

Devon Energy

Project: Lea County, NM (NAD-83)
 Site: Thistle Unit Sec 22-27 Trac Pad
 Well: Thistle Unit 161H
 Wellbore: OH
 Design: Plan #2

3711.5' GE +23.5' KB @ 3735.00usft
 Ground Level: 3711.50

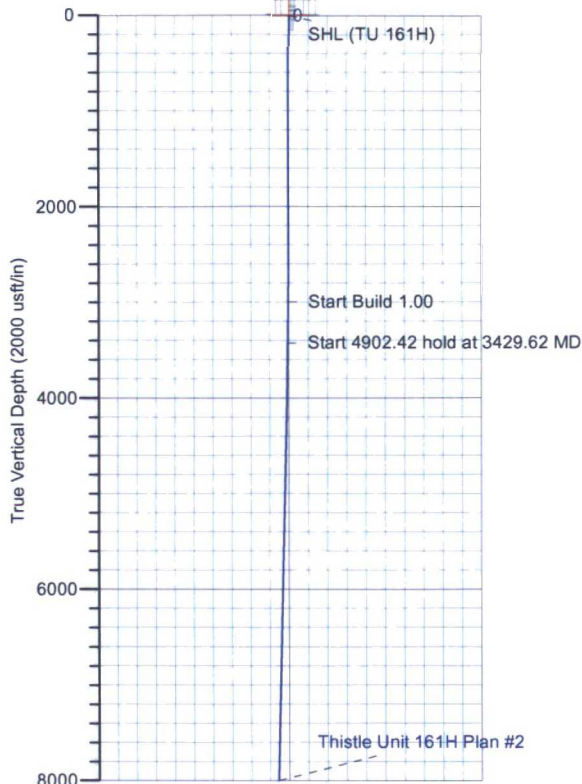


Azimuths to Grid North
 True North: -0.41°
 Magnetic North: 6.42°
 Magnetic Field
 Strength: 48166.5nT
 Dip Angle: 60.12°
 Date: 9/19/2017
 Model: HDGM

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



30-025-44068

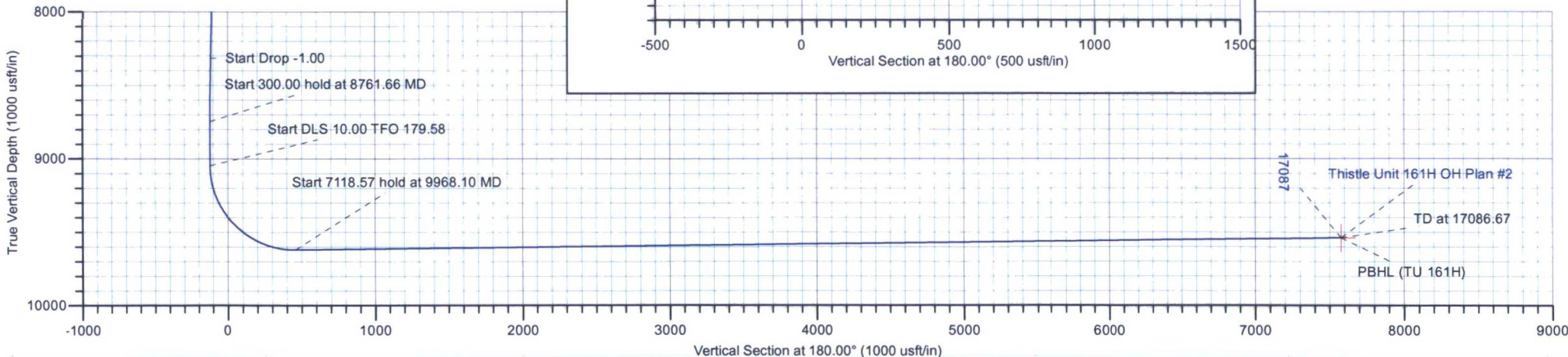
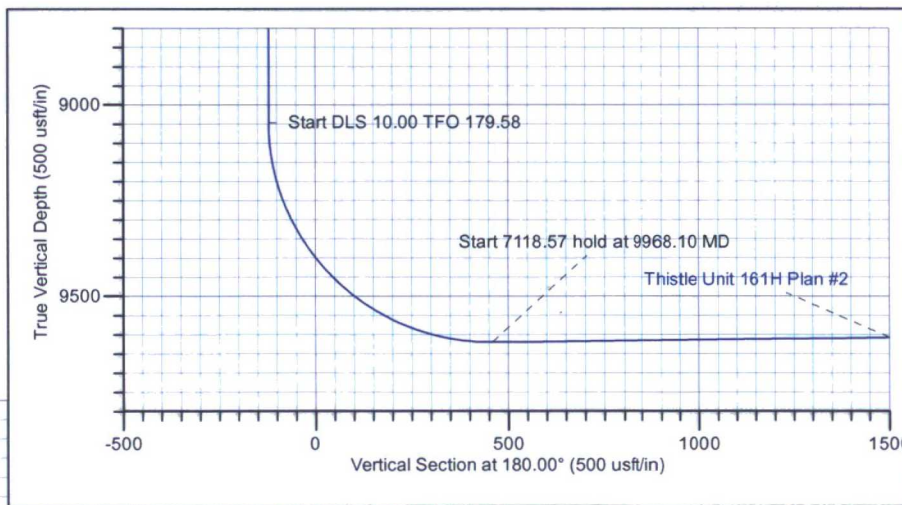


MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3000.00	0.00	0.00	3000.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.00
3429.62	4.30	72.52	3429.22	4.84	15.36	1.00	72.52	-4.84	Start 4902.42 hold at 3429.62 MD
8332.04	4.30	72.52	8317.86	115.16	365.64	0.00	0.00	-115.16	Start Drop -1.00
8761.66	0.00	0.00	8747.08	120.00	381.00	1.00	180.00	-120.00	Start 300.00 hold at 8761.66 MD
9061.66	0.00	0.00	9047.08	120.00	381.00	0.00	0.00	-120.00	Start DLS 10.00 TFO 179.58
9968.10	90.64	179.58	9620.00	-459.38	385.25	10.00	179.58	459.38	Start 7118.57 hold at 9968.10 MD
17086.67	90.64	179.58	9540.00	-7577.31	437.43	0.00	0.00	7577.31	TD at 17086.67

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
PBHL (TU 161H)	9540.00	-7577.31	437.43	32° 16' 32.5627 N	103° 33' 42.5714 W
SHL (TU 161H)	0.00	0.00	0.00	32° 17' 47.5718 N	103° 33' 47.0324 W

HOBBS OCD
 OCT 02 2017
 RECEIVED



LEAM DRILLING SYSTEMS LLC
 2010 East Davis, Conroe, Texas 77301

Plan: Plan #2 (Thistle Unit 161H/OH)
 Thistle Unit Sec 22-27 Trac Pad
 Created By: Dustin Ault
 Date: 13:20, September 20 2017

Devon Energy

Project: Lea County, NM (NAD-83)
Site: Thistle Unit Sec 22-27 Trac Pad
Well: Thistle Unit 161H
Wellbore: OH
Design: Plan #2



