

OCT 05 2015

RECEIVED



North Thistle 2 State 2H
Lea Co, NM

Plan Data for North Thistle 2 State 2H

Plan Point Information:

Dogleg Severity Unit: $^{\circ}/1000\text{USft}$ Position offsets from Slot centre

MD	Inc	Az	TVD	+N/-S	+E/-W	Northing	Easting	Vsec	DLS
(USft)	($^{\circ}$)	($^{\circ}$)	(USft)	(USft)	(USft)	(USft)	(USft)	(USft)	(DLSU)
0.00	0.00	0.00	0.00	-0.00	0.00	488169.46	786040.51	0.00	0.00
10491.93	0.00	0.00	10491.93	-0.00	0.00	488169.46	786040.51	0.00	0.00
10691.93	20.00	183.64	10687.89	-34.48	-2.19	488134.98	786038.32	34.55	10.00
11258.05	89.13	183.64	11002.00	-475.05	-30.23	487994.41	786038.28	476.01	12.00
15240.50	89.13	183.64	11002.00	-4439.03	-282.46	483730.43	785758.05	4448.01	0.00

Plan Data for North Thistle 2 State 2H

Slot: North Thistle 2 State 2H

Position:

Offset is from Site centre

+N/-S: 0.00USft Northing: 488169.46USft Latitude: $32^{\circ}20'22.4''$

+E/-W: 0.00USft Easting: 786040.51USft Longitude: $-103^{\circ}32'27.7''$

Elevation Above VRD: 3515.00USft

Plan Data for North Thistle 2 State 2H

Target Set Information:

Name: North Thistle 2 State 2H Tgts

Position offsets from Slot centre

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape	Comment
(USft)	(USft)	(USft)	(USft)	(USft)	(USft)		
PBHL 2H	11002.00	-4439.03	-282.46	483730.43	785758.05	Cuboid	

Plan Data for North Thistle 2 State 2H

Well: North Thistle 2 State 2H

Type: Main-Well

File Number:

Plan Folder: P1 Plan: P1/V3

Vertical Section: Position offset of origin from slot centre:

+N/-S: -0.00USft Azimuth: 183.64

+E/-W: 0.00USft

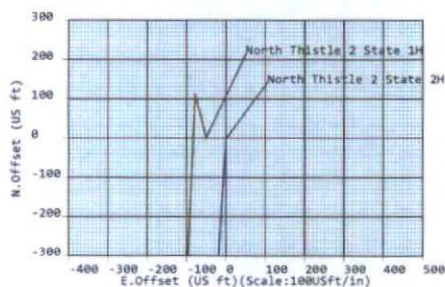
Magnetic Parameters:

Model: Field Strength: Declination: Dip: Date:

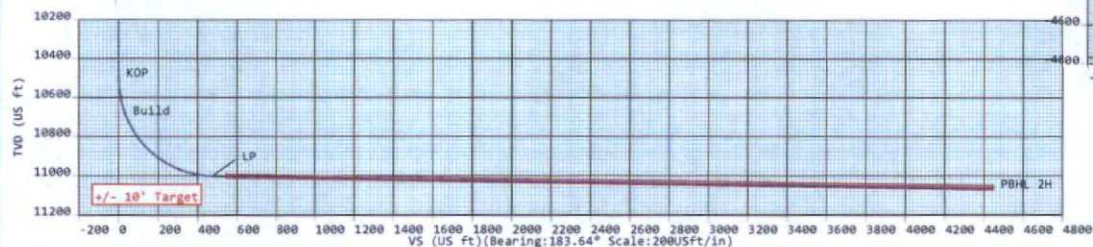
bgm0015 48200(nT) 7.21 $^{\circ}$ 60.25 $^{\circ}$ 2015-10-30

North Thistle 2 State 2H

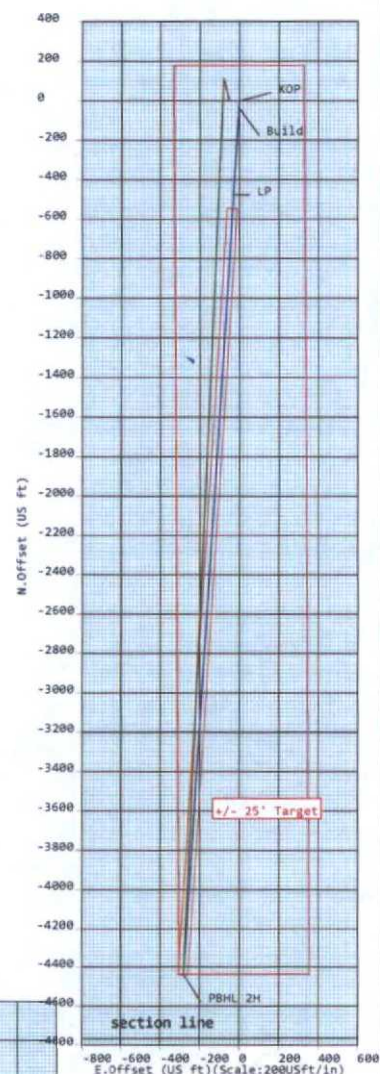
North Thistle 2 State 1H



KB-3540
GL-3615



Weatherford



section line

E. Offset (US ft) (Scale: 200USft/in)

OCT 13 2015

**5D Plan Report**

Devon Energy

Field Name: *Lea Co, NM Nad 83 NMEZ*
Site Name: *North Thistle 2 State 2H, 1H*
Well Name: *North Thistle 2 State 2H*
Plan: *P1:V3*

30 September 2015





North Thistle 2 State 2H

Field Name: Lea Co, NM Nad 83 NMEZ	Map Units: US ft		Company Name: Devon Energy	
	Vertical Reference Datum (VRD): Mean Sea Level			
	Projected Coordinate System: NAD83 / New Mexico East (ftUS)			
	Comment:			
Site: North Thistle 2 State 2H, 1H	Units: US ft	North Reference: Grid	Convergence Angle: 0.42	
	Position:	Northing: 488169.46US ft	Latitude: 32° 20' 22.42"	
		Easting: 786040.51US ft	Longitude: -103° 32' 27.66"	
	Elevation above MSL:3515.00 US ft			
Comment:				
Slot: North Thistle 2 State 2H	Position (Relative to Site Centre)			
	+N/-S: 0.00US ft	Northing: 488169.46US ft	Latitude: 32°20'22.42"	
	+E/-W: 0.00US ft	Easting: 786040.51US ft	Longitude: -103°32'27.66"	
	Slot TVD Reference: Ground Elevation			
Elevation above MSL: 3515.00US ft				
Comment:				
Well: North Thistle 2 State 2H	Type:Main well	UWI:	Plan:P1:V3	
	File Number:	Comment:		
	Closure Distance:4448.01US ft	Closure Azimuth:183.64°		
	Vertical Section: Position of Origin (Relative to Slot centre)			
	+N/-S: -0.00US ft	+E/-W: 0.00US ft	Az: 183.64°	
	Magnetic Parameters:			
	Model: bggm2015	Field Strength: 48280.7nT	Declination: 7.21°	Dip: 60.25°

Drill floor: Plan: P1:V3				
Rig Height (Kelly Bushing): 25.00us ft	Elevation above MSL: 3540.00us ft	Inclination: 0.00°	Azimuth: 0.00°	

Target set: North Thistle 2 State 2H Tgts Comment:							
Target Name:	Shape:	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (USft)	Easting (USft)	Comment
PBHL 2H	Cuboid	11062.00	-4439.03	-282.46	483730.43	785758.05	

Wellpath created using minimum curvature.

