

LEAM
Drilling Systems, Inc.

DEVON ENERGY

Lea County, NM (NAD-83)

Thistle Unit

66H

OH

Plan: Plan #1

Standard Planning Report

07 January, 2015


devon

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 66H
Company:	DEVON ENERGY	TVD Reference:	3633' GL + 25' RKB @ 3658.00usft (Original Well Elev)
Project:	Lea County, NM (NAD-83)	MD Reference:	3633' GL + 25' RKB @ 3658.00usft (Original Well Elev)
Site:	Thistle Unit	North Reference:	Grid
Well:	66H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project	Lea County, NM (NAD-83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Thistle Unit		
Site Position:		Northing:	468,026.90 usft
From:	Map	Easting:	780,722.56 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 17' 3.494 N
		Longitude:	103° 33' 31.335 W
		Grid Convergence:	0.41 °

Well	66H, Leonard		
Well Position	+N/-S	-10,994.40 usft	Northing:
	+E/-W	-1,773.06 usft	Easting:
Position Uncertainty		0.00 usft	Wellhead Elevation:
			3,658.00 usft
			Latitude:
			32° 15' 14.830 N
			Longitude:
			103° 33' 52.905 W
			Ground Level:
			3,633.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	1/7/2015	7.32	60.12	48,231

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	359.56

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
9,104.04	0.00	0.00	9,104.04	0.00	0.00	0.00	0.00	0.00	0.00	
10,004.04	90.00	359.56	9,677.00	572.94	-4.42	10.00	10.00	0.00	359.56	
17,271.62	90.00	359.56	9,677.00	7,840.30	-60.50	0.00	0.00	0.00	0.00	PBHL (TU 66H)

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Well:	66H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL (TU 66H)									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,278.00	0.00	0.00	1,278.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,570.00	0.00	0.00	1,570.00	0.00	0.00	0.00	0.00	0.00	0.00
Top Salt									
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00

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Wellbore:	OH		
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)
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,965.00	0.00	0.00	4,965.00	0.00	0.00	0.00	0.00	0.00	0.00
Base Salt									
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,193.00	0.00	0.00	5,193.00	0.00	0.00	0.00	0.00	0.00	0.00
Delaware									
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,082.00	0.00	0.00	6,082.00	0.00	0.00	0.00	0.00	0.00	0.00
Cherry Canyon									
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,935.00	0.00	0.00	7,935.00	0.00	0.00	0.00	0.00	0.00	0.00
Brushy Canyon									
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00