Azimuths to Grid North
True North: -0.41°
Magnetic North: 6.42°

Magnetic Field
Strength: 48166.5nT
Dip Angle: 60.12°
Date: 9/19/2017
Model: HDGM

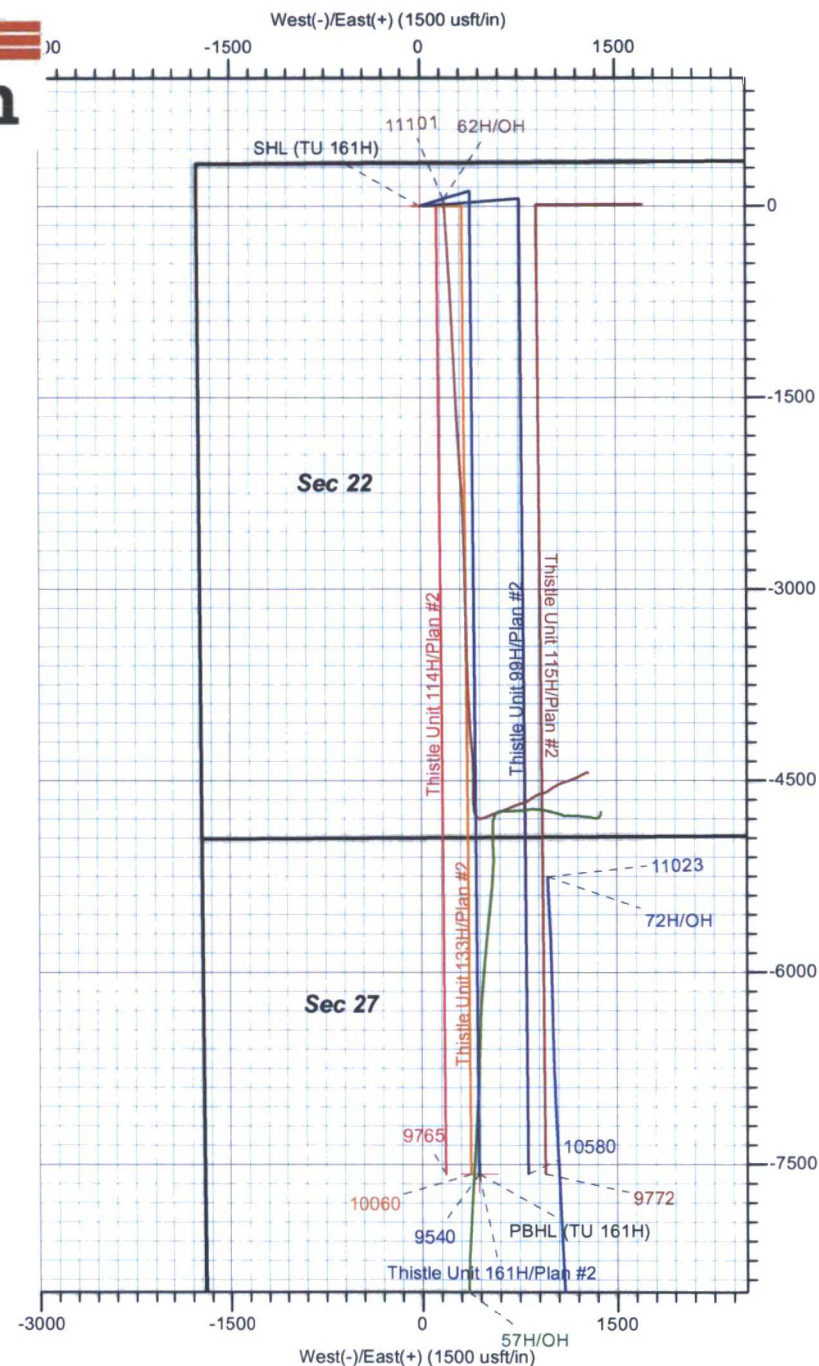
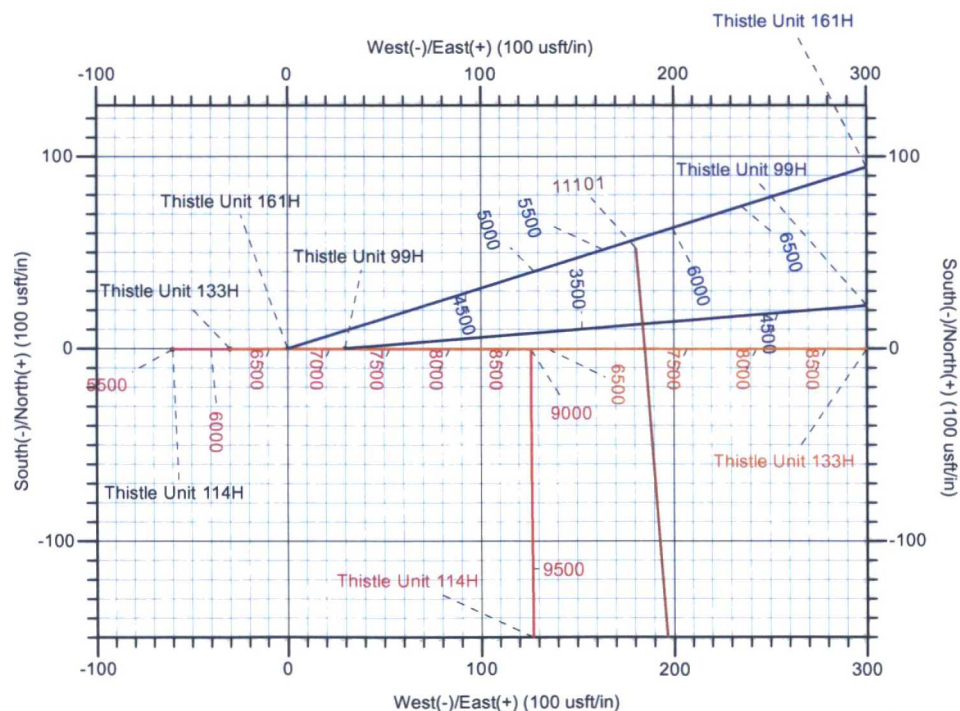
devon

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

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3000.00	0.00	0.00	3000.00	0.00	0.00	0.00	0.00	0.00	
3429.62	4.30	72.52	3429.22	4.84	15.36	1.00	72.52	-4.84	
8332.04	4.30	72.52	8317.86	115.16	365.64	0.00	0.00	-115.16	
8761.66	0.00	0.00	8747.08	120.00	381.00	1.00	180.00	-120.00	
9061.66	0.00	0.00	9047.08	120.00	381.00	0.00	0.00	-120.00	
9968.10	90.64	179.58	9620.00	-459.38	385.25	10.00	179.58	459.38	
17086.67	90.64	179.58	9540.00	-7577.31	437.43	0.00	0.00	7577.31	PBHL (TU 161H)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL (TU 161H)	9540.00	-7577.31	437.43	464894.17	779780.45	32° 16' 32.5627 N	103° 33' 42.5714 W
SHL (TU 161H)	0.00	0.00	0.00	472471.48	779343.02	32° 17' 47.5718 N	103° 33' 47.0324 W



