

Operator: XTO Energy  
Well/Lease: Nash 43H  
County: Eddy, NM

NM OIL CONSERVATION  
ARTESIA DISTRICT

FEB 17 2015

RECEIVED

STATE OF NEW MEXICO  
DEVIATION REPORT

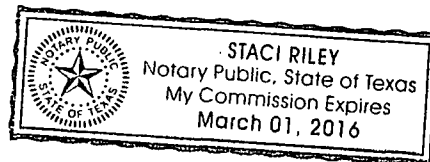
| <u>Footage</u> | <u>Degree</u> |
|----------------|---------------|
| 298            | 0.75          |
| 595            | 0.50          |
| 1080           | 0.25          |
| 1269           | 1.00          |
| 1457           | 0.75          |
| 1648           | 1.00          |
| 1934           | 1.25          |
| 2123           | 0.50          |
| 2308           | 0.75          |
| 2591           | 3.00          |
| 2685           | 3.00          |
| 2782           | 2.50          |
| 2877           | 2.25          |
| 2971           | 1.25          |
| 3065           | 1.25          |
| 3352           | 0.75          |
| 3732           | 0.75          |
| 4115           | 0.25          |
| 4487           | 0.25          |
| 4868           | 0.25          |
| 5246           | 0.50          |
| 5623           | 0.00          |
| 6022           | 0.82          |
| 6053           | 2.63          |
| 6084           | 5.30          |
| 6115           | 7.73          |

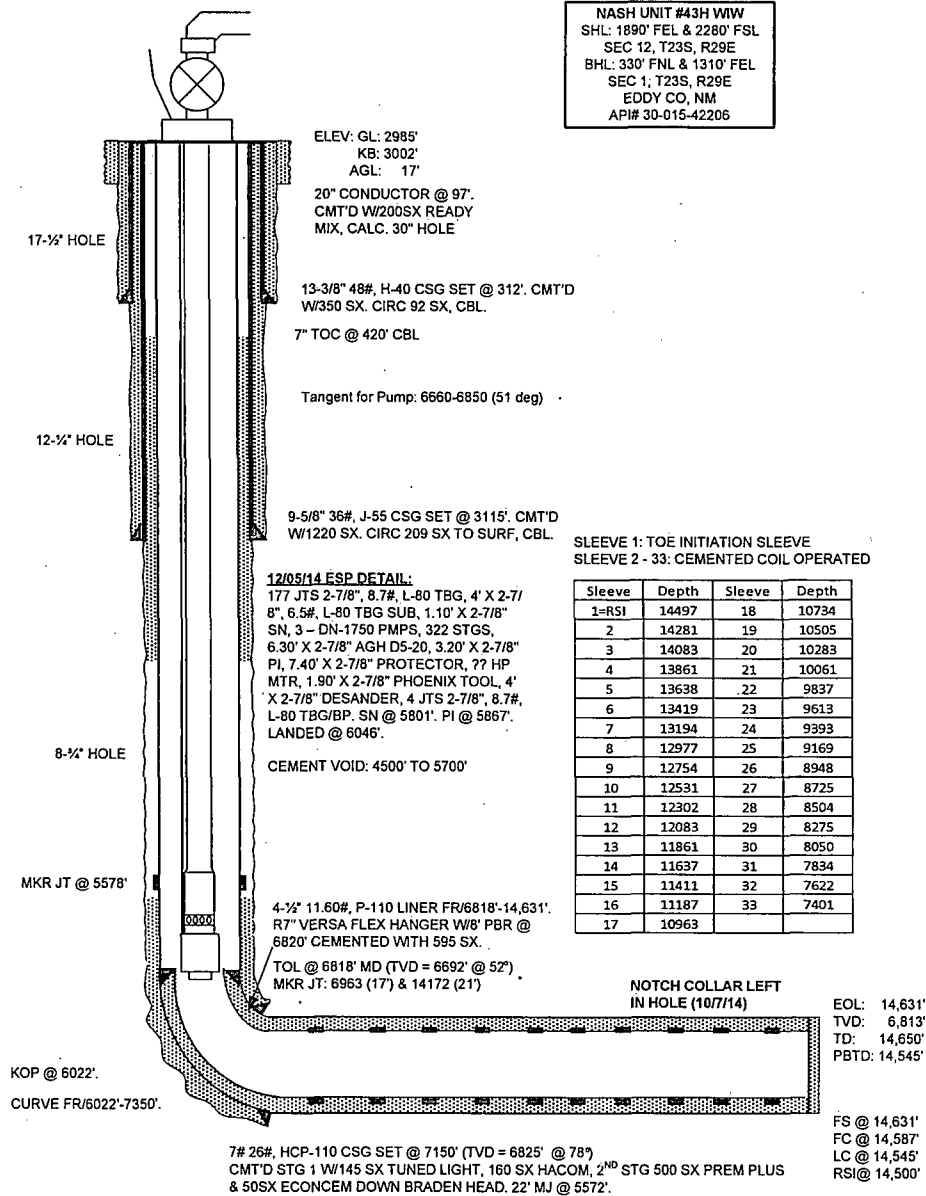
1542206

Signed By: Charles Walsh  
Charles Walsh, Division Manager  
Pioneer Drilling Company

Appeared before me on July 28, 2014.

