



NABORS DRILLING TECHNOLOGIES USA, INC.  
515 West Greens Road  
Houston, TX 77067  
Phone: 281.874.0035  
Fax: 281.872.5205

Thursday, February 15, 2018

State of New Mexico  
County of Lea

**HOBBS OCD**

**OCT 01 2018**

Subject: **Survey Certification Letter**

**RECEIVED**

Survey Company: **NABORS DRILLING TECH USA, INC.**

Job Number: **T4422**

Survey Job Type: **Nabors MWD**

Customer: **Devon Energy Corporation**

Well Name: **Thistle Unit 100H**

Rig Name: **Nabors X20**

Surface: **32.174754318 N 103.332536593 W**

A.P.I. No: **30-025-44085**

Location: **Lea, NM**

RKB Height: **32'**

Distance to Bit: **64'**

| Surveyor Name | Surveyor Title | Borehole<br>Number | Start<br>Depth | End<br>Depth | Start<br>Date | End<br>Date | Type<br>of | TD Straight        |
|---------------|----------------|--------------------|----------------|--------------|---------------|-------------|------------|--------------------|
|               |                |                    |                |              |               |             |            | Line<br>Projection |
| Joe Moore     | MWD Supervisor | OH                 | 1540'          | 14760'       | 02/01/18      | 02/15/18    | MWD        | 14825'             |
| Joe Moore     | MWD Supervisor | ST1                | 14094'         | 18139'       | 02/16/18      | 02/23/18    | MWD        | 18200'             |

The data and calculations for this survey have been checked by me and conform to the calibration standards and operational procedures set forth by NABORS DRILLING TECHNOLOGIES USA, INC. I am authorized and qualified to review the data, calculations and these reports; the reports represents true and correct Directional Surveys of this well based on the original data, the minimum curvature method, corrected to Grid North and obtained at the well site.

**Joe Moore**  
MWD Supervisor  
NABORS DRILLING TECHNOLOGIES USA, INC.



**devon**

## **Devon Energy Corporation**

**Lea Co., NM  
Thistle Unit  
100H  
ST1**

**Design: Surveys**

## **Completion Report**

**23 February, 2018**

**HOBBS OCD  
OCT 01 2018  
RECEIVED**



devon

# WELL DETAILS: 100H

Ground Elevation: 3713.20  
RKB Elevation: KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)  
Rig Name: Nabors X20

+N/-S +E/-W Northing Easting Latitude Longitude  
0.00 0.00 472482.00000 781202.74000 32° 17' 47.54318 N 103° 33' 25.36593 W



Azimuths to Grid North  
True North: -0.41°  
Magnetic North: 6.45°

Magnetic Field  
Strength: 48170.8nT  
Dip Angle: 60.08°  
Date: 2/6/2018  
Model: USER DEFINED

## SECTION DETAILS

| MD       | Inc   | Azi    | TVD      | +N/-S    | +E/-W | Diag | TFace  | VFace   |
|----------|-------|--------|----------|----------|-------|------|--------|---------|
| 14006.00 | 87.39 | 182.09 | 10687.23 | -3548.94 | 15.47 | 0.00 | 0.00   | 3548.97 |
| 14070.00 | 88.81 | 183.24 | 10688.46 | -3616.89 | 12.55 | 3.44 | 34.28  | 3616.88 |
| 14135.61 | 89.81 | 180.82 | 10688.79 | -3678.42 | 10.34 | 4.00 | -94.39 | 3678.44 |
| 14588.85 | 89.81 | 180.82 | 10671.95 | -4138.73 | 5.30  | 0.00 | 0.00   | 4138.72 |
| 14840.37 | 89.70 | 179.80 | 10672.20 | -4181.14 | 5.14  | 2.00 | -53.73 | 4181.13 |
| 18040.37 | 89.70 | 179.80 | 10690.00 | -7581.08 | 17.01 | 0.00 | 0.00   | 7581.09 |

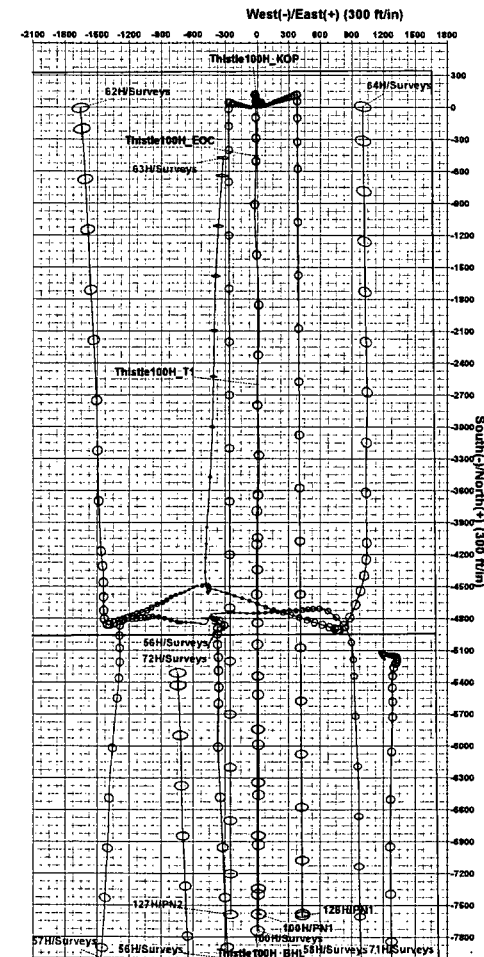
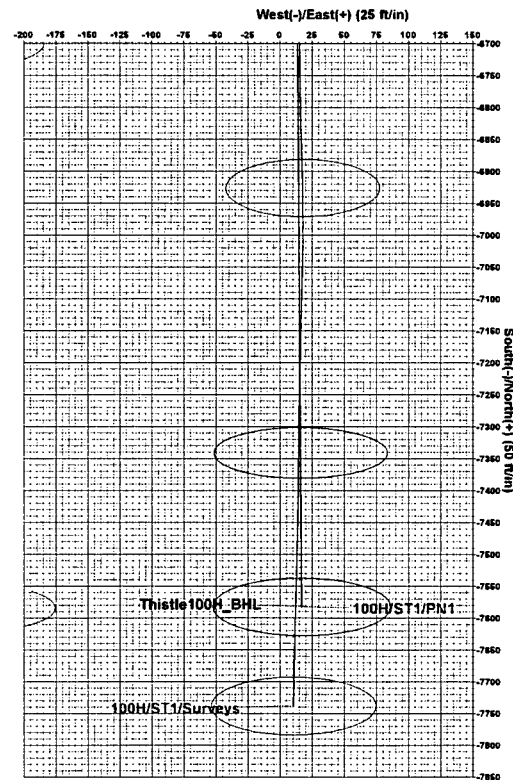
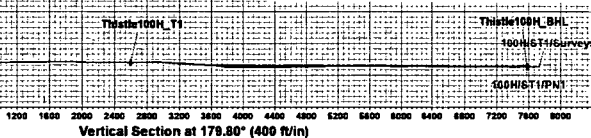
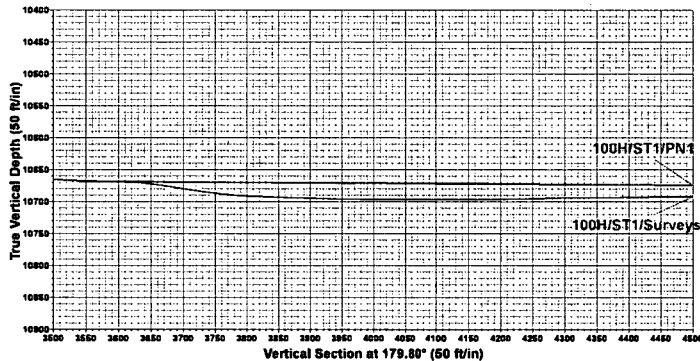
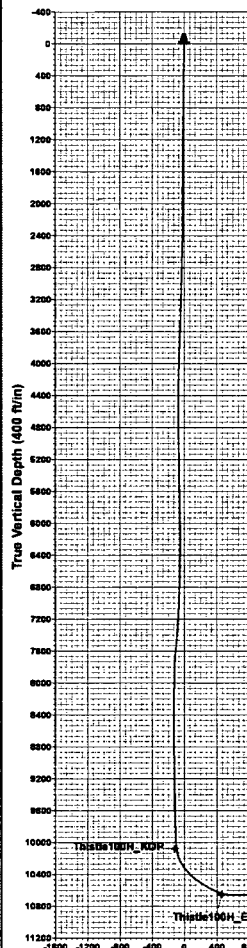
Thistle100H\_BHL

