

# **PDC ENERGY**

**WELD COUNTY, COLORADO**

**NE SE SEC. 24 T4N R67W 6th P.M.**

**BERNHARDT FARMS 13W-403**

**JOB # 2015-019-135**

**08 April, 2015**

**Survey: FINAL SURVEYS**





Project: WELD COUNTY, COLORADO  
Site: NE SE SEC. 24 T4N R67W 6th P.M.  
Well: BERNHARDT FARMS 13W-403  
Wellbore: JOB # 2015-019-135  
Design: FINAL SURVEYS

#### ANNOTATIONS

| TVD    | MD      | Inc   | Azi    | +N/-S   | +E/-W | VSect  | Dep    | Annotation                |
|--------|---------|-------|--------|---------|-------|--------|--------|---------------------------|
| 931.3  | 932.0   | 1.45  | 23.29  | -16.9   | -1.7  | 16.8   | 28.7   | SURFACE CASING            |
| 6451.6 | 6480.0  | 0.60  | 163.20 | 7.4     | 507.1 | 29.9   | 550.5  | KOP                       |
| 7244.3 | 7748.0  | 86.21 | 177.83 | -809.3  | 565.7 | 848.6  | 1370.1 | ICP                       |
| 7244.9 | 14281.0 | 89.90 | 177.00 | -7339.0 | 597.0 | 7363.1 | 7902.4 | LAST SURVEY - APR 8, 2015 |
| 7245.0 | 14376.0 | 89.90 | 177.00 | -7433.9 | 602.0 | 7458.0 | 7997.4 | EXTRAPOLATION TO TD       |

