

HOBBS OCD

OCT 27 2015

RECEIVED



North Thistle 2 State 2H  
Lea Co, NM

## Plan Data for North Thistle 2 State 2H

| Plan Point Information:          |       |        |          |          |         |           |           |         |       |
|----------------------------------|-------|--------|----------|----------|---------|-----------|-----------|---------|-------|
| DogLeg Severity Unit: */100.00ft |       |        |          |          |         |           |           |         |       |
| MD                               | Inc   | Az     | TVD      | +N/-S    | +E/-W   | Northing  | Easting   | VSec    | DLG   |
| (USft)                           | (")   | (°)    | (USft)   | (USft)   | (USft)  | (USft)    | (USft)    | (USft)  | (DLG) |
| 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 | 10691.93 | -34.48   | -2.19   | 488134.90 | 786030.32 | 34.55   | 10.00 |
| 11268.05                         | 89.13 | 183.64 | 11062.00 | -475.05  | -30.23  | 487994.41 | 786010.28 | 476.01  | 12.00 |
| 15240.50                         | 89.13 | 183.64 | 11062.00 | -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°20'22.4"  
+E/-W: 0.00USft Easting: 786040.51USft Longitude: -103°32'27.7"  
Elevation Above VMD: 3515.00USft

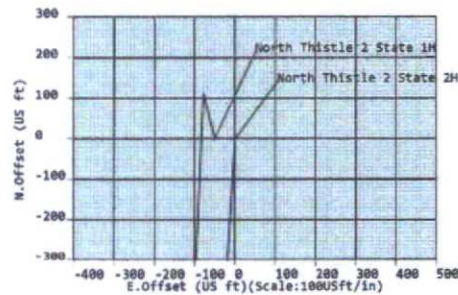
## Plan Data for North Thistle 2 State 2H

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)  
PBHL 2H 11062.00 -4439.03 -282.46 483730.43 785758.05 Cuboid

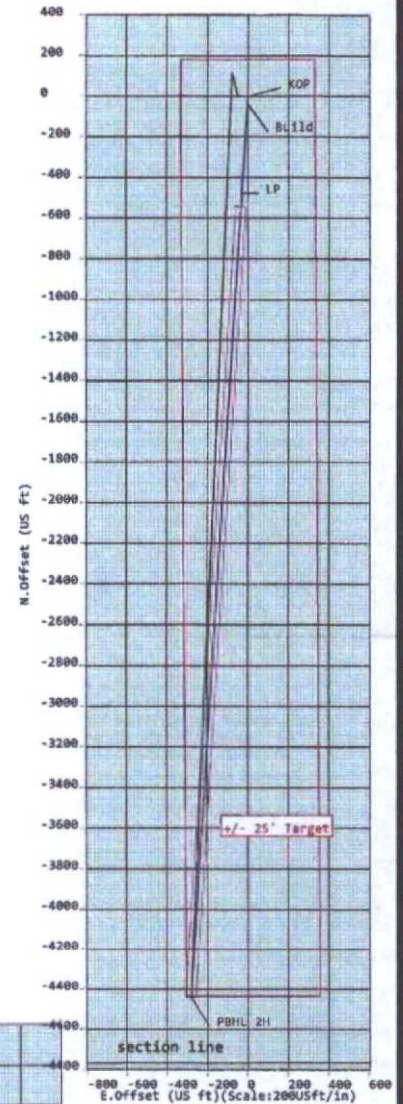
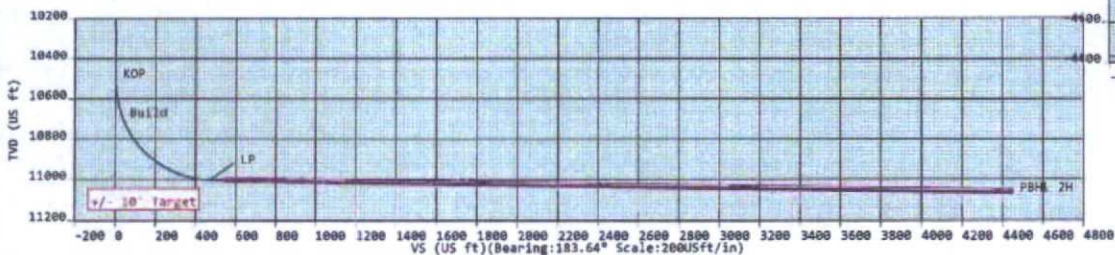
## Plan Data for North Thistle 2 State 2H

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 +E/-W: 0.00USft  
Magnetic Parameters:  
Model: Field Strength: Declination: Dip: Date:  
hggm2015 48280(nT) 7.21° 60.25° 2015-10-30

North Thistle 2 State 2H ———  
North Thistle 2 State 1H ———



KB-3548  
GL-3615



OCT 27 2015

**5D Plan Report**

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**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*

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30 September 2015





## North Thistle 2 State 2H

|                                              |                                                                |                          |                             |             |
|----------------------------------------------|----------------------------------------------------------------|--------------------------|-----------------------------|-------------|
| Field Name:<br><br>Lea Co, NM Nad<br>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:<br><br>North Thistle 2<br>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:<br><br>North Thistle 2<br>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:<br><br>North Thistle 2<br>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:          | Declination: 7.21°          | Dip: 60.25° |
|                                              | 48280.7nT                                                      |                          |                             | Date:       |
|                                              |                                                                |                          |                             | 30/Oct/2015 |
|                                              |                                                                |                          |                             |             |

|                                                         |                           |                       |
|---------------------------------------------------------|---------------------------|-----------------------|
| <b>Drill floor:</b> Plan: P1:V3                         |                           |                       |
| <b>Rig Height (Kelly Bushing):</b> Elevation above MSL: | <b>Inclination:</b> 0.00° | <b>Azimuth:</b> 0.00° |
| 25.00us ft                                              | 3540.00us ft              |                       |

