

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_CANNON 29-3N HZ PAD**

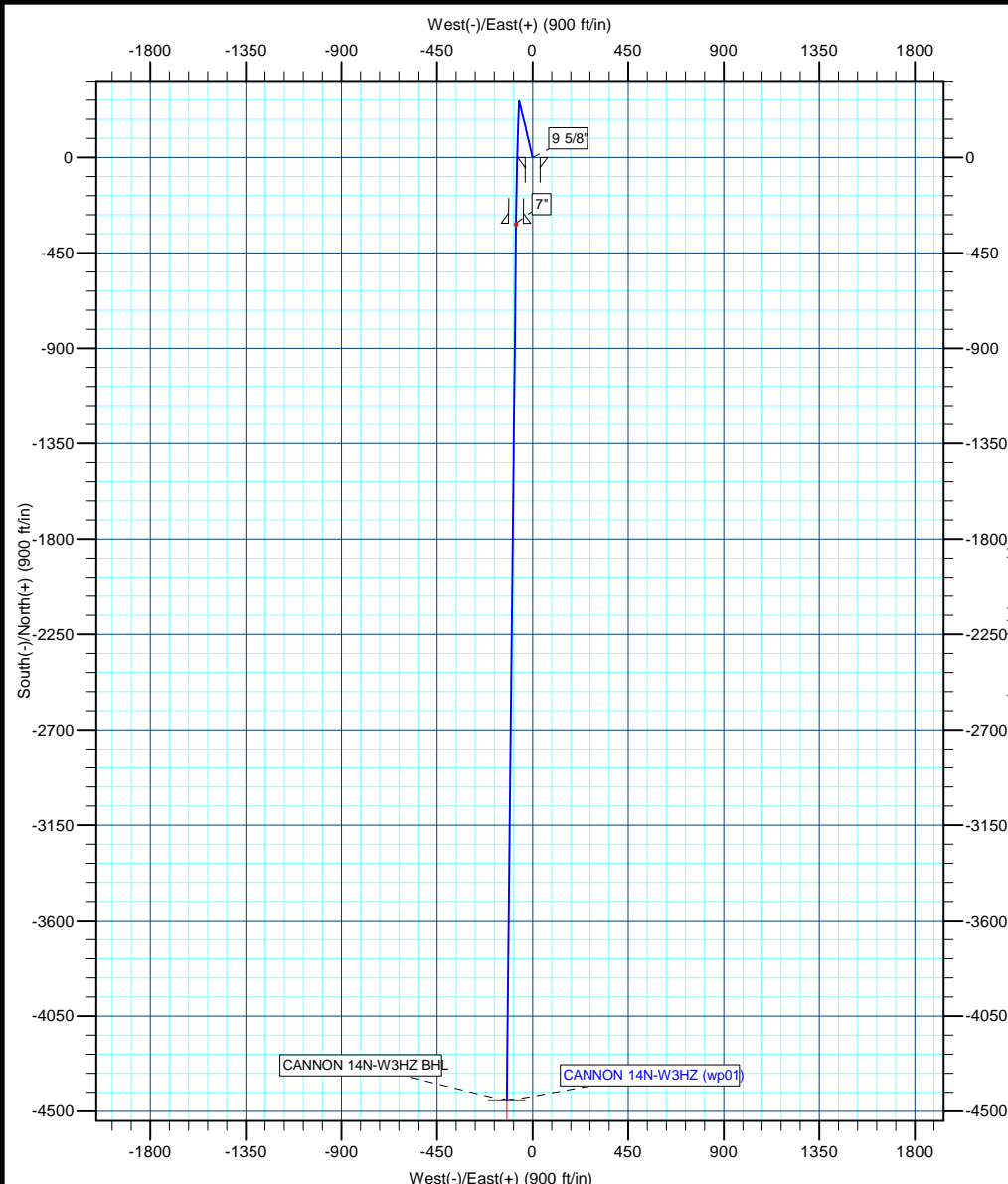
**CANNON 14N-W3HZ**

**CANNON 14N-W3HZ**

**Plan: CANNON 14N-W3HZ (wp01)**

## **Standard Planning Report**

**10 May, 2012**



T

M

Azimuths to True North

Magnetic North: 8.66°

Magnetic Field

Strength: 52929.1snT

Dip Angle: 66.86°

Date: 5/10/2012

Model: IGRF2010



Project: COLORADO NORTHERN ZONE - 83

Site: WELD\_CANNON 29-3N HZ PAD

Well: CANNON 14N-W3HZ

Wellbore: CANNON 14N-W3HZ

Section:

SHL:

Design: CANNON 14N-W3HZ (wp01)