#### AS DRILLED LOCAL COORDINATES:

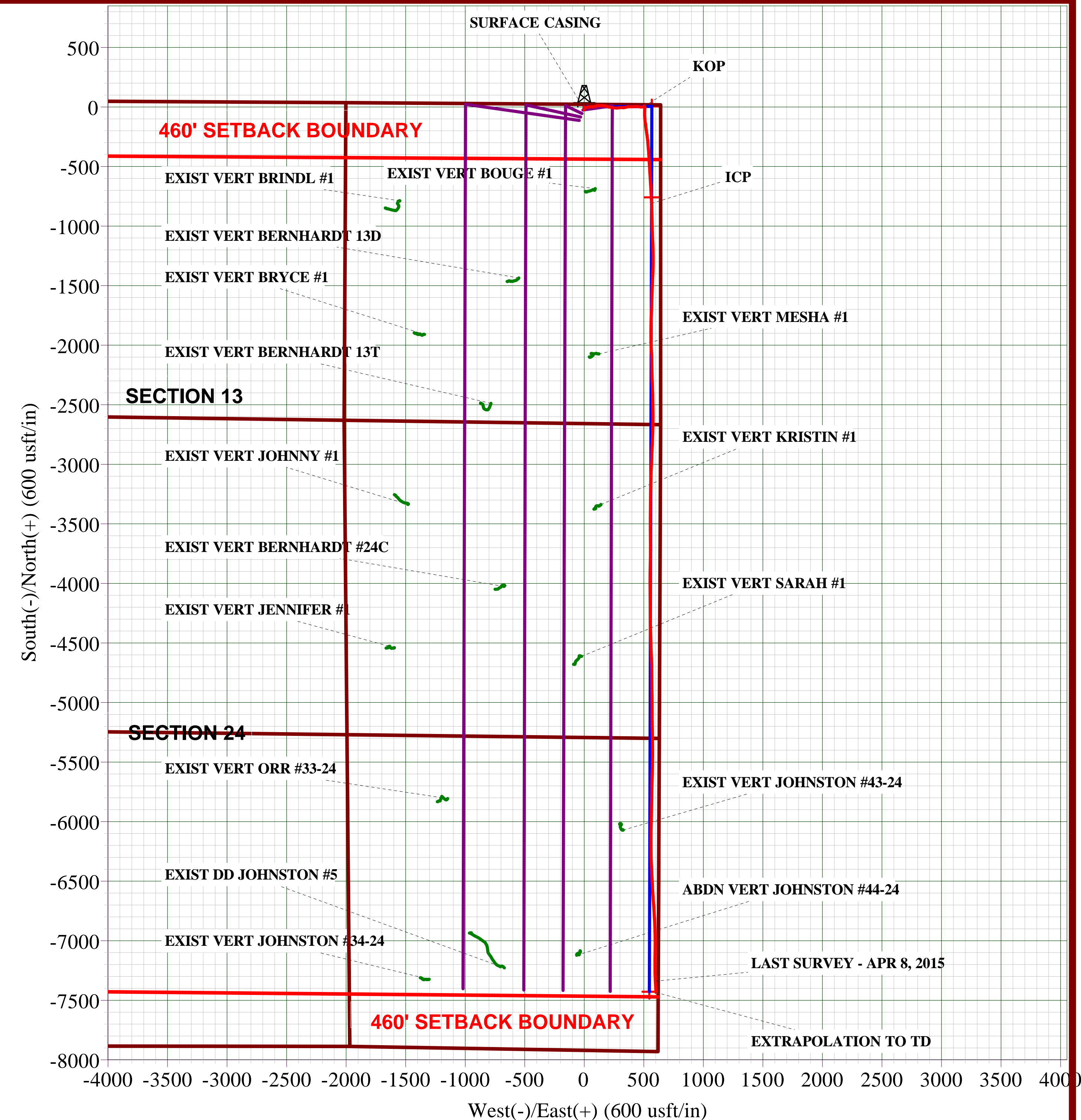
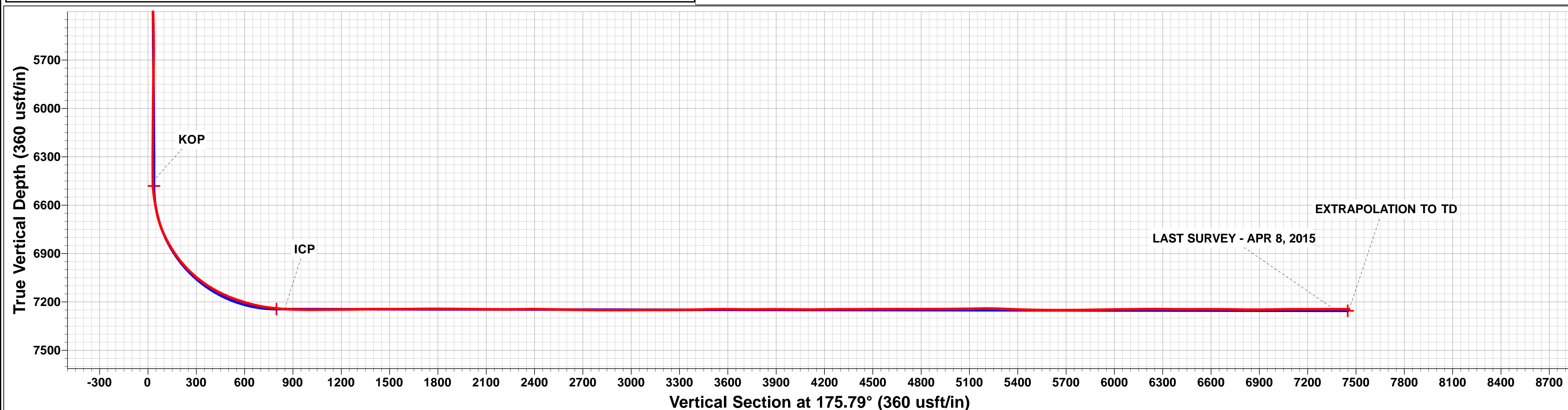