Tie Point:					
MD: 0.00USFt	Inclination: 0.00°	Azimuth: 0.00°	TVD: 0.00USFt	North Offset: -0.00USFt	East Offset: 0.00USFt

5D Plan Report

Salient Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)											
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (°/100US ft)	B.Rate (°/100US ft)	T.Rate (°/100US ft)	T.Face (°)	Comment
0.00	0.00	0.00	0.00	-0.00	0.00	-0.00	0.00	0.00	0.00	0.00	
10491.93	0.00	0.00	10491.93	-0.00	0.00	-0.00	0.00	0.00	0.00	0.00	KOP
10691.93	20.00	183.64	10687.89	-34.48	-2.19	34.55	10.00	10.00	0.00	183.64	Build
11268.05	89.13	183.64	11002.00	-475.05	-30.23	476.01	12.00	12.00	0.00	0.00	LP
15240.50	89.13	183.64	11062.00	-4439.03	-282.46	4448.01	0.00	0.00	0.00	0.00	PBHL 2H

Interpolated Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)											
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (°/100US ft)	Northing (US ft)	Easting (US ft)		Comment
0.00	0.00	0.00	0.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
100.00	0.00	0.00	100.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
200.00	0.00	0.00	200.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
300.00	0.00	0.00	300.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
400.00	0.00	0.00	400.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
500.00	0.00	0.00	500.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
600.00	0.00	0.00	600.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
700.00	0.00	0.00	700.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
800.00	0.00	0.00	800.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
900.00	0.00	0.00	900.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
1000.00	0.00	0.00	1000.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
1100.00	0.00	0.00	1100.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
1200.00	0.00	0.00	1200.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
1300.00	0.00	0.00	1300.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
1400.00	0.00	0.00	1400.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
1500.00	0.00	0.00	1500.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
1600.00	0.00	0.00	1600.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
1700.00	0.00	0.00	1700.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
1800.00	0.00	0.00	1800.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
1900.00	0.00	0.00	1900.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
2000.00	0.00	0.00	2000.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
2100.00	0.00	0.00	2100.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
2200.00	0.00	0.00	2200.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
2300.00	0.00	0.00	2300.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
2400.00	0.00	0.00	2400.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
2500.00	0.00	0.00	2500.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
2600.00	0.00	0.00	2600.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
2700.00	0.00	0.00	2700.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
2800.00	0.00	0.00	2800.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
2900.00	0.00	0.00	2900.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
3000.00	0.00	0.00	3000.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
3100.00	0.00	0.00	3100.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
3200.00	0.00	0.00	3200.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
3300.00	0.00	0.00	3300.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
3400.00	0.00	0.00	3400.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
3500.00	0.00	0.00	3500.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
3600.00	0.00	0.00	3600.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
3700.00	0.00	0.00	3700.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
3800.00	0.00	0.00	3800.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
3900.00	0.00	0.00	3900.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
4000.00	0.00	0.00	4000.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
4100.00	0.00	0.00	4100.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
4200.00	0.00	0.00	4200.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
4300.00	0.00	0.00	4300.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
4400.00	0.00	0.00	4400.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
4500.00	0.00	0.00	4500.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
4600.00	0.00	0.00	4600.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
4700.00	0.00	0.00	4700.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
4800.00	0.00	0.00	4800.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		
4900.00	0.00	0.00	4900.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51		

5D Plan Report

Interpolated Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (%/100US ft)	Northing (US ft)	Easting (US ft)	Comment
5000.00	0.00	0.00	5000.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
5100.00	0.00	0.00	5100.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
5200.00	0.00	0.00	5200.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
5300.00	0.00	0.00	5300.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
5400.00	0.00	0.00	5400.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
5500.00	0.00	0.00	5500.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
5600.00	0.00	0.00	5600.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
5700.00	0.00	0.00	5700.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
5800.00	0.00	0.00	5800.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
5900.00	0.00	0.00	5900.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
6000.00	0.00	0.00	6000.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
6100.00	0.00	0.00	6100.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
6200.00	0.00	0.00	6200.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
6300.00	0.00	0.00	6300.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
6400.00	0.00	0.00	6400.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
6500.00	0.00	0.00	6500.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
6600.00	0.00	0.00	6600.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
6700.00	0.00	0.00	6700.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
6800.00	0.00	0.00	6800.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
6900.00	0.00	0.00	6900.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
7000.00	0.00	0.00	7000.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
7100.00	0.00	0.00	7100.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
7200.00	0.00	0.00	7200.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
7300.00	0.00	0.00	7300.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
7400.00	0.00	0.00	7400.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
7500.00	0.00	0.00	7500.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
7600.00	0.00	0.00	7600.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
7700.00	0.00	0.00	7700.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
7800.00	0.00	0.00	7800.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
7900.00	0.00	0.00	7900.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
8000.00	0.00	0.00	8000.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
8100.00	0.00	0.00	8100.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
8200.00	0.00	0.00	8200.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
8300.00	0.00	0.00	8300.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
8400.00	0.00	0.00	8400.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
8500.00	0.00	0.00	8500.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
8600.00	0.00	0.00	8600.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
8700.00	0.00	0.00	8700.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
8800.00	0.00	0.00	8800.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
8900.00	0.00	0.00	8900.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
9000.00	0.00	0.00	9000.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
9100.00	0.00	0.00	9100.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
9200.00	0.00	0.00	9200.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
9300.00	0.00	0.00	9300.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
9400.00	0.00	0.00	9400.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
9500.00	0.00	0.00	9500.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
9600.00	0.00	0.00	9600.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
9700.00	0.00	0.00	9700.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
9800.00	0.00	0.00	9800.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
9900.00	0.00	0.00	9900.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
10000.00	0.00	0.00	10000.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
10100.00	0.00	0.00	10100.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
10200.00	0.00	0.00	10200.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
10300.00	0.00	0.00	10300.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
10400.00	0.00	0.00	10400.00	-0.00	0.00	-0.00	0.00	488169.46	786040.51	
10491.93	0.00	0.00	10491.93	-0.00	0.00	-0.00	0.00	488169.46	786040.51	KOP
10500.00	0.81	183.64	10500.00	-0.06	-0.00	0.06	10.00	488169.40	786040.51	
10600.00	10.81	183.64	10599.36	-10.14	-0.65	10.16	10.00	488159.32	786039.86	
10691.93	20.00	183.64	10687.89	-34.48	-2.19	34.55	10.00	488134.98	786038.32	Build