Latitude: 40.173969

Longitude: -104.654970

GL: 4840.00

KB: gl + rkb @ 4857.00ft

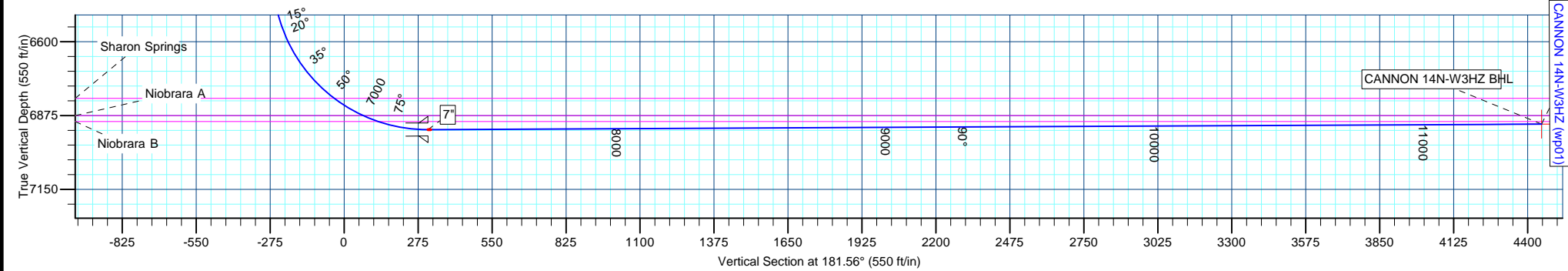
| WELL DETAILS: CANNON 14N-W3HZ |       |            |                       |                  |             |      |
|-------------------------------|-------|------------|-----------------------|------------------|-------------|------|
| +N/-S                         | +E/-W | Northing   | Ground Level: Easting | 4840.00 Latitude | Longitude   | Slot |
| 0.00                          | 0.00  | 1307344.92 | 3236130.70            | 40.173969        | -104.654970 |      |

| SECTION DETAILS |       |        |         |          |         |       |         |         |
|-----------------|-------|--------|---------|----------|---------|-------|---------|---------|
| MD              | Inc   | Azi    | TVD     | +N/-S    | +E/-W   | Dleg  | TFace   | VSect   |
| 0.00            | 0.00  | 0.00   | 0.00    | 0.00     | 0.00    | 0.00  | 0.00    | 0.00    |
| 1500.00         | 0.00  | 0.00   | 1500.00 | 0.00     | 0.00    | 0.00  | 0.00    | 0.00    |
| 1664.20         | 3.28  | 346.71 | 1664.11 | 4.58     | -1.08   | 2.00  | 346.71  | -4.55   |
| 6330.01         | 3.28  | 346.71 | 6322.26 | 264.69   | -62.55  | 0.00  | 0.00    | -262.89 |
| 7264.64         | 90.28 | 180.70 | 6927.00 | -310.00  | -78.00  | 10.00 | -165.98 | 312.01  |
| 7274.35         | 90.28 | 180.60 | 6926.95 | -319.70  | -78.11  | 1.00  | -90.00  | 321.72  |
| 11404.97        | 90.28 | 180.60 | 6907.00 | -4450.04 | -121.58 | 0.00  | 0.00    | 4451.71 |

| WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG) |         |          |         |           |             |       |
|---|---------|----------|---------|-----------|-------------|-------|
| Name  | TVD     | +N/-S    | +E/-W   | Latitude  | Longitude   | Shape |
| CANNON 14N-W3HZ BHL                                     | 6907.00 | -4450.04 | -121.58 | 40.161753 | -104.655405 | Point |

| FORMATION TOP DETAILS |         |                |
|-----------------------|---------|----------------|
| TVDPath               | MDPath  | Formation      |
| 3949.00               | 3952.85 | Parkman        |
| 4446.00               | 4450.67 | Sussex         |
| 6811.00               | 6890.81 | Sharon Springs |
| 6875.00               | 7015.86 | Niobrara A     |
| 6897.00               | 7075.62 | Niobrara B     |

| CASING DETAILS |         |        |       |
|----------------|---------|--------|-------|
| TVD            | MD      | Name   | Size  |
| 775.00         | 775.00  | 9 5/8" | 9-5/8 |
| 6927.00        | 7264.64 | 7"     | 7     |



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## Planning Report

|                  |                             |                                     |                      |
|------------------|-----------------------------|-------------------------------------|----------------------|
| <b>Database:</b> | edmp                        | <b>Local Co-ordinate Reference:</b> | Well CANNON 14N-W3HZ |
| <b>Company:</b>  | US ROCKIES REGION PLANNING  | <b>TVD Reference:</b>               | gl + rkb @ 4857.00ft |
| <b>Project:</b>  | COLORADO NORTHERN ZONE - 83 | <b>MD Reference:</b>                | gl + rkb @ 4857.00ft |
| <b>Site:</b>     | WELD_CANNON 29-3N HZ PAD    | <b>North Reference:</b>             | True                 |
| <b>Well:</b>     | CANNON 14N-W3HZ             | <b>Survey Calculation Method:</b>   | Minimum Curvature    |
| <b>Wellbore:</b> | CANNON 14N-W3HZ             |                                     |                      |
| <b>Design:</b>   | CANNON 14N-W3HZ (wp01)      |                                     |                      |

|                    |                             |                      |                |
|--------------------|-----------------------------|----------------------|----------------|
| <b>Project</b>     | COLORADO NORTHERN ZONE - 83 |                      |                |
| <b>Map System:</b> | US State Plane 1983         | <b>System Datum:</b> | Mean Sea Level |
| <b>Geo Datum:</b>  | North American Datum 1983   |                      |                |
| <b>Map Zone:</b>   | Colorado Northern Zone      |                      |                |