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Site:	Thistle Unit	North Reference:	Grid
Well:	66H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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)
8,945.00	0.00	0.00	8,945.00	0.00	0.00	0.00	0.00	0.00	0.00
Lwr Brushy									
9,000.00	0.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00
9,095.00	0.00	0.00	9,095.00	0.00	0.00	0.00	0.00	0.00	0.00
1st BS LM									
9,104.04	0.00	0.00	9,104.04	0.00	0.00	0.00	0.00	0.00	0.00
KOP 10° DLS									
9,150.00	4.60	359.56	9,149.95	1.84	-0.01	1.84	10.00	10.00	0.00
9,200.00	9.60	359.56	9,199.55	8.02	-0.06	8.02	10.00	10.00	0.00
9,236.17	13.21	359.56	9,235.00	15.17	-0.12	15.17	10.00	10.00	0.00
Up Leonard									
9,250.00	14.60	359.56	9,248.43	18.49	-0.14	18.49	10.00	10.00	0.00
9,300.00	19.60	359.56	9,296.20	33.18	-0.26	33.18	10.00	10.00	0.00
9,350.00	24.60	359.56	9,342.52	51.98	-0.40	51.99	10.00	10.00	0.00
9,400.00	29.60	359.56	9,387.01	74.75	-0.58	74.75	10.00	10.00	0.00
9,450.00	34.60	359.56	9,429.36	101.31	-0.78	101.31	10.00	10.00	0.00
9,500.00	39.60	359.56	9,469.23	131.46	-1.01	131.46	10.00	10.00	0.00
9,550.00	44.60	359.56	9,506.32	164.96	-1.27	164.97	10.00	10.00	0.00
9,591.82	48.78	359.56	9,535.00	195.39	-1.51	195.39	10.00	10.00	0.00
Base Up Leonard									
9,600.00	49.60	359.56	9,540.34	201.57	-1.56	201.58	10.00	10.00	0.00
9,650.00	54.60	359.56	9,571.05	241.01	-1.86	241.02	10.00	10.00	0.00
9,700.00	59.60	359.56	9,598.20	282.98	-2.18	282.99	10.00	10.00	0.00
9,735.03	63.10	359.56	9,615.00	313.71	-2.42	313.72	10.00	10.00	0.00
Mid Leonard									
9,750.00	64.60	359.56	9,621.60	327.15	-2.52	327.16	10.00	10.00	0.00
9,800.00	69.60	359.56	9,641.05	373.19	-2.88	373.20	10.00	10.00	0.00
9,850.00	74.60	359.56	9,656.42	420.75	-3.25	420.76	10.00	10.00	0.00
9,900.00	79.60	359.56	9,667.58	469.47	-3.62	469.49	10.00	10.00	0.00
9,950.00	84.60	359.56	9,674.45	518.98	-4.00	519.00	10.00	10.00	0.00
10,004.04	90.00	359.56	9,677.00	572.94	-4.42	572.96	10.00	10.00	0.00
LP									
10,100.00	90.00	359.56	9,677.00	668.90	-5.16	668.92	0.00	0.00	0.00
10,200.00	90.00	359.56	9,677.00	768.89	-5.93	768.92	0.00	0.00	0.00
10,300.00	90.00	359.56	9,677.00	868.89	-6.70	868.92	0.00	0.00	0.00
10,400.00	90.00	359.56	9,677.00	968.89	-7.48	968.92	0.00	0.00	0.00
10,500.00	90.00	359.56	9,677.00	1,068.88	-8.25	1,068.92	0.00	0.00	0.00
10,600.00	90.00	359.56	9,677.00	1,168.88	-9.02	1,168.92	0.00	0.00	0.00
10,700.00	90.00	359.56	9,677.00	1,268.88	-9.79	1,268.92	0.00	0.00	0.00
