

# **PICEANCE VLY NAD 83**

**RU 32-06S-094W**

**RWF 44-32 Pad**

**RWF 333-32 - Slot A1**

**Wellbore #1**

**Plan: Plan #1 13Aug09 kjs**

## **Standard Planning Report - Geographic**

**09 October, 2009**

# Williams Production RMT Company

## Planning Report - Geographic

|                  |                     |                                     |  |
|------------------|---------------------|-------------------------------------|--|
| <b>Database:</b> | EDMDB_COMPASS       | <b>Local Co-ordinate Reference:</b> | Well RWF 333-32 - Slot A1                    |
| <b>Company:</b>  | PICEANCE VLY NAD 83 | <b>TVD Reference:</b>               | KELLY BUSHING @ 6036.0ft (H&P (24' RKB) kjs) |
| <b>Project:</b>  | RU 32-06S-094W      | <b>MD Reference:</b>                | KELLY BUSHING @ 6036.0ft (H&P (24' RKB) kjs) |
| <b>Site:</b>     | RWF 44-32 Pad       | <b>North Reference:</b>             | True   |
| <b>Well:</b>     | RWF 333-32          | <b>Survey Calculation Method:</b>   | Minimum Curvature                            |
| <b>Wellbore:</b> | Wellbore #1         |                                     |  |
| <b>Design:</b>   | Plan #1 13Aug09 kjs |                                     |  |

|                    |                                     |                      |                             |
|--------------------|-------------------------------------|----------------------|-----------------------------|
| <b>Project</b>     | RU 32-06S-094W, Garfield County, CO |                      |                             |
| <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 Central Zone               |                      | Using geodetic scale factor |

|                              |               |                          |                   |
|------------------------------|---------------|--------------------------|-------------------|
| <b>Site</b>                  | RWF 44-32 Pad |                          |                   |
| <b>Site Position:</b>        |               | <b>Northing:</b>         | 1,607,842.20 ft   |
| <b>From:</b>                 | Map           | <b>Easting:</b>          | 2,321,025.20 ft   |
| <b>Position Uncertainty:</b> | 0.0 ft        | <b>Slot Radius:</b>      | "                 |
|                              |               | <b>Latitude:</b>         | 39° 28' 39.429 N  |
|                              |               | <b>Longitude:</b>        | 107° 54' 20.357 W |
|                              |               | <b>Grid Convergence:</b> | -1.52 °           |

|                             |                      |                            |                                  |
|-----------------------------|----------------------|----------------------------|----------------------------------|
| <b>Well</b>                 | RWF 333-32 - Slot A1 |                            |                                  |
| <b>Well Position</b>        | <b>+N/-S</b>         | 0.0 ft                     | <b>Northing:</b> 1,607,842.20 ft |
|                             | <b>+E/-W</b>         | 0.0 ft                     | <b>Easting:</b> 2,321,025.20 ft  |
| <b>Position Uncertainty</b> | 0.0 ft               | <b>Wellhead Elevation:</b> | ft                               |
|                             |                      | <b>Latitude:</b>           | 39° 28' 39.429 N                 |
|                             |                      | <b>Longitude:</b>          | 107° 54' 20.357 W                |
|                             |                      | <b>Ground Level:</b>       | 6,012.0 ft                       |

|                  |                   |                    |                        |                      |                            |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| <b>Wellbore</b>  | Wellbore #1       |                    |                        |                      |                            |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination (°)</b> | <b>Dip Angle (°)</b> | <b>Field Strength (nT)</b> |
|                  | IGRF2005-10       | 8/13/2009          | 10.53                  | 65.80                | 52,513                     |

|                          |                              |                   |                      |                      |
|--------------------------|------------------------------|-------------------|----------------------|----------------------|
| <b>Design</b>            | Plan #1 13Aug09 kjs          |                   |                      |                      |
| <b>Audit Notes:</b>      |                              |                   |                      |                      |
| <b>Version:</b>          | <b>Phase:</b>                | PLAN              | <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>    | <b>Direction (°)</b> |
|                          | 0.0                          | 0.0               | 0.0                  | 328.62               |

