

Well Name: **Nelson 14-32D**

Surface Location: Nelson 32BD Pad Sec.32-T7N-R66W  
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

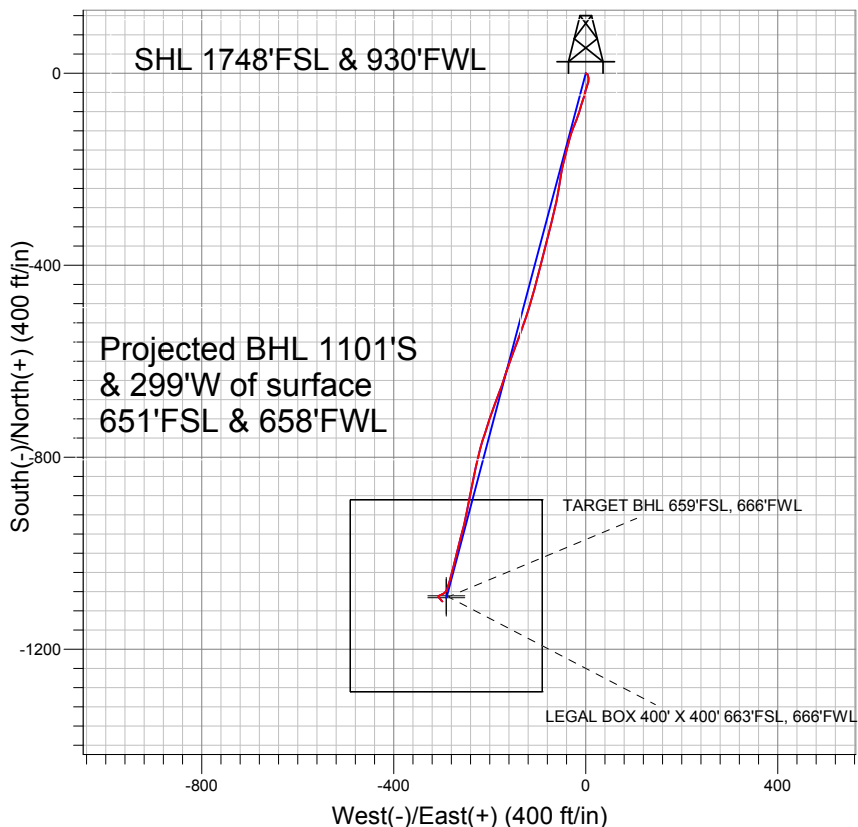
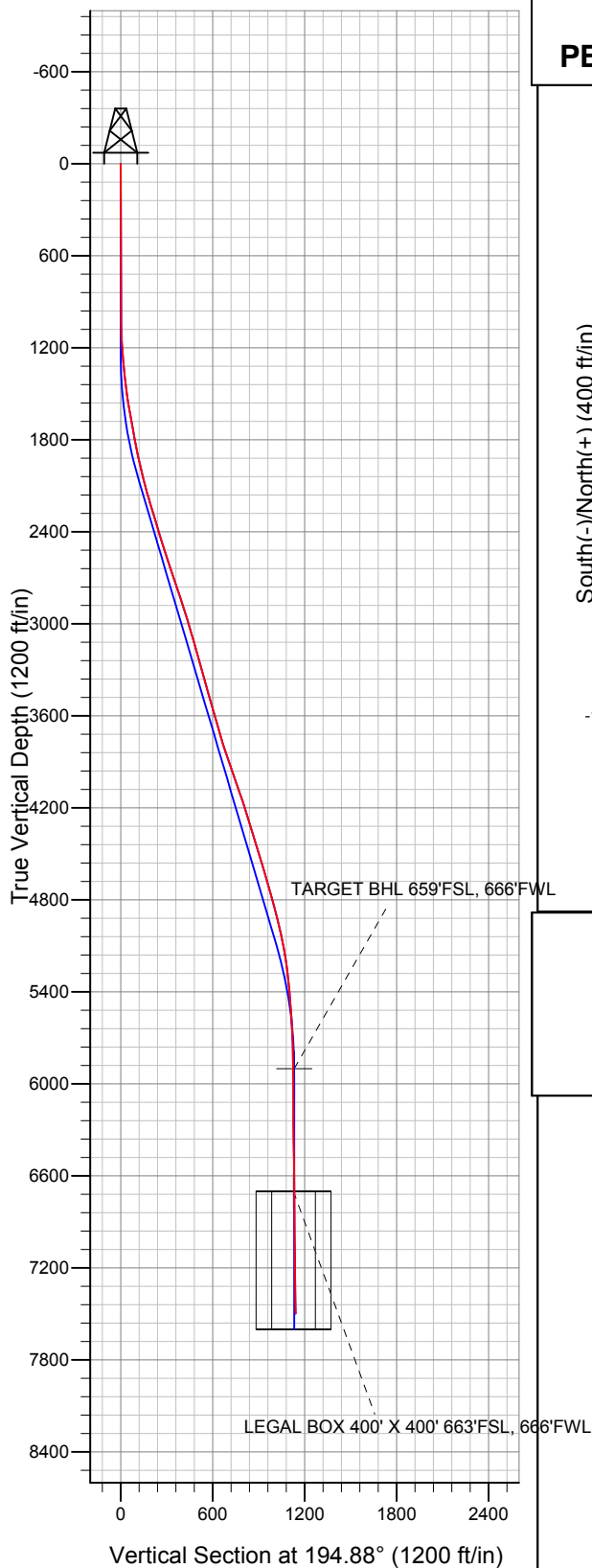
Ground Elevation: 4860.0