5D Plan Report

Interpolated Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (°/100US ft)	Northing (US ft)	Easting (US ft)	Comment
10700.00	20.97	183.64	10695.45	-37.30	-2.37	37.38	12.00	488132.16	786038.14	
10800.00	32.97	183.64	10784.42	-82.48	-5.25	82.64	12.00	488086.98	786035.26	
10900.00	44.97	183.64	10862.02	-145.13	-9.23	145.42	12.00	488024.33	786031.28	
11000.00	56.97	183.64	10924.88	-222.51	-14.16	222.96	12.00	487946.95	786026.35	
11100.00	68.97	183.64	10970.25	-311.24	-19.80	311.87	12.00	487858.22	786020.71	
11200.00	80.97	183.64	10996.14	-407.45	-25.92	408.27	12.00	487762.01	786014.59	
11268.05	89.13	183.64	11002.00	-475.05	-30.23	476.01	12.00	487694.41	786010.28	LP
11300.00	89.13	183.64	11002.48	-506.93	-32.25	507.96	0.00	487662.53	786008.26	
11400.00	89.13	183.64	11003.99	-606.72	-38.60	607.95	0.00	487562.74	786001.91	
11500.00	89.13	183.64	11005.50	-706.51	-44.95	707.93	0.00	487462.95	785995.56	
11600.00	89.13	183.64	11007.01	-806.29	-51.30	807.92	0.00	487363.17	785989.21	
11700.00	89.13	183.64	11008.52	-906.08	-57.65	907.91	0.00	487263.38	785982.86	
11800.00	89.13	183.64	11010.04	-1005.87	-64.00	1007.90	0.00	487163.59	785976.51	
11900.00	89.13	183.64	11011.55	-1105.65	-70.35	1107.89	0.00	487063.81	785970.16	
12000.00	89.13	183.64	11013.06	-1205.44	-76.70	1207.88	0.00	486964.02	785963.81	
12100.00	89.13	183.64	11014.57	-1305.23	-83.05	1307.87	0.00	486864.23	785957.46	
12200.00	89.13	183.64	11016.08	-1405.01	-89.40	1407.85	0.00	486764.45	785951.11	
12300.00	89.13	183.64	11017.59	-1504.80	-95.75	1507.84	0.00	486664.66	785944.76	
12400.00	89.13	183.64	11019.10	-1604.59	-102.10	1607.83	0.00	486564.87	785938.41	
12500.00	89.13	183.64	11020.61	-1704.37	-108.45	1707.82	0.00	486465.09	785932.06	
12600.00	89.13	183.64	11022.12	-1804.16	-114.80	1807.81	0.00	486365.30	785925.71	
12700.00	89.13	183.64	11023.63	-1903.95	-121.15	1907.80	0.00	486265.51	785919.36	
12800.00	89.13	183.64	11025.14	-2003.73	-127.50	2007.79	0.00	486165.73	785913.01	
12900.00	89.13	183.64	11026.65	-2103.52	-133.85	2107.77	0.00	486065.94	785906.66	
13000.00	89.13	183.64	11028.16	-2203.31	-140.20	2207.76	0.00	485966.15	785900.31	
13100.00	89.13	183.64	11029.67	-2303.09	-146.55	2307.75	0.00	485866.37	785893.96	
13200.00	89.13	183.64	11031.18	-2402.88	-152.90	2407.74	0.00	485766.58	785887.61	
13300.00	89.13	183.64	11032.69	-2502.67	-159.25	2507.73	0.00	485666.79	785881.26	
13400.00	89.13	183.64	11034.20	-2602.45	-165.60	2607.72	0.00	485567.01	785874.91	
13500.00	89.13	183.64	11035.71	-2702.24	-171.95	2707.71	0.00	485467.22	785868.56	
13600.00	89.13	183.64	11037.22	-2802.03	-178.30	2807.69	0.00	485367.43	785862.21	
13700.00	89.13	183.64	11038.73	-2901.81	-184.64	2907.68	0.00	485267.65	785855.87	
13800.00	89.13	183.64	11040.24	-3001.60	-190.99	3007.67	0.00	485167.86	785849.52	
13900.00	89.13	183.64	11041.75	-3101.39	-197.34	3107.66	0.00	485068.07	785843.17	
14000.00	89.13	183.64	11043.26	-3201.18	-203.69	3207.65	0.00	484968.28	785836.82	
14100.00	89.13	183.64	11044.77	-3300.96	-210.04	3307.64	0.00	484868.50	785830.47	
14200.00	89.13	183.64	11046.28	-3400.75	-216.39	3407.63	0.00	484768.71	785824.12	
14300.00	89.13	183.64	11047.79	-3500.54	-222.74	3507.61	0.00	484668.92	785817.77	
14400.00	89.13	183.64	11049.31	-3600.32	-229.09	3607.60	0.00	484569.14	785811.42	
14500.00	89.13	183.64	11050.82	-3700.11	-235.44	3707.59	0.00	484469.35	785805.07	
14600.00	89.13	183.64	11052.33	-3799.90	-241.79	3807.58	0.00	484369.56	785798.72	
14700.00	89.13	183.64	11053.84	-3899.68	-248.14	3907.57	0.00	484269.78	785792.37	
14800.00	89.13	183.64	11055.35	-3999.47	-254.49	4007.56	0.00	484169.99	785786.02	
14900.00	89.13	183.64	11056.86	-4099.26	-260.84	4107.55	0.00	484070.20	785779.67	
15000.00	89.13	183.64	11058.37	-4199.04	-267.19	4207.54	0.00	483970.42	785773.32	
15100.00	89.13	183.64	11059.88	-4298.83	-273.54	4307.52	0.00	483870.63	785766.97	
15200.00	89.13	183.64	11061.39	-4398.62	-279.89	4407.51	0.00	483770.84	785760.62	
15240.50	89.13	183.64	11062.00	-4439.03	-282.46	4448.01	0.00	483730.43	785758.05	PBHL 2H

**5D Anti-Collision Report**

Devon Energy

Field Name: *Lea Co, NM Nad 83 NMEZ*
Site Name: *North Thistle 2 State 2H, 1H*
Well Name: *North Thistle 2 State 2H*

30 September 2015





North Thistle 2 State 2H

Field Name: Lea Co, NM Nad 83 NMEZ	Map Units: US ft		Company Name: Devon Energy	
	Vertical Reference Datum (VRD): Mean Sea Level			
	Projected Coordinate System: NAD83 / New Mexico East (ftUS)			
	Comment:			
Site: North Thistle 2 State 2H, 1H	Units: US ft	North Reference: Grid	Convergence Angle: 0.42	
	Position:	Northing: 488169.46US ft	Latitude: 32° 20' 22.42"	
		Easting: 786040.51US ft	Longitude: -103° 32' 27.66"	
	Elevation above MSL:3515.00 US ft			
Comment:				
Slot: North Thistle 2 State 2H	Position (Relative to Site Centre)			
	+N/-S: 0.00US ft	Northing: 488169.46US ft	Latitude: 32°20'22.42"	
	+E/-W: 0.00US ft	Easting: 786040.51US ft	Longitude: -103°32'27.66"	
	Slot TVD Reference: Ground Elevation			
	Elevation above MSL: 3515.00US ft			
	Comment:			
Well: North Thistle 2 State 2H	Type:Main well	UWI:	Plan:Working Plan	
	File Number:	Comment:		
	Closure Distance:4448.01US ft	Closure Azimuth:183.64°		
	Vertical Section: Position of Origin (Relative to Slot centre)			
	+N/-S: -0.00US ft	+E/-W: 0.00US ft	Az: 183.64°	
	Magnetic Parameters:			
	Model: bggm2015	Field Strength: 48280.7nT	Declination: 7.21°	Dip: 60.25°
				Date: 30/Oct/2015

Drill floor: Plan: Working Plan

Rig Height (Kelly Bushing): 25.00us ft	Elevation above MSL: 3540.00us ft	Inclination: 0.00°	Azimuth: 0.00°
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Collision / Uncertainty Analysis

Primary Well	Start MD (USFt)	End MD (USFt)	Collision Risk Interval	No. of Std. Deviations in Error Computation
North Thistle 2 State 2H (p)	0.00	30000.00	100.00	2

Secondary Well Names:

North Thistle 2 State 1H (p)

Anti-Collision Report Terminology

S.Minor, S.Major: Radii of the ellipse of uncertainty at the current location as seen in the along hole direction.

PHI: Angle between high-side vector and semi-minor axis

TVD Spread: Total TVD range of the ellipsoid of uncertainty at the current location.

ES: Distance between the extremities of the primary and secondary uncertainty ellipsoids in the direction Cr-Cr.

T.Face to Sec: Angle between the Hi-Side vector of the primary well at the current location and line of closest approach between the two wells.

AC Filter Info: the following filter has been applied: Depth Range.

Separation factors calculated using Pedal Curve (Independent Uncertainty). Surface Uncertainty (S.U.) Not Applied. Wellpath created using minimum curvature.

Anti-Collision Summary (TVD relative to Kelly Bushing)

SF

Secondary Well Name	Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	ES (US ft)	CC (US ft)	SF	Risk
North Thistle 2 State 1H (p)	9305.66	9305.66	9333.42	41.72	83.31	2.00	

Primary Well: North Thistle 2 State 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)