Staci Riley  
Notary Public





# HALLIBURTON

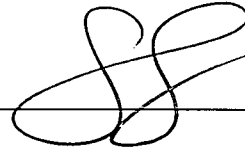
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3950 Interwood South Parkway • Houston, TX 77032

PHONE 281.986.4400 • FAX 281.986.4499

State of New Mexico, Eddy County

I, Scott Speer, certify that I am employed by Halliburton Energy Services, Inc. (AKA Sperry Drilling) and that on the dates of June 9, 2014 through June 28, 2014, I did conduct or supervise the taking of a MWD Directional surveys for the well Nash Unit 43H from 6022' MD to 14468' MD. This data is true, correct, complete and within the limitations of the tools as set forth by Halliburton Energy Services, Inc. (AKA Sperry Drilling). I am authorized and qualified to make this report and this survey was conducted at the request of XTO Energy Resources, Inc. for the Nash Unit 43H well, API No. 30-015-42206 in Eddy County, New Mexico. I have reviewed this report and find that it conforms to the principles and procedures as set forth by Halliburton Energy Services, Inc. (AKA Sperry Drilling).



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Scott Speer  
MWD Field Engineer

FEB 17 2015

RECEIVED

**XTO Energy Resources, Inc.**

**Nash Unit 43H**

**Eddy County, NM**

**Pioneer 33**

**API# 30-015-42206**

**June 9, 2014 – June 28, 2014**

**HD-MJ-0901359757**

**Sperry Drilling**

**Survey Report**

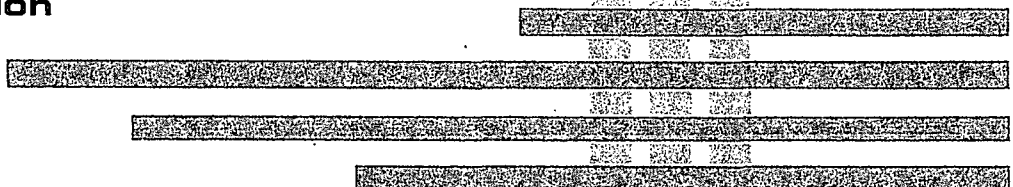
**Submitted by Scott Speer**

3950 Interwood S. Pkwy Houston, TX 77032

Ph: 281.986.4400

**HALLIBURTON**

**Drilling and Formation  
Evaluation**



# Survey Report for XTO Energy Resources, Inc.

|                |   |                  |
|----------------|---|------------------|
| Rig            | : | Pioneer 33       |
| Well Name      | : | Nash Unit 43H    |
| Field Name     | : | Nash             |
| Country        | : | USA              |
| Job Number     | : | HD-XX-0901359757 |
| Job Start Date | : | 09-Jun-14        |
| API Number     | : | 30-015-42206     |

