

PICEANCE VLY NAD 83

PA 07-07S-095W

PA 21-7 Pad

PA 342-7 - Slot B5

Wellbore #1

Plan: Plan #1 21Apr09 kjs

Standard Planning Report - Geographic

23 April, 2010

Williams
Planning Report - Geographic

| | | | |
|------------------|------------------------|-------------------------------------|---|
| Database: | Compass R5000 WIN AUTH | Local Co-ordinate Reference: | Well PA 342-7 - Slot B5 |
| Company: | PICEANCE VLY NAD 83 | TVD Reference: | KELLY BUSHING @ 5109.0usft (SSD (26' KB) JMS) |
| Project: | PA 07-07S-095W | MD Reference: | KELLY BUSHING @ 5109.0usft (SSD (26' KB) JMS) |
| Site: | PA 21-7 Pad | North Reference: | True |
| Well: | PA 342-7 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #1 21Apr09 kjs | | |

| | | | |
|--------------------|-------------------------------------|----------------------|-----------------------------|
| Project | PA 07-07S-095W, Garfield County, CO | | |
| 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 | PA 21-7 Pad | | |
| Site Position: | | Northing: | 1,601,212.50 usft |
| From: | Map | Easting: | 2,281,792.10 usft |
| Position Uncertainty: | 0.0 usft | Slot Radius: | 13.200 in |
| | | Latitude: | 39° 27' 23.366 N |
| | | Longitude: | 108° 2' 38.155 W |
| | | Grid Convergence: | -1.604 ° |

| | | | |
|-----------------------------|--------------------|----------|----------------------------|
| Well | PA 342-7 - Slot B5 | | |
| Well Position | +N/-S | 0.0 usft | Northing: |
| | +E/-W | 0.0 usft | Easting: |
| Position Uncertainty | 0.0 usft | | Wellhead Elevation: |
| | | | Latitude: |
| | | | Longitude: |
| | | | Ground Level: |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | Wellbore #1 | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2005-10 | 4/21/2009 | 10.625 | 65.766 | 52,472 |

| | | | | |
|--------------------------|--------------------------------|---------------------|----------------------|----------------------|
| Design | Plan #1 21Apr09 kjs | | | |
| Audit Notes: | | | | |
| Version: | Phase: | PLAN | Tie On Depth: | 0.0 |
| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (°) |
| | 0.0 | 0.0 | 0.0 | 102.79 |

| Plan Sections | | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|------------------------|-----------------------|---------|----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | TFO (°) | Target |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.000 | |
| 120.0 | 0.00 | 0.00 | 120.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.000 | |
| 1,752.8 | 48.98 | 102.79 | 1,561.0 | -145.3 | 640.2 | 3.00 | 3.00 | 0.00 | 102.790 | |
| 3,786.5 | 48.98 | 102.79 | 2,895.7 | -485.0 | 2,136.6 | 0.00 | 0.00 | 0.00 | 0.000 | |
| 5,335.7 | 18.00 | 102.79 | 4,172.0 | -672.0 | 2,960.2 | 2.00 | -2.00 | 0.00 | 180.000 | Top Gas (50x100 Elip |
| 6,235.7 | 0.00 | 0.00 | 5,057.3 | -703.0 | 3,096.9 | 2.00 | -2.00 | -11.42 | 180.000 | |
| 7,500.5 | 0.00 | 0.00 | 6,322.0 | -703.0 | 3,096.9 | 0.00 | 0.00 | 0.00 | 0.000 | |

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| Project: | PA 07-07S-095W | MD Reference: | KELLY BUSHING @ 5109.0usft (SSD (26' KB) JMS) |
| Site: | PA 21-7 Pad | North Reference: | True |
| Well: | PA 342-7 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #1 21Apr09 kjs | | |