PROJECT DETAILS: Lea Co., NM  
Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: New Mexico Eastern Zone  
System Datum: Mean Sea Level  
Local North: Grid

Project: Lea Co., NM  
Site: Thistle Unit  
Well: 100H  
Wellbore: ST1  
Plan: PN1 (100H/ST1)

## WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

| Name            | TVD      | +N/-S    | +E/-W | Northing     | Easting      |
|-----------------|----------|----------|-------|--------------|--------------|
| Thistle100H_BHL | 10690.00 | -7581.08 | 17.01 | 472482.00000 | 781202.74000 |
| Thistle100H_EOC | 10681.00 | -458.38  | -7.98 | 472482.00000 | 781202.74000 |
| Thistle100H_KOP | 10078.07 | 119.79   | -8.94 | 472482.00000 | 781202.74000 |
| Thistle100H_T1  | 10639.00 | -2600.02 | -0.50 | 472482.00000 | 781202.74000 |



**Company:** Devon Energy Corporation  
**Project:** Lea Co., NM  
**Site:** Thistle Unit  
**Well:** 100H  
**Wellbore:** ST1  
**Design:** Surveys

**Local Co-ordinate Reference:** Well 100H  
**TVD Reference:** KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)  
**MD Reference:** KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** RyanUSA\_ODBC\_32Bit

**Project** Lea Co., NM

**Map System:** US State Plane 1983  
**Geo Datum:** North American Datum 1983  
**Map Zone:** New Mexico Eastern Zone

**System Datum:** Mean Sea Level

**Site** Thistle Unit

|                                      |                     |                    |                          |                     |
|--------------------------------------|---------------------|--------------------|--------------------------|---------------------|
| <b>Site Position:</b>                | <b>Northing:</b>    | 472,481.79000 usft | <b>Latitude:</b>         | 32° 17' 47.54325 N  |
| <b>From:</b> Map                     | <b>Easting:</b>     | 781,172.75000 usft | <b>Longitude:</b>        | 103° 33' 25.71533 W |
| <b>Position Uncertainty:</b> 0.00 ft | <b>Slot Radius:</b> | 13-3/16 "          | <b>Grid Convergence:</b> | 0.41 °              |

**Well** 100H

|                             |             |         |                            |                    |                      |                     |
|-----------------------------|-------------|---------|----------------------------|--------------------|----------------------|---------------------|
| <b>Well Position</b>        | <b>+N-S</b> | 0.00 ft | <b>Northing:</b>           | 472,482.00000 usft | <b>Latitude:</b>     | 32° 17' 47.54318 N  |
|                             | <b>+E-W</b> | 0.00 ft | <b>Easting:</b>            | 781,202.74000 usft | <b>Longitude:</b>    | 103° 33' 25.36593 W |
| <b>Position Uncertainty</b> |             | 0.00 ft | <b>Wellhead Elevation:</b> | ft                 | <b>Ground Level:</b> | 3,713.20 ft         |

**Wellbore** ST1

| Magnetics | Model Name   | Sample Date | Declination<br>(°) | Dip Angle<br>(°) | Field Strength<br>(nT) |
|-----------|--------------|-------------|--------------------|------------------|------------------------|
|           | User Defined | 2/8/2018    | 6.87               | 60.08            | 48,170.80000000        |

**Design** Surveys

**Audit Notes:**

|                          |                         |               |             |                      |      |
|--------------------------|-------------------------|---------------|-------------|----------------------|------|
| <b>Version:</b>          | 1.0                     | <b>Phase:</b> | ACTUAL      | <b>Tie On Depth:</b> | 0.00 |
| <b>Vertical Section:</b> | <b>Depth From (TVD)</b> | <b>+N-S</b>   | <b>+E-W</b> | <b>Direction</b>     |      |
|                          | (ft)                    | (ft)          | (ft)        | (°)                  |      |
|                          | 0.00                    | 0.00          | 0.00        | 179.80               |      |



Nabors  
Completion Report



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Site: Thistle Unit  
Well: 100H  
Wellbore: ST1  
Design: Surveys

Local Co-ordinate Reference: Well 100H  
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North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: RyanUSA\_ODBC\_32Bit

| Survey Program |           | Date 2/23/2018            |             |                                            |
|----------------|-----------|---------------------------|-------------|--------------------------------------------|
| From (ft)      | To (ft)   | Survey (Wellbore)         | Tool Name   | Description                                |
| 51.00          | 14,006.00 | Survey #1 (ST1)           | MWD+IFR1+MS | OWSG MWD + IFR1 + Multi-Station Correction |
| 14,065.00      | 18,200.00 | Survey #2 - NDS MWD (ST1) | MWD+IFR1+MS | OWSG MWD + IFR1 + Multi-Station Correction |