| <b>Plan Sections</b> |                 |             |                     |            |            |                       |                      |                     |         |                      |
|----------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|----------------------|---------------------|---------|----------------------|
| Measured Depth (ft)  | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target               |
| 0.0                  | 0.00            | 0.00        | 0.0                 | 0.0        | 0.0        | 0.00                  | 0.00                 | 0.00                | 0.00    |                      |
| 120.0                | 0.00            | 0.00        | 120.0               | 0.0        | 0.0        | 0.00                  | 0.00                 | 0.00                | 0.00    |                      |
| 462.9                | 12.00           | 328.62      | 460.4               | 30.5       | -18.6      | 3.50                  | 3.50                 | 0.00                | 328.62  |                      |
| 2,946.8              | 12.00           | 328.62      | 2,890.0             | 471.4      | -287.5     | 0.00                  | 0.00                 | 0.00                | 0.00    |                      |
| 3,271.9              | 23.38           | 328.62      | 3,199.3             | 555.7      | -338.9     | 3.50                  | 3.50                 | 0.00                | 0.00    |                      |
| 4,899.5              | 23.38           | 328.62      | 4,693.2             | 1,107.1    | -675.2     | 0.00                  | 0.00                 | 0.00                | 0.00    |                      |
| 6,068.5              | 0.00            | 0.00        | 5,830.0             | 1,307.9    | -797.6     | 2.00                  | -2.00                | 0.00                | 180.00  | Top Gas (25' Radius) |
| 8,618.5              | 0.00            | 0.00        | 8,380.0             | 1,307.9    | -797.6     | 0.00                  | 0.00                 | 0.00                | 0.00    |                      |

# Williams Production RMT Company

## Planning Report - Geographic

|                  |                     |                                     |  |
|------------------|---------------------|-------------------------------------|--|
| <b>Database:</b> | EDMDB_COMPASS       | <b>Local Co-ordinate Reference:</b> | Well RWF 333-32 - Slot A1                    |
| <b>Company:</b>  | PICEANCE VLY NAD 83 | <b>TVD Reference:</b>               | KELLY BUSHING @ 6036.0ft (H&P (24' RKB) kjs) |
| <b>Project:</b>  | RU 32-06S-094W      | <b>MD Reference:</b>                | KELLY BUSHING @ 6036.0ft (H&P (24' RKB) kjs) |
| <b>Site:</b>     | RWF 44-32 Pad       | <b>North Reference:</b>             | True   |
| <b>Well:</b>     | RWF 333-32          | <b>Survey Calculation Method:</b>   | Minimum Curvature                            |
| <b>Wellbore:</b> | Wellbore #1         |                                     |  |
| <b>Design:</b>   | Plan #1 13Aug09 kjs |                                     |  |

