



Job Number: SVGJ-141312
 Company: PDC
 Lease/Well: Barrett 12-26
 Location: Weld County, CO
 Rig Name: MS Energy Wireline
 RKB: 0'
 G.L. or M.S.L.: GL

State/Country: Colorado/USA
 Declination: 8.28°
 Grid: East To True North
 File name: Y:\WINSER~1\2014SU~1\PDC\GJ\BARRETT\1226.SVY
 Date/Time: 12-Nov-14 / 09:59
 Curve Name: Surface - 6400' M.D. (Rate Gyro)

MS Survey

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane .00
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

| Measured Depth FT | Incl Angle Deg | Drift Direction Deg | True Vertical Depth | N-S FT | E-W FT | Vertical Section FT | C L O S U R E | | Dogleg Severity Deg/100 |
|-------------------------|----------------------|---------------------------|---------------------------|-----------|-----------|---------------------------|----------------|------------------|-------------------------------|
| | | | | | | | Distance FT | Direction Deg | |
| .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 100.00 | .09 | 83.50 | 100.00 | .01 | .08 | .01 | .08 | 83.49 | .09 |
| 200.00 | .26 | 171.96 | 200.00 | -.21 | .19 | -.21 | .28 | 137.76 | .27 |
| 300.00 | .26 | 106.31 | 300.00 | -.50 | .44 | -.50 | .66 | 138.56 | .28 |
| 400.00 | .25 | 40.96 | 400.00 | -.39 | .80 | -.39 | .89 | 116.29 | .28 |
| 500.00 | .24 | 96.58 | 500.00 | -.25 | 1.15 | -.25 | 1.18 | 102.44 | .23 |
| 600.00 | .42 | 93.64 | 600.00 | -.30 | 1.72 | -.30 | 1.75 | 99.90 | .18 |
| 700.00 | .51 | 76.08 | 699.99 | -.22 | 2.52 | -.22 | 2.53 | 94.92 | .17 |
| 800.00 | .43 | 54.55 | 799.99 | .11 | 3.26 | .11 | 3.26 | 88.11 | .19 |
| 900.00 | .21 | 52.05 | 899.99 | .44 | 3.71 | .44 | 3.73 | 83.26 | .22 |

| Measured Depth FT | Incl Angle Deg | Drift Direction Deg | True Vertical Depth | N-S FT | E-W FT | Vertical Section FT | C L O S U R E | | Dogleg Severity Deg/100 |
|-------------------------|----------------------|---------------------------|---------------------------|-----------|-----------|---------------------------|----------------|------------------|-------------------------------|
| | | | | | | | Distance FT | Direction Deg | |
| 1000.00 | .17 | 107.87 | 999.99 | .51 | 3.99 | .51 | 4.03 | 82.79 | .18 |
| 1100.00 | .43 | 107.96 | 1099.99 | .34 | 4.49 | .34 | 4.51 | 85.62 | .26 |
| 1200.00 | .60 | 97.46 | 1199.98 | .16 | 5.37 | .16 | 5.37 | 88.29 | .19 |
| 1300.00 | .52 | 95.82 | 1299.98 | .05 | 6.34 | .05 | 6.34 | 89.58 | .08 |
| 1400.00 | .45 | 81.32 | 1399.97 | .06 | 7.18 | .06 | 7.18 | 89.52 | .14 |
| 1500.00 | .26 | 83.06 | 1499.97 | .15 | 7.79 | .15 | 7.79 | 88.92 | .19 |
| 1600.00 | .06 | 156.92 | 1599.97 | .13 | 8.04 | .13 | 8.04 | 89.11 | .25 |
| 1700.00 | .22 | 207.76 | 1699.97 | -.09 | 7.97 | -.09 | 7.97 | 90.67 | .19 |
| 1800.00 | .25 | 192.32 | 1799.97 | -.48 | 7.83 | -.48 | 7.85 | 93.47 | .07 |
| 1900.00 | .18 | 170.98 | 1899.97 | -.84 | 7.81 | -.84 | 7.86 | 96.17 | .11 |
| 2000.00 | .15 | 84.19 | 1999.97 | -.99 | 7.97 | -.99 | 8.03 | 97.05 | .23 |
| 2100.00 | .37 | 57.56 | 2099.97 | -.80 | 8.37 | -.80 | 8.41 | 95.46 | .25 |
| 2200.00 | .55 | 49.68 | 2199.96 | -.32 | 9.01 | -.32 | 9.01 | 92.01 | .19 |
| 2300.00 | .71 | 43.59 | 2299.96 | .44 | 9.80 | .44 | 9.81 | 87.41 | .17 |
| 2400.00 | .94 | 32.39 | 2399.95 | 1.59 | 10.67 | 1.59 | 10.78 | 81.55 | .28 |
| 2500.00 | 1.08 | 22.01 | 2499.93 | 3.15 | 11.46 | 3.15 | 11.89 | 74.62 | .23 |
| 2600.00 | 1.22 | 11.06 | 2599.91 | 5.07 | 12.02 | 5.07 | 13.04 | 67.12 | .26 |
| 2700.00 | 1.33 | 358.49 | 2699.89 | 7.28 | 12.19 | 7.28 | 14.20 | 59.17 | .30 |
| 2800.00 | 1.23 | 6.01 | 2799.86 | 9.50 | 12.27 | 9.50 | 15.52 | 52.25 | .20 |
| 2900.00 | 1.43 | 9.81 | 2899.84 | 11.80 | 12.60 | 11.80 | 17.26 | 46.87 | .22 |
| 3000.00 | 1.48 | 5.75 | 2999.80 | 14.31 | 12.94 | 14.31 | 19.30 | 42.11 | .11 |
| 3100.00 | 1.35 | 5.27 | 3099.77 | 16.77 | 13.18 | 16.77 | 21.33 | 38.16 | .13 |
| 3200.00 | 1.12 | 11.37 | 3199.75 | 18.90 | 13.48 | 18.90 | 23.22 | 35.49 | .26 |
| 3300.00 | 1.28 | 39.97 | 3299.73 | 20.72 | 14.39 | 20.72 | 25.22 | 34.78 | .61 |
| 3400.00 | 1.57 | 47.69 | 3399.70 | 22.50 | 16.12 | 22.50 | 27.67 | 35.62 | .35 |
| 3500.00 | 1.49 | 53.49 | 3499.66 | 24.19 | 18.18 | 24.19 | 30.26 | 36.92 | .17 |
| 3600.00 | 1.35 | 59.13 | 3599.63 | 25.57 | 20.23 | 25.57 | 32.61 | 38.35 | .20 |
| 3700.00 | 1.34 | 65.41 | 3699.60 | 26.66 | 22.31 | 26.66 | 34.76 | 39.92 | .15 |
| 3800.00 | 1.41 | 70.31 | 3799.58 | 27.56 | 24.53 | 27.56 | 36.90 | 41.67 | .14 |

