3R - 197

REPORTS

DATE:
1998

EL PASO FIELD SERVICES

Certified Mail: #Z 211 324 121

March 31, 1999

RECEIVED

APR 0 5 1999

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

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

RE: 1998 Pit Project Annual Groundwater Report

Dear Mr. Olson:

In accordance with reporting requirements, El Paso Field Services (EPFS) has enclosed annual updates for the 49 remaining groundwater impacted locations that were identified during our pit closure project of 1994 / 1995.

Of the 49 reports, EPFS hereby requests closure of 18 of these locations. The 18 sites EPFS is requesting closure on are presented in 4 separate binders entitled "Final Closure Report for Groundwater Sites with Four Consecutive Quarters Below Standards".

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".

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 211 324 122**
Mr. Bill Liesse, BLM – w / enclosures; **Certified Mail # Z 211 324 123**
Ms. Charmaine Tso, Navajo EPA – w / enclosures; **Certified Mail # Z 211 324 120**

EPFS GROUNDWATER UNITS
1998 ANNUAL GROUNDWATER REPORT

JENNAPAH #1
Meter/Line ID - 71816

RECEIVED
APR 05 1999
ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

SITE DETAILS

Legals - Twn: 28N **Rng:** 9W **Sec:** 36 **Unit:** H
NMOCD Hazard Ranking: 40 **Land Type:** NAVAJO
Operator: AMOCO PRODUCTION COMPANY

PREVIOUS ACTIVITIES

Site Assessment: May-94 **Excavation:** Jun-94 (70 cy) **Re-Excavation:** Nov-95 (234 cy)
Soil Boring: Feb-97 **Monitor Well:** Feb-97 **Quarterly Sampling Initiated:** Jun-97
ORC Nutrient Injection: Jul-98

1998 ACTIVITIES

Quarterly Groundwater Monitoring - Quarterly groundwater monitoring continued through 1998. Groundwater analytical data are presented in Table 1. A site map is presented as Figure 1.
Nutrient Injection Pilot Test – Three borings were drilled and ORC (oxygenated compound) was installed into the borings just up-gradient from MW-1. The borings were drilled to a depth of 32 feet below ground surface (bgs) with 10 inch OD augers. A slurry consisting of 10 pounds of ORC mixed with 2 gallons of water was then injected into the open borehole to a depth of 21 feet bgs which was approximately 1 foot above the water table. A 2 foot thick bentonite seal was then placed over the slurry and the rest of the hole was filled with cement/bentonite grout. Information regarding the completion and placement of the nutrient injection borings can be found in the Nutrient Injection section of this report.

CONCLUSIONS

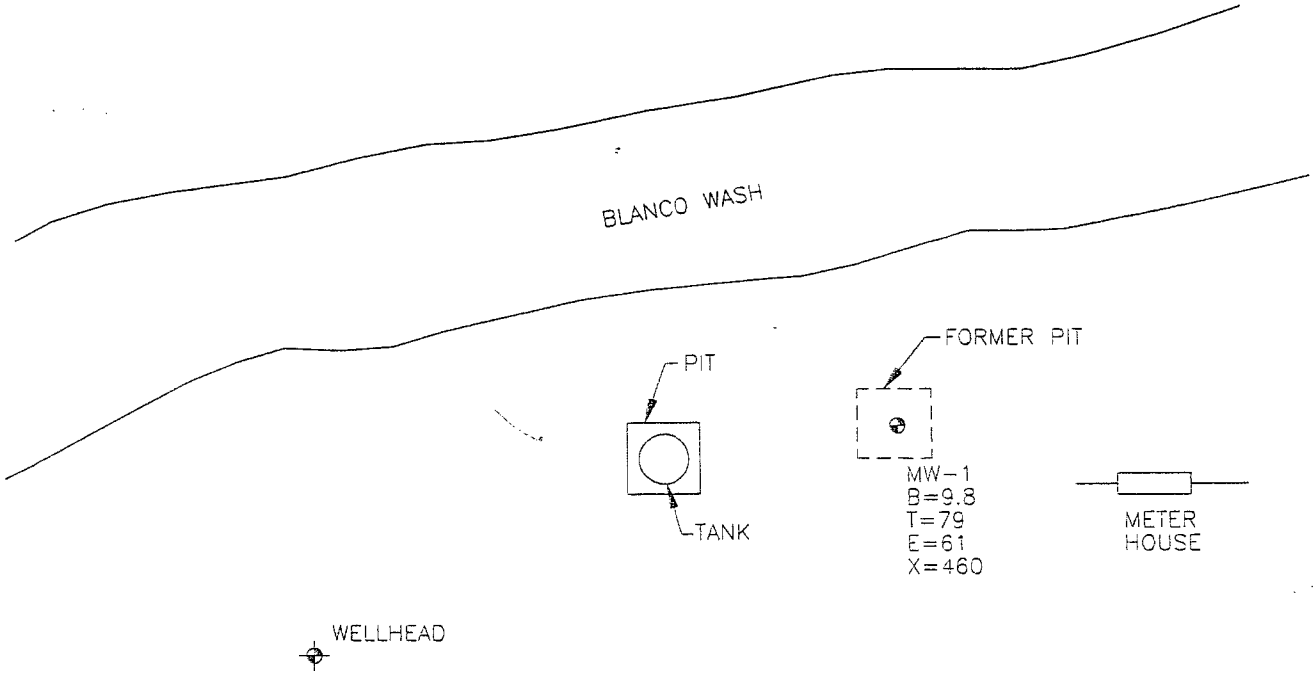
Analytical results of groundwater samples collected from MW-1 show levels of hydrocarbon constituents below New Mexico Groundwater Standards for all constituents during the last sampling event in 1998. Natural attenuation has reduced benzene levels by more than 50 percent since monitoring began at this site.

