

Results of Directional Survey

API number:	30-025-40748		
OGRID:		Operator:	DEVON ENERGY PRODUCTION COMPANY, LP
		Property:	IRONHOUSE 20 STATE COM # 2H

surface	ULSTR:	P	20	T 18S	R 35E
				200 FSL	660 FEL

BH Loc	ULSTR:	A	20	T 18S	R 35E
14018	MD	9309.9	TVD	330 FNL	727 FEL
				4950 FSL	

Top Perf/OH	ULSTR:	P	20	T 18S	R 35E
9603	MD	9544.0	TVD	576 FSL	634 FEL

Bot Perf/OH	ULSTR:	A	20	T 18S	R 35E
13929	MD	9315.5	TVD	418 FNL	724 FEL
				4862 FSL	

	MD	N/S	E/W	VD
	9583	360.38	27.21	9531.14
TOP PERFS/OH	9603	375.70	26.18	9543.95
	9614	384.12	25.61	9550.99
	13852	4584.89	-61.19	9320.58
BOT PERFS/OH	13929	4661.99	-63.83	9315.51
	13961	4694.03	-64.93	9313.40

NEXT TO LAST	13961	4694.03	-64.93	9313.40
LAST READING	14018	4750.45	-66.78	9309.86
TD	14018	4750.45	-66.78	9309.86

Surface Location	200	FS	660	FE
Projected BHL	4950	FS	727	FE
Location of				
Top Perfs/OH	576	FS	634	FE
Bottom Perfs/OH	4862	FS	724	FE

SUMMARY of Subsurface Locations

Surface Location	P-20-18S-35E	200	FS	660	FE	Vert. Depth
Top Perfs/OH	P-20-18S-35E	576	FS	634	FE	9543.95
Bottom Perfs/OH	A-20-18S-35E	4862	FS	724	FE	9315.51
Projected TD	A-20-18S-35E	4950	FS	727	FE	9309.86

MAY 19 2014



Devon Energy, Inc.

Lea County (NAD83)

Ironhouse 20 State

#2H

OH

Plan: Plan #1

PathfinderX & Y Report

20 August, 2012

HOBBS OCD

APR 28 2014

RECEIVED



A Schlumberger Company



Pathfinder
PathfinderX & Y Report



A Schlumberger Company

Company: Devon Energy, Inc.
Project: Lea County (NAD83)
Site: Ironhouse 20 State
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 19 @ 3944.3usft (McVay 8)
MD Reference: KB = 19 @ 3944.3usft (McVay 8)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project Lea County (NAD83)

Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site Ironhouse 20 State

Site Position:	Northings:	633,687.000 usft	Latitude:	32.739082
From: Map	Easting:	806,269.600 usft	Longitude:	-103.471711
Position Uncertainty:	Slot Radius:	13-3/16 "	Grid Convergence:	0.47 °

Well #2H

Well Position	+N/-S	0.0 usft	Northings:	633,687.000 usft	Latitude:	32.739082
	+E/-W	0.0 usft	Easting:	806,269.600 usft	Longitude:	-103.471711
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,925.3 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/15/2012	7.43	60.65	48,817

Design Plan #1

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	271.05

Survey Tool Program Date 8/20/2012

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	13,762.9	Plan #1 (OH)	Pathfinder	Pathfinder MWD



Pathfinder PathfinderX & Y Report



Company: Devon Energy, Inc.
Project: Lea County (NAD83)
Site: Ironhouse 20 State
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 19 @ 3944.3usft (McVay 8)
MD Reference: KB = 19 @ 3944.3usft (McVay 8)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.0	0.00	0.00	0.0	-3,944.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
100.0	0.00	0.00	100.0	-3,844.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
200.0	0.00	0.00	200.0	-3,744.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
300.0	0.00	0.00	300.0	-3,644.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
400.0	0.00	0.00	400.0	-3,544.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
500.0	0.00	0.00	500.0	-3,444.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
600.0	0.00	0.00	600.0	-3,344.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
700.0	0.00	0.00	700.0	-3,244.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
800.0	0.00	0.00	800.0	-3,144.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
900.0	0.00	0.00	900.0	-3,044.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
1,000.0	0.00	0.00	1,000.0	-2,944.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
1,100.0	0.00	0.00	1,100.0	-2,844.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
1,200.0	0.00	0.00	1,200.0	-2,744.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
1,300.0	0.00	0.00	1,300.0	-2,644.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
1,400.0	0.00	0.00	1,400.0	-2,544.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
1,500.0	0.00	0.00	1,500.0	-2,444.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
1,600.0	0.00	0.00	1,600.0	-2,344.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
1,700.0	0.00	0.00	1,700.0	-2,244.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
1,789.0	0.00	0.00	1,789.0	-2,155.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
Rustler										
1,800.0	0.00	0.00	1,800.0	-2,144.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
1,900.0	0.00	0.00	1,900.0	-2,044.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
1,960.0	0.00	0.00	1,960.0	-1,984.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
Salado										
2,000.0	0.00	0.00	2,000.0	-1,944.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
2,100.0	0.00	0.00	2,100.0	-1,844.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60
2,200.0	0.00	0.00	2,200.0	-1,744.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60



Pathfinder
PathfinderX & Y Report

PATHFINDER
A Schlumberger Company

Company:	Devon Energy, Inc.	Local Co-ordinate Reference:	Well #2H
Project:	Lea County (NAD83)	TVD Reference:	KB = 19 @ 3944.3usft (McVay 8)
Site:	Ironhouse 20 State	MD Reference:	KB = 19 @ 3944.3usft (McVay 8)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
2,300.0	0.00	0.00	2,300.0	-1,644.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
2,400.0	0.00	0.00	2,400.0	-1,544.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
2,500.0	0.00	0.00	2,500.0	-1,444.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
2,600.0	0.00	0.00	2,600.0	-1,344.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
2,700.0	0.00	0.00	2,700.0	-1,244.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
2,800.0	0.00	0.00	2,800.0	-1,144.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
2,900.0	0.00	0.00	2,900.0	-1,044.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
3,000.0	0.00	0.00	3,000.0	-944.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
3,090.0	0.00	0.00	3,090.0	-854.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
Base Salado											
3,100.0	0.00	0.00	3,100.0	-844.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
3,200.0	0.00	0.00	3,200.0	-744.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
3,254.0	0.00	0.00	3,254.0	-690.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
Yates											
3,300.0	0.00	0.00	3,300.0	-644.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
3,400.0	0.00	0.00	3,400.0	-544.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
3,500.0	0.00	0.00	3,500.0	-444.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
3,600.0	0.00	0.00	3,600.0	-344.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
3,700.0	0.00	0.00	3,700.0	-244.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
3,800.0	0.00	0.00	3,800.0	-144.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
3,900.0	0.00	0.00	3,900.0	-44.3	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
4,000.0	0.00	0.00	4,000.0	55.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
4,100.0	0.00	0.00	4,100.0	155.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
4,200.0	0.00	0.00	4,200.0	255.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
4,300.0	0.00	0.00	4,300.0	355.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
4,400.0	0.00	0.00	4,400.0	455.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
4,456.0	0.00	0.00	4,456.0	511.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60	
Queen											