10,800.00	90.00	359.56	9,677.00	1,368.87	-10.56	1,368.92	0.00	0.00	0.00
10,900.00	90.00	359.56	9,677.00	1,468.87	-11.33	1,468.92	0.00	0.00	0.00
11,000.00	90.00	359.56	9,677.00	1,568.87	-12.11	1,568.92	0.00	0.00	0.00
11,100.00	90.00	359.56	9,677.00	1,668.87	-12.88	1,668.92	0.00	0.00	0.00
11,200.00	90.00	359.56	9,677.00	1,768.86	-13.65	1,768.92	0.00	0.00	0.00
11,300.00	90.00	359.56	9,677.00	1,868.86	-14.42	1,868.92	0.00	0.00	0.00
11,400.00	90.00	359.56	9,677.00	1,968.86	-15.19	1,968.92	0.00	0.00	0.00
11,500.00	90.00	359.56	9,677.00	2,068.85	-15.96	2,068.92	0.00	0.00	0.00
11,600.00	90.00	359.56	9,677.00	2,168.85	-16.74	2,168.92	0.00	0.00	0.00
11,700.00	90.00	359.56	9,677.00	2,268.85	-17.51	2,268.92	0.00	0.00	0.00
11,800.00	90.00	359.56	9,677.00	2,368.85	-18.28	2,368.92	0.00	0.00	0.00
11,900.00	90.00	359.56	9,677.00	2,468.84	-19.05	2,468.92	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 66H
Company:	DEVON ENERGY	TVD Reference:	3633' GL + 25' RKB @ 3658.00usft (Original Well Elev)
Project:	Lea County, NM (NAD-83)	MD Reference:	3633' GL + 25' RKB @ 3658.00usft (Original Well Elev)
Site:	Thistle Unit	North Reference:	Grid
Well:	66H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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)
12,000.00	90.00	359.56	9,677.00	2,568.84	-19.82	2,568.92	0.00	0.00	0.00
12,100.00	90.00	359.56	9,677.00	2,668.84	-20.59	2,668.92	0.00	0.00	0.00
12,200.00	90.00	359.56	9,677.00	2,768.83	-21.37	2,768.92	0.00	0.00	0.00
12,300.00	90.00	359.56	9,677.00	2,868.83	-22.14	2,868.92	0.00	0.00	0.00
12,400.00	90.00	359.56	9,677.00	2,968.83	-22.91	2,968.92	0.00	0.00	0.00
12,500.00	90.00	359.56	9,677.00	3,068.82	-23.68	3,068.92	0.00	0.00	0.00
12,600.00	90.00	359.56	9,677.00	3,168.82	-24.45	3,168.92	0.00	0.00	0.00
12,700.00	90.00	359.56	9,677.00	3,268.82	-25.22	3,268.92	0.00	0.00	0.00
12,800.00	90.00	359.56	9,677.00	3,368.82	-26.00	3,368.92	0.00	0.00	0.00
12,900.00	90.00	359.56	9,677.00	3,468.81	-26.77	3,468.92	0.00	0.00	0.00
13,000.00	90.00	359.56	9,677.00	3,568.81	-27.54	3,568.92	0.00	0.00	0.00
13,100.00	90.00	359.56	9,677.00	3,668.81	-28.31	3,668.92	0.00	0.00	0.00
13,200.00	90.00	359.56	9,677.00	3,768.80	-29.08	3,768.92	0.00	0.00	0.00
13,300.00	90.00	359.56	9,677.00	3,868.80	-29.85	3,868.92	0.00	0.00	0.00
13,400.00	90.00	359.56	9,677.00	3,968.80	-30.63	3,968.92	0.00	0.00	0.00
13,500.00	90.00	359.56	9,677.00	4,068.79	-31.40	4,068.92	0.00	0.00	0.00
13,600.00	90.00	359.56	9,677.00	4,168.79	-32.17	4,168.92	0.00	0.00	0.00
