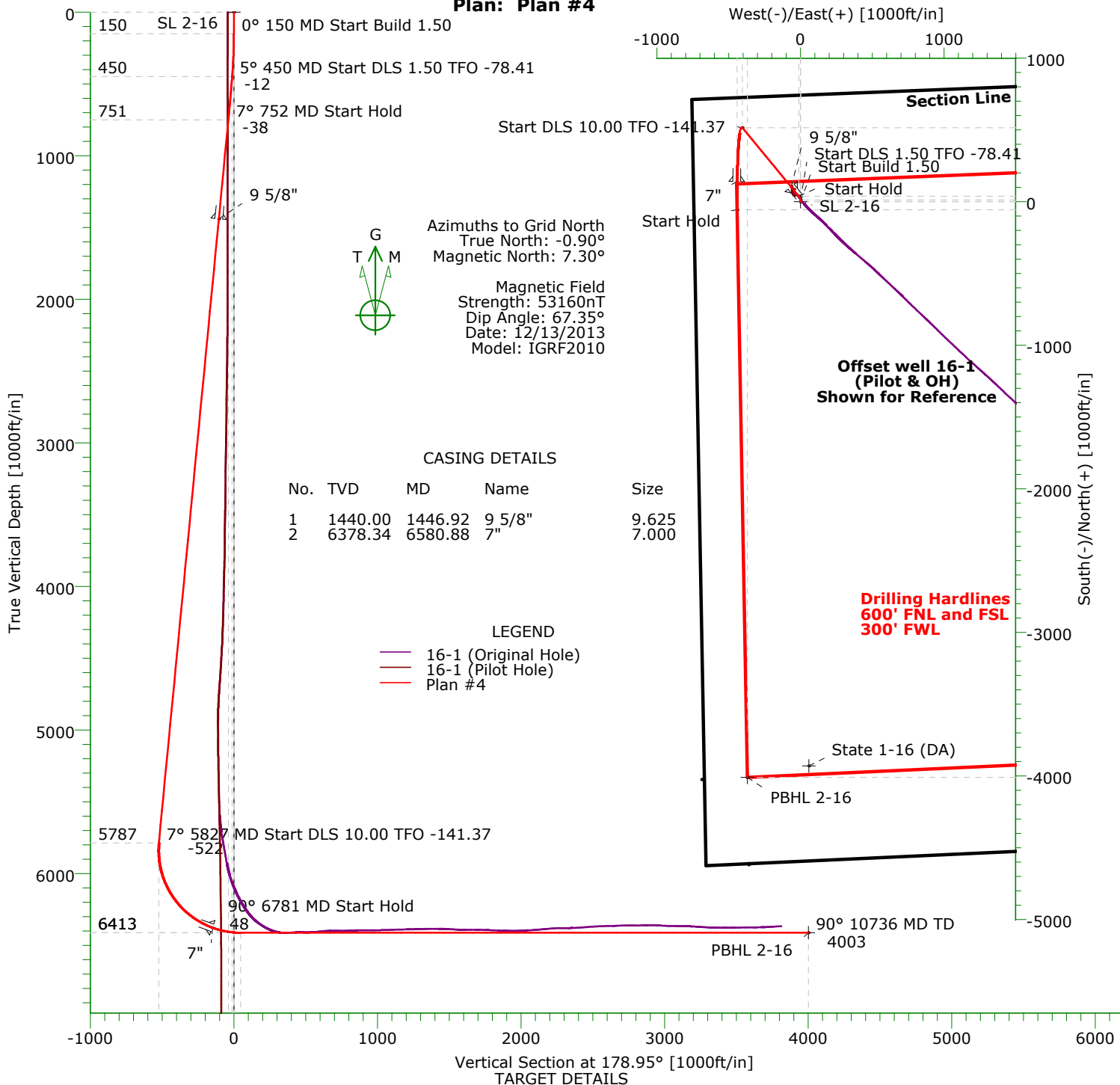




# CARRIZO OIL & GAS, INC.

Field: Niobrara CONZ'83  
Site: State 16-11-9-60  
Well: 2-16-9-60  
Wellpath: Original Hole  
Plan: Plan #4