| Measured Depth FT | Incl Angle Deg | Drift Direction Deg | True Vertical Depth | N-S FT | E-W FT | Vertical Section FT | C L O S U R E | | Dogleg Severity Deg/100 |
|----------------------------|----------------------|---------------------------|---------------------------|-----------|-----------|---------------------------|----------------|------------------|-------------------------------|
| | | | | | | | Distance FT | Direction Deg | |
| 3900.00 | 1.49 | 71.34 | 3899.54 | 28.39 | 26.92 | 28.39 | 39.12 | 43.47 | .08 |
| 4000.00 | 1.23 | 63.90 | 3999.52 | 29.28 | 29.11 | 29.28 | 41.29 | 44.84 | .31 |
| 4100.00 | 1.06 | 42.65 | 4099.50 | 30.43 | 30.70 | 30.43 | 43.23 | 45.26 | .45 |
| 4200.00 | 1.05 | 20.56 | 4199.48 | 31.97 | 31.65 | 31.97 | 44.99 | 44.71 | .40 |
| 4300.00 | 1.23 | 20.01 | 4299.46 | 33.84 | 32.34 | 33.84 | 46.81 | 43.71 | .18 |
| 4400.00 | 1.41 | 6.18 | 4399.43 | 36.07 | 32.84 | 36.07 | 48.78 | 42.32 | .36 |
| 4500.00 | 1.38 | 355.74 | 4499.40 | 38.49 | 32.89 | 38.49 | 50.63 | 40.51 | .26 |
| 4600.00 | 1.46 | 353.23 | 4599.37 | 40.96 | 32.65 | 40.96 | 52.38 | 38.56 | .10 |
| 4700.00 | 1.77 | 358.06 | 4699.33 | 43.77 | 32.44 | 43.77 | 54.48 | 36.55 | .34 |
| 4800.00 | 1.75 | 355.35 | 4799.29 | 46.83 | 32.27 | 46.83 | 56.87 | 34.57 | .09 |
| 4900.00 | 1.54 | 346.36 | 4899.24 | 49.66 | 31.83 | 49.66 | 58.98 | 32.66 | .33 |
| 5000.00 | 1.19 | 348.14 | 4999.22 | 51.98 | 31.30 | 51.98 | 60.68 | 31.05 | .35 |
| 5100.00 | 1.36 | 350.08 | 5099.19 | 54.17 | 30.88 | 54.17 | 62.35 | 29.69 | .18 |
| 5200.00 | 1.82 | 336.14 | 5199.15 | 56.79 | 30.03 | 56.79 | 64.24 | 27.87 | .60 |
| 5300.00 | 1.83 | 330.64 | 5299.10 | 59.63 | 28.61 | 59.63 | 66.14 | 25.63 | .18 |
| 5400.00 | 1.68 | 325.28 | 5399.06 | 62.23 | 26.99 | 62.23 | 67.83 | 23.45 | .22 |
| 5500.00 | 1.61 | 332.97 | 5499.01 | 64.69 | 25.52 | 64.69 | 69.54 | 21.53 | .23 |
| 5600.00 | 1.78 | 335.33 | 5598.97 | 67.35 | 24.23 | 67.35 | 71.57 | 19.79 | .18 |
| 5700.00 | 1.91 | 330.82 | 5698.92 | 70.21 | 22.77 | 70.21 | 73.81 | 17.97 | .19 |
| 5800.00 | 1.15 | 325.82 | 5798.88 | 72.50 | 21.39 | 72.50 | 75.59 | 16.44 | .77 |
| 5900.00 | 1.24 | 330.74 | 5898.86 | 74.27 | 20.30 | 74.27 | 77.00 | 15.29 | .14 |
| 6000.00 | 1.11 | 325.18 | 5998.84 | 76.01 | 19.22 | 76.01 | 78.40 | 14.19 | .17 |
| 6100.00 | .95 | 324.48 | 6098.82 | 77.48 | 18.18 | 77.48 | 79.59 | 13.21 | .16 |
| 6200.00 | .89 | 330.42 | 6198.81 | 78.83 | 17.32 | 78.83 | 80.71 | 12.39 | .11 |
| 6300.00 | 1.12 | 315.63 | 6298.80 | 80.21 | 16.25 | 80.21 | 81.84 | 11.45 | .34 |
| Last Survey Depth Recorded | | | | | | | | | |
| 6400.00 | .79 | 319.75 | 6398.78 | 81.43 | 15.12 | 81.43 | 82.82 | 10.52 | .34 |