



30-015-43428

## **XTO Energy**

Eddy County, New Mexico (NAD 27)

Corral Canyon Federal *COM*

1H

Wellbore #1 *H*

Design: Surveys

## **Standard Survey Report**

12 September, 2016



# MS Energy Services

## Survey Report



**Company:** XTO Energy  
**Project:** Eddy County, New Mexico (NAD 27)  
**Site:** Corral Canyon Federal  
**Well:** 1H  
**Wellbore:** Wellbore #1  
**Design:** Surveys

**Local Co-ordinate Reference:** Well 1H  
**TVD Reference:** WELL @ 2937.00usft (Noram 25)  
**MD Reference:** WELL @ 2937.00usft (Noram 25)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Conroe Server

|                    |                                      |                      |                |
|--------------------|--------------------------------------|----------------------|----------------|
| <b>Project</b>     | Eddy County, New Mexico (NAD 27)     |                      |                |
| <b>Map System:</b> | US State Plane 1927 (Exact solution) | <b>System Datum:</b> | Mean Sea Level |
| <b>Geo Datum:</b>  | NAD 1927 (NADCON CONUS)              |                      |                |
| <b>Map Zone:</b>   | New Mexico East 3001                 |                      |                |

|                             |              |           |                            |                 |                                    |
|-----------------------------|--------------|-----------|----------------------------|-----------------|------------------------------------|
| <b>Well</b>                 | 1H           |           |                            |                 |                                    |
| <b>Well Position</b>        | <b>+N/-S</b> | 0.00 usft | <b>Northing:</b>           | 419,320.00 usft | <b>Latitude:</b> 32° 9' 8.749 N    |
|                             | <b>+E/-W</b> | 0.00 usft | <b>Easting:</b>            | 598,135.90 usft | <b>Longitude:</b> 104° 0' 58.448 W |
| <b>Position Uncertainty</b> | 0.00 usft    |           | <b>Wellhead Elevation:</b> | usft            | <b>Ground Level:</b> 2,912.00 usft |

|                  |                   |                    |                        |                      |                            |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| <b>Wellbore</b>  | Wellbore #1       |                    |                        |                      |                            |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination (°)</b> | <b>Dip Angle (°)</b> | <b>Field Strength (nT)</b> |
|                  | BGGM2016          | 8/20/2016          | 7.30                   | 59.93                | 48,009                     |

|                          |                                |                     |                     |                      |      |
|--------------------------|--------------------------------|---------------------|---------------------|----------------------|------|
| <b>Design</b>            | Surveys                        |                     |                     |                      |      |
| <b>Audit Notes:</b>      |                                |                     |                     |                      |      |
| <b>Version:</b>          | 1.0                            | <b>Phase:</b>       | ACTUAL              | <b>Tie On Depth:</b> | 0.00 |
| <b>Vertical Section:</b> | <b>Depth From (TVD) (usft)</b> | <b>+N/-S (usft)</b> | <b>+E/-W (usft)</b> | <b>Direction (°)</b> |      |
|                          | 0.00                           | 0.00                | 0.00                | 11.24                |      |

|                       |                  |                             |                  |                       |
|-----------------------|------------------|-----------------------------|------------------|-----------------------|
| <b>Survey Program</b> | Date 9/12/2016   |                             |                  |                       |
| <b>From (usft)</b>    | <b>To (usft)</b> | <b>Survey (Wellbore)</b>    | <b>Tool Name</b> | <b>Description</b>    |
| 100.00                | 7,250.00         | Gyrodata Gyro (Wellbore #1) | GYRO-NS          | OWSG Gyrocompass Gyro |
| 7,261.00              | 16,185.00        | MS MWD (Wellbore #1)        | MWD              | OWSG MWD - Standard   |

| Survey                |                 |             |                       |              |              |                         |                         |                        |                       |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 0.00                  | 0.00            | 0.00        | 0.00                  | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 100.00                | 0.54            | 209.82      | 100.00                | -0.41        | -0.23        | -0.45                   | 0.54                    | 0.54                   | 0.00                  |
| 200.00                | 1.58            | 191.64      | 199.98                | -2.17        | -0.75        | -2.27                   | 1.08                    | 1.04                   | -18.18                |
| 300.00                | 1.69            | 192.79      | 299.94                | -4.96        | -1.35        | -5.12                   | 0.11                    | 0.11                   | 1.15                  |
| 400.00                | 1.74            | 192.26      | 399.89                | -7.88        | -2.00        | -8.12                   | 0.05                    | 0.05                   | -0.53                 |
| 500.00                | 1.68            | 195.77      | 499.85                | -10.77       | -2.72        | -11.10                  | 0.12                    | -0.06                  | 3.51                  |
| 600.00                | 1.59            | 194.30      | 599.81                | -13.53       | -3.46        | -13.94                  | 0.10                    | -0.09                  | -1.47                 |
| 700.00                | 1.29            | 205.92      | 699.78                | -15.88       | -4.30        | -16.42                  | 0.42                    | -0.30                  | 11.62                 |
| 800.00                | 1.05            | 218.31      | 799.76                | -17.62       | -5.36        | -18.32                  | 0.35                    | -0.24                  | 12.39                 |
| 900.00                | 0.85            | 234.90      | 899.74                | -18.76       | -6.53        | -19.67                  | 0.34                    | -0.20                  | 16.59                 |
| 1,000.00              | 0.69            | 255.12      | 999.73                | -19.34       | -7.72        | -20.48                  | 0.31                    | -0.16                  | 20.22                 |
| 1,100.00              | 0.69            | 249.98      | 1,099.73              | -19.70       | -8.87        | -21.05                  | 0.06                    | 0.00                   | -5.14                 |
| 1,200.00              | 0.54            | 262.49      | 1,199.72              | -19.97       | -9.90        | -21.52                  | 0.20                    | -0.15                  | 12.51                 |
| 1,300.00              | 0.46            | 258.56      | 1,299.72              | -20.11       | -10.76       | -21.82                  | 0.09                    | -0.08                  | -3.93                 |
| 1,400.00              | 0.36            | 249.41      | 1,399.72              | -20.30       | -11.45       | -22.14                  | 0.12                    | -0.10                  | -9.15                 |