## DIRECTIONAL SURVEY DATA

Tie-in

0.00

0.00

0.00

0.00

0.00 N

0.00 E

| Measured Depth<br>(ft) | Inclination<br>(deg) | Direction<br>(deg) | Vertical Depth<br>(ft) | Latitude<br>(ft) | Departure<br>(ft) | Vertical Section<br>(ft) | Dogleg<br>(°/100') |
|------------------------|----------------------|--------------------|------------------------|------------------|-------------------|--------------------------|--------------------|
| 100.00                 | 0.41                 | 107.31             | 100.00                 | 0.11 S           | 0.34 E            | -0.08                    | 0.41               |
| 200.00                 | 0.27                 | 77.72              | 200.00                 | 0.16 S           | 0.91 E            | -0.10                    | 0.22               |
| 300.00                 | 0.19                 | 42.97              | 300.00                 | 0.01 N           | 1.26 E            | 0.09                     | 0.16               |
| 400.00                 | 0.16                 | 33.39              | 400.00                 | 0.25 N           | 1.45 E            | 0.34                     | 0.04               |
| 500.00                 | 0.46                 | 24.10              | 499.99                 | 0.73 N           | 1.69 E            | 0.84                     | 0.30               |
| 600.00                 | 0.73                 | 58.73              | 599.99                 | 1.43 N           | 2.40 E            | 1.59                     | 0.44               |
| 700.00                 | 0.32                 | 92.77              | 699.99                 | 1.74 N           | 3.22 E            | 1.96                     | 0.50               |
| 800.00                 | 0.15                 | 138.81             | 799.98                 | 1.63 N           | 3.58 E            | 1.87                     | 0.24               |
| 900.00                 | 0.20                 | 235.59             | 899.98                 | 1.43 N           | 3.53 E            | 1.67                     | 0.26               |
| 1000.00                | 0.37                 | 242.42             | 999.98                 | 1.19 N           | 3.10 E            | 1.39                     | 0.17               |
| 1100.00                | 0.44                 | 257.22             | 1,099.98               | 0.95 N           | 2.44 E            | 1.11                     | 0.13               |
| 1200.00                | 0.47                 | 260.37             | 1,199.98               | 0.80 N           | 1.66 E            | 0.91                     | 0.04               |
| 1300.00                | 0.60                 | 194.15             | 1,299.97               | 0.22 N           | 1.12 E            | 0.30                     | 0.59               |
| 1400.00                | 0.57                 | 209.61             | 1,399.97               | 0.72 S           | 0.75 E            | -0.67                    | 0.16               |
| 1500.00                | 1.09                 | 203.06             | 1,499.96               | 2.03 S           | 0.13 E            | -2.01                    | 0.53               |
| 1600.00                | 1.07                 | 193.58             | 1,599.94               | 3.81 S           | 0.46 W            | -3.83                    | 0.18               |
| 1700.00                | 0.62                 | 226.92             | 1,699.93               | 5.09 S           | 1.07 W            | -5.15                    | 0.65               |
| 1800.00                | 0.32                 | 278.81             | 1,799.93               | 5.41 S           | 1.75 W            | -5.52                    | 0.49               |
| 1900.00                | 0.51                 | 222.83             | 1,899.92               | 5.70 S           | 2.32 W            | -5.84                    | 0.42               |
| 2000.00                | 0.50                 | 194.50             | 1,999.92               | 6.44 S           | 2.74 W            | -6.61                    | 0.25               |
| 2100.00                | 0.14                 | 215.36             | 2,099.92               | 6.97 S           | 2.92 W            | -7.15                    | 0.37               |
| 2200.00                | 0.27                 | 344.54             | 2,199.92               | 6.84 S           | 3.05 W            | -7.03                    | 0.37               |
| 2300.00                | 0.31                 | 15.75              | 2,299.92               | 6.35 S           | 3.04 W            | -6.54                    | 0.16               |
| 2400.00                | 1.98                 | 116.96             | 2,399.90               | 6.87 S           | 1.42 W            | -6.96                    | 2.06               |
| 2500.00                | 2.43                 | 124.82             | 2,499.82               | 8.87 S           | 1.86 E            | -8.72                    | 0.54               |
| 2600.00                | 2.54                 | 119.93             | 2,599.73               | 11.18 S          | 5.52 E            | -10.79                   | 0.24               |
| 2700.00                | 2.47                 | 126.15             | 2,699.63               | 13.56 S          | 9.18 E            | -12.91                   | 0.28               |
| 2800.00                | 2.39                 | 123.80             | 2,799.54               | 15.99 S          | 12.65 E           | -15.10                   | 0.13               |
| 2900.00                | 2.13                 | 123.44             | 2,899.47               | 18.18 S          | 15.93 E           | -17.06                   | 0.26               |
| 3000.00                | 1.57                 | 135.58             | 2,999.41               | 20.18 S          | 18.44 E           | -18.89                   | 0.68               |
| 3100.00                | 0.47                 | 138.41             | 3,099.40               | 21.46 S          | 19.67 E           | -20.09                   | 1.10               |
| 3200.00                | 0.58                 | 159.84             | 3,199.39               | 22.25 S          | 20.12 E           | -20.84                   | 0.22               |
| 3300.00                | 0.56                 | 145.10             | 3,299.39               | 23.12 S          | 20.57 E           | -21.68                   | 0.15               |
| 3400.00                | 0.36                 | 170.85             | 3,399.39               | 23.83 S          | 20.90 E           | -22.37                   | 0.28               |
| 3500.00                | 0.83                 | 121.44             | 3,499.38               | 24.52 S          | 21.57 E           | -23.01                   | 0.66               |
| 3600.00                | 0.29                 | 127.74             | 3,599.37               | 25.05 S          | 22.39 E           | -23.49                   | 0.54               |
| 3700.00                | 0.29                 | 143.98             | 3,699.37               | 25.41 S          | 22.74 E           | -23.82                   | 0.08               |
| 3800.00                | 0.73                 | 104.31             | 3,799.37               | 25.78 S          | 23.50 E           | -24.13                   | 0.54               |
| 3900.00                | 0.10                 | 110.51             | 3,899.37               | 25.96 S          | 24.20 E           | -24.27                   | 0.63               |
| 4000.00                | 0.21                 | 344.57             | 3,999.37               | 25.82 S          | 24.24 E           | -24.12                   | 0.28               |
| 4100.00                | 0.16                 | 345.29             | 4,099.37               | 25.51 S          | 24.15 E           | -23.82                   | 0.05               |