13,700.00	90.00	359.56	9,677.00	4,268.79	-32.94	4,268.92	0.00	0.00	0.00
13,800.00	90.00	359.56	9,677.00	4,368.79	-33.71	4,368.92	0.00	0.00	0.00
13,900.00	90.00	359.56	9,677.00	4,468.78	-34.48	4,468.92	0.00	0.00	0.00
14,000.00	90.00	359.56	9,677.00	4,568.78	-35.26	4,568.92	0.00	0.00	0.00
14,100.00	90.00	359.56	9,677.00	4,668.78	-36.03	4,668.92	0.00	0.00	0.00
14,200.00	90.00	359.56	9,677.00	4,768.77	-36.80	4,768.92	0.00	0.00	0.00
14,300.00	90.00	359.56	9,677.00	4,868.77	-37.57	4,868.92	0.00	0.00	0.00
14,400.00	90.00	359.56	9,677.00	4,968.77	-38.34	4,968.92	0.00	0.00	0.00
14,500.00	90.00	359.56	9,677.00	5,068.76	-39.11	5,068.92	0.00	0.00	0.00
14,600.00	90.00	359.56	9,677.00	5,168.76	-39.88	5,168.92	0.00	0.00	0.00
14,700.00	90.00	359.56	9,677.00	5,268.76	-40.66	5,268.92	0.00	0.00	0.00
14,800.00	90.00	359.56	9,677.00	5,368.76	-41.43	5,368.92	0.00	0.00	0.00
14,900.00	90.00	359.56	9,677.00	5,468.75	-42.20	5,468.92	0.00	0.00	0.00
15,000.00	90.00	359.56	9,677.00	5,568.75	-42.97	5,568.92	0.00	0.00	0.00
15,100.00	90.00	359.56	9,677.00	5,668.75	-43.74	5,668.92	0.00	0.00	0.00
15,200.00	90.00	359.56	9,677.00	5,768.74	-44.51	5,768.92	0.00	0.00	0.00
15,300.00	90.00	359.56	9,677.00	5,868.74	-45.29	5,868.92	0.00	0.00	0.00
15,400.00	90.00	359.56	9,677.00	5,968.74	-46.06	5,968.92	0.00	0.00	0.00
15,500.00	90.00	359.56	9,677.00	6,068.74	-46.83	6,068.92	0.00	0.00	0.00
15,600.00	90.00	359.56	9,677.00	6,168.73	-47.60	6,168.92	0.00	0.00	0.00
15,700.00	90.00	359.56	9,677.00	6,268.73	-48.37	6,268.92	0.00	0.00	0.00
15,800.00	90.00	359.56	9,677.00	6,368.73	-49.14	6,368.92	0.00	0.00	0.00
15,900.00	90.00	359.56	9,677.00	6,468.72	-49.92	6,468.92	0.00	0.00	0.00
16,000.00	90.00	359.56	9,677.00	6,568.72	-50.69	6,568.92	0.00	0.00	0.00
16,100.00	90.00	359.56	9,677.00	6,668.72	-51.46	6,668.92	0.00	0.00	0.00
16,200.00	90.00	359.56	9,677.00	6,768.71	-52.23	6,768.92	0.00	0.00	0.00
16,300.00	90.00	359.56	9,677.00	6,868.71	-53.00	6,868.92	0.00	0.00	0.00
16,400.00	90.00	359.56	9,677.00	6,968.71	-53.77	6,968.92	0.00	0.00	0.00
16,500.00	90.00	359.56	9,677.00	7,068.71	-54.55	7,068.92	0.00	0.00	0.00
16,600.00	90.00	359.56	9,677.00	7,168.70	-55.32	7,168.92	0.00	0.00	0.00
16,700.00	90.00	359.56	9,677.00	7,268.70	-56.09	7,268.92	0.00	0.00	0.00
16,800.00	90.00	359.56	9,677.00	7,368.70	-56.86	7,368.92	0.00	0.00	0.00
16,900.00	90.00	359.56	9,677.00	7,468.69	-57.63	7,468.92	0.00	0.00	0.00
17,000.00	90.00	359.56	9,677.00	7,568.69	-58.40	7,568.92	0.00	0.00	0.00
17,100.00	90.00	359.56	9,677.00	7,668.69	-59.18	7,668.92	0.00	0.00	0.00