The results of the ORC pilot test indicate that the ORC slurry may have had some affect at this site. Xylene levels were above New Mexico Groundwater standards during the September quarterly sample (two months after the nutrient injection) while they were within standards and were reduced by about half in the December 1998 sampling event (five months after the nutrient injection). This test may indicate that it takes some time for the affects of the ORC slurry to migrate enough to be seen in nearby monitor wells.

RECOMMENDATIONS

- Quarterly sampling will continue at MW-1 until analytical results show hydrocarbon constituents are below New Mexico Groundwater Standards for four consecutive quarters.
- After four consecutive quarters below New Mexico Groundwater Standards are collected from MW-1, two temporary wells will be placed at down-gradient locations to collect at least one groundwater sample to show that contamination has not migrated (as per EPA request).

- Quarterly monitoring should help in evaluating the results of the ORC nutrient injection pilot test at this site.



LEGEND

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

NOT TO SCALE

PHILIP SERVICES CORP

TITLE:
JENNAPAH #1
METER 71816
DECEMBER 15, 1998

DWN:	DES.:	PROJECT NO.: 17520
TMM	CI	EPFS GW PITS
CHKD: CI	APPD:	
DATE: 2/26/99	REV.: 0	FIGURE 1

COL. 17520BN

EPFS Groundwater Pits
1998 Annual Groundwater Report

TABLE 1

Sample #	Meter/ Line #	Site Name	Sample Date	MW #	Project	Benzene (PPB)		Toluene (PPB)		Ethyl Benzene (PPB)		Total Xylenes (PPB)		Total BTEX	
980259	71816	Jennapah #1	03/26/98	1	Sample 4 - 4th Quarter	=	18.5	=	171	=	69.1	=	701	=	960
980425	71816	Jennapah #1	06/02/98	1	Sample 4 - 5th Quarter	=	12.3	=	134	=	62.2	=	548	=	757
980632	71816	Jennapah #1	09/10/98	1	Sample 4 - 6th Quarter	=	20.7	=	165	=	105.0	=	882	=	1172
980868	71816	Jennapah #1	12/15/98	1	Sample 4 - 7th Quarter	=	9.8	=	79	=	61.0	=	460	=	610

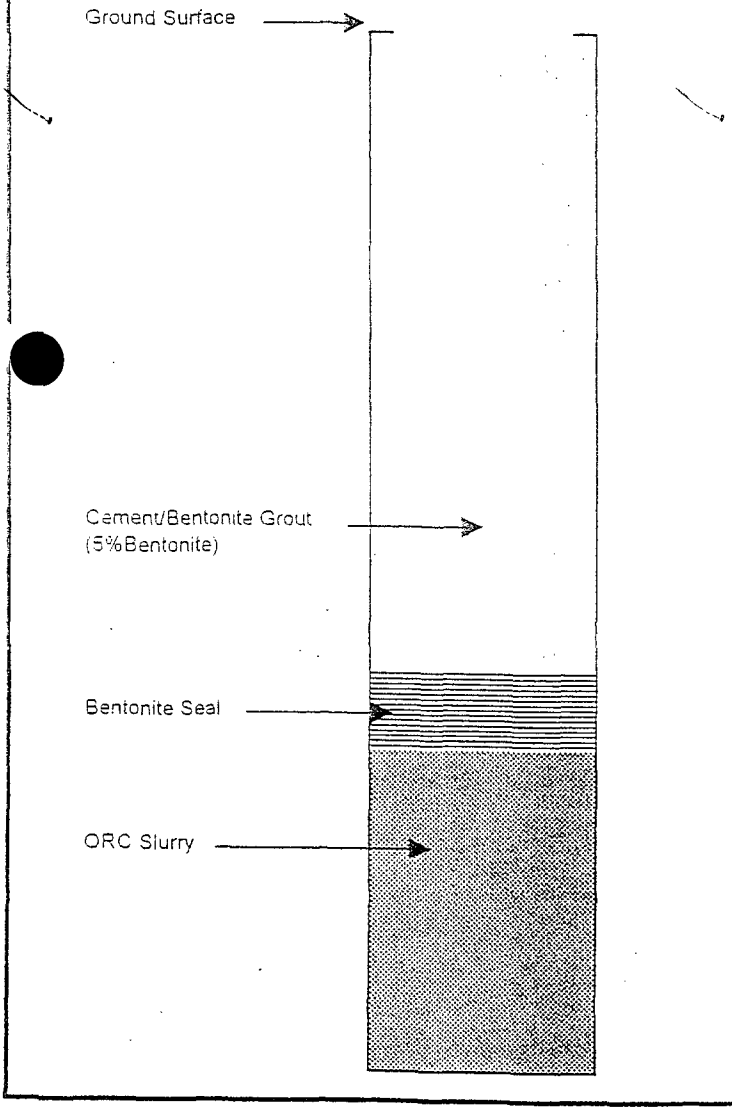
NUTRIENT INJECTION

NUTRIENT INJECTION

PHILIP SERVICES CORP.
[redacted] Monroe Rd.
[redacted]ington, NM 87401
(505) 326-2262 FAX (505) 326-2388