| MD (ft)  | Inc (°) | Azi (azimuth) (°) | TVD (ft) | V. Sec (ft) | N/S (ft) | E/W (ft) | Closure Distance (ft) | Closure Azimuth (°) | DLeg (°/100ft) |
|----------|---------|-------------------|----------|-------------|----------|----------|-----------------------|---------------------|----------------|
| 0.00     | 0.00    | 0.00              | 0.00     | 0.00        | 0.00     | 0.00     | 0.00                  | 0.00                | 0.00           |
| 51.00    | 0.35    | 60.14             | 51.00    | -0.08       | 0.08     | 0.14     | 0.16                  | 60.14               | 0.69           |
| 140.00   | 0.66    | 340.12            | 140.00   | -0.69       | 0.69     | 0.20     | 0.72                  | 15.79               | 0.78           |
| 233.00   | 0.84    | 319.68            | 232.99   | -1.72       | 1.72     | -0.43    | 1.77                  | 346.05              | 0.34           |
| 327.00   | 1.20    | 341.57            | 326.97   | -3.18       | 3.18     | -1.18    | 3.39                  | 339.57              | 0.56           |
| 422.00   | 0.88    | 356.23            | 421.96   | -4.85       | 4.85     | -1.55    | 5.09                  | 342.32              | 0.44           |
| 519.00   | 0.74    | 336.23            | 518.95   | -6.17       | 6.17     | -1.85    | 6.44                  | 343.32              | 0.32           |
| 613.00   | 0.80    | 316.97            | 612.94   | -7.21       | 7.20     | -2.54    | 7.64                  | 340.57              | 0.28           |
| 708.00   | 0.70    | 344.52            | 707.93   | -8.26       | 8.25     | -3.15    | 8.83                  | 339.11              | 0.39           |
| 802.00   | 0.09    | 0.90              | 801.93   | -8.88       | 8.87     | -3.30    | 9.47                  | 339.60              | 0.65           |
| 897.00   | 0.51    | 11.27             | 896.93   | -9.37       | 9.36     | -3.22    | 9.90                  | 341.04              | 0.44           |
| 992.00   | 0.42    | 356.21            | 991.93   | -10.13      | 10.12    | -3.16    | 10.60                 | 342.68              | 0.16           |
| 1,087.00 | 0.44    | 311.21            | 1,086.92 | -10.72      | 10.71    | -3.45    | 11.25                 | 342.13              | 0.35           |
| 1,182.00 | 0.90    | 306.12            | 1,181.92 | -11.41      | 11.39    | -4.33    | 12.19                 | 339.18              | 0.49           |
| 1,277.00 | 0.80    | 312.21            | 1,276.91 | -12.30      | 12.28    | -5.42    | 13.42                 | 336.16              | 0.14           |
| 1,371.00 | 0.30    | 1.86              | 1,370.90 | -12.98      | 12.96    | -5.90    | 14.24                 | 335.52              | 0.69           |
| 1,388.00 | 0.20    | 355.21            | 1,387.90 | -13.06      | 13.04    | -5.90    | 14.31                 | 335.64              | 0.61           |
| 1,540.00 | 0.69    | 281.95            | 1,539.90 | -13.52      | 13.49    | -6.82    | 15.12                 | 333.18              | 0.43           |
| 1,633.00 | 0.88    | 279.85            | 1,632.89 | -13.76      | 13.73    | -8.07    | 15.93                 | 329.55              | 0.21           |
| 1,727.00 | 0.81    | 294.44            | 1,726.88 | -14.16      | 14.13    | -9.39    | 16.96                 | 326.39              | 0.24           |
| 1,821.00 | 0.88    | 301.99            | 1,820.87 | -14.82      | 14.79    | -10.61   | 18.20                 | 324.35              | 0.14           |



Nabors  
Completion Report



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Site: Thistle Unit  
Well: 100H  
Wellbore: ST1  
Design: Surveys

Local Co-ordinate Reference: Well 100H  
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North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: RyanUSA\_ODBC\_32Bit

Survey

| MD<br>(ft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(ft) | V. Sec<br>(ft) | N/S<br>(ft) | E/W<br>(ft) | Closure Distance<br>(ft) | Closure Azimuth<br>(°) | DLeg<br>(°/100ft) |
|------------|------------|----------------------|-------------|----------------|-------------|-------------|--------------------------|------------------------|-------------------|
| 1,915.00   | 0.81       | 294.79               | 1,914.86    | -15.49         | 15.45       | -11.82      | 19.45                    | 322.57                 | 0.14              |
| 2,009.00   | 0.88       | 306.92               | 2,008.85    | -16.20         | 16.16       | -13.00      | 20.74                    | 321.18                 | 0.20              |
| 2,104.00   | 0.94       | 306.92               | 2,103.84    | -17.11         | 17.06       | -14.21      | 22.21                    | 320.22                 | 0.06              |
| 2,198.00   | 0.94       | 312.89               | 2,197.82    | -18.11         | 18.05       | -15.39      | 23.72                    | 319.55                 | 0.10              |
| 2,292.00   | 0.94       | 319.57               | 2,291.81    | -19.22         | 19.16       | -16.45      | 25.26                    | 319.35                 | 0.12              |
| 2,386.00   | 1.00       | 316.06               | 2,385.80    | -20.40         | 20.34       | -17.52      | 26.85                    | 319.26                 | 0.09              |
| 2,480.00   | 1.00       | 316.58               | 2,479.78    | -21.59         | 21.53       | -18.66      | 28.49                    | 319.09                 | 0.01              |
| 2,574.00   | 1.06       | 316.58               | 2,573.77    | -22.82         | 22.76       | -19.82      | 30.18                    | 318.95                 | 0.06              |
| 2,667.00   | 1.06       | 326.60               | 2,666.75    | -24.17         | 24.10       | -20.88      | 31.89                    | 319.09                 | 0.20              |
| 2,761.00   | 1.06       | 332.58               | 2,760.74    | -25.67         | 25.60       | -21.76      | 33.60                    | 319.63                 | 0.12              |
| 2,855.00   | 1.13       | 338.03               | 2,854.72    | -27.31         | 27.23       | -22.51      | 35.33                    | 320.42                 | 0.13              |
| 2,950.00   | 1.63       | 334.16               | 2,949.69    | -29.39         | 29.31       | -23.45      | 37.54                    | 321.34                 | 0.54              |
| 3,044.00   | 1.38       | 350.33               | 3,043.66    | -31.72         | 31.63       | -24.22      | 39.84                    | 322.56                 | 0.52              |
| 3,139.00   | 1.38       | 351.92               | 3,138.63    | -33.98         | 33.89       | -24.57      | 41.86                    | 324.06                 | 0.04              |
| 3,234.00   | 1.56       | 353.85               | 3,233.60    | -36.40         | 36.31       | -24.87      | 44.01                    | 325.59                 | 0.20              |
| 3,328.00   | 1.75       | 359.47               | 3,327.56    | -39.10         | 39.02       | -25.02      | 46.35                    | 327.33                 | 0.27              |
| 3,423.00   | 2.00       | 4.22                 | 3,422.51    | -42.21         | 42.12       | -24.92      | 48.94                    | 329.40                 | 0.31              |
| 3,517.00   | 2.06       | 8.62                 | 3,516.45    | -45.51         | 45.43       | -24.54      | 51.63                    | 331.62                 | 0.18              |
| 3,612.00   | 2.19       | 13.71                | 3,611.39    | -48.96         | 48.88       | -23.86      | 54.39                    | 333.99                 | 0.24              |
| 3,706.00   | 2.19       | 17.93                | 3,705.32    | -52.41         | 52.33       | -22.88      | 57.11                    | 336.39                 | 0.17              |
| 3,800.00   | 2.50       | 22.85                | 3,799.24    | -56.01         | 55.93       | -21.53      | 59.93                    | 338.95                 | 0.39              |
| 3,894.00   | 2.00       | 23.73                | 3,893.17    | -59.39         | 59.32       | -20.07      | 62.63                    | 341.31                 | 0.53              |
| 3,988.00   | 1.88       | 31.29                | 3,987.11    | -62.21         | 62.14       | -18.61      | 64.87                    | 343.33                 | 0.30              |
| 4,082.00   | 1.75       | 29.88                | 4,081.06    | -64.76         | 64.70       | -17.09      | 66.92                    | 345.20                 | 0.15              |
| 4,177.00   | 1.56       | 30.76                | 4,176.03    | -67.13         | 67.07       | -15.71      | 68.89                    | 346.82                 | 0.20              |
| 4,271.00   | 1.44       | 36.04                | 4,269.99    | -69.18         | 69.13       | -14.36      | 70.60                    | 348.26                 | 0.19              |
| 4,364.00   | 1.38       | 46.58                | 4,362.96    | -70.89         | 70.84       | -12.86      | 72.00                    | 349.71                 | 0.29              |