## DIRECTIONAL SURVEY DATA

| Measured Depth<br>(ft) | Inclination<br>(deg) | Direction<br>(deg) | Vertical Depth<br>(ft) | Latitude<br>(ft) | Departure<br>(ft) | Vertical Section<br>(ft) | Dogleg<br>(°/100) |
|------------------------|----------------------|--------------------|------------------------|------------------|-------------------|--------------------------|-------------------|
| 4200.00                | 0.26                 | 1.18               | 4,199.36               | 25.14 S          | 24.12 E           | -23.46                   | 0.11              |
| 4300.00                | 0.09                 | 39.12              | 4,299.36               | 24.86 S          | 24.18 E           | -23.17                   | 0.20              |
| 4400.00                | 0.45                 | 30.50              | 4,399.36               | 24.46 S          | 24.42 E           | -22.75                   | 0.36              |
| 4500.00                | 0.30                 | 39.28              | 4,499.36               | 23.92 S          | 24.79 E           | -22.19                   | 0.16              |
| 4600.00                | 0.41                 | 58.74              | 4,599.36               | 23.53 S          | 25.26 E           | -21.77                   | 0.16              |
| 4700.00                | 0.29                 | 43.21              | 4,699.36               | 23.16 S          | 25.74 E           | -21.37                   | 0.15              |
| 4800.00                | 0.30                 | 31.20              | 4,799.36               | 22.75 S          | 26.05 E           | -20.94                   | 0.06              |
| 4900.00                | 0.38                 | 40.60              | 4,899.35               | 22.27 S          | 26.40 E           | -20.44                   | 0.10              |
| 5000.00                | 0.51                 | 68.79              | 4,999.35               | 21.86 S          | 27.03 E           | -19.99                   | 0.25              |
| 5100.00                | 0.15                 | 67.33              | 5,099.35               | 21.65 S          | 27.57 E           | -19.74                   | 0.36              |
| 5200.00                | 0.58                 | 62.18              | 5,199.35               | 21.36 S          | 28.14 E           | -19.41                   | 0.43              |
| 5300.00                | 0.43                 | 97.08              | 5,299.34               | 21.17 S          | 28.96 E           | -19.17                   | 0.33              |
| 5400.00                | 0.31                 | 60.37              | 5,399.34               | 21.08 S          | 29.56 E           | -19.04                   | 0.26              |
| 5500.00                | 0.54                 | 160.86             | 5,499.34               | 21.40 S          | 29.95 E           | -19.33                   | 0.67              |
| 5600.00                | 0.18                 | 260.06             | 5,599.34               | 21.87 S          | 29.95 E           | -19.80                   | 0.60              |
| 5700.00                | 0.09                 | 109.98             | 5,699.34               | 21.92 S          | 29.87 E           | -19.86                   | 0.26              |
| 5800.00                | 0.56                 | 157.71             | 5,799.34               | 22.40 S          | 30.13 E           | -20.32                   | 0.50              |
| 5900.00                | 0.55                 | 181.09             | 5,899.33               | 23.33 S          | 30.31 E           | -21.23                   | 0.23              |
| 5966.00                | 0.37                 | 194.53             | 5,965.33               | 23.86 S          | 30.25 E           | -21.76                   | 0.32              |
| 6022.00                | 0.82                 | 342.89             | 6,021.33               | 23.65 S          | 30.08 E           | -21.56                   | 2.05              |
| 6053.00                | 2.63                 | 346.84             | 6,052.31               | 22.74 S          | 29.86 E           | -20.68                   | 5.86              |
| 6084.00                | 5.30                 | 342.16             | 6,083.24               | 20.69 S          | 29.26 E           | -18.66                   | 8.67              |
| 6115.00                | 7.73                 | 342.23             | 6,114.03               | 17.34 S          | 28.18 E           | -15.40                   | 7.81              |
| 6147.00                | 10.06                | 343.57             | 6,145.65               | 12.61 S          | 26.73 E           | -10.77                   | 7.32              |
| 6179.00                | 12.92                | 345.01             | 6,177.00               | 6.47 S           | 25.02 E           | -4.76                    | 8.99              |
| 6210.00                | 15.81                | 348.36             | 6,207.03               | 1.02 N           | 23.27 E           | 2.59                     | 9.69              |
| 6241.00                | 17.72                | 351.92             | 6,236.71               | 9.83 N           | 21.75 E           | 11.27                    | 6.99              |
| 6272.00                | 20.17                | 356.51             | 6,266.03               | 19.84 N          | 20.76 E           | 21.19                    | 9.24              |
| 6304.00                | 22.65                | 359.04             | 6,295.82               | 31.51 N          | 20.32 E           | 32.81                    | 8.26              |
| 6335.00                | 24.76                | 1.17               | 6,324.20               | 43.97 N          | 20.36 E           | 45.24                    | 7.36              |
| 6366.00                | 27.26                | 2.01               | 6,352.06               | 57.55 N          | 20.74 E           | 58.82                    | 8.15              |
| 6398.00                | 30.26                | 3.51               | 6,380.11               | 72.93 N          | 21.49 E           | 74.21                    | 9.63              |
| 6430.00                | 33.01                | 3.82               | 6,407.35               | 89.68 N          | 22.56 E           | 90.99                    | 8.62              |
| 6461.00                | 35.23                | 2.48               | 6,433.02               | 107.04 N         | 23.51 E           | 108.38                   | 7.57              |
| 6493.00                | 37.18                | 1.91               | 6,458.84               | 125.92 N         | 24.23 E           | 127.27                   | 6.17              |
| 6524.00                | 39.97                | 2.55               | 6,483.07               | 145.24 N         | 24.99 E           | 146.59                   | 9.08              |
| 6555.00                | 42.61                | 2.51               | 6,506.36               | 165.67 N         | 25.89 E           | 167.04                   | 8.52              |
| 6587.00                | 45.05                | 3.58               | 6,529.45               | 187.80 N         | 27.07 E           | 189.19                   | 7.99              |
| 6619.00                | 47.50                | 3.87               | 6,551.56               | 210.87 N         | 28.57 E           | 212.32                   | 7.66              |
| 6651.00                | 49.16                | 4.12               | 6,572.84               | 234.71 N         | 30.24 E           | 236.22                   | 5.22              |
| 6681.00                | 49.75                | 3.49               | 6,592.34               | 257.46 N         | 31.75 E           | 259.01                   | 2.54              |
| 6712.00                | 50.26                | 2.85               | 6,612.27               | 281.17 N         | 33.07 E           | 282.76                   | 2.29              |
| 6744.00                | 50.72                | 3.36               | 6,632.63               | 305.82 N         | 34.41 E           | 307.45                   | 1.87              |
| 6775.00                | 51.35                | 4.45               | 6,652.12               | 329.87 N         | 36.05 E           | 331.55                   | 3.41              |
| 6807.00                | 51.66                | 5.17               | 6,672.04               | 354.82 N         | 38.15 E           | 356.59                   | 2.02              |