MD (US ft)	TVD (US ft)	T.Face to Sec (*)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	Nearest Well	ES (US ft)	CC (US ft)	SF	Risk
0.00	0.00	269.60	0.00	0.00	0.00	North Thistle 2 State 1H (p)	49.49	50.06	88.35	
100.00	100.00	269.60	0.11	0.11	4.60	North Thistle 2 State 1H (p)	49.27	50.06	63.59	
200.00	200.00	269.60	0.34	0.34	4.62	North Thistle 2 State 1H (p)	48.82	50.06	40.48	
300.00	300.00	269.60	0.56	0.56	4.65	North Thistle 2 State 1H (p)	48.37	50.06	29.69	
400.00	400.00	269.60	0.79	0.79	4.70	North Thistle 2 State 1H (p)	47.93	50.06	23.44	
500.00	500.00	269.60	1.01	1.01	4.75	North Thistle 2 State 1H (p)	47.48	50.06	19.36	
600.00	600.00	269.60	1.24	1.24	4.82	North Thistle 2 State 1H (p)	47.03	50.06	16.49	
700.00	700.00	269.60	1.46	1.46	4.89	North Thistle 2 State 1H (p)	46.58	50.06	14.37	
800.00	800.00	269.60	1.69	1.69	4.98	North Thistle 2 State 1H (p)	46.13	50.06	12.72	
900.00	900.00	269.60	1.91	1.91	5.07	North Thistle 2 State 1H (p)	45.68	50.06	11.42	
1000.00	1000.00	269.60	2.14	2.14	5.17	North Thistle 2 State 1H (p)	45.23	50.06	10.36	
1100.00	1100.00	269.60	2.36	2.36	5.28	North Thistle 2 State 1H (p)	44.78	50.06	9.48	
1200.00	1200.00	269.60	2.59	2.59	5.39	North Thistle 2 State 1H (p)	44.33	50.06	8.73	
1300.00	1300.00	269.60	2.81	2.81	5.51	North Thistle 2 State 1H (p)	43.88	50.06	8.10	
1400.00	1400.00	269.60	3.03	3.03	5.64	North Thistle 2 State 1H (p)	43.43	50.06	7.55	
1500.00	1500.00	269.60	3.26	3.26	5.77	North Thistle 2 State 1H (p)	42.98	50.06	7.07	
1600.00	1600.00	269.60	3.48	3.48	5.90	North Thistle 2 State 1H (p)	42.53	50.06	6.65	
1700.00	1700.00	269.60	3.71	3.71	6.04	North Thistle 2 State 1H (p)	42.08	50.06	6.27	
1800.00	1800.00	269.60	3.93	3.93	6.19	North Thistle 2 State 1H (p)	41.63	50.06	5.94	
1900.00	1900.00	269.60	4.16	4.16	6.33	North Thistle 2 State 1H (p)	41.18	50.06	5.64	
2000.00	2000.00	269.60	4.38	4.38	6.48	North Thistle 2 State 1H (p)	40.73	50.06	5.37	

5D Anti-Collision Report

Primary Well: North Thistle 2 State 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)										
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	Nearest Well	ES (US ft)	CC (US ft)	SF	Risk
2100.00	2100.00	269.60	4.61	4.61	6.64	North Thistle 2 State 1H (p)	40.28	50.06	5.12	
2200.00	2200.00	269.60	4.83	4.83	6.80	North Thistle 2 State 1H (p)	39.83	50.06	4.89	
2300.00	2300.00	269.60	5.06	5.06	6.96	North Thistle 2 State 1H (p)	39.38	50.06	4.69	
2400.00	2400.00	269.60	5.28	5.28	7.12	North Thistle 2 State 1H (p)	38.93	50.06	4.50	
2500.00	2500.00	269.60	5.51	5.51	7.29	North Thistle 2 State 1H (p)	38.48	50.06	4.32	
2600.00	2600.00	269.60	5.73	5.73	7.45	North Thistle 2 State 1H (p)	38.03	50.06	4.16	
2700.00	2700.00	269.60	5.96	5.96	7.63	North Thistle 2 State 1H (p)	37.59	50.06	4.01	
2800.00	2800.00	269.60	6.18	6.18	7.80	North Thistle 2 State 1H (p)	37.14	50.06	3.87	
2900.00	2900.00	269.60	6.41	6.41	7.98	North Thistle 2 State 1H (p)	36.69	50.06	3.74	
3000.00	3000.00	269.60	6.63	6.63	8.15	North Thistle 2 State 1H (p)	36.24	50.06	3.62	
3100.00	3100.00	269.60	6.86	6.86	8.34	North Thistle 2 State 1H (p)	35.79	50.06	3.51	
3200.00	3200.00	269.60	7.08	7.08	8.52	North Thistle 2 State 1H (p)	35.34	50.06	3.40	
3300.00	3300.00	269.60	7.31	7.31	8.71	North Thistle 2 State 1H (p)	34.89	50.06	3.30	
3400.00	3400.00	269.60	7.53	7.53	8.90	North Thistle 2 State 1H (p)	34.44	50.06	3.20	
3500.00	3500.00	269.60	7.76	7.76	9.09	North Thistle 2 State 1H (p)	33.99	50.06	3.11	
3600.00	3600.00	269.60	7.98	7.98	9.28	North Thistle 2 State 1H (p)	33.54	50.06	3.03	
3700.00	3700.00	269.60	8.20	8.20	9.48	North Thistle 2 State 1H (p)	33.09	50.06	2.95	
3800.00	3800.00	269.60	8.43	8.43	9.68	North Thistle 2 State 1H (p)	32.64	50.06	2.87	
3900.00	3900.00	269.60	8.65	8.65	9.88	North Thistle 2 State 1H (p)	32.19	50.06	2.80	
4000.00	4000.00	269.60	8.88	8.88	10.08	North Thistle 2 State 1H (p)	31.74	50.06	2.73	
4100.00	4100.00	269.60	9.10	9.10	10.29	North Thistle 2 State 1H (p)	31.29	50.06	2.67	
4200.00	4200.00	269.60	9.33	9.33	10.50	North Thistle 2 State 1H (p)	30.84	50.06	2.60	
4300.00	4300.00	269.60	9.55	9.55	10.72	North Thistle 2 State 1H (p)	30.39	50.06	2.55	
4400.00	4400.00	270.56	9.78	9.78	10.93	North Thistle 2 State 1H (p)	30.17	50.28	2.50	
4500.00	4500.00	273.39	10.00	10.00	11.16	North Thistle 2 State 1H (p)	30.46	51.01	2.48	
4600.00	4600.00	277.90	10.23	10.23	11.38	North Thistle 2 State 1H (p)	31.50	52.49	2.50	

5D Anti-Collision Report

Primary Well: North Thistle 2 State 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)										
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	Nearest Well	ES (US ft)	CC (US ft)	SF	Risk
4700.00	4700.00	283.74	10.45	10.45	11.61	North Thistle 2 State 1H (p)	33.69	55.08	2.58	
4800.00	4800.00	290.39	10.68	10.68	11.84	North Thistle 2 State 1H (p)	37.32	59.15	2.71	
4900.00	4900.00	297.26	10.90	10.90	12.07	North Thistle 2 State 1H (p)	42.78	65.06	2.92	
5000.00	5000.00	303.44	11.13	11.13	12.31	North Thistle 2 State 1H (p)	49.74	72.43	3.19	
5100.00	5100.00	308.45	11.35	11.35	12.55	North Thistle 2 State 1H (p)	57.33	80.49	3.48	
5200.00	5200.00	312.52	11.58	11.58	12.79	North Thistle 2 State 1H (p)	65.48	89.04	3.78	
5300.00	5300.00	315.87	11.80	11.80	13.04	North Thistle 2 State 1H (p)	73.99	97.97	4.09	
5400.00	5400.00	318.65	12.03	12.03	13.30	North Thistle 2 State 1H (p)	82.71	107.17	4.38	
5500.00	5500.00	320.86	12.25	12.25	13.55	North Thistle 2 State 1H (p)	90.96	115.88	4.65	
5600.00	5600.00	322.44	12.48	12.48	13.81	North Thistle 2 State 1H (p)	97.76	123.11	4.86	
5700.00	5700.00	323.55	12.70	12.70	14.08	North Thistle 2 State 1H (p)	103.01	128.78	5.00	
5800.00	5800.00	324.28	12.93	12.93	14.35	North Thistle 2 State 1H (p)	106.66	132.84	5.08	
5900.00	5900.00	324.69	13.15	13.15	14.62	North Thistle 2 State 1H (p)	108.67	135.25	5.09	
6000.00	6000.00	324.81	13.37	13.37	14.90	North Thistle 2 State 1H (p)	109.02	136.00	5.04	
6100.00	6100.00	324.81	13.60	13.60	15.18	North Thistle 2 State 1H (p)	108.60	136.00	4.96	
6200.00	6200.00	324.81	13.82	13.82	15.47	North Thistle 2 State 1H (p)	108.15	136.00	4.88	
6300.00	6300.00	324.81	14.05	14.05	15.76	North Thistle 2 State 1H (p)	107.71	136.00	4.81	
6400.00	6400.00	324.81	14.27	14.27	16.05	North Thistle 2 State 1H (p)	107.26	136.00	4.73	
6500.00	6500.00	324.81	14.50	14.50	16.35	North Thistle 2 State 1H (p)	106.82	136.00	4.66	
6600.00	6600.00	324.81	14.72	14.72	16.66	North Thistle 2 State 1H (p)	106.37	136.00	4.59	
6700.00	6700.00	324.81	14.95	14.95	16.97	North Thistle 2 State 1H (p)	105.92	136.00	4.52	
6800.00	6800.00	324.81	15.17	15.17	17.28	North Thistle 2 State 1H (p)	105.48	136.00	4.46	
6900.00	6900.00	324.81	15.40	15.40	17.60	North Thistle 2 State 1H (p)	105.03	136.00	4.39	
7000.00	7000.00	324.81	15.62	15.62	17.93	North Thistle 2 State 1H (p)	104.58	136.00	4.33	
7100.00	7100.00	324.81	15.85	15.85	18.26	North Thistle 2 State 1H (p)	104.14	136.00	4.27	
7200.00	7200.00	324.81	16.07	16.07	18.59	North Thistle 2 State 1H (p)	103.69	136.00	4.21	

