

# **PICEANCE VLY NAD 83**

**RU 33-06S-094W**

**RWF 342-33 Pad**

**RWF 311-34 - Slot 10**

**Wellbore #1**

**Plan: Plan #4 11May11 kjs**

## **Standard Planning Report - Geographic**

**11 May, 2011**

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well RWF 311-34 - Slot 10
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5354.0usft (H&P (24' RKB) kjs)
<b>Project:</b>	RU 33-06S-094W	<b>MD Reference:</b>	KELLY BUSHING @ 5354.0usft (H&P (24' RKB) kjs)
<b>Site:</b>	RWF 342-33 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RWF 311-34	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #4 11May11 kjs		

<b>Project</b>	RU 33-06S-094W, Garfield County, CO, WC 21-03S-094W		
<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

Site		RWF 342-33 Pad			
Site Position:		Northing:	1,610,412.00 usft	Latitude:	39° 29' 6.184 N
From:	Map	Easting:	2,326,256.90 usft	Longitude:	107° 53' 14.518 W
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in	Grid Convergence:	-1.506 °

Well	RWF 311-34 - Slot 10					
Well Position	+N/-S	0.0 usft	Northing:	1,610,412.90 usft	Latitude:	39° 29' 6.206 N
	+E/-W	0.0 usft	Easting:	2,326,309.00 usft	Longitude:	107° 53' 13.854 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	5,330.0 usft

<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	12/5/2008	10.608	65.829	52,543

<b>Design</b>	Plan #4 11May11 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) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	65.52

<b>Plan Sections</b>										
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	
876.8	26.49	65.52	850.1	71.2	156.4	3.50	3.50	0.00	65.516	
4,186.3	26.49	65.52	3,812.3	683.0	1,499.8	0.00	0.00	0.00	0.000	
5,510.8	0.00	0.00	5,090.0	807.6	1,773.5	2.00	-2.00	0.00	180.000	
5,610.8	0.00	0.00	5,190.0	807.6	1,773.5	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
8,010.8	0.00	0.00	7,590.0	807.6	1,773.5	0.00	0.00	0.00	0.000	

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<b>Site:</b>	RWF 342-33 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RWF 311-34	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #4 11May11 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	1,610,412.90	2,326,309.00	39° 29' 6.206 N	107° 53' 13.854 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,610,412.90	2,326,309.00	39° 29' 6.206 N	107° 53' 13.854 W	
Start Build 3.50										
876.8	26.49	65.52	850.1	71.2	156.4	1,610,479.98	2,326,467.21	39° 29' 6.910 N	107° 53' 11.859 W	
Hold 26.49 Inclination										
1,156.0	26.49	65.52	1,100.0	122.8	269.7	1,610,528.58	2,326,581.84	39° 29' 7.420 N	107° 53' 10.414 W	
9 5/8"										
1,569.4	26.49	65.52	1,470.0	199.2	437.5	1,610,600.56	2,326,751.58	39° 29' 8.175 N	107° 53' 8.274 W	
Top "G" Sand										
1,681.1	26.49	65.52	1,570.0	219.9	482.9	1,610,620.01	2,326,797.46	39° 29' 8.379 N	107° 53' 7.695 W	
Base "G" Sand										
4,186.3	26.49	65.52	3,812.3	683.0	1,499.8	1,611,056.20	2,327,826.14	39° 29' 12.955 N	107° 52' 54.725 W	
Start Drop -2.00										
4,272.6	24.76	65.52	3,890.0	698.4	1,533.7	1,611,070.76	2,327,860.47	39° 29' 13.108 N	107° 52' 54.292 W	
Mesaverde										
5,510.8	0.00	0.00	5,090.0	807.6	1,773.5	1,611,173.60	2,328,103.00	39° 29' 14.187 N	107° 52' 51.234 W	
Vertical										
5,610.8	0.00	0.00	5,190.0	807.6	1,773.5	1,611,173.60	2,328,103.00	39° 29' 14.187 N	107° 52' 51.234 W	
Top Gas - Approx. Top Gas										
6,975.8	0.00	0.00	6,555.0	807.6	1,773.5	1,611,173.60	2,328,103.00	39° 29' 14.187 N	107° 52' 51.234 W	
Cameo										
7,695.8	0.00	0.00	7,275.0	807.6	1,773.5	1,611,173.60	2,328,103.00	39° 29' 14.187 N	107° 52' 51.234 W	
Coal D										
7,810.8	0.00	0.00	7,390.0	807.6	1,773.5	1,611,173.60	2,328,103.00	39° 29' 14.187 N	107° 52' 51.234 W	
Base L. Cameo Pay										
7,860.8	0.00	0.00	7,440.0	807.6	1,773.5	1,611,173.60	2,328,103.00	39° 29' 14.187 N	107° 52' 51.234 W	
Rollins SS										
8,010.8	0.00	0.00	7,590.0	807.6	1,773.5	1,611,173.60	2,328,103.00	39° 29' 14.187 N	107° 52' 51.234 W	
TD at 8010.8 - TD										

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) R\	0.00	0.00	5,190.0	807.6	1,773.5	1,611,173.60	2,328,103.00	39° 29' 14.187 N	107° 52' 51.234 W	
- plan hits target center										
- Circle (radius 25.0)										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (in)	Hole Diameter (in)
1,156.0	1,100.0	9 5/8"		9.625	12.250

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Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,569.4	1,470.0	Top "G" Sand		0.000	
1,681.1	1,570.0	Base "G" Sand		0.000	
4,272.6	3,890.0	Mesaverde		0.000	
5,610.8	5,190.0	Approx. Top Gas		0.000	
6,975.8	6,555.0	Cameo		0.000	
7,695.8	7,275.0	Coal D		0.000	
7,810.8	7,390.0	Base L. Cameo Pay		0.000	
7,860.8	7,440.0	Rollins SS		0.000	
8,010.8	7,590.0	TD		0.000	

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
120.0	120.0	0.0	0.0	Start Build 3.50
876.8	850.1	71.2	156.4	Hold 26.49 Inclination
4,186.3	3,812.3	683.0	1,499.8	Start Drop -2.00
5,510.8	5,090.0	807.6	1,773.5	Vertical
5,610.8	5,190.0	807.6	1,773.5	Top Gas
8,010.8	7,590.0	807.6	1,773.5	TD at 8010.8