Pathfinder
PathfinderX & Y Report



Company: Devon Energy, Inc.
Project: Lea County (NAD83)
Site: Ironhouse 20 State
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 19 @ 3944.3usft (McVay 8)
MD Reference: KB = 19 @ 3944.3usft (McVay 8)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
4,500.0	0.00	0.00	4,500.0	555.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
4,600.0	0.00	0.00	4,600.0	655.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
4,700.0	0.00	0.00	4,700.0	755.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
4,800.0	0.00	0.00	4,800.0	855.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
4,900.0	0.00	0.00	4,900.0	955.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
5,000.0	0.00	0.00	5,000.0	1,055.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
5,100.0	0.00	0.00	5,100.0	1,155.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
5,200.0	0.00	0.00	5,200.0	1,255.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
5,300.0	0.00	0.00	5,300.0	1,355.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
5,400.0	0.00	0.00	5,400.0	1,455.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
5,500.0	0.00	0.00	5,500.0	1,555.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
5,600.0	0.00	0.00	5,600.0	1,655.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
5,700.0	0.00	0.00	5,700.0	1,755.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
5,800.0	0.00	0.00	5,800.0	1,855.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
5,900.0	0.00	0.00	5,900.0	1,955.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
6,000.0	0.00	0.00	6,000.0	2,055.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
6,100.0	0.00	0.00	6,100.0	2,155.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
6,200.0	0.00	0.00	6,200.0	2,255.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
6,300.0	0.00	0.00	6,300.0	2,355.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
6,400.0	0.00	0.00	6,400.0	2,455.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
6,500.0	0.00	0.00	6,500.0	2,555.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
6,600.0	0.00	0.00	6,600.0	2,655.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
6,700.0	0.00	0.00	6,700.0	2,755.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
6,775.0	0.00	0.00	6,775.0	2,830.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
1st Bone Spring LM										
6,800.0	0.00	0.00	6,800.0	2,855.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
6,900.0	0.00	0.00	6,900.0	2,955.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60



Pathfinder
PathfinderX & Y Report

PATHFINDER
A Schlumberger Company

Company: Devon Energy, Inc.
Project: Lea County (NAD83)
Site: Ironhouse 20 State
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 19 @ 3944.3usft (McVay 8)
MD Reference: KB = 19 @ 3944.3usft (McVay 8)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
7,000.0	0.00	0.00	7,000.0	3,055.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
7,100.0	0.00	0.00	7,100.0	3,155.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
7,200.0	0.00	0.00	7,200.0	3,255.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
7,300.0	0.00	0.00	7,300.0	3,355.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
7,400.0	0.00	0.00	7,400.0	3,455.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
7,500.0	0.00	0.00	7,500.0	3,555.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
7,600.0	0.00	0.00	7,600.0	3,655.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
7,700.0	0.00	0.00	7,700.0	3,755.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
7,800.0	0.00	0.00	7,800.0	3,855.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
7,900.0	0.00	0.00	7,900.0	3,955.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
8,000.0	0.00	0.00	8,000.0	4,055.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
8,100.0	0.00	0.00	8,100.0	4,155.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
8,200.0	0.00	0.00	8,200.0	4,255.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
8,236.0	0.00	0.00	8,236.0	4,291.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
1st Bone Spring Ss										
8,290.0	0.00	0.00	8,290.0	4,345.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
2nd Bone Spring Lime										
8,300.0	0.00	0.00	8,300.0	4,355.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
8,400.0	0.00	0.00	8,400.0	4,455.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
8,500.0	0.00	0.00	8,500.0	4,555.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
8,600.0	0.00	0.00	8,600.0	4,655.7	0.0	0.0	0.0	0.00	633,687.00	806,269.60
8,676.2	0.00	0.00	8,676.2	4,731.9	0.0	0.0	0.0	0.00	633,687.00	806,269.60
8,698.0	2.18	271.05	8,698.0	4,753.7	0.0	-0.4	0.4	10.00	633,687.01	806,269.19
2nd Bone Spring SD										
8,700.0	2.38	271.05	8,700.0	4,755.7	0.0	-0.5	0.5	10.00	633,687.01	806,269.11
8,750.0	7.38	271.05	8,749.8	4,805.5	0.1	-4.7	4.7	10.00	633,687.09	806,264.85
8,800.0	12.38	271.05	8,799.0	4,854.7	0.2	-13.3	13.3	10.00	633,687.24	806,256.28



Pathfinder PathfinderX & Y Report



Company: Devon Energy, Inc.
Project: Lea County (NAD83)
Site: Ironhouse 20 State
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 19 @ 3944.3usft (McVay 8)
MD Reference: KB = 19 @ 3944.3usft (McVay 8)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
8,850.0	17.38	271.05	8,847.3	4,903.0	0.5	-26.2	26.2	10.00	633,687.48	806,243.45
8,900.0	22.38	271.05	8,894.4	4,950.1	0.8	-43.1	43.2	10.00	633,687.79	806,226.45
8,950.0	27.38	271.05	8,939.7	4,995.4	1.2	-64.2	64.2	10.00	633,688.17	806,205.43
9,000.0	32.38	271.05	8,983.0	5,038.7	1.6	-89.1	89.1	10.00	633,688.63	806,180.53
9,050.0	37.38	271.05	9,024.0	5,079.7	2.2	-117.7	117.7	10.00	633,689.15	806,151.95
9,100.0	42.38	271.05	9,062.4	5,118.1	2.7	-149.7	149.7	10.00	633,689.74	806,119.91
9,150.0	47.38	271.05	9,097.8	5,153.5	3.4	-185.0	185.0	10.00	633,690.38	806,084.64
9,200.0	52.38	271.05	9,130.0	5,185.7	4.1	-223.2	223.2	10.00	633,691.08	806,046.43
9,250.0	57.38	271.05	9,158.8	5,214.5	4.8	-264.1	264.1	10.00	633,691.83	806,005.55
9,300.0	62.38	271.05	9,183.9	5,239.6	5.6	-307.3	307.3	10.00	633,692.62	805,962.32
9,350.0	67.38	271.05	9,205.1	5,260.8	6.4	-352.5	352.6	10.00	633,693.45	805,917.07
9,400.0	72.38	271.05	9,222.3	5,278.0	7.3	-399.5	399.5	10.00	633,694.30	805,870.14
9,450.0	77.38	271.05	9,235.3	5,291.0	8.2	-447.7	447.8	10.00	633,695.19	805,821.90
9,500.0	82.38	271.05	9,244.1	5,299.8	9.1	-496.9	497.0	10.00	633,696.09	805,772.70
9,550.0	87.38	271.05	9,248.6	5,304.3	10.0	-546.7	546.8	10.00	633,697.00	805,722.92
9,564.9	88.87	271.05	9,249.0	5,304.7	10.3	-561.5	561.6	10.00	633,697.27	805,708.06
9,600.0	88.87	271.05	9,249.7	5,305.4	10.9	-596.7	596.8	0.00	633,697.91	805,672.95
9,700.0	88.87	271.05	9,251.7	5,307.4	12.7	-696.6	696.7	0.00	633,699.74	805,572.98
9,800.0	88.87	271.05	9,253.7	5,309.4	14.6	-796.6	796.7	0.00	633,701.57	805,473.02
9,900.0	88.87	271.05	9,255.7	5,311.4	16.4	-896.5	896.7	0.00	633,703.39	805,373.06
10,000.0	88.87	271.05	9,257.6	5,313.3	18.2	-996.5	996.7	0.00	633,705.22	805,273.09
10,100.0	88.87	271.05	9,259.6	5,315.3	20.0	-1,096.5	1,096.7	0.00	633,707.05	805,173.13
10,200.0	88.87	271.05	9,261.6	5,317.3	21.9	-1,196.4	1,196.6	0.00	633,708.88	805,073.17
10,300.0	88.87	271.05	9,263.6	5,319.3	23.7	-1,296.4	1,296.6	0.00	633,710.70	804,973.20
10,400.0	88.87	271.05	9,265.5	5,321.2	25.5	-1,396.4	1,396.6	0.00	633,712.53	804,873.24
10,500.0	88.87	271.05	9,267.5	5,323.2	27.4	-1,496.3	1,496.6	0.00	633,714.36	804,773.27
10,600.0	88.87	271.05	9,269.5	5,325.2	29.2	-1,596.3	1,596.6	0.00	633,716.19	804,673.31