# MS Energy Services

## Survey Report



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**Wellbore:** Wellbore #1  
**Design:** Surveys

**Local Co-ordinate Reference:** Well 1H  
**TVD Reference:** WELL @ 2937.00usft (Noram 25)  
**MD Reference:** WELL @ 2937.00usft (Noram 25)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Conroe Server

### Survey

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 1,500.00              | 0.25            | 225.97      | 1,499.71              | -20.56       | -11.90       | -22.49                  | 0.16                    | -0.11                  | -23.44                |
| 1,600.00              | 0.16            | 152.67      | 1,599.71              | -20.84       | -11.99       | -22.78                  | 0.26                    | -0.09                  | -73.30                |
| 1,700.00              | 0.08            | 114.21      | 1,699.71              | -20.99       | -11.87       | -22.90                  | 0.11                    | -0.08                  | -38.46                |
| 1,800.00              | 0.08            | 85.09       | 1,799.71              | -21.01       | -11.73       | -22.90                  | 0.04                    | 0.00                   | -29.12                |
| 1,900.00              | 0.21            | 53.75       | 1,899.71              | -20.90       | -11.51       | -22.74                  | 0.15                    | 0.13                   | -31.34                |
| 2,000.00              | 0.57            | 74.90       | 1,999.71              | -20.66       | -10.89       | -22.39                  | 0.38                    | 0.36                   | 21.15                 |
| 2,100.00              | 1.47            | 84.48       | 2,099.69              | -20.41       | -9.13        | -21.80                  | 0.91                    | 0.90                   | 9.58                  |
| 2,200.00              | 1.83            | 88.76       | 2,199.65              | -20.25       | -6.26        | -21.08                  | 0.38                    | 0.36                   | 4.28                  |
| 2,300.00              | 1.85            | 69.10       | 2,299.60              | -19.64       | -3.15        | -19.88                  | 0.63                    | 0.02                   | -19.66                |
| 2,400.00              | 1.94            | 70.94       | 2,399.55              | -18.51       | -0.04        | -18.17                  | 0.11                    | 0.09                   | 1.84                  |
| 2,500.00              | 1.12            | 79.53       | 2,499.51              | -17.78       | 2.52         | -16.95                  | 0.85                    | -0.82                  | 8.59                  |
| 2,600.00              | 1.08            | 105.93      | 2,599.49              | -17.86       | 4.38         | -16.67                  | 0.50                    | -0.04                  | 26.40                 |
| 2,700.00              | 1.17            | 108.42      | 2,699.47              | -18.44       | 6.26         | -16.87                  | 0.10                    | 0.09                   | 2.49                  |
| 2,800.00              | 1.07            | 109.94      | 2,799.45              | -19.09       | 8.11         | -17.14                  | 0.10                    | -0.10                  | 1.52                  |
| 2,900.00              | 1.06            | 113.86      | 2,899.44              | -19.78       | 9.83         | -17.48                  | 0.07                    | -0.01                  | 3.92                  |
| 3,000.00              | 1.07            | 112.99      | 2,999.42              | -20.52       | 11.53        | -17.88                  | 0.02                    | 0.01                   | -0.87                 |
| 3,100.00              | 0.93            | 109.71      | 3,099.40              | -21.16       | 13.16        | -18.19                  | 0.15                    | -0.14                  | -3.28                 |
| 3,200.00              | 0.90            | 110.97      | 3,199.39              | -21.71       | 14.66        | -18.44                  | 0.04                    | -0.03                  | 1.26                  |
| 3,300.00              | 0.91            | 114.36      | 3,299.38              | -22.32       | 16.11        | -18.75                  | 0.05                    | 0.01                   | 3.39                  |
| 3,400.00              | 0.72            | 130.51      | 3,399.37              | -23.05       | 17.31        | -19.24                  | 0.30                    | -0.19                  | 16.15                 |
| 3,500.00              | 0.73            | 133.35      | 3,499.36              | -23.90       | 18.25        | -19.88                  | 0.04                    | 0.01                   | 2.84                  |
| 3,600.00              | 0.67            | 146.28      | 3,599.35              | -24.82       | 19.04        | -20.64                  | 0.17                    | -0.06                  | 12.93                 |
| 3,700.00              | 0.40            | 181.31      | 3,699.35              | -25.66       | 19.36        | -21.39                  | 0.41                    | -0.27                  | 35.03                 |
| 3,800.00              | 0.44            | 169.68      | 3,799.35              | -26.39       | 19.42        | -22.09                  | 0.09                    | 0.04                   | -11.63                |
| 3,900.00              | 0.27            | 175.40      | 3,899.35              | -27.00       | 19.51        | -22.68                  | 0.17                    | -0.17                  | 5.72                  |
| 4,000.00              | 0.30            | 168.19      | 3,999.34              | -27.49       | 19.58        | -23.15                  | 0.05                    | 0.03                   | -7.21                 |
| 4,100.00              | 0.29            | 182.03      | 4,099.34              | -28.00       | 19.62        | -23.64                  | 0.07                    | -0.01                  | 13.84                 |
| 4,200.00              | 0.21            | 207.34      | 4,199.34              | -28.41       | 19.53        | -24.06                  | 0.13                    | -0.08                  | 25.31                 |
| 4,300.00              | 0.26            | 233.32      | 4,299.34              | -28.71       | 19.26        | -24.41                  | 0.12                    | 0.05                   | 25.98                 |
| 4,400.00              | 0.24            | 243.18      | 4,399.34              | -28.94       | 18.90        | -24.70                  | 0.05                    | -0.02                  | 9.86                  |
| 4,500.00              | 0.28            | 225.28      | 4,499.34              | -29.21       | 18.54        | -25.04                  | 0.09                    | 0.04                   | -17.90                |
| 4,600.00              | 0.31            | 183.79      | 4,599.34              | -29.65       | 18.34        | -25.51                  | 0.21                    | 0.03                   | -41.49                |
| 4,700.00              | 0.47            | 171.56      | 4,699.34              | -30.33       | 18.39        | -26.16                  | 0.18                    | 0.16                   | -12.23                |
| 4,800.00              | 0.46            | 179.24      | 4,799.33              | -31.13       | 18.45        | -26.94                  | 0.06                    | -0.01                  | 7.68                  |
| 4,900.00              | 0.60            | 192.04      | 4,899.33              | -32.05       | 18.35        | -27.86                  | 0.18                    | 0.14                   | 12.80                 |
| 5,000.00              | 0.87            | 176.54      | 4,999.32              | -33.32       | 18.28        | -29.11                  | 0.33                    | 0.27                   | -15.50                |
| 5,100.00              | 0.90            | 179.42      | 5,099.31              | -34.86       | 18.34        | -30.62                  | 0.05                    | 0.03                   | 2.88                  |
| 5,200.00              | 0.85            | 175.38      | 5,199.30              | -36.38       | 18.41        | -32.10                  | 0.08                    | -0.05                  | -4.04                 |
| 5,300.00              | 0.70            | 198.06      | 5,299.29              | -37.70       | 18.28        | -33.42                  | 0.34                    | -0.15                  | 22.68                 |
| 5,400.00              | 0.64            | 202.27      | 5,399.28              | -38.80       | 17.87        | -34.57                  | 0.08                    | -0.06                  | 4.21                  |
| 5,500.00              | 0.62            | 194.03      | 5,499.27              | -39.84       | 17.53        | -35.66                  | 0.09                    | -0.02                  | -8.24                 |
| 5,600.00              | 0.46            | 177.62      | 5,599.27              | -40.77       | 17.42        | -36.59                  | 0.22                    | -0.16                  | -16.41                |
| 5,700.00              | 0.41            | 154.69      | 5,699.27              | -41.49       | 17.59        | -37.27                  | 0.18                    | -0.05                  | -22.93                |