## DIRECTIONAL SURVEY DATA

| Measured Depth<br>(ft) | Inclination<br>(deg) | Direction<br>(deg) | Vertical Depth<br>(ft) | Latitude<br>(ft) | Departure<br>(ft) | Vertical Section<br>(ft) | Dogleg<br>(1/100) |
|------------------------|----------------------|--------------------|------------------------|------------------|-------------------|--------------------------|-------------------|
| 6839.00                | 51.88                | 5.55               | 6,691.84               | 379.85 N         | 40.50 E           | 381.72                   | 1.15              |
| 6870.00                | 53.51                | 6.30               | 6,710.63               | 404.38 N         | 43.05 E           | 406.36                   | 5.63              |
| 6901.00                | 55.50                | 7.26               | 6,728.63               | 429.44 N         | 46.03 E           | 431.56                   | 6.88              |
| 6933.00                | 58.23                | 9.28               | 6,746.12               | 455.95 N         | 49.89 E           | 458.28                   | 10.04             |
| 6965.00                | 61.67                | 9.25               | 6,762.14               | 483.28 N         | 54.35 E           | 485.85                   | 10.75             |
| 6996.00                | 64.63                | 8.45               | 6,776.14               | 510.61 N         | 58.60 E           | 513.40                   | 9.83              |
| 7028.00                | 67.68                | 8.00               | 6,789.07               | 539.57 N         | 62.79 E           | 542.58                   | 9.63              |
| 7059.00                | 70.13                | 6.76               | 6,800.23               | 568.25 N         | 66.50 E           | 571.45                   | 8.72              |
| 7090.00                | 72.39                | 6.15               | 6,810.19               | 597.42 N         | 69.80 E           | 600.77                   | 7.52              |
| 7184.00                | 77.12                | 4.63               | 6,834.90               | 687.69 N         | 78.30 E           | 691.40                   | 5.27              |
| 7214.00                | 77.62                | 5.01               | 6,841.46               | 716.86 N         | 80.76 E           | 720.67                   | 2.07              |
| 7278.00                | 82.15                | 4.59               | 6,852.69               | 779.63 N         | 86.03 E           | 783.65                   | 7.11              |
| 7310.00                | 85.35                | 4.28               | 6,856.18               | 811.34 N         | 88.49 E           | 815.46                   | 10.05             |
| 7405.00                | 92.19                | 2.94               | 6,858.21               | 906.07 N         | 94.47 E           | 910.38                   | 7.34              |
| 7500.00                | 91.32                | 2.96               | 6,855.30               | 1,000.90 N       | 99.35 E           | 1005.32                  | 0.92              |
| 7595.00                | 93.48                | 3.11               | 6,851.32               | 1,095.67 N       | 104.38 E          | 1100.22                  | 2.28              |
| 7691.00                | 93.21                | 2.82               | 6,845.72               | 1,191.38 N       | 109.33 E          | 1196.04                  | 0.41              |
| 7787.00                | 90.15                | 2.78               | 6,842.91               | 1,287.21 N       | 114.02 E          | 1291.98                  | 3.18              |
| 7882.00                | 91.23                | 4.27               | 6,841.76               | 1,382.02 N       | 119.86 E          | 1386.96                  | 1.93              |
| 7977.00                | 88.46                | 2.96               | 6,842.02               | 1,476.82 N       | 125.84 E          | 1481.95                  | 3.23              |
| 8073.00                | 89.51                | 4.71               | 6,843.72               | 1,572.59 N       | 132.27 E          | 1577.93                  | 2.13              |
