



Job Number: SVGJ-141209
 Company: PDC
 Lease/Well: Coors V 6-5
 Location: Weld County, CO
 Rig Name: MS Energy Wireline
 RKB: 0'
 G.L. or M.S.L.: GL

State/Country: Colorado/USA
 Declination: 8.50°
 Grid: East To True North
 File name: S:\2014SU-1\PDC\GJ\COORS\VI65.SVY
 Date/Time: 01-Oct-14 / 16:43
 Curve Name: Surface - 7200' 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

| <i>Measured Depth FT</i> | <i>Incl Angle Deg</i> | <i>Drift Direction Deg</i> | <i>True Vertical Depth</i> | <i>N-S FT</i> | <i>E-W FT</i> | <i>Vertical Section FT</i> | <i>C L O S U R E</i> | | <i>Dogleg Severity Deg/100</i> |
|----------------------------------|-------------------------------|------------------------------------|------------------------------------|-------------------|-------------------|------------------------------------|------------------------|--------------------------|--|
| | | | | | | | <i>Distance FT</i> | <i>Direction Deg</i> | |
| .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 100.00 | .44 | 25.62 | 100.00 | .35 | .17 | .35 | .38 | 25.62 | .44 |
| 200.00 | .25 | 57.47 | 200.00 | .81 | .52 | .81 | .96 | 32.51 | .26 |
| 300.00 | .30 | 346.47 | 300.00 | 1.18 | .64 | 1.18 | 1.34 | 28.39 | .32 |
| 400.00 | .28 | 313.78 | 400.00 | 1.61 | .40 | 1.61 | 1.65 | 14.03 | .16 |
| 500.00 | .10 | 262.67 | 499.99 | 1.76 | .14 | 1.76 | 1.77 | 4.48 | .23 |
| 600.00 | .07 | 242.59 | 599.99 | 1.72 | .00 | 1.72 | 1.72 | 359.91 | .04 |
| 700.00 | .14 | 284.59 | 699.99 | 1.73 | -.18 | 1.73 | 1.74 | 354.21 | .10 |
| 800.00 | .35 | 278.81 | 799.99 | 1.80 | -.60 | 1.80 | 1.90 | 341.74 | .21 |
| 900.00 | .44 | 268.42 | 899.99 | 1.84 | -1.28 | 1.84 | 2.24 | 325.16 | .11 |