# MS Energy Services Survey Report



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**Well:** 1H  
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**Local Co-ordinate Reference:** Well 1H  
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**Survey Calculation Method:** Minimum Curvature  
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## Survey

| Measured Depth (usft)                                       | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|-------------------------------------------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 5,800.00                                                    | 0.53            | 147.65      | 5,799.26              | -42.21       | 17.99        | -37.89                  | 0.13                    | 0.12                   | -7.04                 |
| 5,900.00                                                    | 0.52            | 143.97      | 5,899.26              | -42.97       | 18.50        | -38.54                  | 0.04                    | -0.01                  | -3.68                 |
| 6,000.00                                                    | 0.48            | 148.40      | 5,999.26              | -43.69       | 18.99        | -39.15                  | 0.06                    | -0.04                  | 4.43                  |
| 6,100.00                                                    | 0.60            | 181.57      | 6,099.25              | -44.57       | 19.19        | -39.97                  | 0.33                    | 0.12                   | 33.17                 |
| 6,200.00                                                    | 0.53            | 173.88      | 6,199.25              | -45.55       | 19.23        | -40.93                  | 0.10                    | -0.07                  | -7.69                 |
| 6,300.00                                                    | 0.62            | 181.09      | 6,299.24              | -46.55       | 19.27        | -41.91                  | 0.12                    | 0.09                   | 7.21                  |
| 6,400.00                                                    | 0.77            | 198.82      | 6,399.23              | -47.73       | 19.04        | -43.10                  | 0.26                    | 0.15                   | 17.73                 |
| 6,500.00                                                    | 0.79            | 225.23      | 6,499.23              | -48.85       | 18.33        | -44.34                  | 0.36                    | 0.02                   | 26.41                 |
| 6,600.00                                                    | 0.87            | 231.24      | 6,599.21              | -49.81       | 17.25        | -45.50                  | 0.12                    | 0.08                   | 6.01                  |
| 6,700.00                                                    | 1.86            | 224.03      | 6,699.19              | -51.46       | 15.53        | -47.44                  | 1.00                    | 0.99                   | -7.21                 |
| 6,800.00                                                    | 2.37            | 222.44      | 6,799.12              | -54.15       | 13.01        | -50.57                  | 0.51                    | 0.51                   | -1.59                 |
| 6,900.00                                                    | 2.82            | 233.43      | 6,899.01              | -57.14       | 9.64         | -54.17                  | 0.67                    | 0.45                   | 10.99                 |
| 7,000.00                                                    | 1.93            | 239.12      | 6,998.93              | -59.47       | 6.22         | -57.12                  | 0.92                    | -0.89                  | 5.69                  |
| 7,100.00                                                    | 1.89            | 237.02      | 7,098.87              | -61.23       | 3.39         | -59.40                  | 0.08                    | -0.04                  | -2.10                 |
| 7,200.00                                                    | 1.51            | 243.66      | 7,198.83              | -62.71       | 0.83         | -61.35                  | 0.43                    | -0.38                  | 6.64                  |
| 7,250.00                                                    | 1.19            | 241.09      | 7,248.81              | -63.26       | -0.22        | -62.09                  | 0.65                    | -0.64                  | -5.14                 |
| Final Gyro - 7250.00' MD - Tie-In to Gyrodata - 7250.00' MD |                 |             |                       |              |              |                         |                         |                        |                       |
| 7,261.00                                                    | 1.30            | 236.60      | 7,259.81              | -63.38       | -0.42        | -62.25                  | 1.34                    | 1.00                   | -40.82                |
| 7,324.00                                                    | 1.20            | 238.90      | 7,322.80              | -64.12       | -1.59        | -63.19                  | 0.18                    | -0.16                  | 3.65                  |
| 7,356.00                                                    | 2.80            | 192.00      | 7,354.78              | -65.05       | -2.03        | -64.20                  | 6.77                    | 5.00                   | -146.56               |