|                       |          |                          |                   |                   |             |
|-----------------------|----------|--------------------------|-------------------|-------------------|-------------|
| Site                  |          | WELD_CANNON 29-3N HZ PAD |                   |                   |             |
| Site Position:        |          | Northing:                | 1,307,342.83 usft | Latitude:         | 40.173964   |
| From:                 | Lat/Long | Easting:                 | 3,236,100.82 usft | Longitude:        | -104.655077 |
| Position Uncertainty: | 0.00 ft  | Slot Radius:             | 13-3/16 "         | Grid Convergence: | 0.55 °      |

| Well                 |       | CANNON 14N-W3HZ |                     |                   |               |             |
|----------------------|-------|-----------------|---------------------|-------------------|---------------|-------------|
| Well Position        | +N/-S | 1.80 ft         | Northing:           | 1,307,344.92 usft | Latitude:     | 40.173969   |
|                      | +E/-W | 29.90 ft        | Easting:            | 3,236,130.70 usft | Longitude:    | -104.654970 |
| Position Uncertainty |       | 0.00 ft         | Wellhead Elevation: |                   | Ground Level: | 4,840.00 ft |

|                  |                   |                    |                        |                      |                            |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| <b>Wellbore</b>  | CANNON 14N-W3HZ   |                    |                        |                      |                            |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination (°)</b> | <b>Dip Angle (°)</b> | <b>Field Strength (nT)</b> |
|                  | IGRF2010          | 5/10/2012          | 8.66                   | 66.86                | 52,929                     |

|                          |                              |                   |                      |                      |
|--------------------------|------------------------------|-------------------|----------------------|----------------------|
| <b>Design</b>            | CANNON 14N-W3HZ (wp01)       |                   |                      |                      |
| <b>Audit Notes:</b>      |                              |                   |                      |                      |
| <b>Version:</b>          | <b>Phase:</b>                | PLAN              | <b>Tie On Depth:</b> | 0.00                 |
| <b>Vertical Section:</b> | <b>Depth From (TVD) (ft)</b> | <b>+N/-S (ft)</b> | <b>+E/-W (ft)</b>    | <b>Direction (°)</b> |
|                          | 0.00                         | 0.00              | 0.00                 | 181.56               |

| <b>Plan Sections</b> |                 |             |                     |            |            |                         |                        |                       |         |                 |
|----------------------|-----------------|-------------|---------------------|------------|------------|-------------------------|------------------------|-----------------------|---------|-----------------|
| Measured Depth (ft)  | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | TFO (°) | Target          |
| 0.00                 | 0.00            | 0.00        | 0.00                | 0.00       | 0.00       | 0.00                    | 0.00                   | 0.00                  | 0.00    |                 |
| 1,500.00             | 0.00            | 0.00        | 1,500.00            | 0.00       | 0.00       | 0.00                    | 0.00                   | 0.00                  | 0.00    |                 |
| 1,664.20             | 3.28            | 346.71      | 1,664.11            | 4.58       | -1.08      | 2.00                    | 2.00                   | 0.00                  | 346.71  |                 |
| 6,330.01             | 3.28            | 346.71      | 6,322.26            | 264.69     | -62.55     | 0.00                    | 0.00                   | 0.00                  | 0.00    |                 |
| 7,264.64             | 90.28           | 180.70      | 6,927.00            | -310.00    | -78.00     | 10.00                   | 9.31                   | -17.76                | -165.98 |                 |
| 7,274.35             | 90.28           | 180.60      | 6,926.95            | -319.70    | -78.11     | 1.00                    | 0.00                   | -1.00                 | -90.00  |                 |
| 11,404.97            | 90.28           | 180.60      | 6,907.00            | -4,450.04  | -121.58    | 0.00                    | 0.00                   | 0.00                  | 0.00    | CANNON 14N-W3HZ |

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## Planning Report

|                  |                             |                                     |                      |
|------------------|-----------------------------|-------------------------------------|----------------------|
| <b>Database:</b> | edmp                        | <b>Local Co-ordinate Reference:</b> | Well CANNON 14N-W3HZ |
| <b>Company:</b>  | US ROCKIES REGION PLANNING  | <b>TVD Reference:</b>               | gl + rkb @ 4857.00ft |
| <b>Project:</b>  | COLORADO NORTHERN ZONE - 83 | <b>MD Reference:</b>                | gl + rkb @ 4857.00ft |
| <b>Site:</b>     | WELD_CANNON 29-3N HZ PAD    | <b>North Reference:</b>             | True                 |
| <b>Well:</b>     | CANNON 14N-W3HZ             | <b>Survey Calculation Method:</b>   | Minimum Curvature    |
| <b>Wellbore:</b> | CANNON 14N-W3HZ             |                                     |                      |
| <b>Design:</b>   | CANNON 14N-W3HZ (wp01)      |                                     |                      |