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

Wellpath created using minimum curvature.

|                     |                     |                       |                      |                        |                     |
|---------------------|---------------------|-----------------------|----------------------|------------------------|---------------------|
| <b>Tie Point:</b>   | <b>Inclination:</b> | <b>Azimuth:</b> 0.00° | <b>TVD:</b> 0.00USFt | <b>North Offset:</b> - | <b>East Offset:</b> |
| <b>MD:</b> 0.00USFt | 0.00°               |                       |                      | 0.00USFt               | 0.00USFt            |

## 5D Plan Report

| Salient Points: (Relative to Slot centre)(TVD relative to Kelly Bushing) |             |           |                |                      |                      |               |                        |                            |                            |                |          |
|--------------------------------------------------------------------------|-------------|-----------|----------------|----------------------|----------------------|---------------|------------------------|----------------------------|----------------------------|----------------|----------|
| MD<br>(US ft)                                                            | Incl<br>(°) | As<br>(°) | TVD<br>(US ft) | N. Offset<br>(US ft) | E. Offset<br>(US ft) | VS<br>(US ft) | DLS<br>(%/100US<br>ft) | B. Rate<br>(%/100US<br>ft) | T. Rate<br>(%/100US<br>ft) | T. Face<br>(°) | Comments |
| 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<br>(US ft)                                                                 | Incl<br>(°) | As<br>(°) | TVD<br>(US ft) | N. Offset<br>(US ft) | E. Offset<br>(US ft) | VS<br>(US ft) | DLS<br>(%/100US<br>ft) | Northing<br>(US ft) | Eastng<br>(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         |         |

## SD Plan Report

| Interpolated Points: (Relative to Slot centre)(TVD relative to Kelly Bushing) |             |           |                |                     |                     |               |                     |                     |                    |         |
|-------------------------------------------------------------------------------|-------------|-----------|----------------|---------------------|---------------------|---------------|---------------------|---------------------|--------------------|---------|
| MD<br>(US ft)                                                                 | Incl<br>(°) | Az<br>(°) | TVD<br>(US ft) | N-Offset<br>(US ft) | E-Offset<br>(US ft) | Vs<br>(US ft) | DLS<br>(%/100US ft) | Northing<br>(US ft) | Easting<br>(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) |             |            |                |                     |                     |               |                       |                     |                    |         |
|-------------------------------------------------------------------------------|-------------|------------|----------------|---------------------|---------------------|---------------|-----------------------|---------------------|--------------------|---------|
| HD<br>(US ft)                                                                 | Incl<br>(°) | Alt<br>(°) | TVD<br>(US ft) | R-Offset<br>(US ft) | E-Offset<br>(US ft) | Vs<br>(US ft) | DLS<br>(1/1000 US ft) | Northing<br>(US ft) | Easting<br>(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**

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**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*

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30 September 2015





## North Thistle 2 State 2H

|                                              |                                                                |                          |                             |                   |
|----------------------------------------------|----------------------------------------------------------------|--------------------------|-----------------------------|-------------------|
| Field Name:<br><br>Lea Co, NM Nad<br>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:<br><br>North Thistle 2<br>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:<br><br>North Thistle 2<br>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:<br><br>North Thistle 2<br>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:          | Declination: 7.21°          | Dip: 60.25°       |
|                                              |                                                                | 48280.7nT                |                             | Date: 30/Oct/2015 |

**Drill floor:** Plan: Working Plan

**Rig Height (Kelly Bushing):** Elevation above MSL: 25.00us ft      3540.00us ft      **Inclination:** 0.00°      **Azimuth:** 0.00°