| 7,387.00                                                    | 4.50            | 165.20      | 7,385.72              | -66.97       | -1.88        | -66.05                  | 7.63                    | 5.48                   | -86.45                |
| 7,419.00                                                    | 5.70            | 149.20      | 7,417.59              | -69.55       | -0.75        | -68.36                  | 5.78                    | 3.75                   | -50.00                |
| 7,450.00                                                    | 8.90            | 127.60      | 7,448.34              | -72.34       | 1.94         | -70.57                  | 13.43                   | 10.32                  | -69.68                |
| 7,482.00                                                    | 11.80           | 115.20      | 7,479.82              | -75.24       | 6.87         | -72.46                  | 11.38                   | 9.06                   | -38.75                |
| 7,513.00                                                    | 14.70           | 107.60      | 7,509.99              | -77.78       | 13.48        | -73.66                  | 10.89                   | 9.35                   | -24.52                |
| 7,545.00                                                    | 17.70           | 102.70      | 7,540.72              | -80.08       | 22.10        | -74.23                  | 10.29                   | 9.38                   | -15.31                |
| 7,576.00                                                    | 19.10           | 101.80      | 7,570.14              | -82.15       | 31.67        | -74.40                  | 4.61                    | 4.52                   | -2.90                 |
| 7,608.00                                                    | 20.70           | 101.10      | 7,600.22              | -84.31       | 42.34        | -74.44                  | 5.06                    | 5.00                   | -2.19                 |
| 7,639.00                                                    | 23.70           | 102.80      | 7,628.92              | -86.75       | 53.79        | -74.60                  | 9.90                    | 9.68                   | 5.48                  |
| 7,671.00                                                    | 26.60           | 104.60      | 7,657.89              | -89.98       | 67.00        | -75.19                  | 9.37                    | 9.06                   | 5.63                  |
| 7,702.00                                                    | 28.10           | 109.40      | 7,685.42              | -94.15       | 80.61        | -76.63                  | 8.60                    | 4.84                   | 15.48                 |
| 7,733.00                                                    | 30.50           | 110.20      | 7,712.46              | -99.29       | 94.88        | -78.90                  | 7.84                    | 7.74                   | 2.58                  |
| 7,765.00                                                    | 33.80           | 109.80      | 7,739.55              | -105.12      | 110.88       | -81.49                  | 10.33                   | 10.31                  | -1.25                 |
| 7,797.00                                                    | 36.60           | 109.30      | 7,765.69              | -111.28      | 128.26       | -84.15                  | 8.80                    | 8.75                   | -1.56                 |
| 7,828.00                                                    | 38.70           | 108.20      | 7,790.24              | -117.37      | 146.19       | -86.62                  | 7.11                    | 6.77                   | -3.55                 |
| 7,860.00                                                    | 41.80           | 106.30      | 7,814.66              | -123.49      | 165.94       | -88.77                  | 10.42                   | 9.69                   | -5.94                 |
| 7,891.00                                                    | 45.00           | 103.70      | 7,837.18              | -128.98      | 186.51       | -90.16                  | 11.82                   | 10.32                  | -8.39                 |
| 7,923.00                                                    | 45.80           | 101.20      | 7,859.65              | -133.89      | 208.75       | -90.63                  | 6.10                    | 2.50                   | -7.81                 |
| 7,954.00                                                    | 45.60           | 98.90       | 7,881.30              | -137.76      | 230.60       | -90.17                  | 5.35                    | -0.65                  | -7.42                 |
| 7,986.00                                                    | 45.50           | 98.40       | 7,903.71              | -141.20      | 253.18       | -89.14                  | 1.16                    | -0.31                  | -1.56                 |
| 8,017.00                                                    | 45.50           | 98.20       | 7,925.44              | -144.39      | 275.06       | -88.01                  | 0.46                    | 0.00                   | -0.65                 |
| 8,049.00                                                    | 45.30           | 98.00       | 7,947.91              | -147.60      | 297.62       | -86.76                  | 0.77                    | -0.63                  | -0.63                 |
| 8,080.00                                                    | 44.30           | 97.20       | 7,969.91              | -150.49      | 319.27       | -85.37                  | 3.70                    | -3.23                  | -2.58                 |

