3R - 204

REPORTS

DATE:
1997

SAN JUAN BASIN PIT CLOSURES
San Juan Basin, New Mexico

El Paso Field Services Pit Project Groundwater Report
Annual Report

March 1998

Prepared For

El Paso Field Services
Farmington, New Mexico

Project 17520

PHILIP ENVIRONMENTAL

K-27 LINE DRIP
Meter/Line ID - LD072

SITE DETAILS

Legals - Twn: 25N **Rng:** 6W **Sec:** 4 **Unit:** E
NMOCD Hazard Ranking: 40 **Land Type:** FEDERAL
Operator: EL PASO FIELD SERVICES

PREVIOUS ACTIVITIES

Site Assessment: Jul-94 **Excavation:** Aug-94 (90 cy) **Soil Boring:** Sep-95
Monitor Well: Sep-95

1997 ACTIVITIES

Quarterly Groundwater Monitoring - Quarterly groundwater monitoring was initiated on 11/4/96 and has continued into 1997. Groundwater analytical data are presented in Table 1.
Well Point Installation - Groundwater samples were collected from temporary monitoring wells. In addition, groundwater gradient was determined using the temporary monitoring wells.

CONCLUSIONS

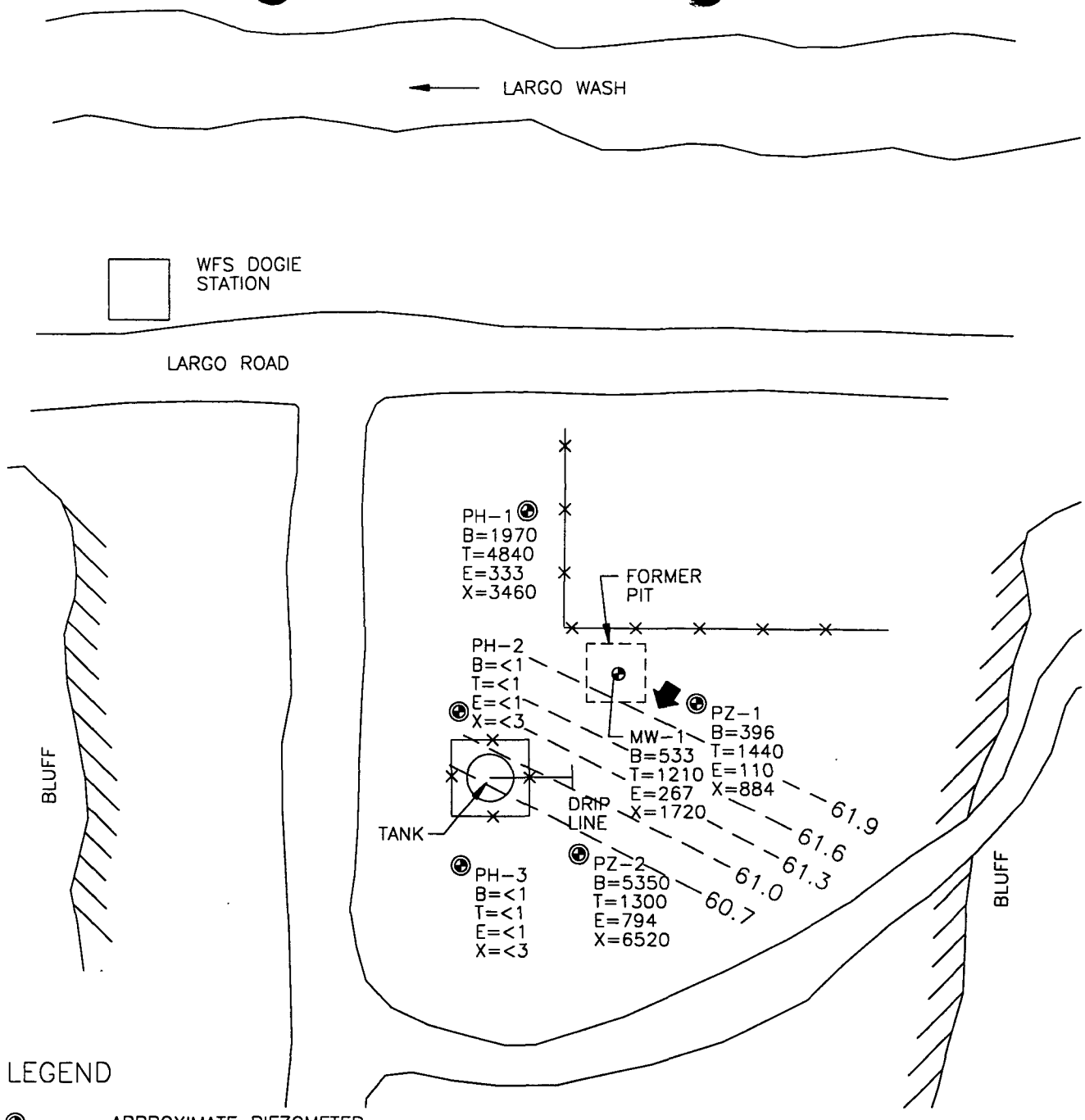
Based on groundwater levels collected from Well Point data, the groundwater flow trends to the southwest on this site, as presented in Figure 1.

BTEX concentrations in MW-1 have declined for the first three quarters since quarterly sampling was initiated. However, BTEX concentrations rose after the fourth quarter of sampling, and approximately 0.12 feet of product was measured in MW-1 after the fifth quarterly event. Groundwater samples were collected from temporary monitoring wells down-gradient and cross-gradient of MW-1. PH-2 and PH-3 groundwater samples were below standards for BTEX. Three additional groundwater samples were in excess of standards for BTEX.

Will require offsite work to obtain additional data for this site.

RECOMMENDATIONS

- Obtain permission to conduct an off-site investigation. Confirm groundwater gradient.
- Initiate product removal at MW-1.
- Discontinue quarterly sampling until product removal is complete.



LEGEND

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

NOT TO SCALE

N

PHILIP SERVICES CORP

TITLE:

K-27 LINE DRIP

LD072

DWN:	DES.:	PROJECT NO.: 17520
TMM	CC	EPFS GW PITS
CHKD:	APPD:	
CC		
DATE:	REV.:	FIGURE 1
1/20/98	0	

COL. 1752088-001

TABLE 1

Sample #	Meter/ Line #	Site Name	Sample Date	MW #	Project	Benzene (PPB)	Toluene (PPB)	Ethyl Benzene (PPB)	Total Xylenes (PPB)	Total BTEX
960919	LD072	Lat K-27 Line Drip	11/04/96	1	Sample 4 - 1st Quarter	= 996	= 2170	= 204	= 1520	= 4890
970070	LD072	Lat K-27 Line Drip	2/5/97	1	Sample 4 - 2nd Quarter	= 207	= 613	= 168	= 1010	= 2000
970398	LD072	Lat K-27 Line Drip	5/7/97	1	Sample 4 - 3rd Quarter	= 41.8	= 114	= 97.8	= 500	= 754
970834	LD072	Lat K-27 Line Drip	8/8/97	1	Sample 4 - 4th Quarter	= 1690	= 2980	= 298	= 1930	= 6898
971195	LD072	Lat K-27 Line Drip	11/7/97	1	Sample 4 - 5th Quarter	= 533	= 1210	= 267	= 1720	= 3730