# Precision Directional Services, Inc.

## Planning Report

|  |  |   |
|--|--|---|
| <b>Company:</b> CARRIZO OIL & GAS, INC.<br><b>Field:</b> Niobrara CONZ'83<br><b>Site:</b> State 16-11-9-60<br><b>Well:</b> 2-16-9-60<br><b>Wellpath:</b> Original Hole | <b>Date:</b> 11/13/2013<br><b>Co-ordinate(NE) Reference:</b> Well: 2-16-9-60, Grid North<br><b>Vertical (TVD) Reference:</b> 5011'GL+17'KB 5028.0<br><b>Section (VS) Reference:</b> Well (0.00N,0.00E,178.95Azi)<br><b>Plan:</b> Plan #4 | <b>Time:</b> 10:41:10<br><b>Page:</b> 1 |
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|--|---|
| <b>Field:</b> Niobrara CONZ'83<br><br><b>Map System:</b> US State Plane Coordinate System 1983<br><b>Geo Datum:</b> GRS 1980<br><b>Sys Datum:</b> Mean Sea Level | <b>Map Zone:</b> Colorado, Northern Zone<br><b>Coordinate System:</b> Well Centre<br><b>Geomagnetic Model:</b> IGRF2010 |
|--|---|

|  |   |
|--|---|
| <b>Site:</b> State 16-11-9-60<br><br>Weld County, CO<br><b>Site Position:</b><br><b>From:</b> Map<br><b>Position Uncertainty:</b> 0.00 ft<br><b>Ground Level:</b> 5011.00 ft | <b>Northing:</b> 1520935.59 ft<br><b>Easting:</b> 3386552.65 ft<br><br><b>Latitude:</b> 40 45 17.998 N<br><b>Longitude:</b> 104 6 17.032 W<br><b>North Reference:</b> Grid<br><b>Grid Convergence:</b> 0.90 deg |
|--|---|

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|--|---|
| <b>Well:</b> 2-16-9-60<br>adjusted from site 6-24<br><b>Well Position:</b> +N/-S -31.44 ft<br>+E/-W 32.16 ft<br><b>Position Uncertainty:</b> 0.00 ft | <b>Slot Name:</b> 2-16<br><br><b>Latitude:</b> 40 45 17.682 N<br><b>Longitude:</b> 104 6 16.621 W |
|--|---|

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|--|--|
| <b>Wellpath:</b> Original Hole<br><br><b>Current Datum:</b> 5011'GL+17'KB<br><b>Magnetic Data:</b> 12/13/2013<br><b>Field Strength:</b> 53160 nT<br><b>Vertical Section:</b> Depth From (TVD) ft | <b>Drilled From:</b> Surface<br><b>Tie-on Depth:</b> 0.00 ft<br><b>Above System Datum:</b> Mean Sea Level<br><b>Declination:</b> 8.20 deg<br><b>Mag Dip Angle:</b> 67.35 deg<br><b>+N/-S</b> ft<br><b>+E/-W</b> ft<br><b>Direction</b> deg |
| 0.00   | 0.00   |

|   |   |
|---|---|
| <b>Plan:</b> Plan #4<br>Adj Landing TVD HL to 600N/S 300W<br><b>Principal:</b> No | <b>Date Composed:</b> 11/13/2013<br><b>Version:</b> 1<br><b>Tied-to:</b> From Surface |
|---|---|

| Plan Section Information |             |             |           |             |             |                  |                    |                   |            |           |
|--------------------------|-------------|-------------|-----------|-------------|-------------|------------------|--------------------|-------------------|------------|-----------|
| MD<br>ft                 | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | TFO<br>deg | Target    |
| 0.00                     | 0.00        | 0.00        | 0.00      | 0.00        | 0.00        | 0.00             | 0.00               | 0.00              | 0.00       |           |
| 150.00                   | 0.00        | 0.00        | 150.00    | 0.00        | 0.00        | 0.00             | 0.00               | 0.00              | 0.00       |           |
| 450.00                   | 4.50        | 0.00        | 449.69    | 11.77       | 0.00        | 1.50             | 1.50               | 0.00              | 0.00       |           |
| 752.33                   | 7.00        | 320.53      | 750.58    | 37.87       | -11.71      | 1.50             | 0.83               | -13.06            | -78.41     |           |
| 5826.72                  | 7.00        | 320.53      | 5787.17   | 515.12      | -404.74     | 0.00             | 0.00               | 0.00              | 0.00       |           |
| 6781.49                  | 90.00       | 178.95      | 6413.00   | -56.00      | -442.05     | 10.00            | 8.69               | -14.83            | -141.37    |           |
| 10736.43                 | 90.00       | 178.95      | 6413.00   | -4010.28    | -369.73     | 0.00             | 0.00               | 0.00              | 0.00       | PBHL 2-16 |