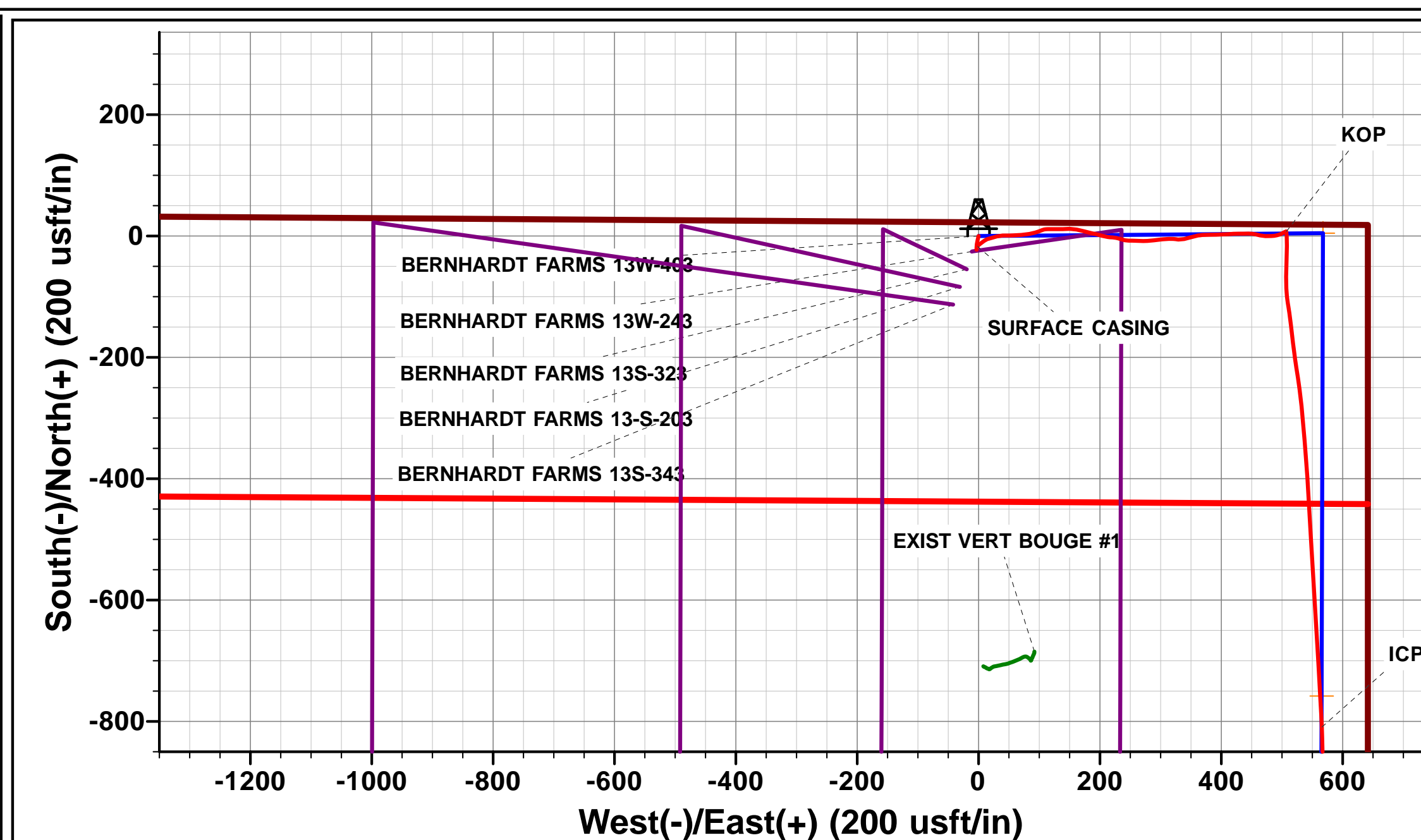
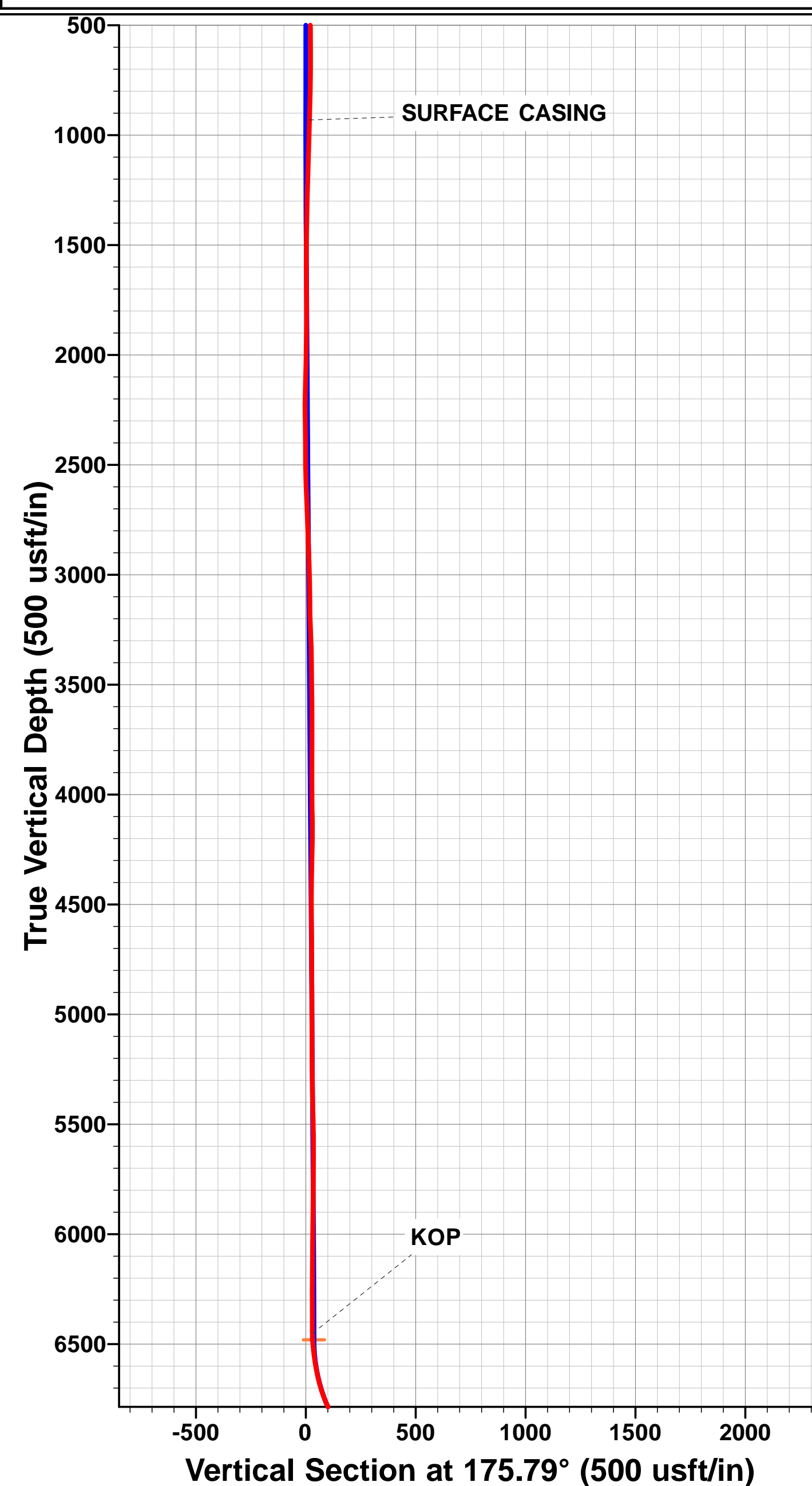
SHL: 2663ft FSL & 640ft FEL Sec 13