07-71 Ballard

RECORD OF SUBSURFACE EXPLORATION

Borehole # BH-1
Well #
Page 1 of 2

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

Project Name EPNG Pits
Project Number 14509 Phase 6000.77
Project Location K-27 Line Aztec LP072

Elevation
Borehole Location T25, R6, S4, E
GWL Depth
Logged By Jeff W. Kindley
Drilled By Steve Sneiden
Date/Time Started 09/19/95 0840
Date/Time Completed 09/19/95 1218

Well Logged By Jeff W. Kindley
Personnel On-Site D Roberts, D Charley, S Sneiden
Contractors On-Site
Client Personnel On-Site

Drilling Method 4.1/4 ID HSA
Air Monitoring Method PID, CGI

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S	Drilling Conditions & Blow Counts
0				Back Fill material to 12'						
5										
10										
15	1	15-17	1.2/2.0	S.C., Br clayey Sand (20% dry) loose, moist, hydrocarbon odor					149/155	09 09 5 blows per Foot,
20	2	20-22	1.3/2.0	S.A.A					145/150	0915 5 blows per Foot
25	3	25-27	1.4/2.0	SC, BI SAND, medium grained moist, hydrocarbon staining and odor, loose					128/112	0918 6 blows per Foot
30	4	30-32	1.6/2.0	S.A.A					141/123	0922 5 blows per Foot
35	5	35-37	.4/2.0	SW, BI SAND, COARSE GRAINED moist, very dense, hydrocarbon staining + odor.					132/112	0930 50 blows per Foot
40										

Comments:

Geologist Signature

RECORD OF SUBSURFACE EXPLORATION

Borehole # BH-1
Well #
Page 2 of 2

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

Project Name EPNG Pits
Project Number 14509 Phase 6000.77
Project Location K-27 Line DRIP

Elevation
Borehole Location T25, R6, S4, E
GWL Depth
Logged By Jeff W. Kindley
Drilled By Steve Sneider
Date/Time Started 09/19/95 0840
Date/Time Completed 09/19/95 1218

Well Logged By Jeff W. Kindley
Personnel On-Site D Roberts, D Charley, S Sneider
Contractors On-Site
Client Personnel On-Site

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

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S	Drilling Conditions & Blow Counts
40	6	40-42	0.5/2.0	SW, BR SAND, medium grained, wet, medium density, hydrocarbon odor slight					4/15	0939 12 blows per foot ▼ GW at 40'
45										
50				Groundwater monitoring well/boring completed to 50 feet.						
15										
20										
25										
30										
35										
40										

Comments: Borehole completed as a well. Sample collected From 35 to 37 feet (JWK 75). Sample analyzed for BTEX and TPH.

Geologist Signature Jeffery Kindley

MONITORING WELL INSTALLATION RECORD

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

Borehole # _____
Well # _____
Page 1 of 1

Project Name EPNG ARIP Pit
Project Number 14509 Phase 6000.77
Project Location K-27 4in. DRIP

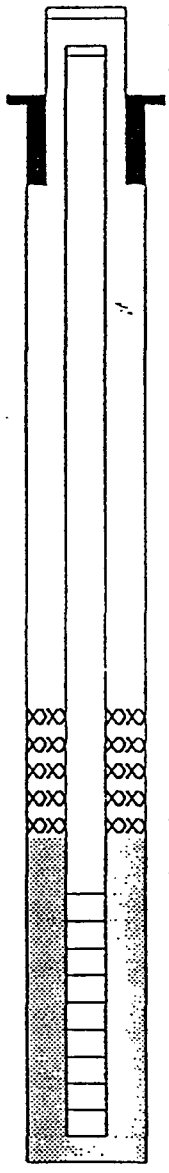
Elevation _____
Well Location T25, R6, S4, E
GWL Depth _____
Installed By Steve Sanden

On-Site Geologist Jeff Kindley
Personnel On-Site D. Roberts, A. Charley, S. Sanden
Contractors On-Site _____
Client Personnel On-Site _____

Date/Time Started 09/19/95 0840
Date/Time Completed 09/19/95 1218

Depths in Reference to Ground Surface

Item	Material	Depth
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		
Bottom of Permanent Borehole Casing		
Top of Concrete		
Bottom of Concrete		
Top of Grout	Cement Slurry	2.0
Bottom of Grout	Cement Slurry	29.0
Top of Well Riser	4inch schedule 40 PVC	+2.5
Bottom of Well Riser	4inch schedule 40 PVC	34.6
Top of Well Screen	4inch .010 inch Slotted screen	34.6
Bottom of Well Screen	Schedule 40	49.6
Top of Peltonite Seal	Enviroplug Seal	29.0
Bottom of Peltonite Seal	"	31.0
Top of Gravel Pack	CSSI 10/20 Silica	31.0
Bottom of Gravel Pack	Sand	49.6
Top of Natural Cave-In		49.6
Bottom of Natural Cave-In		50.0
Top of Groundwater		40
Total Depth of Borehole		50



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

Top of Seal 29.0
Top of Gravel Pack 31.0
Top of Screen 34.6
Bottom of Screen 49.6
Bottom of Borehole 50

Comments: _____

Geologist Signature Jeffrey Kindley

WELLPOINTS

El Paso Natural Gas Company

Project Well Points

mc# LD072

CHAIN OF CUSTODY RECORD

Page _____ of _____

PROJECT NUMBER	PROJECT NAME
# 24324	Pit Closure Project

SAMPLERS: (Signature) Cory Chavez DATE: 7/9/97

LAB ID	DATE	TIME	MATRIX	FIELD ID	TOTAL NUMBER OF CONTAINERS	SAMPLE TYPE	REQUESTED ANALYSIS: TPH EPA 418.1	BTEX EPA 8020	LAB PID			SEQUENCE #	REMARKS
970630	7/9/97	1000	Water	CMC318	2	VG		X					K-27 Line Drip LD072 PH-1
970631	↓	-	↓	Trip Blank	1	TD		X					Trip Blank

CONTRACT LABORATORY P. O. NUMBER

Cor 7/9/97

38°

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Cory Chavez 7/9/97	1000		Cari Williams	7/10/97 1035	
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED OF LABORATORY BY: (Signature)
				7/10/97 1035	Maria Armenta

REQUESTED TURNAROUND TIME:
☐ ROUTINE ☐ RUSH _____

CARRIER CO.