LEAM DRILLING SYSTEMS LLC
2010 East Davis, Conroe, Texas 77301

Plan: Plan #2 (Thistle Unit 161H/OH)
Thistle Unit Sec 22-27 Trac Pad
Created By: Dustin Ault
Date: 13.24, September 20 2017

Devon Energy

Lea County, NM (NAD-83)

Thistle Unit Sec 22-27 Trac Pad

Thistle Unit 161H

OH

Plan: Plan #2

Standard Planning Report

20 September, 2017

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well Thistle Unit 161H
Company:	Devon Energy	TVD Reference:	3711.5' GE + 23.5' KB @ 3735.00usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3711.5' GE + 23.5' KB @ 3735.00usft
Site:	Thistle Unit Sec 22-27 Trac Pad	North Reference:	Grid
Well:	Thistle Unit 161H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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 Sec 22-27 Trac Pad											
Site Position:			Northing:			472,548.43 usft			Latitude:			32° 17' 48.4331 N					
From:		Map		Easting:			777,932.69 usft			Longitude:		103° 34' 3.4563 W					
Position Uncertainty:			0.00 usft			Slot Radius:			13-3/16 "			Grid Convergence:			0.41		

Well	Thistle Unit 161H					
Well Position	+N/-S	-76.95 usft	Northing:	472,471.48 usft	Latitude:	32° 17' 47.5718 N
	+E/-W	1,410.33 usft	Easting:	779,343.02 usft	Longitude:	103° 33' 47.0324 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,711.50 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	9/19/2017	6.83	60.12	48,167

Design	Plan #2			
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	180.00

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	
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,429.62	4.30	72.52	3,429.22	4.84	15.36	1.00	1.00	0.00	72.52	
8,332.04	4.30	72.52	8,317.86	115.16	365.64	0.00	0.00	0.00	0.00	
8,761.66	0.00	0.00	8,747.08	120.00	381.00	1.00	-1.00	0.00	180.00	
9,061.66	0.00	0.00	9,047.08	120.00	381.00	0.00	0.00	0.00	0.00	
9,968.10	90.64	179.58	9,620.00	-459.38	385.25	10.00	10.00	19.81	179.58	
17,086.67	90.64	179.58	9,540.00	-7,577.31	437.43	0.00	0.00	0.00	0.00	PBHL (TU 161H)

