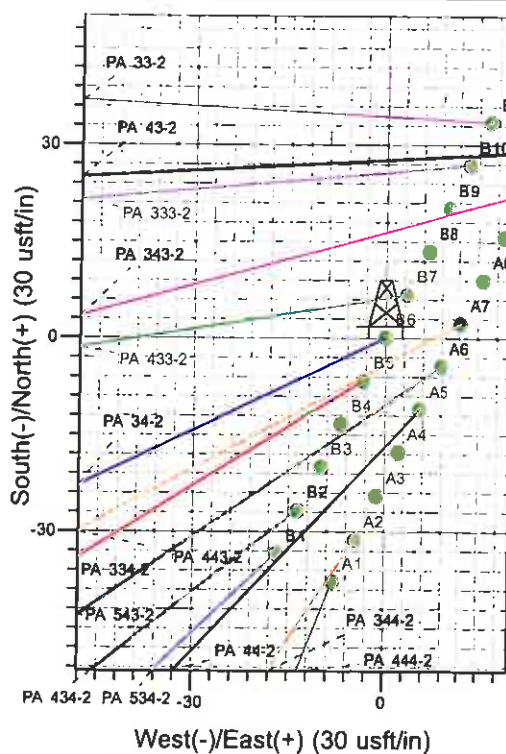
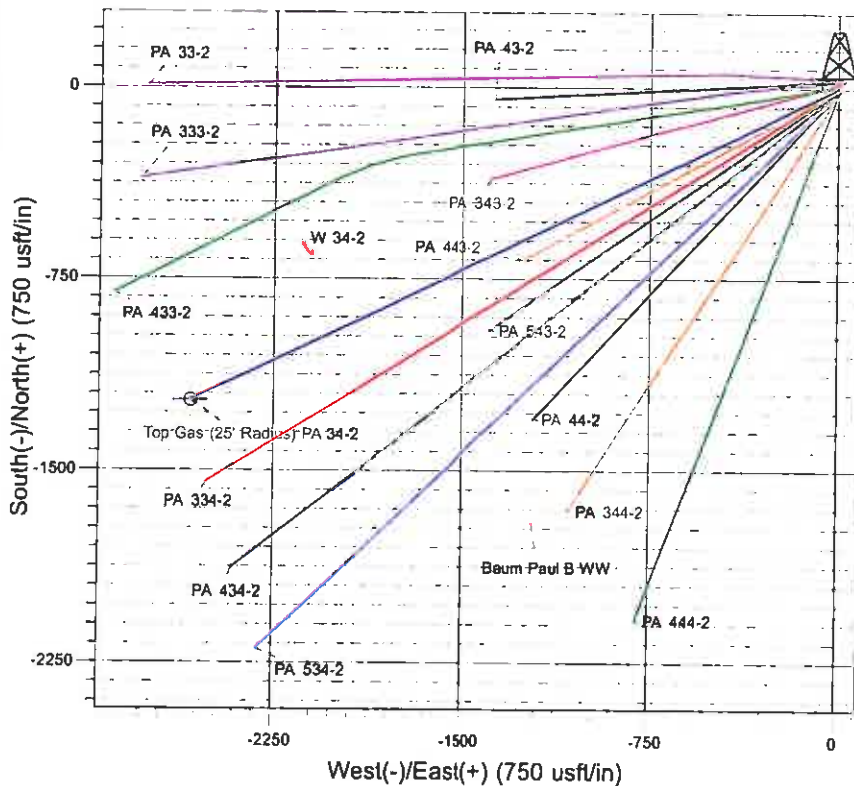
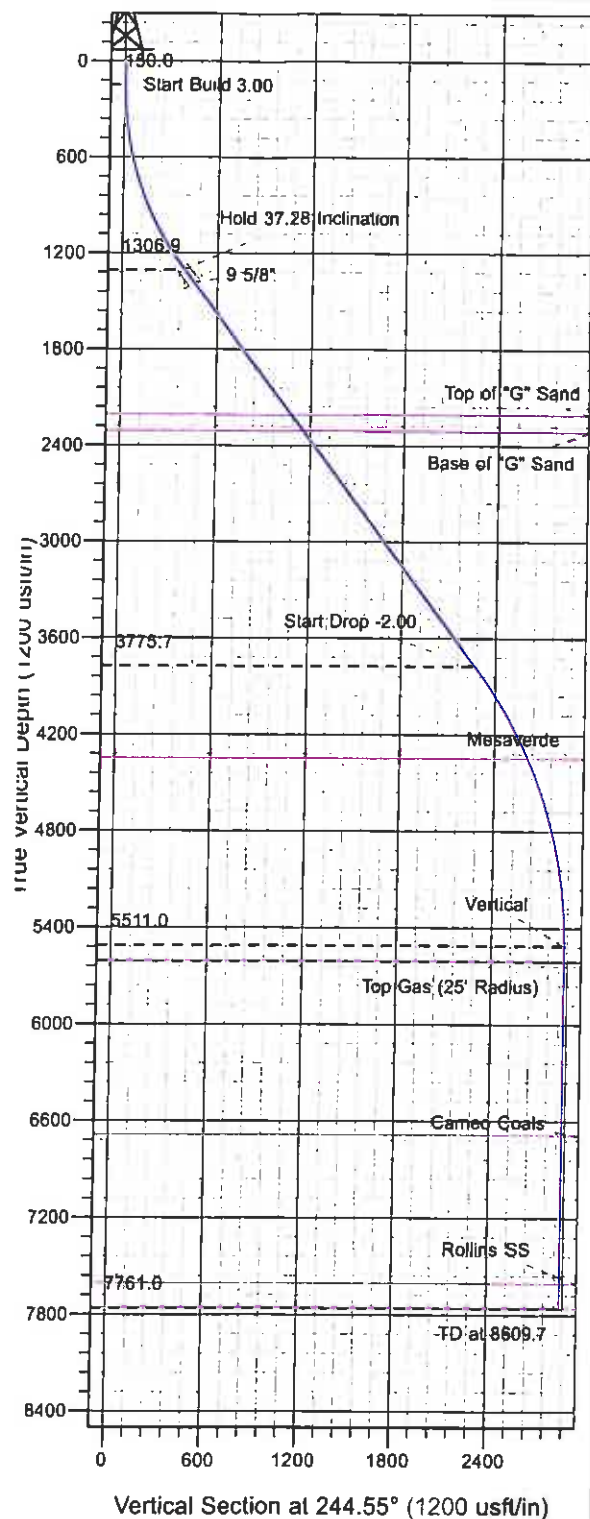