| Survey   |             |             |           |             |             |          |                  |                    |                   |              |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|--------------|
| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | VS<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | Tool/Comment |
| 0.00     | 0.00        | 0.00        | 0.00      | 0.00        | 0.00        | 0.00     | 0.00             | 0.00               | 0.00              |              |
| 100.00   | 0.00        | 0.00        | 100.00    | 0.00        | 0.00        | 0.00     | 0.00             | 0.00               | 0.00              |              |
| 150.00   | 0.00        | 0.00        | 150.00    | 0.00        | 0.00        | 0.00     | 0.00             | 0.00               | 0.00              |              |
| 200.00   | 0.75        | 0.00        | 200.00    | 0.33        | 0.00        | -0.33    | 1.50             | 1.50               | 0.00              |              |
| 300.00   | 2.25        | 0.00        | 299.96    | 2.94        | 0.00        | -2.94    | 1.50             | 1.50               | 0.00              |              |
| 400.00   | 3.75        | 0.00        | 399.82    | 8.18        | 0.00        | -8.18    | 1.50             | 1.50               | 0.00              |              |
| 450.00   | 4.50        | 0.00        | 449.69    | 11.77       | 0.00        | -11.77   | 1.50             | 1.50               | 0.00              |              |
| 500.00   | 4.71        | 351.01      | 499.53    | 15.76       | -0.32       | -15.77   | 1.50             | 0.42               | -17.97            |              |
| 600.00   | 5.42        | 335.97      | 599.14    | 24.13       | -2.88       | -24.18   | 1.50             | 0.71               | -15.04            |              |
| 700.00   | 6.41        | 324.97      | 698.61    | 33.01       | -8.01       | -33.16   | 1.50             | 0.99               | -11.00            |              |
| 752.33   | 7.00        | 320.53      | 750.58    | 37.87       | -11.71      | -38.07   | 1.50             | 1.13               | -8.49             |              |
| 800.00   | 7.00        | 320.53      | 797.90    | 42.35       | -15.41      | -42.62   | 0.00             | 0.00               | 0.00              |              |
| 900.00   | 7.00        | 320.53      | 897.16    | 51.75       | -23.15      | -52.17   | 0.00             | 0.00               | 0.00              |              |
| 1000.00  | 7.00        | 320.53      | 996.41    | 61.16       | -30.90      | -61.72   | 0.00             | 0.00               | 0.00              |              |
| 1100.00  | 7.00        | 320.53      | 1095.67   | 70.56       | -38.64      | -71.26   | 0.00             | 0.00               | 0.00              |              |

# Precision Directional Services, Inc.

## Planning Report

**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara CONZ'83  
**Site:** State 16-11-9-60  
**Well:** 2-16-9-60  
**Wellpath:** Original Hole

**Date:** 11/13/2013  
**Co-ordinate(NE) Reference:** Well: 2-16-9-60, Grid North  
**Vertical (TVD) Reference:** 5011'GL+17'KB 5028.0  
**Section (VS) Reference:** Well (0.00N,0.00E,178.95Azi)  
**Plan:** Plan #4