Pathfinder
PathfinderX & Y Report

PATHFINDER
A Schlumberger Company

Company: Devon Energy, Inc.
Project: Lea County (NAD83)
Site: Ironhouse 20 State
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 19 @ 3944.3usft (McVay 8)
MD Reference: KB = 19 @ 3944.3usft (McVay 8)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
10,700.0	88.87	271.05	9,271.5	5,327.2	31.0	-1,696.3	1,696.5	0.00	633,718.02	804,573.35
10,800.0	88.87	271.05	9,273.5	5,329.2	32.8	-1,796.2	1,796.5	0.00	633,719.84	804,473.38
10,900.0	88.87	271.05	9,275.4	5,331.1	34.7	-1,896.2	1,896.5	0.00	633,721.67	804,373.42
11,000.0	88.87	271.05	9,277.4	5,333.1	36.5	-1,996.1	1,996.5	0.00	633,723.50	804,273.46
11,100.0	88.87	271.05	9,279.4	5,335.1	38.3	-2,096.1	2,096.5	0.00	633,725.33	804,173.49
11,200.0	88.87	271.05	9,281.4	5,337.1	40.2	-2,196.1	2,196.4	0.00	633,727.16	804,073.53
11,300.0	88.87	271.05	9,283.3	5,339.0	42.0	-2,296.0	2,296.4	0.00	633,728.98	803,973.56
11,400.0	88.87	271.05	9,285.3	5,341.0	43.8	-2,396.0	2,396.4	0.00	633,730.81	803,873.60
11,500.0	88.87	271.05	9,287.3	5,343.0	45.6	-2,496.0	2,496.4	0.00	633,732.64	803,773.64
11,600.0	88.87	271.05	9,289.3	5,345.0	47.5	-2,595.9	2,596.4	0.00	633,734.47	803,673.67
11,700.0	88.87	271.05	9,291.2	5,346.9	49.3	-2,695.9	2,696.3	0.00	633,736.29	803,573.71
11,800.0	88.87	271.05	9,293.2	5,348.9	51.1	-2,795.9	2,796.3	0.00	633,738.12	803,473.75
11,900.0	88.87	271.05	9,295.2	5,350.9	53.0	-2,895.8	2,896.3	0.00	633,739.95	803,373.78
12,000.0	88.87	271.05	9,297.2	5,352.9	54.8	-2,995.8	2,996.3	0.00	633,741.78	803,273.82
12,100.0	88.87	271.05	9,299.1	5,354.8	56.6	-3,095.7	3,096.3	0.00	633,743.61	803,173.85
12,200.0	88.87	271.05	9,301.1	5,356.8	58.4	-3,195.7	3,196.2	0.00	633,745.43	803,073.89
12,300.0	88.87	271.05	9,303.1	5,358.8	60.3	-3,295.7	3,296.2	0.00	633,747.26	802,973.93
12,400.0	88.87	271.05	9,305.1	5,360.8	62.1	-3,395.6	3,396.2	0.00	633,749.09	802,873.96
12,500.0	88.87	271.05	9,307.0	5,362.7	63.9	-3,495.6	3,496.2	0.00	633,750.92	802,774.00
12,600.0	88.87	271.05	9,309.0	5,364.7	65.7	-3,595.6	3,596.2	0.00	633,752.74	802,674.04
12,700.0	88.87	271.05	9,311.0	5,366.7	67.6	-3,695.5	3,696.1	0.00	633,754.57	802,574.07
12,800.0	88.87	271.05	9,313.0	5,368.7	69.4	-3,795.5	3,796.1	0.00	633,756.40	802,474.11
12,900.0	88.87	271.05	9,314.9	5,370.6	71.2	-3,895.5	3,896.1	0.00	633,758.23	802,374.14
13,000.0	88.87	271.05	9,316.9	5,372.6	73.1	-3,995.4	3,996.1	0.00	633,760.06	802,274.18
13,100.0	88.87	271.05	9,318.9	5,374.6	74.9	-4,095.4	4,096.1	0.00	633,761.88	802,174.22
13,200.0	88.87	271.05	9,320.9	5,376.6	76.7	-4,195.3	4,196.0	0.00	633,763.71	802,074.25
13,300.0	88.87	271.05	9,322.9	5,378.6	78.5	-4,295.3	4,296.0	0.00	633,765.54	801,974.29



Pathfinder
PathfinderX & Y Report



Company: Devon Energy, Inc.
Project: Lea County (NAD83)
Site: Ironhouse 20 State
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 19 @ 3944.3usft (McVay 8)
MD Reference: KB = 19 @ 3944.3usft (McVay 8)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
13,400.0	88.87	271.05	9,324.8	5,380.5	80.4	-4,395.3	4,396.0	0.00	633,767.37	801,874.33
13,500.0	88.87	271.05	9,326.8	5,382.5	82.2	-4,495.2	4,496.0	0.00	633,769.20	801,774.36
13,600.0	88.87	271.05	9,328.8	5,384.5	84.0	-4,595.2	4,596.0	0.00	633,771.02	801,674.40
13,700.0	88.87	271.05	9,330.8	5,386.5	85.9	-4,695.2	4,696.0	0.00	633,772.85	801,574.43
13,762.9	88.87	271.05	9,332.0	5,387.7	87.0	-4,758.0	4,758.8	0.00	633,774.00	801,511.60

PBHL(Ironhouse 20 State #2H)

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,254.0	3,254.0	Yates			
4,456.0	4,456.0	Queen			
8,698.0	8,698.0	2nd Bone Spring SD			
1,789.0	1,789.0	Rustler			
6,775.0	6,775.0	1st Bone Spring LM			
3,090.0	3,090.0	Base Salado			
8,290.0	8,290.0	2nd Bone Spring Lime			
8,236.0	8,236.0	1st Bone Spring Ss			
1,960.0	1,960.0	Salado			

Checked By: _____ Approved By: _____ Date: _____



PROJECT DETAILS: Lea County (NAD83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid

HOBBS OCD

APR 28 2014

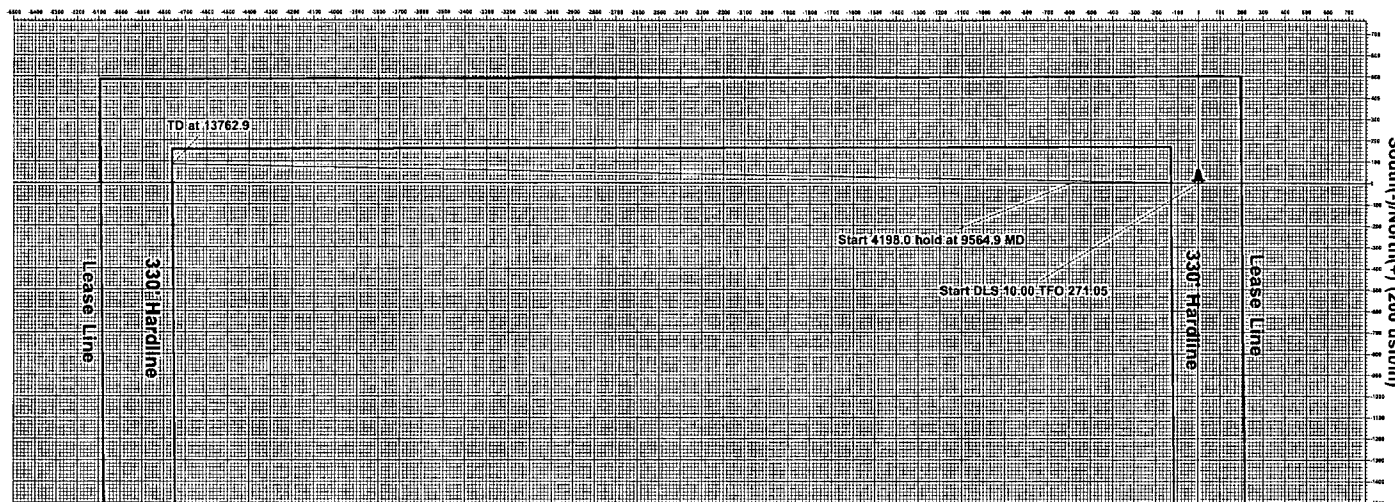
RECEIVED



A Schlumberger Company

Project: Lea County (NAD83)
Site: Ironhouse 20 State
Well: #2H
Wellbore: OH
Plan: Plan #1 (#2H/OH)

West(-)/East(+) (200 usft/in)