### 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)**

| Secondary Well Name          | PI MD (US ft) | TVD (US ft) | Sec MD (US ft) | FS (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<br>(US ft)                                                                                                 | TVD<br>(US ft) | T.Face to Sec<br>(°) | S.Major<br>(US ft) | S.Minor<br>(US ft) | TVD Spread<br>(US ft) | Nearest Well                       | ES<br>(US ft) | CC<br>(US ft) | SF   | Risk |
| 2100.00                                                                                                       | 2100.00        | 269.60               | 4.61               | 4.61               | 6.64                  | North Thistle<br>2 State 1H<br>(p) | 40.28         | 50.06         | 5.12 |      |
| 2200.00                                                                                                       | 2200.00        | 269.60               | 4.83               | 4.83               | 6.80                  | North Thistle<br>2 State 1H<br>(p) | 39.83         | 50.06         | 4.89 |      |
| 2300.00                                                                                                       | 2300.00        | 269.60               | 5.06               | 5.06               | 6.96                  | North Thistle<br>2 State 1H<br>(p) | 39.38         | 50.06         | 4.69 |      |
| 2400.00                                                                                                       | 2400.00        | 269.60               | 5.28               | 5.28               | 7.12                  | North Thistle<br>2 State 1H<br>(p) | 38.93         | 50.06         | 4.50 |      |
| 2500.00                                                                                                       | 2500.00        | 269.60               | 5.51               | 5.51               | 7.29                  | North Thistle<br>2 State 1H<br>(p) | 38.48         | 50.06         | 4.32 |      |
| 2600.00                                                                                                       | 2600.00        | 269.60               | 5.73               | 5.73               | 7.45                  | North Thistle<br>2 State 1H<br>(p) | 38.03         | 50.06         | 4.16 |      |
| 2700.00                                                                                                       | 2700.00        | 269.60               | 5.96               | 5.96               | 7.63                  | North Thistle<br>2 State 1H<br>(p) | 37.59         | 50.06         | 4.01 |      |
| 2800.00                                                                                                       | 2800.00        | 269.60               | 6.18               | 6.18               | 7.80                  | North Thistle<br>2 State 1H<br>(p) | 37.14         | 50.06         | 3.87 |      |
| 2900.00                                                                                                       | 2900.00        | 269.60               | 6.41               | 6.41               | 7.98                  | North Thistle<br>2 State 1H<br>(p) | 36.69         | 50.06         | 3.74 |      |
| 3000.00                                                                                                       | 3000.00        | 269.60               | 6.63               | 6.63               | 8.15                  | North Thistle<br>2 State 1H<br>(p) | 36.24         | 50.06         | 3.62 |      |
| 3100.00                                                                                                       | 3100.00        | 269.60               | 6.86               | 6.86               | 8.34                  | North Thistle<br>2 State 1H<br>(p) | 35.79         | 50.06         | 3.51 |      |
| 3200.00                                                                                                       | 3200.00        | 269.60               | 7.08               | 7.08               | 8.52                  | North Thistle<br>2 State 1H<br>(p) | 35.34         | 50.06         | 3.40 |      |
| 3300.00                                                                                                       | 3300.00        | 269.60               | 7.31               | 7.31               | 8.71                  | North Thistle<br>2 State 1H<br>(p) | 34.89         | 50.06         | 3.30 |      |
| 3400.00                                                                                                       | 3400.00        | 269.60               | 7.53               | 7.53               | 8.90                  | North Thistle<br>2 State 1H<br>(p) | 34.44         | 50.06         | 3.20 |      |
| 3500.00                                                                                                       | 3500.00        | 269.60               | 7.76               | 7.76               | 9.09                  | North Thistle<br>2 State 1H<br>(p) | 33.99         | 50.06         | 3.11 |      |
| 3600.00                                                                                                       | 3600.00        | 269.60               | 7.98               | 7.98               | 9.28                  | North Thistle<br>2 State 1H<br>(p) | 33.54         | 50.06         | 3.03 |      |
| 3700.00                                                                                                       | 3700.00        | 269.60               | 8.20               | 8.20               | 9.48                  | North Thistle<br>2 State 1H<br>(p) | 33.09         | 50.06         | 2.95 |      |
| 3800.00                                                                                                       | 3800.00        | 269.60               | 8.43               | 8.43               | 9.68                  | North Thistle<br>2 State 1H<br>(p) | 32.64         | 50.06         | 2.87 |      |
| 3900.00                                                                                                       | 3900.00        | 269.60               | 8.65               | 8.65               | 9.88                  | North Thistle<br>2 State 1H<br>(p) | 32.19         | 50.06         | 2.80 |      |
| 4000.00                                                                                                       | 4000.00        | 269.60               | 8.88               | 8.88               | 10.08                 | North Thistle<br>2 State 1H<br>(p) | 31.74         | 50.06         | 2.73 |      |
| 4100.00                                                                                                       | 4100.00        | 269.60               | 9.10               | 9.10               | 10.29                 | North Thistle<br>2 State 1H<br>(p) | 31.29         | 50.06         | 2.67 |      |
| 4200.00                                                                                                       | 4200.00        | 269.60               | 9.33               | 9.33               | 10.50                 | North Thistle<br>2 State 1H<br>(p) | 30.84         | 50.06         | 2.60 |      |
| 4300.00                                                                                                       | 4300.00        | 269.60               | 9.55               | 9.55               | 10.72                 | North Thistle<br>2 State 1H<br>(p) | 30.39         | 50.06         | 2.55 |      |
| 4400.00                                                                                                       | 4400.00        | 270.56               | 9.78               | 9.78               | 10.93                 | North Thistle<br>2 State 1H<br>(p) | 30.17         | 50.28         | 2.50 |      |