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

BOREHOLE



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

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

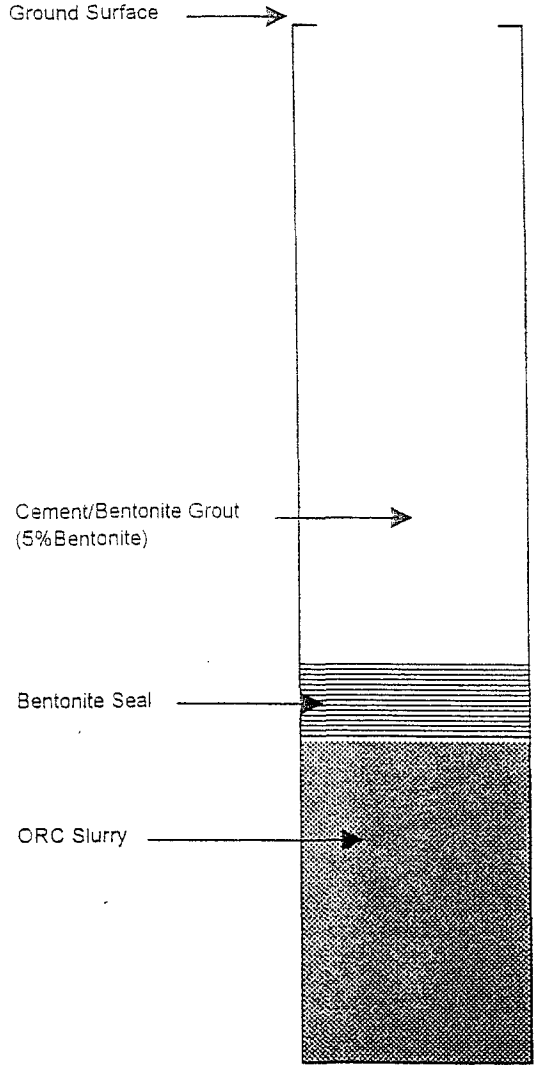
Drillers Signature Cory Chandler

NUTRIENT INJECTION

PHILIP SERVICES CORP.
4000 Monroe Rd.
[illegible]ington, NM 87401
(505) 326-2262 FAX (505) 326-2388

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

BOREHOLE



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

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

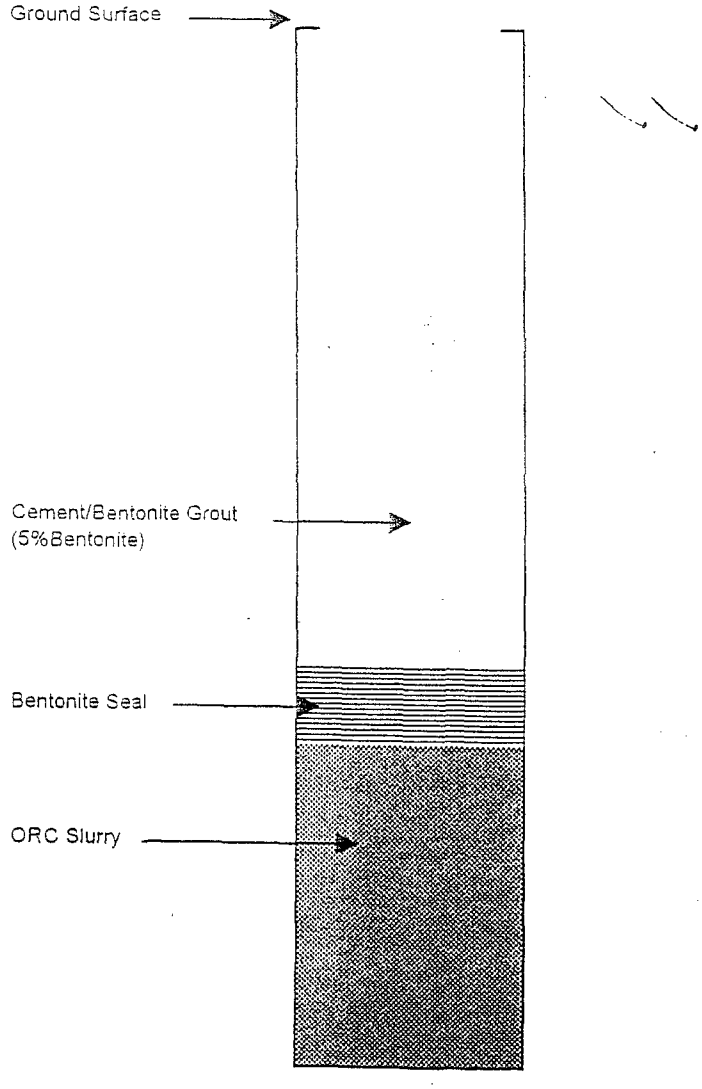
Drillers/Geologist Signature Tony Chavez