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**Database:** Conroe Server

**Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N-S (usft) | +E-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|-----------------------|-----------------|-------------|-----------------------|-------------|-------------|-------------------------|-------------------------|------------------------|-----------------------|
| 8,112.00              | 43.60           | 94.80       | 7,992.95              | -152.82     | 341.35      | -83.35                  | 5.65                    | -2.19                  | -7.50                 |
| 8,143.00              | 44.80           | 90.70       | 8,015.17              | -153.84     | 362.93      | -80.15                  | 10.00                   | 3.87                   | -13.23                |
| 8,175.00              | 45.60           | 86.60       | 8,037.73              | -153.30     | 385.62      | -75.20                  | 9.43                    | 2.50                   | -12.81                |
| 8,206.00              | 47.70           | 83.30       | 8,059.01              | -151.31     | 408.07      | -68.87                  | 10.28                   | 6.77                   | -10.65                |
| 8,237.00              | 50.00           | 79.90       | 8,079.41              | -147.89     | 431.15      | -61.01                  | 11.10                   | 7.42                   | -10.97                |
| 8,269.00              | 51.30           | 75.60       | 8,099.70              | -142.63     | 455.32      | -51.15                  | 11.16                   | 4.06                   | -13.44                |
| 8,300.00              | 51.00           | 71.80       | 8,119.15              | -135.86     | 478.48      | -39.99                  | 9.59                    | -0.97                  | -12.26                |
| 8,332.00              | 51.00           | 68.90       | 8,139.30              | -127.50     | 501.90      | -27.22                  | 7.04                    | 0.00                   | -9.06                 |
| 8,364.00              | 51.70           | 65.90       | 8,159.28              | -117.89     | 524.96      | -13.31                  | 7.64                    | 2.19                   | -9.38                 |
| 8,395.00              | 52.20           | 62.20       | 8,178.39              | -107.21     | 546.91      | 1.45                    | 9.54                    | 1.61                   | -11.94                |
| 8,427.00              | 53.60           | 58.30       | 8,197.70              | -94.54      | 569.05      | 18.19                   | 10.66                   | 4.38                   | -12.19                |
| 8,458.00              | 54.60           | 55.30       | 8,215.88              | -80.79      | 590.06      | 35.77                   | 8.48                    | 3.23                   | -9.68                 |
| 8,490.00              | 55.10           | 50.80       | 8,234.31              | -65.07      | 610.96      | 55.27                   | 11.60                   | 1.56                   | -14.06                |
| 8,521.00              | 54.80           | 47.20       | 8,252.12              | -48.43      | 630.11      | 75.32                   | 9.56                    | -0.97                  | -11.61                |
| 8,553.00              | 55.20           | 44.20       | 8,270.48              | -30.12      | 648.86      | 96.93                   | 7.78                    | 1.25                   | -9.38                 |
| 8,585.00              | 56.30           | 40.80       | 8,288.49              | -10.62      | 666.72      | 119.54                  | 9.43                    | 3.44                   | -10.63                |
| 8,616.00              | 56.70           | 37.00       | 8,305.60              | 9.49        | 682.95      | 142.43                  | 10.30                   | 1.29                   | -12.26                |
| 8,648.00              | 57.60           | 33.90       | 8,322.96              | 31.39       | 698.54      | 166.95                  | 8.61                    | 2.81                   | -9.69                 |
| 8,679.00              | 58.60           | 31.60       | 8,339.35              | 53.52       | 712.77      | 191.43                  | 7.08                    | 3.23                   | -7.42                 |
| 8,711.00              | 59.90           | 29.50       | 8,355.71              | 77.21       | 726.74      | 217.38                  | 6.95                    | 4.06                   | -6.56                 |
| 8,742.00              | 62.20           | 26.50       | 8,370.72              | 101.15      | 739.47      | 243.35                  | 11.26                   | 7.42                   | -9.68                 |
| 8,774.00              | 64.50           | 23.20       | 8,385.07              | 127.10      | 751.48      | 271.14                  | 11.69                   | 7.19                   | -10.31                |
| 8,805.00              | 66.40           | 21.00       | 8,397.95              | 153.23      | 762.08      | 298.83                  | 8.90                    | 6.13                   | -7.10                 |
| 8,837.00              | 68.30           | 19.70       | 8,410.28              | 180.92      | 772.35      | 327.99                  | 7.02                    | 5.94                   | -4.06                 |
| 8,868.00              | 70.40           | 18.70       | 8,421.21              | 208.31      | 781.89      | 356.72                  | 7.42                    | 6.77                   | -3.23                 |
| 8,900.00              | 73.10           | 18.00       | 8,431.23              | 237.15      | 791.45      | 386.87                  | 8.69                    | 8.44                   | -2.19                 |
| 8,931.00              | 75.40           | 17.10       | 8,439.64              | 265.60      | 800.45      | 416.52                  | 7.93                    | 7.42                   | -2.90                 |
| 8,963.00              | 77.50           | 16.50       | 8,447.14              | 295.38      | 809.44      | 447.49                  | 6.81                    | 6.56                   | -1.88                 |
| 8,994.00              | 79.60           | 14.20       | 8,453.29              | 324.67      | 817.48      | 477.79                  | 9.94                    | 6.77                   | -7.42                 |
| 9,026.00              | 81.70           | 12.20       | 8,458.49              | 355.41      | 824.68      | 509.34                  | 9.01                    | 6.56                   | -6.25                 |
| 9,057.00              | 83.90           | 10.10       | 8,462.38              | 385.58      | 830.63      | 540.09                  | 9.77                    | 7.10                   | -6.77                 |
| 9,089.00              | 85.40           | 8.90        | 8,465.36              | 417.00      | 835.89      | 571.94                  | 5.99                    | 4.69                   | -3.75                 |
| 9,120.00              | 87.30           | 8.30        | 8,467.34              | 447.59      | 840.51      | 602.84                  | 6.43                    | 6.13                   | -1.94                 |
| 9,151.00              | 88.80           | 6.40        | 8,468.39              | 478.32      | 844.47      | 633.75                  | 7.81                    | 4.84                   | -6.13                 |
| 9,214.00              | 89.90           | 4.80        | 8,469.11              | 541.01      | 850.62      | 696.44                  | 3.08                    | 1.75                   | -2.54                 |
| 9,308.00              | 88.70           | 4.30        | 8,470.25              | 634.70      | 858.08      | 789.79                  | 1.38                    | -1.28                  | -0.53                 |
| 9,403.00              | 89.50           | 4.00        | 8,471.75              | 729.44      | 864.95      | 884.05                  | 0.90                    | 0.84                   | -0.32                 |
| 9,498.00              | 86.90           | 3.70        | 8,474.73              | 824.17      | 871.33      | 978.20                  | 2.75                    | -2.74                  | -0.32                 |
| 9,593.00              | 87.30           | 3.40        | 8,479.54              | 918.87      | 877.20      | 1,072.23                | 0.53                    | 0.42                   | -0.32                 |
| 9,687.00              | 88.30           | 3.20        | 8,483.14              | 1,012.64    | 882.61      | 1,165.26                | 1.08                    | 1.06                   | -0.21                 |
| 9,782.00              | 88.30           | 4.70        | 8,485.96              | 1,107.37    | 889.15      | 1,259.45                | 1.58                    | 0.00                   | 1.58                  |
| 9,877.00              | 90.10           | 5.00        | 8,487.29              | 1,202.02    | 897.18      | 1,353.84                | 1.92                    | 1.89                   | 0.32                  |
| 9,971.00              | 91.60           | 6.20        | 8,485.89              | 1,295.56    | 906.35      | 1,447.37                | 2.04                    | 1.60                   | 1.28                  |
| 10,065.00             | 89.50           | 2.80        | 8,484.99              | 1,389.24    | 913.73      | 1,540.70                | 4.25                    | -2.23                  | -3.62                 |