PH 54-2  
Surface Location: GV 84-1 Pad - West Cellar  
North American Datum 1983 US State Plane 1983 Colorado Central Zone  
Ground Elevation: 6027.0  
WELL @ 6051.0usft (Original Well Elev)

+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1603978.70 2307254.30 39° 27' 57.618 N 107° 57' 14.590 W B6



Project: PA 01-07S-095W  
Site: GV 84-1 Pad - West Cellar  
Well: PA 34-2  
Design #1 22Mar11 kjs

Azimuths to True North  
Magnetic North: 10.36°  
Magnetic Field  
Strength: 52262.3nT  
Dip Angle: 65.73°  
Date: 3/22/2011  
Model: IGRF2010

#### ANNOTATIONS

| TVD    | MD     | Inc   | Azi    | +N/-S   | +E/-W   | VSDeparture | Annotation             |
|--------|--------|-------|--------|---------|---------|-------------|------------------------|
| 150.0  | 150.0  | 0.00  | 0.00   | 0.0     | 0.0     | 0.0         | Start Build 3.00       |
| 1306.9 | 1392.7 | 37.28 | 244.55 | -167.7  | -352.4  | 390.3       | Hold 37.28 Inclination |
| 3775.7 | 4495.6 | 37.28 | 244.55 | -975.5  | -2049.5 | 2269.8      | Start Drop -2.00       |
| 5511.0 | 6359.7 | 0.00  | 0.00   | -1227.0 | -2578.0 | 2855.1      | Vertical               |
| 5611.0 | 6459.7 | 0.00  | 0.00   | -1227.0 | -2578.0 | 2855.1      | Top Gas                |
| 7761.0 | 8609.7 | 0.00  | 0.00   | -1227.0 | -2578.0 | 2855.1      | TD at 8609.7           |



