



Job Number: SVGJ-120087
 Company: PDC
 Lease/Well: Walker 13-10
 Location: Weld County, CO
 Rig Name: Lightning Wireline
 RKB: 0'
 G.L. or M.S.L.: GL

State/Country: Colorado/USA
 Declination: 8.60°
 Grid: East To True
 File name: F:\SURVEY\2012SU~1\PDC\LORENZ\WALKER\13-10.SVY
 Date/Time: 07-Feb-12 / 12:52
 Curve Name: Surface - 6650' M.D. (Rate Gyro)

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 | .27 | 267.56 | 100.00 | -.01 | -.24 | -.01 | .24 | 267.56 | .27 |
| 200.00 | .37 | 279.30 | 200.00 | .03 | -.79 | .03 | .79 | 272.33 | .12 |
| 300.00 | .28 | 239.31 | 300.00 | -.04 | -1.32 | -.04 | 1.32 | 268.24 | .24 |
| 400.00 | .29 | 228.98 | 400.00 | -.33 | -1.72 | -.33 | 1.75 | 259.10 | .05 |
| 500.00 | .62 | 166.06 | 499.99 | -1.02 | -1.78 | -1.02 | 2.05 | 240.13 | .55 |
| 600.00 | .54 | 162.33 | 599.99 | -2.00 | -1.51 | -2.00 | 2.50 | 217.04 | .09 |
| 700.00 | .56 | 156.68 | 699.98 | -2.89 | -1.17 | -2.89 | 3.12 | 202.01 | .06 |
| 800.00 | .56 | 160.27 | 799.98 | -3.80 | -.81 | -3.80 | 3.89 | 192.05 | .04 |
| 900.00 | .75 | 129.80 | 899.97 | -4.68 | -.14 | -4.68 | 4.68 | 181.76 | .39 |

| 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 | .82 | 113.19 | 999.96 | -5.38 | 1.02 | -5.38 | 5.48 | 169.30 | .24 |
| 1100.00 | .73 | 92.69 | 1099.95 | -5.69 | 2.31 | -5.69 | 6.15 | 157.91 | .29 |
| 1200.00 | .46 | 163.76 | 1199.95 | -6.11 | 3.06 | -6.11 | 6.83 | 153.40 | .73 |
| 1300.00 | .39 | 115.36 | 1299.95 | -6.64 | 3.48 | -6.64 | 7.50 | 152.35 | .35 |
| 1400.00 | .55 | 39.85 | 1399.94 | -6.42 | 4.09 | -6.42 | 7.61 | 147.46 | .59 |
| 1500.00 | .30 | 152.02 | 1499.94 | -6.28 | 4.52 | -6.28 | 7.74 | 144.23 | .72 |
| 1600.00 | .35 | 93.62 | 1599.94 | -6.53 | 4.95 | -6.53 | 8.20 | 142.83 | .32 |
| 1700.00 | .43 | 34.25 | 1699.94 | -6.24 | 5.47 | -6.24 | 8.30 | 138.77 | .39 |
| 1800.00 | .60 | 346.44 | 1799.94 | -5.42 | 5.56 | -5.42 | 7.76 | 134.29 | .45 |
| 1900.00 | .41 | 67.87 | 1899.93 | -4.78 | 5.77 | -4.78 | 7.49 | 129.65 | .67 |
| 2000.00 | .66 | 29.32 | 1999.93 | -4.14 | 6.38 | -4.14 | 7.60 | 122.99 | .42 |
| 2100.00 | .91 | 355.43 | 2099.92 | -2.85 | 6.60 | -2.85 | 7.19 | 113.34 | .52 |
| 2200.00 | 1.27 | 328.49 | 2199.90 | -1.11 | 5.96 | -1.11 | 6.06 | 100.56 | .62 |
| 2300.00 | 1.19 | 340.93 | 2299.88 | .82 | 5.04 | .82 | 5.10 | 80.80 | .28 |
| 2400.00 | 1.30 | 318.67 | 2399.86 | 2.65 | 3.95 | 2.65 | 4.75 | 56.14 | .49 |
| 2500.00 | 1.13 | 332.61 | 2499.83 | 4.38 | 2.75 | 4.38 | 5.17 | 32.10 | .34 |
| 2600.00 | 1.34 | 313.05 | 2599.81 | 6.05 | 1.44 | 6.05 | 6.22 | 13.37 | .47 |
| 2700.00 | 1.39 | 312.98 | 2699.78 | 7.68 | -.30 | 7.68 | 7.68 | 357.73 | .05 |
| 2800.00 | 1.10 | 338.42 | 2799.76 | 9.39 | -1.54 | 9.39 | 9.52 | 350.66 | .62 |
| 2900.00 | 1.23 | 329.72 | 2899.74 | 11.21 | -2.44 | 11.21 | 11.48 | 347.73 | .22 |
| 3000.00 | 1.19 | 320.51 | 2999.72 | 12.94 | -3.64 | 12.94 | 13.44 | 344.29 | .20 |
| 3100.00 | .84 | 358.20 | 3099.70 | 14.48 | -4.32 | 14.48 | 15.11 | 343.37 | .73 |
| 3200.00 | 1.07 | 316.33 | 3199.69 | 15.88 | -4.99 | 15.88 | 16.65 | 342.56 | .72 |
| 3300.00 | .37 | 24.90 | 3299.68 | 16.85 | -5.50 | 16.85 | 17.73 | 341.92 | 1.00 |
| 3400.00 | .42 | 285.94 | 3399.68 | 17.25 | -5.72 | 17.25 | 18.17 | 341.66 | .60 |
| 3500.00 | .35 | 29.10 | 3499.68 | 17.61 | -5.92 | 17.61 | 18.58 | 341.42 | .60 |
| 3600.00 | .31 | 129.76 | 3599.68 | 17.71 | -5.56 | 17.71 | 18.56 | 342.56 | .51 |
| 3700.00 | .48 | 23.59 | 3699.68 | 17.92 | -5.19 | 17.92 | 18.65 | 343.85 | .64 |
| 3800.00 | .61 | 45.33 | 3799.67 | 18.68 | -4.64 | 18.68 | 19.24 | 346.04 | .24 |