| +N/-S | +E/-W | Northing   | Easting    | Latitude         | Longitude         |
|-------|-------|------------|------------|------------------|-------------------|
| 0.0   | 0.0   | 1436109.39 | 3191914.44 | 40° 31' 42.492 N | 104° 48' 34.596 W |

Original Well Elev WELL @ 4873.0ft (Original Well Elev)

Slot

**PETROLEUM DEVELOPMENT CORP Weld County CO**



**LEGEND**

- △ Nelson 14-32D, Wellbore #1, Plan #1 (1-04-11) V0
- Wellbore #1
- Survey #1

**Final Survey Plot**

Projected Final Survey -  
7649'MD & 7497'TVD @ 1140'VS  
1.3 deg Inc 137.7 deg AZ

Project: SEC.32-T7N-R66W  
Site: Nelson 32BD Pad Sec.32-T7N-R66W  
Well: Nelson 14-32D  
Plan: Wellbore #1



## **Directional**

# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.32-T7N-R66W**

**Nelson 32BD Pad Sec.32-T7N-R66W**

**Nelson 14-32D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**18 April, 2011**

|                  |   |                                     |                                      |
|------------------|---|-------------------------------------|--------------------------------------|
| <b>Company:</b>  | PETROLEUM DEVELOPMENT CORP Weld County CO | <b>Local Co-ordinate Reference:</b> | Well Nelson 14-32D                   |
| <b>Project:</b>  | SEC.32-T7N-R66W                           | <b>TVD Reference:</b>               | WELL @ 4873.0ft (Original Well Elev) |
| <b>Site:</b>     | Nelson 32BD Pad Sec.32-T7N-R66W           | <b>MD Reference:</b>                | WELL @ 4873.0ft (Original Well Elev) |
| <b>Well:</b>     | Nelson 14-32D                             | <b>North Reference:</b>             | True                                 |
| <b>Wellbore:</b> | Wellbore #1                               | <b>Survey Calculation Method:</b>   | Minimum Curvature                    |
| <b>Design:</b>   | Wellbore #1                               | <b>Database:</b>                    | Landmark                             |

|                    |  |                      |                             |
|--------------------|--|----------------------|-----------------------------|
| <b>Project</b>     | SEC.32-T7N-R66W, Weld County, Colorado |                      |                             |
| <b>Map System:</b> | US State Plane 1983                    | <b>System Datum:</b> | Mean Sea Level              |
| <b>Geo Datum:</b>  | North American Datum 1983              |                      | Using Well Reference Point  |
| <b>Map Zone:</b>   | Colorado Northern Zone                 |                      | Using geodetic scale factor |

