

# Noble Energy

Weld County, CO (NAD 83)

Sec. 22-T3N-65W (Moser PAD)

Moser State H22-785

05-123-40734

Plan A

Design: Actual Surveys

## Sperry Drilling Services

### Final Survey Report

01 December, 2015

Surface UWI : 05-123-40734

Well Coordinates: 1,318,584.39 N, 3,235,800.13 E (40° 12' 17.39" N, 104° 39' 20.77" W)

Ground Level: 4,812.00 usft

Local Coordinate Origin:

Centered on Well Moser State H22-785

Viewing Datum:

KB = 24' @ 4836.00usft (H&P 273)

TVDs to System:

N

North Reference:

Grid

Unit System:

Dec-Deg - API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 5000.1 Build: 73

**HALLIBURTON**

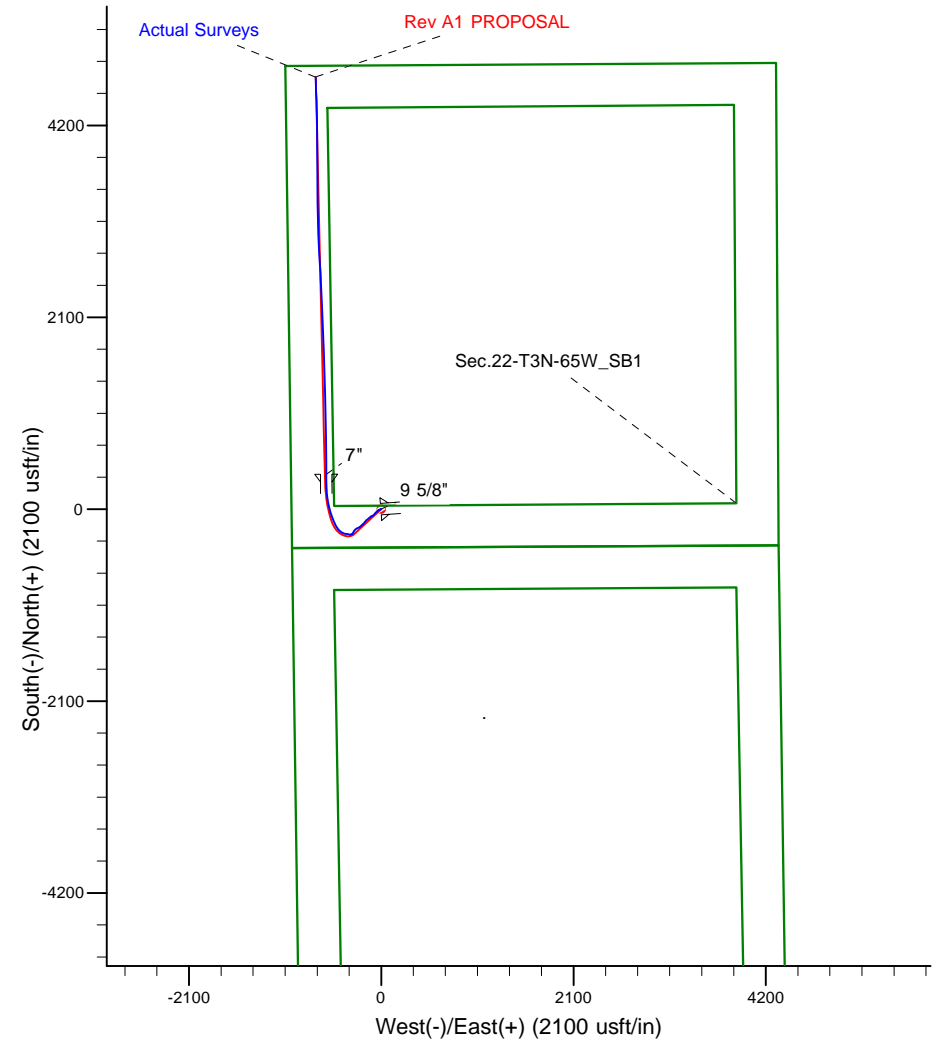
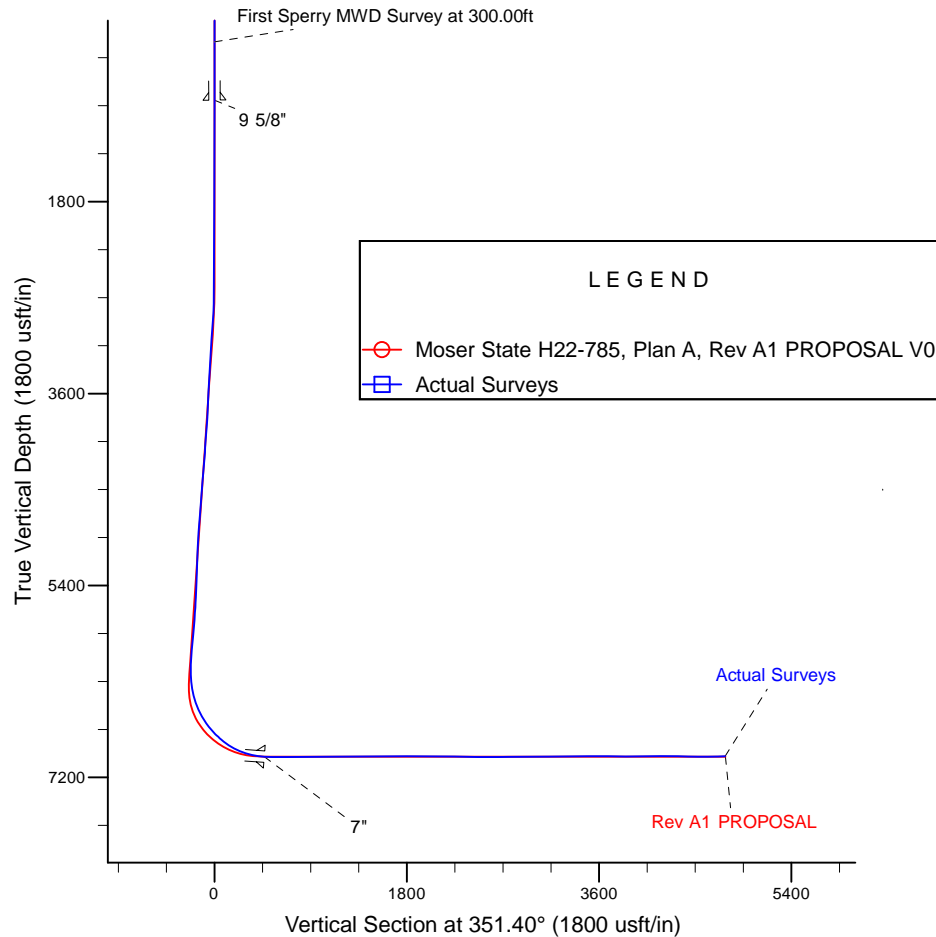
Project: Weld County, CO (NAD 83)  
 Site: Sec. 22-T3N-65W (Moser PAD)  
 Well: Moser State H22-785  
 Wellbore: Plan A  
 Design: Actual Surveys