| Planned Survey      |                 |             |                     |            |            |                       |                         |                        |                       |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 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                  |
| 200.00              | 0.00            | 0.00        | 200.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 300.00              | 0.00            | 0.00        | 300.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 400.00              | 0.00            | 0.00        | 400.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 500.00              | 0.00            | 0.00        | 500.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 600.00              | 0.00            | 0.00        | 600.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 700.00              | 0.00            | 0.00        | 700.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 775.00              | 0.00            | 0.00        | 775.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 9 5/8"              |                 |             |                     |            |            |                       |                         |                        |                       |
| 800.00              | 0.00            | 0.00        | 800.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 900.00              | 0.00            | 0.00        | 900.00              | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,000.00            | 0.00            | 0.00        | 1,000.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,100.00            | 0.00            | 0.00        | 1,100.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,200.00            | 0.00            | 0.00        | 1,200.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,300.00            | 0.00            | 0.00        | 1,300.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,400.00            | 0.00            | 0.00        | 1,400.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,500.00            | 0.00            | 0.00        | 1,500.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,600.00            | 2.00            | 346.71      | 1,599.98            | 1.70       | -0.40      | -1.69                 | 2.00                    | 2.00                   | 0.00                  |
| 1,664.20            | 3.28            | 346.71      | 1,664.11            | 4.58       | -1.08      | -4.55                 | 2.00                    | 2.00                   | 0.00                  |
| 1,700.00            | 3.28            | 346.71      | 1,699.85            | 6.57       | -1.55      | -6.53                 | 0.00                    | 0.00                   | 0.00                  |
| 1,800.00            | 3.28            | 346.71      | 1,799.69            | 12.15      | -2.87      | -12.07                | 0.00                    | 0.00                   | 0.00                  |
| 1,900.00            | 3.28            | 346.71      | 1,899.52            | 17.72      | -4.19      | -17.60                | 0.00                    | 0.00                   | 0.00                  |
| 2,000.00            | 3.28            | 346.71      | 1,999.36            | 23.30      | -5.51      | -23.14                | 0.00                    | 0.00                   | 0.00                  |
| 2,100.00            | 3.28            | 346.71      | 2,099.19            | 28.87      | -6.82      | -28.68                | 0.00                    | 0.00                   | 0.00                  |
| 2,200.00            | 3.28            | 346.71      | 2,199.03            | 34.45      | -8.14      | -34.21                | 0.00                    | 0.00                   | 0.00                  |
| 2,300.00            | 3.28            | 346.71      | 2,298.87            | 40.02      | -9.46      | -39.75                | 0.00                    | 0.00                   | 0.00                  |
| 2,400.00            | 3.28            | 346.71      | 2,398.70            | 45.60      | -10.77     | -45.29                | 0.00                    | 0.00                   | 0.00                  |
| 2,500.00            | 3.28            | 346.71      | 2,498.54            | 51.17      | -12.09     | -50.82                | 0.00                    | 0.00                   | 0.00                  |
| 2,600.00            | 3.28            | 346.71      | 2,598.37            | 56.75      | -13.41     | -56.36                | 0.00                    | 0.00                   | 0.00                  |
| 2,700.00            | 3.28            | 346.71      | 2,698.21            | 62.32      | -14.73     | -61.90                | 0.00                    | 0.00                   | 0.00                  |
| 2,800.00            | 3.28            | 346.71      | 2,798.05            | 67.90      | -16.04     | -67.44                | 0.00                    | 0.00                   | 0.00                  |
| 2,900.00            | 3.28            | 346.71      | 2,897.88            | 73.47      | -17.36     | -72.97                | 0.00                    | 0.00                   | 0.00                  |
| 3,000.00            | 3.28            | 346.71      | 2,997.72            | 79.05      | -18.68     | -78.51                | 0.00                    | 0.00                   | 0.00                  |
| 3,100.00            | 3.28            | 346.71      | 3,097.55            | 84.62      | -20.00     | -84.05                | 0.00                    | 0.00                   | 0.00                  |
| 3,200.00            | 3.28            | 346.71      | 3,197.39            | 90.20      | -21.31     | -89.58                | 0.00                    | 0.00                   | 0.00                  |
| 3,300.00            | 3.28            | 346.71      | 3,297.22            | 95.77      | -22.63     | -95.12                | 0.00                    | 0.00                   | 0.00                  |
| 3,400.00            | 3.28            | 346.71      | 3,397.06            | 101.35     | -23.95     | -100.66               | 0.00                    | 0.00                   | 0.00                  |
| 3,500.00            | 3.28            | 346.71      | 3,496.90            | 106.92     | -25.27     | -106.19               | 0.00                    | 0.00                   | 0.00                  |
| 3,600.00            | 3.28            | 346.71      | 3,596.73            | 112.50     | -26.58     | -111.73               | 0.00                    | 0.00                   | 0.00                  |
| 3,700.00            | 3.28            | 346.71      | 3,696.57            | 118.07     | -27.90     | -117.27               | 0.00                    | 0.00                   | 0.00                  |
| 3,800.00            | 3.28            | 346.71      | 3,796.40            | 123.65     | -29.22     | -122.80               | 0.00                    | 0.00                   | 0.00                  |
| 3,900.00            | 3.28            | 346.71      | 3,896.24            | 129.22     | -30.53     | -128.34               | 0.00                    | 0.00                   | 0.00                  |
| 3,952.85            | 3.28            | 346.71      | 3,949.00            | 132.17     | -31.23     | -131.27               | 0.00                    | 0.00                   | 0.00                  |
| Parkman             |                 |             |                     |            |            |                       |                         |                        |                       |
| 4,000.00            | 3.28            | 346.71      | 3,996.07            | 134.80     | -31.85     | -133.88               | 0.00                    | 0.00                   | 0.00                  |
| 4,100.00            | 3.28            | 346.71      | 4,095.91            | 140.37     | -33.17     | -139.41               | 0.00                    | 0.00                   | 0.00                  |
| 4,200.00            | 3.28            | 346.71      | 4,195.75            | 145.95     | -34.49     | -144.95               | 0.00                    | 0.00                   | 0.00                  |
| 4,300.00            | 3.28            | 346.71      | 4,295.58            | 151.52     | -35.80     | -150.49               | 0.00                    | 0.00                   | 0.00                  |
| 4,400.00            | 3.28            | 346.71      | 4,395.42            | 157.10     | -37.12     | -156.03               | 0.00                    | 0.00                   | 0.00                  |
| 4,450.67            | 3.28            | 346.71      | 4,446.00            | 159.92     | -37.79     | -158.83               | 0.00                    | 0.00                   | 0.00                  |
| Sussex              |                 |             |                     |            |            |                       |                         |                        |                       |
| 4,500.00            | 3.28            | 346.71      | 4,495.25            | 162.67     | -38.44     | -161.56               | 0.00                    | 0.00                   | 0.00                  |