5D Anti-Collision Report

Primary Well: North Thistle 2 State 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)										
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	Nearest Well	ES (US ft)	CC (US ft)	SF	Risk
7300.00	7300.00	324.81	16.30	16.30	18.93	North Thistle 2 State 1H (p)	103.25	136.00	4.15	
7400.00	7400.00	324.81	16.52	16.52	19.28	North Thistle 2 State 1H (p)	102.80	136.00	4.10	
7500.00	7500.00	324.81	16.75	16.75	19.63	North Thistle 2 State 1H (p)	102.36	136.00	4.04	
7600.00	7600.00	324.81	16.97	16.97	19.98	North Thistle 2 State 1H (p)	101.91	136.00	3.99	
7700.00	7700.00	324.81	17.20	17.20	20.34	North Thistle 2 State 1H (p)	101.46	136.00	3.94	
7800.00	7800.00	324.81	17.42	17.42	20.71	North Thistle 2 State 1H (p)	101.02	136.00	3.89	
7900.00	7900.00	324.81	17.65	17.65	21.08	North Thistle 2 State 1H (p)	100.57	136.00	3.84	
8000.00	8000.00	324.81	17.87	17.87	21.46	North Thistle 2 State 1H (p)	100.13	136.00	3.79	
8100.00	8100.00	324.81	18.10	18.10	21.84	North Thistle 2 State 1H (p)	99.68	136.00	3.74	
8200.00	8200.00	324.81	18.32	18.32	22.23	North Thistle 2 State 1H (p)	99.24	136.00	3.70	
8300.00	8300.00	324.81	18.54	18.54	22.62	North Thistle 2 State 1H (p)	98.79	136.00	3.65	
8400.00	8400.00	324.81	18.77	18.77	23.02	North Thistle 2 State 1H (p)	98.35	136.00	3.61	
8500.00	8500.00	324.81	18.99	18.99	23.43	North Thistle 2 State 1H (p)	97.90	136.00	3.57	
8600.00	8600.00	324.81	19.22	19.22	23.84	North Thistle 2 State 1H (p)	97.46	136.00	3.53	
8700.00	8700.00	324.81	19.44	19.44	24.25	North Thistle 2 State 1H (p)	97.01	136.00	3.49	
8800.00	8800.00	324.81	19.67	19.67	24.67	North Thistle 2 State 1H (p)	96.57	136.00	3.45	
8900.00	8900.00	324.81	19.89	19.89	25.10	North Thistle 2 State 1H (p)	96.12	136.00	3.41	
9000.00	9000.00	324.59	20.12	20.12	25.53	North Thistle 2 State 1H (p)	95.16	135.47	3.36	
9100.00	9100.00	319.11	20.34	20.34	25.97	North Thistle 2 State 1H (p)	82.98	123.36	3.06	
9200.00	9200.00	303.17	20.57	20.57	26.41	North Thistle 2 State 1H (p)	59.55	100.00	2.47	
9300.00	9300.00	273.31	20.79	20.79	26.86	North Thistle 2 State 1H (p)	41.78	83.29	2.01	
9400.00	9400.00	243.91	21.02	21.02	27.32	North Thistle 2 State 1H (p)	66.78	106.15	2.70	
9500.00	9500.00	226.62	21.24	21.24	27.78	North Thistle 2 State 1H (p)	128.43	164.56	4.55	
9600.00	9600.00	217.33	21.47	21.47	28.25	North Thistle 2 State 1H (p)	204.86	239.04	6.99	
9700.00	9700.00	211.94	21.69	21.69	28.72	North Thistle 2 State 1H (p)	288.31	321.31	9.74	
9800.00	9800.00	208.52	21.92	21.92	29.20	North Thistle 2 State 1H (p)	375.79	408.11	12.63	

5D Anti-Collision Report

Primary Well: North Thistle 2 State 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)										
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	Nearest Well	ES (US ft)	CC (US ft)	SF	Risk
9900.00	9900.00	206.19	22.14	22.14	29.68	North Thistle 2 State 1H (p)	466.03	497.85	15.65	
10000.00	10000.00	204.52	22.37	22.37	30.18	North Thistle 2 State 1H (p)	557.98	589.62	18.64	
10100.00	10100.00	203.27	22.59	22.59	30.67	North Thistle 2 State 1H (p)	651.36	682.87	21.67	
10200.00	10200.00	202.30	22.82	22.82	31.17	North Thistle 2 State 1H (p)	745.83	777.23	24.75	
10300.00	10300.00	201.53	23.04	23.04	31.68	North Thistle 2 State 1H (p)	841.01	872.46	27.74	
10400.00	10400.00	200.90	23.27	23.27	32.20	North Thistle 2 State 1H (p)	936.78	968.36	30.67	
10500.00	10500.00	15.91	23.49	23.49	32.72	North Thistle 2 State 1H (p)	1033.08	1064.78	33.59	
10600.00	10599.36	9.52	23.65	23.44	33.23	North Thistle 2 State 1H (p)	1126.97	1158.75	36.46	
10700.00	10695.45	6.68	23.80	23.02	33.70	North Thistle 2 State 1H (p)	1214.97	1246.74	39.25	
10800.00	10784.42	4.98	23.97	22.10	34.13	North Thistle 2 State 1H (p)	1294.12	1325.92	41.69	
10900.00	10862.02	4.03	24.16	20.88	34.48	North Thistle 2 State 1H (p)	1361.70	1393.57	43.73	
11000.00	10924.88	3.46	24.42	19.58	34.75	North Thistle 2 State 1H (p)	1416.23	1448.10	45.44	
11100.00	10970.25	3.12	24.77	18.45	34.98	North Thistle 2 State 1H (p)	1456.39	1488.28	46.68	
11200.00	10996.14	2.89	25.23	17.77	35.20	North Thistle 2 State 1H (p)	1480.50	1512.59	47.14	
11300.00	11002.48	2.77	25.78	17.71	35.43	North Thistle 2 State 1H (p)	1485.47	1517.86	46.87	
11400.00	11003.99	2.70	26.44	17.85	35.70	North Thistle 2 State 1H (p)	1485.55	1518.30	46.37	
11500.00	11005.50	2.63	27.20	18.02	36.04	North Thistle 2 State 1H (p)	1485.57	1518.74	45.79	
11600.00	11007.01	2.56	28.06	18.21	36.43	North Thistle 2 State 1H (p)	1485.53	1519.18	45.15	
11700.00	11008.52	2.49	29.01	18.43	36.88	North Thistle 2 State 1H (p)	1485.44	1519.63	44.45	
11800.00	11010.04	2.42	30.04	18.68	37.37	North Thistle 2 State 1H (p)	1485.30	1520.08	43.70	
11900.00	11011.55	2.35	31.14	18.95	37.92	North Thistle 2 State 1H (p)	1485.10	1520.53	42.92	
12000.00	11013.06	2.28	32.30	19.25	38.52	North Thistle 2 State 1H (p)	1484.86	1520.98	42.11	
12100.00	11014.57	2.20	33.52	19.57	39.16	North Thistle 2 State 1H (p)	1484.56	1521.44	41.26	
12200.00	11016.08	2.13	34.80	19.91	39.85	North Thistle 2 State 1H (p)	1484.22	1521.89	40.39	
12300.00	11017.59	2.06	36.12	20.28	40.57	North Thistle 2 State 1H (p)	1483.84	1522.35	39.52	
12400.00	11019.10	1.99	37.48	20.66	41.34	North Thistle 2 State 1H (p)	1483.43	1522.82	38.66	