# **PICEANCE VLY NAD 83**

**PA 01-07S-095W**

**GV 84-1 Pad - West Cellar**

**PA 34-2 - Slot B6**

**Wellbore #1**

**Plan: Design #1 22Mar11 kjs**

## **Standard Planning Report - Geographic**

**16 May, 2011**



**Williams**  
Planning Report - Geographic

Database: Compass R5000 WIN AUTH  
Company: PICEANCE VLY NAD 83  
Project: PA 01-07S-095W  
Site: GV 84-1 Pad - West Cellar  
Well: PA 34-2  
Wellbore: Wellbore #1  
Design: Design #1 22Mar11 kjs

Local Co-ordinate Reference: Well PA 34-2 - Slot B6  
TVD Reference: WELL @ 6051.0usft (Original Well Elev)  
MD Reference: WELL @ 6051.0usft (Original Well Elev)  
North Reference: True  
Survey Calculation Method: Minimum Curvature

Project PA 01-07S-095W. 01-07S-095W

Map System: US State Plane 1983 System Datum: Mean Sea Level  
Geo Datum: North American Datum 1983  
Map Zone: Colorado Central Zone Using geodetic scale factor

Site GV 84-1 Pad - West Cellar

Site Position: Northing: 1,603,932.89 usft Latitude: 39° 27' 57.156 N  
From: Map Easting: 2,307,221.63 usft Longitude: 107° 57' 14.990 W  
Position Uncertainty: 0.0 usft Slot Radius: 13.200 in Grid Convergence: -1.548 °

Well PA 34-2 - Slot B6

Well Position: +N/-S 0.0 usft Northing: 1,603,978.70 usft Latitude: 39° 27' 57.618 N  
+E/-W 0.0 usft Easting: 2,307,254.30 usft Longitude: 107° 57' 14.590 W  
Position Uncertainty: 0.0 usft Wellhead Elevation: Ground Level: 6,027.0 usft

Wellbore Wellbore #1

| Magnetics | Model Name | Sample Date | Declination<br>(°) | Dip Angle<br>(°) | Field Strength<br>(nT) |
|-----------|------------|-------------|--------------------|------------------|------------------------|
|           | IGRF2010   | 3/22/2011   | 10.360             | 65.729           | 52,262                 |

Design Design #1 22Mar11 kjs

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.0

| Vertical Section: | Depth From (TVD)<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Direction<br>(°) |
|-------------------|----------------------------|-----------------|-----------------|------------------|
|                   | 0.0                        | 0.0             | 0.0             | 244.55           |

Plan Sections

| Measured<br>Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Dogleg<br>Rate<br>(°/100usft) | Build<br>Rate<br>(°/100usft) | Turn<br>Rate<br>(°/100usft) | TFO<br>(°) | Target               |
|-----------------------------|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|------------------------------|-----------------------------|------------|----------------------|
| 0.0                         | 0.00               | 0.00           | 0.0                         | 0.0             | 0.0             | 0.00                          | 0.00                         | 0.00                        | 0.000      |                      |
| 150.0                       | 0.00               | 0.00           | 150.0                       | 0.0             | 0.0             | 0.00                          | 0.00                         | 0.00                        | 0.000      |                      |
| 1,392.7                     | 37.28              | 244.55         | 1,306.9                     | -167.7          | -352.4          | 3.00                          | 3.00                         | 0.00                        | 244.547    |                      |
| 4,495.6                     | 37.28              | 244.55         | 3,775.7                     | -975.5          | -2,049.5        | 0.00                          | 0.00                         | 0.00                        | 0.000      |                      |
| 6,359.7                     | 0.00               | 0.00           | 5,511.0                     | -1,227.0        | -2,578.0        | 2.00                          | -2.00                        | 0.00                        | 180.000    |                      |
| 6,459.7                     | 0.00               | 0.00           | 5,611.0                     | -1,227.0        | -2,578.0        | 0.00                          | 0.00                         | 0.00                        | 0.000      | Top Gas (25' Radius) |
| 8,609.7                     | 0.00               | 0.00           | 7,761.0                     | -1,227.0        | -2,578.0        | 0.00                          | 0.00                         | 0.00                        | 0.000      |                      |



**Williams**  
Planning Report - Geographic

Database: Compass R5000 WIN AUTH  
Company: PICEANCE VLY NAD 83  
Project: PA 01-07S-095W  
Site: GV 84-1 Pad - West Cellar  
Well: PA 34-2  
Wellbore: Wellbore #1  
Design: Design #1 22Mar11 kjs