**Company:** Devon Energy Corporation  
**Project:** Lea Co., NM  
**Site:** Thistle Unit  
**Well:** 100H  
**Wellbore:** ST1  
**Design:** Surveys

**Local Co-ordinate Reference:** Well 100H  
**TVD Reference:** KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)  
**MD Reference:** KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** RyanUSA\_ODBC\_32Bit

## Survey

| MD<br>(ft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(ft) | V. Sec<br>(ft) | N/S<br>(ft) | E/W<br>(ft) | Closure Distance<br>(ft) | Closure Azimuth<br>(°) | DLeg<br>(°/100ft) |
|------------|------------|----------------------|-------------|----------------|-------------|-------------|--------------------------|------------------------|-------------------|
| 4,459.00   | 1.94       | 76.47                | 4,457.93    | -72.04         | 72.00       | -10.47      | 72.76                    | 351.73                 | 1.07              |
| 4,553.00   | 2.44       | 92.81                | 4,551.86    | -72.30         | 72.28       | -6.92       | 72.61                    | 354.53                 | 0.85              |
| 4,647.00   | 1.94       | 97.21                | 4,645.79    | -71.99         | 71.98       | -3.34       | 72.06                    | 357.34                 | 0.56              |
| 4,741.00   | 2.19       | 100.02               | 4,739.73    | -71.47         | 71.47       | 0.00        | 71.47                    | 0.00                   | 0.29              |
| 4,836.00   | 2.81       | 102.48               | 4,834.64    | -70.63         | 70.65       | 4.06        | 70.77                    | 3.29                   | 0.66              |
| 4,930.00   | 3.50       | 107.05               | 4,928.49    | -69.28         | 69.31       | 9.06        | 69.90                    | 7.45                   | 0.78              |
| 5,024.00   | 3.94       | 106.35               | 5,022.30    | -67.51         | 67.56       | 14.90       | 69.18                    | 12.44                  | 0.47              |
| 5,118.00   | 3.31       | 110.22               | 5,116.11    | -65.64         | 65.71       | 20.55       | 68.85                    | 17.36                  | 0.72              |
| 5,212.00   | 2.88       | 111.97               | 5,209.97    | -63.80         | 63.89       | 25.28       | 68.71                    | 21.59                  | 0.47              |
| 5,302.00   | 2.06       | 114.26               | 5,299.89    | -62.28         | 62.38       | 28.85       | 68.73                    | 24.82                  | 0.92              |
| 5,481.00   | 2.32       | 115.29               | 5,478.76    | -59.39         | 59.51       | 35.06       | 69.07                    | 30.51                  | 0.15              |
| 5,576.00   | 2.27       | 121.54               | 5,573.68    | -57.57         | 57.71       | 38.40       | 69.32                    | 33.64                  | 0.27              |
| 5,670.00   | 2.09       | 119.39               | 5,667.61    | -55.75         | 55.89       | 41.48       | 69.60                    | 36.58                  | 0.21              |
| 5,765.00   | 1.27       | 125.52               | 5,762.57    | -54.28         | 54.43       | 43.85       | 69.90                    | 38.86                  | 0.88              |
| 5,859.00   | 1.33       | 120.40               | 5,856.55    | -53.11         | 53.27       | 45.64       | 70.15                    | 40.59                  | 0.14              |
| 5,953.00   | 1.47       | 153.16               | 5,950.52    | -51.48         | 51.64       | 47.12       | 69.91                    | 42.38                  | 0.85              |
| 6,047.00   | 1.85       | 210.85               | 6,044.49    | -49.10         | 49.26       | 46.89       | 68.01                    | 43.59                  | 1.74              |
| 6,141.00   | 2.32       | 259.80               | 6,138.43    | -47.47         | 47.63       | 44.24       | 65.00                    | 42.89                  | 1.89              |
| 6,235.00   | 2.37       | 265.91               | 6,232.35    | -47.01         | 47.15       | 40.43       | 62.11                    | 40.61                  | 0.27              |
| 6,329.00   | 2.46       | 275.27               | 6,326.27    | -47.07         | 47.20       | 36.48       | 59.65                    | 37.70                  | 0.43              |
| 6,424.00   | 3.03       | 291.53               | 6,421.16    | -48.19         | 48.30       | 32.12       | 58.01                    | 33.62                  | 1.01              |
| 6,517.00   | 3.05       | 291.54               | 6,514.03    | -50.02         | 50.12       | 27.53       | 57.18                    | 28.78                  | 0.02              |
| 6,611.00   | 2.75       | 287.80               | 6,607.91    | -51.64         | 51.72       | 23.05       | 56.63                    | 24.02                  | 0.38              |
| 6,706.00   | 3.39       | 289.54               | 6,702.77    | -53.29         | 53.36       | 18.24       | 56.39                    | 18.87                  | 0.68              |
| 6,801.00   | 4.40       | 305.56               | 6,797.55    | -56.37         | 56.42       | 12.63       | 57.81                    | 12.61                  | 1.55              |
| 6,895.00   | 4.29       | 302.19               | 6,891.28    | -60.36         | 60.39       | 6.72        | 60.76                    | 6.35                   | 0.30              |
| 6,989.00   | 3.78       | 313.08               | 6,985.05    | -64.37         | 64.38       | 1.48        | 64.39                    | 1.32                   | 0.98              |



Nabors  
Completion Report



Company: Devon Energy Corporation  
Project: Lea Co., NM  
Site: Thistle Unit  
Well: 100H  
Wellbore: ST1  
Design: Surveys

Local Co-ordinate Reference: Well 100H  
TVD Reference: KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)  
MD Reference: KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: RyanUSA\_ODBC\_32Bit