| 8168.00                | 91.17                | 4.14               | 6,843.16               | 1,667.30 N       | 139.60 E          | 1672.92                  | 1.85              |
| 8264.00                | 89.91                | 2.18               | 6,842.26               | 1,763.14 N       | 144.90 E          | 1768.90                  | 2.43              |
| 8360.00                | 91.51                | 2.99               | 6,841.07               | 1,859.03 N       | 149.23 E          | 1864.87                  | 1.87              |
| 8455.00                | 90.83                | 2.50               | 6,839.13               | 1,953.90 N       | 153.77 E          | 1959.83                  | 0.88              |
| 8550.00                | 93.66                | 3.96               | 6,835.40               | 2,048.67 N       | 159.11 E          | 2054.74                  | 3.35              |
| 8647.00                | 91.20                | 3.50               | 6,831.29               | 2,145.37 N       | 165.42 E          | 2151.64                  | 2.58              |
| 8742.00                | 88.61                | 2.85               | 6,831.44               | 2,240.21 N       | 170.68 E          | 2246.63                  | 2.80              |
| 8837.00                | 88.61                | 3.86               | 6,833.74               | 2,335.02 N       | 176.24 E          | 2341.59                  | 1.07              |
| 8932.00                | 88.61                | 5.74               | 6,836.04               | 2,429.66 N       | 184.19 E          | 2436.55                  | 1.97              |
| 9027.00                | 91.60                | 7.81               | 6,835.86               | 2,523.98 N       | 195.39 E          | 2531.41                  | 3.83              |
| 9123.00                | 88.09                | 6.64               | 6,836.12               | 2,619.20 N       | 207.47 E          | 2627.23                  | 3.85              |
| 9218.00                | 88.49                | 5.60               | 6,838.95               | 2,713.61 N       | 217.59 E          | 2722.11                  | 1.18              |
| 9313.00                | 91.23                | 6.46               | 6,839.18               | 2,808.08 N       | 227.57 E          | 2817.03                  | 3.02              |
| 9408.00                | 89.97                | 1.52               | 6,838.18               | 2,902.81 N       | 234.18 E          | 2912.00                  | 5.36              |
| 9503.00                | 90.15                | 359.48             | 6,838.08               | 2,997.80 N       | 235.01 E          | 3006.83                  | 2.16              |
| 9598.00                | 89.72                | 0.45               | 6,838.19               | 3,092.80 N       | 234.95 E          | 3101.61                  | 1.12              |
| 9694.00                | 90.28                | 1.00               | 6,838.19               | 3,188.79 N       | 236.17 E          | 3197.46                  | 0.82              |
| 9789.00                | 90.15                | 1.04               | 6,837.83               | 3,283.78 N       | 237.86 E          | 3292.34                  | 0.14              |
| 9884.00                | 91.32                | 4.48               | 6,836.60               | 3,378.64 N       | 242.43 E          | 3387.30                  | 3.82              |
| 9979.00                | 92.26                | 4.86               | 6,833.64               | 3,473.28 N       | 250.16 E          | 3482.24                  | 1.06              |
| 10075.00               | 92.25                | 5.39               | 6,829.87               | 3,568.82 N       | 258.73 E          | 3578.15                  | 0.55              |
| 10170.00               | 89.39                | 4.06               | 6,828.51               | 3,663.48 N       | 266.56 E          | 3673.11                  | 3.33              |
| 10265.00               | 89.17                | 4.66               | 6,829.71               | 3,758.19 N       | 273.78 E          | 3768.10                  | 0.68              |
| 10359.00               | 88.49                | 5.10               | 6,831.63               | 3,851.83 N       | 281.78 E          | 3862.07                  | 0.86              |