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## Planning Report

|                  |                             |                                     |                      |
|------------------|-----------------------------|-------------------------------------|----------------------|
| <b>Database:</b> | edmp                        | <b>Local Co-ordinate Reference:</b> | Well CANNON 14N-W3HZ |
| <b>Company:</b>  | US ROCKIES REGION PLANNING  | <b>TVD Reference:</b>               | gl + rkb @ 4857.00ft |
| <b>Project:</b>  | COLORADO NORTHERN ZONE - 83 | <b>MD Reference:</b>                | gl + rkb @ 4857.00ft |
| <b>Site:</b>     | WELD_CANNON 29-3N HZ PAD    | <b>North Reference:</b>             | True                 |
| <b>Well:</b>     | CANNON 14N-W3HZ             | <b>Survey Calculation Method:</b>   | Minimum Curvature    |
| <b>Wellbore:</b> | CANNON 14N-W3HZ             |                                     |                      |
| <b>Design:</b>   | CANNON 14N-W3HZ (wp01)      |                                     |                      |

| Planned Survey      |                 |             |                     |            |            |                       |                         |                        |                       |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 4,600.00            | 3.28            | 346.71      | 4,595.09            | 168.25     | -39.76     | -167.10               | 0.00                    | 0.00                   | 0.00                  |
| 4,700.00            | 3.28            | 346.71      | 4,694.93            | 173.82     | -41.07     | -172.64               | 0.00                    | 0.00                   | 0.00                  |
| 4,800.00            | 3.28            | 346.71      | 4,794.76            | 179.40     | -42.39     | -178.17               | 0.00                    | 0.00                   | 0.00                  |
| 4,900.00            | 3.28            | 346.71      | 4,894.60            | 184.97     | -43.71     | -183.71               | 0.00                    | 0.00                   | 0.00                  |
| 5,000.00            | 3.28            | 346.71      | 4,994.43            | 190.55     | -45.03     | -189.25               | 0.00                    | 0.00                   | 0.00                  |
| 5,100.00            | 3.28            | 346.71      | 5,094.27            | 196.12     | -46.34     | -194.78               | 0.00                    | 0.00                   | 0.00                  |
| 5,200.00            | 3.28            | 346.71      | 5,194.10            | 201.70     | -47.66     | -200.32               | 0.00                    | 0.00                   | 0.00                  |
| 5,300.00            | 3.28            | 346.71      | 5,293.94            | 207.27     | -48.98     | -205.86               | 0.00                    | 0.00                   | 0.00                  |
| 5,400.00            | 3.28            | 346.71      | 5,393.78            | 212.85     | -50.29     | -211.39               | 0.00                    | 0.00                   | 0.00                  |
| 5,500.00            | 3.28            | 346.71      | 5,493.61            | 218.42     | -51.61     | -216.93               | 0.00                    | 0.00                   | 0.00                  |
| 5,600.00            | 3.28            | 346.71      | 5,593.45            | 224.00     | -52.93     | -222.47               | 0.00                    | 0.00                   | 0.00                  |
| 5,700.00            | 3.28            | 346.71      | 5,693.28            | 229.57     | -54.25     | -228.00               | 0.00                    | 0.00                   | 0.00                  |
| 5,800.00            | 3.28            | 346.71      | 5,793.12            | 235.15     | -55.56     | -233.54               | 0.00                    | 0.00                   | 0.00                  |
| 5,900.00            | 3.28            | 346.71      | 5,892.95            | 240.72     | -56.88     | -239.08               | 0.00                    | 0.00                   | 0.00                  |
| 6,000.00            | 3.28            | 346.71      | 5,992.79            | 246.30     | -58.20     | -244.62               | 0.00                    | 0.00                   | 0.00                  |
| 6,100.00            | 3.28            | 346.71      | 6,092.63            | 251.87     | -59.52     | -250.15               | 0.00                    | 0.00                   | 0.00                  |
| 6,200.00            | 3.28            | 346.71      | 6,192.46            | 257.45     | -60.83     | -255.69               | 0.00                    | 0.00                   | 0.00                  |
| 6,300.00            | 3.28            | 346.71      | 6,292.30            | 263.02     | -62.15     | -261.23               | 0.00                    | 0.00                   | 0.00                  |
| 6,330.01            | 3.28            | 346.71      | 6,322.26            | 264.69     | -62.55     | -262.89               | 0.00                    | 0.00                   | 0.00                  |
| 6,400.00            | 3.89            | 192.47      | 6,392.20            | 264.32     | -63.52     | -262.49               | 10.00                   | 0.87                   | -220.37               |
| 6,500.00            | 13.83           | 183.93      | 6,490.88            | 249.04     | -65.08     | -247.17               | 10.00                   | 9.94                   | -8.53                 |
| 6,600.00            | 23.83           | 182.51      | 6,585.41            | 216.85     | -66.79     | -214.95               | 10.00                   | 9.99                   | -1.43                 |
| 6,700.00            | 33.82           | 181.89      | 6,672.91            | 168.74     | -68.59     | -166.80               | 10.00                   | 10.00                  | -0.61                 |
| 6,800.00            | 43.82           | 181.53      | 6,750.72            | 106.16     | -70.44     | -104.20               | 10.00                   | 10.00                  | -0.36                 |