Survey

| MD<br>(ft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(ft) | V. Sec.<br>(ft) | N/S<br>(ft) | E/W<br>(ft) | Closure Distance<br>(ft) | Closure Azimuth<br>(°) | DLeg<br>(°/100ft) |
|------------|------------|----------------------|-------------|-----------------|-------------|-------------|--------------------------|------------------------|-------------------|
| 7,084.00   | 3.71       | 320.06               | 7,079.85    | -68.88          | 68.87       | -2.78       | 68.93                    | 357.69                 | 0.49              |
| 7,178.00   | 3.65       | 317.15               | 7,173.66    | -73.42          | 73.40       | -6.77       | 73.71                    | 354.73                 | 0.21              |
| 7,272.00   | 4.19       | 328.86               | 7,267.44    | -78.57          | 78.53       | -10.58      | 79.24                    | 352.33                 | 1.02              |
| 7,366.00   | 4.60       | 339.03               | 7,361.16    | -85.04          | 84.99       | -13.70      | 86.09                    | 350.84                 | 0.94              |
| 7,461.00   | 4.76       | 345.73               | 7,455.85    | -92.42          | 92.37       | -16.04      | 93.75                    | 350.15                 | 0.60              |
| 7,555.00   | 4.75       | 346.22               | 7,549.52    | -99.99          | 99.93       | -17.93      | 101.52                   | 349.83                 | 0.04              |
| 7,648.00   | 3.97       | 352.99               | 7,642.25    | -106.93         | 106.86      | -19.24      | 108.58                   | 349.79                 | 1.00              |
| 7,743.00   | 3.66       | 358.00               | 7,737.04    | -113.22         | 113.16      | -19.75      | 114.87                   | 350.10                 | 0.48              |
| 7,837.00   | 2.28       | 356.98               | 7,830.91    | -118.09         | 118.02      | -19.95      | 119.70                   | 350.41                 | 1.47              |
| 7,932.00   | 1.31       | 6.98                 | 7,925.87    | -121.06         | 120.99      | -19.92      | 122.62                   | 350.65                 | 1.07              |
| 8,026.00   | 0.97       | 359.28               | 8,019.85    | -122.92         | 122.85      | -19.80      | 124.43                   | 350.85                 | 0.40              |
| 8,120.00   | 0.83       | 349.90               | 8,113.84    | -124.38         | 124.32      | -19.93      | 125.90                   | 350.89                 | 0.22              |
| 8,213.00   | 0.50       | 345.53               | 8,206.83    | -125.44         | 125.37      | -20.14      | 126.98                   | 350.87                 | 0.36              |
| 8,308.00   | 0.48       | 336.65               | 8,301.83    | -126.21         | 126.14      | -20.41      | 127.78                   | 350.81                 | 0.08              |
| 8,402.00   | 0.27       | 308.18               | 8,395.82    | -126.71         | 126.64      | -20.74      | 128.32                   | 350.70                 | 0.29              |
| 8,495.00   | 0.30       | 273.85               | 8,488.82    | -126.86         | 126.79      | -21.15      | 128.54                   | 350.53                 | 0.18              |
| 8,589.00   | 0.20       | 242.82               | 8,582.82    | -126.80         | 126.73      | -21.54      | 128.55                   | 350.35                 | 0.18              |
| 8,683.00   | 0.50       | 196.92               | 8,676.82    | -126.34         | 126.26      | -21.81      | 128.13                   | 350.20                 | 0.41              |
| 8,778.00   | 0.59       | 194.00               | 8,771.82    | -125.47         | 125.39      | -22.05      | 127.31                   | 350.03                 | 0.10              |
| 8,872.00   | 0.74       | 204.35               | 8,865.81    | -124.45         | 124.37      | -22.41      | 126.37                   | 349.78                 | 0.20              |
| 8,967.00   | 0.91       | 194.30               | 8,960.80    | -123.16         | 123.08      | -22.85      | 125.18                   | 349.48                 | 0.23              |
| 9,061.00   | 1.04       | 192.11               | 9,054.79    | -121.60         | 121.52      | -23.22      | 123.72                   | 349.18                 | 0.14              |
| 9,155.00   | 0.93       | 184.64               | 9,148.77    | -120.01         | 119.93      | -23.46      | 122.20                   | 348.93                 | 0.18              |
| 9,249.00   | 0.98       | 186.75               | 9,242.76    | -118.45         | 118.37      | -23.61      | 120.70                   | 348.72                 | 0.07              |
| 9,342.00   | 0.96       | 191.12               | 9,335.75    | -116.90         | 116.81      | -23.86      | 119.23                   | 348.46                 | 0.08              |
| 9,436.00   | 0.75       | 153.43               | 9,429.74    | -115.57         | 115.49      | -23.73      | 117.90                   | 348.39                 | 0.62              |
| 9,531.00   | 1.04       | 157.46               | 9,524.73    | -114.22         | 114.14      | -23.13      | 116.46                   | 348.55                 | 0.31              |



**Company:** Devon Energy Corporation  
**Project:** Lea Co., NM  
**Site:** Thistle Unit  
**Well:** 100H  
**Wellbore:** ST1  
**Design:** Surveys

**Local Co-ordinate Reference:** Well 100H  
**TVD Reference:** KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)  
**MD Reference:** KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** RyanUSA\_ODBC\_32Bit

| Survey          |            |                      |             |                |             |             |                          |                        |                   |  |  |
|-----------------|------------|----------------------|-------------|----------------|-------------|-------------|--------------------------|------------------------|-------------------|--|--|
| MD<br>(ft)      | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(ft) | V. Sec<br>(ft) | N/S<br>(ft) | E/W<br>(ft) | Closure Distance<br>(ft) | Closure Azimuth<br>(°) | DLeg<br>("/100ft) |  |  |
| 9,624.00        | 0.83       | 154.32               | 9,617.71    | -112.83        | 112.75      | -22.51      | 114.98                   | 348.71                 | 0.23              |  |  |
| 9,718.00        | 1.19       | 147.96               | 9,711.70    | -111.39        | 111.31      | -21.70      | 113.41                   | 348.97                 | 0.40              |  |  |
| 9,812.00        | 1.40       | 132.27               | 9,805.67    | -109.78        | 109.71      | -20.33      | 111.58                   | 349.50                 | 0.44              |  |  |
| 9,906.00        | 2.25       | 133.85               | 9,899.63    | -107.72        | 107.66      | -18.15      | 109.18                   | 350.43                 | 0.91              |  |  |
| 10,000.00       | 2.49       | 144.57               | 9,993.55    | -104.77        | 104.72      | -15.63      | 105.88                   | 351.51                 | 0.54              |  |  |
| 10,082.74       | 7.54       | 175.35               | 10,075.96   | -97.89         | 97.84       | -14.15      | 98.86                    | 351.77                 | 6.70              |  |  |
| Thistle100H_KOP |            |                      |             |                |             |             |                          |                        |                   |  |  |
| 10,111.00       | 9.39       | 178.02               | 10,103.91   | -93.74         | 93.69       | -13.92      | 94.72                    | 351.55                 | 6.70              |  |  |
| 10,156.00       | 16.00      | 179.09               | 10,147.78   | -83.86         | 83.81       | -13.70      | 84.92                    | 350.72                 | 14.70             |  |  |
| 10,205.00       | 21.33      | 177.25               | 10,194.19   | -68.19         | 68.14       | -13.16      | 69.40                    | 349.07                 | 10.94             |  |  |
| 10,250.00       | 26.57      | 180.08               | 10,235.30   | -49.94         | 49.89       | -12.78      | 51.50                    | 345.63                 | 11.92             |  |  |
| 10,300.00       | 32.83      | 182.65               | 10,278.71   | -25.19         | 25.14       | -13.43      | 28.50                    | 331.90                 | 12.77             |  |  |
| 10,345.00       | 37.61      | 181.64               | 10,315.46   | 0.73           | -0.78       | -14.38      | 14.40                    | 266.89                 | 10.70             |  |  |
| 10,394.00       | 41.36      | 181.25               | 10,353.27   | 31.87          | -31.92      | -15.16      | 35.34                    | 205.41                 | 7.67              |  |  |
| 10,439.00       | 42.05      | 179.01               | 10,386.87   | 61.81          | -61.86      | -15.23      | 63.71                    | 193.83                 | 3.65              |  |  |
| 10,488.00       | 45.51      | 179.39               | 10,422.25   | 95.70          | -95.75      | -14.76      | 96.88                    | 188.76                 | 7.08              |  |  |
| 10,533.00       | 50.88      | 177.66               | 10,452.23   | 129.22         | -129.27     | -13.87      | 130.01                   | 186.13                 | 12.27             |  |  |
| 10,582.00       | 55.57      | 178.28               | 10,481.56   | 168.44         | -168.48     | -12.49      | 168.95                   | 184.24                 | 9.62              |  |  |
| 10,627.00       | 57.69      | 179.09               | 10,506.31   | 206.01         | -206.05     | -11.63      | 206.38                   | 183.23                 | 4.95              |  |  |
| 10,676.00       | 58.86      | 179.96               | 10,532.08   | 247.69         | -247.73     | -11.29      | 247.98                   | 182.61                 | 2.83              |  |  |
| 10,721.00       | 58.46      | 179.52               | 10,555.48   | 286.12         | -286.16     | -11.11      | 286.38                   | 182.22                 | 1.22              |  |  |
| 10,771.00       | 61.68      | 179.10               | 10,580.43   | 329.45         | -329.48     | -10.59      | 329.65                   | 181.84                 | 6.48              |  |  |
| 10,816.00       | 64.26      | 178.91               | 10,600.87   | 369.52         | -369.56     | -9.89       | 369.69                   | 181.53                 | 5.75              |  |  |
| 10,865.00       | 66.95      | 180.45               | 10,621.11   | 414.14         | -414.18     | -9.65       | 414.29                   | 181.33                 | 6.19              |  |  |
| 10,910.00       | 72.77      | 180.92               | 10,636.60   | 456.37         | -456.41     | -10.16      | 456.52                   | 181.27                 | 12.97             |  |  |
| 10,913.25       | 73.29      | 180.96               | 10,637.55   | 459.48         | -459.52     | -10.21      | 459.63                   | 181.27                 | 15.93             |  |  |
| Thistle100H_EOC |            |                      |             |                |             |             |                          |                        |                   |  |  |