## DIRECTIONAL SURVEY DATA

| Measured Depth<br>(ft) | Inclination<br>(deg) | Direction<br>(deg) | Vertical Depth<br>(ft) | Latitude<br>(ft) | Departure<br>(ft) | Vertical Section<br>(ft) | Dogleg<br>(1/100) |
|------------------------|----------------------|--------------------|------------------------|------------------|-------------------|--------------------------|-------------------|
| 10454.00               | 88.49                | 3.52               | 6,834.14               | 3,946.53 N       | 288.92 E          | 3957.03                  | 1.67              |
| 10549.00               | 89.41                | 4.43               | 6,835.87               | 4,041.28 N       | 295.50 E          | 4052.01                  | 1.37              |
| 10644.00               | 90.89                | 2.78               | 6,835.62               | 4,136.09 N       | 301.48 E          | 4147.00                  | 2.33              |
| 10740.00               | 90.31                | 1.43               | 6,834.61               | 4,232.01 N       | 305.01 E          | 4242.95                  | 1.53              |
| 10836.00               | 89.82                | 0.55               | 6,834.51               | 4,328.00 N       | 306.66 E          | 4338.83                  | 1.05              |
| 10931.00               | 91.20                | 2.31               | 6,833.67               | 4,422.96 N       | 309.04 E          | 4433.73                  | 2.36              |
| 11026.00               | 93.69                | 2.93               | 6,829.61               | 4,517.76 N       | 313.38 E          | 4528.61                  | 2.70              |
| 11121.00               | 93.12                | 3.06               | 6,823.97               | 4,612.47 N       | 318.33 E          | 4623.43                  | 0.62              |
| 11216.00               | 90.03                | 2.09               | 6,821.36               | 4,707.32 N       | 322.60 E          | 4718.36                  | 3.41              |
| 11312.00               | 90.06                | 4.85               | 6,821.28               | 4,803.14 N       | 328.40 E          | 4814.35                  | 2.87              |
| 11407.00               | 89.54                | 5.64               | 6,821.62               | 4,897.74 N       | 337.08 E          | 4909.32                  | 1.00              |
| 11502.00               | 88.92                | 5.13               | 6,822.89               | 4,992.31 N       | 346.00 E          | 5004.28                  | 0.84              |
| 11597.00               | 90.86                | 6.59               | 6,823.06               | 5,086.81 N       | 355.70 E          | 5099.21                  | 2.56              |
| 11693.00               | 88.98                | 5.80               | 6,823.20               | 5,182.24 N       | 366.07 E          | 5195.13                  | 2.13              |
| 11809.00               | 90.31                | 8.03               | 6,823.92               | 5,297.38 N       | 380.04 E          | 5310.95                  | 2.24              |
| 11903.00               | 91.29                | 7.64               | 6,822.60               | 5,390.49 N       | 392.85 E          | 5404.72                  | 1.13              |
| 11998.00               | 88.40                | 5.71               | 6,822.86               | 5,484.84 N       | 403.89 E          | 5499.59                  | 3.66              |
| 12093.00               | 88.06                | 3.89               | 6,825.79               | 5,579.45 N       | 411.83 E          | 5594.53                  | 1.94              |
| 12188.00               | 89.04                | 2.54               | 6,828.19               | 5,674.27 N       | 417.16 E          | 5689.49                  | 1.75              |
| 12283.00               | 89.32                | 2.17               | 6,829.54               | 5,769.18 N       | 421.07 E          | 5784.44                  | 0.49              |
| 12378.00               | 91.11                | 3.31               | 6,829.18               | 5,864.07 N       | 425.61 E          | 5879.42                  | 2.23              |
| 12472.00               | 87.79                | 1.25               | 6,830.09               | 5,957.97 N       | 429.34 E          | 5973.36                  | 4.16              |
| 12567.00               | 89.51                | 1.33               | 6,832.33               | 6,052.91 N       | 431.48 E          | 6068.23                  | 1.81              |
| 12662.00               | 89.51                | 1.82               | 6,833.15               | 6,147.88 N       | 434.09 E          | 6163.15                  | 0.52              |