WELL DETAILS: #2H

Ground Elevation: 3925.3
RKB Elevation: KB = 19 @ 3944.3usft (McVay 8)
Rig Name: McVay 8

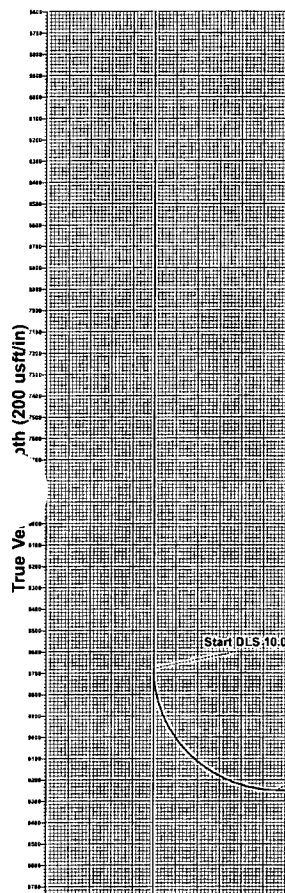
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	633687.000	806269.600	32.739082	-103.471711	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	8676.2	0.00	0.00	8676.2	0.0	0.0	0.00	0.00	0.0	
3	9564.9	88.87	271.05	9249.0	10.3	-561.5	10.00	271.05	561.6	
4	13762.9	88.87	271.05	9332.0	87.0	-4758.0	0.00	0.00	4758.8	PBHL(Ironhouse 20 State #2H)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL(Ironhouse 20 State #2H)	9332.0	87.0	-4758.0	633774.000	801511.600	Point



Vertical Section at 271.05° (200 usft/in)



Azimuths to Grid North
True North: -0.47°
Magnetic North: 6.97°

Magnetic Field
Strength: 48816.8snT
Dip Angle: 60.65°
Date: 8/15/2012
Model: IGRF2010

Plan: Plan #1 (#2H/OH)

Created By: Sam Biffle Date: 14:44, August 20 2012

Checked: Date:

Copyright © 2012
Schlumberger
All Rights Reserved

PathFinder

3329 W. Pinhook Rd.
Lafayette, LA 70508-3506, USA
Tel. 337-233-3982
Fax 337-234-2988

HOBBS OCD

APR 28 2014

PATHFINDER
A Schlumberger Company

RECEIVED

DIRECTIONAL SURVEY REPORT

DEVON ENERGY PRODUCTION CO., L.P.

IRONHOUSE 20 STATE COM #2H

LEA COUNTY, NEW MEXICO

PREPARED BY: MARK TRAHAN

PathFinder

3329 W. Pinhook Rd.
Lafayette, LA 70508-3506, USA
Tel. 337-233-3982
Fax 337-234-2988



February 5, 2014

HOBBS OCD

APR 28 2014

RECEIVED

DEVON ENERGY PRODUCTION CO.
333 West Sheridan
Oklahoma City, OK 73102

RE: DEVON ENERGY PRODUCTION CO., L.P.
IRONHOUSE 20 STATE COM #2H
LEA COUNTY, NM
RIG: PATTERSON 228
API NO.: 30-025-40748
PES FILE NO.: 13LAF0322

Dear Sir or Madame:

We hereby certify that the enclosed Original Field Survey Data contained in this report represents to the best of our knowledge, a true and accurate survey of the well at the time the survey was run.

DIRECTIONAL SURVEY DATA
3 – Original Directional Survey Reports

We appreciate the opportunity to work with you and we look forward to your business support. If you have any questions, I can be reached at (337) 233-3982.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark Trahan".

Mark Trahan
M/LWD Service Coordinator
PathFinder, a Schlumberger company

MT:tb

PathFinder

3329 W. Pinhook Rd.
Lafayette, LA 70508-3506, USA
Tel. 337-233-3982
Fax 337-234-2988



DIRECTIONAL SURVEY COMPANY REPORT:

1. SURVEYING COMPANY: PATHFINDER, A SCHLUMBERGER COMPANY
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) KYLE SCHENKER
B) DERICK RICHARD
3. POSITION OF SAID PERSON(S): (A-B) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 12/16/13 TO 12/29/13
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: LEA COUNTY
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

DEVON ENERGY PRODUCTION CO., L.P.
IRONHOUSE 20 STATE COM #2H
LEA COUNTY, NM
RIG: PATTERSON 228
API NO.: 30-025-40748

HOBBS OCD

APR 28 2014

RECEIVED

9. SURVEY CERTIFIED FROM: 9,038 TO 14,018 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 4,750.92 FEET ON A BEARING OF 359.19 DEGREES FROM THE CENTER
OF THE ROTARY TABLE AT A STRAIGHT LINE PROJECTION DEPTH OF 14,018 FEET,
ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

MARK TRAHAN
M/LWD SERVICE COORDINATOR

PathFinder

3329 W. Pinhook Rd.
Lafayette, LA 70508-3506, USA
Tel. 337-233-3982
Fax 337-234-2988

HOBBS OCD

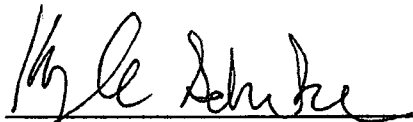
PATHFINDER
A Schlumberger Company

APR 28 2014

STATE OF LOUISIANA
PARISH OF LAFAYETTE

RECEIVED

I, **Kyle Schenker**, certify that; I am employed by PathFinder, a Schlumberger company; that I did on the day(s) of **12/16/13** through **12/29/13** conduct or supervise the taking of a **Measurement While Drilling** survey from a depth of **9,038 feet to a depth of 14,018 feet**; that the data is true, correct, complete and within the limitations of the tool as set forth by PathFinder, a Schlumberger company; that I am authorized and qualified to make this report; that this survey was conducted at the request of **DEVON ENERGY PRODUCTION CO., L.P.** for the **Ironhouse 20 State Com #2H** Well API No. **30-025-40748** in **Lea County, New Mexico**; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by PathFinder, a Schlumberger company.



PathFinder Field Engineer

PathFinder – a Schlumberger company

BHL Report

Page 01/01
Tie-in Date: 12/16/2013
Date Completed: 12/29/2013

DEVON ENERGY PROD. CO, LP
IRONHOUSE 20 STATE COM #2H
LEA COUNTY, NEW MEXICO
API#: 30-025-40748 Rig: PATTERSON 228
PathFinder Office Supervisor: MARK TRAHAN
PathFinder Field Engineers: KYLE SCHENKER
DERICK RICHARD

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.43.31.9372 N LON: 103.20.19.6248 W
GRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 805858.9100 Y: 629096.9100
North Aligned To: GRID NORTH
Total Magnetic Correction: 6.66° EAST TO GRID
Vertical Section Plane: 359.30
Survey Vert. Reference: 26.20' Kelly Bushing To Ground
Altitude: 3925.30' Ground To MSL

HOBBS OCD

APR 28 2014

RECEIVED

Measured Depth	14018.00	(feet)
Inclination	93.56	(deg)
Azimuth	358.13	(deg)
True Vertical Depth	9309.86	(feet)
Vertical Section	4750.91	(feet)
Survey X cord	805792.13	(feet)
Survey Y cord	633847.36	(feet)
Survey Lat	32.73859576 N	(deg)
Survey Lon	103.33885684 W	(deg)
Rectangular Corr. N/S	4750.45 N	(feet)
Rectangular Corr. E/W	66.78 W	(feet)
Closure Distance	4750.92	(feet)
Direction of Closure	359.19	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder – a Schlumberger company

BHL Report

Page 01/01
Tie-in Date: 12/16/2013
Date Completed: 12/29/2013

DEVON ENERGY PROD. CO, LP
IRONHOUSE 20 STATE COM #2H
LEA COUNTY, NEW MEXICO
API#: 30-025-40748 Rig: PATTERSON 228
PathFinder Office Supervisor: MARK TRAHAN
PathFinder Field Engineers: KYLE SCHENKER
DERICK RICHARD

