



Job Number: SVGJ-141340
 Company: PDC
 Lease/Well: Schlagel 26-4
 Location: Weld County, CO
 Rig Name: MS Energy Wireline
 RKB: 0'
 G.L. or M.S.L.: GL

State/Country: Colorado/USA
 Declination: 8.26°
 Grid: East To True North
 File name: S:\2014SU~1\PDC\GJ\SCHLAGEL\264.SVY
 Date/Time: 19-Nov-14 / 13:39
 Curve Name: Surface - 6667' 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 | 2.26 | 218.00 | 99.97 | -1.55 | -1.21 | -1.55 | 1.97 | 218.00 | 2.26 |
| 200.00 | 1.88 | 220.43 | 199.91 | -4.36 | -3.49 | -4.36 | 5.58 | 218.71 | .39 |
| 300.00 | 1.31 | 202.85 | 299.87 | -6.66 | -5.00 | -6.66 | 8.33 | 216.90 | .74 |
| 400.00 | .72 | 177.07 | 399.85 | -8.34 | -5.41 | -8.34 | 9.94 | 212.98 | .73 |
| 500.00 | 1.02 | 187.72 | 499.84 | -9.85 | -5.50 | -9.85 | 11.28 | 209.18 | .34 |
| 600.00 | 1.00 | 173.62 | 599.83 | -11.60 | -5.52 | -11.60 | 12.85 | 205.46 | .25 |
| 700.00 | .77 | 184.62 | 699.82 | -13.13 | -5.48 | -13.13 | 14.23 | 202.64 | .28 |
| 800.00 | 1.01 | 188.61 | 799.80 | -14.68 | -5.66 | -14.68 | 15.73 | 201.10 | .25 |
| 900.00 | .93 | 171.54 | 899.79 | -16.35 | -5.68 | -16.35 | 17.31 | 199.15 | .30 |

| 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 | .76 | 186.49 | 999.78 | -17.81 | -5.63 | -17.81 | 18.68 | 197.55 | .28 |
| 1100.00 | .98 | 192.64 | 1099.77 | -19.31 | -5.89 | -19.31 | 20.19 | 196.98 | .24 |
| 1200.00 | .89 | 174.06 | 1199.75 | -20.91 | -6.00 | -20.91 | 21.76 | 196.01 | .31 |
| 1300.00 | .62 | 176.02 | 1299.75 | -22.22 | -5.88 | -22.22 | 22.99 | 194.83 | .27 |
| 1400.00 | .23 | 176.47 | 1399.74 | -22.96 | -5.83 | -22.96 | 23.69 | 194.25 | .39 |
| 1500.00 | .30 | 89.00 | 1499.74 | -23.16 | -5.56 | -23.16 | 23.82 | 193.50 | .37 |
| 1600.00 | .50 | 42.57 | 1599.74 | -22.83 | -5.00 | -22.83 | 23.38 | 192.36 | .37 |
| 1700.00 | .48 | 18.34 | 1699.74 | -22.12 | -4.58 | -22.12 | 22.58 | 191.69 | .21 |
| 1800.00 | .15 | 336.37 | 1799.73 | -21.60 | -4.50 | -21.60 | 22.06 | 191.76 | .38 |
| 1900.00 | .20 | 143.83 | 1899.73 | -21.62 | -4.45 | -21.62 | 22.07 | 191.62 | .35 |
| 2000.00 | .12 | 95.24 | 1999.73 | -21.77 | -4.24 | -21.77 | 22.18 | 191.02 | .15 |
| 2100.00 | .12 | 306.74 | 2099.73 | -21.72 | -4.22 | -21.72 | 22.12 | 190.99 | .23 |
| 2200.00 | .65 | 50.88 | 2199.73 | -21.30 | -3.86 | -21.30 | 21.64 | 190.28 | .69 |
| 2300.00 | 1.37 | 72.03 | 2299.72 | -20.57 | -2.28 | -20.57 | 20.70 | 186.34 | .80 |
| 2400.00 | 1.63 | 71.98 | 2399.68 | -19.76 | .20 | -19.76 | 19.76 | 179.41 | .26 |
| 2500.00 | 1.22 | 59.59 | 2499.65 | -18.78 | 2.48 | -18.78 | 18.94 | 172.49 | .51 |
| 2600.00 | .89 | 61.73 | 2599.63 | -17.87 | 4.08 | -17.87 | 18.33 | 167.15 | .33 |
| 2700.00 | .80 | 71.97 | 2699.62 | -17.29 | 5.43 | -17.29 | 18.12 | 162.58 | .18 |
| 2800.00 | .64 | 73.77 | 2799.61 | -16.92 | 6.63 | -16.92 | 18.17 | 158.61 | .16 |
| 2900.00 | .30 | 66.58 | 2899.61 | -16.66 | 7.40 | -16.66 | 18.23 | 156.04 | .34 |
| 3000.00 | .30 | 133.64 | 2999.61 | -16.73 | 7.83 | -16.73 | 18.48 | 154.92 | .33 |
| 3100.00 | .56 | 130.08 | 3099.61 | -17.23 | 8.40 | -17.23 | 19.17 | 154.02 | .26 |
| 3200.00 | .46 | 118.18 | 3199.60 | -17.73 | 9.12 | -17.73 | 19.94 | 152.78 | .15 |
| 3300.00 | .31 | 174.91 | 3299.60 | -18.19 | 9.50 | -18.19 | 20.52 | 152.43 | .39 |
| 3400.00 | .59 | 146.12 | 3399.60 | -18.89 | 9.81 | -18.89 | 21.29 | 152.55 | .35 |
| 3500.00 | .34 | 127.69 | 3499.59 | -19.50 | 10.33 | -19.50 | 22.07 | 152.08 | .29 |
| 3600.00 | .25 | 172.00 | 3599.59 | -19.90 | 10.60 | -19.90 | 22.54 | 151.96 | .24 |
| 3700.00 | .48 | 174.47 | 3699.59 | -20.53 | 10.67 | -20.53 | 23.14 | 152.54 | .23 |
| 3800.00 | .61 | 141.32 | 3799.59 | -21.36 | 11.04 | -21.36 | 24.05 | 152.66 | .33 |