7" ICP \*NEW\* :1858.6ft FSL & 74.7ft FEL Sec 13

BHL: 505.7ft FSL & 19.6ft FEL Sec 24

#### WELLBORE TARGET DETAILS (LAT/LONG)

| Name                                   | TVD    | +N/-S   | +E/-W | Latitude  | Longitude   |
|--|--------|---------|-------|-----------|-------------|
| 7" ICP *NEW* - BERNHARDT FARMS 13W-403 | 7244.5 | -758.1  | 565.4 | 40.309689 | -104.829973 |
| BHL - BERNHARDT FARMS 13W-403          | 7255.0 | -7428.2 | 546.8 | 40.291380 | -104.830040 |
| KOP - BERNHARDT FARMS 13W-403          | 6480.6 | 4.6     | 567.5 | 40.311783 | -104.829965 |



## Survey Report



|                  |                                 |                                     |                              |
|------------------|---------------------------------|-------------------------------------|------------------------------|
| <b>Company:</b>  | PDC ENERGY                      | <b>Local Co-ordinate Reference:</b> | Well BERNHARDT FARMS 13W-403 |
| <b>Project:</b>  | WELD COUNTY, COLORADO           | <b>TVD Reference:</b>               | KB @ 4750.0usft (ENS 135)    |
| <b>Site:</b>     | NE SE SEC. 24 T4N R67W 6th P.M. | <b>MD Reference:</b>                | KB @ 4750.0usft (ENS 135)    |
| <b>Well:</b>     | BERNHARDT FARMS 13W-403         | <b>North Reference:</b>             | True                         |
| <b>Wellbore:</b> | JOB # 2015-019-135              | <b>Survey Calculation Method:</b>   | Minimum Curvature            |
| <b>Design:</b>   | FINAL SURVEYS                   | <b>Database:</b>                    | EDM 5000.1 Single User Db    |

|                    |                           |                      |                             |
|--------------------|---------------------------|----------------------|-----------------------------|
| <b>Project</b>     | WELD COUNTY, COLORADO     |                      |                             |
| <b>Map System:</b> | US State Plane 1983       | <b>System Datum:</b> | Mean Sea Level              |
| <b>Geo Datum:</b>  | North American Datum 1983 |                      |                             |
| <b>Map Zone:</b>   | Colorado Northern Zone    |                      | Using geodetic scale factor |

|                       |                                 |              |                   |                   |             |
|-----------------------|---------------------------------|--------------|-------------------|-------------------|-------------|
| Site                  | NE SE SEC. 24 T4N R67W 6th P.M. |              |                   |                   |             |
| Site Position:        |                                 | Northing:    | 1,357,007.19 usft | Latitude:         | 40.311460   |
| From:                 | Lat/Long                        | Easting:     | 3,186,244.30 usft | Longitude:        | -104.832150 |
| Position Uncertainty: | 0.0 usft                        | Slot Radius: | 1.10000 ft        | Grid Convergence: | 0.43 °      |

| Well                 | BERNHARDT FARMS 13W-403 |          |                     |                   |               |              |
|----------------------|-------------------------|----------|---------------------|-------------------|---------------|--------------|
| Well Position        | +N/-S                   | 0.0 usft | Northing:           | 1,357,120.42 usft | Latitude:     | 40.311770    |
|                      | +E/-W                   | 0.0 usft | Easting:            | 3,186,285.28 usft | Longitude:    | -104.832000  |
| Position Uncertainty |                         | 0.0 usft | Wellhead Elevation: | usft              | Ground Level: | 4,737.0 usft |

|                  |                    |                    |                        |                      |                            |
|------------------|--------------------|--------------------|------------------------|----------------------|----------------------------|
| <b>Wellbore</b>  | JOB # 2015-019-135 |                    |                        |                      |                            |
| <b>Magnetics</b> | <b>Model Name</b>  | <b>Sample Date</b> | <b>Declination (°)</b> | <b>Dip Angle (°)</b> | <b>Field Strength (nT)</b> |
|                  | IGRF2015           | 25/03/2015         | 8.48                   | 66.83                | 52,594                     |

| Design            | FINAL SURVEYS              |                 |                 |                  |     |
|-------------------|----------------------------|-----------------|-----------------|------------------|-----|
| Audit Notes:      |                            |                 |                 |                  |     |
| Version:          | 1.0                        | Phase:          | ACTUAL          | Tie On Depth:    | 0.0 |
| Vertical Section: | Depth From (TVD)<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Direction<br>(°) |     |
|                   | 0.0                        | 0.0             | 0.0             | 175.79           |     |

|                       |                  |                                    |                  |                    |  |
|-----------------------|------------------|------------------------------------|------------------|--------------------|--|
| <b>Survey Program</b> | <b>Date</b>      | 08/04/2015                         |                  |                    |  |
| <b>From (usft)</b>    | <b>To (usft)</b> | <b>Survey (Wellbore)</b>           | <b>Tool Name</b> | <b>Description</b> |  |
| 47.0                  | 14,376.0         | FINAL SURVEYS (JOB # 2015-019-135) | MWD              | MWD - Standard     |  |

|                              |                        |                    |                              |                            |                     |                     |                                |                                |                               |                              |
|------------------------------|------------------------|--------------------|------------------------------|----------------------------|---------------------|---------------------|--------------------------------|--------------------------------|-------------------------------|------------------------------|
| <b>Survey</b>                |                        |                    |                              |                            |                     |                     |                                |                                |                               |                              |
| <b>Measured Depth (usft)</b> | <b>Inclination (°)</b> | <b>Azimuth (°)</b> | <b>Vertical Depth (usft)</b> | <b>Subsea Depth (usft)</b> | <b>+N/-S (usft)</b> | <b>+E/-W (usft)</b> | <b>Vertical Section (usft)</b> | <b>Dogleg Rate (°/100usft)</b> | <b>Build Rate (°/100usft)</b> | <b>Turn Rate (°/100usft)</b> |
| 0.0                          | 0.00                   | 0.00               | 0.0                          | 4,750.0                    | 0.0                 | 0.0                 | 0.0                            | 0.00                           | 0.00                          | 0.00                         |
| 47.0                         | 2.77                   | 195.51             | 47.0                         | 4,703.0                    | -1.1                | -0.3                | 1.1                            | 5.89                           | 5.89                          | 0.00                         |
| 140.0                        | 4.40                   | 191.10             | 139.8                        | 4,610.2                    | -6.8                | -1.6                | 6.6                            | 1.78                           | 1.75                          | -4.74                        |
| 234.0                        | 3.40                   | 190.70             | 233.6                        | 4,516.4                    | -13.0               | -2.8                | 12.8                           | 1.06                           | -1.06                         | -0.43                        |
| 328.0                        | 2.00                   | 173.40             | 327.5                        | 4,422.5                    | -17.4               | -3.1                | 17.1                           | 1.71                           | -1.49                         | -18.40                       |
| 421.0                        | 1.50                   | 192.40             | 420.4                        | 4,329.6                    | -20.2               | -3.2                | 19.9                           | 0.82                           | -0.54                         | 20.43                        |
| 515.0                        | 0.40                   | 158.10             | 514.4                        | 4,235.6                    | -21.7               | -3.3                | 21.4                           | 1.27                           | -1.17                         | -36.49                       |
| 608.0                        | 0.30                   | 207.60             | 607.4                        | 4,142.6                    | -22.2               | -3.3                | 21.9                           | 0.33                           | -0.11                         | 53.23                        |
| 702.0                        | 0.70                   | 15.00              | 701.4                        | 4,048.6                    | -21.9               | -3.3                | 21.6                           | 1.06                           | 0.43                          | 178.09                       |
| 795.0                        | 1.20                   | 18.50              | 794.4                        | 3,955.6                    | -20.4               | -2.9                | 20.2                           | 0.54                           | 0.54                          | 3.76                         |
| 889.0                        | 1.80                   | 16.60              | 888.4                        | 3,861.6                    | -18.1               | -2.1                | 17.9                           | 0.64                           | 0.64                          | -2.02                        |
| <b>SURFACE CASING</b>        |                        |                    |                              |                            |                     |                     |                                |                                |                               |                              |
| 932.0                        | 1.45                   | 23.29              | 931.3                        | 3,818.7                    | -16.9               | -1.7                | 16.8                           | 0.92                           | -0.81                         | 15.57                        |