| 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 | .78 | 36.18 | 3899.66 | 19.60 | -3.86 | 19.60 | 19.98 | 348.85 | .20 |
| 4000.00 | .69 | 32.71 | 3999.66 | 20.66 | -3.13 | 20.66 | 20.89 | 351.37 | .10 |
| 4100.00 | .72 | 71.62 | 4099.65 | 21.36 | -2.21 | 21.36 | 21.48 | 354.08 | .47 |
| 4200.00 | .95 | 137.21 | 4199.64 | 20.95 | -1.05 | 20.95 | 20.98 | 357.12 | .92 |
| 4300.00 | 1.41 | 104.19 | 4299.62 | 20.04 | .70 | 20.04 | 20.05 | 2.01 | .80 |
| 4400.00 | 1.19 | 140.68 | 4399.60 | 18.94 | 2.55 | 18.94 | 19.11 | 7.68 | .84 |
| 4500.00 | 1.59 | 133.02 | 4499.57 | 17.19 | 4.23 | 17.19 | 17.70 | 13.81 | .44 |
| 4600.00 | 1.29 | 169.66 | 4599.54 | 15.13 | 5.44 | 15.13 | 16.08 | 19.78 | .95 |
| 4700.00 | .93 | 154.36 | 4699.52 | 13.29 | 5.99 | 13.29 | 14.58 | 24.27 | .46 |
| 4800.00 | .89 | 146.48 | 4799.51 | 11.91 | 6.77 | 11.91 | 13.71 | 29.63 | .13 |
| 4900.00 | .63 | 183.79 | 4899.50 | 10.72 | 7.17 | 10.72 | 12.89 | 33.77 | .55 |
| 5000.00 | .71 | 189.82 | 4999.49 | 9.56 | 7.03 | 9.56 | 11.86 | 36.32 | .11 |
| 5100.00 | 1.03 | 143.52 | 5099.48 | 8.23 | 7.45 | 8.23 | 11.10 | 42.18 | .74 |
| 5200.00 | 1.50 | 164.64 | 5199.46 | 6.24 | 8.34 | 6.24 | 10.41 | 53.18 | .65 |
| 5300.00 | 1.84 | 173.64 | 5299.41 | 3.38 | 8.86 | 3.38 | 9.48 | 69.10 | .43 |
| 5400.00 | 1.79 | 186.79 | 5399.36 | .24 | 8.85 | .24 | 8.86 | 88.47 | .42 |
| 5500.00 | 1.76 | 184.43 | 5499.32 | -2.85 | 8.55 | -2.85 | 9.01 | 108.41 | .08 |
| 5600.00 | 1.69 | 171.15 | 5599.27 | -5.83 | 8.66 | -5.83 | 10.44 | 123.97 | .40 |
| 5700.00 | 1.65 | 156.07 | 5699.23 | -8.61 | 9.47 | -8.61 | 12.80 | 132.27 | .44 |
| 5800.00 | 1.60 | 159.22 | 5799.19 | -11.23 | 10.55 | -11.23 | 15.41 | 136.79 | .10 |
| 5900.00 | 1.50 | 170.62 | 5899.15 | -13.82 | 11.26 | -13.82 | 17.83 | 140.84 | .32 |
| 6000.00 | 1.47 | 174.64 | 5999.12 | -16.39 | 11.59 | -16.39 | 20.08 | 144.74 | .11 |
| 6100.00 | 1.44 | 182.78 | 6099.09 | -18.92 | 11.65 | -18.92 | 22.22 | 148.39 | .21 |
| 6200.00 | 1.43 | 176.81 | 6199.06 | -21.43 | 11.66 | -21.43 | 24.39 | 151.45 | .15 |
| 6300.00 | 1.52 | 175.38 | 6299.02 | -23.99 | 11.83 | -23.99 | 26.75 | 153.75 | .10 |
| 6400.00 | 1.66 | 160.13 | 6398.98 | -26.68 | 12.43 | -26.68 | 29.43 | 155.01 | .44 |
| 6500.00 | 1.78 | 148.82 | 6498.94 | -29.37 | 13.73 | -29.37 | 32.42 | 154.95 | .36 |
| 6600.00 | 2.02 | 152.21 | 6598.88 | -32.26 | 15.35 | -32.26 | 35.72 | 154.54 | .26 |

Last Survey Depth Recorded

| | | | | | | | | | |
|---------|------|--------|---------|--------|-------|--------|-------|--------|-----|
| 6650.00 | 2.15 | 149.05 | 6648.85 | -33.84 | 16.25 | -33.84 | 37.54 | 154.35 | .35 |
|---------|------|--------|---------|--------|-------|--------|-------|--------|-----|