|                              |                                 |                          |                   |
|------------------------------|---------------------------------|--------------------------|-------------------|
| <b>Site</b>                  | Nelson 32BD Pad Sec.32-T7N-R66W |                          |                   |
| <b>Site Position:</b>        |                                 | <b>Northing:</b>         | 1,436,065.66 ft   |
| <b>From:</b>                 | Lat/Long                        | <b>Easting:</b>          | 3,191,912.00 ft   |
| <b>Position Uncertainty:</b> | 0.0 ft                          | <b>Slot Radius:</b>      | "                 |
|                              |                                 | <b>Latitude:</b>         | 40° 31' 42.060 N  |
|                              |                                 | <b>Longitude:</b>        | 104° 48' 34.632 W |
|                              |                                 | <b>Grid Convergence:</b> | 0.45 °            |

|                             |               |                            |                   |
|-----------------------------|---------------|----------------------------|-------------------|
| <b>Well</b>                 | Nelson 14-32D |                            |                   |
| <b>Well Position</b>        | <b>+N/-S</b>  | 0.0 ft                     | <b>Northing:</b>  |
|                             | <b>+E/-W</b>  | 0.0 ft                     | <b>Easting:</b>   |
| <b>Position Uncertainty</b> | 0.0 ft        | <b>Wellhead Elevation:</b> | ft                |
|                             |               | <b>Latitude:</b>           | 40° 31' 42.492 N  |
|                             |               | <b>Longitude:</b>          | 104° 48' 34.596 W |
|                             |               | <b>Ground Level:</b>       | 4,860.0 ft        |

|                  |                   |                    |                            |
|------------------|-------------------|--------------------|----------------------------|
| <b>Wellbore</b>  | Wellbore #1       |                    |                            |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination (°)</b>     |
|                  | IGRF2010          | 1/4/2011           | 8.96                       |
|                  |                   |                    | <b>Dip Angle (°)</b>       |
|                  |                   |                    | 67.16                      |
|                  |                   |                    | <b>Field Strength (nT)</b> |
|                  |                   |                    | 53,240                     |

|                          |                              |                      |                      |
|--------------------------|------------------------------|----------------------|----------------------|
| <b>Design</b>            | Wellbore #1                  |                      |                      |
| <b>Audit Notes:</b>      |                              |                      |                      |
| <b>Version:</b>          | 1.0                          | <b>Phase:</b>        | ACTUAL               |
|                          |                              | <b>Tie On Depth:</b> | 0.0                  |
| <b>Vertical Section:</b> | <b>Depth From (TVD) (ft)</b> | <b>+N/-S (ft)</b>    | <b>+E/-W (ft)</b>    |
|                          | 0.0                          | 0.0                  | 0.0                  |
|                          |                              |                      | <b>Direction (°)</b> |
|                          |                              |                      | 194.88               |

|                       |                       |                          |                    |
|-----------------------|-----------------------|--------------------------|--------------------|
| <b>Survey Program</b> | <b>Date</b> 4/18/2011 |                          |                    |
| <b>From (ft)</b>      | <b>To (ft)</b>        | <b>Survey (Wellbore)</b> | <b>Tool Name</b>   |
| 995.0                 | 7,649.0               | Survey #1 (Wellbore #1)  | MWD                |
|                       |                       |                          | <b>Description</b> |
|                       |                       |                          | MWD - Standard     |