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.43.31.9372 N LON: 103.20.19.6248 W
GRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 805858.9100 Y: 629096.9100
North Aligned To: GRID NORTH
Total Magnetic Correction: 6.66° EAST TO GRID
Vertical Section Plane: 359.30
Survey Vert. Reference: 26.20' Kelly Bushing To Ground
Altitude: 3925.30' Ground To MSL

Measured Depth	14018.00	(feet)
Inclination	93.56	(deg)
Azimuth	358.13	(deg)
True Vertical Depth	9309.86	(feet)
Vertical Section	4750.91	(feet)
Survey X cord	805792.13	(feet)
Survey Y cord	633847.36	(feet)
Survey Lat	32.73859576 N	(deg)
Survey Lon	103.33885684 W	(deg)
Rectangular Corr. N/S	4750.45 N	(feet)
Rectangular Corr. E/W	66.78 W	(feet)
Closure Distance	4750.92	(feet)
Direction of Closure	359.19	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder – a Schlumberger company**HO Survey Report**

APR 28 2014

RECEIVED

DEVON ENERGY PROD. CO, LP
IRONHOUSE 20 STATE COM #2H
LEA COUNTY, NEW MEXICO
API#: 30-025-40748 Rig: PATTERSON 228
PathFinder Office Supervisor: MARK TRAHAN
PathFinder Field Engineers: KYLE SCHENKER
DERICK RICHARD

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.43.31.9372 N LON: 103.20.19.6248 W
GRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 805858.9100 Y: 629096.9100
North Aligned To: GRID NORTH
Total Magnetic Correction: 6.66° EAST TO GRID
Vertical Section Plane: 359.30
Survey Vert. Reference: 26.20' Kelly Bushing To Ground
Altitude: 3925.30' Ground To MSL

Survey Calculations by RX5 V6.05 using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)	Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist Dir (ft) (deg)	DLS (dg/100ft)	
THE FOLLOWING ARE VAUGHN ENERGY SERVICES GYRO SURVEYS.											
0.00	0.00	0.00	0.01	0.00	-0.08	0.08 S 0.05 W	32.72553790 N	103.33878484 W	0.09@ 211.03	0.00	
100.00	0.48	311.96	100.00	100.00	0.21	0.20 N 0.36 W	32.72553867 N	103.33878584 W	0.41@ 299.24	0.48	
200.00	0.31	311.12	200.00	100.00	0.67	0.66 N 0.87 W	32.72553995 N	103.33878750 W	1.09@ 307.01	0.17	
300.00	0.46	274.73	300.00	100.00	0.89	0.87 N 1.48 W	32.72554054 N	103.33878946 W	1.72@ 300.48	0.28	
400.00	0.28	241.80	400.00	100.00	0.81	0.79 N 2.09 W	32.72554033 N	103.33879146 W	2.24@ 290.62	0.27	
500.00	0.45	326.32	500.00	100.00	1.03	1.00 N 2.53 W	32.72554092 N	103.33879287 W	2.72@ 291.57	0.51	
600.00	0.04	171.86	600.00	100.00	1.32	1.29 N 2.74 W	32.72554173 N	103.33879355 W	3.03@ 295.24	0.49	
700.00	0.23	104.05	700.00	100.00	1.24	1.21 N 2.54 W	32.72554150 N	103.33879290 W	2.81@ 295.43	0.22	
800.00	0.23	74.31	799.99	100.00	1.24	1.21 N 2.15 W	32.72554150 N	103.33879164 W	2.47@ 299.42	0.12	
900.00	0.23	77.05	899.99	100.00	1.33	1.31 N 1.76 W	32.72554177 N	103.33879037 W	2.20@ 306.67	0.01	
1000.00	0.40	130.89	999.99	100.00	1.15	1.13 N 1.30 W	32.72554125 N	103.33878888 W	1.72@ 310.90	0.32	
1100.00	0.42	191.72	1099.99	100.00	0.56	0.54 N 1.11 W	32.72553963 N	103.33878829 W	1.24@ 295.93	0.42	
1200.00	0.37	272.60	1199.99	100.00	0.22	0.20 N 1.51 W	32.72553869 N	103.33878959 W	1.52@ 277.45	0.51	
1300.00	0.24	310.27	1299.99	100.00	0.37	0.35 N 1.99 W	32.72553912 N	103.33879115 W	2.02@ 279.89	0.23	
1400.00	0.18	218.94	1399.99	100.00	0.39	0.36 N 2.25 W	32.72553916 N	103.33879199 W	2.28@ 279.10	0.30	
1500.00	0.42	253.14	1499.99	100.00	0.17	0.13 N 2.70 W	32.72553855 N	103.33879346 W	2.71@ 272.81	0.29	
1600.00	0.33	324.29	1599.98	100.00	0.30	0.26 N 3.22 W	32.72553891 N	103.33879514 W	3.23@ 274.62	0.44	
1700.00	0.33	29.51	1699.98	100.00	0.78	0.74 N 3.25 W	32.72554024 N	103.33879521 W	3.33@ 282.91	0.36	
1800.00	0.14	78.86	1799.98	100.00	1.06	1.02 N 2.99 W	32.72554099 N	103.33879435 W	3.15@ 288.84	0.26	
1900.00	0.12	84.23	1899.98	100.00	1.09	1.05 N 2.76 W	32.72554108 N	103.33879363 W	2.96@ 290.87	0.02	
2000.00	0.30	357.57	1999.98	100.00	1.36	1.32 N 2.67 W	32.72554182 N	103.33879331 W	2.98@ 296.41	0.32	
2100.00	0.61	8.06	2099.98	100.00	2.15	2.11 N 2.60 W	32.72554399 N	103.33879308 W	3.35@ 309.06	0.32	
2200.00	0.11	19.38	2199.98	100.00	2.76	2.73 N 2.50 W	32.72554568 N	103.33879272 W	3.70@ 317.55	0.50	