## Survey Report



|                  |                                 |                                     |                              |
|------------------|---------------------------------|-------------------------------------|------------------------------|
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| <b>Site:</b>     | NE SE SEC. 24 T4N R67W 6th P.M. | <b>MD Reference:</b>                | KB @ 4750.0usft (ENS 135)    |
| <b>Well:</b>     | BERNHARDT FARMS 13W-403         | <b>North Reference:</b>             | True                         |
| <b>Wellbore:</b> | JOB # 2015-019-135              | <b>Survey Calculation Method:</b>   | Minimum Curvature            |
| <b>Design:</b>   | FINAL SURVEYS                   | <b>Database:</b>                    | EDM 5000.1 Single User Db    |

| Survey                |                 |             |                       |                     |              |              |                         |                         |                        |                       |
|-----------------------|-----------------|-------------|-----------------------|---------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | Subsea Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 952.0                 | 1.30            | 27.60       | 951.3                 | 3,798.7             | -16.5        | -1.5         | 16.3                    | 0.92                    | -0.76                  | 21.53                 |
| 1,015.0               | 3.30            | 52.10       | 1,014.3               | 3,735.7             | -14.7        | 0.3          | 14.7                    | 3.47                    | 3.17                   | 38.89                 |
| 1,108.0               | 3.70            | 53.30       | 1,107.1               | 3,642.9             | -11.3        | 4.8          | 11.6                    | 0.44                    | 0.43                   | 1.29                  |
| 1,202.0               | 3.30            | 52.30       | 1,200.9               | 3,549.1             | -7.8         | 9.4          | 8.5                     | 0.43                    | -0.43                  | -1.06                 |
| 1,295.0               | 3.60            | 69.50       | 1,293.8               | 3,456.2             | -5.2         | 14.2         | 6.2                     | 1.15                    | 0.32                   | 18.49                 |
| 1,389.0               | 5.70            | 77.20       | 1,387.5               | 3,362.5             | -3.1         | 21.5         | 4.7                     | 2.33                    | 2.23                   | 8.19                  |
| 1,483.0               | 5.20            | 68.90       | 1,481.0               | 3,269.0             | -0.5         | 30.0         | 2.7                     | 0.99                    | -0.53                  | -8.83                 |
| 1,576.0               | 7.10            | 90.80       | 1,573.5               | 3,176.5             | 0.9          | 39.7         | 2.0                     | 3.21                    | 2.04                   | 23.55                 |
| 1,670.0               | 6.80            | 89.10       | 1,666.8               | 3,083.2             | 0.9          | 51.1         | 2.9                     | 0.39                    | -0.32                  | -1.81                 |
| 1,763.0               | 6.80            | 87.60       | 1,759.2               | 2,990.8             | 1.2          | 62.1         | 3.3                     | 0.19                    | 0.00                   | -1.61                 |
| 1,857.0               | 6.40            | 82.90       | 1,852.5               | 2,897.5             | 2.1          | 72.9         | 3.3                     | 0.71                    | -0.43                  | -5.00                 |
| 1,951.0               | 6.20            | 80.10       | 1,946.0               | 2,804.0             | 3.6          | 83.1         | 2.5                     | 0.39                    | -0.21                  | -2.98                 |
| 2,044.0               | 6.00            | 77.00       | 2,038.5               | 2,711.5             | 5.6          | 92.7         | 1.3                     | 0.41                    | -0.22                  | -3.33                 |
| 2,138.0               | 7.00            | 65.60       | 2,131.8               | 2,618.2             | 9.0          | 102.8        | -1.5                    | 1.73                    | 1.06                   | -12.13                |
| 2,231.0               | 7.80            | 88.40       | 2,224.1               | 2,525.9             | 11.6         | 114.2        | -3.1                    | 3.25                    | 0.86                   | 24.52                 |
| 2,325.0               | 7.90            | 91.50       | 2,317.2               | 2,432.8             | 11.6         | 127.1        | -2.2                    | 0.46                    | 0.11                   | 3.30                  |
| 2,415.0               | 7.20            | 89.00       | 2,406.4               | 2,343.6             | 11.5         | 138.9        | -1.3                    | 0.86                    | -0.78                  | -2.78                 |
| 2,506.0               | 7.00            | 87.80       | 2,496.7               | 2,253.3             | 11.8         | 150.1        | -0.8                    | 0.27                    | -0.22                  | -1.32                 |
| 2,596.0               | 7.70            | 102.90      | 2,586.0               | 2,164.0             | 10.7         | 161.5        | 1.2                     | 2.27                    | 0.78                   | 16.78                 |
| 2,686.0               | 7.20            | 102.70      | 2,675.2               | 2,074.8             | 8.1          | 172.9        | 4.6                     | 0.56                    | -0.56                  | -0.22                 |
| 2,777.0               | 7.30            | 104.80      | 2,765.5               | 1,984.5             | 5.4          | 184.0        | 8.2                     | 0.31                    | 0.11                   | 2.31                  |
| 2,868.0               | 6.60            | 103.60      | 2,855.8               | 1,894.2             | 2.7          | 194.7        | 11.6                    | 0.79                    | -0.77                  | -1.32                 |
| 2,958.0               | 6.00            | 103.20      | 2,945.3               | 1,804.7             | 0.4          | 204.3        | 14.6                    | 0.67                    | -0.67                  | -0.44                 |
| 3,049.0               | 5.30            | 101.30      | 3,035.9               | 1,714.1             | -1.5         | 213.0        | 17.2                    | 0.80                    | -0.77                  | -2.09                 |
| 3,139.0               | 4.80            | 89.70       | 3,125.5               | 1,624.5             | -2.3         | 220.9        | 18.5                    | 1.26                    | -0.56                  | -12.89                |
| 3,229.0               | 6.20            | 105.20      | 3,215.1               | 1,534.9             | -3.6         | 229.3        | 20.4                    | 2.25                    | 1.56                   | 17.22                 |
| 3,320.0               | 5.40            | 107.40      | 3,305.6               | 1,444.4             | -6.2         | 238.2        | 23.6                    | 0.91                    | -0.88                  | 2.42                  |
| 3,410.0               | 7.10            | 90.40       | 3,395.1               | 1,354.9             | -7.5         | 247.8        | 25.6                    | 2.77                    | 1.89                   | -18.89                |
| 3,501.0               | 6.00            | 91.70       | 3,485.5               | 1,264.5             | -7.6         | 258.2        | 26.6                    | 1.22                    | -1.21                  | 1.43                  |
| 3,591.0               | 6.50            | 94.30       | 3,575.0               | 1,175.0             | -8.2         | 267.9        | 27.8                    | 0.64                    | 0.56                   | 2.89                  |
| 3,681.0               | 6.90            | 84.50       | 3,664.4               | 1,085.6             | -8.0         | 278.4        | 28.4                    | 1.34                    | 0.44                   | -10.89                |
| 3,771.0               | 6.80            | 83.60       | 3,753.7               | 996.3               | -6.9         | 289.1        | 28.1                    | 0.16                    | -0.11                  | -1.00                 |
| 3,861.0               | 6.60            | 84.10       | 3,843.1               | 906.9               | -5.8         | 299.5        | 27.8                    | 0.23                    | -0.22                  | 0.56                  |
| 3,952.0               | 5.90            | 84.80       | 3,933.6               | 816.4               | -4.8         | 309.4        | 27.5                    | 0.77                    | -0.77                  | 0.77                  |
| 4,042.0               | 6.90            | 93.30       | 4,023.0               | 727.0               | -4.7         | 319.4        | 28.2                    | 1.53                    | 1.11                   | 9.44                  |
| 4,133.0               | 5.60            | 98.00       | 4,113.5               | 636.5               | -5.7         | 329.2        | 29.8                    | 1.53                    | -1.43                  | 5.16                  |
| 4,223.0               | 6.90            | 75.40       | 4,202.9               | 547.1               | -4.9         | 338.8        | 29.8                    | 3.06                    | 1.44                   | -25.11                |
| 4,313.0               | 6.40            | 75.70       | 4,292.3               | 457.7               | -2.3         | 348.9        | 27.9                    | 0.56                    | -0.56                  | 0.33                  |
| 4,404.0               | 5.80            | 75.30       | 4,382.8               | 367.2               | 0.1          | 358.3        | 26.2                    | 0.66                    | -0.66                  | -0.44                 |
| 4,494.0               | 7.60            | 86.50       | 4,472.2               | 277.8               | 1.6          | 368.6        | 25.4                    | 2.46                    | 2.00                   | 12.44                 |
| 4,585.0               | 7.20            | 90.00       | 4,562.4               | 187.6               | 2.0          | 380.3        | 25.9                    | 0.66                    | -0.44                  | 3.85                  |
| 4,675.0               | 7.00            | 87.90       | 4,651.8               | 98.2                | 2.2          | 391.4        | 26.5                    | 0.36                    | -0.22                  | -2.33                 |
| 4,766.0               | 6.40            | 87.10       | 4,742.1               | 7.9                 | 2.7          | 402.0        | 26.9                    | 0.67                    | -0.66                  | -0.88                 |
| 4,856.0               | 5.80            | 87.00       | 4,831.6               | -81.6               | 3.2          | 411.6        | 27.1                    | 0.67                    | -0.67                  | -0.11                 |
| 4,947.0               | 4.90            | 84.50       | 4,922.2               | -172.2              | 3.8          | 420.1        | 27.1                    | 1.02                    | -0.99                  | -2.75                 |
| 5,037.0               | 5.80            | 92.70       | 5,011.8               | -261.8              | 3.9          | 428.4        | 27.5                    | 1.31                    | 1.00                   | 9.11                  |
| 5,127.0               | 5.10            | 88.70       | 5,101.4               | -351.4              | 3.8          | 437.0        | 28.3                    | 0.88                    | -0.78                  | -4.44                 |
| 5,218.0               | 4.30            | 87.80       | 5,192.1               | -442.1              | 4.0          | 444.4        | 28.6                    | 0.88                    | -0.88                  | -0.99                 |
| 5,308.0               | 4.00            | 97.70       | 5,281.9               | -531.9              | 3.7          | 450.9        | 29.4                    | 0.86                    | -0.33                  | 11.00                 |
| 5,396.0               | 4.20            | 100.70      | 5,369.7               | -619.7              | 2.7          | 457.1        | 30.8                    | 0.33                    | 0.23                   | 3.41                  |
| 5,486.0               | 4.50            | 105.20      | 5,459.4               | -709.4              | 1.2          | 463.8        | 32.9                    | 0.50                    | 0.33                   | 5.00                  |
| 5,577.0               | 6.90            | 92.90       | 5,549.9               | -799.9              | 0.0          | 472.7        | 34.7                    | 2.94                    | 2.64                   | -13.52                |
| 5,667.0               | 6.00            | 85.50       | 5,639.4               | -889.4              | 0.1          | 482.8        | 35.4                    | 1.36                    | -1.00                  | -8.22                 |