|                            |                        |                    |                            |                   |                   |                              |                              |                             |                            |
|----------------------------|------------------------|--------------------|----------------------------|-------------------|-------------------|------------------------------|------------------------------|-----------------------------|----------------------------|
| <b>Survey</b>              |                        |                    |                            |                   |                   |                              |                              |                             |                            |
| <b>Measured Depth (ft)</b> | <b>Inclination (°)</b> | <b>Azimuth (°)</b> | <b>Vertical Depth (ft)</b> | <b>+N/-S (ft)</b> | <b>+E/-W (ft)</b> | <b>Vertical Section (ft)</b> | <b>Dogleg Rate (°/100ft)</b> | <b>Build Rate (°/100ft)</b> | <b>Turn Rate (°/100ft)</b> |
| 0.0                        | 0.00                   | 0.00               | 0.0                        | 0.0               | 0.0               | 0.0                          | 0.00                         | 0.00                        | 0.00                       |
| 995.0                      | 0.50                   | 130.60             | 995.0                      | -2.8              | 3.3               | 1.9                          | 0.05                         | 0.05                        | 0.00                       |
| 1,090.0                    | 2.10                   | 157.00             | 1,090.0                    | -4.7              | 4.3               | 3.4                          | 1.75                         | 1.68                        | 27.79                      |
| 1,185.0                    | 4.40                   | 171.60             | 1,184.8                    | -9.9              | 5.5               | 8.2                          | 2.55                         | 2.42                        | 15.37                      |
| 1,280.0                    | 5.20                   | 189.70             | 1,279.5                    | -17.8             | 5.3               | 15.8                         | 1.79                         | 0.84                        | 19.05                      |
| 1,375.0                    | 5.80                   | 200.50             | 1,374.0                    | -26.5             | 2.9               | 24.9                         | 1.26                         | 0.63                        | 11.37                      |
| 1,470.0                    | 7.40                   | 194.80             | 1,468.4                    | -36.9             | -0.3              | 35.8                         | 1.82                         | 1.68                        | -6.00                      |
| 1,565.0                    | 9.30                   | 198.20             | 1,562.4                    | -50.1             | -4.3              | 49.5                         | 2.07                         | 2.00                        | 3.58                       |
| 1,660.0                    | 9.90                   | 196.20             | 1,656.1                    | -65.2             | -9.0              | 65.4                         | 0.72                         | 0.63                        | -2.11                      |
| 1,755.0                    | 10.50                  | 198.00             | 1,749.6                    | -81.3             | -13.9             | 82.2                         | 0.72                         | 0.63                        | 1.89                       |
| 1,849.0                    | 11.30                  | 201.10             | 1,841.9                    | -98.1             | -19.9             | 99.9                         | 1.05                         | 0.85                        | 3.30                       |
| 1,944.0                    | 12.50                  | 201.80             | 1,934.8                    | -116.3            | -27.1             | 119.3                        | 1.27                         | 1.26                        | 0.74                       |

|                  |   |                                     |                                      |
|------------------|---|-------------------------------------|--------------------------------------|
| <b>Company:</b>  | PETROLEUM DEVELOPMENT CORP Weld County CO | <b>Local Co-ordinate Reference:</b> | Well Nelson 14-32D                   |
| <b>Project:</b>  | SEC.32-T7N-R66W                           | <b>TVD Reference:</b>               | WELL @ 4873.0ft (Original Well Elev) |
| <b>Site:</b>     | Nelson 32BD Pad Sec.32-T7N-R66W           | <b>MD Reference:</b>                | WELL @ 4873.0ft (Original Well Elev) |
| <b>Well:</b>     | Nelson 14-32D                             | <b>North Reference:</b>             | True                                 |
| <b>Wellbore:</b> | Wellbore #1                               | <b>Survey Calculation Method:</b>   | Minimum Curvature                    |
| <b>Design:</b>   | Wellbore #1                               | <b>Database:</b>                    | Landmark                             |