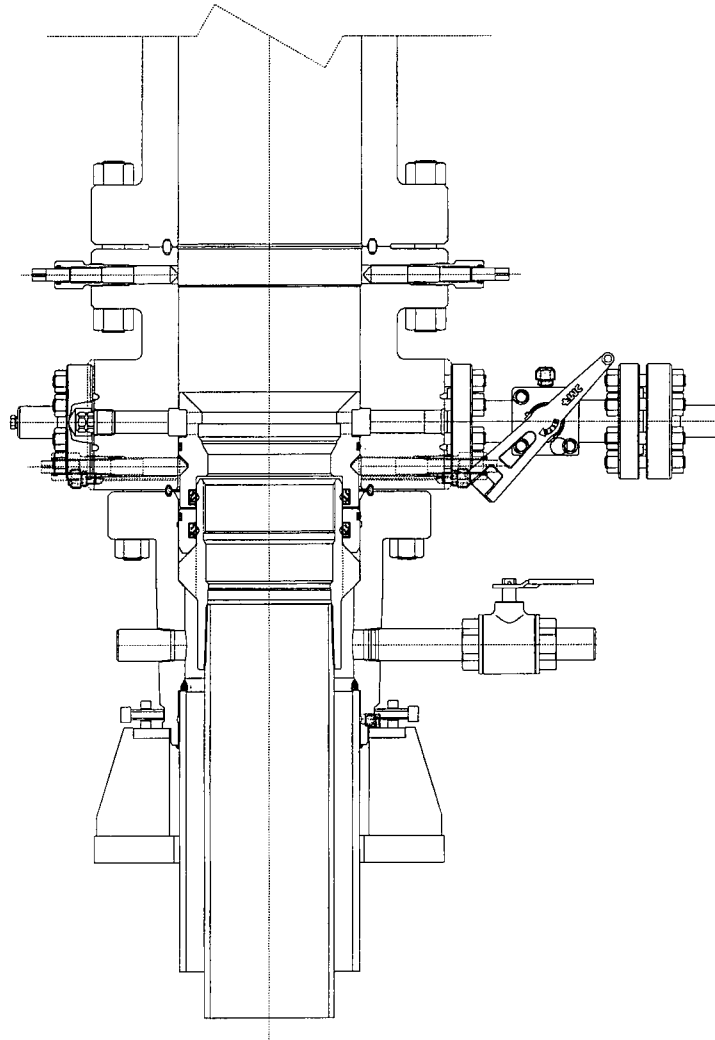
Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 66H
Company:	DEVON ENERGY	TVD Reference:	3633' GL + 25' RKB @ 3658.00usft (Original Well Elev)
Project:	Lea County, NM (NAD-83)	MD Reference:	3633' GL + 25' RKB @ 3658.00usft (Original Well Elev)
Site:	Thistle Unit	North Reference:	Grid
Well:	66H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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)
17,200.00	90.00	359.56	9,677.00	7,768.68	-59.95	7,768.92	0.00	0.00	0.00
17,271.62	90.00	359.56	9,677.00	7,840.30	-60.50	7,840.53	0.00	0.00	0.00
TD - PBHL (TU 66H)									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL (TU 66H)	0.00	0.00	0.00	0.00	0.00	457,032.50	778,949.50	32° 15' 14.830 N	103° 33' 52.905 W
- plan hits target center									
- Point									
PBHL (TU 66H)	0.00	0.00	9,677.00	7,840.30	-60.50	464,872.80	778,889.00	32° 16' 32.415 N	103° 33' 52.956 W
- plan hits target center									
- Point									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,278.00	1,278.00	Rustler		0.00		
1,570.00	1,570.00	Top Salt		0.00		
4,965.00	4,965.00	Base Salt		0.00		
5,193.00	5,193.00	Delaware		0.00		
6,082.00	6,082.00	Cherry Canyon		0.00		
7,935.00	7,935.00	Brushy Canyon		0.00		
8,945.00	8,945.00	Lwr Brushy		0.00		
9,095.00	9,095.00	1st BS LM		0.00		
9,236.17	9,235.00	Up Leonard		0.00		
9,591.82	9,535.00	Base Up Leonard		0.00		
9,735.03	9,615.00	Mid Leonard		0.00		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
9,104.04	9,104.04	0.00	0.00	KOP 10° DLS
10,004.04	9,677.00	572.94	-4.42	LP
17,271.62	9,677.00	7,840.30	-60.50	TD



PRIMARY MODE

DEVON ENERGY

ARTESIA

S.E.N.M

13 3/8 X 9 5/8

QUOTE LAYOUT
F18648
REF: DM100161737
DM100151315

PRIVATE AND CONFIDENTIAL

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REVISIONS

A	05-08-13
B	1-22-14
C	5-13-14

DESCRIPTION

SURFACE WELLHEAD LAYOUT
UNIHEAD, UH-1, SOW,
DEVON ENERGY, ODESSA

DRAWN BY	
K. VU	05-08-13
DRAFTING REVIEW	
Z. MARQUEZ	05-08-13
DESIGN REVIEW	
K. TAHA	05-08-13
APPROVED BY	
R. HAMILTON	05-08-13

FMCTechnologies

DRAWING NUMBER
DM100161771-2A

DM100161771-2B

DEVON ENERGY

Project: Lea County, NM (NAD-83)
Site: Thistle Unit
Well: 66H
Wellbore: OH
Design: Plan #1



Azimuths to Grid North
True North: -0.41°
Magnetic North: 6.91°

Magnetic Field
Strength: 48230.9snT
Dip Angle: 60.12°
Date: 1/7/2015
Model: BGGM2014

PROJECT DETAILS: Lea County, NM (NAD-83)

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

devon

SECTION DETAILS

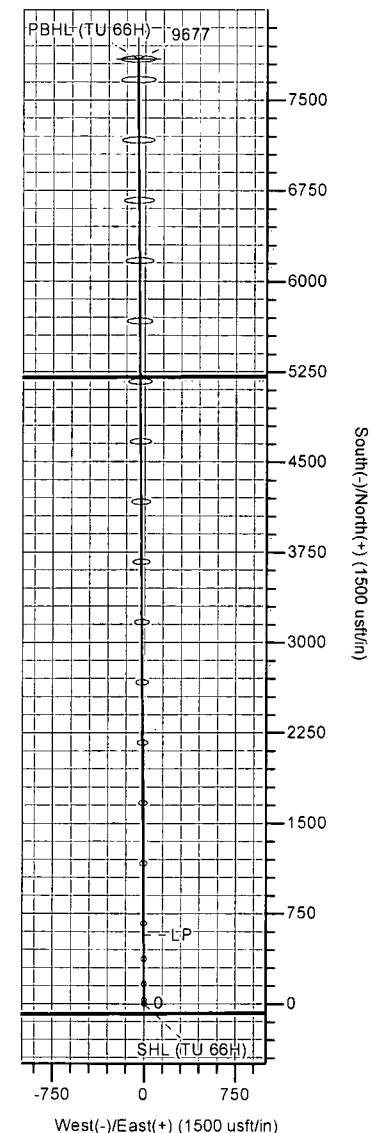
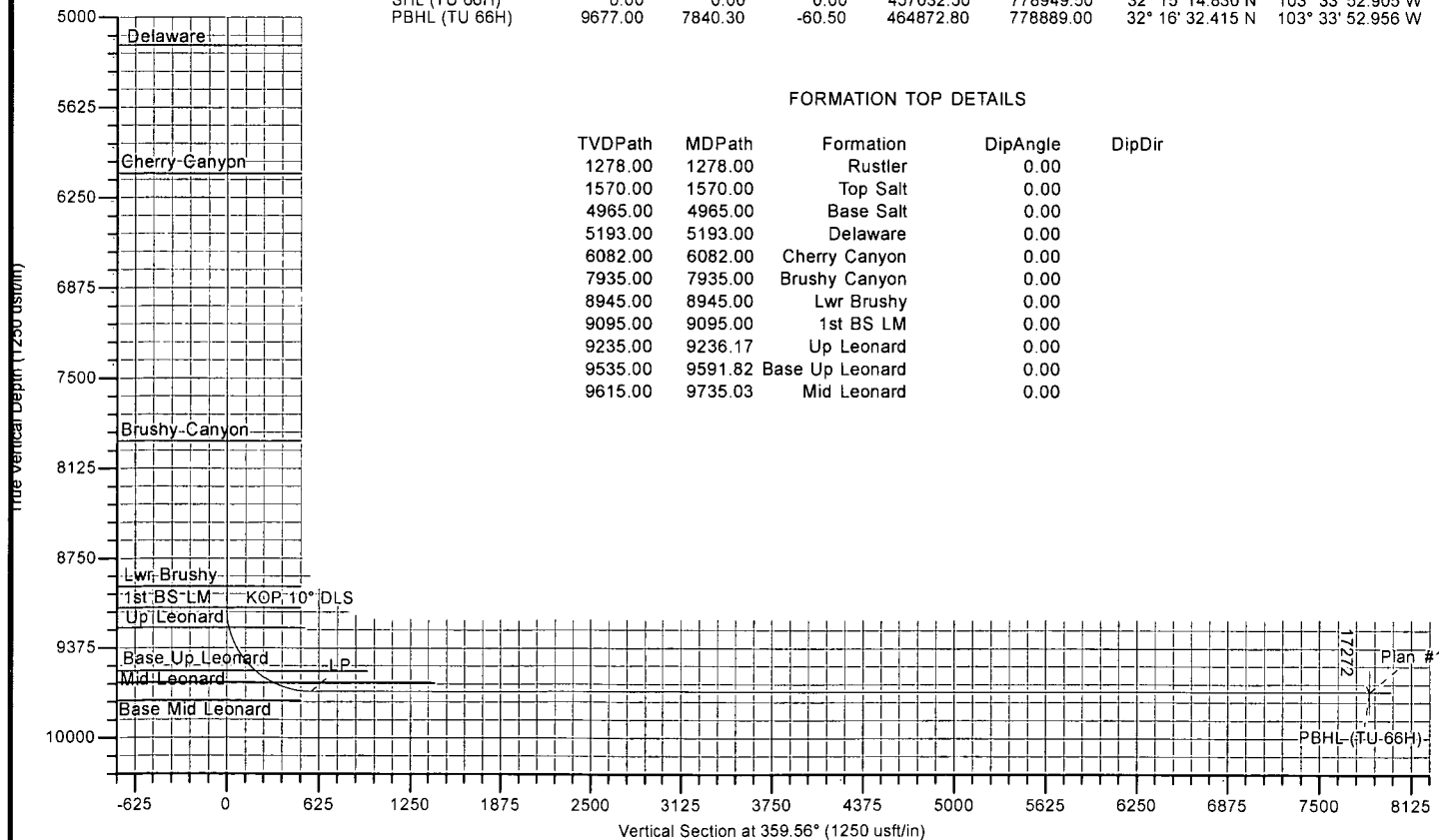
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	9104.04	0.00	0.00	9104.04	0.00	0.00	0.00	0.00	0.00	KOP 10° DLS
3	10004.04	90.00	359.56	9677.00	572.94	-4.42	10.00	359.56	572.96	LP
4	17271.62	90.00	359.56	9677.00	7840.30	-60.50	0.00	0.00	7840.53	TD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL (TU 66H)	0.00	0.00	0.00	457032.50	778949.50	32° 15' 14.830 N	103° 33' 52.905 W
PBHL (TU 66H)	9677.00	7840.30	-60.50	464872.80	778889.00	32° 16' 32.415 N	103° 33' 52.956 W

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
1278.00	1278.00	Rustler	0.00	
1570.00	1570.00	Top Salt	0.00	
4965.00	4965.00	Base Salt	0.00	
5193.00	5193.00	Delaware	0.00	
6082.00	6082.00	Cherry Canyon	0.00	
7935.00	7935.00	Brushy Canyon	0.00	
8945.00	8945.00	Lwr Brushy	0.00	
9095.00	9095.00	1st BS LM	0.00	
9235.00	9236.17	Up Leonard	0.00	
9535.00	9591.82	Base Up Leonard	0.00	
9615.00	9735.03	Mid Leonard	0.00	



LEAM DRILLING SYSTEMS LLC
2010 East Davis, Conroe, Texas 77301
Phone: 936/756-7577, Fax 936/756-7595

Plan: Plan #1 (66H/OH)
Thistle Unit
Created By: Brady Deaver Date: 14:59, January 07 2015
Date: _____
Approved: _____ Date: _____