### Planned Survey

| Measured Depth (ft)         | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (ft) | Map Easting (ft) | Latitude         | Longitude         |
|-----------------------------|-----------------|-------------|---------------------|------------|------------|-------------------|------------------|------------------|-------------------|
| 0.0                         | 0.00            | 0.00        | 0.0                 | 0.0        | 0.0        | 1,607,842.20      | 2,321,025.20     | 39° 28' 39.429 N | 107° 54' 20.357 W |
| 120.0                       | 0.00            | 0.00        | 120.0               | 0.0        | 0.0        | 1,607,842.20      | 2,321,025.20     | 39° 28' 39.429 N | 107° 54' 20.357 W |
| 462.9                       | 12.00           | 328.62      | 460.4               | 30.5       | -18.6      | 1,607,873.22      | 2,321,007.39     | 39° 28' 39.731 N | 107° 54' 20.594 W |
| 1,116.8                     | 12.00           | 328.62      | 1,100.0             | 146.6      | -89.4      | 1,607,991.12      | 2,320,939.69     | 39° 28' 40.878 N | 107° 54' 21.497 W |
| <b>9 5/8"</b>               |                 |             |                     |            |            |                   |                  |                  |                   |
| 2,435.6                     | 12.00           | 328.62      | 2,390.0             | 380.7      | -232.2     | 1,608,228.90      | 2,320,803.17     | 39° 28' 43.192 N | 107° 54' 23.318 W |
| <b>Top of "G" Sand</b>      |                 |             |                     |            |            |                   |                  |                  |                   |
| 2,537.8                     | 12.00           | 328.62      | 2,490.0             | 398.9      | -243.3     | 1,608,247.34      | 2,320,792.59     | 39° 28' 43.371 N | 107° 54' 23.459 W |
| <b>Base of "G" Sand</b>     |                 |             |                     |            |            |                   |                  |                  |                   |
| 2,946.8                     | 12.00           | 328.62      | 2,890.0             | 471.4      | -287.5     | 1,608,321.07      | 2,320,750.25     | 39° 28' 44.089 N | 107° 54' 24.024 W |
| 3,271.9                     | 23.38           | 328.62      | 3,199.3             | 555.7      | -338.9     | 1,608,406.61      | 2,320,701.14     | 39° 28' 44.921 N | 107° 54' 24.679 W |
| 4,899.5                     | 23.38           | 328.62      | 4,693.2             | 1,107.1    | -675.2     | 1,608,966.71      | 2,320,379.61     | 39° 28' 50.371 N | 107° 54' 28.968 W |
| 4,939.5                     | 22.58           | 328.62      | 4,730.0             | 1,120.4    | -683.3     | 1,608,980.26      | 2,320,371.83     | 39° 28' 50.503 N | 107° 54' 29.071 W |
| <b>Mesaverde</b>            |                 |             |                     |            |            |                   |                  |                  |                   |
| 6,068.5                     | 0.00            | 0.00        | 5,830.0             | 1,307.9    | -797.6     | 1,609,170.70      | 2,320,262.50     | 39° 28' 52.356 N | 107° 54' 30.530 W |
| <b>Approx. Top Gas</b>      |                 |             |                     |            |            |                   |                  |                  |                   |
| 7,518.5                     | 0.00            | 0.00        | 7,280.0             | 1,307.9    | -797.6     | 1,609,170.70      | 2,320,262.50     | 39° 28' 52.356 N | 107° 54' 30.530 W |
| <b>Cameo Coals</b>          |                 |             |                     |            |            |                   |                  |                  |                   |
| 8,298.5                     | 0.00            | 0.00        | 8,060.0             | 1,307.9    | -797.6     | 1,609,170.70      | 2,320,262.50     | 39° 28' 52.356 N | 107° 54' 30.530 W |
| <b>Coal D</b>               |                 |             |                     |            |            |                   |                  |                  |                   |
| 8,418.5                     | 0.00            | 0.00        | 8,180.0             | 1,307.9    | -797.6     | 1,609,170.70      | 2,320,262.50     | 39° 28' 52.356 N | 107° 54' 30.530 W |
| <b>Base Lower Cameo Pay</b> |                 |             |                     |            |            |                   |                  |                  |                   |
| 8,468.5                     | 0.00            | 0.00        | 8,230.0             | 1,307.9    | -797.6     | 1,609,170.70      | 2,320,262.50     | 39° 28' 52.356 N | 107° 54' 30.530 W |
| <b>Rollins</b>              |                 |             |                     |            |            |                   |                  |                  |                   |
| 8,618.5                     | 0.00            | 0.00        | 8,380.0             | 1,307.9    | -797.6     | 1,609,170.70      | 2,320,262.50     | 39° 28' 52.356 N | 107° 54' 30.530 W |
| <b>TD</b>                   |                 |             |                     |            |            |                   |                  |                  |                   |