| 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 | .59 | 138.77 | 3899.58 | -22.16 | 11.71 | -22.16 | 25.07 | 152.14 | .03 |
| 4000.00 | .67 | 169.27 | 3999.58 | -23.13 | 12.16 | -23.13 | 26.13 | 152.26 | .34 |
| 4100.00 | .94 | 159.19 | 4099.57 | -24.47 | 12.56 | -24.47 | 27.50 | 152.82 | .30 |
| 4200.00 | .78 | 147.91 | 4199.55 | -25.81 | 13.22 | -25.81 | 29.00 | 152.89 | .23 |
| 4300.00 | .30 | 185.71 | 4299.55 | -26.65 | 13.55 | -26.65 | 29.90 | 153.05 | .57 |
| 4400.00 | .80 | 277.82 | 4399.55 | -26.81 | 12.83 | -26.81 | 29.73 | 154.42 | .86 |
| 4500.00 | .66 | 244.92 | 4499.54 | -26.96 | 11.62 | -26.96 | 29.36 | 156.68 | .43 |
| 4600.00 | 1.89 | 161.51 | 4599.52 | -28.77 | 11.62 | -28.77 | 31.03 | 158.00 | 1.93 |
| 4700.00 | 2.01 | 158.24 | 4699.46 | -31.96 | 12.79 | -31.96 | 34.43 | 158.18 | .16 |
| 4800.00 | 1.83 | 175.37 | 4799.40 | -35.18 | 13.57 | -35.18 | 37.71 | 158.90 | .60 |
| 4900.00 | 1.73 | 180.90 | 4899.36 | -38.28 | 13.68 | -38.28 | 40.66 | 160.34 | .20 |
| 5000.00 | 1.26 | 185.61 | 4999.32 | -40.89 | 13.55 | -40.89 | 43.07 | 161.67 | .49 |
| 5100.00 | .66 | 207.27 | 5099.31 | -42.49 | 13.18 | -42.49 | 44.49 | 162.77 | .69 |
| 5200.00 | .73 | 219.05 | 5199.30 | -43.50 | 12.51 | -43.50 | 45.26 | 163.95 | .16 |
| 5300.00 | 1.26 | 192.69 | 5299.29 | -45.07 | 11.87 | -45.07 | 46.61 | 165.25 | .69 |
| 5400.00 | 1.29 | 188.73 | 5399.26 | -47.25 | 11.46 | -47.25 | 48.62 | 166.37 | .09 |
| 5500.00 | 1.15 | 197.44 | 5499.24 | -49.32 | 10.98 | -49.32 | 50.53 | 167.44 | .23 |
| 5600.00 | 1.24 | 197.20 | 5599.22 | -51.31 | 10.36 | -51.31 | 52.35 | 168.58 | .09 |
| 5700.00 | 1.14 | 179.94 | 5699.20 | -53.34 | 10.04 | -53.34 | 54.28 | 169.34 | .37 |
| 5800.00 | .75 | 182.36 | 5799.18 | -54.99 | 10.02 | -54.99 | 55.90 | 169.67 | .39 |
| 5900.00 | .48 | 188.74 | 5899.18 | -56.06 | 9.93 | -56.06 | 56.93 | 169.96 | .28 |
| 6000.00 | .58 | 167.34 | 5999.17 | -56.97 | 9.98 | -56.97 | 57.83 | 170.07 | .22 |
| 6100.00 | .40 | 104.34 | 6099.17 | -57.55 | 10.42 | -57.55 | 58.48 | 169.73 | .53 |
| 6200.00 | .13 | 139.13 | 6199.17 | -57.72 | 10.84 | -57.72 | 58.73 | 169.37 | .30 |
| 6300.00 | .29 | 178.54 | 6299.17 | -58.06 | 10.92 | -58.06 | 59.08 | 169.35 | .21 |
| 6400.00 | .34 | 123.73 | 6399.17 | -58.48 | 11.17 | -58.48 | 59.53 | 169.18 | .29 |
| 6500.00 | .33 | 93.63 | 6499.16 | -58.66 | 11.71 | -58.66 | 59.82 | 168.72 | .17 |
| 6600.00 | .08 | 316.23 | 6599.16 | -58.63 | 11.94 | -58.63 | 59.83 | 168.48 | .39 |

Last Survey Depth Recorded

| | | | | | | | | | |
|---------|-----|--------|---------|--------|-------|--------|-------|--------|-----|
| 6667.00 | .21 | 142.23 | 6666.16 | -58.69 | 11.99 | -58.69 | 59.90 | 168.46 | .43 |
|---------|-----|--------|---------|--------|-------|--------|-------|--------|-----|