# MS Energy Services Survey Report



**Company:** XTO Energy  
**Project:** Eddy County, New Mexico (NAD 27)  
**Site:** Corral Canyon Federal  
**Well:** 1H  
**Wellbore:** Wellbore #1  
**Design:** Surveys

**Local Co-ordinate Reference:** Well 1H  
**TVD Reference:** WELL @ 2937.00usft (Noram 25)  
**MD Reference:** WELL @ 2937.00usft (Noram 25)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Conroe Server

## Survey

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 10,160.00             | 89.40           | 3.70        | 8,485.90              | 1,484.09     | 919.11       | 1,634.77                | 0.95                    | -0.11                  | 0.95                  |
| 10,255.00             | 90.40           | 6.10        | 8,486.07              | 1,578.73     | 927.22       | 1,729.18                | 2.74                    | 1.05                   | 2.53                  |
| 10,349.00             | 90.90           | 6.40        | 8,485.00              | 1,672.16     | 937.46       | 1,822.82                | 0.62                    | 0.53                   | 0.32                  |
| 10,443.00             | 90.30           | 4.30        | 8,484.02              | 1,765.74     | 946.22       | 1,916.31                | 2.32                    | -0.64                  | -2.23                 |
| 10,538.00             | 91.20           | 4.60        | 8,482.78              | 1,860.45     | 953.59       | 2,010.64                | 1.00                    | 0.95                   | 0.32                  |
| 10,633.00             | 90.30           | 4.20        | 8,481.53              | 1,955.16     | 960.88       | 2,104.95                | 1.04                    | -0.95                  | -0.42                 |
| 10,727.00             | 90.90           | 3.90        | 8,480.55              | 2,048.92     | 967.52       | 2,198.21                | 0.71                    | 0.64                   | -0.32                 |
| 10,822.00             | 89.60           | 3.70        | 8,480.13              | 2,143.71     | 973.81       | 2,292.40                | 1.38                    | -1.37                  | -0.21                 |
| 10,916.00             | 89.20           | 4.30        | 8,481.12              | 2,237.47     | 980.37       | 2,385.65                | 0.77                    | -0.43                  | 0.64                  |
| 11,010.00             | 89.90           | 3.60        | 8,481.86              | 2,331.25     | 986.84       | 2,478.89                | 1.05                    | 0.74                   | -0.74                 |
| 11,105.00             | 89.50           | 3.90        | 8,482.35              | 2,426.04     | 993.06       | 2,573.07                | 0.53                    | -0.42                  | 0.32                  |
| 11,199.00             | 88.50           | 3.70        | 8,483.99              | 2,519.82     | 999.29       | 2,666.27                | 1.08                    | -1.06                  | -0.21                 |
| 11,294.00             | 88.30           | 6.30        | 8,486.65              | 2,614.41     | 1,007.56     | 2,760.66                | 2.74                    | -0.21                  | 2.74                  |
| 11,388.00             | 88.90           | 5.90        | 8,488.94              | 2,707.85     | 1,017.55     | 2,854.25                | 0.77                    | 0.64                   | -0.43                 |
| 11,483.00             | 90.20           | 6.50        | 8,489.69              | 2,802.29     | 1,027.81     | 2,948.88                | 1.51                    | 1.37                   | 0.63                  |
| 11,578.00             | 91.00           | 6.20        | 8,488.69              | 2,896.70     | 1,038.31     | 3,043.53                | 0.90                    | 0.84                   | -0.32                 |
| 11,672.00             | 91.80           | 6.20        | 8,486.40              | 2,990.12     | 1,048.46     | 3,137.14                | 0.85                    | 0.85                   | 0.00                  |
| 11,766.00             | 90.50           | 5.10        | 8,484.51              | 3,083.64     | 1,057.71     | 3,230.67                | 1.81                    | -1.38                  | -1.17                 |
| 11,862.00             | 91.20           | 5.00        | 8,483.09              | 3,179.26     | 1,066.16     | 3,326.10                | 0.74                    | 0.73                   | -0.10                 |
| 11,956.00             | 90.00           | 6.10        | 8,482.10              | 3,272.81     | 1,075.25     | 3,419.62                | 1.73                    | -1.28                  | 1.17                  |