# Survey Report



|                  |                                 |                                     |                              |
|------------------|---------------------------------|-------------------------------------|------------------------------|
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| <b>Well:</b>     | BERNHARDT FARMS 13W-403         | <b>North Reference:</b>             | True                         |
| <b>Wellbore:</b> | JOB # 2015-019-135              | <b>Survey Calculation Method:</b>   | Minimum Curvature            |
| <b>Design:</b>   | FINAL SURVEYS                   | <b>Database:</b>                    | EDM 5000.1 Single User Db    |

| Survey                |                 |               |                       |                     |               |              |                         |                         |                        |                       |
|-----------------------|-----------------|---------------|-----------------------|---------------------|---------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°)   | Vertical Depth (usft) | Subsea Depth (usft) | +N/-S (usft)  | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 5,758.0               | 4.80            | 78.40         | 5,730.0               | -980.0              | 1.2           | 491.2        | 34.9                    | 1.51                    | -1.32                  | -7.80                 |
| 5,848.0               | 2.90            | 67.80         | 5,819.8               | -1,069.8            | 2.8           | 497.0        | 33.7                    | 2.25                    | -2.11                  | -11.78                |
| 5,938.0               | 1.70            | 61.10         | 5,909.7               | -1,159.7            | 4.3           | 500.3        | 32.4                    | 1.36                    | -1.33                  | -7.44                 |
| 6,028.0               | 1.40            | 56.70         | 5,999.7               | -1,249.7            | 5.6           | 502.4        | 31.3                    | 0.36                    | -0.33                  | -4.89                 |
| 6,119.0               | 1.00            | 71.20         | 6,090.6               | -1,340.6            | 6.4           | 504.1        | 30.6                    | 0.55                    | -0.44                  | 15.93                 |
| 6,209.0               | 0.80            | 76.30         | 6,180.6               | -1,430.6            | 6.8           | 505.4        | 30.3                    | 0.24                    | -0.22                  | 5.67                  |
| 6,299.0               | 0.60            | 52.50         | 6,270.6               | -1,520.6            | 7.3           | 506.4        | 29.9                    | 0.39                    | -0.22                  | -26.44                |
| 6,390.0               | 0.20            | 31.80         | 6,361.6               | -1,611.6            | 7.7           | 506.9        | 29.5                    | 0.46                    | -0.44                  | -22.75                |
| <b>KOP</b>            |                 |               |                       |                     |               |              |                         |                         |                        |                       |
| <b>6,480.0</b>        | <b>0.60</b>     | <b>163.20</b> | <b>6,451.6</b>        | <b>-1,701.6</b>     | <b>7.4</b>    | <b>507.1</b> | <b>29.9</b>             | <b>0.83</b>             | <b>0.44</b>            | <b>146.00</b>         |
| 6,570.0               | 8.00            | 175.60        | 6,541.3               | -1,791.3            | 0.7           | 507.7        | 36.6                    | 8.24                    | 8.22                   | 13.78                 |
| 6,661.0               | 10.70           | 179.90        | 6,631.1               | -1,881.1            | -14.1         | 508.2        | 51.3                    | 3.06                    | 2.97                   | 4.73                  |
| 6,751.0               | 18.60           | 182.80        | 6,718.1               | -1,968.1            | -36.8         | 507.5        | 74.0                    | 8.81                    | 8.78                   | 3.22                  |
| 6,842.0               | 27.00           | 179.90        | 6,801.9               | -2,051.9            | -72.0         | 506.8        | 109.0                   | 9.31                    | 9.23                   | -3.19                 |
| 6,933.0               | 33.10           | 171.30        | 6,880.7               | -2,130.7            | -117.3        | 510.6        | 154.5                   | 8.19                    | 6.70                   | -9.45                 |
| 7,023.0               | 39.00           | 173.70        | 6,953.4               | -2,203.4            | -169.8        | 517.5        | 207.3                   | 6.74                    | 6.56                   | 2.67                  |
| 7,113.0               | 47.10           | 171.00        | 7,019.1               | -2,269.1            | -230.6        | 525.7        | 268.6                   | 9.23                    | 9.00                   | -3.00                 |
| 7,204.0               | 54.00           | 175.00        | 7,076.9               | -2,326.9            | -300.3        | 534.2        | 338.7                   | 8.30                    | 7.58                   | 4.40                  |
| 7,294.0               | 60.70           | 175.80        | 7,125.5               | -2,375.5            | -375.8        | 540.2        | 414.4                   | 7.48                    | 7.44                   | 0.89                  |
| 7,384.0               | 67.60           | 177.00        | 7,164.7               | -2,414.7            | -456.6        | 545.3        | 495.4                   | 7.76                    | 7.67                   | 1.33                  |
| 7,475.0               | 72.10           | 176.40        | 7,196.0               | -2,446.0            | -541.8        | 550.2        | 580.8                   | 4.98                    | 4.95                   | -0.66                 |
| 7,565.0               | 76.80           | 176.70        | 7,220.1               | -2,470.1            | -628.4        | 555.4        | 667.4                   | 5.23                    | 5.22                   | 0.33                  |
| 7,656.0               | 83.40           | 176.60        | 7,235.8               | -2,485.8            | -717.8        | 560.7        | 757.0                   | 7.25                    | 7.25                   | -0.11                 |
| 7,701.0               | 84.50           | 176.50        | 7,240.5               | -2,490.5            | -762.5        | 563.4        | 801.8                   | 2.45                    | 2.44                   | -0.22                 |
| <b>ICP</b>            |                 |               |                       |                     |               |              |                         |                         |                        |                       |
| <b>7,748.0</b>        | <b>86.21</b>    | <b>177.83</b> | <b>7,244.3</b>        | <b>-2,494.3</b>     | <b>-809.3</b> | <b>565.7</b> | <b>848.6</b>            | <b>4.61</b>             | <b>3.65</b>            | <b>2.83</b>           |
| 7,786.0               | 87.60           | 178.90        | 7,246.4               | -2,496.4            | -847.2        | 566.8        | 886.5                   | 4.61                    | 3.65                   | 2.82                  |
| 7,880.0               | 89.90           | 178.80        | 7,248.4               | -2,498.4            | -941.1        | 568.6        | 980.3                   | 2.45                    | 2.45                   | -0.11                 |
| 7,973.0               | 90.50           | 178.60        | 7,248.1               | -2,498.1            | -1,034.1      | 570.8        | 1,073.2                 | 0.68                    | 0.65                   | -0.22                 |
| 8,067.0               | 90.20           | 176.90        | 7,247.5               | -2,497.5            | -1,128.0      | 574.4        | 1,167.2                 | 1.84                    | -0.32                  | -1.81                 |
| 8,160.0               | 91.00           | 179.00        | 7,246.6               | -2,496.6            | -1,221.0      | 577.8        | 1,260.1                 | 2.42                    | 0.86                   | 2.26                  |
| 8,254.0               | 91.20           | 180.70        | 7,244.8               | -2,494.8            | -1,314.9      | 578.0        | 1,353.8                 | 1.82                    | 0.21                   | 1.81                  |
| 8,347.0               | 89.50           | 182.70        | 7,244.2               | -2,494.2            | -1,407.9      | 575.3        | 1,446.3                 | 2.82                    | -1.83                  | 2.15                  |
| 8,441.0               | 90.00           | 182.60        | 7,244.6               | -2,494.6            | -1,501.8      | 570.9        | 1,539.7                 | 0.54                    | 0.53                   | -0.11                 |
| 8,535.0               | 90.50           | 181.40        | 7,244.2               | -2,494.2            | -1,595.7      | 567.6        | 1,633.1                 | 1.38                    | 0.53                   | -1.28                 |
| 8,628.0               | 91.30           | 182.00        | 7,242.7               | -2,492.7            | -1,688.7      | 564.9        | 1,725.6                 | 1.08                    | 0.86                   | 0.65                  |
| 8,722.0               | 89.10           | 182.10        | 7,242.4               | -2,492.4            | -1,782.6      | 561.5        | 1,819.0                 | 2.34                    | -2.34                  | 0.11                  |
| 8,815.0               | 89.40           | 180.50        | 7,243.6               | -2,493.6            | -1,875.6      | 559.4        | 1,911.6                 | 1.75                    | 0.32                   | -1.72                 |
| 8,909.0               | 89.30           | 178.30        | 7,244.7               | -2,494.7            | -1,969.6      | 560.4        | 2,005.4                 | 2.34                    | -0.11                  | -2.34                 |
| 9,003.0               | 89.80           | 177.10        | 7,245.4               | -2,495.4            | -2,063.5      | 564.2        | 2,099.3                 | 1.38                    | 0.53                   | -1.28                 |
| 9,096.0               | 89.80           | 179.30        | 7,245.7               | -2,495.7            | -2,156.4      | 567.1        | 2,192.2                 | 2.37                    | 0.00                   | 2.37                  |
| 9,190.0               | 90.70           | 179.00        | 7,245.3               | -2,495.3            | -2,250.4      | 568.5        | 2,286.1                 | 1.01                    | 0.96                   | -0.32                 |
| 9,283.0               | 90.20           | 176.70        | 7,244.6               | -2,494.6            | -2,343.3      | 572.0        | 2,379.0                 | 2.53                    | -0.54                  | -2.47                 |
| 9,377.0               | 88.70           | 179.60        | 7,245.5               | -2,495.5            | -2,437.3      | 575.0        | 2,472.9                 | 3.47                    | -1.60                  | 3.09                  |
| 9,470.0               | 89.10           | 179.30        | 7,247.3               | -2,497.3            | -2,530.3      | 575.9        | 2,565.7                 | 0.54                    | 0.43                   | -0.32                 |
| 9,564.0               | 89.10           | 179.90        | 7,248.8               | -2,498.8            | -2,624.2      | 576.5        | 2,659.5                 | 0.64                    | 0.00                   | 0.64                  |
| 9,657.0               | 89.50           | 181.90        | 7,249.9               | -2,499.9            | -2,717.2      | 575.1        | 2,752.1                 | 2.19                    | 0.43                   | 2.15                  |
| 9,751.0               | 89.80           | 182.00        | 7,250.5               | -2,500.5            | -2,811.2      | 571.9        | 2,845.6                 | 0.34                    | 0.32                   | 0.11                  |
| 9,845.0               | 89.90           | 182.40        | 7,250.7               | -2,500.7            | -2,905.1      | 568.3        | 2,939.0                 | 0.44                    | 0.11                   | 0.43                  |
| 9,938.0               | 91.00           | 182.70        | 7,250.0               | -2,500.0            | -2,998.0      | 564.1        | 3,031.3                 | 1.23                    | 1.18                   | 0.32                  |
| 10,032.0              | 89.70           | 181.90        | 7,249.4               | -2,499.4            | -3,091.9      | 560.4        | 3,124.7                 | 1.62                    | -1.38                  | -0.85                 |
| 10,122.0              | 89.80           | 180.80        | 7,249.8               | -2,499.8            | -3,181.9      | 558.3        | 3,214.3                 | 1.23                    | 0.11                   | -1.22                 |
| 10,213.0              | 90.80           | 180.80        | 7,249.3               | -2,499.3            | -3,272.9      | 557.0        | 3,304.9                 | 1.10                    | 1.10                   | 0.00                  |