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well Thistle Unit 161H
Company:	Devon Energy	TVD Reference:	3711.5' GE + 23.5' KB @ 3735.00usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3711.5' GE + 23.5' KB @ 3735.00usft
Site:	Thistle Unit Sec 22-27 Trac Pad	North Reference:	Grid
Well:	Thistle Unit 161H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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 161H)									
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
1,300.00	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
1,600.00	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
Start Build 1.00									
3,100.00	1.00	72.52	3,099.99	0.26	0.83	-0.26	1.00	1.00	0.00
3,200.00	2.00	72.52	3,199.96	1.05	3.33	-1.05	1.00	1.00	0.00
3,300.00	3.00	72.52	3,299.86	2.36	7.49	-2.36	1.00	1.00	0.00
3,400.00	4.00	72.52	3,399.68	4.19	13.31	-4.19	1.00	1.00	0.00
3,429.62	4.30	72.52	3,429.22	4.84	15.36	-4.84	1.00	1.00	0.00
Start 4902.42 hold at 3429.62 MD									
3,500.00	4.30	72.52	3,499.40	6.42	20.38	-6.42	0.00	0.00	0.00
3,600.00	4.30	72.52	3,599.12	8.67	27.53	-8.67	0.00	0.00	0.00
3,700.00	4.30	72.52	3,698.84	10.92	34.68	-10.92	0.00	0.00	0.00
3,800.00	4.30	72.52	3,798.56	13.17	41.82	-13.17	0.00	0.00	0.00
3,900.00	4.30	72.52	3,898.28	15.42	48.97	-15.42	0.00	0.00	0.00
4,000.00	4.30	72.52	3,997.99	17.67	56.11	-17.67	0.00	0.00	0.00
4,100.00	4.30	72.52	4,097.71	19.92	63.26	-19.92	0.00	0.00	0.00
4,200.00	4.30	72.52	4,197.43	22.17	70.40	-22.17	0.00	0.00	0.00
4,300.00	4.30	72.52	4,297.15	24.42	77.55	-24.42	0.00	0.00	0.00
4,400.00	4.30	72.52	4,396.87	26.67	84.69	-26.67	0.00	0.00	0.00
4,500.00	4.30	72.52	4,496.59	28.92	91.84	-28.92	0.00	0.00	0.00
4,600.00	4.30	72.52	4,596.31	31.18	98.98	-31.18	0.00	0.00	0.00
4,700.00	4.30	72.52	4,696.03	33.43	106.13	-33.43	0.00	0.00	0.00
4,800.00	4.30	72.52	4,795.75	35.68	113.27	-35.68	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well Thistle Unit 161H
Company:	Devon Energy	TVD Reference:	3711.5' GE + 23.5' KB @ 3735.00usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3711.5' GE + 23.5' KB @ 3735.00usft
Site:	Thistle Unit Sec 22-27 Trac Pad	North Reference:	Grid
Well:	Thistle Unit 161H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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)
4,900.00	4.30	72.52	4,895.47	37.93	120.42	-37.93	0.00	0.00	0.00
5,000.00	4.30	72.52	4,995.19	40.18	127.56	-40.18	0.00	0.00	0.00
5,100.00	4.30	72.52	5,094.90	42.43	134.71	-42.43	0.00	0.00	0.00
5,200.00	4.30	72.52	5,194.62	44.68	141.85	-44.68	0.00	0.00	0.00
5,300.00	4.30	72.52	5,294.34	46.93	149.00	-46.93	0.00	0.00	0.00
5,400.00	4.30	72.52	5,394.06	49.18	156.14	-49.18	0.00	0.00	0.00
5,500.00	4.30	72.52	5,493.78	51.43	163.29	-51.43	0.00	0.00	0.00
5,600.00	4.30	72.52	5,593.50	53.68	170.43	-53.68	0.00	0.00	0.00
5,700.00	4.30	72.52	5,693.22	55.93	177.58	-55.93	0.00	0.00	0.00
5,800.00	4.30	72.52	5,792.94	58.18	184.72	-58.18	0.00	0.00	0.00
5,900.00	4.30	72.52	5,892.66	60.43	191.87	-60.43	0.00	0.00	0.00
6,000.00	4.30	72.52	5,992.38	62.68	199.01	-62.68	0.00	0.00	0.00
6,100.00	4.30	72.52	6,092.09	64.93	206.16	-64.93	0.00	0.00	0.00
6,200.00	4.30	72.52	6,191.81	67.18	213.31	-67.18	0.00	0.00	0.00
6,300.00	4.30	72.52	6,291.53	69.43	220.45	-69.43	0.00	0.00	0.00
6,400.00	4.30	72.52	6,391.25	71.68	227.60	-71.68	0.00	0.00	0.00
6,500.00	4.30	72.52	6,490.97	73.93	234.74	-73.93	0.00	0.00	0.00
6,600.00	4.30	72.52	6,590.69	76.18	241.89	-76.18	0.00	0.00	0.00
6,700.00	4.30	72.52	6,690.41	78.44	249.03	-78.44	0.00	0.00	0.00
6,800.00	4.30	72.52	6,790.13	80.69	256.18	-80.69	0.00	0.00	0.00
6,900.00	4.30	72.52	6,889.85	82.94	263.32	-82.94	0.00	0.00	0.00
7,000.00	4.30	72.52	6,989.57	85.19	270.47	-85.19	0.00	0.00	0.00
7,100.00	4.30	72.52	7,089.28	87.44	277.61	-87.44	0.00	0.00	0.00
7,200.00	4.30	72.52	7,189.00	89.69	284.76	-89.69	0.00	0.00	0.00
7,300.00	4.30	72.52	7,288.72	91.94	291.90	-91.94	0.00	0.00	0.00
7,400.00	4.30	72.52	7,388.44	94.19	299.05	-94.19	0.00	0.00	0.00
7,500.00	4.30	72.52	7,488.16	96.44	306.19	-96.44	0.00	0.00	0.00
7,600.00	4.30	72.52	7,587.88	98.69	313.34	-98.69	0.00	0.00	0.00
7,700.00	4.30	72.52	7,687.60	100.94	320.48	-100.94	0.00	0.00	0.00
7,800.00	4.30	72.52	7,787.32	103.19	327.63	-103.19	0.00	0.00	0.00
7,900.00	4.30	72.52	7,887.04	105.44	334.77	-105.44	0.00	0.00	0.00