| 4500.00                                                                                                       | 4500.00        | 273.39               | 10.00              | 10.00              | 11.16                 | North Thistle<br>2 State 1H<br>(p) | 30.46         | 51.01         | 2.48 |      |
| 4600.00                                                                                                       | 4600.00        | 277.90               | 10.23              | 10.23              | 11.38                 | North Thistle<br>2 State 1H<br>(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<br>(US ft)                                                                                                 | TVD<br>(US ft) | T.Face to Sec<br>(°) | S.Major<br>(US ft) | S.Minor<br>(US ft) | TVD Spread<br>(US ft) | Nearest Well                       | ES<br>(US ft) | CC<br>(US ft) | SI   | Risk |
| 4700.00                                                                                                       | 4700.00        | 283.74               | 10.45              | 10.45              | 11.61                 | North Thistle<br>2 State 1H<br>(p) | 33.69         | 55.08         | 2.58 |      |
| 4800.00                                                                                                       | 4800.00        | 290.39               | 10.68              | 10.68              | 11.84                 | North Thistle<br>2 State 1H<br>(p) | 37.32         | 59.15         | 2.71 |      |
| 4900.00                                                                                                       | 4900.00        | 297.26               | 10.90              | 10.90              | 12.07                 | North Thistle<br>2 State 1H<br>(p) | 42.78         | 65.06         | 2.92 |      |
| 5000.00                                                                                                       | 5000.00        | 303.44               | 11.13              | 11.13              | 12.31                 | North Thistle<br>2 State 1H<br>(p) | 49.74         | 72.43         | 3.19 |      |
| 5100.00                                                                                                       | 5100.00        | 308.45               | 11.35              | 11.35              | 12.55                 | North Thistle<br>2 State 1H<br>(p) | 57.33         | 80.49         | 3.48 |      |
| 5200.00                                                                                                       | 5200.00        | 312.52               | 11.58              | 11.58              | 12.79                 | North Thistle<br>2 State 1H<br>(p) | 65.48         | 89.04         | 3.78 |      |
| 5300.00                                                                                                       | 5300.00        | 315.87               | 11.80              | 11.80              | 13.04                 | North Thistle<br>2 State 1H<br>(p) | 73.99         | 97.97         | 4.09 |      |
| 5400.00                                                                                                       | 5400.00        | 318.65               | 12.03              | 12.03              | 13.30                 | North Thistle<br>2 State 1H<br>(p) | 82.71         | 107.17        | 4.38 |      |
| 5500.00                                                                                                       | 5500.00        | 320.86               | 12.25              | 12.25              | 13.55                 | North Thistle<br>2 State 1H<br>(p) | 90.96         | 115.88        | 4.65 |      |
| 5600.00                                                                                                       | 5600.00        | 322.44               | 12.48              | 12.48              | 13.81                 | North Thistle<br>2 State 1H<br>(p) | 97.76         | 123.11        | 4.86 |      |
| 5700.00                                                                                                       | 5700.00        | 323.55               | 12.70              | 12.70              | 14.08                 | North Thistle<br>2 State 1H<br>(p) | 103.01        | 128.78        | 5.00 |      |
| 5800.00                                                                                                       | 5800.00        | 324.28               | 12.93              | 12.93              | 14.35                 | North Thistle<br>2 State 1H<br>(p) | 106.66        | 132.84        | 5.08 |      |
| 5900.00                                                                                                       | 5900.00        | 324.69               | 13.15              | 13.15              | 14.62                 | North Thistle<br>2 State 1H<br>(p) | 108.67        | 135.25        | 5.09 |      |
| 6000.00                                                                                                       | 6000.00        | 324.81               | 13.37              | 13.37              | 14.90                 | North Thistle<br>2 State 1H<br>(p) | 109.02        | 136.00        | 5.04 |      |
| 6100.00                                                                                                       | 6100.00        | 324.81               | 13.60              | 13.60              | 15.18                 | North Thistle<br>2 State 1H<br>(p) | 108.60        | 136.00        | 4.96 |      |
| 6200.00                                                                                                       | 6200.00        | 324.81               | 13.82              | 13.82              | 15.47                 | North Thistle<br>2 State 1H<br>(p) | 108.15        | 136.00        | 4.88 |      |
| 6300.00                                                                                                       | 6300.00        | 324.81               | 14.05              | 14.05              | 15.76                 | North Thistle<br>2 State 1H<br>(p) | 107.71        | 136.00        | 4.81 |      |
| 6400.00                                                                                                       | 6400.00        | 324.81               | 14.27              | 14.27              | 16.05                 | North Thistle<br>2 State 1H<br>(p) | 107.26        | 136.00        | 4.73 |      |
| 6500.00                                                                                                       | 6500.00        | 324.81               | 14.50              | 14.50              | 16.35                 | North Thistle<br>2 State 1H<br>(p) | 106.82        | 136.00        | 4.66 |      |
| 6600.00                                                                                                       | 6600.00        | 324.81               | 14.72              | 14.72              | 16.66                 | North Thistle<br>2 State 1H<br>(p) | 106.37        | 136.00        | 4.59 |      |
| 6700.00                                                                                                       | 6700.00        | 324.81               | 14.95              | 14.95              | 16.97                 | North Thistle<br>2 State 1H<br>(p) | 105.92        | 136.00        | 4.52 |      |
| 6800.00                                                                                                       | 6800.00        | 324.81               | 15.17              | 15.17              | 17.28                 | North Thistle<br>2 State 1H<br>(p) | 105.48        | 136.00        | 4.46 |      |