BILL NO.:

SAMPLE RECEIPT REMARKS

CHARGE CODE

RESULTS & INVOICES TO:

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

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

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

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

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC318	970630
MTR CODE | SITE NAME:	LD072	K-27 Line Drip
SAMPLE DATE | TIME (Hrs):	7/9/97	1300
PROJECT:	WellPoints	
DATE OF BTEX EXT. | ANAL.:	7/10/97	7/11/97
TYPE | DESCRIPTION:	PH-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	1970	PPB	100	D		
TOLUENE	4840	PPB	100	D		
ETHYL BENZENE	333	PPB	100	D		
TOTAL XYLENES	3460	PPB	100	D		
TOTAL BTEX	10600	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 96.7 for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

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

Narrative:

Approved By: John Loudon Date: 7/22/97

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970631
MTR CODE | SITE NAME:	LD072	K-27 Line Drip
SAMPLE DATE | TIME (Hrs):	7/9/97	1300
PROJECT:	WellPoints	
DATE OF BTEX EXT. | ANAL.:	7/10/97	7/10/97
TYPE | DESCRIPTION:	Blank	Water

Field Remarks: _____

RESULTS

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

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 101 for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

Narrative:

Approved By: John Leach Date: 7/22/97

970631.XLS,7/22/97

EL PASO Natural Gas Company

Project WellPoints

mc ft LD072

CHAIN OF CUSTODY RECORD

Page _____ of _____

PROJECT NUMBER	PROJECT NAME
# 24324	Pit Closure Project

SAMPLERS: (Signature) Cory Chase DATE: 7/8/97

LAB ID	DATE	TIME	MATRIX	FIELD ID	TOTAL NUMBER OF CONTAINERS	SAMPLE TYPE	REQUESTED ANALYSIS: TPH EPA 418.1	BTEX EPA 8020	LAB PID			SEQUENCE #	REMARKS
970627	7/8/97	1250	H_2O	CMC316	2	VG		X					K-27 Line Drip LD072 PZ-1
970628	↓	1450	↓	CMC317	2	VG		X					↓ PZ-2
970629	↓	—	↓	Trip BLANK	1	TB		X					Trip Blank
													Note: Water reacted w/HCL on CMC316 40°

CONTRACT LABORATORY P. O. NUMBER

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Cory Chase	7/8/97 1630		Cair Williams	7/9/97 1355	
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED OF LABORATORY BY: (Signature)
				7/9/97 1355	Marla Armenta

REQUESTED TURNAROUND TIME:
☐ ROUTINE ☐ RUSH _____

CARRIER CO.

BILL NO.:

SAMPLE RECEIPT REMARKS

CHARGE CODE

RESULTS & INVOICES TO:

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

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

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

FM-08-0565 A (R[illegible]94)

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC316	970627
MTR CODE | SITE NAME:	LD072	K-27 Line Drip
SAMPLE DATE | TIME (Hrs):	7/8/97	1250
PROJECT:	WellPoints	
DATE OF BTEX EXT. | ANAL.:	7/10/97	7/10/97
TYPE | DESCRIPTION:	PZ-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	396	PPB	5	D		
TOLUENE	1440	PPB	5	D,D1		
ETHYL BENZENE	110	PPB	5	D		
TOTAL XYLENES	884	PPB	5	D		
TOTAL BTEX	2830	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 94.4 for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

The "D1" qualifier indicates that the analyte concentration exceeded the calibration curve limit.

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

Narrative:

Approved By: John Hobbs Date: 7/22/97

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC317	970628
MTR CODE | SITE NAME:	LD072	K-27 Line Drip
SAMPLE DATE | TIME (Hrs):	7/8/97	1450
PROJECT:	WellPoints	
DATE OF BTEX EXT. | ANAL.:	7/10/97	7/10/97
TYPE | DESCRIPTION:	PZ-2	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	5350	PPB	100	D		
TOLUENE	13000	PPB	100	D		
ETHYL BENZENE	794	PPB	100	D		
TOTAL XYLENES	6520	PPB	100	D		
TOTAL BTEX	25700	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 94.6 for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

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

Narrative:

Approved By: John Cuthbert Date: 7/22/97

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970629
MTR CODE | SITE NAME:	LD072	K-27 Line Drip
SAMPLE DATE | TIME (Hrs):	7/8/97	1450
PROJECT:	WellPoints	
DATE OF BTEX EXT. | ANAL.:	7/10/97	7/10/97
TYPE | DESCRIPTION:	Blank	Water

Field Remarks: ______________________

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	<0.5	PPB				
TOLUENE	<0.5	PPB				
ETHYL BENZENE	<0.5	PPB				
TOTAL XYLENES	<1.5	PPB				
TOTAL BTEX	<3	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 94.6 for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Approved By: [signature] Date: 7/22/97

970629.XLS,7/22/97

El Paso Natural Gas Company

CHAIN OF CUSTODY RECORD

Page _____ of _____

PROJECT NUMBER	PROJECT NAME
# 24324	Pit Closure Project

SAMPLERS: (Signature) Cory Chavez

DATE: 7/21/97

LAB ID	DATE	TIME	MATRIX	FIELD ID	TOTAL NUMBER OF CONTAINERS	SAMPLE TYPE	REQUESTED ANALYSIS: TPH EPA 418.1	BTEX EPA 8020	LAB PID	Field PID		SEQUENCE #	REMARKS
970697	7/21/97	1055	Water	CMC 319	2	VG		✓					K-27 LD(LD072) PH2
970698	↓	1317	↓	CMC 320	2	VG		✓					" PH3
970699	↓	—	↓	Trip BLANK	1	TB							TRIPBLANK

CONTRACT LABORATORY P. O. NUMBER

REMARKS

Cory 7/21/97

40°

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Cory Chavez	7/21/97 1620		Cari Williams	7-22-97 1020	
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED OF LABORATORY BY: (Signature)
				7-22-97 1020	Maria Armenta

REQUESTED TURNAROUND TIME:
☐ ROUTINE ☐ RUSH _____

CARRIER CO.

BILL NO.:

SAMPLE RECEIPT REMARKS

CHARGE CODE

RESULTS & INVOICES TO:

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

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

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

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

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC319	970697
MTR CODE | SITE NAME:	LD072	K-27 Line Drip
SAMPLE DATE | TIME (Hrs):	7/21/97	1055
PROJECT:	WellPoints	
DATE OF BTEX EXT. | ANAL.:	7/22/97	7/22/97
TYPE | DESCRIPTION:	PH-2	Water

Field Remarks: _____

RESULTS

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

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 92.8 for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

Narrative:

Approved By: John Stanberry Date: 7/28/97

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC320	970698
MTR CODE | SITE NAME:	LD072	K-27 Line Drip
SAMPLE DATE | TIME (Hrs):	7/21/97	1317
PROJECT:	WellPoints	
DATE OF BTEX EXT. | ANAL.:	7/22/97	7/22/97
TYPE | DESCRIPTION:	PH-3	Water

Field Remarks: _____

RESULTS

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

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 91.7 for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

Narrative:

Approved By: John Stabler Date: 7/28/97

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970699
MTR CODE | SITE NAME:	LD072	K-27 Line Drip
SAMPLE DATE | TIME (Hrs):	7/21/97	1317
PROJECT:	WellPoints	
DATE OF BTEX EXT. | ANAL.:	7/22/97	7/22/97
TYPE | DESCRIPTION:	Blank	Water

Field Remarks: _____

RESULTS

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

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 93.0 for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

Narrative:

Approved By: John Talden Date: 7/28/97

970699.XLS,7/24/97

1997 GROUNDWATER ANALYTICAL

El Paso Natural Gas Company

A 2666

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Type and No. of Sample Containers	Preservation Technique	Requested Analysis				Remarks
	HOERFAND PIPELINE			BTXE	GENERAL CHEMISTRY	RCRA METALS		
Samplers: (Signature) Dennis Bird	Date: 11-4-96							

	Date	Time	Comp.	GRAB	Sample Number							
	11-4-96	1446		X	960919			X	X	X		LAT. K-27 LINE DRIP MH1 MC 10072

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dennis Bird	11-4-96 1712				
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	11/6/96 0730		
Carrier Co:		Carrier Phone No.		Date Results Reported / by: (Signature)	
Air Bill No.:					

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	960919
MTR CODE | SITE NAME:	LD072	Lat K-27 Line Drip MW-1
SAMPLE DATE | TIME (Hrs):	11/4/96	1446
PROJECT:	Sample 4 - 1st Quarter	
DATE OF BTEX EXT. | ANAL.:	11/6/96	11/6/96
TYPE | DESCRIPTION:	Monitor Well	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	996	PPB	20	D		
TOLUENE	2170	PPB	20	D		
ETHYL BENZENE	204	PPB	20	D		
TOTAL XYLENES	1520	PPB	20	D		
TOTAL BTEX	4890	PPB				

–BTEX is by EPA Method 8020 –

The Surrogate Recovery was at 109 % for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

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

Narrative:

Approved By: _____ Date: 11/12/96

EL PASO FIELD SERVICES

Field Services Laboratory
Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	960919
DATE SAMPLED:	11/04/96
TIME SAMPLED (Hrs):	1446
SAMPLED BY:	D. Bird
MATRIX:	Water
METER CODE:	LD072
SAMPLE SITE NAME:	Huerfano
SAMPLE POINT:	Lat. K-27 Line Drip MW-1

FIELD REMARKS: _____

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	7.4	Units	11/06/96
Alkalinity as $C0_3$	0.0	PPM	11/06/96
Alkalinity as $HC0_3$	695	PPM	11/06/96
Calcium as Ca	458	PPM	11/06/96
Magnesium as Mg	44	PPM	11/06/96
Total Hardness as $CaC0_3$	1,326	PPM	11/06/96
Chloride as Cl	29	PPM	11/06/96
Sulfate as $S0_4$	2,550	PPM	11/06/96
Fluoride as F	0.7	PPM	11/06/96
Nitrate as $N0_3$-N	<0.6	PPM	11/06/96
Nitrite as $N0_2$-N	<0.6	PPM	11/06/96
Ammonium as NH_4^+	<0.6	PPM	11/06/96
Phosphate as PO_4	<0.6	PPM	11/06/96
Potassium as K	7.4	PPM	11/06/96
Sodium as Na	846	PPM	11/06/96
Total Dissolved Solids	4,330	PPM	11/06/96
Conductivity	4,480	umhos/cm	11/06/96
Anion/Cation %	1.5%	%, <5.0 Accepted	11/07/96

Lab Remarks:

Reported By: mh Approved By: John Fowler Date: 11/12/96

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER:	960919
SAMPLE DATE:	11/04/96
SAMPLE TIME (Hrs):	1446
SAMPLED BY:	D. Bird
MATRIX:	Water
METER CODE:	LD072
SAMPLE SITE NAME:	Huerfano
SAMPLE POINT:	Lat. K-27 Line Drip MW-1

REMARKS: _____

RESULTS

PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
ARSENIC	0.016	0.100
BARIUM	0.03	1.00
CADMIUM	<.0002	0.010
CHROMIUM	0.003	0.050
LEAD	<.004	0.050
MERCURY	<.00024	0.002
SELENIUM	<.003	0.050
SILVER	<.0005	0.050

NOTE: The sample results have been corrected for volume adjustment associated with Method 3015.

References:

Method 3015, Microwave Assisted Acid Digestion of Aqueous Samples and Extracts, Test Methods for Evaluating Solid Waste, SW-846, Sept., 1994.

Method 7061A, Arsenic (Atomic Absorption, Gaseous Hydride), Test Methods for Evaluating Solid Waste, SW-846, USEPA, July, 1992.

Method 7081, Barium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, July, 1992.

Method 7131, Cadmium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986.

Method 7191, Chromium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986.

Method 7421, Lead (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986.

Method 245.5, Mercury (Automated Cold Vapor Technique), Methods for the Determination of Metals in Environmental Samples, EPA 600/4-91/010, USEPA, June, 1991.

Method 7741A, Selenium (Atomic Absorption, Gaseous Hydride), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1994.

Method 7761, Silver (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, July, 1992.

Reported By: _____ Approved By: _____ Date: 12/18/96

EL PASO FIELD SERVICES

QUALITY CONTROL REPORT

Sample ID: 960919
Date Sampled: 11/04/96

Date Reported: 12/16/96

STANDARD REFERENCE MATERIAL

Analyte	Found Result (µg/L)	Known Value (µg/L)	% Recovery
Arsenic	30.6	32.4	94%
Barium	63.4	64.9	98%
Cadmium	2.75	2.38	116%
Chromium	5.07	4.76	107%
Lead	28.8	29.7	97%
Mercury	4.86	4.59	106%
Selenium	36.3	40.5	90%
Silver	4.81	4.32	111%

DUPLICATE ANALYSIS (mg/L)

Analyte	Original Sample Result	Duplicate Sample Result	% RPD
Arsenic	ND	ND	NA
Barium	0.04	0.04	0.0%
Cadmium	ND	ND	NA
Chromium	0.002	0.002	0.0%
Lead	ND	ND	NA
Mercury	ND	ND	NA
Selenium	ND	ND	NA
Silver	ND	ND	NA

SPIKE ANALYSIS (µg/L)

Analyte	Original Sample Result	Spike Sample Result	Spike Added	Recovery Percent
Arsenic	ND	115	100	105%
Barium	40	911	1000	87%
Cadmium	ND	9.53	10.0	95%
Chromium	2.3	51.6	50.0	99%
Lead	ND	40.2	50.0	80%
Mercury	ND	1.82	2.00	91%
Selenium	ND	47.9	50.0	96%
Silver	ND	49.6	50.0	99%

METHOD BLANK

Analyte	Found Result (µg/L)	Detection Level (µg/L)
Arsenic	ND	10
Barium	ND	10
Cadmium	ND	0.2
Chromium	ND	2
Lead	ND	4
Mercury	ND	0.24
Selenium	ND	3
Silver	ND	0.5

ND: Not Detected at stated detection level. NA: Not Applicable.