8,000.00	4.30	72.52	7,986.76	107.69	341.92	-107.69	0.00	0.00	0.00
8,100.00	4.30	72.52	8,086.47	109.94	349.06	-109.94	0.00	0.00	0.00
8,200.00	4.30	72.52	8,186.19	112.19	356.21	-112.19	0.00	0.00	0.00
8,300.00	4.30	72.52	8,285.91	114.44	363.35	-114.44	0.00	0.00	0.00
8,332.04	4.30	72.52	8,317.86	115.16	365.64	-115.16	0.00	0.00	0.00
Start Drop -1.00									
8,400.00	3.62	72.52	8,385.66	116.57	370.12	-116.57	1.00	-1.00	0.00
8,500.00	2.62	72.52	8,485.51	118.21	375.30	-118.21	1.00	-1.00	0.00
8,600.00	1.62	72.52	8,585.44	119.31	378.82	-119.31	1.00	-1.00	0.00
8,700.00	0.62	72.52	8,685.42	119.90	380.68	-119.90	1.00	-1.00	0.00
8,761.66	0.00	0.00	8,747.08	120.00	381.00	-120.00	1.00	-1.00	0.00
Start 300.00 hold at 8761.66 MD									
8,800.00	0.00	0.00	8,785.42	120.00	381.00	-120.00	0.00	0.00	0.00
8,900.00	0.00	0.00	8,885.42	120.00	381.00	-120.00	0.00	0.00	0.00
9,000.00	0.00	0.00	8,985.42	120.00	381.00	-120.00	0.00	0.00	0.00
9,061.66	0.00	0.00	9,047.08	120.00	381.00	-120.00	0.00	0.00	0.00
Start DLS 10.00 TFO 179.58									
9,100.00	3.83	179.58	9,085.39	118.72	381.01	-118.72	10.00	10.00	0.00
9,150.00	8.83	179.58	9,135.07	113.20	381.05	-113.20	10.00	10.00	0.00
9,200.00	13.83	179.58	9,184.08	103.38	381.12	-103.38	10.00	10.00	0.00
9,250.00	18.83	179.58	9,232.05	89.32	381.22	-89.32	10.00	10.00	0.00
9,300.00	23.83	179.58	9,278.61	71.14	381.36	-71.14	10.00	10.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well Thistle Unit 161H
Company:	Devon Energy	TVD Reference:	3711.5' GE + 23.5' KB @ 3735.00usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3711.5' GE + 23.5' KB @ 3735.00usft
Site:	Thistle Unit Sec 22-27 Trac Pad	North Reference:	Grid
Well:	Thistle Unit 161H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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)
9,350.00	28.83	179.58	9,323.40	48.97	381.52	-48.97	10.00	10.00	0.00
9,400.00	33.83	179.58	9,366.10	22.97	381.71	-22.97	10.00	10.00	0.00
9,450.00	38.83	179.58	9,406.36	-6.64	381.93	6.64	10.00	10.00	0.00
9,500.00	43.83	179.58	9,443.89	-39.65	382.17	39.65	10.00	10.00	0.00
9,550.00	48.83	179.58	9,478.41	-75.81	382.44	75.81	10.00	10.00	0.00
9,600.00	53.83	179.58	9,509.63	-114.83	382.72	114.83	10.00	10.00	0.00
9,650.00	58.83	179.58	9,537.34	-156.43	383.03	156.43	10.00	10.00	0.00
9,700.00	63.83	179.58	9,561.32	-200.29	383.35	200.29	10.00	10.00	0.00
9,750.00	68.83	179.58	9,581.39	-246.07	383.68	246.07	10.00	10.00	0.00
9,800.00	73.83	179.58	9,597.38	-293.42	384.03	293.42	10.00	10.00	0.00
9,850.00	78.83	179.58	9,609.19	-341.99	384.39	341.99	10.00	10.00	0.00
9,900.00	83.83	179.58	9,616.72	-391.40	384.75	391.40	10.00	10.00	0.00
9,950.00	88.83	179.58	9,619.92	-441.28	385.11	441.28	10.00	10.00	0.00
9,968.10	90.64	179.58	9,620.00	-459.38	385.25	459.38	10.00	10.00	0.00
Start 7118.57 hold at 9968.10 MD									
10,000.00	90.64	179.58	9,619.64	-491.28	385.48	491.28	0.00	0.00	0.00
10,100.00	90.64	179.58	9,618.52	-591.27	386.21	591.27	0.00	0.00	0.00
10,200.00	90.64	179.58	9,617.40	-691.26	386.95	691.26	0.00	0.00	0.00
10,300.00	90.64	179.58	9,616.27	-791.25	387.68	791.25	0.00	0.00	0.00
10,400.00	90.64	179.58	9,615.15	-891.24	388.41	891.24	0.00	0.00	0.00
10,500.00	90.64	179.58	9,614.02	-991.23	389.15	991.23	0.00	0.00	0.00
10,600.00	90.64	179.58	9,612.90	-1,091.22	389.88	1,091.22	0.00	0.00	0.00
10,700.00	90.64	179.58	9,611.78	-1,191.22	390.61	1,191.22	0.00	0.00	0.00
10,800.00	90.64	179.58	9,610.65	-1,291.21	391.35	1,291.21	0.00	0.00	0.00
10,900.00	90.64	179.58	9,609.53	-1,391.20	392.08	1,391.20	0.00	0.00	0.00
11,000.00	90.64	179.58	9,608.40	-1,491.19	392.81	1,491.19	0.00	0.00	0.00
11,100.00	90.64	179.58	9,607.28	-1,591.18	393.54	1,591.18	0.00	0.00	0.00
11,200.00	90.64	179.58	9,606.16	-1,691.17	394.28	1,691.17	0.00	0.00	0.00
11,300.00	90.64	179.58	9,605.03	-1,791.16	395.01	1,791.16	0.00	0.00	0.00
11,400.00	90.64	179.58	9,603.91	-1,891.15	395.74	1,891.15	0.00	0.00	0.00
11,500.00	90.64	179.58	9,602.79	-1,991.14	396.48	1,991.14	0.00	0.00	0.00
11,600.00	90.64	179.58	9,601.66	-2,091.13	397.21	2,091.13	0.00	0.00	0.00
11,700.00	90.64	179.58	9,600.54	-2,191.13	397.94	2,191.13	0.00	0.00	0.00
11,800.00	90.64	179.58	9,599.41	-2,291.12	398.68	2,291.12	0.00	0.00	0.00
11,900.00	90.64	179.58	9,598.29	-2,391.11	399.41	2,391.11	0.00	0.00	0.00