Local Co-ordinate Reference: Well PA 34-2 - Slot B6  
TVD Reference: WELL @ 6051.0usft (Original Well Elev)  
MD Reference: WELL @ 6051.0usft (Original Well Elev)  
North Reference: True  
Survey Calculation Method: Minimum Curvature

**Planned Survey**

| Measured Depth (usft)            | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Map Northing (usft) | Map Easting (usft) | Latitude         | Longitude         |
|----------------------------------|-----------------|-------------|-----------------------|--------------|--------------|---------------------|--------------------|------------------|-------------------|
| 0.0                              | 0.00            | 0.00        | 0.0                   | 0.0          | 0.0          | 1,603,978.70        | 2,307,254.30       | 39° 27' 57.618 N | 107° 57' 14.590 W |
| 150.0                            | 0.00            | 0.00        | 150.0                 | 0.0          | 0.0          | 1,603,978.70        | 2,307,254.30       | 39° 27' 57.618 N | 107° 57' 14.590 W |
| <b>Start Build 3.00</b>          |                 |             |                       |              |              |                     |                    |                  |                   |
| 1,392.7                          | 37.28           | 244.55      | 1,306.9               | -167.7       | -352.4       | 1,603,820.57        | 2,306,897.54       | 39° 27' 55.960 N | 107° 57' 19.083 W |
| <b>Hold 37.28 Inclination</b>    |                 |             |                       |              |              |                     |                    |                  |                   |
| 1,493.0                          | 37.28           | 244.55      | 1,386.7               | -193.8       | -407.2       | 1,603,795.95        | 2,306,842.02       | 39° 27' 55.702 N | 107° 57' 19.782 W |
| <b>9 5/8"</b>                    |                 |             |                       |              |              |                     |                    |                  |                   |
| 2,529.0                          | 37.28           | 244.55      | 2,211.0               | -463.5       | -973.9       | 1,603,541.66        | 2,306,268.30       | 39° 27' 53.036 N | 107° 57' 27.007 W |
| <b>Top of "G" Sand</b>           |                 |             |                       |              |              |                     |                    |                  |                   |
| 2,654.7                          | 37.28           | 244.55      | 2,311.0               | -496.2       | -1,042.6     | 1,603,510.82        | 2,306,198.71       | 39° 27' 52.713 N | 107° 57' 27.884 W |
| <b>Base of "G" Sand</b>          |                 |             |                       |              |              |                     |                    |                  |                   |
| 4,495.6                          | 37.28           | 244.55      | 3,775.7               | -975.5       | -2,049.5     | 1,603,058.99        | 2,305,179.34       | 39° 27' 47.976 N | 107° 57' 40.721 W |
| <b>Start Drop -2.00</b>          |                 |             |                       |              |              |                     |                    |                  |                   |
| 5,165.4                          | 23.89           | 244.55      | 4,351.0               | -1,121.6     | -2,356.5     | 1,602,921.22        | 2,304,868.50       | 39° 27' 46.532 N | 107° 57' 44.636 W |
| <b>Mesaverde</b>                 |                 |             |                       |              |              |                     |                    |                  |                   |
| 6,359.7                          | 0.00            | 0.00        | 5,511.0               | -1,227.0     | -2,578.0     | 1,602,821.80        | 2,304,644.20       | 39° 27' 45.489 N | 107° 57' 47.460 W |
| <b>Vertical</b>                  |                 |             |                       |              |              |                     |                    |                  |                   |
| 6,459.7                          | 0.00            | 0.00        | 5,611.0               | -1,227.0     | -2,578.0     | 1,602,821.80        | 2,304,644.20       | 39° 27' 45.489 N | 107° 57' 47.460 W |
| <b>Top Gas - Approx. Top Gas</b> |                 |             |                       |              |              |                     |                    |                  |                   |
| 7,539.7                          | 0.00            | 0.00        | 6,691.0               | -1,227.0     | -2,578.0     | 1,602,821.80        | 2,304,644.20       | 39° 27' 45.489 N | 107° 57' 47.460 W |
| <b>Cameo Coals</b>               |                 |             |                       |              |              |                     |                    |                  |                   |
| 8,459.7                          | 0.00            | 0.00        | 7,611.0               | -1,227.0     | -2,578.0     | 1,602,821.80        | 2,304,644.20       | 39° 27' 45.489 N | 107° 57' 47.460 W |
| <b>Rollins SS</b>                |                 |             |                       |              |              |                     |                    |                  |                   |
| 8,609.7                          | 0.00            | 0.00        | 7,761.0               | -1,227.0     | -2,578.0     | 1,602,821.80        | 2,304,644.20       | 39° 27' 45.489 N | 107° 57' 47.460 W |
| <b>TD at 8609.7 - TD</b>         |                 |             |                       |              |              |                     |                    |                  |                   |

