

Legend Natural Gas

Eddy County, New Mexico

Pardue 19 Com

Pardue 19 Com 3H

Original Wellpath

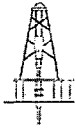
Plan: Plan #1

30-015-41405

Standard Planning Report

18 June, 2013





Gr: @ 3072.0usft (Ground)



To convert a Magnetic Direction to a Grid Direction, Add 7.48°
To convert a True Direction to a Grid Direction, Subtract 0.11°

Azimuths to Grid No
True North: -0.1°
Magnetic North: 7.4°

Magnetic Fl
Strength: 48340.8s
Dip Angle: 60.1°
Date: 6/18/20
Model: IGRF20

Pardue 19 Com 3H
Eddy County, New Mexico
Northing: 435180.00
Easting: 606740.10
Plan #1

WELL DETAILS Pardue 19 Com 3H

Ground Level: 3072.0
+N/-S +E/-W Northing Easting Latitude Longitude
0.0 0.0 435180.00 606740.10 32° 11' 46.357 N 104° 7' 18.832 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
7237.2	0.00	0.00	7237.2	0.0	0.0	0.00	0.00	0.0	
7837.2	60.00	70.00	7733.4	98.0	269.2	10.00	70.00	136.2	
8553.0	90.00	1.40	7940.0	633.3	615.4	10.00	-78.92	716.3	
12798.2	90.00	1.40	7940.0	4877.2	718.8	0.00	0.00	4929.9	P19C BHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
P19C BHL	7940.0	4877.2	718.8	440057.20	607458.90

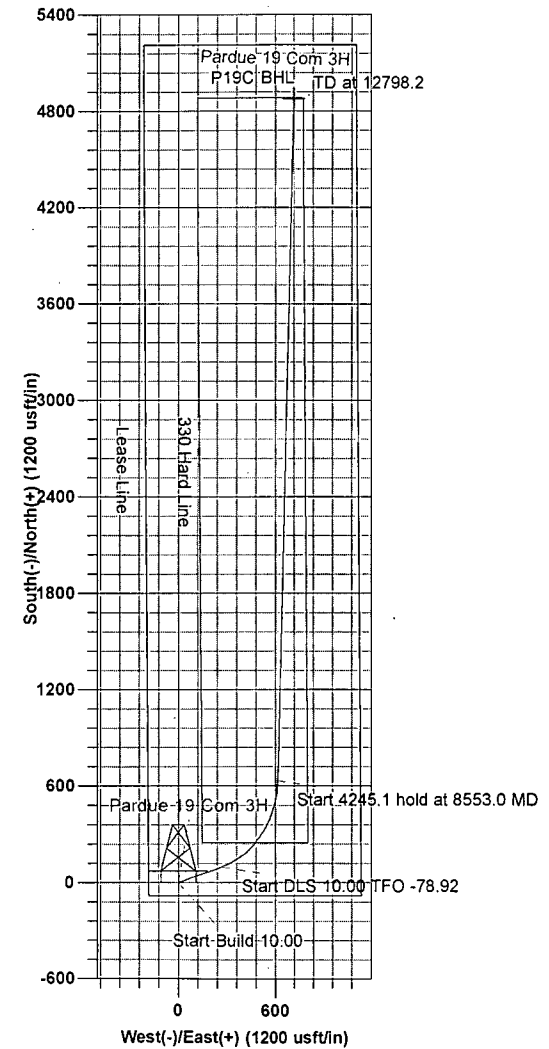
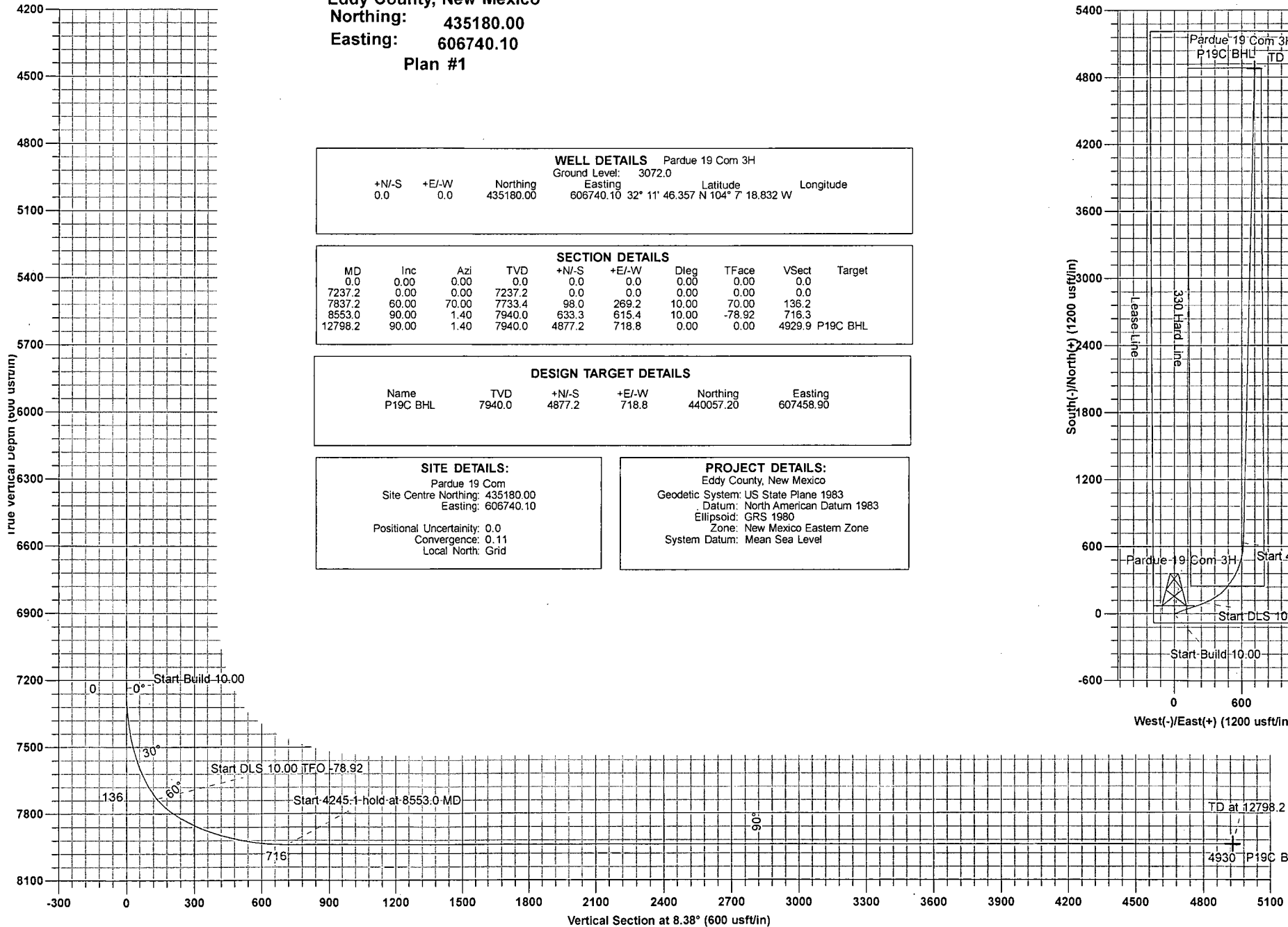
SITE DETAILS:

Pardue 19 Com
Site Centre Northing: 435180.00
Easting: 606740.10

Positional Uncertainty: 0.0
Convergence: 0.11
Local North: Grid

PROJECT DETAILS:

Eddy County, New Mexico
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level



Jody Barclay
14:32, June 18 2011

Scientific Drilling
2740 N. Highway 28
Decatur, TX 76234

Database:	CompassC	Local Co-ordinate Reference:	Well Pardue-19 Com 3H
Company:	Legend Natural Gas	TVD Reference:	Gr @ 3072.0usft (Ground)
Project:	Eddy County, New Mexico	MD Reference:	Gr @ 3072.0usft (Ground)
Site:	Pardue 19 Com	North Reference:	Grid
Well:	Pardue 19 Com 3H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellpath		
Design:	Plan #1		

Project		Eddy County, New Mexico	
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Pardue 19 Com			
Site Position:		Northing:	435,180.00 usft	Latitude:	32° 11' 46.357 N
From:	Map	Easting:	606,740.10 usft	Longitude:	104° 7' 18.832 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.11

Well	Pardue 19 Com 3H					
Well Position	+N/-S	0.0 usft	Northing:	435,180.00 usft	Latitude:	32° 11' 46.357 N
	+E/-W	0.0 usft	Easting:	606,740.10 usft	Longitude:	104° 7' 18.832 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	3,072.0 usft

Wellbore	Original Wellpath				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/18/2013	7.59	60.02	48,341

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	8.38

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)	(°)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
7,237.2	0.00	0.00	7,237.2	0.0	0.0	0.00	0.00	0.00	0.00	
7,837.2	60.00	70.00	7,733.4	98.0	269.2	10.00	10.00	0.00	70.00	
8,553.0	90.00	1.40	7,940.0	633.3	615.4	10.00	4.19	-9.58	-78.92	
12,798.2	90.00	1.40	7,940.0	4,877.2	718.8	0.00	0.00	0.00	0.00	P19C BHL

Database:	CompassC	Local Co-ordinate Reference:	Well: Pardue 19 Com 3H
Company:	Legend Natural Gas	TVD Reference:	Gr: @ 3072.0usft (Ground)
Project:	Eddy County, New Mexico	MD Reference:	Gr: @ 3072.0usft (Ground)
Site:	Pardue 19 Com	North Reference:	Grid
Well:	Pardue 19 Com 3H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellpath		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00

Database:	CompassC	Local Co-ordinate Reference:	Well Pardue 19 Com 3H
Company:	Legend Natural Gas	TVD Reference:	Gr: @ 3072.0usft (Ground)
Project:	Eddy County, New Mexico	MD Reference:	Gr: @ 3072.0usft (Ground)
Site:	Pardue 19 Com	North Reference:	Grid
Well:	Pardue 19 Com 3H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellpath		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,237.2	0.00	0.00	7,237.2	0.0	0.0	0.0	0.00	0.00	0.00	
7,250.0	1.28	70.00	7,250.0	0.0	0.1	0.1	10.00	10.00	0.00	
7,300.0	6.28	70.00	7,299.9	1.2	3.2	1.6	10.00	10.00	0.00	
7,350.0	11.28	70.00	7,349.3	3.8	10.4	5.3	10.00	10.00	0.00	
7,400.0	16.28	70.00	7,397.8	7.9	21.6	10.9	10.00	10.00	0.00	
7,450.0	21.28	70.00	7,445.1	13.4	36.7	18.6	10.00	10.00	0.00	
7,500.0	26.28	70.00	7,490.9	20.3	55.6	28.2	10.00	10.00	0.00	
7,550.0	31.28	70.00	7,534.7	28.5	78.3	39.6	10.00	10.00	0.00	
7,600.0	36.28	70.00	7,576.2	38.0	104.4	52.8	10.00	10.00	0.00	
7,650.0	41.28	70.00	7,615.2	48.7	133.8	67.7	10.00	10.00	0.00	
7,700.0	46.28	70.00	7,651.3	60.5	166.3	84.1	10.00	10.00	0.00	
7,750.0	51.28	70.00	7,684.2	73.4	201.6	102.0	10.00	10.00	0.00	
7,800.0	56.28	70.00	7,713.8	87.2	239.5	121.2	10.00	10.00	0.00	
7,837.2	60.00	70.00	7,733.4	98.0	269.2	136.2	10.00	10.00	0.00	
7,850.0	60.25	68.55	7,739.8	101.9	279.6	141.6	10.00	1.98	-11.30	
7,900.0	61.39	62.98	7,764.2	119.8	319.4	165.1	10.00	2.28	-11.15	
7,950.0	62.76	57.53	7,787.6	141.7	357.7	192.4	10.00	2.73	-10.89	
8,000.0	64.32	52.23	7,809.9	167.5	394.3	223.2	10.00	3.14	-10.61	
8,050.0	66.08	47.07	7,830.9	196.9	428.8	257.3	10.00	3.51	-10.32	
8,100.0	68.00	42.05	7,850.4	229.7	461.1	294.5	10.00	3.84	-10.03	
8,150.0	70.07	37.18	7,868.3	265.6	490.9	334.4	10.00	4.14	-9.75	
8,200.0	72.27	32.44	7,884.4	304.5	517.9	376.7	10.00	4.40	-9.49	
8,250.0	74.58	27.81	7,898.7	345.9	541.9	421.2	10.00	4.62	-9.25	
8,300.0	76.98	23.28	7,911.0	389.6	562.8	467.5	10.00	4.81	-9.05	
8,350.0	79.46	18.85	7,921.2	435.3	580.4	515.3	10.00	4.96	-8.87	
8,400.0	82.00	14.49	7,929.2	482.6	594.5	564.1	10.00	5.08	-8.73	
8,450.0	84.59	10.18	7,935.1	531.1	605.1	613.6	10.00	5.17	-8.62	
8,500.0	87.21	5.91	7,938.7	580.4	612.1	663.5	10.00	5.23	-8.54	
8,553.0	90.00	1.40	7,940.0	633.3	615.4	716.3	10.00	5.26	-8.51	
8,600.0	90.00	1.40	7,940.0	680.3	616.6	762.9	0.00	0.00	0.00	
8,700.0	90.00	1.40	7,940.0	780.2	619.0	862.2	0.00	0.00	0.00	
8,800.0	90.00	1.40	7,940.0	880.2	621.5	961.4	0.00	0.00	0.00	
8,900.0	90.00	1.40	7,940.0	980.2	623.9	1,060.7	0.00	0.00	0.00	
9,000.0	90.00	1.40	7,940.0	1,080.2	626.3	1,159.9	0.00	0.00	0.00	
9,100.0	90.00	1.40	7,940.0	1,180.1	628.8	1,259.2	0.00	0.00	0.00	

Database:	CompassC	Local Co-ordinate Reference:	Well Pardue 19 Com 3H
Company:	Legend Natural Gas	TVD Reference:	Gr: @ 3072.0usft (Ground)
Project:	Eddy County, New Mexico	MD Reference:	Gr: @ 3072.0usft (Ground)
Site:	Pardue 19 Com	North Reference:	Grid
Well:	Pardue 19 Com 3H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellpath		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,200.0	90.00	1.40	7,940.0	1,280.1	631.2	1,358.4	0.00	0.00	0.00
9,300.0	90.00	1.40	7,940.0	1,380.1	633.6	1,457.7	0.00	0.00	0.00
9,400.0	90.00	1.40	7,940.0	1,480.0	636.1	1,557.0	0.00	0.00	0.00
9,500.0	90.00	1.40	7,940.0	1,580.0	638.5	1,656.2	0.00	0.00	0.00
9,600.0	90.00	1.40	7,940.0	1,680.0	640.9	1,755.5	0.00	0.00	0.00
9,700.0	90.00	1.40	7,940.0	1,779.9	643.4	1,854.7	0.00	0.00	0.00
9,800.0	90.00	1.40	7,940.0	1,879.9	645.8	1,954.0	0.00	0.00	0.00
9,900.0	90.00	1.40	7,940.0	1,979.9	648.2	2,053.2	0.00	0.00	0.00
10,000.0	90.00	1.40	7,940.0	2,079.9	650.7	2,152.5	0.00	0.00	0.00
10,100.0	90.00	1.40	7,940.0	2,179.8	653.1	2,251.8	0.00	0.00	0.00
10,200.0	90.00	1.40	7,940.0	2,279.8	655.5	2,351.0	0.00	0.00	0.00
10,300.0	90.00	1.40	7,940.0	2,379.8	658.0	2,450.3	0.00	0.00	0.00
10,400.0	90.00	1.40	7,940.0	2,479.7	660.4	2,549.5	0.00	0.00	0.00
10,500.0	90.00	1.40	7,940.0	2,579.7	662.8	2,648.8	0.00	0.00	0.00
10,600.0	90.00	1.40	7,940.0	2,679.7	665.3	2,748.0	0.00	0.00	0.00
10,700.0	90.00	1.40	7,940.0	2,779.7	667.7	2,847.3	0.00	0.00	0.00
10,800.0	90.00	1.40	7,940.0	2,879.6	670.1	2,946.6	0.00	0.00	0.00
10,900.0	90.00	1.40	7,940.0	2,979.6	672.6	3,045.8	0.00	0.00	0.00
11,000.0	90.00	1.40	7,940.0	3,079.6	675.0	3,145.1	0.00	0.00	0.00
11,100.0	90.00	1.40	7,940.0	3,179.5	677.5	3,244.3	0.00	0.00	0.00
11,200.0	90.00	1.40	7,940.0	3,279.5	679.9	3,343.6	0.00	0.00	0.00
11,300.0	90.00	1.40	7,940.0	3,379.5	682.3	3,442.8	0.00	0.00	0.00
11,400.0	90.00	1.40	7,940.0	3,479.4	684.8	3,542.1	0.00	0.00	0.00
11,500.0	90.00	1.40	7,940.0	3,579.4	687.2	3,641.4	0.00	0.00	0.00
11,600.0	90.00	1.40	7,940.0	3,679.4	689.6	3,740.6	0.00	0.00	0.00
11,700.0	90.00	1.40	7,940.0	3,779.4	692.1	3,839.9	0.00	0.00	0.00
11,800.0	90.00	1.40	7,940.0	3,879.3	694.5	3,939.1	0.00	0.00	0.00
11,900.0	90.00	1.40	7,940.0	3,979.3	696.9	4,038.4	0.00	0.00	0.00
12,000.0	90.00	1.40	7,940.0	4,079.3	699.4	4,137.6	0.00	0.00	0.00
12,100.0	90.00	1.40	7,940.0	4,179.2	701.8	4,236.9	0.00	0.00	0.00
12,200.0	90.00	1.40	7,940.0	4,279.2	704.2	4,336.2	0.00	0.00	0.00
12,300.0	90.00	1.40	7,940.0	4,379.2	706.7	4,435.4	0.00	0.00	0.00
12,400.0	90.00	1.40	7,940.0	4,479.1	709.1	4,534.7	0.00	0.00	0.00
12,500.0	90.00	1.40	7,940.0	4,579.1	711.5	4,633.9	0.00	0.00	0.00
12,600.0	90.00	1.40	7,940.0	4,679.1	714.0	4,733.2	0.00	0.00	0.00
12,700.0	90.00	1.40	7,940.0	4,779.1	716.4	4,832.4	0.00	0.00	0.00
12,798.2	90.00	1.40	7,940.0	4,877.2	718.8	4,929.9	0.00	0.00	0.00

Design Targets

Target Name	hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
P19C BHL	- plan hits target center	0.00	0.00	7,940.0	4,877.2	718.8	440,057.20	607,458.90	32° 12' 34.608 N	104° 7' 10.354 W
	- Point									