5D Anti-Collision Report

Primary Well: North Thistle 2 State 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)										
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	Nearest Well	ES (US ft)	CC (US ft)	SF	Risk
12500.00	11020.61	1.92	38.88	21.06	42.14	North Thistle 2 State 1H (p)	1483.01	1523.28	37.82	
12600.00	11022.12	1.85	40.31	21.48	42.98	North Thistle 2 State 1H (p)	1482.56	1523.75	36.99	
12700.00	11023.63	1.78	41.77	21.91	43.85	North Thistle 2 State 1H (p)	1482.03	1524.22	36.13	
12800.00	11025.14	1.71	43.26	22.36	44.76	North Thistle 2 State 1H (p)	1481.55	1524.69	35.34	
12900.00	11026.65	1.64	44.77	22.83	45.69	North Thistle 2 State 1H (p)	1481.09	1525.17	34.60	
13000.00	11028.16	1.56	46.31	23.31	46.65	North Thistle 2 State 1H (p)	1480.51	1525.64	33.80	
13100.00	11029.67	1.49	47.86	23.80	47.63	North Thistle 2 State 1H (p)	1479.98	1526.12	33.08	
13200.00	11031.18	1.42	49.43	24.30	48.64	North Thistle 2 State 1H (p)	1479.37	1526.60	32.32	
13300.00	11032.69	1.35	51.02	24.82	49.67	North Thistle 2 State 1H (p)	1478.76	1527.09	31.60	
13400.00	11034.20	1.28	52.62	25.35	50.73	North Thistle 2 State 1H (p)	1478.06	1527.57	30.85	
13500.00	11035.71	1.21	54.23	25.88	51.80	North Thistle 2 State 1H (p)	1477.44	1528.06	30.19	
13600.00	11037.22	1.14	55.86	26.43	52.89	North Thistle 2 State 1H (p)	1476.75	1528.55	29.51	
13700.00	11038.73	1.07	57.50	26.98	54.01	North Thistle 2 State 1H (p)	1476.17	1529.04	28.92	
13800.00	11040.24	1.00	59.15	27.55	55.13	North Thistle 2 State 1H (p)	1475.42	1529.54	28.27	
13900.00	11041.75	0.93	60.81	28.12	56.27	North Thistle 2 State 1H (p)	1474.72	1530.04	27.66	
14000.00	11043.26	0.86	62.47	28.70	57.43	North Thistle 2 State 1H (p)	1474.03	1530.54	27.09	
14100.00	11044.77	0.79	64.15	29.28	58.60	North Thistle 2 State 1H (p)	1473.33	1531.04	26.53	
14200.00	11046.28	0.72	65.83	29.87	59.79	North Thistle 2 State 1H (p)	1472.60	1531.54	25.98	
14300.00	11047.79	0.65	67.52	30.47	60.98	North Thistle 2 State 1H (p)	1471.87	1532.05	25.46	
14400.00	11049.31	0.58	69.22	31.08	62.19	North Thistle 2 State 1H (p)	1471.14	1532.56	24.95	
14500.00	11050.82	0.51	70.92	31.68	63.41	North Thistle 2 State 1H (p)	1470.40	1533.07	24.46	
14600.00	11052.33	0.44	72.62	32.30	64.64	North Thistle 2 State 1H (p)	1469.65	1533.58	23.99	
14700.00	11053.84	0.37	74.34	32.92	65.88	North Thistle 2 State 1H (p)	1468.87	1534.10	23.52	
14800.00	11055.35	0.30	76.05	33.54	67.13	North Thistle 2 State 1H (p)	1468.08	1534.62	23.06	
14900.00	11056.86	0.23	77.77	34.17	68.38	North Thistle 2 State 1H (p)	1467.29	1535.14	22.63	
15000.00	11058.37	0.16	79.50	34.80	69.65	North Thistle 2 State 1H (p)	1466.50	1535.66	22.20	

5D Anti-Collision Report

Primary Well: North Thistle 2 State 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)										
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	Nearest Well	ES (US ft)	CC (US ft)	SF	Risk
15100.00	11059.88	0.09	81.23	35.44	70.92	North Thistle 2 State 1H (p)	1465.70	1536.18	21.80	
15200.00	11061.39	0.02	82.96	36.08	72.20	North Thistle 2 State 1H (p)	1464.90	1536.71	21.40	
15240.50	11062.00	0.00	83.66	36.34	72.72	North Thistle 2 State 1H (p)	1464.71	1537.00	21.26	

Secondary Well: North Thistle 2 State 1H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)										
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	ES (US ft)	CC (US ft)	SF	Risk
0.00	0.00	0.00	269.60	0.00	0.00	0.00	49.49	50.06	88.35	
100.00	100.00	100.00	269.60	0.11	0.11	4.60	49.27	50.06	63.59	
200.00	200.00	200.00	269.60	0.34	0.34	4.62	48.82	50.06	40.48	
300.00	300.00	300.00	269.60	0.56	0.56	4.65	48.37	50.06	29.69	
400.00	400.00	400.00	269.60	0.79	0.79	4.70	47.93	50.06	23.44	
500.00	500.00	500.00	269.60	1.01	1.01	4.75	47.48	50.06	19.36	
600.00	600.00	600.00	269.60	1.24	1.24	4.82	47.03	50.06	16.49	
700.00	700.00	700.00	269.60	1.46	1.46	4.89	46.58	50.06	14.37	
800.00	800.00	800.00	269.60	1.69	1.69	4.98	46.13	50.06	12.72	
900.00	900.00	900.00	269.60	1.91	1.91	5.07	45.68	50.06	11.42	
1000.00	1000.00	1000.00	269.60	2.14	2.14	5.17	45.23	50.06	10.36	
1100.00	1100.00	1100.00	269.60	2.36	2.36	5.28	44.78	50.06	9.48	
1200.00	1200.00	1200.00	269.60	2.59	2.59	5.39	44.33	50.06	8.73	
1300.00	1300.00	1300.00	269.60	2.81	2.81	5.51	43.88	50.06	8.10	
1400.00	1400.00	1400.00	269.60	3.03	3.03	5.64	43.43	50.06	7.55	
1500.00	1500.00	1500.00	269.60	3.26	3.26	5.77	42.98	50.06	7.07	
1600.00	1600.00	1600.00	269.60	3.48	3.48	5.90	42.53	50.06	6.65	
1700.00	1700.00	1700.00	269.60	3.71	3.71	6.04	42.08	50.06	6.27	
1800.00	1800.00	1800.00	269.60	3.93	3.93	6.19	41.63	50.06	5.94	
1900.00	1900.00	1900.00	269.60	4.16	4.16	6.33	41.18	50.06	5.64	
2000.00	2000.00	2000.00	269.60	4.38	4.38	6.48	40.73	50.06	5.37	
2100.00	2100.00	2100.00	269.60	4.61	4.61	6.64	40.28	50.06	5.12	
2200.00	2200.00	2200.00	269.60	4.83	4.83	6.80	39.83	50.06	4.89	
2300.00	2300.00	2300.00	269.60	5.06	5.06	6.96	39.38	50.06	4.69	
2400.00	2400.00	2400.00	269.60	5.28	5.28	7.12	38.93	50.06	4.50	
2500.00	2500.00	2500.00	269.60	5.51	5.51	7.29	38.48	50.06	4.32	
2600.00	2600.00	2600.00	269.60	5.73	5.73	7.45	38.03	50.06	4.16	
2700.00	2700.00	2700.00	269.60	5.96	5.96	7.63	37.59	50.06	4.01	
2800.00	2800.00	2800.00	269.60	6.18	6.18	7.80	37.14	50.06	3.87	
2900.00	2900.00	2900.00	269.60	6.41	6.41	7.98	36.69	50.06	3.74	
3000.00	3000.00	3000.00	269.60	6.63	6.63	8.15	36.24	50.06	3.62	
3100.00	3100.00	3100.00	269.60	6.86	6.86	8.34	35.79	50.06	3.51	
3200.00	3200.00	3200.00	269.60	7.08	7.08	8.52	35.34	50.06	3.40	
3300.00	3300.00	3300.00	269.60	7.31	7.31	8.71	34.89	50.06	3.30	
3400.00	3400.00	3400.00	269.60	7.53	7.53	8.90	34.44	50.06	3.20	
3500.00	3500.00	3500.00	269.60	7.76	7.76	9.09	33.99	50.06	3.11	
3600.00	3600.00	3600.00	269.60	7.98	7.98	9.28	33.54	50.06	3.03	
3700.00	3700.00	3700.00	269.60	8.20	8.20	9.48	33.09	50.06	2.95	
3800.00	3800.00	3800.00	269.60	8.43	8.43	9.68	32.64	50.06	2.87	
3900.00	3900.00	3900.00	269.60	8.65	8.65	9.88	32.19	50.06	2.80	
4000.00	4000.00	4000.00	269.60	8.88	8.88	10.08	31.74	50.06	2.73	
4100.00	4100.00	4100.00	269.60	9.10	9.10	10.29	31.29	50.06	2.67	
4200.00	4200.00	4200.00	269.60	9.33	9.33	10.50	30.84	50.06	2.60	
4300.00	4300.00	4300.00	269.60	9.55	9.55	10.72	30.39	50.06	2.55	
4400.00	4399.78	4399.78	270.56	9.78	9.78	10.93	30.17	50.28	2.50	
4500.00	4499.46	4499.50	273.39	10.00	10.00	11.15	30.46	51.01	2.48	
4600.00	4598.97	4599.10	277.90	10.22	10.21	11.37	31.50	52.49	2.50	
4700.00	4698.20	4698.52	283.74	10.44	10.43	11.60	33.69	55.08	2.58	