| 6,890.81            | 52.90           | 181.31      | 6,811.00            | 38.39      | -72.11     | -36.41                | 10.00                   | 10.00                  | -0.25                 |
| Sharon Springs      |                 |             |                     |            |            |                       |                         |                        |                       |
| 6,900.00            | 53.82           | 181.29      | 6,816.49            | 31.02      | -72.28     | -29.03                | 10.00                   | 10.00                  | -0.22                 |
| 7,000.00            | 63.82           | 181.09      | 6,868.20            | -54.41     | -74.04     | 56.41                 | 10.00                   | 10.00                  | -0.19                 |
| 7,015.86            | 65.40           | 181.07      | 6,875.00            | -68.73     | -74.31     | 70.73                 | 10.00                   | 10.00                  | -0.17                 |
| Niobrara A          |                 |             |                     |            |            |                       |                         |                        |                       |
| 7,075.62            | 71.38           | 180.97      | 6,897.00            | -124.25    | -75.30     | 126.26                | 10.00                   | 10.00                  | -0.16                 |
| Niobrara B          |                 |             |                     |            |            |                       |                         |                        |                       |
| 7,100.00            | 73.81           | 180.93      | 6,904.29            | -147.52    | -75.69     | 149.53                | 10.00                   | 10.00                  | -0.15                 |
| 7,200.00            | 83.81           | 180.79      | 6,923.67            | -245.48    | -77.16     | 247.50                | 10.00                   | 10.00                  | -0.14                 |
| 7,264.64            | 90.28           | 180.70      | 6,927.00            | -310.00    | -78.00     | 312.01                | 10.00                   | 10.00                  | -0.14                 |
| 7"                  |                 |             |                     |            |            |                       |                         |                        |                       |
| 7,274.35            | 90.28           | 180.60      | 6,926.95            | -319.70    | -78.11     | 321.72                | 1.00                    | 0.00                   | -1.00                 |
| 7,300.00            | 90.28           | 180.60      | 6,926.83            | -345.35    | -78.38     | 347.37                | 0.00                    | 0.00                   | 0.00                  |
| 7,400.00            | 90.28           | 180.60      | 6,926.35            | -445.35    | -79.43     | 447.35                | 0.00                    | 0.00                   | 0.00                  |
| 7,500.00            | 90.28           | 180.60      | 6,925.86            | -545.34    | -80.48     | 547.33                | 0.00                    | 0.00                   | 0.00                  |
| 7,600.00            | 90.28           | 180.60      | 6,925.38            | -645.33    | -81.54     | 647.32                | 0.00                    | 0.00                   | 0.00                  |
| 7,700.00            | 90.28           | 180.60      | 6,924.90            | -745.33    | -82.59     | 747.30                | 0.00                    | 0.00                   | 0.00                  |
| 7,800.00            | 90.28           | 180.60      | 6,924.41            | -845.32    | -83.64     | 847.29                | 0.00                    | 0.00                   | 0.00                  |
| 7,900.00            | 90.28           | 180.60      | 6,923.93            | -945.31    | -84.69     | 947.27                | 0.00                    | 0.00                   | 0.00                  |
| 8,000.00            | 90.28           | 180.60      | 6,923.45            | -1,045.31  | -85.75     | 1,047.26              | 0.00                    | 0.00                   | 0.00                  |
| 8,100.00            | 90.28           | 180.60      | 6,922.96            | -1,145.30  | -86.80     | 1,147.24              | 0.00                    | 0.00                   | 0.00                  |
| 8,200.00            | 90.28           | 180.60      | 6,922.48            | -1,245.29  | -87.85     | 1,247.23              | 0.00                    | 0.00                   | 0.00                  |
| 8,300.00            | 90.28           | 180.60      | 6,922.00            | -1,345.29  | -88.90     | 1,347.21              | 0.00                    | 0.00                   | 0.00                  |
| 8,400.00            | 90.28           | 180.60      | 6,921.52            | -1,445.28  | -89.96     | 1,447.20              | 0.00                    | 0.00                   | 0.00                  |
| 8,500.00            | 90.28           | 180.60      | 6,921.03            | -1,545.27  | -91.01     | 1,547.18              | 0.00                    | 0.00                   | 0.00                  |
| 8,600.00            | 90.28           | 180.60      | 6,920.55            | -1,645.27  | -92.06     | 1,647.17              | 0.00                    | 0.00                   | 0.00                  |
| 8,700.00            | 90.28           | 180.60      | 6,920.07            | -1,745.26  | -93.11     | 1,747.15              | 0.00                    | 0.00                   | 0.00                  |
| 8,800.00            | 90.28           | 180.60      | 6,919.58            | -1,845.25  | -94.17     | 1,847.14              | 0.00                    | 0.00                   | 0.00                  |
| 8,900.00            | 90.28           | 180.60      | 6,919.10            | -1,945.25  | -95.22     | 1,947.12              | 0.00                    | 0.00                   | 0.00                  |