# Survey Report



|                  |                                 |                                     |                              |
|------------------|---------------------------------|-------------------------------------|------------------------------|
| <b>Company:</b>  | PDC ENERGY                      | <b>Local Co-ordinate Reference:</b> | Well BERNHARDT FARMS 13W-403 |
| <b>Project:</b>  | WELD COUNTY, COLORADO           | <b>TVD Reference:</b>               | KB @ 4750.0usft (ENS 135)    |
| <b>Site:</b>     | NE SE SEC. 24 T4N R67W 6th P.M. | <b>MD Reference:</b>                | KB @ 4750.0usft (ENS 135)    |
| <b>Well:</b>     | BERNHARDT FARMS 13W-403         | <b>North Reference:</b>             | True                         |
| <b>Wellbore:</b> | JOB # 2015-019-135              | <b>Survey Calculation Method:</b>   | Minimum Curvature            |
| <b>Design:</b>   | FINAL SURVEYS                   | <b>Database:</b>                    | EDM 5000.1 Single User Db    |

| Survey                    |                 |             |                       |                     |              |              |                         |                         |                        |                       |
|---------------------------|-----------------|-------------|-----------------------|---------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft)     | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | Subsea Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 10,303.0                  | 91.50           | 180.70      | 7,247.5               | -2,497.5            | -3,362.8     | 555.8        | 3,394.6                 | 0.79                    | 0.78                   | -0.11                 |
| 10,394.0                  | 91.00           | 180.50      | 7,245.5               | -2,495.5            | -3,453.8     | 554.8        | 3,485.2                 | 0.59                    | -0.55                  | -0.22                 |
| 10,484.0                  | 89.90           | 179.20      | 7,244.8               | -2,494.8            | -3,543.8     | 555.1        | 3,575.0                 | 1.89                    | -1.22                  | -1.44                 |
| 10,575.0                  | 89.00           | 179.50      | 7,245.7               | -2,495.7            | -3,634.8     | 556.1        | 3,665.8                 | 1.04                    | -0.99                  | 0.33                  |
| 10,665.0                  | 89.90           | 180.40      | 7,246.6               | -2,496.6            | -3,724.8     | 556.2        | 3,755.6                 | 1.41                    | 1.00                   | 1.00                  |
| 10,756.0                  | 91.20           | 181.40      | 7,245.7               | -2,495.7            | -3,815.8     | 554.8        | 3,846.2                 | 1.80                    | 1.43                   | 1.10                  |
| 10,846.0                  | 89.10           | 181.10      | 7,245.5               | -2,495.5            | -3,905.8     | 552.8        | 3,935.8                 | 2.36                    | -2.33                  | -0.33                 |
| 10,936.0                  | 89.30           | 179.30      | 7,246.7               | -2,496.7            | -3,995.7     | 552.5        | 4,025.5                 | 2.01                    | 0.22                   | -2.00                 |
| 11,026.0                  | 90.40           | 180.00      | 7,247.0               | -2,497.0            | -4,085.7     | 553.0        | 4,115.3                 | 1.45                    | 1.22                   | 0.78                  |
| 11,117.0                  | 91.10           | 179.30      | 7,245.8               | -2,495.8            | -4,176.7     | 553.6        | 4,206.1                 | 1.09                    | 0.77                   | -0.77                 |
| 11,207.0                  | 89.50           | 179.80      | 7,245.3               | -2,495.3            | -4,266.7     | 554.3        | 4,295.9                 | 1.86                    | -1.78                  | 0.56                  |
| 11,298.0                  | 90.00           | 179.00      | 7,245.7               | -2,495.7            | -4,357.7     | 555.3        | 4,386.7                 | 1.04                    | 0.55                   | -0.88                 |
| 11,388.0                  | 90.90           | 178.10      | 7,245.0               | -2,495.0            | -4,447.7     | 557.5        | 4,476.6                 | 1.41                    | 1.00                   | -1.00                 |
| 11,478.0                  | 89.80           | 178.20      | 7,244.4               | -2,494.4            | -4,537.6     | 560.4        | 4,566.5                 | 1.23                    | -1.22                  | 0.11                  |
| 11,569.0                  | 90.50           | 177.70      | 7,244.2               | -2,494.2            | -4,628.6     | 563.7        | 4,657.5                 | 0.95                    | 0.77                   | -0.55                 |
| 11,659.0                  | 89.40           | 179.40      | 7,244.3               | -2,494.3            | -4,718.5     | 566.0        | 4,747.4                 | 2.25                    | -1.22                  | 1.89                  |
| 11,750.0                  | 90.00           | 179.40      | 7,244.7               | -2,494.7            | -4,809.5     | 566.9        | 4,838.2                 | 0.66                    | 0.66                   | 0.00                  |
| 11,840.0                  | 90.80           | 178.80      | 7,244.1               | -2,494.1            | -4,899.5     | 568.3        | 4,928.0                 | 1.11                    | 0.89                   | -0.67                 |
| 11,931.0                  | 90.50           | 180.30      | 7,243.1               | -2,493.1            | -4,990.5     | 569.1        | 5,018.8                 | 1.68                    | -0.33                  | 1.65                  |
| 12,021.0                  | 91.10           | 179.70      | 7,241.8               | -2,491.8            | -5,080.5     | 569.1        | 5,108.6                 | 0.94                    | 0.67                   | -0.67                 |
| 12,111.0                  | 90.40           | 179.00      | 7,240.7               | -2,490.7            | -5,170.5     | 570.1        | 5,198.4                 | 1.10                    | -0.78                  | -0.78                 |
| 12,202.0                  | 87.60           | 178.90      | 7,242.2               | -2,492.2            | -5,261.4     | 571.7        | 5,289.2                 | 3.08                    | -3.08                  | -0.11                 |
| 12,292.0                  | 88.10           | 178.80      | 7,245.6               | -2,495.6            | -5,351.4     | 573.5        | 5,379.0                 | 0.57                    | 0.56                   | -0.11                 |
| 12,383.0                  | 88.30           | 180.40      | 7,248.5               | -2,498.5            | -5,442.3     | 574.2        | 5,469.8                 | 1.77                    | 0.22                   | 1.76                  |
| 12,473.0                  | 89.50           | 181.70      | 7,250.2               | -2,500.2            | -5,532.3     | 572.5        | 5,559.4                 | 1.97                    | 1.33                   | 1.44                  |
| 12,563.0                  | 90.20           | 181.70      | 7,250.4               | -2,500.4            | -5,622.2     | 569.9        | 5,648.9                 | 0.78                    | 0.78                   | 0.00                  |
| 12,654.0                  | 90.20           | 181.30      | 7,250.1               | -2,500.1            | -5,713.2     | 567.5        | 5,739.4                 | 0.44                    | 0.00                   | -0.44                 |
| 12,744.0                  | 90.80           | 181.00      | 7,249.3               | -2,499.3            | -5,803.2     | 565.7        | 5,829.0                 | 0.75                    | 0.67                   | -0.33                 |
| 12,834.0                  | 91.50           | 180.70      | 7,247.5               | -2,497.5            | -5,893.2     | 564.3        | 5,918.7                 | 0.85                    | 0.78                   | -0.33                 |
| 12,924.0                  | 90.20           | 181.40      | 7,246.2               | -2,496.2            | -5,983.1     | 562.7        | 6,008.3                 | 1.64                    | -1.44                  | 0.78                  |
| 13,015.0                  | 90.70           | 180.80      | 7,245.5               | -2,495.5            | -6,074.1     | 560.9        | 6,098.9                 | 0.86                    | 0.55                   | -0.66                 |
| 13,105.0                  | 90.80           | 180.10      | 7,244.3               | -2,494.3            | -6,164.1     | 560.2        | 6,188.6                 | 0.79                    | 0.11                   | -0.78                 |
| 13,196.0                  | 89.40           | 179.30      | 7,244.1               | -2,494.1            | -6,255.1     | 560.7        | 6,279.4                 | 1.77                    | -1.54                  | -0.88                 |
| 13,286.0                  | 89.30           | 177.80      | 7,245.2               | -2,495.2            | -6,345.0     | 563.0        | 6,369.3                 | 1.67                    | -0.11                  | -1.67                 |
| 13,377.0                  | 90.20           | 177.60      | 7,245.6               | -2,495.6            | -6,436.0     | 566.6        | 6,460.2                 | 1.01                    | 0.99                   | -0.22                 |
| 13,467.0                  | 90.30           | 176.80      | 7,245.2               | -2,495.2            | -6,525.9     | 571.0        | 6,550.2                 | 0.90                    | 0.11                   | -0.89                 |
| 13,558.0                  | 89.80           | 175.80      | 7,245.1               | -2,495.1            | -6,616.7     | 576.9        | 6,641.2                 | 1.23                    | -0.55                  | -1.10                 |
| 13,648.0                  | 88.90           | 176.10      | 7,246.1               | -2,496.1            | -6,706.4     | 583.3        | 6,731.2                 | 1.05                    | -1.00                  | 0.33                  |
| 13,739.0                  | 89.30           | 177.50      | 7,247.5               | -2,497.5            | -6,797.3     | 588.3        | 6,822.1                 | 1.60                    | 0.44                   | 1.54                  |
| 13,829.0                  | 90.30           | 177.10      | 7,247.9               | -2,497.9            | -6,887.2     | 592.6        | 6,912.1                 | 1.20                    | 1.11                   | -0.44                 |
| 13,919.0                  | 91.30           | 179.00      | 7,246.6               | -2,496.6            | -6,977.1     | 595.6        | 7,002.0                 | 2.39                    | 1.11                   | 2.11                  |
| 14,009.0                  | 90.40           | 181.40      | 7,245.3               | -2,495.3            | -7,067.1     | 595.3        | 7,091.7                 | 2.85                    | -1.00                  | 2.67                  |
| 14,100.0                  | 89.80           | 180.30      | 7,245.1               | -2,495.1            | -7,158.1     | 594.0        | 7,182.4                 | 1.38                    | -0.66                  | -1.21                 |
| 14,191.0                  | 90.30           | 179.40      | 7,245.0               | -2,495.0            | -7,249.1     | 594.2        | 7,273.2                 | 1.13                    | 0.55                   | -0.99                 |
| LAST SURVEY - APR 8, 2015 |                 |             |                       |                     |              |              |                         |                         |                        |                       |
| 14,281.0                  | 89.90           | 177.00      | 7,244.9               | -2,494.9            | -7,339.0     | 597.0        | 7,363.1                 | 2.70                    | -0.44                  | -2.67                 |
| EXTRAPOLATION TO TD       |                 |             |                       |                     |              |              |                         |                         |                        |                       |
| 14,376.0                  | 89.90           | 177.00      | 7,245.0               | -2,495.0            | -7,433.9     | 602.0        | 7,458.0                 | 0.00                    | 0.00                   | 0.00                  |