NUTRIENT INJECTION

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

Project Name	EPFS GW Pits	BH #	3
Project Number/Phase	12520 9000	BH Location	NW of MW1
Driller	K. Pad; lla	Site Name	Jennapah #1 71816
Date/Time Started	7/8/98		
Date/Time Completed	7/8/98		

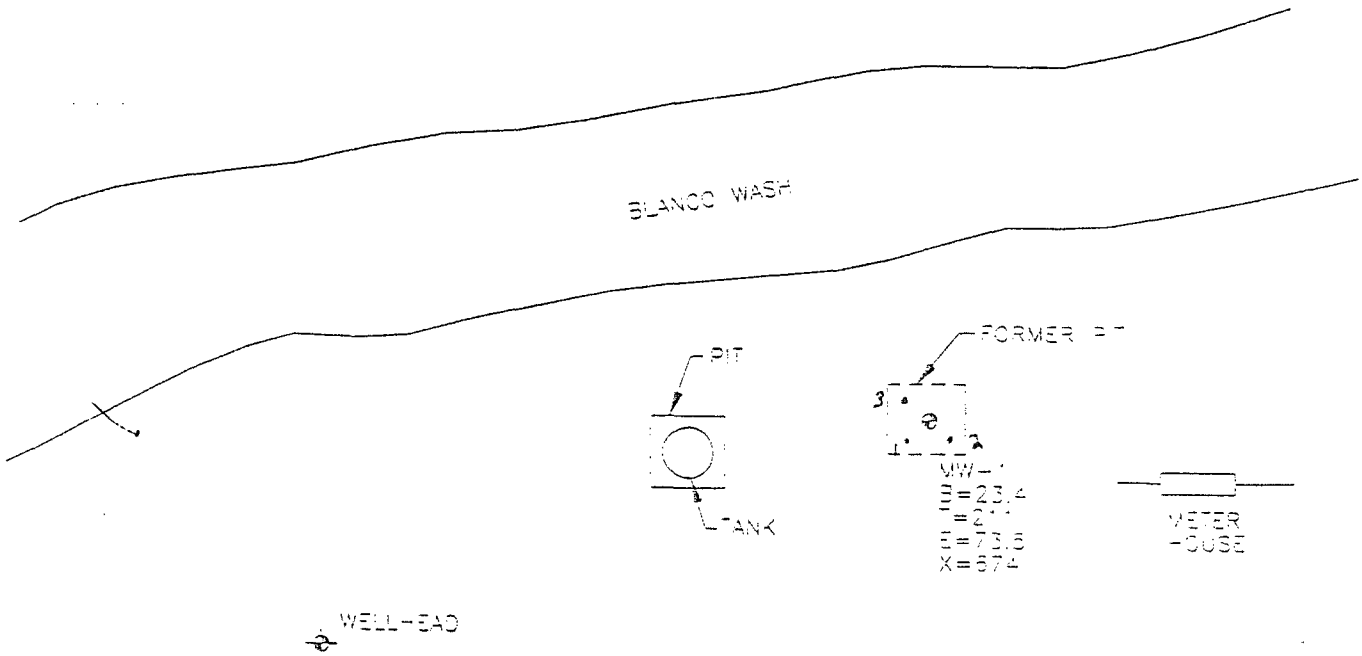
BOREHOLE



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

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

Drillers/Geologist Signature



LEGEND

OR (Location

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:
JENNAPAH #1
71816

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

COL. 17520BN-0

1998 GROUNDWATER ANALYTICAL

EL SU
FIELD SERVICES

Well Development and Purging Data

☐ Development
☒ Purging

Well Number MW-1

Site Name JENNAPAH #1

Meter Code 71816

Development Criteria

☒ 3 to 5 Casing Volumes of Water Removel
☐ 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) 34.50
Initial Depth to Water (feet) 24.91
Height of Water Column in Well (feet) 9.59
Diameter (inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		6.3	19.0
Gravel Pack			
Drilling Fluids			
Total			

Instruments

☒ pH Meter
☐ DO Monitor
☒ Conductivity Meter
☒ Temperature Meter
☒ Other D.O. CHEMETS KIT

Water Disposal

KUTZ SEPARATOR

Water Removal Data

Date	Time	Development Method		Removal Rate	Intake Depth	Ending Water Depth	Water Volume Removed (gal)		Product Volume Removed (gallons)		Temperature °C	pH	Conductivity µmho/cm	Dissolved Oxygen mg/L	Comments
		Pump	Bailer	(gal/min)	(feet)	(feet)	Increment	Cumulative	Increment	Cumulative					
3-26-98	1435										15.2	5.37	1371		
3-26-98	1444						5.0	5.0			14.5	5.32	1414		
3-26-98	1457						5.0	10.0			14.0	5.94	1434		
3-26-98	1500						5.0	15.0			13.8	6.53	1520		
3-26-98	1506						5.0	20.0			13.8	6.77	1514		
3-26-98	1515						5.0	25.0			13.8	6.25	1532	1.5	

Comments THE WATER HAD A LIGHT HYDROGEN SULFIDE SMELL.