| Survey                      |                 |             |                     |            |            |                       |                       |                      |                     |
|-----------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft)         | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 2,039.0                     | 13.80           | 194.80      | 2,027.3             | -136.8     | -33.8      | 140.9                 | 2.16                  | 1.37                 | -7.37               |
| 2,134.0                     | 15.00           | 194.00      | 2,119.4             | -159.7     | -39.6      | 164.5                 | 1.28                  | 1.26                 | -0.84               |
| 2,229.0                     | 17.20           | 194.20      | 2,210.6             | -185.2     | -46.1      | 190.8                 | 2.32                  | 2.32                 | 0.21                |
| 2,324.0                     | 16.40           | 189.20      | 2,301.6             | -212.1     | -51.7      | 218.2                 | 1.74                  | -0.84                | -5.26               |
| 2,419.0                     | 17.20           | 189.40      | 2,392.5             | -239.2     | -56.1      | 245.6                 | 0.84                  | 0.84                 | 0.21                |
| 2,514.0                     | 17.30           | 191.10      | 2,483.2             | -266.9     | -61.1      | 273.6                 | 0.54                  | 0.11                 | 1.79                |
| 2,609.0                     | 18.40           | 194.80      | 2,573.7             | -295.3     | -67.7      | 302.7                 | 1.66                  | 1.16                 | 3.89                |
| 2,704.0                     | 18.00           | 193.30      | 2,663.9             | -324.0     | -74.9      | 332.4                 | 0.65                  | -0.42                | -1.58               |
| 2,798.0                     | 18.90           | 193.80      | 2,753.1             | -353.0     | -81.8      | 362.1                 | 0.97                  | 0.96                 | 0.53                |
| 2,893.0                     | 18.50           | 195.00      | 2,843.1             | -382.5     | -89.4      | 392.6                 | 0.58                  | -0.42                | 1.26                |
| 2,988.0                     | 17.60           | 194.50      | 2,933.4             | -410.9     | -96.9      | 422.0                 | 0.96                  | -0.95                | -0.53               |
| 3,083.0                     | 16.00           | 193.50      | 3,024.3             | -437.6     | -103.6     | 449.5                 | 1.71                  | -1.68                | -1.05               |
| 3,177.0                     | 16.40           | 197.20      | 3,114.6             | -462.8     | -110.5     | 475.7                 | 1.18                  | 0.43                 | 3.94                |
| 3,272.0                     | 16.00           | 196.20      | 3,205.8             | -488.2     | -118.1     | 502.2                 | 0.51                  | -0.42                | -1.05               |
| 3,367.0                     | 15.40           | 199.20      | 3,297.3             | -512.7     | -125.9     | 527.9                 | 1.06                  | -0.63                | 3.16                |
| 3,462.0                     | 15.60           | 199.50      | 3,388.8             | -536.7     | -134.3     | 553.2                 | 0.23                  | 0.21                 | 0.32                |
| 3,557.0                     | 16.30           | 201.90      | 3,480.2             | -561.1     | -143.6     | 579.1                 | 1.01                  | 0.74                 | 2.53                |
| 3,652.0                     | 16.00           | 198.00      | 3,571.4             | -585.9     | -152.6     | 605.4                 | 1.18                  | -0.32                | -4.11               |
| 3,747.0                     | 15.60           | 199.10      | 3,662.8             | -610.4     | -160.8     | 631.2                 | 0.53                  | -0.42                | 1.16                |
| 3,842.0                     | 16.80           | 198.80      | 3,754.1             | -635.5     | -169.4     | 657.7                 | 1.27                  | 1.26                 | -0.32               |
| 3,936.0                     | 18.70           | 201.00      | 3,843.6             | -662.4     | -179.2     | 686.2                 | 2.14                  | 2.02                 | 2.34                |
| 4,031.0                     | 19.30           | 199.80      | 3,933.4             | -691.4     | -190.0     | 717.0                 | 0.75                  | 0.63                 | -1.26               |
| 4,126.0                     | 19.60           | 198.50      | 4,023.0             | -721.3     | -200.4     | 748.5                 | 0.55                  | 0.32                 | -1.37               |
| 4,221.0                     | 18.90           | 198.00      | 4,112.7             | -751.0     | -210.2     | 779.8                 | 0.76                  | -0.74                | -0.53               |
| 4,316.0                     | 17.60           | 196.90      | 4,202.9             | -779.4     | -219.1     | 809.5                 | 1.42                  | -1.37                | -1.16               |
| 4,411.0                     | 17.10           | 190.80      | 4,293.6             | -806.9     | -225.9     | 837.8                 | 1.98                  | -0.53                | -6.42               |