Reported By: mh Approved By: John Fatch Date: 12/18/96

EPFS
EL PASO FIELD SERVICES

Well Development and Purging Data

☐ Development
☒ Purging

Well Number MW-1

Site Name LAT. K-27 LINE DRIP

Meter Code LD072

Development Criteria

☒ 3 to 5 Casing Volumes of Water Removed
☐ 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) 51.33
Initial Depth to Water (feet) 37.44
Height of Water Column in Well (feet) 13.89
Diameter (inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		9.2	27.5
Gravel Pack			
Drilling Fluids			
Total			

Instruments

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

Water Disposal

KOTZ 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	Cumulativ	Increment	Cumulative					
11-4-96	1343										14.0	6.54	5490		
11-4-96	1354						5.0	5.0			13.6	6.21	5360		
11-4-96	1401						5.0	10.0			13.7	6.27	5460		
11-4-96	1411						5.0	15.0			13.5	6.42	5400		
11-4-96	1420						5.0	20.0			13.5	6.58	5320		
11-4-96	1427						5.0	25.0			13.4	6.63	5280		
11-4-96	1435						5.0	30.0			13.2	6.70	5390	1.5	

Comments

Developer's Signature Dennis Bird Date 11-4-96 Reviewer John Zeigler Date 11/12/96

El Paso Natural Gas Company

A 1997

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Type and No. of Sample Containers	Preservation Technique	Requested Analysis				Remarks
	OJITO PIPELINE			BTX				
Samplers: (Signature) Dennis Bird	Date: 2-5-97							

MATRIX	Date	Time	Comp.	GRAB	Sample Number							
WATER	2-5-97	1450		X	970070	G-2	4°C	X				LAT. K-27 LINE DRIP MW-1 MC 40078

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dennis Bird	2-5-97				
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:	
		Marion Hoppe	2/6/97 1545		
Carrier Co:		Carrier Phone No.		Date Results Reported / by: (Signature)	
Air Bill No.:					

san juan repro Form 71-55 A

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970070
MTR CODE | SITE NAME:	LD072	Lat K-27 Line Drip
SAMPLE DATE | TIME (Hrs):	2/5/97	1450
PROJECT:	Sample 4 - 2nd Quarter	
DATE OF BTEX EXT. | ANAL.:	2/11/97	2/11/97
TYPE | DESCRIPTION:	Monitor Well	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	207	PPB	5	D		
TOLUENE	613	PPB	5	D		
ETHYL BENZENE	168	PPB	5	D		
TOTAL XYLENES	1010	PPB	5	D		
TOTAL BTEX	2000	PPB				

–BTEX is by EPA Method 8020 –

The Surrogate Recovery was at 98.6 % for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

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

Narrative:

Approved By: John Faulkner Date: 2-14-97

970070.XLS,2/14/97

EPFS
EL PASO FIELD SERVICES

Well Development and Purging Data

☐ Development
☒ Purging

Well Number MW-1

Site Name LAT K-27 LINE DRIP

Meter Code 20072

Development Criteria

☒ 3 to 5 Casing Volumes of Water Removed
☐ 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) 51.33
Initial Depth to Water (feet) 36.89
Height of Water Column in Well (feet) 14.44
Diameter (inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		9.5	28.6
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	Cumulativ	Increment	Cumulative					
2-5-97	1347										14.1	6.93	4470		
2-5-97	1354						5.0	5.0			15.1	5.04	4280		
2-5-97	1403						5.0	10.0			15.7	6.55	4460		
2-5-97	1412						5.0	15.0			15.4	6.21	4570		
2-5-97	1420						5.0	20.0			15.5	6.64	4420		
2-5-97	1429						5.0	25.0			15.5	6.52	4400		
2-5-97	1439						5.0	30.0			14.0	6.89	4710	0.5	

Comments STRONG HYDROCARBON SMELL.

Developer's Signature Dennis Bird Date 2-5-97 Reviewer John Faulk Date 2-14-97

El Paso Natural Gas Company

A 1943

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Type and No. of Sample Containers	Preservation Technique	Requested Analysis				Remarks
	OTTO PIPELINE			BTXE				
Samplers: (Signature) Dennis Bird	Date: 5-7-97							
Matrix Date	Time	Comp.	GRAB	Sample Number				
WATER 5-7-97	1351		X	970398	G-2	4°C	X	LAT. K-27 LINE DRIP MC L0072

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dennis Bird	5-7-97 1617				
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	5/8/97 0805		
Carrier Co:		Carrier Phone No.		Date Results Reported / by: (Signature)	
Air Bill No.:					

san juan repro Form 71-55 A

EL PASO FIELD SERVICES

6-11-97

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970398
MTR CODE | SITE NAME:	LD072	Lat K-27 Line Drip MW-1
SAMPLE DATE | TIME (Hrs):	5/7/97	1351
PROJECT:	Sample 4 - 3rd Quarter	
DATE OF BTEX EXT. | ANAL.:	5/14/97	5/14/97
TYPE | DESCRIPTION:	Monitor Well	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS DF	Q		
BENZENE	41.8	PPB	20	D		
TOLUENE	114	PPB	20	D		
ETHYL BENZENE	97.8	PPB	20	D		
TOTAL XYLENES	500	PPB	20	D		
TOTAL BTEX	754	PPB				

The Surrogate Recovery was at 95.6 for this sample All QA/QC was acceptable.
DF = Dilution Factor Used
The "D" qualifier indiciates that the analyte calculated is based on a secondary dilution factor.

Narrative:

Approved By: _____ Date: 6/3/97

970398,6/2/97

EPFS
EL PASO FIELD SERVICES

Well Development and Purging Data

☐ Development
☒ Purging

Well Number MW-1

Site Name LAT. K-27 LINE DRIP

Meter Code LO072

Development Criteria

☒ 3 to 5 Casing Volumes of Water Removel
☐ Stabilization of Indicator Parameters
☐ Other_____

Water Volume Calculation

Initial Depth of Well (feet) 51.33
Initial Depth to Water (feet) 36.73
Height of Water Column in Well (feet) 14.60
Diameter (inches): Well 4 Gravel Pack_____

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		9.7	29.0
Gravel Pack			
Drilling Fluids			
Total			

Instruments

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

Methods of Development

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

☐ Other_____

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	Cumulativ	Increment	Cumulative					
5-7-97	1306						5.0	5.0							
5-7-97	1313						5.0	10.0							
5-7-97	1320						5.0	15.0							
5-7-97	1326						5.0	20.0							
5-7-97	1334						5.0	25.0							
5-7-97	1341						5.0	30.0						0.5	

Comments LIGHT HYDROCARBON SMELL.

Developer's Signature Dennis Bird Date 5-7-97 Reviewer JR Date 5/27/97

El Paso Natural Gas Company

Sample 4 - 4th Qtr.