5D Anti-Collision Report

Secondary Well: North Thistle 2 State 1H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)										
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	ES (US ft)	CC (US ft)	SF	Risk
4800.00	4797.08	4797.70	290.39	10.67	10.64	11.82	37.32	59.15	2.71	
4900.00	4895.50	4896.58	297.26	10.89	10.85	12.05	42.78	65.06	2.92	
5000.00	4994.39	4996.01	303.44	11.12	11.07	12.29	49.74	72.43	3.19	
5100.00	5093.29	5095.46	308.45	11.35	11.30	12.53	57.33	80.49	3.48	
5200.00	5192.20	5194.91	312.52	11.58	11.52	12.77	65.48	89.04	3.78	
5300.00	5291.11	5294.37	315.87	11.82	11.74	13.02	73.99	97.97	4.09	
5400.00	5390.02	5393.82	318.65	12.06	11.97	13.27	82.71	107.17	4.38	
5500.00	5490.74	5495.02	320.86	12.27	12.18	13.53	90.96	115.88	4.65	
5600.00	5592.04	5596.64	322.44	12.46	12.37	13.79	97.76	123.11	4.86	
5700.00	5693.73	5698.52	323.55	12.65	12.55	14.07	103.01	128.78	5.00	
5800.00	5795.70	5800.59	324.28	12.84	12.73	14.34	106.66	132.84	5.08	
5900.00	5897.86	5902.79	324.69	13.02	12.91	14.62	108.67	135.25	5.09	
6000.00	6000.00	6004.93	324.81	13.20	13.09	14.91	109.02	136.00	5.04	
6100.00	6100.00	6104.93	324.81	13.40	13.29	15.19	108.60	136.00	4.96	
6200.00	6200.00	6204.93	324.81	13.62	13.51	15.47	108.15	136.00	4.88	
6300.00	6300.00	6304.93	324.81	13.85	13.74	15.76	107.71	136.00	4.81	
6400.00	6400.00	6404.93	324.81	14.07	13.96	16.06	107.26	136.00	4.73	
6500.00	6500.00	6504.93	324.81	14.29	14.19	16.36	106.82	136.00	4.66	
6600.00	6600.00	6604.93	324.81	14.51	14.41	16.67	106.37	136.00	4.59	
6700.00	6700.00	6704.93	324.81	14.73	14.63	16.98	105.92	136.00	4.52	
6800.00	6800.00	6804.93	324.81	14.96	14.86	17.29	105.48	136.00	4.46	
6900.00	6900.00	6904.93	324.81	15.18	15.08	17.61	105.03	136.00	4.39	
7000.00	7000.00	7004.93	324.81	15.40	15.31	17.93	104.58	136.00	4.33	
7100.00	7100.00	7104.93	324.81	15.62	15.53	18.26	104.14	136.00	4.27	
7200.00	7200.00	7204.93	324.81	15.85	15.75	18.60	103.69	136.00	4.21	
7300.00	7300.00	7304.93	324.81	16.07	15.98	18.94	103.25	136.00	4.15	
7400.00	7400.00	7404.93	324.81	16.29	16.20	19.28	102.80	136.00	4.10	
7500.00	7500.00	7504.93	324.81	16.51	16.43	19.63	102.36	136.00	4.04	
7600.00	7600.00	7604.93	324.81	16.74	16.65	19.99	101.91	136.00	3.99	
7700.00	7700.00	7704.93	324.81	16.96	16.87	20.35	101.46	136.00	3.94	
7800.00	7800.00	7804.93	324.81	17.18	17.10	20.72	101.02	136.00	3.89	
7900.00	7900.00	7904.93	324.81	17.40	17.32	21.09	100.57	136.00	3.84	
8000.00	8000.00	8004.93	324.81	17.63	17.55	21.46	100.13	136.00	3.79	
8100.00	8100.00	8104.93	324.81	17.85	17.77	21.85	99.68	136.00	3.74	
8200.00	8200.00	8204.93	324.81	18.07	17.99	22.23	99.24	136.00	3.70	
8300.00	8300.00	8304.93	324.81	18.30	18.22	22.63	98.79	136.00	3.65	
8400.00	8400.00	8404.93	324.81	18.52	18.44	23.03	98.35	136.00	3.61	
8500.00	8500.00	8504.93	324.81	18.74	18.67	23.43	97.90	136.00	3.57	
8600.00	8600.00	8604.93	324.81	18.97	18.89	23.84	97.46	136.00	3.53	
8700.00	8700.00	8704.93	324.81	19.19	19.12	24.26	97.01	136.00	3.49	
8800.00	8800.00	8804.93	324.81	19.41	19.34	24.68	96.57	136.00	3.45	
8900.00	8900.00	8904.93	324.81	19.64	19.56	25.10	96.12	136.00	3.41	
9000.00	9005.75	9010.70	324.59	19.86	19.77	25.56	95.16	135.47	3.36	
9100.00	9123.62	9130.28	319.11	20.02	19.57	26.05	82.98	123.36	3.06	
9200.00	9225.23	9239.18	303.17	20.15	18.85	26.44	59.55	100.00	2.47	
9300.00	9300.84	9328.97	273.31	20.26	17.88	26.73	41.78	83.29	2.01	
9400.00	9352.46	9398.57	243.91	20.35	16.99	26.91	66.78	106.15	2.70	
9500.00	9387.16	9451.99	226.62	20.46	16.28	27.03	128.43	164.56	4.55	
9600.00	9410.78	9493.32	217.33	20.54	15.74	27.13	204.86	239.04	6.99	
9700.00	9427.23	9525.81	211.94	20.64	15.33	27.20	288.31	321.31	9.74	
9800.00	9438.99	9551.78	208.52	20.72	15.03	27.26	375.79	408.11	12.63	
9900.00	9447.62	9572.91	206.19	20.78	14.80	27.31	466.03	497.85	15.65	
10000.00	9454.10	9590.38	204.52	20.83	14.62	27.34	557.98	589.62	18.64	
10100.00	9459.07	9605.01	203.27	20.88	14.49	27.38	651.36	682.87	21.67	
10200.00	9462.96	9617.43	202.30	20.94	14.38	27.41	745.83	777.23	24.75	
10300.00	9466.05	9628.09	201.53	20.98	14.30	27.43	841.01	872.46	27.74	
10400.00	9468.54	9637.33	200.90	21.02	14.23	27.46	936.78	968.36	30.67	
10500.00	9470.58	9645.43	15.91	21.05	14.18	27.48	1033.08	1064.78	33.59	