| 12,050.00             | 89.50           | 5.00        | 8,482.51              | 3,366.37     | 1,084.35     | 3,513.16                | 1.29                    | -0.53                  | -1.17                 |
| 12,145.00             | 89.30           | 4.20        | 8,483.51              | 3,461.06     | 1,091.96     | 3,607.51                | 0.87                    | -0.21                  | -0.84                 |
| 12,239.00             | 89.60           | 4.80        | 8,484.41              | 3,554.76     | 1,099.34     | 3,700.86                | 0.71                    | 0.32                   | 0.64                  |
| 12,334.00             | 88.60           | 5.40        | 8,485.90              | 3,649.37     | 1,107.78     | 3,795.30                | 1.23                    | -1.05                  | 0.63                  |
| 12,428.00             | 88.10           | 4.30        | 8,488.61              | 3,742.99     | 1,115.73     | 3,888.68                | 1.28                    | -0.53                  | -1.17                 |
| 12,523.00             | 89.40           | 5.00        | 8,490.68              | 3,837.66     | 1,123.43     | 3,983.02                | 1.55                    | 1.37                   | 0.74                  |
| 12,617.00             | 89.20           | 5.10        | 8,491.83              | 3,931.28     | 1,131.70     | 4,076.47                | 0.24                    | -0.21                  | 0.11                  |
| 12,712.00             | 88.40           | 5.40        | 8,493.82              | 4,025.86     | 1,140.39     | 4,170.93                | 0.90                    | -0.84                  | 0.32                  |
| 12,807.00             | 89.50           | 5.70        | 8,495.56              | 4,120.40     | 1,149.58     | 4,265.44                | 1.20                    | 1.16                   | 0.32                  |
| 12,902.00             | 91.00           | 5.90        | 8,495.15              | 4,214.91     | 1,159.18     | 4,360.01                | 1.59                    | 1.58                   | 0.21                  |
| 12,996.00             | 91.80           | 5.90        | 8,492.85              | 4,308.39     | 1,168.84     | 4,453.58                | 0.85                    | 0.85                   | 0.00                  |
| 13,091.00             | 92.80           | 5.60        | 8,489.04              | 4,402.83     | 1,178.35     | 4,548.06                | 1.10                    | 1.05                   | -0.32                 |
| 13,185.00             | 91.70           | 5.40        | 8,485.35              | 4,496.32     | 1,187.35     | 4,641.52                | 1.19                    | -1.17                  | -0.21                 |
| 13,280.00             | 91.60           | 5.30        | 8,482.61              | 4,590.87     | 1,196.20     | 4,735.98                | 0.15                    | -0.11                  | -0.11                 |
| 13,374.00             | 91.00           | 4.40        | 8,480.48              | 4,684.51     | 1,204.15     | 4,829.37                | 1.15                    | -0.64                  | -0.96                 |
| 13,469.00             | 89.60           | 3.60        | 8,479.98              | 4,779.27     | 1,210.77     | 4,923.61                | 1.70                    | -1.47                  | -0.84                 |
| 13,564.00             | 90.10           | 3.30        | 8,480.23              | 4,874.10     | 1,216.49     | 5,017.73                | 0.61                    | 0.53                   | -0.32                 |
| 13,658.00             | 90.50           | 4.00        | 8,479.74              | 4,967.91     | 1,222.48     | 5,110.90                | 0.86                    | 0.43                   | 0.74                  |
| 13,753.00             | 90.00           | 4.30        | 8,479.32              | 5,062.66     | 1,229.35     | 5,205.17                | 0.61                    | -0.53                  | 0.32                  |
| 13,847.00             | 89.30           | 5.30        | 8,479.90              | 5,156.32     | 1,237.22     | 5,298.58                | 1.30                    | -0.74                  | 1.06                  |
| 13,942.00             | 90.20           | 5.00        | 8,480.31              | 5,250.94     | 1,245.74     | 5,393.04                | 1.00                    | 0.95                   | -0.32                 |
| 14,036.00             | 89.00           | 6.50        | 8,480.97              | 5,344.46     | 1,255.16     | 5,486.60                | 2.04                    | -1.28                  | 1.60                  |
| 14,131.00             | 89.80           | 6.20        | 8,481.96              | 5,438.87     | 1,265.67     | 5,581.25                | 0.90                    | 0.84                   | -0.32                 |