Nabors  
Completion Report



Company: Devon Energy Corporation  
Project: Lea Co., NM  
Site: Thistle Unit  
Well: 100H  
Wellbore: ST1  
Design: Surveys

Local Co-ordinate Reference: Well 100H  
TVD Reference: KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)  
MD Reference: KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: RyanUSA\_ODBC\_32Bit

Survey

| MD<br>(ft)     | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(ft) | V. Sec<br>(ft) | N/S<br>(ft) | E/W<br>(ft) | Closure Distance<br>(ft) | Closure Azimuth<br>(°) | DLeg<br>(°/100ft) |
|----------------|------------|----------------------|-------------|----------------|-------------|-------------|--------------------------|------------------------|-------------------|
| 10,959.00      | 80.55      | 181.57               | 10,647.90   | 503.99         | -504.03     | -11.20      | 504.16                   | 181.27                 | 15.93             |
| 10,984.00      | 84.08      | 181.02               | 10,651.24   | 528.76         | -528.80     | -11.76      | 528.93                   | 181.27                 | 14.29             |
| 11,078.00      | 92.26      | 181.31               | 10,654.24   | 622.60         | -622.65     | -13.67      | 622.80                   | 181.26                 | 8.71              |
| 11,177.00      | 91.52      | 182.11               | 10,650.97   | 721.49         | -721.55     | -16.62      | 721.74                   | 181.32                 | 1.10              |
| 11,272.00      | 92.76      | 182.22               | 10,647.43   | 816.34         | -816.42     | -20.20      | 816.67                   | 181.42                 | 1.31              |
| 11,366.00      | 94.14      | 180.17               | 10,641.77   | 910.14         | -910.22     | -22.16      | 910.49                   | 181.39                 | 2.63              |
| 11,460.00      | 93.65      | 179.90               | 10,635.38   | 1,003.92       | -1,004.00   | -22.22      | 1,004.25                 | 181.27                 | 0.59              |
| 11,555.00      | 91.95      | 178.14               | 10,630.74   | 1,098.79       | -1,098.87   | -20.60      | 1,099.06                 | 181.07                 | 2.57              |
| 11,649.00      | 90.09      | 176.33               | 10,629.07   | 1,192.67       | -1,192.73   | -16.06      | 1,192.84                 | 180.77                 | 2.76              |
| 11,744.00      | 89.89      | 176.59               | 10,629.09   | 1,287.51       | -1,287.55   | -10.20      | 1,287.59                 | 180.45                 | 0.35              |
| 11,838.00      | 90.12      | 176.60               | 10,629.08   | 1,381.36       | -1,381.39   | -4.61       | 1,381.40                 | 180.19                 | 0.24              |
| 11,932.00      | 89.77      | 175.21               | 10,629.17   | 1,475.14       | -1,475.15   | 2.10        | 1,475.15                 | 179.92                 | 1.52              |
| 12,026.00      | 90.34      | 177.48               | 10,629.08   | 1,568.97       | -1,568.95   | 8.09        | 1,568.97                 | 179.70                 | 2.49              |
| 12,120.00      | 90.14      | 177.61               | 10,628.68   | 1,662.89       | -1,662.86   | 12.12       | 1,662.90                 | 179.58                 | 0.25              |
| 12,214.00      | 91.12      | 179.79               | 10,627.65   | 1,756.86       | -1,756.82   | 14.25       | 1,756.88                 | 179.54                 | 2.54              |
| 12,309.00      | 89.31      | 178.84               | 10,627.29   | 1,851.85       | -1,851.81   | 15.39       | 1,851.87                 | 179.52                 | 2.15              |
| 12,403.00      | 87.19      | 180.00               | 10,630.16   | 1,945.80       | -1,945.76   | 16.34       | 1,945.82                 | 179.52                 | 2.57              |
| 12,497.00      | 88.19      | 179.09               | 10,633.95   | 2,039.72       | -2,039.67   | 17.08       | 2,039.75                 | 179.52                 | 1.44              |
| 12,591.00      | 90.14      | 180.34               | 10,635.32   | 2,133.70       | -2,133.66   | 17.55       | 2,133.73                 | 179.53                 | 2.46              |
| 12,686.00      | 89.51      | 182.61               | 10,635.61   | 2,228.66       | -2,228.62   | 15.11       | 2,228.67                 | 179.61                 | 2.48              |
| 12,780.00      | 90.32      | 182.55               | 10,635.75   | 2,322.55       | -2,322.52   | 10.87       | 2,322.55                 | 179.73                 | 0.86              |
| 12,874.00      | 89.86      | 182.53               | 10,635.61   | 2,416.44       | -2,416.43   | 6.71        | 2,416.44                 | 179.84                 | 0.49              |
| 12,969.00      | 90.26      | 181.87               | 10,635.51   | 2,511.35       | -2,511.36   | 3.06        | 2,511.36                 | 179.93                 | 0.81              |
| 13,057.70      | 90.04      | 180.28               | 10,635.27   | 2,600.03       | -2,600.04   | 1.39        | 2,600.04                 | 179.97                 | 1.80              |
| Thistle100H_T1 |            |                      |             |                |             |             |                          |                        |                   |
| 13,063.00      | 90.03      | 180.19               | 10,635.27   | 2,605.33       | -2,605.34   | 1.37        | 2,605.34                 | 179.97                 | 1.80              |
| 13,158.00      | 90.98      | 178.73               | 10,634.43   | 2,700.32       | -2,700.33   | 2.27        | 2,700.33                 | 179.95                 | 1.83              |