**Page:** 2

### Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | VS<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | Tool/Comment |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|--------------|
| 1200.00  | 7.00        | 320.53      | 1194.92   | 79.97       | -46.39      | -80.81   | 0.00             | 0.00               | 0.00              |              |
| 1300.00  | 7.00        | 320.53      | 1294.18   | 89.38       | -54.13      | -90.35   | 0.00             | 0.00               | 0.00              |              |
| 1400.00  | 7.00        | 320.53      | 1393.43   | 98.78       | -61.88      | -99.90   | 0.00             | 0.00               | 0.00              |              |
| 1446.92  | 7.00        | 320.53      | 1440.00   | 103.19      | -65.51      | -104.38  | 0.00             | 0.00               | 0.00              | 9 5/8"       |
| 1500.00  | 7.00        | 320.53      | 1492.69   | 108.19      | -69.62      | -109.44  | 0.00             | 0.00               | 0.00              |              |
| 1600.00  | 7.00        | 320.53      | 1591.94   | 117.59      | -77.37      | -118.99  | 0.00             | 0.00               | 0.00              |              |
| 1700.00  | 7.00        | 320.53      | 1691.20   | 127.00      | -85.11      | -128.53  | 0.00             | 0.00               | 0.00              |              |
| 1800.00  | 7.00        | 320.53      | 1790.45   | 136.40      | -92.86      | -138.08  | 0.00             | 0.00               | 0.00              |              |
| 1900.00  | 7.00        | 320.53      | 1889.71   | 145.81      | -100.61     | -147.63  | 0.00             | 0.00               | 0.00              |              |
| 2000.00  | 7.00        | 320.53      | 1988.96   | 155.21      | -108.35     | -157.17  | 0.00             | 0.00               | 0.00              |              |
| 2100.00  | 7.00        | 320.53      | 2088.22   | 164.62      | -116.10     | -166.72  | 0.00             | 0.00               | 0.00              |              |
| 2200.00  | 7.00        | 320.53      | 2187.47   | 174.02      | -123.84     | -176.26  | 0.00             | 0.00               | 0.00              |              |
| 2300.00  | 7.00        | 320.53      | 2286.73   | 183.43      | -131.59     | -185.81  | 0.00             | 0.00               | 0.00              |              |
| 2400.00  | 7.00        | 320.53      | 2385.98   | 192.83      | -139.33     | -195.35  | 0.00             | 0.00               | 0.00              |              |
| 2500.00  | 7.00        | 320.53      | 2485.24   | 202.24      | -147.08     | -204.90  | 0.00             | 0.00               | 0.00              |              |
| 2600.00  | 7.00        | 320.53      | 2584.49   | 211.64      | -154.82     | -214.44  | 0.00             | 0.00               | 0.00              |              |
| 2700.00  | 7.00        | 320.53      | 2683.75   | 221.05      | -162.57     | -223.99  | 0.00             | 0.00               | 0.00              |              |
| 2800.00  | 7.00        | 320.53      | 2783.00   | 230.45      | -170.31     | -233.53  | 0.00             | 0.00               | 0.00              |              |
| 2900.00  | 7.00        | 320.53      | 2882.26   | 239.86      | -178.06     | -243.08  | 0.00             | 0.00               | 0.00              |              |
| 3000.00  | 7.00        | 320.53      | 2981.51   | 249.26      | -185.80     | -252.63  | 0.00             | 0.00               | 0.00              |              |
| 3100.00  | 7.00        | 320.53      | 3080.77   | 258.67      | -193.55     | -262.17  | 0.00             | 0.00               | 0.00              |              |
| 3200.00  | 7.00        | 320.53      | 3180.02   | 268.07      | -201.29     | -271.72  | 0.00             | 0.00               | 0.00              |              |
| 3300.00  | 7.00        | 320.53      | 3279.28   | 277.48      | -209.04     | -281.26  | 0.00             | 0.00               | 0.00              |              |
| 3400.00  | 7.00        | 320.53      | 3378.53   | 286.88      | -216.79     | -290.81  | 0.00             | 0.00               | 0.00              |              |
| 3500.00  | 7.00        | 320.53      | 3477.79   | 296.29      | -224.53     | -300.35  | 0.00             | 0.00               | 0.00              |              |
| 3600.00  | 7.00        | 320.53      | 3577.04   | 305.69      | -232.28     | -309.90  | 0.00             | 0.00               | 0.00              |              |