PathFinder – a Schlumberger company

Survey Report

DEVON ENERGY PROD. CO, LP
 IRONHOUSE 20 STATE COM #2H
 LEA COUNTY, NEW MEXICO
 API#: 30-025-40748 Rig: PATTERSON 228

Page 02/07

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist (ft)	Dir (deg)	DLS (dg/100ft)
2300.00	0.13	29.14	2299.98	100.00	2.95	2.92 N	2.41 W	32.72554620 N	103.33879243 W	3.79@	320.46	0.03
2400.00	0.12	29.95	2399.98	100.00	3.14	3.11 N	2.30 W	32.72554672 N	103.33879207 W	3.87@	323.48	0.01
2500.00	0.16	37.45	2499.97	100.00	3.34	3.31 N	2.17 W	32.72554727 N	103.33879162 W	3.96@	326.82	0.04
2600.00	0.40	39.77	2599.97	100.00	3.71	3.69 N	1.86 W	32.72554831 N	103.33879061 W	4.13@	333.28	0.24
2700.00	0.77	41.08	2699.97	100.00	4.48	4.47 N	1.19 W	32.72555042 N	103.33878842 W	4.62@	345.04	0.37
2800.00	1.14	43.61	2799.95	100.00	5.69	5.69 N	0.07 W	32.72555376 N	103.33878472 W	5.69@	359.34	0.37
2900.00	1.49	46.12	2899.93	100.00	7.29	7.31 N	1.56 E	32.72555817 N	103.33877939 W	7.48@	12.02	0.35
3000.00	1.30	43.55	2999.90	100.00	9.00	9.04 N	3.28 E	32.72556287 N	103.33877375 W	9.61@	19.93	0.20
3100.00	1.50	43.14	3099.87	100.00	10.75	10.81 N	4.95 E	32.72556771 N	103.33876825 W	11.90@	24.61	0.20
3200.00	1.92	40.85	3199.82	100.00	12.95	13.04 N	6.94 E	32.72557376 N	103.33876171 W	14.77@	28.04	0.43
3300.00	1.88	44.32	3299.77	100.00	15.36	15.48 N	9.19 E	32.72558041 N	103.33875434 W	18.00@	30.69	0.12
3400.00	0.98	46.19	3399.74	100.00	17.11	17.24 N	10.95 E	32.72558522 N	103.33874856 W	20.43@	32.41	0.90
3500.00	1.18	33.90	3499.72	100.00	18.54	18.69 N	12.14 E	32.72558917 N	103.33874464 W	22.29@	33.01	0.31
3600.00	1.02	28.94	3599.70	100.00	20.16	20.32 N	13.14 E	32.72559363 N	103.33874132 W	24.20@	32.89	0.19
3700.00	0.90	25.26	3699.69	100.00	21.64	21.81 N	13.91 E	32.72559770 N	103.33873879 W	25.87@	32.53	0.13
3800.00	0.86	20.43	3799.67	100.00	23.05	23.23 N	14.51 E	32.72560157 N	103.33873680 W	27.39@	31.99	0.08
3900.00	0.91	15.25	3899.66	100.00	24.51	24.70 N	14.98 E	32.72560560 N	103.33873523 W	28.88@	31.24	0.09
4000.00	0.62	2.74	3999.65	100.00	25.81	26.00 N	15.21 E	32.72560918 N	103.33873442 W	30.13@	30.33	0.33
4100.00	0.86	355.95	4099.64	100.00	27.10	27.29 N	15.19 E	32.72561273 N	103.33873447 W	31.23@	29.09	0.25
4200.00	1.40	350.19	4199.63	100.00	29.06	29.24 N	14.93 E	32.72561810 N	103.33873526 W	32.83@	27.04	0.55
4300.00	1.67	352.96	4299.59	100.00	31.71	31.89 N	14.54 E	32.72562539 N	103.33873644 W	35.05@	24.51	0.28
4400.00	1.33	349.91	4399.55	100.00	34.31	34.48 N	14.16 E	32.72563252 N	103.33873760 W	37.28@	22.32	0.35
4500.00	1.14	342.13	4499.53	100.00	36.40	36.57 N	13.65 E	32.72563827 N	103.33873919 W	39.04@	20.46	0.25
4600.00	1.71	350.80	4599.50	100.00	38.83	38.99 N	13.10 E	32.72564494 N	103.33874089 W	41.13@	18.58	0.61
4700.00	1.37	344.88	4699.46	100.00	41.46	41.62 N	12.55 E	32.72565217 N	103.33874260 W	43.47@	16.79	0.38
4800.00	1.47	344.99	4799.43	100.00	43.86	44.01 N	11.91 E	32.72565876 N	103.33874462 W	45.59@	15.14	0.10
4900.00	1.41	339.79	4899.40	100.00	46.27	46.40 N	11.15 E	32.72566536 N	103.33874701 W	47.73@	13.51	0.14

PathFinder – a Schlumberger company

Survey Report

DEVON ENERGY PROD. CO, LP
 IRONHOUSE 20 STATE COM #2H
 LEA COUNTY, NEW MEXICO
 API#: 30-025-40748 Rig: PATTERSON 228

Page 03/07

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular (ft)	Offsets (ft)	Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist (ft)	Dir (deg)	DLS (dg/100ft)
5000.00	1.52	341.96	4999.37	100.00	48.69	48.82 N	10.32 E	32.72567202 N	103.33874965 W	49.90@	11.93	0.12
5100.00	2.00	344.29	5099.32	100.00	51.64	51.76 N	9.43 E	32.72568013 N	103.33875243 W	52.61@	10.33	0.49
5200.00	1.70	341.78	5199.27	100.00	54.74	54.85 N	8.50 E	32.72568864 N	103.33875538 W	55.50@	8.81	0.31
5300.00	1.68	345.49	5299.23	100.00	57.58	57.68 N	7.67 E	32.72569643 N	103.33875800 W	58.19@	7.57	0.11
5400.00	1.97	338.93	5399.18	100.00	60.62	60.70 N	6.68 E	32.72570477 N	103.33876111 W	61.07@	6.28	0.36
5500.00	1.96	339.73	5499.12	100.00	63.84	63.91 N	5.47 E	32.72571362 N	103.33876494 W	64.14@	4.89	0.03
5600.00	1.76	343.36	5599.06	100.00	66.93	66.98 N	4.44 E	32.72572210 N	103.33876821 W	67.13@	3.79	0.23
5700.00	1.82	341.22	5699.01	100.00	69.91	69.96 N	3.49 E	32.72573030 N	103.33877121 W	70.05@	2.85	0.09
5800.00	1.95	338.77	5798.96	100.00	73.01	73.05 N	2.36 E	32.72573882 N	103.33877478 W	73.09@	1.85	0.15
5900.00	2.10	347.35	5898.90	100.00	76.40	76.42 N	1.34 E	32.72574811 N	103.33877798 W	76.43@	1.01	0.34
6000.00	1.88	345.81	5998.84	100.00	79.79	79.80 N	0.54 E	32.72575742 N	103.33878049 W	79.80@	0.39	0.23
6100.00	1.84	352.96	6098.79	100.00	82.98	82.98 N	0.06 W	32.72576618 N	103.33878234 W	82.98@	359.96	0.24
6200.00	1.86	350.27	6198.73	100.00	86.18	86.18 N	0.53 W	32.72577497 N	103.33878378 W	86.18@	359.65	0.09
6300.00	1.82	351.77	6298.68	100.00	89.35	89.35 N	1.03 W	32.72578370 N	103.33878531 W	89.35@	359.34	0.06
6400.00	2.07	354.05	6398.62	100.00	92.73	92.72 N	1.45 W	32.72579297 N	103.33878655 W	92.73@	359.11	0.26
6500.00	2.07	1.94	6498.56	100.00	96.33	96.32 N	1.57 W	32.72580287 N	103.33878685 W	96.33@	359.06	0.28
6600.00	1.77	5.35	6598.50	100.00	99.67	99.66 N	1.37 W	32.72581205 N	103.33878609 W	99.67@	359.21	0.32
6700.00	2.61	5.19	6698.43	100.00	103.47	103.47 N	1.02 W	32.72582250 N	103.33878483 W	103.47@	359.44	0.84
6800.00	2.74	9.46	6798.32	100.00	108.09	108.09 N	0.42 W	32.72583519 N	103.33878274 W	108.09@	359.78	0.24
6900.00	2.32	17.28	6898.22	100.00	112.37	112.38 N	0.58 E	32.72584696 N	103.33877938 W	112.38@	0.29	0.54
7000.00	2.38	18.34	6998.14	100.00	116.25	116.28 N	1.83 E	32.72585766 N	103.33877518 W	116.30@	0.90	0.07
7100.00	2.52	14.91	7098.05	100.00	120.33	120.38 N	3.05 E	32.72586888 N	103.33877109 W	120.42@	1.45	0.20
7200.00	2.73	10.18	7197.94	100.00	124.79	124.85 N	4.04 E	32.72588114 N	103.33876775 W	124.91@	1.85	0.30
7300.00	2.76	11.08	7297.83	100.00	129.48	129.55 N	4.92 E	32.72589405 N	103.33876473 W	129.65@	2.17	0.05
7400.00	2.39	2.13	7397.73	100.00	133.92	134.00 N	5.46 E	32.72590625 N	103.33876284 W	134.11@	2.33	0.54
7500.00	2.69	359.50	7497.63	100.00	138.35	138.43 N	5.52 E	32.72591843 N	103.33876252 W	138.54@	2.28	0.32
7600.00	2.46	358.30	7597.53	100.00	142.85	142.92 N	5.43 E	32.72593078 N	103.33876266 W	143.03@	2.18	0.24

PathFinder – a Schlumberger company

Survey Report

DEVON ENERGY PROD. CO, LP
 IRONHOUSE 20 STATE COM #2H
 LEA COUNTY, NEW MEXICO
 API#: 30-025-40748 Rig: PATTERSON 228

Page 04/07

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)	Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist Dir (ft) (deg)	DLS (dg/100ft)
7700.00	2.47	3.39	7697.44	100.00	147.14	147.22 N 5.50 E	32.72594258 N	103.33876232 W	147.32@ 2.14	0.22
7800.00	2.47	6.25	7797.34	100.00	151.43	151.51 N 5.86 E	32.72595437 N	103.33876101 W	151.63@ 2.21	0.12
7900.00	2.70	1.41	7897.24	100.00	155.92	156.01 N 6.15 E	32.72596672 N	103.33875992 W	156.13@ 2.26	0.32
8000.00	2.49	358.70	7997.14	100.00	160.45	160.54 N 6.16 E	32.72597916 N	103.33875976 W	160.65@ 2.20	0.24
8100.00	2.44	1.50	8097.05	100.00	164.75	164.83 N 6.17 E	32.72599098 N	103.33875961 W	164.95@ 2.14	0.13
8200.00	2.42	0.99	8196.96	100.00	168.98	169.07 N 6.26 E	32.72600263 N	103.33875918 W	169.19@ 2.12	0.03
8300.00	2.60	3.82	8296.86	100.00	173.36	173.45 N 6.45 E	32.72601464 N	103.33875843 W	173.57@ 2.13	0.22
8400.00	2.44	10.77	8396.76	100.00	177.70	177.80 N 6.99 E	32.72602660 N	103.33875652 W	177.94@ 2.25	0.34
8500.00	2.00	25.13	8496.69	100.00	181.36	181.47 N 8.13 E	32.72603666 N	103.33875270 W	181.66@ 2.57	0.71
8600.00	1.71	40.34	8596.64	100.00	184.06	184.19 N 9.84 E	32.72604408 N	103.33874707 W	184.45@ 3.06	0.57
8700.00	1.77	48.01	8696.59	100.00	186.20	186.36 N 11.95 E	32.72604999 N	103.33874013 W	186.74@ 3.67	0.24
8800.00	1.92	60.36	8796.54	100.00	188.03	188.22 N 14.56 E	32.72605504 N	103.33873161 W	188.78@ 4.42	0.42
8900.00	2.39	70.11	8896.47	100.00	189.53	189.76 N 17.97 E	32.72605918 N	103.33872045 W	190.61@ 5.41	0.59
9000.00	1.91	75.29	8996.40	100.00	190.61	190.89 N 21.55 E	32.72606220 N	103.33870880 W	192.10@ 6.44	0.52
** TIED INTO VAUGHN ENERGY SERVICES AT 9038.38' MD										
9038.00	1.67	84.12	9034.38	38.00	190.82	191.11 N 22.71 E	32.72606277 N	103.33870501 W	192.45@ 6.78	0.96
THE FOLLOWING ARE PATHFINDER MWD SURVEYS TIED INTO VAUGHN ENERGY SERVICES GYRO SURVEYS.										
9143.00	2.11	67.61	9139.32	105.00	191.67	192.00 N 26.02 E	32.72606513 N	103.33869423 W	193.76@ 7.72	0.66
9174.00	3.52	26.48	9170.29	31.00	192.73	193.07 N 26.97 E	32.72606805 N	103.33869110 W	194.95@ 7.95	7.67
9205.00	6.07	12.13	9201.18	31.00	195.17	195.53 N 27.74 E	32.72607478 N	103.33868852 W	197.49@ 8.07	9.03
9237.00	8.88	5.91	9232.90	32.00	199.28	199.64 N 28.35 E	32.72608606 N	103.33868642 W	201.64@ 8.08	9.12
9268.00	12.05	4.24	9263.38	31.00	204.88	205.25 N 28.84 E	32.72610146 N	103.33868466 W	207.26@ 8.00	10.27
9300.00	15.56	4.44	9294.45	32.00	212.48	212.86 N 29.42 E	32.72612237 N	103.33868255 W	214.88@ 7.87	10.97
9331.00	18.64	3.63	9324.08	31.00	221.57	221.95 N 30.05 E	32.72614734 N	103.33868020 W	223.98@ 7.71	9.96
9363.00	22.42	3.25	9354.04	32.00	232.76	233.15 N 30.72 E	32.72617810 N	103.33867768 W	235.17@ 7.51	11.82
9394.00	26.38	1.52	9382.27	31.00	245.54	245.94 N 31.24 E	32.72621325 N	103.33867561 W	247.92@ 7.24	12.98
9426.00	29.90	0.48	9410.48	32.00	260.63	261.03 N 31.49 E	32.72625471 N	103.33867432 W	262.92@ 6.88	11.11

PathFinder – a Schlumberger company

Survey Report

DEVON ENERGY PROD. CO, LP
 IRONHOUSE 20 STATE COM #2H
 LEA COUNTY, NEW MEXICO
 API#: 30-025-40748 Rig: PATTERSON 228

Page 05/07

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
9457.00	34.29	358.48	9436.74	31.00	277.09	277.50 N	31.33 E	32.72629996 N	103.33867436 W	279.26@	6.44	14.57
9489.00	37.99	357.20	9462.58	32.00	295.95	296.35 N	30.61 E	32.72635180 N	103.33867613 W	297.93@	5.90	11.80
9520.00	41.24	357.20	9486.45	31.00	315.70	316.09 N	29.64 E	32.72640607 N	103.33867866 W	317.48@	5.36	10.48
9551.00	44.76	356.81	9509.12	31.00	336.83	337.20 N	28.53 E	32.72646412 N	103.33868162 W	338.40@	4.84	11.39
9583.00	48.28	356.63	9531.14	32.00	360.02	360.38 N	27.21 E	32.72652786 N	103.33868523 W	361.40@	4.32	11.01
9614.00	52.06	355.70	9550.99	31.00	383.78	384.12 N	25.61 E	32.72659316 N	103.33868970 W	384.98@	3.81	12.41
9646.00	56.10	355.72	9569.76	32.00	409.64	409.96 N	23.67 E	32.72666422 N	103.33869521 W	410.64@	3.30	12.62
9677.00	60.06	356.57	9586.15	31.00	435.91	436.21 N	21.91 E	32.72673641 N	103.33870015 W	436.76@	2.87	12.98
9709.00	64.02	357.34	9601.15	32.00	464.14	464.43 N	20.41 E	32.72681400 N	103.33870416 W	464.88@	2.52	12.56
9740.00	68.15	357.62	9613.71	31.00	492.46	492.73 N	19.16 E	32.72689183 N	103.33870734 W	493.11@	2.23	13.35
9771.00	72.46	357.86	9624.16	31.00	521.63	521.89 N	18.01 E	32.72697199 N	103.33871019 W	522.20@	1.98	13.92
9803.00	75.97	358.11	9632.86	32.00	552.41	552.66 N	16.93 E	32.72705658 N	103.33871277 W	552.92@	1.75	11.00
9835.00	79.93	358.00	9639.54	32.00	583.69	583.93 N	15.87 E	32.72714255 N	103.33871527 W	584.15@	1.56	12.38
9866.00	84.06	357.39	9643.86	31.00	614.37	614.60 N	14.63 E	32.72722687 N	103.33871835 W	614.77@	1.36	13.46
9898.00	87.76	356.52	9646.14	32.00	646.26	646.46 N	12.94 E	32.72731449 N	103.33872289 W	646.59@	1.15	11.88
9929.00	91.89	357.08	9646.23	31.00	677.22	677.41 N	11.21 E	32.72739958 N	103.33872757 W	677.50@	0.95	13.45
9991.00	94.00	357.01	9643.05	62.00	739.09	739.24 N	8.02 E	32.72756961 N	103.33873606 W	739.28@	0.62	3.41
10085.00	93.47	357.35	9636.92	94.00	832.82	832.93 N	3.40 E	32.72782721 N	103.33874820 W	832.93@	0.23	0.67
10179.00	93.39	357.38	9631.30	94.00	926.60	926.66 N	0.91 W	32.72808493 N	103.33875937 W	926.66@	359.94	0.09
10274.00	92.42	357.60	9626.49	95.00	1021.43	1021.45 N	5.07 W	32.72834554 N	103.33876998 W	1021.46@	359.72	1.05
10368.00	93.30	357.88	9621.80	94.00	1115.28	1115.25 N	8.77 W	32.72860346 N	103.33877916 W	1115.29@	359.55	0.98
10462.00	94.79	358.93	9615.16	94.00	1209.03	1208.98 N	11.38 W	32.72886112 N	103.33878479 W	1209.03@	359.46	1.94
10556.00	96.38	359.95	9606.02	94.00	1302.58	1302.52 N	12.30 W	32.72911823 N	103.33878491 W	1302.58@	359.46	2.01
10650.00	95.23	359.79	9596.51	94.00	1396.09	1396.04 N	12.51 W	32.72937525 N	103.33878275 W	1396.10@	359.49	1.23
10744.00	96.39	359.93	9586.99	94.00	1489.60	1489.56 N	12.74 W	32.72963227 N	103.33878063 W	1489.61@	359.51	1.24
10838.00	93.98	359.35	9578.50	94.00	1583.21	1583.16 N	13.33 W	32.72988955 N	103.33877969 W	1583.22@	359.52	2.64
10932.00	93.31	359.29	9572.52	94.00	1677.02	1676.97 N	14.44 W	32.73014738 N	103.33878045 W	1677.03@	359.51	0.72

PathFinder – a Schlumberger company

Survey Report

DEVON ENERGY PROD. CO, LP
 IRONHOUSE 20 STATE COM #2H
 LEA COUNTY, NEW MEXICO
 API#: 30-025-40748 Rig: PATTERSON 228

Page 06/07

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)	Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist Dir (ft) (deg)	DLS (dg/100ft)
11026.00	92.63	358.99	9567.65	94.00	1770.89	1770.83 N 15.85 W	32.73040539 N	103.33878217 W	1770.90@ 359.49	0.79
11120.00	92.30	359.62	9563.61	94.00	1864.80	1864.73 N 16.99 W	32.73066350 N	103.33878301 W	1864.81@ 359.48	0.76
11215.00	92.95	359.44	9559.26	95.00	1959.70	1959.63 N 17.77 W	32.73092433 N	103.33878264 W	1959.71@ 359.48	0.71
11309.00	93.56	359.94	9553.92	94.00	2053.55	2053.48 N 18.27 W	32.73118227 N	103.33878143 W	2053.56@ 359.49	0.84
11403.00	94.79	359.76	9547.08	94.00	2147.29	2147.22 N 18.52 W	32.73143993 N	103.33877936 W	2147.30@ 359.51	1.32
11497.00	96.55	359.43	9537.79	94.00	2240.83	2240.76 N 19.18 W	32.73169701 N	103.33877866 W	2240.84@ 359.51	1.91
11591.00	96.99	359.62	9526.71	94.00	2334.17	2334.10 N 19.95 W	32.73195357 N	103.33877833 W	2334.18@ 359.51	0.51
11685.00	96.99	358.88	9515.27	94.00	2427.47	2427.39 N 21.17 W	32.73221000 N	103.33877945 W	2427.48@ 359.50	0.78
11780.00	97.34	358.59	9503.42	95.00	2521.72	2521.63 N 23.26 W	32.73246904 N	103.33878334 W	2521.73@ 359.47	0.48
11874.00	97.17	358.58	9491.55	94.00	2614.96	2614.85 N 25.56 W	32.73272530 N	103.33878798 W	2614.97@ 359.44	0.18
11968.00	96.38	358.83	9480.46	94.00	2708.30	2708.17 N 27.67 W	32.73298183 N	103.33879199 W	2708.31@ 359.41	0.88
12062.00	95.76	359.31	9470.52	94.00	2801.77	2801.62 N 29.18 W	32.73323873 N	103.33879407 W	2801.78@ 359.40	0.83
12156.00	95.58	359.36	9461.24	94.00	2895.31	2895.16 N 30.27 W	32.73349582 N	103.33879475 W	2895.32@ 359.40	0.20
12250.00	95.85	359.79	9451.87	94.00	2988.84	2988.69 N 30.96 W	32.73375289 N	103.33879415 W	2988.85@ 359.41	0.54
12345.00	95.23	359.19	9442.70	95.00	3083.40	3083.24 N 31.81 W	32.73401277 N	103.33879400 W	3083.40@ 359.41	0.91
12439.00	94.53	358.92	9434.71	94.00	3177.06	3176.89 N 33.35 W	32.73427019 N	103.33879616 W	3177.06@ 359.40	0.80
12533.00	95.41	359.22	9426.56	94.00	3270.70	3270.52 N 34.87 W	32.73452756 N	103.33879825 W	3270.71@ 359.39	0.99
12627.00	95.23	359.36	9417.85	94.00	3364.30	3364.11 N 36.03 W	32.73478481 N	103.33879916 W	3364.30@ 359.39	0.24
12721.00	94.79	359.59	9409.64	94.00	3457.94	3457.74 N 36.89 W	32.73504218 N	103.33879909 W	3457.94@ 359.39	0.53
12816.00	94.26	359.55	9402.14	95.00	3552.64	3552.44 N 37.60 W	32.73530246 N	103.33879851 W	3552.64@ 359.39	0.56
12910.00	94.70	359.17	9394.80	94.00	3646.35	3646.15 N 38.65 W	32.73556003 N	103.33879906 W	3646.36@ 359.39	0.62
13004.00	93.91	359.01	9387.75	94.00	3740.08	3739.87 N 40.13 W	32.73581765 N	103.33880104 W	3740.09@ 359.39	0.86
13098.00	94.53	358.81	9380.83	94.00	3833.83	3833.60 N 41.92 W	32.73607529 N	103.33880398 W	3833.83@ 359.37	0.69
13192.00	93.91	358.85	9373.91	94.00	3927.57	3927.33 N 43.83 W	32.73633293 N	103.33880734 W	3927.57@ 359.36	0.66
13286.00	94.62	358.75	9366.92	94.00	4021.30	4021.04 N 45.79 W	32.73659055 N	103.33881086 W	4021.31@ 359.35	0.76
13380.00	95.67	358.66	9358.49	94.00	4114.92	4114.64 N 47.91 W	32.73684784 N	103.33881488 W	4114.92@ 359.33	1.12
13474.00	95.67	358.70	9349.20	94.00	4208.45	4208.16 N 50.07 W	32.73710491 N	103.33881904 W	4208.45@ 359.32	0.04

PathFinder – a Schlumberger company

Survey Report

DEVON ENERGY PROD. CO, LP
 IRONHOUSE 20 STATE COM #2H
 LEA COUNTY, NEW MEXICO
 API#: 30-025-40748 Rig: PATTERSON 228

Page 07/07

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)	Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist Dir (ft) (deg)	DLS (dg/100ft)
13569.00	94.44	358.27	9340.83	95.00	4303.07	4302.75 N 52.57 W	32.73736496 N	103.33882428 W	4303.07@ 359.30	1.37
13663.00	93.91	358.00	9333.99	94.00	4396.80	4396.45 N 55.62 W	32.73762256 N	103.33883135 W	4396.80@ 359.28	0.63
13758.00	94.18	358.65	9327.29	95.00	4491.55	4491.17 N 58.39 W	32.73788296 N	103.33883746 W	4491.55@ 359.26	0.74
13852.00	94.00	357.93	9320.58	94.00	4585.30	4584.89 N 61.19 W	32.73814060 N	103.33884370 W	4585.30@ 359.24	0.79
13961.00	93.56	358.13	9313.40	109.00	4694.03	4693.59 N 64.93 W	32.73843944 N	103.33885254 W	4694.04@ 359.21	0.44
PROJECTION TO BIT @ 14018' MD (9309.86' TVD).										
14018.00	93.56	358.13	9309.86	57.00	4750.91	4750.45 N 66.78 W	32.73859576 N	103.33885684 W	4750.92@ 359.19	0.00

** The survey data at tie-in point was furnished by a recognized survey company and entered as submitted. Survey stations above the tie-in point represent recalculated data by PathFinder – a Schlumberger company and may reflect minor changes due to rounding differences between survey programs. Only survey stations taken by qualified PathFinder personnel are subject to certification.