CHAIN OF CUSTODY RECORD

A 2050

Project No.	Project Name
	OTTO PIPELINE

Samplers: (Signature) Dennis Bird   Date: 8-27-97

Matrix	Date	Time	Comp.	GRAB	Sample Number	Type and No. of Sample Containers	Preservation Technique	BTEX				Remarks
WATER	8-27-97	1:48		X	970834	G-2	4°C	X				LATERAL K-27 MW-1 MC LR012

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dennis Bird	8-27-97 / 1500				
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 Hagger	8/11/97 0810		

Carrier Co:

Carrier Phone No.

Date Results Reported / by: (Signature)

Air Bill No.:

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970834
MTR CODE | SITE NAME:	LD072	Lateral K-27 MW-1
SAMPLE DATE | TIME (Hrs):	8/8/97	1448
PROJECT:	Sample 4 - 4th Quarter	
DATE OF BTEX EXT. | ANAL.:	8/12/97	8/12/97
TYPE | DESCRIPTION:	Monitor Well	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS DF	Q		
BENZENE	1690	PPB	10	D		
TOLUENE	2980	PPB	10	D1		
ETHYL BENZENE	298	PPB	10	D		
TOTAL XYLENES	1930	PPB	10	D		
TOTAL BTEX	6898	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 94.1 % for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

The "D1" qualifier indicates that the analyte concentration exceeded the calibration curve limit.

Narrative:

Approved By: John Fowlin Date: 8/27/97

EPFS
EL PASO FIELD SERVICES

Well Development and Purging Data

☐ Development
☒ Purging

Well Number MW-1

Site Name LATERAL K-27

Meter Code LD072

Development Criteria

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

Methods of Development

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

☐ Other

Water Volume Calculation

Initial Depth of Well (feet) 51.33
Initial Depth to Water (feet) 37.61
Height of Water Column in Well (feet) 13.72

Diameter (inches): Well Gravel Pack

Item	Water Volume in Well: Cubic Feet	Water Volume in Well: Gallons	Gallons to be Removed
Well Casing		9.1	27.2
Gravel Pack			
Drilling Fluids			
Total			

Instruments

☒ pH Meter
☐ DO Monitor
☒ Conductivity Meter
☒ Temperature Meter
☒ Other O.A 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
8-8-97	1351										18.6	6.80	4310		
8-8-97	1358						5.0	5.0			18.0	6.47	4290		
8-8-97	1405						5.0	10.0			17.6	6.56	4310		
8-8-97	1413						5.0	15.0			17.7	6.52	4310		
8-8-97	1421						5.0	20.0			17.7	6.47	4390		
8-8-97	1430						5.0	25.0			17.8	6.57	4440		
8-8-97	1437						5.0	30.0			17.8	6.82	4430	QS	

Comments THE WATER HAD A STRONG HYDROCARBON SMELL.

Developer's Signature Dennis Bird Date 8-8-97 Reviewer John Jacobs Date 8/25/97

El Paso Natural Gas Company

A 2134

CHAIN OF CUSTODY RECORD

Project No.: | Project Name: MC# LD072

Samplers: (Signature) Dennis Bird | Date: 11-7-97

MATRIX	Date	Time	Comp.	GRAB	Sample Number	Type and No. of Sample Containers	Preservation Technique	Requested Analysis: BTXE				Remarks
WATER	11-7-97	1129		X	971195	G-2	4°C	X				LATERAL K-27 LINE DRIP MW-1
WATER	11-7-97	—		X	—	G-1	4°C	X				TRIP BLANK

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dennis Bird	11-7-97 1434				
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:	
		Madonna Hoppe	11/7/97 1545		

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

Air Bill No.:

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	971195
MTR CODE | SITE NAME:	LD072	Lateral K-27 Line Drip
SAMPLE DATE | TIME (Hrs):	11/7/97	1129
PROJECT:	Sample 4 5th Quarter	
DATE OF BTEX EXT. | ANAL.:	11/13/97	11/13/97
TYPE | DESCRIPTION:	MW-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	533	PPB	10	D		
TOLUENE	1210	PPB	10	D		
ETHYL BENZENE	267	PPB	10	D		
TOTAL XYLENES	1720	PPB	10	D		
TOTAL BTEX	3730	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 97.4 % for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

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

Narrative:

Approved By: John Gardi Date: 11/18/97

EL PASO FIELD SERVICES

Well Development and Purging Data

☐ Development
☒ Purging

Well Number MW-1

Site Name LATERAL K-27 LINE DRIP

Meter Code 40072

Development Criteria

☒ 3 to 5 Casing Volumes of Water Removel
☐ Stabilization of Indicator Parameters
☐ Other

Water Volume Calculation

Initial Depth of Well (feet) 51.33
Initial Depth to Water (feet) 37.33
Height of Water Column in Well (feet) 14.00
Diameter (inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		9.3	27.8
Gravel Pack			
Drilling Fluids			
Total			

Instruments

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

Methods of Development

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

☐ Other

Water Disposal

KOTZ 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					
11-7-97	1032										15.4	6.51	4320		
11-7-97	1040						5.0	5.0			14.7	6.76	4370		
11-7-97	1048						5.0	10.0			14.7	6.63	4350		
11-7-97	1056						5.0	15.0			14.6	6.25	4360		
11-7-97	1104						5.0	20.0			14.7	5.95	4410		
11-7-97	1113						5.0	25.0			14.8	5.94	4480		
11-7-97	1120						5.0	30.0			14.8	6.15	4610	1.0	

Comments THE WELL HAD 0.12' OF FREE FLOATING HYDROCARBON.

Developer's Signature Dennis Bird Date 11-7-97 Reviewer Date

EPFS Sample ID # 97119 5

PARAGON ANALYTICS, INC.
225 Commerce Drive ◆ Fort Collins, CO 80524 ◆ (800) 443-1511 ◆ (970) 490-1511 ◆ FAX (970) 490-1522

November 26, 1997

Mr. John Lambdin
El Paso Field Services
PO Box 4990
Farmington, NM 87499

LD072

RE: Paragon Workorder: 97-11-119
Client Project Name: Lateral K-27 Line Drip
Client Project Number: Not Submitted

Dear Mr. Lambdin:

One water sample was received from El Paso Field Services on November 11, 1997. The sample was scheduled for PAHs by HPLC analysis. The results for this analysis are contained in the enclosed report pages 1-7.

Thank you for your confidence in Paragon Analytics, Inc. Should you have any questions, please call.

Sincerely,

Paragon Analytics, Inc.
Victoria Bayly
Project Manager

VB/jjc
Enclosure: report

Paragon Analytics, Inc.

PAHs by HPLC Case Narrative

El Paso Field Services

Lateral K-27 Line Drip

Order Number - 9711119

1. This report consists of 1 water sample received by Paragon on 11/11/97.

2. This sample was extracted and analyzed according to SW-846, 3rd Edition procedures. Specifically, the water samples were extracted using continuous liquid-liquid extractors, based on Method 3520.