| 6900.00                                                                                                       | 6900.00        | 324.81               | 15.40              | 15.40              | 17.60                 | North Thistle<br>2 State 1H<br>(p) | 105.03        | 136.00        | 4.39 |      |
| 7000.00                                                                                                       | 7000.00        | 324.81               | 15.62              | 15.62              | 17.93                 | North Thistle<br>2 State 1H<br>(p) | 104.58        | 136.00        | 4.33 |      |
| 7100.00                                                                                                       | 7100.00        | 324.81               | 15.85              | 15.85              | 18.26                 | North Thistle<br>2 State 1H<br>(p) | 104.14        | 136.00        | 4.27 |      |
| 7200.00                                                                                                       | 7200.00        | 324.81               | 16.07              | 16.07              | 18.59                 | North Thistle<br>2 State 1H<br>(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<br>(US ft)                                                                                                 | TVD<br>(US ft) | T.Face to Sec<br>(°) | S.Major<br>(US ft) | S.Minor<br>(US ft) | TVD Spread<br>(US ft) | Nearest Well                       | PS<br>(US ft) | OC<br>(US ft) | SI    | Risk |
| 7300.00                                                                                                       | 7300.00        | 324.81               | 16.30              | 16.30              | 18.93                 | North Thistle<br>2 State 1H<br>(p) | 103.25        | 136.00        | 4.15  |      |
| 7400.00                                                                                                       | 7400.00        | 324.81               | 16.52              | 16.52              | 19.28                 | North Thistle<br>2 State 1H<br>(p) | 102.80        | 136.00        | 4.10  |      |
| 7500.00                                                                                                       | 7500.00        | 324.81               | 16.75              | 16.75              | 19.63                 | North Thistle<br>2 State 1H<br>(p) | 102.36        | 136.00        | 4.04  |      |
| 7600.00                                                                                                       | 7600.00        | 324.81               | 16.97              | 16.97              | 19.98                 | North Thistle<br>2 State 1H<br>(p) | 101.91        | 136.00        | 3.99  |      |
| 7700.00                                                                                                       | 7700.00        | 324.81               | 17.20              | 17.20              | 20.34                 | North Thistle<br>2 State 1H<br>(p) | 101.46        | 136.00        | 3.94  |      |
| 7800.00                                                                                                       | 7800.00        | 324.81               | 17.42              | 17.42              | 20.71                 | North Thistle<br>2 State 1H<br>(p) | 101.02        | 136.00        | 3.89  |      |
| 7900.00                                                                                                       | 7900.00        | 324.81               | 17.65              | 17.65              | 21.08                 | North Thistle<br>2 State 1H<br>(p) | 100.57        | 136.00        | 3.84  |      |
| 8000.00                                                                                                       | 8000.00        | 324.81               | 17.87              | 17.87              | 21.46                 | North Thistle<br>2 State 1H<br>(p) | 100.13        | 136.00        | 3.79  |      |
| 8100.00                                                                                                       | 8100.00        | 324.81               | 18.10              | 18.10              | 21.84                 | North Thistle<br>2 State 1H<br>(p) | 99.68         | 136.00        | 3.74  |      |
| 8200.00                                                                                                       | 8200.00        | 324.81               | 18.32              | 18.32              | 22.23                 | North Thistle<br>2 State 1H<br>(p) | 99.24         | 136.00        | 3.70  |      |
| 8300.00                                                                                                       | 8300.00        | 324.81               | 18.54              | 18.54              | 22.62                 | North Thistle<br>2 State 1H<br>(p) | 98.79         | 136.00        | 3.65  |      |
| 8400.00                                                                                                       | 8400.00        | 324.81               | 18.77              | 18.77              | 23.02                 | North Thistle<br>2 State 1H<br>(p) | 98.35         | 136.00        | 3.61  |      |
| 8500.00                                                                                                       | 8500.00        | 324.81               | 18.99              | 18.99              | 23.43                 | North Thistle<br>2 State 1H<br>(p) | 97.90         | 136.00        | 3.57  |      |
| 8600.00                                                                                                       | 8600.00        | 324.81               | 19.22              | 19.22              | 23.84                 | North Thistle<br>2 State 1H<br>(p) | 97.46         | 136.00        | 3.53  |      |
| 8700.00                                                                                                       | 8700.00        | 324.81               | 19.44              | 19.44              | 24.25                 | North Thistle<br>2 State 1H<br>(p) | 97.01         | 136.00        | 3.49  |      |
| 8800.00                                                                                                       | 8800.00        | 324.81               | 19.67              | 19.67              | 24.67                 | North Thistle<br>2 State 1H<br>(p) | 96.57         | 136.00        | 3.45  |      |
| 8900.00                                                                                                       | 8900.00        | 324.81               | 19.89              | 19.89              | 25.10                 | North Thistle<br>2 State 1H<br>(p) | 96.12         | 136.00        | 3.41  |      |
| 9000.00                                                                                                       | 9000.00        | 324.59               | 20.12              | 20.12              | 25.53                 | North Thistle<br>2 State 1H<br>(p) | 95.16         | 135.47        | 3.36  |      |
| 9100.00                                                                                                       | 9100.00        | 319.11               | 20.34              | 20.34              | 25.97                 | North Thistle<br>2 State 1H<br>(p) | 82.98         | 123.36        | 3.06  |      |
| 9200.00                                                                                                       | 9200.00        | 303.17               | 20.57              | 20.57              | 26.41                 | North Thistle<br>2 State 1H<br>(p) | 59.55         | 100.00        | 2.47  |      |
| 9300.00                                                                                                       | 9300.00        | 273.31               | 20.79              | 20.79              | 26.86                 | North Thistle<br>2 State 1H<br>(p) | 41.78         | 83.29         | 2.01  |      |