| 4,506.0                     | 17.40           | 192.80      | 4,384.3             | -834.4     | -231.6     | 865.9                 | 0.70                  | 0.32                 | 2.11                |
| 4,600.0                     | 16.60           | 191.90      | 4,474.2             | -861.3     | -237.5     | 893.4                 | 0.90                  | -0.85                | -0.96               |
| 4,695.0                     | 17.30           | 191.30      | 4,565.1             | -888.4     | -243.1     | 921.1                 | 0.76                  | 0.74                 | -0.63               |
| 4,790.0                     | 15.90           | 189.60      | 4,656.1             | -915.1     | -248.0     | 948.1                 | 1.56                  | -1.47                | -1.79               |
| 4,885.0                     | 15.70           | 194.00      | 4,747.5             | -940.4     | -253.3     | 973.9                 | 1.28                  | -0.21                | 4.63                |
| 4,980.0                     | 15.20           | 194.80      | 4,839.1             | -964.9     | -259.6     | 999.2                 | 0.57                  | -0.53                | 0.84                |
| 5,075.0                     | 14.10           | 194.80      | 4,931.0             | -988.1     | -265.7     | 1,023.3               | 1.16                  | -1.16                | 0.00                |
| 5,170.0                     | 12.30           | 192.40      | 5,023.5             | -1,009.2   | -270.9     | 1,044.9               | 1.98                  | -1.89                | -2.53               |
| 5,265.0                     | 10.60           | 194.80      | 5,116.6             | -1,027.6   | -275.3     | 1,063.8               | 1.86                  | -1.79                | 2.53                |
| 5,360.0                     | 8.10            | 195.70      | 5,210.3             | -1,042.4   | -279.3     | 1,079.2               | 2.64                  | -2.63                | 0.95                |
| 5,454.0                     | 6.30            | 195.20      | 5,303.6             | -1,053.8   | -282.5     | 1,091.0               | 1.92                  | -1.91                | -0.53               |
| 5,549.0                     | 4.90            | 196.70      | 5,398.1             | -1,062.7   | -285.0     | 1,100.3               | 1.48                  | -1.47                | 1.58                |
| 5,644.0                     | 4.00            | 195.40      | 5,492.8             | -1,069.8   | -287.0     | 1,107.6               | 0.95                  | -0.95                | -1.37               |
| 5,739.0                     | 3.70            | 201.30      | 5,587.6             | -1,075.8   | -289.0     | 1,114.0               | 0.52                  | -0.32                | 6.21                |
| 5,834.0                     | 3.20            | 224.30      | 5,682.5             | -1,080.6   | -292.0     | 1,119.3               | 1.54                  | -0.53                | 24.21               |
| 5,929.0                     | 1.80            | 227.40      | 5,777.4             | -1,083.5   | -295.0     | 1,122.9               | 1.48                  | -1.47                | 3.26                |
| 6,024.0                     | 0.70            | 248.80      | 5,872.3             | -1,084.7   | -296.6     | 1,124.5               | 1.24                  | -1.16                | 22.53               |
| 6,051.6                     | 0.64            | 251.08      | 5,900.0             | -1,084.8   | -296.9     | 1,124.7               | 0.24                  | -0.22                | 8.26                |
| TARGET BHL 659'FSL, 666'FWL |                 |             |                     |            |            |                       |                       |                      |                     |
| 6,119.0                     | 0.50            | 258.90      | 5,967.3             | -1,085.0   | -297.5     | 1,125.0               | 0.24                  | -0.21                | 11.60               |
| 6,214.0                     | 0.60            | 240.10      | 6,062.3             | -1,085.3   | -298.4     | 1,125.6               | 0.22                  | 0.11                 | -19.79              |
| 6,308.0                     | 0.60            | 243.00      | 6,156.3             | -1,085.8   | -299.2     | 1,126.2               | 0.03                  | 0.00                 | 3.09                |
| 6,403.0                     | 0.70            | 246.10      | 6,251.3             | -1,086.3   | -300.2     | 1,126.9               | 0.11                  | 0.11                 | 3.26                |
| 6,498.0                     | 0.70            | 238.70      | 6,346.3             | -1,086.8   | -301.2     | 1,127.7               | 0.10                  | 0.00                 | -7.79               |
| 6,593.0                     | 1.00            | 243.60      | 6,441.3             | -1,087.5   | -302.5     | 1,128.7               | 0.32                  | 0.32                 | 5.16                |
| 6,688.0                     | 1.20            | 248.70      | 6,536.3             | -1,088.2   | -304.2     | 1,129.8               | 0.23                  | 0.21                 | 5.37                |
| 6,783.0                     | 0.90            | 242.60      | 6,631.3             | -1,088.9   | -305.7     | 1,130.9               | 0.34                  | -0.32                | -6.42               |

|                  |   |                                     |                                      |
|------------------|---|-------------------------------------|--------------------------------------|
| <b>Company:</b>  | PETROLEUM DEVELOPMENT CORP Weld County CO | <b>Local Co-ordinate Reference:</b> | Well Nelson 14-32D                   |
| <b>Project:</b>  | SEC.32-T7N-R66W                           | <b>TVD Reference:</b>               | WELL @ 4873.0ft (Original Well Elev) |
| <b>Site:</b>     | Nelson 32BD Pad Sec.32-T7N-R66W           | <b>MD Reference:</b>                | WELL @ 4873.0ft (Original Well Elev) |
| <b>Well:</b>     | Nelson 14-32D                             | <b>North Reference:</b>             | True                                 |
| <b>Wellbore:</b> | Wellbore #1                               | <b>Survey Calculation Method:</b>   | Minimum Curvature                    |
| <b>Design:</b>   | Wellbore #1                               | <b>Database:</b>                    | Landmark                             |

| Survey                                 |                 |             |                     |            |            |                       |                       |                      |                     |
|--|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft)                    | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 6,851.6                                | 0.59            | 225.00      | 6,699.8             | -1,089.4   | -306.5     | 1,131.6               | 0.56                  | -0.45                | -25.66              |
| LEGAL BOX 400' X 400' 663'FSL, 666'FWL |                 |             |                     |            |            |                       |                       |                      |                     |
| 6,878.0                                | 0.50            | 212.90      | 6,726.3             | -1,089.6   | -306.6     | 1,131.8               | 0.56                  | -0.35                | -45.80              |
| 6,973.0                                | 0.50            | 173.90      | 6,821.3             | -1,090.4   | -306.8     | 1,132.6               | 0.35                  | 0.00                 | -41.05              |
| 7,068.0                                | 0.50            | 163.70      | 6,916.3             | -1,091.2   | -306.7     | 1,133.3               | 0.09                  | 0.00                 | -10.74              |
| 7,163.0                                | 0.70            | 152.70      | 7,011.3             | -1,092.1   | -306.3     | 1,134.1               | 0.24                  | 0.21                 | -11.58              |
| 7,258.0                                | 1.00            | 143.00      | 7,106.2             | -1,093.3   | -305.5     | 1,135.1               | 0.35                  | 0.32                 | -10.21              |
| 7,352.0                                | 1.70            | 134.40      | 7,200.2             | -1,094.9   | -304.0     | 1,136.3               | 0.77                  | 0.74                 | -9.15               |
| 7,447.0                                | 1.60            | 138.00      | 7,295.2             | -1,096.9   | -302.1     | 1,137.7               | 0.15                  | -0.11                | 3.79                |
| 7,542.0                                | 1.50            | 136.70      | 7,390.1             | -1,098.8   | -300.4     | 1,139.1               | 0.11                  | -0.11                | -1.37               |
| 7,607.0                                | 1.40            | 137.30      | 7,455.1             | -1,100.0   | -299.3     | 1,139.9               | 0.16                  | -0.15                | 0.92                |
| 7,649.0                                | 1.30            | 137.70      | 7,497.1             | -1,100.7   | -298.6     | 1,140.5               | 0.24                  | -0.24                | 0.95                |

|                   |                    |             |
|-------------------|--------------------|-------------|
| Checked By: _____ | Approved By: _____ | Date: _____ |
|-------------------|--------------------|-------------|