| 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 | 1,601,185.70 | 2,281,857.50 | 39° 27' 23.119 N | 108° 2' 37.312 W | |
| 120.0 | 0.00 | 0.00 | 120.0 | 0.0 | 0.0 | 1,601,185.70 | 2,281,857.50 | 39° 27' 23.119 N | 108° 2' 37.312 W | |
| Start Build 3.00 | | | | | | | | | | |
| 1,388.2 | 38.04 | 102.79 | 1,297.0 | -89.8 | 395.7 | 1,601,084.82 | 2,282,250.53 | 39° 27' 22.231 N | 108° 2' 32.267 W | |
| Top of "G" Sand | | | | | | | | | | |
| 1,518.7 | 41.96 | 102.79 | 1,397.0 | -108.4 | 477.6 | 1,601,063.96 | 2,282,331.81 | 39° 27' 22.048 N | 108° 2' 31.224 W | |
| Base of "G" Sand | | | | | | | | | | |
| 1,752.8 | 48.98 | 102.79 | 1,561.0 | -145.3 | 640.2 | 1,601,022.50 | 2,282,493.34 | 39° 27' 21.683 N | 108° 2' 29.150 W | |
| Hold 48.98 Inclination | | | | | | | | | | |
| 1,803.0 | 48.98 | 102.79 | 1,594.0 | -153.7 | 677.1 | 1,601,013.09 | 2,282,530.03 | 39° 27' 21.600 N | 108° 2' 28.679 W | |
| 9 5/8" | | | | | | | | | | |
| 3,786.5 | 48.98 | 102.79 | 2,895.7 | -485.0 | 2,136.6 | 1,600,641.05 | 2,283,979.60 | 39° 27' 18.324 N | 108° 2' 10.072 W | |
| Start Drop -2.00 | | | | | | | | | | |
| 4,184.7 | 41.02 | 102.79 | 3,177.0 | -547.3 | 2,410.9 | 1,600,571.11 | 2,284,252.07 | 39° 27' 17.709 N | 108° 2' 6.575 W | |
| Mesaverde | | | | | | | | | | |
| 5,335.7 | 18.00 | 102.79 | 4,172.0 | -672.0 | 2,960.2 | 1,600,431.11 | 2,284,797.55 | 39° 27' 16.476 N | 108° 1' 59.573 W | |
| Top Gas - Approx. Top Gas | | | | | | | | | | |
| 6,235.7 | 0.00 | 0.00 | 5,057.3 | -703.0 | 3,096.9 | 1,600,396.26 | 2,284,933.36 | 39° 27' 16.169 N | 108° 1' 57.830 W | |
| Vertical | | | | | | | | | | |
| 6,800.5 | 0.00 | 0.00 | 5,622.0 | -703.0 | 3,096.9 | 1,600,396.26 | 2,284,933.36 | 39° 27' 16.169 N | 108° 1' 57.830 W | |
| Cameo Coals | | | | | | | | | | |
| 7,350.5 | 0.00 | 0.00 | 6,172.0 | -703.0 | 3,096.9 | 1,600,396.26 | 2,284,933.36 | 39° 27' 16.169 N | 108° 1' 57.830 W | |
| Rollins SS | | | | | | | | | | |
| 7,500.5 | 0.00 | 0.00 | 6,322.0 | -703.0 | 3,096.9 | 1,600,396.26 | 2,284,933.36 | 39° 27' 16.169 N | 108° 1' 57.830 W | |
| TD | | | | | | | | | | |

| Design Targets | | | | | | | | | | |
|---|---------------|--------------|------------|--------------|--------------|-----------------|----------------|------------------|------------------|--|
| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude | Longitude | |
| Top Gas (50x100 Elipse - plan misses target center by 67.8usft at 5346.8usft MD (4182.5 TVD, -672.8 N, 2963.5 E) - Ellipse (radii L50.0 W100.0 on 353.00 azi) | 0.00 | 0.00 | 4,172.0 | -687.1 | 3,028.9 | 1,600,414.10 | 2,284,865.80 | 39° 27' 16.326 N | 108° 1' 58.698 W | |

| Casing Points | | | | | | |
|-----------------------|-----------------------|--------|----------------------|--------------------|--|--|
| Measured Depth (usft) | Vertical Depth (usft) | Name | Casing Diameter (in) | Hole Diameter (in) | | |
| 1,803.0 | 1,594.0 | 9 5/8" | 9.625 | 12.250 | | |

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| Site: | PA 21-7 Pad | North Reference: | True |
| Well: | PA 342-7 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
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| Formations | | | | | | |
|-----------------------|-----------------------|------------------|-----------|---------|-------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Name | Lithology | Dip (°) | Dip Direction (°) | |
| 1,388.2 | 1,297.0 | Top of "G" Sand | | | | |
| 1,518.7 | 1,397.0 | Base of "G" Sand | | | | |
| 4,184.7 | 3,177.0 | Mesaverde | | | | |
| 5,335.7 | 4,172.0 | Approx. Top Gas | | | | |
| 6,800.5 | 5,622.0 | Cameo Coals | | | | |
| 7,350.5 | 6,172.0 | Rollins SS | | | | |
| 7,500.5 | 6,322.0 | TD | | | | |

| Plan Annotations | | | | | |
|-----------------------|-----------------------|-------------------|--------------|------------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | | |
| | | +N/-S (usft) | +E/-W (usft) | Comment | |
| 120.0 | 120.0 | 0.0 | 0.0 | Start Build 3.00 | |
| 1,752.8 | 1,561.0 | -145.3 | 640.2 | Hold 48.98 Inclination | |
| 3,786.5 | 2,895.7 | -485.0 | 2,136.6 | Start Drop -2.00 | |
| 5,335.7 | 4,172.0 | -672.0 | 2,960.2 | Top Gas | |
| 6,235.7 | 5,057.3 | -703.0 | 3,096.9 | Vertical | |
| 7,500.5 | 6,322.0 | -703.0 | 3,096.9 | TD at 7500.5 | |