12,000.00	90.64	179.58	9,597.17	-2,491.10	400.14	2,491.10	0.00	0.00	0.00
12,100.00	90.64	179.58	9,596.04	-2,591.09	400.88	2,591.09	0.00	0.00	0.00
12,200.00	90.64	179.58	9,594.92	-2,691.08	401.61	2,691.08	0.00	0.00	0.00
12,300.00	90.64	179.58	9,593.79	-2,791.07	402.34	2,791.07	0.00	0.00	0.00
12,400.00	90.64	179.58	9,592.67	-2,891.06	403.07	2,891.06	0.00	0.00	0.00
12,500.00	90.64	179.58	9,591.55	-2,991.05	403.81	2,991.05	0.00	0.00	0.00
12,600.00	90.64	179.58	9,590.42	-3,091.04	404.54	3,091.04	0.00	0.00	0.00
12,700.00	90.64	179.58	9,589.30	-3,191.04	405.27	3,191.04	0.00	0.00	0.00
12,800.00	90.64	179.58	9,588.18	-3,291.03	406.01	3,291.03	0.00	0.00	0.00
12,900.00	90.64	179.58	9,587.05	-3,391.02	406.74	3,391.02	0.00	0.00	0.00
13,000.00	90.64	179.58	9,585.93	-3,491.01	407.47	3,491.01	0.00	0.00	0.00
13,100.00	90.64	179.58	9,584.80	-3,591.00	408.21	3,591.00	0.00	0.00	0.00
13,200.00	90.64	179.58	9,583.68	-3,690.99	408.94	3,690.99	0.00	0.00	0.00
13,300.00	90.64	179.58	9,582.56	-3,790.98	409.67	3,790.98	0.00	0.00	0.00
13,400.00	90.64	179.58	9,581.43	-3,890.97	410.40	3,890.97	0.00	0.00	0.00
13,500.00	90.64	179.58	9,580.31	-3,990.96	411.14	3,990.96	0.00	0.00	0.00
13,600.00	90.64	179.58	9,579.18	-4,090.95	411.87	4,090.95	0.00	0.00	0.00
13,700.00	90.64	179.58	9,578.06	-4,190.95	412.60	4,190.95	0.00	0.00	0.00
13,800.00	90.64	179.58	9,576.94	-4,290.94	413.34	4,290.94	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well Thistle Unit 161H
Company:	Devon Energy	TVD Reference:	3711.5' GE + 23.5' KB @ 3735.00usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3711.5' GE + 23.5' KB @ 3735.00usft
Site:	Thistle Unit Sec 22-27 Trac Pad	North Reference:	Grid
Well:	Thistle Unit 161H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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)
13,900.00	90.64	179.58	9,575.81	-4,390.93	414.07	4,390.93	0.00	0.00	0.00
14,000.00	90.64	179.58	9,574.69	-4,490.92	414.80	4,490.92	0.00	0.00	0.00
14,100.00	90.64	179.58	9,573.57	-4,590.91	415.54	4,590.91	0.00	0.00	0.00
14,200.00	90.64	179.58	9,572.44	-4,690.90	416.27	4,690.90	0.00	0.00	0.00
14,300.00	90.64	179.58	9,571.32	-4,790.89	417.00	4,790.89	0.00	0.00	0.00
14,400.00	90.64	179.58	9,570.19	-4,890.88	417.74	4,890.88	0.00	0.00	0.00
14,500.00	90.64	179.58	9,569.07	-4,990.87	418.47	4,990.87	0.00	0.00	0.00
14,600.00	90.64	179.58	9,567.95	-5,090.86	419.20	5,090.86	0.00	0.00	0.00
14,700.00	90.64	179.58	9,566.82	-5,190.86	419.93	5,190.86	0.00	0.00	0.00
14,800.00	90.64	179.58	9,565.70	-5,290.85	420.67	5,290.85	0.00	0.00	0.00
14,900.00	90.64	179.58	9,564.57	-5,390.84	421.40	5,390.84	0.00	0.00	0.00
15,000.00	90.64	179.58	9,563.45	-5,490.83	422.13	5,490.83	0.00	0.00	0.00
15,100.00	90.64	179.58	9,562.33	-5,590.82	422.87	5,590.82	0.00	0.00	0.00
15,200.00	90.64	179.58	9,561.20	-5,690.81	423.60	5,690.81	0.00	0.00	0.00
15,300.00	90.64	179.58	9,560.08	-5,790.80	424.33	5,790.80	0.00	0.00	0.00
15,400.00	90.64	179.58	9,558.96	-5,890.79	425.07	5,890.79	0.00	0.00	0.00
15,500.00	90.64	179.58	9,557.83	-5,990.78	425.80	5,990.78	0.00	0.00	0.00
15,600.00	90.64	179.58	9,556.71	-6,090.77	426.53	6,090.77	0.00	0.00	0.00
15,700.00	90.64	179.58	9,555.58	-6,190.77	427.27	6,190.77	0.00	0.00	0.00
15,800.00	90.64	179.58	9,554.46	-6,290.76	428.00	6,290.76	0.00	0.00	0.00
15,900.00	90.64	179.58	9,553.34	-6,390.75	428.73	6,390.75	0.00	0.00	0.00
16,000.00	90.64	179.58	9,552.21	-6,490.74	429.46	6,490.74	0.00	0.00	0.00
16,100.00	90.64	179.58	9,551.09	-6,590.73	430.20	6,590.73	0.00	0.00	0.00
16,200.00	90.64	179.58	9,549.96	-6,690.72	430.93	6,690.72	0.00	0.00	0.00
16,300.00	90.64	179.58	9,548.84	-6,790.71	431.66	6,790.71	0.00	0.00	0.00
16,400.00	90.64	179.58	9,547.72	-6,890.70	432.40	6,890.70	0.00	0.00	0.00
16,500.00	90.64	179.58	9,546.59	-6,990.69	433.13	6,990.69	0.00	0.00	0.00
16,600.00	90.64	179.58	9,545.47	-7,090.68	433.86	7,090.68	0.00	0.00	0.00
16,700.00	90.64	179.58	9,544.35	-7,190.68	434.60	7,190.68	0.00	0.00	0.00
16,800.00	90.64	179.58	9,543.22	-7,290.67	435.33	7,290.67	0.00	0.00	0.00
16,900.00	90.64	179.58	9,542.10	-7,390.66	436.06	7,390.66	0.00	0.00	0.00
17,000.00	90.64	179.58	9,540.97	-7,490.65	436.79	7,490.65	0.00	0.00	0.00
17,086.67	90.64	179.58	9,540.00	-7,577.31	437.43	7,577.31	0.00	0.00	0.00
TD at 17086.67 - PBHL (TU 161H)									