| 3700.00  | 7.00        | 320.53      | 3676.30   | 315.10      | -240.02     | -319.44  | 0.00             | 0.00               | 0.00              |              |
| 3800.00  | 7.00        | 320.53      | 3775.55   | 324.50      | -247.77     | -328.99  | 0.00             | 0.00               | 0.00              |              |
| 3900.00  | 7.00        | 320.53      | 3874.81   | 333.91      | -255.51     | -338.53  | 0.00             | 0.00               | 0.00              |              |
| 4000.00  | 7.00        | 320.53      | 3974.06   | 343.31      | -263.26     | -348.08  | 0.00             | 0.00               | 0.00              |              |
| 4100.00  | 7.00        | 320.53      | 4073.32   | 352.72      | -271.00     | -357.63  | 0.00             | 0.00               | 0.00              |              |
| 4200.00  | 7.00        | 320.53      | 4172.57   | 362.12      | -278.75     | -367.17  | 0.00             | 0.00               | 0.00              |              |
| 4300.00  | 7.00        | 320.53      | 4271.83   | 371.53      | -286.49     | -376.72  | 0.00             | 0.00               | 0.00              |              |
| 4400.00  | 7.00        | 320.53      | 4371.08   | 380.93      | -294.24     | -386.26  | 0.00             | 0.00               | 0.00              |              |
| 4500.00  | 7.00        | 320.53      | 4470.34   | 390.34      | -301.98     | -395.81  | 0.00             | 0.00               | 0.00              |              |
| 4600.00  | 7.00        | 320.53      | 4569.59   | 399.74      | -309.73     | -405.35  | 0.00             | 0.00               | 0.00              |              |
| 4700.00  | 7.00        | 320.53      | 4668.85   | 409.15      | -317.48     | -414.90  | 0.00             | 0.00               | 0.00              |              |
| 4800.00  | 7.00        | 320.53      | 4768.10   | 418.56      | -325.22     | -424.44  | 0.00             | 0.00               | 0.00              |              |
| 4900.00  | 7.00        | 320.53      | 4867.36   | 427.96      | -332.97     | -433.99  | 0.00             | 0.00               | 0.00              |              |
| 5000.00  | 7.00        | 320.53      | 4966.61   | 437.37      | -340.71     | -443.54  | 0.00             | 0.00               | 0.00              |              |
| 5100.00  | 7.00        | 320.53      | 5065.87   | 446.77      | -348.46     | -453.08  | 0.00             | 0.00               | 0.00              |              |
| 5200.00  | 7.00        | 320.53      | 5165.12   | 456.18      | -356.20     | -462.63  | 0.00             | 0.00               | 0.00              |              |
| 5300.00  | 7.00        | 320.53      | 5264.38   | 465.58      | -363.95     | -472.17  | 0.00             | 0.00               | 0.00              |              |
| 5400.00  | 7.00        | 320.53      | 5363.63   | 474.99      | -371.69     | -481.72  | 0.00             | 0.00               | 0.00              |              |
| 5500.00  | 7.00        | 320.53      | 5462.89   | 484.39      | -379.44     | -491.26  | 0.00             | 0.00               | 0.00              |              |
| 5600.00  | 7.00        | 320.53      | 5562.14   | 493.80      | -387.18     | -500.81  | 0.00             | 0.00               | 0.00              |              |
| 5700.00  | 7.00        | 320.53      | 5661.40   | 503.20      | -394.93     | -510.35  | 0.00             | 0.00               | 0.00              |              |
| 5800.00  | 7.00        | 320.53      | 5760.65   | 512.61      | -402.67     | -519.90  | 0.00             | 0.00               | 0.00              |              |
| 5826.72  | 7.00        | 320.53      | 5787.17   | 515.12      | -404.74     | -522.45  | 0.00             | 0.00               | 0.00              |              |
| 5850.00  | 5.38        | 304.83      | 5810.32   | 516.84      | -406.54     | -524.20  | 10.00            | -6.96              | -67.43            |              |
| 5900.00  | 4.74        | 245.94      | 5860.15   | 517.33      | -410.35     | -524.77  | 10.00            | -1.28              | -117.79           |              |
| 5950.00  | 8.12        | 211.29      | 5909.85   | 513.47      | -414.07     | -520.98  | 10.00            | 6.76               | -69.29            |              |
| 6000.00  | 12.62       | 198.88      | 5959.03   | 505.29      | -417.68     | -512.85  | 10.00            | 9.00               | -24.83            |              |