| 9400.00                                                                                                       | 9400.00        | 243.91               | 21.02              | 21.02              | 27.32                 | North Thistle<br>2 State 1H<br>(p) | 66.78         | 106.15        | 2.70  |      |
| 9500.00                                                                                                       | 9500.00        | 226.62               | 21.24              | 21.24              | 27.78                 | North Thistle<br>2 State 1H<br>(p) | 128.43        | 164.56        | 4.55  |      |
| 9600.00                                                                                                       | 9600.00        | 217.33               | 21.47              | 21.47              | 28.25                 | North Thistle<br>2 State 1H<br>(p) | 204.86        | 239.04        | 6.99  |      |
| 9700.00                                                                                                       | 9700.00        | 211.94               | 21.69              | 21.69              | 28.72                 | North Thistle<br>2 State 1H<br>(p) | 288.31        | 321.31        | 9.74  |      |
| 9800.00                                                                                                       | 9800.00        | 208.52               | 21.92              | 21.92              | 29.20                 | North Thistle<br>2 State 1H<br>(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<br>(US ft)                                                                                                 | TVD<br>(US ft) | T.Face to Sec<br>(°) | S.Major<br>(US ft) | S.Minor<br>(US ft) | TVD Spread<br>(US ft) | Nearest Well                       | ES<br>(US ft) | CC<br>(US ft) | SF    | Risk |
| 9900.00                                                                                                       | 9900.00        | 206.19               | 22.14              | 22.14              | 29.68                 | North Thistle<br>2 State 1H<br>(p) | 466.03        | 497.85        | 15.65 |      |
| 10000.00                                                                                                      | 10000.00       | 204.52               | 22.37              | 22.37              | 30.18                 | North Thistle<br>2 State 1H<br>(p) | 557.98        | 589.62        | 18.64 |      |
| 10100.00                                                                                                      | 10100.00       | 203.27               | 22.59              | 22.59              | 30.67                 | North Thistle<br>2 State 1H<br>(p) | 651.36        | 682.87        | 21.67 |      |
| 10200.00                                                                                                      | 10200.00       | 202.30               | 22.82              | 22.82              | 31.17                 | North Thistle<br>2 State 1H<br>(p) | 745.83        | 777.23        | 24.75 |      |
| 10300.00                                                                                                      | 10300.00       | 201.53               | 23.04              | 23.04              | 31.68                 | North Thistle<br>2 State 1H<br>(p) | 841.01        | 872.46        | 27.74 |      |
| 10400.00                                                                                                      | 10400.00       | 200.90               | 23.27              | 23.27              | 32.20                 | North Thistle<br>2 State 1H<br>(p) | 936.78        | 968.36        | 30.67 |      |
| 10500.00                                                                                                      | 10500.00       | 15.91                | 23.49              | 23.49              | 32.72                 | North Thistle<br>2 State 1H<br>(p) | 1033.08       | 1064.78       | 33.59 |      |
| 10600.00                                                                                                      | 10599.36       | 9.52                 | 23.65              | 23.44              | 33.23                 | North Thistle<br>2 State 1H<br>(p) | 1126.97       | 1158.75       | 36.46 |      |
| 10700.00                                                                                                      | 10695.45       | 6.68                 | 23.80              | 23.02              | 33.70                 | North Thistle<br>2 State 1H<br>(p) | 1214.97       | 1246.74       | 39.25 |      |
| 10800.00                                                                                                      | 10784.42       | 4.98                 | 23.97              | 22.10              | 34.13                 | North Thistle<br>2 State 1H<br>(p) | 1294.12       | 1325.92       | 41.69 |      |
| 10900.00                                                                                                      | 10862.02       | 4.03                 | 24.16              | 20.88              | 34.48                 | North Thistle<br>2 State 1H<br>(p) | 1361.70       | 1393.57       | 43.73 |      |
| 11000.00                                                                                                      | 10924.88       | 3.46                 | 24.42              | 19.58              | 34.75                 | North Thistle<br>2 State 1H<br>(p) | 1416.23       | 1448.10       | 45.44 |      |
| 11100.00                                                                                                      | 10970.25       | 3.12                 | 24.77              | 18.45              | 34.98                 | North Thistle<br>2 State 1H<br>(p) | 1456.39       | 1488.28       | 46.68 |      |
| 11200.00                                                                                                      | 10996.14       | 2.89                 | 25.23              | 17.77              | 35.20                 | North Thistle<br>2 State 1H<br>(p) | 1480.50       | 1512.59       | 47.14 |      |
| 11300.00                                                                                                      | 11002.48       | 2.77                 | 25.78              | 17.71              | 35.43                 | North Thistle<br>2 State 1H<br>(p) | 1485.47       | 1517.86       | 46.87 |      |
| 11400.00                                                                                                      | 11003.99       | 2.70                 | 26.44              | 17.85              | 35.70                 | North Thistle<br>2 State 1H<br>(p) | 1485.55       | 1518.30       | 46.37 |      |
| 11500.00                                                                                                      | 11005.50       | 2.63                 | 27.20              | 18.02              | 36.04                 | North Thistle<br>2 State 1H<br>(p) | 1485.57       | 1518.74       | 45.79 |      |
| 11600.00                                                                                                      | 11007.01       | 2.56                 | 28.06              | 18.21              | 36.43                 | North Thistle<br>2 State 1H<br>(p) | 1485.53       | 1519.18       | 45.15 |      |
| 11700.00                                                                                                      | 11008.52       | 2.49                 | 29.01              | 18.43              | 36.88                 | North Thistle<br>2 State 1H<br>(p) | 1485.44       | 1519.63       | 44.45 |      |