3. The extracts were then analyzed using HPLC with UV and fluorescence detectors with a reverse phase C18 column according to protocols based on Method 8310. All compounds are analyzed using UV at 254 nm. Confirmation is performed for positive results using the fluorescence detector or confirmed by UV at 280 nm for those compounds that do not respond to the fluorescence detector. The quantitation of each analyte is usually taken from the detector that exhibits the fewest interferences. These quantitations minimize the chances of reporting elevated results based on interferences. If compounds do not confirm quantitatively (if the higher amount is greater than twice the lower amount the 2 amounts are considered ***not*** to confirm each other quantitatively), then the value is flagged with a "K" and noted on the report page.

4. All samples were extracted and analyzed within the established holding times.

5. The method blank associated with this project was below the reporting limits for all analytes.

6. All Blank Spike and Blank Spike Duplicate recoveries and RPDs were within the acceptance criteria.

7. All Matrix Spike and Matrix Spike Duplicate criteria were met with the following exceptions.

Spike Compound	Sample
Dibenzo(a,h)anthracene	MS and MSD

The recoveries of this compound in the Blank Spike and Blank Spike Duplicate were within control limits, which demonstrated the spike outliers in the Matrix Spikes were due to matrix effects, so not further action is needed.

8. All surrogate recoveries were within acceptance criteria.

9. Due to high levels of target analytes, sample 1 was analyzed at a higher dilution. The detection limits have been adjusted accordingly.

10. All initial and continuing calibration criteria were within acceptance criteria.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Preston Mathiesen — 11/22/97
HPLC Analyst — Date

RJB — 12-24-97
Reviewer's Initials — Date

Paragon Analytics, Incorporated

Sample Number(s) Cross-Reference Table

Paragon OrderNum: 9711119
Client Name: El Paso Field Services
Client Project Name:
Client Project Number: Lateral K-27 Line Drip
Client PO Number:

Client Sample	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
971195	9711119-1		Water	11/7/97	11:29

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Sample ID
Reagent Blank

Lab Name: Paragon Analytics, Inc.
Client Name: El Paso Field Services
Client Project ID: Lateral K-27 Line Drip

Lab Sample ID: WRB1 11/12/97

Sample Matrix: Water
Cleanup: N/A

Date Collected: N/A
Date Extracted: 11/12/97
Date Analyzed: 11/18/97

Sample Volume: 1000 mL
Final Volume: 1 mL
Dilution Factor: 1

Analyte	Conc (ug/L)	Reporting Limit (ug/L)
Naphthalene	ND	0.50
Acenaphthylene	ND	1.0
1-Methylnaphthalene	ND	1.0
2-Methylnaphthalene	ND	1.0
Acenaphthene	ND	1.0
Fluorene	ND	0.10
Phenanthrene	ND	0.050
Anthracene	ND	0.10
Fluoranthrene	ND	0.10
Pyrene	ND	0.050
Benzo(a)anthracene	ND	0.050
Chrysene	ND	0.050
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.050
Benzo(a)pyrene	ND	0.10
Dibenzo(a,h)anthracene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Indeno(1,2,3-c,d)pyrene	ND	0.10

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	91	35 - 119

ND = Not Detected at or above client requested reporting limit.

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Sample ID
971195

Lab Name: Paragon Analytics, Inc.
Client Name: El Paso Field Services
Client Project ID: Lateral K-27 Line Drip

Lab Sample ID: 9711119-1

Sample Matrix: Water
Cleanup: N/A

Date Collected: 11/07/97
Date Extracted: 11/12/97
Date Analyzed: 11/18/97

Sample Volume: 1000 mL
Final Volume: 1 mL
Dilution Factor: 10

Analyte	Conc (ug/L)	Reporting Limit (ug/L)
Naphthalene	14	5.0
Acenaphthylene	ND	10
1-Methylnaphthalene	5.2 J	10
2-Methylnaphthalene	9.6 J	10
Acenaphthene	ND	10
Fluorene	4.3 K	1.0
Phenanthrene	0.96	0.50
Anthracene	ND	1.0
Fluoranthrene	ND	1.0
Pyrene	ND	0.50
Benzo(a)anthracene	ND	0.50
Chrysene	ND	0.50
Benzo(b)fluoranthrene	ND	1.0
Benzo(k)fluoranthrene	ND	0.50
Benzo(a)pyrene	ND	1.0
Dibenzo(a,h)anthracene	ND	1.0
Benzo(g,h,i)perylene	ND	1.0
Indeno(1,2,3-c,d)pyrene	ND	1.0

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	86	35 - 119

ND = Not Detected at or above client requested reporting limit.
J = Estimated value. Below reporting limits.
K = Concentration confirmation does not agree within 50%.

POLYNUCLEAR AROMATIC HYDROCARBONS BLANK SPIKE

Method 8310

Lab Name: Paragon Analytics, Inc.
Client Name: El Paso Field Services
Client Project ID: Lateral K-27 Line Drip

Lab Sample ID: WBS1 & 2, 11/12/97

Sample Matrix: Water
Cleanup: N/A

Sample ID

Blank Spike

Date Extracted: 11/12/97
Date Analyzed: 11/18/97

Sample Volume: 1,000 mL
Final Volume: 1 mL

Analyte	Spike Added (ug/L)	BS Concentration (ug/L)	BS Percent Recovery	QC Limits % Rec
Acenaphthylene	10.0	6.46	65	36 - 93
Phenanthrene	1.00	0.721	72	45 - 107
Pyrene	1.00	0.775	77	40 - 104
Benzo(k)fluoranthene	0.250	0.240	96	61 - 126
Dibenzo(a,h)anthracene	1.00	0.837	84	55 - 113

Analyte	Spike Added (ug/L)	BSD Concentration (ug/L)	BSD Percent Recovery	RPD	QC Limits RPD
Acenaphthylene	10.0	6.15	61	5	20
Phenanthrene	1.00	0.689	69	4	20
Pyrene	1.00	0.737	74	5	20
Benzo(k)fluoranthene	0.250	0.231	92	4	20
Dibenzo(a,h)anthracene	1.00	0.749	75	11	20

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery BS	% Recovery BSD	% Rec Limits
2-Chloroanthracene	80	76	35 -119

PM

POLYNUCLEAR AROMATIC HYDROCARBONS MATRIX SPIKE

Method 8310

Lab Name: Paragon Analytics, Inc.
Client Name: El Paso Field Services
Client Project ID: Lateral K-27 Line Drip

Lab Sample ID: 9711121-1

Sample ID: **IN HOUSE**

Date Collected: 11/05/97
Date Extracted: 11/12/97
Date Analyzed: 11/18/97

Sample Matrix: Water
Cleanup: N/A

Sample Volume: 1000 mL
Final Volume: 1 mL
Dilution Factor: 1

Analyte	Spike Added (ug/L)	Sample Concentration (ug/L)	MS Concentration (ug/L)	MS Percent Recovery	QC Limits % Rec
Acenaphthylene	10.0	ND	6.75	68	36 - 93
Phenanthrene	1.00	ND	0.738	74	45 - 107
Pyrene	1.00	ND	0.763	76	40 - 104
Benzo(k)fluoranthene	0.250	ND	0.188	75	61 - 126
Dibenzo(a,h)anthracene	1.00	ND	0.405	40 *	55 - 113

Analyte	Spike Added (ug/L)	MSD Concentration (ug/L)	MSD Percent Recovery	RPD	QC Limits RPD
Acenaphthylene	10.0	6.01	60	12	20
Phenanthrene	1.00	0.661	66	11	20
Pyrene	1.00	0.754	75	1	20
Benzo(k)fluoranthene	0.250	0.172	69	9	20
Dibenzo(a,h)anthracene	1.00	0.392	39 *	3	20

SURROGATE RECOVERY MS/MSD

Analyte	% Recovery MS	% Recovery MSD	% Rec Limits
2-Chloroanthracene	78	66	35 - 119

ND = Not Detected
* = Out of limits. See case narritive.