# Precision Directional Services, Inc.

## Planning Report

**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara CONZ'83  
**Site:** State 16-11-9-60  
**Well:** 2-16-9-60  
**Wellpath:** Original Hole

**Date:** 11/13/2013  
**Co-ordinate(NE) Reference:** Well: 2-16-9-60, Grid North  
**Vertical (TVD) Reference:** 5011'GL+17'KB 5028.0  
**Section (VS) Reference:** Well (0.00N,0.00E,178.95Azi)  
**Plan:** Plan #4

**Page:** 3

### Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | VS<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | Tool/Comment |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|--------------|
| 6050.00  | 17.39       | 193.05      | 6007.31   | 492.83      | -421.13     | -500.47  | 10.00            | 9.55               | -11.66            |              |
| 6100.00  | 22.26       | 189.69      | 6054.33   | 476.21      | -424.42     | -483.90  | 10.00            | 9.74               | -6.71             |              |
| 6150.00  | 27.18       | 187.50      | 6099.74   | 455.54      | -427.50     | -463.29  | 10.00            | 9.83               | -4.39             |              |
| 6200.00  | 32.12       | 185.93      | 6143.18   | 430.98      | -430.37     | -438.79  | 10.00            | 9.88               | -3.13             |              |
| 6250.00  | 37.07       | 184.75      | 6184.33   | 402.72      | -432.99     | -410.59  | 10.00            | 9.91               | -2.37             |              |
| 6300.00  | 42.04       | 183.81      | 6222.87   | 370.98      | -435.35     | -378.90  | 10.00            | 9.93               | -1.88             |              |
| 6350.00  | 47.01       | 183.03      | 6258.51   | 336.00      | -437.43     | -343.96  | 10.00            | 9.94               | -1.55             |              |
| 6400.00  | 51.98       | 182.37      | 6290.97   | 298.03      | -439.21     | -306.03  | 10.00            | 9.95               | -1.32             |              |
| 6450.00  | 56.96       | 181.80      | 6320.02   | 257.38      | -440.69     | -265.42  | 10.00            | 9.96               | -1.15             |              |
| 6500.00  | 61.94       | 181.28      | 6345.43   | 214.35      | -441.84     | -222.41  | 10.00            | 9.96               | -1.03             |              |
| 6550.00  | 66.92       | 180.82      | 6367.00   | 169.27      | -442.66     | -177.36  | 10.00            | 9.96               | -0.94             |              |
| 6580.88  | 70.00       | 180.54      | 6378.34   | 140.55      | -443.00     | -148.65  | 10.00            | 9.97               | -0.88             | 7"           |
| 6600.00  | 71.91       | 180.38      | 6384.58   | 122.48      | -443.15     | -130.58  | 10.00            | 9.97               | -0.85             |              |
| 6650.00  | 76.89       | 179.97      | 6398.02   | 74.34       | -443.29     | -82.45   | 10.00            | 9.97               | -0.82             |              |
| 6700.00  | 81.87       | 179.58      | 6407.23   | 25.21       | -443.10     | -33.33   | 10.00            | 9.97               | -0.79             |              |
| 6750.00  | 86.86       | 179.19      | 6412.14   | -24.53      | -442.56     | 16.41    | 10.00            | 9.97               | -0.77             |              |
| 6781.49  | 90.00       | 178.95      | 6413.00   | -56.00      | -442.05     | 47.89    | 10.00            | 9.97               | -0.76             |              |
| 6800.00  | 90.00       | 178.95      | 6413.00   | -74.50      | -441.71     | 66.40    | 0.00             | 0.00               | 0.00              |              |
| 6900.00  | 90.00       | 178.95      | 6413.00   | -174.49     | -439.88     | 166.40   | 0.00             | 0.00               | 0.00              |              |
| 7000.00  | 90.00       | 178.95      | 6413.00   | -274.47     | -438.05     | 266.40   | 0.00             | 0.00               | 0.00              |              |
| 7100.00  | 90.00       | 178.95      | 6413.00   | -374.45     | -436.23     | 366.40   | 0.00             | 0.00               | 0.00              |              |
| 7200.00  | 90.00       | 178.95      | 6413.00   | -474.44     | -434.40     | 466.40   | 0.00             | 0.00               | 0.00              |              |
| 7300.00  | 90.00       | 178.95      | 6413.00   | -574.42     | -432.57     | 566.40   | 0.00             | 0.00               | 0.00              |              |
| 7400.00  | 90.00       | 178.95      | 6413.00   | -674.40     | -430.74     | 666.40   | 0.00             | 0.00               | 0.00              |              |
| 7500.00  | 90.00       | 178.95      | 6413.00   | -774.39     | -428.91     | 766.40   | 0.00             | 0.00               | 0.00              |              |
| 7600.00  | 90.00       | 178.95      | 6413.00   | -874.37     | -427.08     | 866.40   | 0.00             | 0.00               | 0.00              |              |
| 7700.00  | 90.00       | 178.95      | 6413.00   | -974.35     | -425.25     | 966.40   | 0.00             | 0.00               | 0.00              |              |
| 7800.00  | 90.00       | 178.95      | 6413.00   | -1074.34    | -423.43     | 1066.40  | 0.00             | 0.00               | 0.00              |              |
| 7900.00  | 90.00       | 178.95      | 6413.00   | -1174.32    | -421.60     | 1166.40  | 0.00             | 0.00               | 0.00              |              |
| 8000.00  | 90.00       | 178.95      | 6413.00   | -1274.30    | -419.77     | 1266.40  | 0.00             | 0.00               | 0.00              |              |
| 8100.00  | 90.00       | 178.95      | 6413.00   | -1374.29    | -417.94     | 1366.40  | 0.00             | 0.00               | 0.00              |              |
| 8200.00  | 90.00       | 178.95      | 6413.00   | -1474.27    | -416.11     | 1466.40  | 0.00             | 0.00               | 0.00              |              |
| 8300.00  | 90.00       | 178.95      | 6413.00   | -1574.25    | -414.28     | 1566.40  | 0.00             | 0.00               | 0.00              |              |
| 8400.00  | 90.00       | 178.95      | 6413.00   | -1674.24    | -412.45     | 1666.40  | 0.00             | 0.00               | 0.00              |              |
| 8500.00  | 90.00       | 178.95      | 6413.00   | -1774.22    | -410.63     | 1766.40  | 0.00             | 0.00               | 0.00              |              |
| 8600.00  | 90.00       | 178.95      | 6413.00   | -1874.20    | -408.80     | 1866.40  | 0.00             | 0.00               | 0.00              |              |
| 8700.00  | 90.00       | 178.95      | 6413.00   | -1974.19    | -406.97     | 1966.40  | 0.00             | 0.00               | 0.00              |              |
| 8800.00  | 90.00       | 178.95      | 6413.00   | -2074.17    | -405.14     | 2066.40  | 0.00             | 0.00               | 0.00              |              |
| 8900.00  | 90.00       | 178.95      | 6413.00   | -2174.15    | -403.31     | 2166.40  | 0.00             | 0.00               | 0.00              |              |
| 9000.00  | 90.00       | 178.95      | 6413.00   | -2274.14    | -401.48     | 2266.40  | 0.00             | 0.00               | 0.00              |              |
| 9100.00  | 90.00       | 178.95      | 6413.00   | -2374.12    | -399.65     | 2366.40  | 0.00             | 0.00               | 0.00              |              |
| 9200.00  | 90.00       | 178.95      | 6413.00   | -2474.10    | -397.83     | 2466.40  | 0.00             | 0.00               | 0.00              |              |
| 9300.00  | 90.00       | 178.95      | 6413.00   | -2574.09    | -396.00     | 2566.40  | 0.00             | 0.00               | 0.00              |              |
| 9400.00  | 90.00       | 178.95      | 6413.00   | -2674.07    | -394.17     | 2666.40  | 0.00             | 0.00               | 0.00              |              |
| 9500.00  | 90.00       | 178.95      | 6413.00   | -2774.05    | -392.34     | 2766.40  | 0.00             | 0.00               | 0.00              |              |
| 9600.00  | 90.00       | 178.95      | 6413.00   | -2874.04    | -390.51     | 2866.40  | 0.00             | 0.00               | 0.00              |              |
| 9700.00  | 90.00       | 178.95      | 6413.00   | -2974.02    | -388.68     | 2966.40  | 0.00             | 0.00               | 0.00              |              |
| 9800.00  | 90.00       | 178.95      | 6413.00   | -3074.00    | -386.85     | 3066.40  | 0.00             | 0.00               | 0.00              |              |
| 9900.00  | 90.00       | 178.95      | 6413.00   | -3173.99    | -385.03     | 3166.40  | 0.00             | 0.00               | 0.00              |              |
| 10000.00 | 90.00       | 178.95      | 6413.00   | -3273.97    | -383.20     | 3266.40  | 0.00             | 0.00               | 0.00              |              |
| 10100.00 | 90.00       | 178.95      | 6413.00   | -3373.95    | -381.37     | 3366.40  | 0.00             | 0.00               | 0.00              |              |
| 10200.00 | 90.00       | 178.95      | 6413.00   | -3473.94    | -379.54     | 3466.40  | 0.00             | 0.00               | 0.00              |              |
| 10300.00 | 90.00       | 178.95      | 6413.00   | -3573.92    | -377.71     | 3566.40  | 0.00             | 0.00               | 0.00              |              |

# Precision Directional Services, Inc.

## Planning Report

**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara CONZ'83  
**Site:** State 16-11-9-60  
**Well:** 2-16-9-60  
**Wellpath:** Original Hole

**Date:** 11/13/2013  
**Co-ordinate(NE) Reference:** Well: 2-16-9-60, Grid North  
**Vertical (TVD) Reference:** 5011'GL+17'KB 5028.0  
**Section (VS) Reference:** Well (0.00N,0.00E,178.95Azi)  
**Plan:** Plan #4

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### Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | VS<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | Tool/Comment |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|--------------|
| 10400.00 | 90.00       | 178.95      | 6413.00   | -3673.90    | -375.88     | 3666.40  | 0.00             | 0.00               | 0.00              |              |
| 10500.00 | 90.00       | 178.95      | 6413.00   | -3773.89    | -374.05     | 3766.40  | 0.00             | 0.00               | 0.00              |              |
| 10600.00 | 90.00       | 178.95      | 6413.00   | -3873.87    | -372.22     | 3866.40  | 0.00             | 0.00               | 0.00              |              |
| 10700.00 | 90.00       | 178.95      | 6413.00   | -3973.85    | -370.40     | 3966.40  | 0.00             | 0.00               | 0.00              |              |
| 10736.43 | 90.00       | 178.95      | 6413.00   | -4010.28    | -369.73     | 4002.83  | 0.00             | 0.00               | 0.00              | PBHL 2-16    |

### Targets

| Name            | Description<br>Dip. | Dir. | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | Map<br>Northing<br>ft | Map<br>Easting<br>ft | <---- Latitude ----> |    |          | <--- Longitude ---> |   |          |
|-----------------|---------------------|------|-----------|-------------|-------------|-----------------------|----------------------|----------------------|----|----------|---------------------|---|----------|
| State 1-16 (DA) |                     |      | -100.00   | -3930.49    | 59.03       | 1516973.66            | 3386643.84           | 40                   | 44 | 38.840 N | 104                 | 6 | 16.658 W |
| SL 2-16         |                     |      | 0.00      | 0.00        | 0.00        | 1520904.15            | 3386584.81           | 40                   | 45 | 17.682 N | 104                 | 6 | 16.621 W |
| PBHL 2-16       |                     |      | 6413.00   | -4010.28    | -369.73     | 1516893.87            | 3386215.08           | 40                   | 44 | 38.118 N | 104                 | 6 | 22.244 W |

### Casing Points

| MD<br>ft | TVD<br>ft | Diameter<br>in | Hole Size<br>in | Name   |
|----------|-----------|----------------|-----------------|--------|
| 1446.92  | 1440.00   | 9.625          | 12.250          | 9 5/8" |
| 6580.88  | 6378.34   | 7.000          | 8.500           | 7"     |