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 161H)	0.00	0.00	0.00	0.00	0.00	472,471.48	779,343.02	32° 17' 47.5718 N	103° 33' 47.0324 W
- plan hits target center									
- Point									
PBHL (TU 161H)	0.00	0.00	9,540.00	-7,577.31	437.43	464,894.17	779,780.45	32° 16' 32.5627 N	103° 33' 42.5714 W
- plan hits target center									
- Point									

LEAM Drilling Systems LLC

Planning Report

Database: EDM 5000.1 Multi User Db
 Company: Devon Energy
 Project: Lea County, NM (NAD-83)
 Site: Thistle Unit Sec 22-27 Trac Pad
 Well: Thistle Unit 161H
 Wellbore: OH
 Design: Plan #2

Local Co-ordinate Reference: Well Thistle Unit 161H
 TVD Reference: 3711.5' GE + 23.5' KB @ 3735.00usft
 MD Reference: 3711.5' GE + 23.5' KB @ 3735.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,000.00	3,000.00	0.00	0.00	Start Build 1.00
3,429.62	3,429.22	4.84	15.36	Start 4902.42 hold at 3429.62 MD
8,332.04	8,317.86	115.16	365.64	Start Drop -1.00
8,761.66	8,747.08	120.00	381.00	Start 300.00 hold at 8761.66 MD
9,061.66	9,047.08	120.00	381.00	Start DLS 10.00 TFO 179.58
9,968.10	9,620.00	-459.38	385.25	Start 7118.57 hold at 9968.10 MD
17,086.67	9,540.00	-7,577.31	437.43	TD at 17086.67