Platted SHL: 420' FSL, 979' FWL  
 Platted Lat/Long: 40.20483, -104.65577  
 Location: Sec. 22-T3N-R65W

~7" Casing: 798' FSL, 384' FWL  
 Lat/Long: 40.205889 N, -104.657906 W  
 State Planes - CO Northern: 1,318,964.59 N, 3,235,200.05 E  
 Sec. 22-T3N-R65W

Platted BHL: 125' FNL, 332' FWL  
 Platted Lat/Long: 40.217634 N, -104.658167 W  
 State Planes - CO Northern: 1,323,241.95 N, 3,235,086.38 E  
 Location: Sec. 22-T3N-R65W



WELL DETAILS: Moser State H22-785

Ground Level: 4812.00

KB = 24' @ 4836.00usft (H&P 273)

Created By: Tatiana Gomez  
 Created On: 12-1-15

**Design Report for Moser State H22-785 - Actual Surveys**

| Measured Depth (usft)                      | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) |
|--|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|
| 0.00                                       | 0.00            | 0.00        | 0.00                  | 0.00         | 0.00         | 0.00                    | 0.00                    |
| 300.00                                     | 0.20            | 265.53      | 300.00                | -0.04        | -0.52        | 0.04                    | 0.07                    |
| <b>First Sperry MWD Survey at 300.00ft</b> |                 |             |                       |              |              |                         |                         |
| 600.00                                     | 0.39            | 265.53      | 600.00                | -0.16        | -2.06        | 0.15                    | 0.06                    |
| 848.00                                     | 0.56            | 265.53      | 847.99                | -0.32        | -4.10        | 0.30                    | 0.07                    |
| <b>9 5/8"</b>                              |                 |             |                       |              |              |                         |                         |
| 854.00                                     | 0.56            | 265.53      | 853.99                | -0.33        | -4.16        | 0.30                    | 0.07                    |
| 916.00                                     | 0.60            | 265.53      | 915.98                | -0.37        | -4.79        | 0.35                    | 0.06                    |
| 1,105.00                                   | 0.79            | 264.33      | 1,104.97              | -0.58        | -7.07        | 0.48                    | 0.10                    |
| 1,199.00                                   | 1.09            | 217.11      | 1,198.96              | -1.36        | -8.25        | -0.11                   | 0.85                    |
| 1,294.00                                   | 0.96            | 244.60      | 1,293.94              | -2.42        | -9.52        | -0.97                   | 0.53                    |
| 1,386.00                                   | 0.96            | 249.63      | 1,385.93              | -3.02        | -10.94       | -1.35                   | 0.09                    |
| 1,477.00                                   | 0.75            | 245.08      | 1,476.92              | -3.53        | -12.19       | -1.67                   | 0.24                    |
| 1,569.00                                   | 1.04            | 242.92      | 1,568.91              | -4.17        | -13.48       | -2.11                   | 0.32                    |
| 1,660.00                                   | 0.82            | 246.68      | 1,659.90              | -4.80        | -14.81       | -2.53                   | 0.25                    |
| 1,751.00                                   | 0.79            | 228.15      | 1,750.89              | -5.48        | -15.88       | -3.04                   | 0.29                    |
| 1,843.00                                   | 0.69            | 262.74      | 1,842.88              | -5.97        | -16.90       | -3.38                   | 0.49                    |
| 1,935.00                                   | 1.10            | 247.53      | 1,934.87              | -6.38        | -18.27       | -3.58                   | 0.51                    |
| 2,026.00                                   | 1.32            | 258.67      | 2,025.85              | -6.92        | -20.10       | -3.83                   | 0.35                    |
| 2,209.00                                   | 1.35            | 264.61      | 2,208.80              | -7.54        | -24.32       | -3.81                   | 0.08                    |
| 2,300.00                                   | 0.50            | 286.04      | 2,299.79              | -7.53        | -25.76       | -3.59                   | 0.99                    |
| 2,392.00                                   | 0.50            | 61.55       | 2,391.79              | -7.22        | -25.80       | -3.28                   | 1.01                    |
| 2,484.00                                   | 0.61            | 243.60      | 2,483.78              | -7.25        | -25.88       | -3.30                   | 1.21                    |