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Project: Eddy County, New Mexico (NAD 27)  
Site: Corral Canyon Federal  
Well: 1H  
Wellbore: Wellbore #1  
Design: Surveys

Local Co-ordinate Reference: Well 1H  
TVD Reference: WELL @ 2937.00usft (Noram 25)  
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Survey Calculation Method: Minimum Curvature  
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Survey

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 14,225.00             | 88.90           | 5.60        | 8,483.03              | 5,532.36     | 1,275.33     | 5,674.84                | 1.15                    | -0.96                  | -0.64                 |
| 14,320.00             | 89.70           | 5.50        | 8,484.19              | 5,626.91     | 1,284.52     | 5,769.36                | 0.85                    | 0.84                   | -0.11                 |
| 14,414.00             | 90.30           | 4.80        | 8,484.19              | 5,720.53     | 1,292.95     | 5,862.83                | 0.98                    | 0.64                   | -0.74                 |
| 14,509.00             | 89.10           | 5.80        | 8,484.69              | 5,815.12     | 1,301.73     | 5,957.31                | 1.64                    | -1.26                  | 1.05                  |
| 14,604.00             | 89.70           | 5.50        | 8,485.68              | 5,909.65     | 1,311.08     | 6,051.86                | 0.71                    | 0.63                   | -0.32                 |
| 14,699.00             | 90.70           | 5.00        | 8,485.35              | 6,004.25     | 1,319.77     | 6,146.34                | 1.18                    | 1.05                   | -0.53                 |
| 14,793.00             | 90.10           | 5.30        | 8,484.69              | 6,097.87     | 1,328.21     | 6,239.80                | 0.71                    | -0.64                  | 0.32                  |
| 14,911.00             | 89.30           | 4.70        | 8,485.31              | 6,215.42     | 1,338.49     | 6,357.10                | 0.85                    | -0.68                  | -0.51                 |
| 15,005.00             | 90.70           | 5.50        | 8,485.31              | 6,309.04     | 1,346.85     | 6,450.56                | 1.72                    | 1.49                   | 0.85                  |
| 15,100.00             | 90.40           | 5.50        | 8,484.40              | 6,403.60     | 1,355.95     | 6,545.08                | 0.32                    | -0.32                  | 0.00                  |
| 15,194.00             | 90.40           | 4.90        | 8,483.74              | 6,497.21     | 1,364.47     | 6,638.55                | 0.64                    | 0.00                   | -0.64                 |
| 15,289.00             | 91.60           | 5.40        | 8,482.09              | 6,591.81     | 1,373.00     | 6,733.00                | 1.37                    | 1.26                   | 0.53                  |
| 15,384.00             | 90.70           | 5.10        | 8,480.18              | 6,686.39     | 1,381.69     | 6,827.46                | 1.00                    | -0.95                  | -0.32                 |
| 15,478.00             | 89.90           | 5.40        | 8,479.69              | 6,780.00     | 1,390.29     | 6,920.95                | 0.91                    | -0.85                  | 0.32                  |
| 15,572.00             | 88.80           | 5.70        | 8,480.75              | 6,873.55     | 1,399.38     | 7,014.47                | 1.21                    | -1.17                  | 0.32                  |
| 15,667.00             | 89.80           | 5.90        | 8,481.91              | 6,968.05     | 1,408.98     | 7,109.04                | 1.07                    | 1.05                   | 0.21                  |
| 15,762.00             | 90.80           | 5.90        | 8,481.42              | 7,062.55     | 1,418.75     | 7,203.62                | 1.05                    | 1.05                   | 0.00                  |
| 15,856.00             | 89.20           | 5.90        | 8,481.42              | 7,156.05     | 1,428.41     | 7,297.21                | 1.70                    | -1.70                  | 0.00                  |
| 15,951.00             | 90.00           | 5.30        | 8,482.08              | 7,250.59     | 1,437.68     | 7,391.75                | 1.05                    | 0.84                   | -0.63                 |
| 16,045.00             | 91.00           | 5.30        | 8,481.26              | 7,344.18     | 1,446.36     | 7,485.24                | 1.06                    | 1.06                   | 0.00                  |
| 16,129.00             | 92.10           | 5.30        | 8,478.99              | 7,427.79     | 1,454.12     | 7,568.76                | 1.31                    | 1.31                   | 0.00                  |
| 16,185.00             | 92.10           | 5.30        | 8,476.94              | 7,483.51     | 1,459.29     | 7,624.42                | 0.00                    | 0.00                   | 0.00                  |

Projection to TD - 16185.00' MD

Design Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates |              | Comment                          |
|-----------------------|-----------------------|-------------------|--------------|----------------------------------|
|                       |                       | +N/-S (usft)      | +E/-W (usft) |                                  |
| 7,250.00              | 7,248.81              | -63.26            | -0.22        | Final Gyro - 7250.00' MD         |
| 7,250.00              | 7,248.81              | -63.26            | -0.22        | Tie-In to Gyrodata - 7250.00' MD |
| 16,185.00             | 8,476.94              | 7,483.51          | 1,459.29     | Projection to TD - 16185.00' MD  |