5D Anti-Collision Report

Secondary Well: North Thistle 2 State 1H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)										
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	ES (US ft)	CC (US ft)	SF	Risk
10600.00	9472.91	9655.39	9.52	21.10	14.12	27.50	1126.97	1158.75	36.46	
10700.00	9475.71	9668.71	6.68	21.15	14.04	27.54	1214.97	1246.74	39.25	
10800.00	9478.66	9685.12	4.98	21.22	13.97	27.58	1294.12	1325.92	41.69	
10900.00	9481.39	9704.17	4.03	21.31	13.91	27.62	1361.70	1393.57	43.73	
11000.00	9483.52	9725.20	3.46	21.42	13.87	27.68	1416.23	1448.10	45.44	
11100.00	9484.77	9747.63	3.12	21.53	13.87	27.74	1456.39	1488.28	46.68	
11200.00	9485.51	9810.49	2.89	21.90	13.97	27.94	1480.50	1512.59	47.14	
11300.00	9486.49	9910.22	2.77	22.59	14.15	28.31	1485.47	1517.86	46.87	
11400.00	9487.47	10010.20	2.70	23.39	14.37	28.76	1485.55	1518.30	46.37	
11500.00	9488.45	10110.18	2.63	24.31	14.63	29.27	1485.57	1518.74	45.79	
11600.00	9489.43	10210.16	2.56	25.32	14.91	29.84	1485.53	1519.18	45.15	
11700.00	9490.42	10310.14	2.49	26.42	15.23	30.47	1485.44	1519.63	44.45	
11800.00	9491.40	10410.12	2.42	27.60	15.57	31.16	1485.30	1520.08	43.70	
11900.00	9492.38	10510.10	2.35	28.84	15.94	31.90	1485.10	1520.53	42.92	
12000.00	9493.36	10610.08	2.28	30.14	16.34	32.69	1484.86	1520.98	42.11	
12100.00	9494.34	10710.07	2.20	31.50	16.76	33.53	1484.56	1521.44	41.26	
12200.00	9495.32	10810.05	2.13	32.89	17.19	34.40	1484.22	1521.89	40.39	
12300.00	9496.30	10910.03	2.06	34.33	17.65	35.32	1483.84	1522.35	39.52	
12400.00	9497.28	11010.01	1.99	35.80	18.13	36.28	1483.43	1522.82	38.66	
12500.00	9498.26	11109.99	1.92	37.30	18.62	37.26	1483.01	1523.28	37.82	
12600.00	9499.24	11209.97	1.85	38.83	19.13	38.28	1482.56	1523.75	36.99	
12700.00	9500.23	11309.95	1.78	40.38	19.65	39.33	1482.03	1524.22	36.13	
12800.00	9501.21	11409.93	1.71	41.95	20.19	40.40	1481.55	1524.69	35.34	
12900.00	9502.19	11509.91	1.64	43.55	20.74	41.49	1481.09	1525.17	34.60	
13000.00	9503.17	11609.90	1.56	45.16	21.29	42.61	1480.51	1525.64	33.80	
13100.00	9504.15	11709.88	1.49	46.78	21.86	43.75	1479.98	1526.12	33.08	
13200.00	9505.13	11809.86	1.42	48.42	22.44	44.91	1479.37	1526.60	32.32	
13300.00	9506.11	11909.84	1.35	50.07	23.03	46.08	1478.76	1527.09	31.60	
13400.00	9507.09	12009.82	1.28	51.73	23.63	47.28	1478.06	1527.57	30.85	
13500.00	9508.07	12109.80	1.21	53.40	24.23	48.48	1477.44	1528.06	30.19	
13600.00	9509.05	12209.78	1.14	55.08	24.84	49.70	1476.75	1528.55	29.51	
13700.00	9510.04	12309.76	1.07	56.77	25.46	50.94	1476.17	1529.04	28.92	
13800.00	9511.02	12409.74	1.00	58.47	26.08	52.18	1475.42	1529.54	28.27	
13900.00	9512.00	12509.73	0.93	60.17	26.71	53.44	1474.72	1530.04	27.66	
14000.00	9512.98	12609.71	0.86	61.89	27.34	54.71	1474.03	1530.54	27.09	
14100.00	9513.96	12709.69	0.79	63.60	27.98	55.98	1473.33	1531.04	26.53	
14200.00	9514.94	12809.67	0.72	65.32	28.62	57.27	1472.60	1531.54	25.98	
14300.00	9515.92	12909.65	0.65	67.05	29.27	58.57	1471.87	1532.05	25.46	
14400.00	9516.90	13009.63	0.58	68.78	29.92	59.87	1471.14	1532.56	24.95	
14500.00	9517.88	13109.61	0.51	70.52	30.58	61.18	1470.40	1533.07	24.46	
14600.00	9518.86	13209.59	0.44	72.26	31.23	62.49	1469.65	1533.58	23.99	
14700.00	9519.85	13309.57	0.37	74.00	31.90	63.82	1468.87	1534.10	23.52	
14800.00	9520.83	13409.55	0.30	75.75	32.56	65.15	1468.08	1534.62	23.06	
14900.00	9521.81	13509.54	0.23	77.50	33.23	66.48	1467.29	1535.14	22.63	
15000.00	9522.79	13609.52	0.16	79.25	33.90	67.82	1466.50	1535.66	22.20	
15100.00	9523.77	13709.50	0.09	81.01	34.57	69.17	1465.70	1536.18	21.80	
15200.00	9524.75	13809.48	0.02	82.76	35.25	70.52	1464.90	1536.71	21.40	
15240.50	9525.00	13834.89	0.00	83.21	35.42	70.86	1464.71	1537.00	21.26	

**Weatherford®**

Weatherford Drilling Services

GeoDec4 v2.1.0.0

Report Date: September 24, 2015
Job Number: _____
Customer: Devon Energy
Well Name: North Thistle 2 State 2H
API Number: _____
Rig Name: _____
Location: Lea Co, NM Nad83 NME
Block: _____
Engineer: _____

NAD83 / New Mexico East (ftUS)	NAD83 (1986)
Projected Coordinate System	Geodetic Coordinate System
Datum: North American Datum 1983 (1986)	Datum: North American Datum 1983 (1986)
Ellipsoid: GRS 1980	Ellipsoid: GRS 1980
EPSG: 2257	EPSG: 4269
North: 488169.46 US Survey Foot	Latitude: 32.339561 Degree
East: 786040.51 US Survey Foot	Longitude: -103.541015 Degree
Convergence: 0.42°	
Declination: 7.21°	
Total Correction: 6.79°	
Datum Transformation: none	

Geodetic Location WGS84

MSL Elevation = 0 m
Latitude = 32° 20' 22.42" N
Longitude = 103° 32' 27.66" W

Magnetic Declination = 7.21 deg	[True North Offset]
Local Gravity = .9988 g	Checksum = 6652
Local Field Strength = 48281 nT	Magnetic Vector X = 23767 nT
Magnetic Dip = 60.25 deg	Magnetic Vector Y = 3006 nT
Magnetic Model = bggm2015.dat	Magnetic Vector Z = 41918 nT
Run Date = October 30, 2015	Magnetic Vector H = 23956 nT

Signed: _____ Date: _____