| 11800.00                                                                                                      | 11010.04       | 2.42                 | 30.04              | 18.68              | 37.37                 | North Thistle<br>2 State 1H<br>(p) | 1485.30       | 1520.08       | 43.70 |      |
| 11900.00                                                                                                      | 11011.55       | 2.35                 | 31.14              | 18.95              | 37.92                 | North Thistle<br>2 State 1H<br>(p) | 1485.10       | 1520.53       | 42.92 |      |
| 12000.00                                                                                                      | 11013.06       | 2.28                 | 32.30              | 19.25              | 38.52                 | North Thistle<br>2 State 1H<br>(p) | 1484.86       | 1520.98       | 42.11 |      |
| 12100.00                                                                                                      | 11014.57       | 2.20                 | 33.52              | 19.57              | 39.16                 | North Thistle<br>2 State 1H<br>(p) | 1484.56       | 1521.44       | 41.26 |      |
| 12200.00                                                                                                      | 11016.08       | 2.13                 | 34.80              | 19.91              | 39.85                 | North Thistle<br>2 State 1H<br>(p) | 1484.22       | 1521.89       | 40.39 |      |
| 12300.00                                                                                                      | 11017.59       | 2.06                 | 36.12              | 20.28              | 40.57                 | North Thistle<br>2 State 1H<br>(p) | 1483.84       | 1522.35       | 39.52 |      |
| 12400.00                                                                                                      | 11019.10       | 1.99                 | 37.48              | 20.66              | 41.34                 | North Thistle<br>2 State 1H<br>(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<br>(US ft)                                                                                                 | TVD<br>(US ft) | T.Face to Sec<br>(°) | S-Major<br>(US ft) | S-Minor<br>(US ft) | TVD Spread<br>(US ft) | Nearest Well                       | ES<br>(US ft) | CC<br>(US ft) | SF    | Risk |
| 12500.00                                                                                                      | 11020.61       | 1.92                 | 38.88              | 21.06              | 42.14                 | North Thistle<br>2 State 1H<br>(p) | 1483.01       | 1523.28       | 37.82 |      |
| 12600.00                                                                                                      | 11022.12       | 1.85                 | 40.31              | 21.48              | 42.98                 | North Thistle<br>2 State 1H<br>(p) | 1482.56       | 1523.75       | 36.99 |      |
| 12700.00                                                                                                      | 11023.63       | 1.78                 | 41.77              | 21.91              | 43.85                 | North Thistle<br>2 State 1H<br>(p) | 1482.03       | 1524.22       | 36.13 |      |
| 12800.00                                                                                                      | 11025.14       | 1.71                 | 43.26              | 22.36              | 44.76                 | North Thistle<br>2 State 1H<br>(p) | 1481.55       | 1524.69       | 35.34 |      |
| 12900.00                                                                                                      | 11026.65       | 1.64                 | 44.77              | 22.83              | 45.69                 | North Thistle<br>2 State 1H<br>(p) | 1481.09       | 1525.17       | 34.60 |      |
| 13000.00                                                                                                      | 11028.16       | 1.56                 | 46.31              | 23.31              | 46.65                 | North Thistle<br>2 State 1H<br>(p) | 1480.51       | 1525.64       | 33.80 |      |
| 13100.00                                                                                                      | 11029.67       | 1.49                 | 47.86              | 23.80              | 47.63                 | North Thistle<br>2 State 1H<br>(p) | 1479.98       | 1526.12       | 33.08 |      |
| 13200.00                                                                                                      | 11031.18       | 1.42                 | 49.43              | 24.30              | 48.64                 | North Thistle<br>2 State 1H<br>(p) | 1479.37       | 1526.60       | 32.32 |      |
| 13300.00                                                                                                      | 11032.69       | 1.35                 | 51.02              | 24.82              | 49.67                 | North Thistle<br>2 State 1H<br>(p) | 1478.76       | 1527.09       | 31.60 |      |
| 13400.00                                                                                                      | 11034.20       | 1.28                 | 52.62              | 25.35              | 50.73                 | North Thistle<br>2 State 1H<br>(p) | 1478.06       | 1527.57       | 30.85 |      |
| 13500.00                                                                                                      | 11035.71       | 1.21                 | 54.23              | 25.88              | 51.80                 | North Thistle<br>2 State 1H<br>(p) | 1477.44       | 1528.06       | 30.19 |      |
| 13600.00                                                                                                      | 11037.22       | 1.14                 | 55.86              | 26.43              | 52.89                 | North Thistle<br>2 State 1H<br>(p) | 1476.75       | 1528.55       | 29.51 |      |
| 13700.00                                                                                                      | 11038.73       | 1.07                 | 57.50              | 26.98              | 54.01                 | North Thistle<br>2 State 1H<br>(p) | 1476.17       | 1529.04       | 28.92 |      |
| 13800.00                                                                                                      | 11040.24       | 1.00                 | 59.15              | 27.55              | 55.13                 | North Thistle<br>2 State 1H<br>(p) | 1475.42       | 1529.54       | 28.27 |      |
| 13900.00                                                                                                      | 11041.75       | 0.93                 | 60.81              | 28.12              | 56.27                 | North Thistle<br>2 State 1H<br>(p) | 1474.72       | 1530.04       | 27.66 |      |
| 14000.00                                                                                                      | 11043.26       | 0.86                 | 62.47              | 28.70              | 57.43                 | North Thistle<br>2 State 1H<br>(p) | 1474.03       | 1530.54       | 27.09 |      |
| 14100.00                                                                                                      | 11044.77       | 0.79                 | 64.15              | 29.28              | 58.60                 | North Thistle<br>2 State 1H<br>(p) | 1473.33       | 1531.04       | 26.53 |      |