Developer's Signature Dennis Bird Date 3-26-98 Reviewer [signature] Date 4/3/98

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	980259
MTR CODE | SITE NAME:	71816	Jennapah #1
SAMPLE DATE | TIME (Hrs):	3/26/98	1527
PROJECT:	Sample 4 4th Quarter	
DATE OF BTEX EXT. | ANAL.:	3/27/98	3/27/98
TYPE | DESCRIPTION:	MW-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	18.5	PPB				
TOLUENE	171	PPB				
ETHYL BENZENE	69.1	PPB				
TOTAL XYLENES	701	PPB				
TOTAL BTEX	960	PPB				

--BTEX is by EPA Method 8020 --

: Surrogate Recovery was at 96.1 % for this sample All QA/QC was acceptable.
= Dilution Factor Used

rative:

roved By: John Leach Date: 4/3/98

980259BTEXMW,3/31/98

N... al Gas Company

A 25...

CHAIN OF CUSTODY RECORD

Project No.:

Project Name: MC #7/816

Samplers: (Signature) Dennis Bird

Date: 3-26-98

Matrix	Date	Time	Comp.	GRAB	Sample Number	Type and No. of Sample Containers	Preservation Technique	BTXE	Requested Analysis			Remarks
WATER	3-26-98	1527		X	980359	G-1	4°C	X				JEWWAPAH #1 MW-1

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dennis Bird	3-26-98 1737				

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)

Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:
		Marlon Hopper	3/27/98 0900	

Carrier Co:

Carrier Phone No.

Date Results Reported / by: (Signature)

Air Bill No.:

san Juan repro Form 71-55

F LD SERVICES

Well Development and Purging Data

☐ Development
☒ Purging

Well Number MW-1

Site Name JENNAPAH #1

Meter Code 71816

Development Criteria

☒ 3 to 5 Casing Volumes of Water Removel
☐ 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) 34.50
Initial Depth to Water (feet) 25.14
Height of Water Column in Well (feet) 9.36
Diameter (inches): Well 4 Gravel Pack_____

Item	Water Volume in Well: Cubic Feet	Water Volume in Well: Gallons	Gallons to be Removed
Well Casing		6.2	18.6
Gravel Pack			
Drilling Fluids			
Total			

Instruments

☒ pH Meter
☐ DO Monitor
☒ Conductivity Meter
☒ Temperature Meter
☒ Other D.O. CHEMETS KIT

Water Disposal

KUTZ SEPARATOR

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 (gal): Increment	Water Volume Removed (gal): Cumulative	Product Volume Removed (gallons): Increment	Product Volume Removed (gallons): Cumulative	Temperature °C	pH	Conductivity µmho/cm	Dissolved Oxygen mg/L	Comments
6-2-98	1055										18.5	4.29	1291		
6-2-98	1103						5.0	5.0			17.0	5.37	1525		
6-2-98	1110						5.0	10.0			16.6	6.50	1566		
6-2-98	1118						5.0	15.0			16.6	6.89	1573		
6-2-98	1127						5.0	20.0			16.6	7.11	1582		
6-2-98	1135						5.0	25.0			16.7	7.23	1594	1.0	

Comments THE WATER HAD A LIGHT HYDROGEN SULFIDE SMELL.

Developer's Signature Dennis Bird Date 6-2-98 Reviewer John Lorch Date 6/10/98

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	980425
MTR CODE | SITE NAME:	71816	Jennapah #1
SAMPLE DATE | TIME (Hrs):	6/2/98	1151
PROJECT:	Sample 4 5th Quarter	
DATE OF BTEX EXT. | ANAL.:	6/5/98	6/5/98
TYPE | DESCRIPTION:	MW-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS DF	Q		
BENZENE	12.3	PPB	2	D		
TOLUENE	134	PPB	2	D		
ETHYL BENZENE	62.2	PPB	2	D		
TOTAL XYLENES	548	PPB	2	D		
TOTAL BTEX	757	PPB				

--BTEX is by EPA Method 8020 --

Surrogate Recovery was at 99.8 % for this sample All QA/QC was acceptable.

= Dilution Factor Used

"D" qualifier indiciates that the analyte calculated is based on a secondary dilution factor.

rative:

Approved By: _____ Date: 6/10/98

980425BTEXMW, 6/8/98

HNPUD 4 STATION

Nat Gas Company

A 256

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Type and No. of Sample Containers	Preservation Technique	Requested Analysis				Remarks
	MC #7816							
Samplers: (Signature) Dennis Bird	Date: 6-2-98							

MATRIX	Date	Time	Comp.	GRAB	Sample Number							
WATER	6-2-98	1157		X	980485	5-1	4°C	X				JENNAPAH #1 MW-1

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dennis Bird	6-2-98 1734				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:	
		Marlon Hoppe	6/5/98 0800		

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

Air Bill No.:

ELF FIELD SERVICES

Well Development and Purging Data

☐ Development
☒ Purging

Well Number MW-1

Site Name JENNAPAH #1

Meter Code 71816

Development Criteria

☒ 3 to 5 Casing Volumes of Water Removel
☐ 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) 34.50
Initial Depth to Water (feet) 24.74
Height of Water Column in Well (feet) 9.76
Diameter (inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		6.5	19.4
Gravel Pack			
Drilling Fluids			
Total			

Instruments

☒ pH Meter
☐ DO Monitor
☒ Conductivity Meter
☒ Temperature Meter
☒ Other O.O. CHEMETS KIT

Water Disposal

KUTZ SEPARATOR

Water Removal Data

Date	Time	Development Method		Removal Rate	Intake Depth	Ending Water Depth	Water Volume Removed (gal)		Product Volume Removed (gallons)		Temperature °C	pH	Conductivity µmho/cm	Dissolved Oxygen mg/L	Comments
		Pump	Bailer	(gal/min)	(feet)	(feet)	Increment	Cumulative	Increment	Cumulative					
9-10-98	1154										20.7	7.03	1550		
9-10-98	1201						5.0	5.0			18.6	6.39	1644		
9-10-98	1209						5.0	10.0			18.1	6.39	1595		
9-10-98	1219						5.0	15.0			18.0	6.63	1586		
9-10-98	1228						5.0	20.0			18.1	6.82	1590		
9-10-98	1236						5.0	25.0			18.2	6.96	1608	2.5	

Comments THE WATER HAD A LIGHT HYDROGEN SULFIDE SMELL.

Developer's Signature Dennis Bird Date 9-10-98 Reviewer John Tarden Date 9/17/98

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	980632
MTR CODE | SITE NAME:	71816	Jennapah #1
SAMPLE DATE | TIME (Hrs):	9/10/98	1246
PROJECT:	Sample 4 6th Quarter	
ATE OF BTEX EXT. | ANAL.:	9/14/98	9/14/98
TYPE | DESCRIPTION:	MW-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	20.7	PPB	2	D		
TOLUENE	165	PPB	2	D		
ETHYL BENZENE	105	PPB	2	D		
TOTAL XYLENES	882	PPB	2	D		
TOTAL BTEX	1172	PPB				

--BTEX is by EPA Method 8020 --

Surrogate Recovery was at 103.5 % for this sample All QA/QC was acceptable.

= Dilution Factor Used

"D" qualifier indiciates that the analyte calculated is based on a secondary dilution factor.

ative:

roved By: John Loudi Date: 9/17/98

980632BTEXMonitorWell,9/16/98

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	980633
MTR CODE | SITE NAME:	71816	Jennapah #1
SAMPLE DATE | TIME (Hrs):	9/10/98	1246
PROJECT:	Sample 4 6th Quarter	
ATE OF BTEX EXT. | ANAL.:	9/14/98	9/14/98
TYPE | DESCRIPTION:	MW-1 Field Dup	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	22.8	PPB	2	D		
TOLUENE	168	PPB	2	D		
ETHYL BENZENE	115	PPB	2	D		
TOTAL XYLENES	978	PPB	2	D		
TOTAL BTEX	1283	PPB				

--BTEX is by EPA Method 8020 --

Surrogate Recovery was at 111.0 % for this sample All QA/QC was acceptable.

= Dilution Factor Used

"D" qualifier indiciates that the analyte calculated is based on a secondary dilution factor.

ative:

oved By: _____ Date: 9/17/98

980633BTEXMonitorWell,9/16/98

SAMPLE 4 6TH QTR

EL PASO Natural Gas Company

A 2390

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Samplers: (Signature)	Date
	MC #7816	Dennis Bird	9-10-98

MATRIX	Date	Time	Comp.	GRAB	Sample Number	Type and No. of Sample Containers	Preservation Technique	Requested Analysis: BTXE	Remarks
WATER	9-10-98	1246		X	980632	G-1	4°C	X	JENNAPAH #1 MW-1
WATER	9-10-98	1346		X	980633	G-1	4°C	X	JENNAPAH #1 MW-1 FIELD DUP

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dennis Bird	9-10-98 1732				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:	
		Marlon Hoppe	9/14/98 1000		

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

EL PASO FIELD SERVICES

Well Development and Purging Data

☐ Development
☒ Purging

Well Number MW-1

Site Name JENNAPAH #1

Meter Code 7816

Development Criteria

☒ 3 to 5 Casing Volumes of Water Removel
☐ 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) 34.50
Initial Depth to Water (feet) 24.40
Height of Water Column in Well (feet) 10.10
Diameter (inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		6.7	20.0
Gravel Pack			
Drilling Fluids			
Total			

Instruments

☒ pH Meter
☐ DO Monitor
☒ Conductivity Meter
☒ Temperature Meter
☒ Other D.O. CHEMETS KIT

Water Disposal

KUTZ SEPARATOR

Water Removal Data

Date	Time	Development Method		Removal Rate	Intake Depth	Ending Water Depth	Water Volume Removed (gal)		Product Volume Removed (gallons)		Temperature °C	pH	Conductivity µmho/cm	Dissolved Oxygen mg/L	Comments
		Pump	Bailer	(gal/min)	(feet)	(feet)	Increment	Cumulative	Increment	Cumulative					
12-15-98	1158										13.9	5.86	1577		
12-15-98	1206						5.0	5.0			13.4	5.92	1620		
12-15-98	1215						5.0	10.0			13.3	6.35	1635		
12-15-98	1225						5.0	15.0			13.0	6.60	1650		
12-15-98	1232						5.0	20.0			13.5	6.64	1662		
12-15-98	1240						5.0	25.0			13.3	6.87	1713	1.5	