**Design Targets**

| Target Name               | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude         | Longitude         |
|---------------------------|---------------|--------------|------------|--------------|--------------|-----------------|----------------|------------------|-------------------|
| - hit/miss target         |               |              |            |              |              |                 |                |                  |                   |
| - Shape                   |               |              |            |              |              |                 |                |                  |                   |
| Top Gas (25' Radius) P/   | 0.00          | 0.00         | 5,611.0    | -1,227.0     | -2,578.0     | 1,602,821.80    | 2,304,644.20   | 39° 27' 45.489 N | 107° 57' 47.460 W |
| - plan hits target center |               |              |            |              |              |                 |                |                  |                   |
| - Circle (radius 25.0)    |               |              |            |              |              |                 |                |                  |                   |

**Casing Points**

| Measured Depth (usft) | Vertical Depth (usft) | Name   | Casing Diameter (in) | Hole Diameter (in) |
|-----------------------|-----------------------|--------|----------------------|--------------------|
| 1,493.0               | 1,386.7               | 9 5/8" | 9.625                | 12.250             |



**Williams**  
Planning Report - Geographic

|           |                           |                              |  |
|-----------|---------------------------|------------------------------|--|
| Database: | Compass R5000 WIN AUTH    | Local Co-ordinate Reference: | Well PA 34-2 - Slot B6                 |
| Company:  | PICEANCE VLY NAD 83       | TVD Reference:               | WELL @ 6051.0usft (Original Well Elev) |
| Project:  | PA 01-07S-095W            | MD Reference:                | WELL @ 6051.0usft (Original Well Elev) |
| Site:     | GV 84-1 Pad - West Cellar | North Reference:             | True                                   |
| Well:     | PA 34-2                   | Survey Calculation Method:   | Minimum Curvature                      |
| Wellbore: | Wellbore #1               |                              |  |
| Design:   | Design #1 22Mar11 kjs     |                              |  |

| Formations            |                       |                  |           |         |               |  |
|-----------------------|-----------------------|------------------|-----------|---------|---------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Name             | Lithology | Dip (") | Dip Direction |  |
| 2,529.0               | 2,211.0               | Top of "G" Sand  |           |         |               |  |
| 2,654.7               | 2,311.0               | Base of "G" Sand |           |         |               |  |
| 5,165.4               | 4,351.0               | Mesaverde        |           |         |               |  |
| 6,459.7               | 5,611.0               | Approx. Top Gas  |           |         |               |  |
| 7,539.7               | 6,691.0               | Cameo Coals      |           |         |               |  |
| 8,459.7               | 7,611.0               | Rollins SS       |           |         |               |  |
| 8,609.7               | 7,761.0               | TD               |           |         |               |  |

| Plan Annotations      |                       |                   |              |                        |  |
|-----------------------|-----------------------|-------------------|--------------|------------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates |              |                        |  |
|                       |                       | +N/-S (usft)      | +E/-W (usft) | Comment                |  |
| 150.0                 | 150.0                 | 0.0               | 0.0          | Start Build 3.00       |  |
| 1,392.7               | 1,306.9               | -167.7            | -352.4       | Hold 37.28 Inclination |  |
| 4,495.6               | 3,775.7               | -975.5            | -2,049.5     | Start Drop -2.00       |  |
| 6,359.7               | 5,511.0               | -1,227.0          | -2,578.0     | Vertical               |  |
| 6,459.7               | 5,611.0               | -1,227.0          | -2,578.0     | Top Gas                |  |
| 8,609.7               | 7,761.0               | -1,227.0          | -2,578.0     | TD at 8609.7           |  |