| 2,576.00                                   | 1.32            | 232.98      | 2,575.77              | -8.11        | -27.17       | -3.95                   | 0.79                    |
| 2,667.00                                   | 1.32            | 227.41      | 2,666.75              | -9.45        | -28.78       | -5.04                   | 0.14                    |
| 2,759.00                                   | 3.95            | 230.69      | 2,758.64              | -12.17       | -32.01       | -7.25                   | 2.86                    |
| 2,850.00                                   | 5.68            | 232.44      | 2,849.32              | -16.90       | -38.00       | -11.03                  | 1.91                    |
| 2,941.00                                   | 6.60            | 227.21      | 2,939.79              | -23.20       | -45.41       | -16.15                  | 1.18                    |
| 3,033.00                                   | 6.09            | 226.28      | 3,031.23              | -30.17       | -52.82       | -21.93                  | 0.57                    |
| 3,124.00                                   | 6.96            | 223.25      | 3,121.64              | -37.52       | -60.09       | -28.11                  | 1.03                    |
| 3,218.00                                   | 6.22            | 221.41      | 3,215.02              | -45.49       | -67.36       | -34.90                  | 0.82                    |
| 3,312.00                                   | 6.95            | 221.11      | 3,308.40              | -53.59       | -74.46       | -41.85                  | 0.78                    |
| 3,407.00                                   | 5.02            | 218.03      | 3,402.88              | -61.19       | -80.80       | -48.42                  | 2.06                    |
| 3,501.00                                   | 7.00            | 238.66      | 3,496.37              | -67.41       | -88.23       | -53.46                  | 3.09                    |
| 3,595.00                                   | 5.13            | 248.73      | 3,589.84              | -71.92       | -97.04       | -56.60                  | 2.28                    |
| 3,690.00                                   | 6.59            | 246.70      | 3,684.34              | -75.62       | -106.01      | -58.91                  | 1.55                    |
| 3,785.00                                   | 9.39            | 233.17      | 3,778.42              | -82.42       | -117.22      | -63.96                  | 3.53                    |
| 3,878.00                                   | 7.73            | 229.04      | 3,870.38              | -91.07       | -128.02      | -70.90                  | 1.90                    |
| 3,973.00                                   | 7.60            | 229.20      | 3,964.53              | -99.36       | -137.60      | -77.67                  | 0.14                    |
| 4,068.00                                   | 7.56            | 229.82      | 4,058.70              | -107.50      | -147.13      | -84.29                  | 0.10                    |
| 4,162.00                                   | 6.45            | 228.26      | 4,152.00              | -115.00      | -155.79      | -90.41                  | 1.20                    |
| 4,256.00                                   | 7.80            | 223.86      | 4,245.27              | -123.12      | -164.15      | -97.18                  | 1.55                    |
| 4,351.00                                   | 7.56            | 222.26      | 4,339.42              | -132.39      | -172.82      | -105.06                 | 0.34                    |
| 4,446.00                                   | 6.70            | 217.33      | 4,433.68              | -141.42      | -180.38      | -112.86                 | 1.11                    |
| 4,541.00                                   | 6.46            | 216.72      | 4,528.06              | -150.11      | -186.94      | -120.47                 | 0.26                    |
| 4,635.00                                   | 7.70            | 225.41      | 4,621.34              | -158.77      | -194.59      | -127.89                 | 1.74                    |
| 4,730.00                                   | 7.55            | 224.20      | 4,715.50              | -167.72      | -203.47      | -135.40                 | 0.23                    |
| 4,824.00                                   | 7.08            | 225.24      | 4,808.73              | -176.22      | -211.89      | -142.55                 | 0.52                    |
| 4,919.00                                   | 6.59            | 231.44      | 4,903.06              | -183.74      | -220.31      | -148.73                 | 0.93                    |
| 5,014.00                                   | 7.90            | 234.07      | 4,997.30              | -190.97      | -229.86      | -154.45                 | 1.42                    |

## Design Report for Moser State H22-785 - Actual Surveys

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|
| 5,108.00              | 7.25            | 240.37      | 5,090.48              | -197.70      | -240.24      | -159.54                 | 1.12                    |
| 5,203.00              | 6.39            | 241.08      | 5,184.81              | -203.22      | -250.08      | -163.53                 | 0.91                    |
| 5,297.00              | 5.41            | 247.98      | 5,278.31              | -207.41      | -258.77      | -166.38                 | 1.29                    |
| 5,391.00              | 5.45            | 243.59      | 5,371.89              | -211.05      | -266.88      | -168.77                 | 0.44                    |
| 5,486.00              | 6.38            | 232.49      | 5,466.38              | -216.27      | -275.10      | -172.70                 | 1.55                    |
| 5,581.00              | 5.36            | 230.43      | 5,560.88              | -222.32      | -282.71      | -177.54                 | 1.10                    |
| 5,675.00              | 6.82            | 222.84      | 5,654.35              | -229.20      | -289.89      | -183.27                 | 1.77                    |
| 5,770.00              | 4.97            | 208.73      | 5,748.85              | -236.95      | -295.71      | -190.06                 | 2.46                    |
| 5,865.00              | 6.18            | 211.29      | 5,843.40              | -244.93      | -300.34      | -197.26                 | 1.30                    |
| 5,960.00              | 7.47            | 211.28      | 5,937.73              | -254.58      | -306.20      | -205.92                 | 1.36                    |
| 6,054.00              | 6.52            | 207.10      | 6,031.03              | -264.55      | -311.81      | -214.95                 | 1.15                    |
| 6,149.00              | 7.07            | 230.19      | 6,125.38              | -273.10      | -318.75      | -222.36                 | 2.91                    |
| 6,243.00              | 17.26           | 267.81      | 6,217.26              | -277.35      | -337.21      | -223.80                 | 13.20                   |
| 6,338.00              | 21.88           | 281.38      | 6,306.80              | -274.39      | -368.68      | -216.17                 | 6.79                    |
| 6,433.00              | 21.75           | 284.08      | 6,394.99              | -266.62      | -403.10      | -203.34                 | 1.06                    |
| 6,527.00              | 24.48           | 301.57      | 6,481.54              | -252.16      | -436.64      | -184.03                 | 7.83                    |
| 6,622.00              | 30.34           | 322.66      | 6,566.04              | -222.69      | -468.06      | -150.19                 | 11.85                   |
| 6,716.00              | 33.19           | 330.77      | 6,645.99              | -181.33      | -495.04      | -105.26                 | 5.46                    |
| 6,811.00              | 36.36           | 335.14      | 6,724.02              | -133.07      | -519.59      | -53.87                  | 4.24                    |
| 6,906.00              | 47.10           | 341.32      | 6,794.84              | -74.36       | -542.65      | 7.63                    | 12.10                   |
| 7,000.00              | 49.95           | 345.43      | 6,857.11              | -6.89        | -562.74      | 77.35                   | 4.46                    |
| 7,095.00              | 58.90           | 348.59      | 6,912.33              | 68.34        | -579.97      | 154.30                  | 9.80                    |
| 7,189.00              | 67.65           | 353.59      | 6,954.58              | 151.19       | -592.81      | 238.14                  | 10.45                   |
| 7,284.00              | 75.68           | 358.73      | 6,984.46              | 241.06       | -598.75      | 327.89                  | 9.89                    |
| 7,379.00              | 83.43           | 359.81      | 7,001.67              | 334.40       | -599.93      | 420.36                  | 8.23                    |
| 7,425.00              | 86.20           | 359.76      | 7,005.83              | 380.21       | -600.10      | 465.68                  | 6.01                    |
| 7"                    |                 |             |                       |              |              |                         |                         |
| 7,455.00              | 88.00           | 359.73      | 7,007.34              | 410.17       | -600.23      | 495.32                  | 6.01                    |
| 7,550.00              | 89.51           | 359.68      | 7,009.41              | 505.15       | -600.72      | 589.30                  | 1.59                    |
| 7,645.00              | 89.75           | 359.15      | 7,010.02              | 600.14       | -601.69      | 683.37                  | 0.61                    |
| 7,739.00              | 90.22           | 359.15      | 7,010.05              | 694.13       | -603.09      | 776.51                  | 0.50                    |
| 7,834.00              | 91.26           | 359.86      | 7,008.82              | 789.11       | -603.91      | 870.55                  | 1.33                    |
| 7,929.00              | 90.86           | 358.14      | 7,007.06              | 884.08       | -605.57      | 964.70                  | 1.86                    |
| 8,023.00              | 89.85           | 358.18      | 7,006.48              | 978.03       | -608.58      | 1,058.04                | 1.08                    |
| 8,118.00              | 90.68           | 359.17      | 7,006.04              | 1,073.00     | -610.78      | 1,152.27                | 1.36                    |
| 8,212.00              | 91.57           | 359.20      | 7,004.19              | 1,166.97     | -612.12      | 1,245.39                | 0.95                    |
| 8,307.00              | 90.06           | 358.58      | 7,002.84              | 1,261.94     | -613.96      | 1,339.57                | 1.72                    |
| 8,401.00              | 89.41           | 358.17      | 7,003.28              | 1,355.90     | -616.62      | 1,432.87                | 0.82                    |
| 8,496.00              | 90.12           | 358.43      | 7,003.67              | 1,450.86     | -619.44      | 1,527.18                | 0.80                    |
| 8,591.00              | 90.46           | 358.68      | 7,003.19              | 1,545.83     | -621.84      | 1,621.44                | 0.44                    |
| 8,686.00              | 91.08           | 358.85      | 7,001.91              | 1,640.79     | -623.89      | 1,715.64                | 0.68                    |
| 8,780.00              | 90.00           | 357.66      | 7,001.02              | 1,734.74     | -626.75      | 1,808.96                | 1.71                    |
| 8,875.00              | 90.43           | 357.03      | 7,000.67              | 1,829.64     | -631.15      | 1,903.45                | 0.80                    |
| 8,970.00              | 88.61           | 357.34      | 7,001.46              | 1,924.52     | -635.81      | 1,997.96                | 1.94                    |
| 9,065.00              | 88.40           | 357.22      | 7,003.94              | 2,019.38     | -640.32      | 2,092.43                | 0.25                    |
| 9,159.00              | 88.74           | 357.62      | 7,006.29              | 2,113.25     | -644.55      | 2,185.88                | 0.56                    |
| 9,254.00              | 89.54           | 357.77      | 7,007.71              | 2,208.17     | -648.37      | 2,280.30                | 0.86                    |
| 9,349.00              | 89.78           | 358.07      | 7,008.28              | 2,303.10     | -651.82      | 2,374.68                | 0.40                    |
| 9,443.00              | 89.81           | 357.69      | 7,008.61              | 2,397.04     | -655.30      | 2,468.08                | 0.41                    |
| 9,538.00              | 89.91           | 357.03      | 7,008.85              | 2,491.93     | -659.67      | 2,562.56                | 0.70                    |
| 9,632.00              | 90.15           | 356.93      | 7,008.80              | 2,585.80     | -664.62      | 2,656.12                | 0.28                    |

## Design Report for Moser State H22-785 - Actual Surveys

| Measured Depth (usft)                        | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) |
|--|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|
| 9,726.00                                     | 90.62           | 356.64      | 7,008.17              | 2,679.65     | -669.90      | 2,749.70                | 0.59                    |
| 9,820.00                                     | 90.59           | 356.50      | 7,007.17              | 2,773.48     | -675.52      | 2,843.31                | 0.15                    |
| 9,915.00                                     | 90.22           | 357.70      | 7,006.50              | 2,868.35     | -680.32      | 2,937.84                | 1.32                    |
| 10,009.00                                    | 90.71           | 357.70      | 7,005.74              | 2,962.27     | -684.10      | 3,031.27                | 0.52                    |
| 10,103.00                                    | 91.08           | 357.18      | 7,004.27              | 3,056.17     | -688.30      | 3,124.73                | 0.68                    |
| 10,197.00                                    | 89.88           | 358.19      | 7,003.48              | 3,150.09     | -692.09      | 3,218.16                | 1.67                    |
| 10,292.00                                    | 90.03           | 358.37      | 7,003.56              | 3,245.04     | -694.94      | 3,312.48                | 0.25                    |
| 10,386.00                                    | 90.83           | 358.54      | 7,002.85              | 3,339.01     | -697.48      | 3,405.76                | 0.87                    |
| 10,480.00                                    | 89.69           | 0.07        | 7,002.43              | 3,432.99     | -698.62      | 3,498.86                | 2.03                    |
| 10,575.00                                    | 90.40           | 0.36        | 7,002.35              | 3,527.99     | -698.26      | 3,592.74                | 0.81                    |
| 10,669.00                                    | 89.69           | 0.25        | 7,002.28              | 3,621.99     | -697.76      | 3,685.61                | 0.76                    |
| 10,763.00                                    | 88.98           | 359.03      | 7,003.37              | 3,715.98     | -698.35      | 3,778.63                | 1.50                    |
| 10,858.00                                    | 91.45           | 359.79      | 7,003.01              | 3,810.97     | -699.33      | 3,872.69                | 2.72                    |
| 10,952.00                                    | 89.88           | 359.82      | 7,001.92              | 3,904.96     | -699.65      | 3,965.67                | 1.67                    |
| 11,046.00                                    | 89.63           | 359.73      | 7,002.32              | 3,998.95     | -700.02      | 4,058.67                | 0.28                    |
| 11,140.00                                    | 90.00           | 359.30      | 7,002.63              | 4,092.95     | -700.81      | 4,151.73                | 0.60                    |
| 11,234.00                                    | 90.59           | 359.21      | 7,002.14              | 4,186.94     | -702.04      | 4,244.84                | 0.63                    |
| 11,328.00                                    | 89.14           | 358.69      | 7,002.36              | 4,280.92     | -703.76      | 4,338.03                | 1.64                    |
| 11,422.00                                    | 88.95           | 358.54      | 7,003.93              | 4,374.88     | -706.03      | 4,431.27                | 0.26                    |
| 11,516.00                                    | 89.51           | 358.24      | 7,005.19              | 4,468.83     | -708.67      | 4,524.56                | 0.68                    |
| 11,611.00                                    | 90.28           | 358.44      | 7,005.37              | 4,563.79     | -711.42      | 4,618.86                | 0.84                    |
| 11,705.00                                    | 91.11           | 358.68      | 7,004.23              | 4,657.76     | -713.78      | 4,712.12                | 0.92                    |
| Final Sperry MWD Survey at 11705.00ft        |                 |             |                       |              |              |                         |                         |
| 11,773.00                                    | 91.11           | 358.68      | 7,002.91              | 4,725.73     | -715.35      | 4,779.56                | 0.01                    |
| Straight Line Projection to TD at 11773.00ft |                 |             |                       |              |              |                         |                         |

Design Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates +N/-S (usft) | +E/-W (usft) | Comment                                      |
|-----------------------|-----------------------|--------------------------------|--------------|--|
| 300.00                | 300.00                | -0.04                          | -0.52        | First Sperry MWD Survey at 300.00ft          |
| 11,705.00             | 7,004.23              | 4,657.76                       | -713.78      | Final Sperry MWD Survey at 11705.00ft        |
| 11,773.00             | 7,002.91              | 4,725.73                       | -715.35      | Straight Line Projection to TD at 11773.00ft |

Vertical Section Information

| Angle Type | Target                            | Azimuth (°) | Origin Type | Origin +N/_S (usft) | +E/-W (usft) | Start TVD (usft) |
|------------|-----------------------------------|-------------|-------------|---------------------|--------------|------------------|
| Target     | Moser State H22-785_Rev<br>A1_BHL | 351.40      | Slot        | 0.00                | 0.00         | 0.00             |

Survey tool program

| From (usft) | To (usft) | Survey/Plan                     | Survey Tool    |
|-------------|-----------|---------------------------------|----------------|
| 300.00      | 7,379.00  | Intermediate Sperry MWD Surveys | MWD            |
| 7,455.00    | 11,773.00 | Production Sperry MWD Surveys   | MWD+IFR1+MS_WY |

## Design Report for Moser State H22-785 - Actual Surveys

### Casing Details

| Measured Depth (usft) | Vertical Depth (usft) | Name   | Casing Diameter (") | Hole Diameter (") |
|-----------------------|-----------------------|--------|---------------------|-------------------|
| 848.00                | 847.99                | 9 5/8" | 9-5/8               | 13-3/4            |
| 7,425.00              | 7,005.83              | 7"     | 7                   | 8-3/4             |