| 12757.00               | 89.94                | 1.65               | 6,833.61               | 6,242.83 N       | 436.97 E          | 6258.09                  | 0.49              |
| 12852.00               | 90.43                | 1.64               | 6,833.30               | 6,337.79 N       | 439.70 E          | 6353.02                  | 0.52              |
| 12947.00               | 88.77                | 0.26               | 6,833.97               | 6,432.77 N       | 441.28 E          | 6447.88                  | 2.28              |
| 13045.00               | 88.92                | 0.64               | 6,835.94               | 6,530.75 N       | 442.05 E          | 6545.69                  | 0.42              |
| 13140.00               | 91.17                | 3.87               | 6,835.87               | 6,625.65 N       | 445.79 E          | 6640.63                  | 4.14              |
| 13235.00               | 92.10                | 5.18               | 6,833.16               | 6,720.32 N       | 453.28 E          | 6735.59                  | 1.69              |
| 13330.00               | 91.97                | 4.33               | 6,829.79               | 6,814.93 N       | 461.15 E          | 6830.51                  | 0.91              |
| 13425.00               | 88.52                | 3.17               | 6,829.38               | 6,909.71 N       | 467.36 E          | 6925.50                  | 3.84              |
| 13521.00               | 91.02                | 5.01               | 6,829.77               | 7,005.45 N       | 474.20 E          | 7021.48                  | 3.23              |
| 13616.00               | 89.11                | 4.11               | 6,829.66               | 7,100.15 N       | 481.76 E          | 7116.47                  | 2.23              |
| 13711.00               | 90.06                | 5.77               | 6,830.35               | 7,194.79 N       | 489.93 E          | 7211.45                  | 2.02              |
| 13806.00               | 89.91                | 2.64               | 6,830.38               | 7,289.52 N       | 496.89 E          | 7306.43                  | 3.29              |
| 13901.00               | 94.13                | 5.76               | 6,827.03               | 7,384.17 N       | 503.84 E          | 7401.34                  | 5.52              |
| 13997.00               | 94.01                | 5.37               | 6,820.22               | 7,479.48 N       | 513.12 E          | 7497.06                  | 0.42              |
| 14092.00               | 94.47                | 4.72               | 6,813.20               | 7,573.85 N       | 521.46 E          | 7591.78                  | 0.84              |
| 14187.00               | 88.64                | 3.71               | 6,810.61               | 7,668.52 N       | 528.44 E          | 7686.70                  | 6.23              |
| 14281.00               | 89.32                | 4.53               | 6,812.28               | 7,762.26 N       | 535.20 E          | 7780.68                  | 1.13              |
| 14377.00               | 93.45                | 8.10               | 6,809.96               | 7,857.61 N       | 545.75 E          | 7876.53                  | 5.68              |
| 14468.00               | 88.31                | 5.65               | 6,808.57               | 7,947.91 N       | 556.63 E          | 7967.35                  | 6.25              |
| 14523.00               | 88.31                | 5.65               | 6,810.19               | 8,002.62 N       | 562.04 E          | 8022.30                  | 0.00              |

**DIRECTIONAL SURVEY DATA NOTES**

- Calculation based on minimum curvature method.
- Survey coordinates relative to well system reference point.
- TVD values given relative to drilling measurement point.
- Vertical section relative to well head.
- Vertical section is computed along a direction of 3.87 degrees (Grid)
- A total correction of 7.34 deg from Magnetic north to Grid north has been applied
- Horizontal displacement is relative to the well head.
- Horizontal displacement (closure) at 14,523.00 feet is 8,022.33 feet along 4.02 degrees (Grid)

SURVEYS CALCULATED USING SHORT COLLAR METHOD.

WELL ASSUMED VERTICAL AT WELLHEAD.

SURVEYS FROM 100'MD TO 5966'MD PROVIDED BY VAUGHN ENERGY SERVICES.

SURVEYS FROM 6022'MD TO 14468'MD PROVIDED BY SPERRY DRILLING.

SURVEY AT 14468' MD IS PROJECTED TO TD AT 14523' MD.

SPERRY DRILLING ENGINEERS: S. SPEER, P. WASHER

**WARRANTY**

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