**Company:** Devon Energy Corporation  
**Project:** Lea Co., NM  
**Site:** Thistle Unit  
**Well:** 100H  
**Wellbore:** ST1  
**Design:** Surveys

**Local Co-ordinate Reference:** Well 100H  
**TVD Reference:** KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)  
**MD Reference:** KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** RyanUSA\_ODBC\_32Bit

## Survey

| MD<br>(ft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(ft) | V. Sec<br>(ft) | N/S<br>(ft) | E/W<br>(ft) | Closure Distance<br>(ft) | Closure Azimuth<br>(°) | DLeg<br>(°/100ft) |
|------------|------------|----------------------|-------------|----------------|-------------|-------------|--------------------------|------------------------|-------------------|
| 13,252.00  | 91.01      | 178.22               | 10,632.80   | 2,794.28       | -2,794.28   | 4.77        | 2,794.28                 | 179.90                 | 0.54              |
| 13,346.00  | 89.77      | 177.97               | 10,632.16   | 2,888.23       | -2,888.22   | 7.89        | 2,888.23                 | 179.84                 | 1.35              |
| 13,440.00  | 87.50      | 177.96               | 10,634.40   | 2,982.15       | -2,982.13   | 11.23       | 2,982.15                 | 179.78                 | 2.41              |
| 13,535.00  | 87.36      | 177.79               | 10,638.66   | 3,077.00       | -3,076.97   | 14.75       | 3,077.01                 | 179.73                 | 0.23              |
| 13,629.00  | 87.33      | 178.34               | 10,643.01   | 3,170.86       | -3,170.82   | 17.92       | 3,170.87                 | 179.68                 | 0.59              |
| 13,723.00  | 86.90      | 179.92               | 10,647.74   | 3,264.73       | -3,264.68   | 19.34       | 3,264.74                 | 179.66                 | 1.74              |
| 13,817.00  | 84.89      | 180.52               | 10,654.47   | 3,358.48       | -3,358.44   | 18.99       | 3,358.49                 | 179.68                 | 2.23              |
| 13,911.00  | 85.81      | 180.87               | 10,662.09   | 3,452.16       | -3,452.12   | 17.85       | 3,452.16                 | 179.70                 | 1.05              |
| 14,006.00  | 87.99      | 182.00               | 10,667.23   | 3,546.97       | -3,546.94   | 15.47       | 3,546.98                 | 179.75                 | 2.58              |
| 14,065.00  | 89.56      | 183.29               | 10,668.49   | 3,605.89       | -3,605.86   | 12.75       | 3,605.89                 | 179.80                 | 3.44              |
| 14,094.00  | 84.88      | 183.11               | 10,669.90   | 3,634.79       | -3,634.78   | 11.13       | 3,634.79                 | 179.82                 | 16.15             |
| 14,126.00  | 80.81      | 183.46               | 10,673.88   | 3,666.48       | -3,666.47   | 9.32        | 3,666.48                 | 179.85                 | 12.76             |
| 14,157.00  | 80.63      | 185.40               | 10,678.88   | 3,696.97       | -3,696.97   | 6.95        | 3,696.98                 | 179.89                 | 6.20              |
| 14,188.00  | 81.94      | 185.40               | 10,683.58   | 3,727.47       | -3,727.47   | 4.07        | 3,727.48                 | 179.94                 | 4.23              |
| 14,220.00  | 83.88      | 184.16               | 10,687.53   | 3,759.10       | -3,759.12   | 1.42        | 3,759.12                 | 179.98                 | 7.18              |
| 14,251.00  | 85.94      | 182.23               | 10,690.28   | 3,789.92       | -3,789.94   | -0.30       | 3,789.94                 | 180.00                 | 9.09              |
| 14,283.00  | 87.81      | 180.30               | 10,692.02   | 3,821.86       | -3,821.89   | -1.00       | 3,821.89                 | 180.02                 | 8.39              |
| 14,314.00  | 88.81      | 178.89               | 10,692.94   | 3,852.84       | -3,852.87   | -0.78       | 3,852.87                 | 180.01                 | 5.57              |
| 14,377.00  | 87.94      | 178.72               | 10,694.72   | 3,915.81       | -3,915.83   | 0.53        | 3,915.83                 | 179.99                 | 1.41              |
| 14,471.00  | 90.13      | 180.30               | 10,696.31   | 4,009.78       | -4,009.80   | 1.33        | 4,009.80                 | 179.98                 | 2.87              |
| 14,565.00  | 89.69      | 181.35               | 10,696.45   | 4,103.77       | -4,103.79   | -0.02       | 4,103.79                 | 180.00                 | 1.21              |
| 14,659.00  | 91.00      | 181.53               | 10,695.89   | 4,197.73       | -4,197.76   | -2.38       | 4,197.76                 | 180.03                 | 1.41              |
| 14,754.00  | 91.06      | 179.95               | 10,694.18   | 4,292.69       | -4,292.73   | -3.61       | 4,292.73                 | 180.05                 | 1.66              |
| 14,848.00  | 90.50      | 179.07               | 10,692.90   | 4,386.68       | -4,386.72   | -2.80       | 4,386.72                 | 180.04                 | 1.11              |
| 14,941.00  | 90.50      | 180.12               | 10,692.09   | 4,479.68       | -4,479.71   | -2.15       | 4,479.71                 | 180.03                 | 1.13              |
| 15,035.00  | 91.06      | 178.54               | 10,690.81   | 4,573.66       | -4,573.69   | -1.05       | 4,573.69                 | 180.01                 | 1.78              |
| 15,129.00  | 89.88      | 178.36               | 10,690.04   | 4,667.63       | -4,667.66   | 1.49        | 4,667.66                 | 179.98                 | 1.27              |

**Company:** Devon Energy Corporation  
**Project:** Lea Co., NM  
**Site:** Thistle Unit  
**Well:** 100H  
**Wellbore:** ST1  
**Design:** Surveys

**Local Co-ordinate Reference:** Well 100H  
**TVD Reference:** KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)  
**MD Reference:** KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** RyanUSA\_ODBC\_32Bit