Comments THE WATER HAD A LIGHT HYDROGEN SULFIDE SMELL. YSI DISSOLVED OXYGEN METER - 0.44

Developer's Signature Dennis Bird Date 12-15-98 Reviewer John Fowler Date 1-11-99

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	980868
MTR CODE | SITE NAME:	71816	Jennapah #1
SAMPLE DATE | TIME (Hrs):	12/15/98	1252
PROJECT:	Sample 4 7th Quarter	
DATE OF BTEX EXT. | ANAL.:	NA	12/28/98
TYPE | DESCRIPTION:	MW-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	9.8	PPB	1			
TOLUENE	79	PPB	1			
ETHYL BENZENE	61	PPB	1			
TOTAL XYLENES	460	PPB	1			
TOTAL BTEX	610	PPB				

–BTEX is by EPA Method 8020 –

The Surrogate Recovery was at 112 % for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

Narrative:

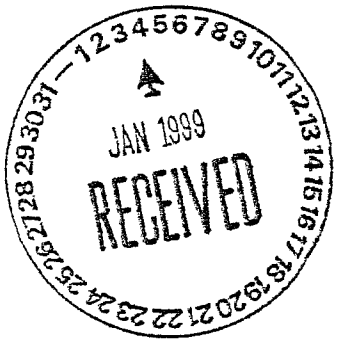
Sample Analyzed by Pinnical Laboratories.

Approved By: John Fowler Date: 1-12-99

980868BTEXMW, 1/11/99

PINNACLE LABORATORIES

2[illegible]-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413



Pinnacle Lab ID number 812083
December 30, 1998

980867 to 980869
980872 to 980874
+ 2 Trip Blanks

EL PASO FIELD SERVICES
770 WEST NAVAJO
FARMINGTON, NM 87401

Project Name QTRLY MONITOR WELL
Project Number (none)

Attention: JOHN LAMBDIN

On 12/22/98 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 & Approved
1-6-99

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

ENT	: EL PASO FIELD SERVICES	PINNACLE ID	: 812083
OJECT #	: (none)	DATE RECEIVED	: 12/22/98
OJECT NAME	: QTRLY MONITOR WELL	REPORT DATE	: 12/30/98

#	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
	980867	AQUEOUS	12/15/98
	980868	AQUEOUS	12/15/98
	980869	AQUEOUS	12/15/98
	980872	AQUEOUS	12/15/98
	980873	AQUEOUS	12/17/98
	980874	AQUEOUS	12/17/98
	TRIP BLANK	AQUEOUS	12/15/98
	TRIP BLANK	AQUEOUS	12/17/98

270[illegible] Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

PINNACLE LABORATORIES

GAS CHROMATOGRAPHY RESULTS

[illegible]T : EPA 8021 MODIFIED
[illegible]NT : EL PASO FIELD SERVICES PINNACLE I.D.: 812083
[illegible]JECT # : (none)
[illegible]JECT NAME : QTRLY MONITOR WELL

[illegible]PLE	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
	980867	AQUEOUS	12/15/98	NA	12/29/98	10
	980868	AQUEOUS	12/15/98	NA	12/28/98	1
	980869	AQUEOUS	12/15/98	NA	12/28/98	25

[illegible]AMETER	DET. LIMIT	UNITS	980867	980868	980869
[illegible]ZENE	0.5	UG/L	7.3	9.8	710
[illegible]UENE	0.5	UG/L	15	79	1300
[illegible]L[illegible]NZENE	0.5	UG/L	100	61	160
[illegible]AL XYLENES	0.5	UG/L	820	460	940

[illegible]ROGATE:
[illegible]OMOFLUOROBENZENE (%) 100 112 117
[illegible]ROGATE LIMITS (80 - 120)

[illegible]EMIST NOTES:

PINNACLE LABORATORIES

2[illegible]-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

ST : EPA 8021 MODIFIED
ENT : EL PASO FIELD SERVICES PINNACLE I.D.: 812083
OJECT # : (none)
OJECT NAME : QTRLY MONITOR WELL

IPLE #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
	980872	AQUEOUS	12/15/98	NA	12/28/98	1
	980873	AQUEOUS	12/17/98	NA	12/29/98	1
	980874	AQUEOUS	12/17/98	NA	12/29/98	1

RAMETER	DET. LIMIT	UNITS	980872	980873	980874
NZENE	0.5	UG/L	100	89	330
LUENE	0.5	UG/L	29	25	1.6
[illegible]NZENE	0.5	UG/L	1.1	0.9	30
TAL XYLENES	0.5	UG/L	5.8	4.9	150

RROGATE:
OMOFLUOROBENZENE (%) 104 104 114
RROGATE LIMITS (80 - 120)

EMIST NOTES:

2[redacted]D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

T : EPA 8021 MODIFIED
ENT : EL PASO FIELD SERVICES PINNACLE I.D.: 812083
OJECT # : (none)
OJECT NAME : QTRLY MONITOR WELL

IPLE #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
	TRIP BLANK	AQUEOUS	12/15/98	NA	12/29/98	1
	TRIP BLANK	AQUEOUS	12/17/98	NA	12/29/98	1

AMETER	DET. LIMIT	UNITS	TRIP BLANK	TRIP BLANK
ZENE	0.5	UG/L	< 0.5	< 0.5
UENE	0.5	UG/L	< 0.5	< 0.5
YLBENZENE	0.5	UG/L	< 0.5	< 0.5
[redacted]YLENES	0.5	UG/L	< 0.5	< 0.5

ROGATE:
OMOFLUOROBENZENE (%) 110 107
ROGATE LIMITS (80 - 120)

EMIST NOTES:

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 812083
BLANK I. D.	: 122898	DATE EXTRACTED	: NA
CLIENT	: EL PASO FIELD SERVICES	DATE ANALYZED	: 12/28/98
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: QTRLY MONITOR WELL		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
SURROGATE:		
[redacted]OFLUOROBENZENE (%)		113
SURROGATE LIMITS:	(80 - 120)	

CHEMIST NOTES:
N/A

PINNACLE
LABORATORIES

2[redacted]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.	: 812083
BLANK I. D.	: 122998	DATE EXRACTED	: NA
CLIENT	: EL PASO FIELD SERVICES	DATE ANALYZED	: 12/29/98
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: QTRLY MONITOR WELL		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
SURROGATE:		
[redacted]OFLUOROBENZENE (%)		111
SURROGATE LIMITS:	(80 - 120)	

CHEMIST NOTES:
N/A

2[illegible] Pan American Freeway NE
Albuquerque, New Mexico 87107
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Fax (505) 344-4413

PINNACLE LABORATORIES

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

	: EPA 8021 MODIFIED		
SD #	: 122998	PINNACLE I.D.	: 812083
NT	: EL PASO FIELD SERVICES	DATE EXTRACTED	: NA
JECT #	: (none)	DATE ANALYZED	: 12/29/98
JECT NAME	: QTRLY MONITOR WELL	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

AMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
ZENE	<0.5	10.0	9.3	93	9.5	95	2	(80 - 120)	20
JENE	<0.5	10.0	10.4	104	10.5	105	1	(80 - 120)	20
YLBENZENE	<0.5	10.0	10.3	103	10.5	105	2	(80 - 120)	20
AL XYLENES	<0.5	30.0	30.5	102	31.1	104	2	(80 - 120)	20

MIST NOTES:

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

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

Amer n Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 12/21/98 PAGE: 1 OF 1

AEN(NM) Accession #: 812 83

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: John Lambdin

COMPANY: El Paso Field Services

ADDRESS: 770 W. Navajo

Farmington, NM 87401

PHONE: (505) 599-2144

FAX: (505) 599-2261

BILL TO: (Same As Above)

COMPANY:

ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	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
980867	12-15-98	1115	Water	01				X	X																							2
980868	12-15-98	1252	Water	02				X	X																							2
980869	12-15-98	1545	Water	03				X	X																							2
980872	12-17-98	1121	Water	04				X	X																							2
980873	12-17-98	1121	Water	05				X	X																							2
980874	12-17-98	1443	Water	06				X	X					/																		2
TRIP BLANK	12-15-98	NA	Water	07				X	X																							1
TRIP BLANK	12-17-98	NA	Water	08				X	X																							1

PROJECT INFORMATION

PROJ. NO.: NA

PROJ. NAME: Qtrly Monitor Well

P.O. NO.: NA

SHIPPED VIA: Fed-X

SAMPLE RECEIPT

NO. CONTAINERS	
CUSTODY SEALS	Y/N/NA
RECEIVED INTACT	
BLUE ICE/ICE	

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: 1.

Signature: John Lambdin Time: 1330

Printed Name: John Lambdin Date: 12/21/98

Company: El Paso Field Services

RECEIVED BY: 1.

Signature: Time:

Printed Name: Date:

Company:

RELINQUISHED BY: 2.

Signature: Time:

Printed Name: Date:

Company:

RECEIVED BY: (LAB) 2.

Signature: Francine Tonvo Time: 1025

Printed Name: Francine Tonvo Date: 12/22/98

American Environmental Network (NM), Inc.

SAMPLE 4 7TH QTR

El Paso Natural Gas Company

CHAIN OF CUSTODY RECORD

1-12-99 - ...
1-12-99 Anal.
1-12-99 Chem.

A 2411

Project No.:

Project Name: MC #71816

Samplers: (Signature) Dennis Bird

Date: 12-15-98

Matrix	Date	Time	Comp.	GRAB	Sample Number	Type and No. of Sample Containers	Preservation Technique	BTXE			Remarks
WATER	12-15-98	1352		X	980868	G-1	38°F	X			JENNAPAH #1 MW-1

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dennis Bird	12-15-98 1658				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)

Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:
		Marlon Hopper	12/17/98 0700	

Carrier Co:

Carrier Phone No.

Date Results Reported / by: (Signature)

Air Bill No.: