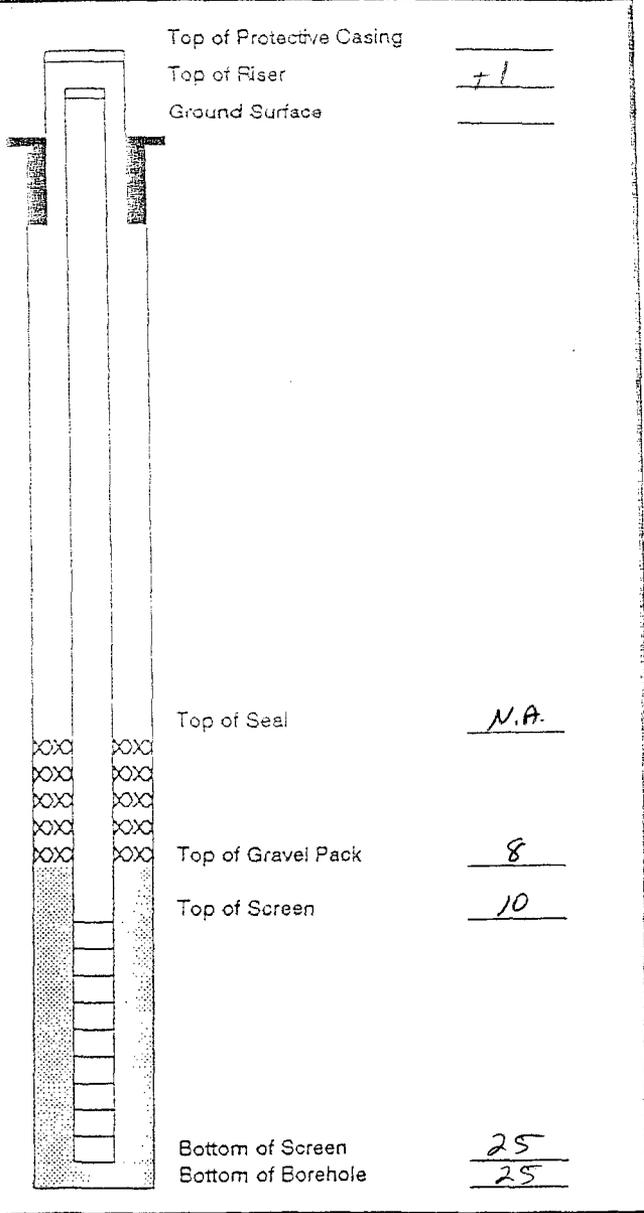
Mullip Environmental Services Corp.  
 1000 Monroe Road  
 Farmington, New Mexico 87401  
 505.322.262 FAX (505) 326-2388

Borehole # 2  
 Well # MW 2  
 Page 1 of 1

Project Name EPFS GW Inv.  
 Project Number 20990 Phase 1E00  
 Project Location Charley PPH # 2  
 On-Site Geologist P. Cheney  
 Personnel On-Site D. Padilla, K. Padilla  
 Contractors On-Site -  
 Client Personnel On-Site -

Elevation \_\_\_\_\_  
 Well Location \_\_\_\_\_  
 GWL Depth 19  
 Installed By K. Padilla  
 Date/Time Started 5/25/99 0900  
 Date/Time Completed 5/25/99 1015

| 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                  |          | 10    |
| Top of Well Screen                    |          | 10    |
| Bottom of Well Screen                 |          | 25    |
| Top of Peltonite Seal                 |          | N.A.  |
| Bottom of Peltonite Seal              |          | N.A.  |
| Top of Gravel Pack                    |          | 8     |
| Bottom of Gravel Pack                 |          | 25    |
| Top of Natural Cave-In                |          | N.A.  |
| Bottom of Natural Cave-In             |          | N.A.  |
| Top of Groundwater                    |          | 19    |
| Total Depth of Borehole               |          | 25    |



Comments: Temporary well installation

Geologist Signature Paul Cheney

Temporary (complete)

RECORD OF SUBSURFACE EXPLORATION

Borehole # 3  
 Well # MW3  
 Page 1 of 1

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

Project Name EPFS GW Inv.  
 Project Number 20990 Phase 1000.99  
 Project Location Charley PAH #2

Elevation \_\_\_\_\_  
 Borehole Location \_\_\_\_\_  
 GWL Depth \_\_\_\_\_  
 Logged By P. Cheney  
 Drilled By R. Padilla  
 Date/Time Started 5/25/99 1030  
 Date/Time Completed 5/25/99 1230