# Anadarko Petroleum Corp

## Planning Report

|                  |                             |                                     |                      |
|------------------|-----------------------------|-------------------------------------|----------------------|
| <b>Database:</b> | edmp                        | <b>Local Co-ordinate Reference:</b> | Well CANNON 14N-W3HZ |
| <b>Company:</b>  | US ROCKIES REGION PLANNING  | <b>TVD Reference:</b>               | gl + rkb @ 4857.00ft |
| <b>Project:</b>  | COLORADO NORTHERN ZONE - 83 | <b>MD Reference:</b>                | gl + rkb @ 4857.00ft |
| <b>Site:</b>     | WELD_CANNON 29-3N HZ PAD    | <b>North Reference:</b>             | True                 |
| <b>Well:</b>     | CANNON 14N-W3HZ             | <b>Survey Calculation Method:</b>   | Minimum Curvature    |
| <b>Wellbore:</b> | CANNON 14N-W3HZ             |                                     |                      |
| <b>Design:</b>   | CANNON 14N-W3HZ (wp01)      |                                     |                      |

| Planned Survey      |                 |             |                     |            |            |                       |                         |                        |                       |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 9,000.00            | 90.28           | 180.60      | 6,918.62            | -2,045.24  | -96.27     | 2,047.11              | 0.00                    | 0.00                   | 0.00                  |
| 9,100.00            | 90.28           | 180.60      | 6,918.13            | -2,145.23  | -97.32     | 2,147.09              | 0.00                    | 0.00                   | 0.00                  |
| 9,200.00            | 90.28           | 180.60      | 6,917.65            | -2,245.23  | -98.37     | 2,247.08              | 0.00                    | 0.00                   | 0.00                  |
| 9,300.00            | 90.28           | 180.60      | 6,917.17            | -2,345.22  | -99.43     | 2,347.06              | 0.00                    | 0.00                   | 0.00                  |
| 9,400.00            | 90.28           | 180.60      | 6,916.69            | -2,445.21  | -100.48    | 2,447.04              | 0.00                    | 0.00                   | 0.00                  |
| 9,500.00            | 90.28           | 180.60      | 6,916.20            | -2,545.21  | -101.53    | 2,547.03              | 0.00                    | 0.00                   | 0.00                  |
| 9,600.00            | 90.28           | 180.60      | 6,915.72            | -2,645.20  | -102.58    | 2,647.01              | 0.00                    | 0.00                   | 0.00                  |
| 9,700.00            | 90.28           | 180.60      | 6,915.24            | -2,745.19  | -103.64    | 2,747.00              | 0.00                    | 0.00                   | 0.00                  |
| 9,800.00            | 90.28           | 180.60      | 6,914.75            | -2,845.19  | -104.69    | 2,846.98              | 0.00                    | 0.00                   | 0.00                  |
| 9,900.00            | 90.28           | 180.60      | 6,914.27            | -2,945.18  | -105.74    | 2,946.97              | 0.00                    | 0.00                   | 0.00                  |
| 10,000.00           | 90.28           | 180.60      | 6,913.79            | -3,045.17  | -106.79    | 3,046.95              | 0.00                    | 0.00                   | 0.00                  |
| 10,100.00           | 90.28           | 180.60      | 6,913.30            | -3,145.17  | -107.85    | 3,146.94              | 0.00                    | 0.00                   | 0.00                  |
| 10,200.00           | 90.28           | 180.60      | 6,912.82            | -3,245.16  | -108.90    | 3,246.92              | 0.00                    | 0.00                   | 0.00                  |
| 10,300.00           | 90.28           | 180.60      | 6,912.34            | -3,345.15  | -109.95    | 3,346.91              | 0.00                    | 0.00                   | 0.00                  |
| 10,400.00           | 90.28           | 180.60      | 6,911.85            | -3,445.15  | -111.00    | 3,446.89              | 0.00                    | 0.00                   | 0.00                  |
| 10,500.00           | 90.28           | 180.60      | 6,911.37            | -3,545.14  | -112.05    | 3,546.88              | 0.00                    | 0.00                   | 0.00                  |
| 10,600.00           | 90.28           | 180.60      | 6,910.89            | -3,645.13  | -113.11    | 3,646.86              | 0.00                    | 0.00                   | 0.00                  |
| 10,700.00           | 90.28           | 180.60      | 6,910.41            | -3,745.13  | -114.16    | 3,746.85              | 0.00                    | 0.00                   | 0.00                  |
| 10,800.00           | 90.28           | 180.60      | 6,909.92            | -3,845.12  | -115.21    | 3,846.83              | 0.00                    | 0.00                   | 0.00                  |
| 10,900.00           | 90.28           | 180.60      | 6,909.44            | -3,945.11  | -116.26    | 3,946.82              | 0.00                    | 0.00                   | 0.00                  |
| 11,000.00           | 90.28           | 180.60      | 6,908.96            | -4,045.11  | -117.32    | 4,046.80              | 0.00                    | 0.00                   | 0.00                  |
| 11,100.00           | 90.28           | 180.60      | 6,908.47            | -4,145.10  | -118.37    | 4,146.79              | 0.00                    | 0.00                   | 0.00                  |
| 11,200.00           | 90.28           | 180.60      | 6,907.99            | -4,245.09  | -119.42    | 4,246.77              | 0.00                    | 0.00                   | 0.00                  |
| 11,300.00           | 90.28           | 180.60      | 6,907.51            | -4,345.09  | -120.47    | 4,346.76              | 0.00                    | 0.00                   | 0.00                  |
| 11,400.00           | 90.28           | 180.60      | 6,907.02            | -4,445.08  | -121.53    | 4,446.74              | 0.00                    | 0.00                   | 0.00                  |
| 11,404.97           | 90.28           | 180.60      | 6,907.00            | -4,450.04  | -121.58    | 4,451.71              | 0.00                    | 0.00                   | 0.00                  |
| CANNON 14N-W3HZ BHL |                 |             |                     |            |            |                       |                         |                        |                       |

| Design Targets            |               |              |          |            |            |                 |                |           |             |
|---------------------------|---------------|--------------|----------|------------|------------|-----------------|----------------|-----------|-------------|
| Target Name               | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude  | Longitude   |
| - hit/miss target         |               |              |          |            |            |                 |                |           |             |
| - Shape                   |               |              |          |            |            |                 |                |           |             |
| CANNON 14N-W3HZ BI        | 0.00          | 0.00         | 6,907.00 | -4,450.04  | -121.58    | 1,302,893.92    | 3,236,051.54   | 40.161753 | -104.655405 |
| - plan hits target center |               |              |          |            |            |                 |                |           |             |
| - Point                   |               |              |          |            |            |                 |                |           |             |

| Casing Points       |                     |        |                     |                   |  |
|---------------------|---------------------|--------|---------------------|-------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name   | Casing Diameter (") | Hole Diameter (") |  |
| 775.00              | 775.00              | 9 5/8" | 9-5/8               | 12-1/4            |  |
| 7,264.64            | 6,927.00            | 7"     | 7                   | 8-3/4             |  |

# Anadarko Petroleum Corp

## Planning Report

|                  |                             |                                     |                      |
|------------------|-----------------------------|-------------------------------------|----------------------|
| <b>Database:</b> | edmp                        | <b>Local Co-ordinate Reference:</b> | Well CANNON 14N-W3HZ |
| <b>Company:</b>  | US ROCKIES REGION PLANNING  | <b>TVD Reference:</b>               | gl + rkb @ 4857.00ft |
| <b>Project:</b>  | COLORADO NORTHERN ZONE - 83 | <b>MD Reference:</b>                | gl + rkb @ 4857.00ft |
| <b>Site:</b>     | WELD_CANNON 29-3N HZ PAD    | <b>North Reference:</b>             | True                 |
| <b>Well:</b>     | CANNON 14N-W3HZ             | <b>Survey Calculation Method:</b>   | Minimum Curvature    |
| <b>Wellbore:</b> | CANNON 14N-W3HZ             |                                     |                      |
| <b>Design:</b>   | CANNON 14N-W3HZ (wp01)      |                                     |                      |

| Formations          |                     |                |           |         |                   |  |
|---------------------|---------------------|----------------|-----------|---------|-------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name           | Lithology | Dip (°) | Dip Direction (°) |  |
| 3,952.85            | 3,949.00            | Parkman        |           |         |                   |  |
| 4,450.67            | 4,446.00            | Sussex         |           |         |                   |  |
| 6,890.81            | 6,811.00            | Sharon Springs |           |         |                   |  |
| 7,015.86            | 6,875.00            | Niobrara A     |           |         |                   |  |
| 7,075.62            | 6,897.00            | Niobrara B     |           |         |                   |  |