### Wellbore Targets

| Target Name<br>- hit/miss target<br>- Shape   | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude  | Longitude   |
|---|---------------|--------------|------------|--------------|--------------|-----------------|----------------|-----------|-------------|
| Moser PC #34-30D_O_   | 0.00          | 0.00         | 0.00       | -6,395.49    | -187.78      | 1,312,189.18    | 3,235,612.35   | 40.187280 | -104.656660 |
| - actual wellpath misses target center by 6398.24usft at 1.20usft MD (1.20 TVD, 0.00 N, 0.00 E)           |               |              |            |              |              |                 |                |           |             |
| - Point   |               |              |            |              |              |                 |                |           |             |
| Moser State H22-785_  | 0.00          | 0.00         | 0.00       | 0.03         | 0.00         | 1,318,584.42    | 3,235,800.13   | 40.204830 | -104.655770 |
| - actual wellpath misses target center by 0.03usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)              |               |              |            |              |              |                 |                |           |             |
| - Point   |               |              |            |              |              |                 |                |           |             |
| Moser PC #27-29D_O_   | 0.00          | 0.00         | 0.00       | 33.76        | -667.94      | 1,318,618.15    | 3,235,132.22   | 40.204940 | -104.658160 |
| - actual wellpath misses target center by 668.79usft at 1.16usft MD (1.16 TVD, 0.00 N, 0.00 E)            |               |              |            |              |              |                 |                |           |             |
| - Point   |               |              |            |              |              |                 |                |           |             |
| Moser #34-33D_OSW_  | 0.00          | 0.00         | 0.00       | -8,916.66    | -200.13      | 1,309,668.12    | 3,235,600.01   | 40.180360 | -104.656790 |
| - actual wellpath misses target center by 8918.90usft at 1.56usft MD (1.56 TVD, 0.00 N, 0.00 E)           |               |              |            |              |              |                 |                |           |             |
| - Point   |               |              |            |              |              |                 |                |           |             |
| Moser State H22-785_  | 0.00          | 0.00         | 6,976.00   | 0.67         | 67.03        | 1,318,585.06    | 3,235,867.16   | 40.204830 | -104.655530 |
| - actual wellpath misses target center by 639.37usft at 6949.57usft MD (6824.14 TVD, -43.63 N, -552.45 E) |               |              |            |              |              |                 |                |           |             |
| - Point   |               |              |            |              |              |                 |                |           |             |
| Moser State H22-785_  | 0.00          | 0.00         | 7,006.00   | 4,729.34     | -715.31      | 1,323,313.53    | 3,235,084.85   | 40.217830 | -104.658170 |
| - actual wellpath misses target center by 4.75usft at 11773.00usft MD (7002.91 TVD, 4725.73 N, -715.35 E) |               |              |            |              |              |                 |                |           |             |
| - Point   |               |              |            |              |              |                 |                |           |             |

### Directional Difficulty Index

|                                     |                |                               |                                  |
|-------------------------------------|----------------|-------------------------------|----------------------------------|
| Average Dogleg over Survey:         | 1.70 °/100usft | Maximum Dogleg over Survey:   | 13.20 °/100usft at 6,243.00 usft |
| Net Tortousity applicable to Plans: | 0.72 °/100usft | Directional Difficulty Index: | 6.274                            |

### Audit Info

North Reference Sheet for Sec. 22-T3N-65W (Moser PAD) - Moser State H22-785 - Plan A

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to KB = 24' @ 4836.00usft (H&P 273). Northing and Easting are relative to Moser State H22-785

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.500000°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99995717

Grid Coordinates of Well: 1,318,584.39 usft N, 3,235,800.13 usft E

Geographical Coordinates of Well: 40° 12' 17.39" N, 104° 39' 20.77" W

Grid Convergence at Surface is: 0.55°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,773.00usft the Bottom Hole Displacement is 4,779.56usft in the Direction of 351.39° (Grid).

Magnetic Convergence at surface is: -7.90° ( 11 November 2015, , BGGM2015)