| 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 | .54 | 259.38 | 999.99 | 1.74 | -2.13 | 1.74 | 2.75 | 309.32 | .13 |
| 1100.00 | .63 | 251.07 | 1099.98 | 1.48 | -3.11 | 1.48 | 3.44 | 295.41 | .12 |
| 1200.00 | .56 | 252.82 | 1199.98 | 1.15 | -4.10 | 1.15 | 4.26 | 285.74 | .07 |
| 1300.00 | .53 | 262.12 | 1299.97 | .95 | -5.02 | .95 | 5.11 | 280.68 | .09 |
| 1400.00 | .76 | 264.53 | 1399.97 | .82 | -6.14 | .82 | 6.20 | 277.61 | .23 |
| 1500.00 | .75 | 251.55 | 1499.96 | .55 | -7.42 | .55 | 7.44 | 274.24 | .17 |
| 1600.00 | .70 | 236.74 | 1599.95 | .01 | -8.55 | .01 | 8.55 | 270.05 | .19 |
| 1700.00 | .69 | 223.99 | 1699.94 | -.76 | -9.48 | -.76 | 9.51 | 265.42 | .15 |
| 1800.00 | .49 | 217.92 | 1799.94 | -1.53 | -10.16 | -1.53 | 10.28 | 261.44 | .21 |
| 1900.00 | .54 | 184.19 | 1899.93 | -2.34 | -10.46 | -2.34 | 10.72 | 257.40 | .30 |
| 2000.00 | .44 | 152.65 | 1999.93 | -3.15 | -10.32 | -3.15 | 10.79 | 253.03 | .28 |
| 2100.00 | .28 | 137.96 | 2099.93 | -3.67 | -9.98 | -3.67 | 10.63 | 249.80 | .18 |
| 2200.00 | .27 | 170.93 | 2199.93 | -4.09 | -9.78 | -4.09 | 10.60 | 247.32 | .16 |
| 2300.00 | .48 | 157.89 | 2299.92 | -4.71 | -9.58 | -4.71 | 10.68 | 243.84 | .23 |
| 2400.00 | .12 | 134.54 | 2399.92 | -5.17 | -9.35 | -5.17 | 10.68 | 241.07 | .37 |
| 2500.00 | .22 | 154.34 | 2499.92 | -5.41 | -9.19 | -5.41 | 10.67 | 239.50 | .11 |
| 2600.00 | .38 | 131.73 | 2599.92 | -5.81 | -8.86 | -5.81 | 10.60 | 236.76 | .20 |
| 2700.00 | .35 | 175.35 | 2699.92 | -6.33 | -8.59 | -6.33 | 10.67 | 233.60 | .27 |
| 2800.00 | .68 | 219.73 | 2799.92 | -7.09 | -8.95 | -7.09 | 11.42 | 231.58 | .49 |
| 2900.00 | .75 | 235.09 | 2899.91 | -7.93 | -9.86 | -7.93 | 12.65 | 231.21 | .20 |
| 3000.00 | 1.20 | 254.24 | 2999.89 | -8.58 | -11.41 | -8.58 | 14.27 | 233.03 | .55 |
| 3100.00 | 1.32 | 250.57 | 3099.87 | -9.25 | -13.50 | -9.25 | 16.37 | 235.58 | .14 |
| 3200.00 | .56 | 210.75 | 3199.86 | -10.05 | -14.84 | -10.05 | 17.92 | 235.87 | .96 |
| 3300.00 | .23 | 183.81 | 3299.85 | -10.67 | -15.10 | -10.67 | 18.49 | 234.74 | .37 |
| 3400.00 | .13 | 238.76 | 3399.85 | -10.93 | -15.21 | -10.93 | 18.73 | 234.29 | .19 |
| 3500.00 | .27 | 350.25 | 3499.85 | -10.76 | -15.35 | -10.76 | 18.74 | 234.96 | .34 |
| 3600.00 | 1.03 | 10.75 | 3599.85 | -9.65 | -15.22 | -9.65 | 18.02 | 237.63 | .78 |
| 3700.00 | 1.43 | 18.24 | 3699.82 | -7.58 | -14.66 | -7.58 | 16.50 | 242.67 | .43 |
| 3800.00 | 1.00 | 4.76 | 3799.80 | -5.52 | -14.20 | -5.52 | 15.23 | 248.74 | .51 |