### Targets

| Target Name<br>- hit/miss target<br>- Shape | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (ft) | Easting (ft) | Latitude         | Longitude         |
|---|---------------|--------------|----------|------------|------------|---------------|--------------|------------------|-------------------|
| Top Gas (25' Radius) R\                     | 0.00          | 0.00         | 5,830.0  | 1,307.9    | -797.6     | 1,609,170.70  | 2,320,262.50 | 39° 28' 52.356 N | 107° 54' 30.530 W |
| - plan hits target                          |               |              |          |            |            |               |              |                  |                   |
| - Circle (radius 25.0)                      |               |              |          |            |            |               |              |                  |                   |

### Casing Points

| Measured Depth (ft) | Vertical Depth (ft) | Name   | Casing Diameter (") | Hole Diameter (") |
|---------------------|---------------------|--------|---------------------|-------------------|
| 1,116.8             | 1,100.0             | 9 5/8" | 9-5/8               | 12-1/4            |

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|                  |                     |                                     |  |
|------------------|---------------------|-------------------------------------|--|
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| <b>Company:</b>  | PICEANCE VLY NAD 83 | <b>TVD Reference:</b>               | KELLY BUSHING @ 6036.0ft (H&P (24' RKB) kjs) |
| <b>Project:</b>  | RU 32-06S-094W      | <b>MD Reference:</b>                | KELLY BUSHING @ 6036.0ft (H&P (24' RKB) kjs) |
| <b>Site:</b>     | RWF 44-32 Pad       | <b>North Reference:</b>             | True   |
| <b>Well:</b>     | RWF 333-32          | <b>Survey Calculation Method:</b>   | Minimum Curvature                            |
| <b>Wellbore:</b> | Wellbore #1         |                                     |  |
| <b>Design:</b>   | Plan #1 13Aug09 kjs |                                     |  |

| Formations          |                     |                      |           |         |                   |  |
|---------------------|---------------------|----------------------|-----------|---------|-------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name                 | Lithology | Dip (°) | Dip Direction (°) |  |
| 2,435.6             | 2,390.00            | Top of "G" Sand      |           |         |                   |  |
| 2,537.8             | 2,490.00            | Base of "G" Sand     |           |         |                   |  |
| 4,939.5             | 4,730.00            | Mesaverde            |           |         |                   |  |
| 6,068.5             | 5,830.00            | Approx. Top Gas      |           |         |                   |  |
| 7,518.5             | 7,280.00            | Cameo Coals          |           |         |                   |  |
| 8,298.5             | 8,060.00            | Coal D               |           |         |                   |  |
| 8,418.5             | 8,180.00            | Base Lower Cameo Pay |           |         |                   |  |
| 8,468.5             | 8,230.00            | Rollins              |           |         |                   |  |
| 8,618.5             | 8,380.00            | TD                   |           |         |                   |  |

| Plan Annotations    |                     |                   |            |                        |  |
|---------------------|---------------------|-------------------|------------|------------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates |            |                        |  |
|                     |                     | +N/-S (ft)        | +E/-W (ft) | Comment                |  |
| 120.0               | 120.0               | 0.0               | 0.0        | Start Build 3.50       |  |
| 462.9               | 460.4               | 30.5              | -18.6      | Hold 12.00 Inclination |  |
| 2,946.8             | 2,890.0             | 471.4             | -287.5     | Start Build 3.50       |  |
| 3,271.9             | 3,199.3             | 555.7             | -338.9     | Hold 23.38 Inclination |  |
| 4,899.5             | 4,693.2             | 1,107.1           | -675.2     | Start Drop -2.00       |  |
| 6,068.5             | 5,830.0             | 1,307.9           | -797.6     | Top Gas                |  |
| 8,618.5             | 8,380.0             | 1,307.9           | -797.6     | TD at 8618.5           |  |