## Survey

| MD<br>(ft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(ft) | V. Sec<br>(ft) | N/S<br>(ft) | E/W<br>(ft) | Closure Distance<br>(ft) | Closure Azimuth<br>(°) | DLeg<br>(°/100ft) |
|------------|------------|----------------------|-------------|----------------|-------------|-------------|--------------------------|------------------------|-------------------|
| 15,223.00  | 90.63      | 178.72               | 10,689.62   | 4,761.61       | -4,761.62   | 3.89        | 4,761.62                 | 179.95                 | 0.89              |
| 15,318.00  | 90.19      | 179.07               | 10,688.94   | 4,856.59       | -4,856.60   | 5.72        | 4,856.61                 | 179.93                 | 0.59              |
| 15,411.00  | 92.38      | 179.42               | 10,686.85   | 4,949.56       | -4,949.57   | 6.95        | 4,949.57                 | 179.92                 | 2.38              |
| 15,505.00  | 92.81      | 180.30               | 10,682.60   | 5,043.46       | -5,043.47   | 7.18        | 5,043.47                 | 179.92                 | 1.04              |
| 15,599.00  | 91.75      | 179.24               | 10,678.86   | 5,137.38       | -5,137.39   | 7.55        | 5,137.39                 | 179.92                 | 1.59              |
| 15,693.00  | 90.19      | 179.07               | 10,677.27   | 5,231.36       | -5,231.36   | 8.94        | 5,231.37                 | 179.90                 | 1.67              |
| 15,787.00  | 90.25      | 178.89               | 10,676.91   | 5,325.35       | -5,325.35   | 10.61       | 5,325.36                 | 179.89                 | 0.20              |
| 15,882.00  | 90.13      | 179.42               | 10,676.59   | 5,420.34       | -5,420.34   | 12.01       | 5,420.35                 | 179.87                 | 0.57              |
| 15,976.00  | 89.56      | 179.24               | 10,676.85   | 5,514.34       | -5,514.33   | 13.11       | 5,514.34                 | 179.86                 | 0.64              |
| 16,070.00  | 89.88      | 179.95               | 10,677.31   | 5,608.34       | -5,608.32   | 13.78       | 5,608.34                 | 179.86                 | 0.83              |
| 16,164.00  | 87.94      | 180.82               | 10,679.09   | 5,702.31       | -5,702.30   | 13.15       | 5,702.32                 | 179.87                 | 2.26              |
| 16,259.00  | 87.25      | 180.47               | 10,683.08   | 5,797.22       | -5,797.21   | 12.08       | 5,797.22                 | 179.88                 | 0.81              |
| 16,353.00  | 88.44      | 178.89               | 10,686.62   | 5,891.15       | -5,891.14   | 12.60       | 5,891.15                 | 179.88                 | 2.10              |
| 16,447.00  | 91.19      | 178.36               | 10,686.92   | 5,985.12       | -5,985.10   | 14.86       | 5,985.12                 | 179.86                 | 2.98              |
| 16,541.00  | 91.13      | 177.84               | 10,685.02   | 6,079.05       | -6,079.03   | 17.97       | 6,079.06                 | 179.83                 | 0.56              |
| 16,636.00  | 89.69      | 179.77               | 10,684.34   | 6,174.03       | -6,174.00   | 19.96       | 6,174.03                 | 179.81                 | 2.53              |
| 16,730.00  | 89.56      | 180.47               | 10,684.95   | 6,268.03       | -6,268.00   | 19.76       | 6,268.03                 | 179.82                 | 0.76              |
| 16,825.00  | 89.00      | 180.47               | 10,686.14   | 6,363.01       | -6,362.98   | 18.98       | 6,363.01                 | 179.83                 | 0.59              |
| 16,919.00  | 89.06      | 181.18               | 10,687.74   | 6,456.98       | -6,456.96   | 17.63       | 6,456.99                 | 179.84                 | 0.76              |
| 17,014.00  | 88.44      | 181.18               | 10,689.81   | 6,551.93       | -6,551.92   | 15.67       | 6,551.94                 | 179.86                 | 0.65              |
| 17,108.00  | 89.19      | 179.59               | 10,691.75   | 6,645.90       | -6,645.89   | 15.04       | 6,645.91                 | 179.87                 | 1.87              |
| 17,198.00  | 88.63      | 179.77               | 10,693.46   | 6,735.89       | -6,735.87   | 15.54       | 6,735.89                 | 179.87                 | 0.65              |
| 17,293.00  | 91.31      | 179.24               | 10,693.51   | 6,830.88       | -6,830.86   | 16.36       | 6,830.88                 | 179.86                 | 2.88              |
| 17,388.00  | 92.00      | 179.07               | 10,690.77   | 6,925.83       | -6,925.81   | 17.76       | 6,925.83                 | 179.85                 | 0.75              |
| 17,481.00  | 89.88      | 180.65               | 10,689.24   | 7,018.81       | -7,018.79   | 17.99       | 7,018.81                 | 179.85                 | 2.84              |
| 17,575.00  | 90.38      | 180.65               | 10,689.03   | 7,112.80       | -7,112.78   | 16.92       | 7,112.80                 | 179.86                 | 0.53              |
| 17,670.00  | 88.63      | 180.82               | 10,689.85   | 7,207.78       | -7,207.77   | 15.70       | 7,207.79                 | 179.88                 | 1.85              |

**Company:** Devon Energy Corporation  
**Project:** Lea Co., NM  
**Site:** Thistle Unit  
**Well:** 100H  
**Wellbore:** ST1  
**Design:** Surveys

**Local Co-ordinate Reference:** Well 100H  
**TVD Reference:** KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)  
**MD Reference:** KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** RyanUSA\_ODBC\_32Bit

**Survey**

| MD<br>(ft)             | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(ft) | V. Sec<br>(ft) | N/S<br>(ft) | E/W<br>(ft) | Closure Distance<br>(ft) | Closure Azimuth<br>(°) | DLeg<br>(°/100ft) |
|------------------------|------------|----------------------|-------------|----------------|-------------|-------------|--------------------------|------------------------|-------------------|
| 17,764.00              | 88.19      | 180.12               | 10,692.46   | 7,301.74       | -7,301.73   | 14.93       | 7,301.74                 | 179.88                 | 0.88              |
| 17,858.00              | 89.38      | 180.30               | 10,694.45   | 7,395.71       | -7,395.70   | 14.59       | 7,395.72                 | 179.89                 | 1.28              |
| 17,954.00              | 91.00      | 180.82               | 10,694.14   | 7,491.70       | -7,491.70   | 13.65       | 7,491.71                 | 179.90                 | 1.77              |
| 18,043.36              | 89.81      | 180.66               | 10,693.50   | 7,581.04       | -7,581.04   | 12.50       | 7,581.05                 | 179.91                 | 1.34              |
| <b>Thistle100H_BHL</b> |            |                      |             |                |             |             |                          |                        |                   |
| 18,048.00              | 89.75      | 180.65               | 10,693.52   | 7,585.68       | -7,585.68   | 12.44       | 7,585.69                 | 179.91                 | 1.34              |
| 18,139.00              | 90.75      | 180.65               | 10,693.12   | 7,676.67       | -7,676.68   | 11.41       | 7,676.68                 | 179.91                 | 1.10              |
| 18,200.00              | 90.75      | 180.65               | 10,692.32   | 7,737.66       | -7,737.67   | 10.72       | 7,737.67                 | 179.92                 | 0.00              |

PTB

**Design Annotations**

| Measured<br>Depth<br>(ft) | Vertical<br>Depth<br>(ft) | Local Coordinates |              | Comment |
|---------------------------|---------------------------|-------------------|--------------|---------|
|                           |                           | +N-S<br>(ft)      | +E-W<br>(ft) |         |
| 18,200.00                 | 10,692.32                 | -7,737.67         | 10.72        | PTB     |

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_