PM

PARAGON ANALYTICS, INC.
225 Commerce Drive Ft. Collins, CO 80524
(800) 443-1511 or (970) 490-1511
(970) 490-1522 - Fax

CHAIN OF CUSTODY

DATE 11-7-97 Page 1 of 1

ACCESSION NUMBER (LAB ID): 9711195

REPORT TO: JOHN LAMBOIN
COMPANY: EL PASO FIELD SERVICE
ADDRESS: P.O. BOX 4990
FARMINGTON NM 87499

SAMPLER: DENNIS BIRD
505-599-2144 505-599-2261
PHONE NO. FAX NO.

ANALYSIS REQUESTED

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Oil & Grease 9070/9071/413.2	418.1 - TRPH	8015 Mod. - Gasoline	8015 Mod. - Diesel	8015m/8020 - Gasoline/BETX	8020 - BETX only	8240/8260 - GC/MS VOC's	8270 - GC/MS SVOC's	8080 - Pesticides/PCB's	8080 - PCB's only	8310/610 - HPLC PNA's	8150 - Herbicides	8141/614 - OP Pesticides	TOX - EOX - AOX - TX	Total Metals *(specify in comments)	TCLP: *(specify parameters in comments)	Gross Alpha / Beta	Gross Gamma	Gamma Spec	Isotopic Plutonium	Isotopic Uranium	Total Uranium (KPA)	Radium 226 / 228	Tritium (H3)	Strontium 89 / 90	8315 - Formaldehyde	% Moisture	Number of Containers
971195	11-7-97	1129	WATER	01											X																2

PROJECT INFORMATION
PROJECT NUMBER:
PROJECT NAME: LATERAL K-27 LINE DRIP
P.O. NUMBER:
TAT: [X] STANDARD [ ] RUSH DUE _____
SAMPLE DISPOSAL: [ ] HAZ WASTE $5.00 ea [ ] RAD CHEM $16.00 ea [ ] RETURN

SAMPLE RECEIPT
TOTAL NO. OF CONTAINERS
CHAIN OF CUSTODY SEALS
SEALS INTACT? Y/N/NA
RECEIVED GOOD COND./COLD

COMMENTS: LOW LEVEL BENZO(A)PYRENE < 0.7 ppB

RELINQUISHED BY: 1	RELINQUISHED BY: 2	RELINQUISHED BY: 3
Sign. Dennis Bird Time 1508	Sign. Time	Sign. Time
Print DENNIS BIRD Date 11-7-97	Print Date	Print Date
Company EL PASO FIELD SERVICE	Company FOX	Company
RECEIVED BY: 1	**RECEIVED BY: 2**	**RECEIVED BY: 3**
Sign. Time	Sign. Time 1000	Sign. Time
Print Date	Print Date 11/11/97	Print Date
Company FOX	Company PAE	Company

* DO NOT WRITE IN SHADED AREAS

DISTRIBUTION: White, Canary - PARAGON ANALYTICS, INC. Originator

Paragon Analytics, Inc. - Fort Collins, Colo

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: El Paso Field Serv. SHIPPING CONTAINER #: Cooler

WORKORDER NO. 9711.115 INITIALS: DL DATE: 11/14/97

1.	Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature_____ b. Lot No's._____ c. Airbill Number		Yes	(No)
2.	Are custody seals on the cooler intact? If so, how many_____	(N/A)	Yes	No
3.	Are custody seals on sample containers intact?	(N/A)	Yes	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?		(Yes)	No
5.	Is the COC complete? Relinquished: Yes ✓ No___ Requested Analysis: Yes ✓ No___	N/A	(Yes)	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes ✓ No___ Sample ID's: Yes ✓ No___ Matrix: Yes ✓ No___ No. of Containers: Yes ✓ No___		(Yes)	No
7.	Are the samples requiring chemical preservation preserved correctly?	(N/A)	Yes	No
8.	Is there enough sample? If so, are they in the proper containers?		(Yes)	No
9.	Are all samples within holding times for the requested analyses?		(Yes)	No
10.	Were the sample(s) shipped on ice?	N/A	(Yes)	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		(Yes)	No
12.	Are samples requiring no headspace, headspace free?	(N/A)	Yes	No
13.	Do the samples require quarantine?		Yes	(No)
14.	Do samples require Paragon disposal?		(Yes)	No
15.	Did the client return any unused bottles?		Yes	(No)

Describe "NO" items (except No's 1, 13, &14):_____

Was the client contacted? Yes_____ No_____

If yes, Date:_____ Name of person contacted:_____

Describe actions taken or client instructions:_____

Group Leader's Signature:_____ Date:_____

Cooler Temperature: 4°c

PARAGON ANALYTICS, INC.
225 Commerce Drive Ft. Collins, CO 80524
(800) 443-1511 or (970) 490-1511
(970) 490-1522 - Fax

CHAIN OF CUSTODY

DATE 11-7-97 Page 1 of 1

ACCESSION NUMBER (LAB ID)

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COMPANY: EL PASO FIELD SERVICE
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PROJECT INFORMATION
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PROJECT NAME: LATERAL K-27 LINE DRIP
P.O. NUMBER:
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SAMPLE DISPOSAL: [ ] HAZ WASTE $5.00 ea [ ] RAD CHEM $15.00 ea [ ] RETURN

SAMPLE RECEIPT
TOTAL NO. OF CONTAINERS:
CHAIN OF CUSTODY SEALS Y/N
SEALS INTACT? Y/N
RECD GOOD COND/COLD

COMMENTS: LOW LEVEL BENZO(A)PYRENE < 0.7 ppb

RELINQUISHED BY: 1	RELINQUISHED BY: 2	RELINQUISHED BY: 3
Sign. Dennis Bird Time 1508	Sign. Time	Sign. Time
Print DENNIS BIRD Date 11-7-97	Print Date	Print Date
Company EL PASO FIELD SERVICE	Company FOX	Company
RECEIVED BY: 1	**RECEIVED BY: 2**	**RECEIVED BY: 3**
Sign. Time	Sign. Time 1800	Sign. Time
Print Date	Print Date 11/11/97	Print Date
Company FOX	Company JAT	Company

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