| 14200.00                                                                                                      | 11046.28       | 0.72                 | 65.83              | 29.87              | 59.79                 | North Thistle<br>2 State 1H<br>(p) | 1472.60       | 1531.54       | 25.98 |      |
| 14300.00                                                                                                      | 11047.79       | 0.65                 | 67.52              | 30.47              | 60.98                 | North Thistle<br>2 State 1H<br>(p) | 1471.87       | 1532.05       | 25.46 |      |
| 14400.00                                                                                                      | 11049.31       | 0.58                 | 69.22              | 31.08              | 62.19                 | North Thistle<br>2 State 1H<br>(p) | 1471.14       | 1532.56       | 24.95 |      |
| 14500.00                                                                                                      | 11050.82       | 0.51                 | 70.92              | 31.68              | 63.41                 | North Thistle<br>2 State 1H<br>(p) | 1470.40       | 1533.07       | 24.46 |      |
| 14600.00                                                                                                      | 11052.33       | 0.44                 | 72.62              | 32.30              | 64.64                 | North Thistle<br>2 State 1H<br>(p) | 1469.65       | 1533.58       | 23.99 |      |
| 14700.00                                                                                                      | 11053.84       | 0.37                 | 74.34              | 32.92              | 65.88                 | North Thistle<br>2 State 1H<br>(p) | 1468.87       | 1534.10       | 23.52 |      |
| 14800.00                                                                                                      | 11055.35       | 0.30                 | 76.05              | 33.54              | 67.13                 | North Thistle<br>2 State 1H<br>(p) | 1468.08       | 1534.62       | 23.06 |      |
| 14900.00                                                                                                      | 11056.86       | 0.23                 | 77.77              | 34.17              | 68.38                 | North Thistle<br>2 State 1H<br>(p) | 1467.29       | 1535.14       | 22.63 |      |
| 15000.00                                                                                                      | 11058.37       | 0.16                 | 79.50              | 34.80              | 69.65                 | North Thistle<br>2 State 1H<br>(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) |                |                      |                    |                    |                       |                                    |               |               |       |      |
|---------------------------------------------------------------------------------------------------------------|----------------|----------------------|--------------------|--------------------|-----------------------|------------------------------------|---------------|---------------|-------|------|
| PD<br>(US ft)                                                                                                 | TVD<br>(US ft) | T.Face to Sec<br>(°) | S.Major<br>(US ft) | S.Minor<br>(US ft) | TVD Spread<br>(US ft) | Nearest Well                       | ES<br>(US ft) | CC<br>(US ft) | SF    | Risk |
| 15100.00                                                                                                      | 11059.88       | 0.09                 | 81.23              | 35.44              | 70.92                 | North Thistle<br>2 State 1H<br>(p) | 1465.70       | 1536.18       | 21.80 |      |
| 15200.00                                                                                                      | 11061.39       | 0.02                 | 82.96              | 36.08              | 72.20                 | North Thistle<br>2 State 1H<br>(p) | 1464.90       | 1536.71       | 21.40 |      |
| 15240.50                                                                                                      | 11062.00       | 0.00                 | 83.66              | 36.34              | 72.72                 | North Thistle<br>2 State 1H<br>(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) |                |                   |                      |                    |                    |                       |               |               |       |      |
|-----------------------------------------------------------------------------------------------------------------|----------------|-------------------|----------------------|--------------------|--------------------|-----------------------|---------------|---------------|-------|------|
| PD<br>(US ft)                                                                                                   | TVD<br>(US ft) | Sec PD<br>(US ft) | T.Face to Sec<br>(°) | S.Major<br>(US ft) | S.Minor<br>(US ft) | TVD Spread<br>(US ft) | ES<br>(US ft) | CC<br>(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) |                |                   |                       |                    |                    |                       |               |               |       |      |
|-----------------------------------------------------------------------------------------------------------------|----------------|-------------------|-----------------------|--------------------|--------------------|-----------------------|---------------|---------------|-------|------|
| Pit ID<br>(US ft)                                                                                               | TVD<br>(US ft) | Sec ID<br>(US ft) | T.Face to Sec.<br>(°) | S.Major<br>(US ft) | S.Minor<br>(US ft) | TVD Spread<br>(US ft) | ES<br>(US ft) | CC<br>(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) |                |                   |                      |                    |                    |                       |               |               |       |      |
|-----------------------------------------------------------------------------------------------------------------|----------------|-------------------|----------------------|--------------------|--------------------|-----------------------|---------------|---------------|-------|------|
| Fit MD<br>(US ft)                                                                                               | TVD<br>(US ft) | Sec MD<br>(US ft) | T.Face to Sec<br>(°) | S.Major<br>(US ft) | S.Minor<br>(US ft) | TVD Spread<br>(US ft) | ES<br>(US ft) | CC<br>(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

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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: \_\_\_\_\_

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|                                         |                                         |
|-----------------------------------------|-----------------------------------------|
| 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              |                                         |

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Geodetic Location WGS84  
MSL Elevation = 0 m  
Latitude = 32° 20' 22.42" N  
Longitude = 103° 32' 27.66" W

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|                                 |                              |
|---------------------------------|------------------------------|
| 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 |

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Signed: \_\_\_\_\_ Date: \_\_\_\_\_

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