Well Logged By P. Cheney  
 Personnel On-Site K. Padilla, A. Padilla, P. Cheney  
 Contractors On-Site \_\_\_\_\_  
 Client Personnel On-Site \_\_\_\_\_  
 Drilling Method 4 1/4" JTA  
 Air Monitoring Method RIP

| Depth (Feet) | Sample Interval | Sample Type & Recovery (inches) | Sample Description<br>Classification System: USCS                                     | USCS Symbol | Depth Lithology Change (feet) | Air Monitoring Units: NDU |    |     | Drilling Conditions & Blow Counts |
|--------------|-----------------|---------------------------------|---|-------------|-------------------------------|---------------------------|----|-----|-----------------------------------|
|              |                 |                                 |   |             |                               | BZ                        | BH | S   |                                   |
| 0            |                 |                                 |   |             |                               |                           |    |     |                                   |
| 5            | 5-7             | 2 1/2"                          | yellowish brown, fine grained silty sand. poorly sorted, loose, dry                   |             |                               | 0.0                       |    | 0.0 | BC = 8<br>S/115 = 1.9             |
| 10           | 10-12           | 2 1/2"                          | reddish brown sandy silt, poorly sorted, dry, hard (some calcite cementing)           |             |                               | 0.0                       |    | 0.0 | BC = 20<br>S/115 = 3.4            |
| 15           | 15-17           | 10"                             | grayish brown sandy clay, firm, moderate plasticity, calcite nodules                  |             |                               | 0.0                       |    | 0.0 | BC = 5<br>S/115 = 5.1             |
| 20           | 20-22           | 2 1/2"                          | reddish brown, medium to coarse grained sand w/ small (1/8") gravel, saturated at 19' |             |                               |                           |    |     |                                   |
| 25           |                 |                                 | TD = 25' Set 15' of screen from 25' to 10' sand pack to 8' (7 sacks sand)             |             |                               |                           |    |     |                                   |
| 30           |                 |                                 |   |             |                               |                           |    |     |                                   |
| 35           |                 |                                 |   |             |                               |                           |    |     |                                   |
| 40           |                 |                                 |   |             |                               |                           |    |     |                                   |

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Geologist Signature Paul Dreyer

# MONITORING WELL INSTALLATION RECORD

Phillip Environmental Services Corp.  
 1000 ... Road  
 ... New Mexico 87401  
 (506) 326-2262 FAX (506) 326-2388

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

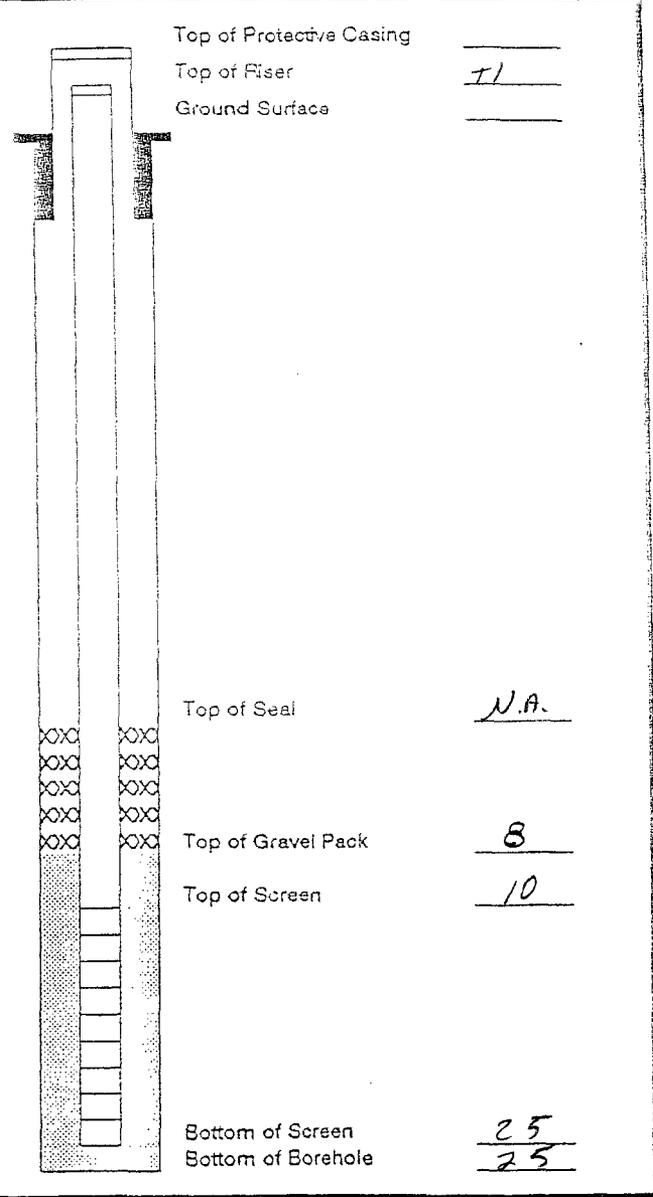
Project Name EPFS GW Inventory

Project Number 20990 Phase 1000  
 Project Location Charley PAH #2

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

Elevation \_\_\_\_\_  
 Well Location \_\_\_\_\_  
 GWL Depth 10'  
 Installed By K. Paulilla  
 Date/Time Started 5/25/99 1030  
 Date/Time Completed 5/25/99 1230

| 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                  |          | 10    |
| Top of Well Screen                    |          | 10    |
| Bottom of Well Screen                 |          | 25    |
| Top of Peltonite Seal                 |          | N.A.  |
| Bottom of Peltonite Seal              |          | N.A.  |
| Top of Gravel Pack                    |          | 8     |
| Bottom of Gravel Pack                 |          | 25    |
| Top of Natural Cave-In                |          | N.A.  |
| Bottom of Natural Cave-In             |          | N.A.  |
| Top of Groundwater                    |          | 19    |
| Total Depth of Borehole               |          | 25    |



Comments: Temporary well installation

Geologist Signature Paul Cheney