# Survey Report



|                  |                                 |                                     |                              |
|------------------|---------------------------------|-------------------------------------|------------------------------|
| <b>Company:</b>  | PDC ENERGY                      | <b>Local Co-ordinate Reference:</b> | Well BERNHARDT FARMS 13W-403 |
| <b>Project:</b>  | WELD COUNTY, COLORADO           | <b>TVD Reference:</b>               | KB @ 4750.0usft (ENS 135)    |
| <b>Site:</b>     | NE SE SEC. 24 T4N R67W 6th P.M. | <b>MD Reference:</b>                | KB @ 4750.0usft (ENS 135)    |
| <b>Well:</b>     | BERNHARDT FARMS 13W-403         | <b>North Reference:</b>             | True                         |
| <b>Wellbore:</b> | JOB # 2015-019-135              | <b>Survey Calculation Method:</b>   | Minimum Curvature            |
| <b>Design:</b>   | FINAL SURVEYS                   | <b>Database:</b>                    | EDM 5000.1 Single User Db    |

| Targets   |                  |                 |               |                 |                 |                    |                   |           |             |
|---|------------------|-----------------|---------------|-----------------|-----------------|--------------------|-------------------|-----------|-------------|
| Target Name<br>- hit/miss target<br>- Shape   | Dip Angle<br>(°) | Dip Dir.<br>(°) | TVD<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Northing<br>(usft) | Easting<br>(usft) | Latitude  | Longitude   |
| BHL - BERNHARDT FA<br>- survey misses target center by 55.8usft at 14367.4usft MD (7245.0 TVD, -7425.3 N, 601.6 E)<br>- Point | 0.00             | 0.00            | 7,255.0       | -7,428.2        | 546.8           | 1,349,696.91       | 3,186,887.98      | 40.291380 | -104.830040 |
| KOP - BERNHARDT FA<br>- survey misses target center by 60.3usft at 6509.5usft MD (6481.1 TVD, 6.5 N, 507.2 E)<br>- Point      | 0.00             | 0.00            | 6,480.6       | 4.6             | 567.5           | 1,357,129.30       | 3,186,852.71      | 40.311783 | -104.829965 |
| 7" ICP *NEW* - BERNH<br>- survey misses target center by 4.9usft at 7697.2usft MD (7240.2 TVD, -758.7 N, 563.1 E)<br>- Point  | 0.00             | 0.00            | 7,244.5       | -758.1          | 565.4           | 1,356,366.64       | 3,186,856.35      | 40.309689 | -104.829973 |

| Survey Annotations          |                             |                   |                 |                           |
|-----------------------------|-----------------------------|-------------------|-----------------|---------------------------|
| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Comment                   |
|                             |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) |                           |
| 932.0                       | 931.3                       | -16.9             | -1.7            | SURFACE CASING            |
| 6,480.0                     | 6,451.6                     | 7.4               | 507.1           | KOP                       |
| 7,748.0                     | 7,244.3                     | -809.3            | 565.7           | ICP                       |
| 14,281.0                    | 7,244.9                     | -7,339.0          | 597.0           | LAST SURVEY - APR 8, 2015 |
| 14,376.0                    | 7,245.0                     | -7,433.9          | 602.0           | EXTRAPOLATION TO TD       |

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