| 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 | .66 | 350.58 | 3899.79 | -4.08 | -14.22 | -4.08 | 14.79 | 253.97 | .39 |
| 4000.00 | .36 | 355.72 | 3999.78 | -3.20 | -14.34 | -3.20 | 14.69 | 257.40 | .30 |
| 4100.00 | .16 | 57.86 | 4099.78 | -2.82 | -14.24 | -2.82 | 14.52 | 258.82 | .32 |
| 4200.00 | .34 | 71.95 | 4199.78 | -2.65 | -13.84 | -2.65 | 14.09 | 259.16 | .19 |
| 4300.00 | .35 | 30.98 | 4299.78 | -2.30 | -13.40 | -2.30 | 13.60 | 260.28 | .24 |
| 4400.00 | .31 | 342.64 | 4399.78 | -1.78 | -13.33 | -1.78 | 13.44 | 262.41 | .27 |
| 4500.00 | .33 | 336.90 | 4499.78 | -1.25 | -13.52 | -1.25 | 13.58 | 264.71 | .04 |
| 4600.00 | .22 | 37.65 | 4599.78 | -.84 | -13.52 | -.84 | 13.54 | 266.46 | .29 |
| 4700.00 | .66 | 6.57 | 4699.77 | -.11 | -13.33 | -.11 | 13.33 | 269.52 | .49 |
| 4800.00 | .74 | 4.78 | 4799.77 | 1.10 | -13.21 | 1.10 | 13.26 | 274.78 | .08 |
| 4900.00 | .45 | 357.28 | 4899.76 | 2.14 | -13.18 | 2.14 | 13.35 | 279.22 | .30 |
| 5000.00 | .33 | 353.75 | 4999.76 | 2.82 | -13.23 | 2.82 | 13.52 | 282.03 | .12 |
| 5100.00 | .33 | 358.08 | 5099.76 | 3.39 | -13.27 | 3.39 | 13.70 | 284.34 | .02 |
| 5200.00 | .45 | 5.38 | 5199.75 | 4.07 | -13.24 | 4.07 | 13.85 | 287.09 | .13 |
| 5300.00 | .70 | 354.42 | 5299.75 | 5.07 | -13.26 | 5.07 | 14.20 | 290.92 | .27 |
| 5400.00 | .82 | 345.50 | 5399.74 | 6.37 | -13.50 | 6.37 | 14.93 | 295.26 | .17 |
| 5500.00 | 1.33 | 345.27 | 5499.72 | 8.19 | -13.98 | 8.19 | 16.20 | 300.36 | .51 |
| 5600.00 | 1.65 | 340.20 | 5599.69 | 10.66 | -14.76 | 10.66 | 18.21 | 305.85 | .35 |
| 5700.00 | .69 | 306.64 | 5699.67 | 12.38 | -15.73 | 12.38 | 20.02 | 308.20 | 1.14 |
| 5800.00 | .39 | 252.48 | 5799.66 | 12.63 | -16.54 | 12.63 | 20.81 | 307.38 | .56 |
| 5900.00 | .22 | 222.69 | 5899.66 | 12.39 | -16.99 | 12.39 | 21.03 | 306.10 | .23 |
| 6000.00 | .25 | 248.02 | 5999.66 | 12.17 | -17.32 | 12.17 | 21.17 | 305.08 | .11 |
| 6100.00 | .17 | 269.64 | 6099.66 | 12.08 | -17.68 | 12.08 | 21.41 | 304.36 | .11 |
| 6200.00 | .37 | 261.30 | 6199.66 | 12.04 | -18.14 | 12.04 | 21.77 | 303.56 | .20 |
| 6300.00 | .68 | 246.23 | 6299.66 | 11.75 | -19.01 | 11.75 | 22.34 | 301.72 | .34 |
| 6400.00 | .79 | 238.58 | 6399.65 | 11.15 | -20.14 | 11.15 | 23.02 | 298.97 | .15 |
| 6500.00 | .74 | 282.93 | 6499.64 | 10.93 | -21.35 | 10.93 | 23.99 | 297.11 | .58 |
| 6600.00 | .06 | 64.23 | 6599.64 | 11.10 | -21.94 | 11.10 | 24.59 | 296.84 | .79 |
| 6700.00 | .14 | 343.25 | 6699.64 | 11.24 | -21.92 | 11.24 | 24.64 | 297.14 | .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 | |
| 6800.00 | .25 | 323.53 | 6799.64 | 11.53 | -22.09 | 11.53 | 24.92 | 297.57 | .13 |
| 6900.00 | .24 | 320.15 | 6899.64 | 11.87 | -22.35 | 11.87 | 25.31 | 297.97 | .02 |
| 7000.00 | .20 | 329.86 | 6999.63 | 12.18 | -22.58 | 12.18 | 25.65 | 298.35 | .05 |
| 7100.00 | .13 | 259.14 | 7099.63 | 12.31 | -22.77 | 12.31 | 25.89 | 298.39 | .20 |
| Last Survey Depth Recorded | | | | | | | | | |
| 7200.00 | .19 | 270.73 | 7199.63 | 12.29 | -23.05 | 12.29 | 26.12 | 298.07 | .07 |