

# **PICEANCE VLY NAD 83**

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

**RWF 342-33 Pad**

**RWF 312-34 - Slot 4**

**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 312-34 - Slot 4
<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 312-34	<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 312-34 - Slot 4					
Well Position	+N/-S	0.0 usft	Northing:	1,610,412.00 usft	Latitude:	39° 29' 6.185 N
	+E/-W	0.0 usft	Easting:	2,326,263.80 usft	Longitude:	107° 53' 14.430 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	119.51

<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	
262.9	5.00	135.00	262.7	-4.4	4.4	3.50	3.50	0.00	135.000	
836.4	24.84	119.16	814.3	-81.6	128.6	3.50	3.46	-2.76	-19.511	
3,752.3	24.84	119.16	3,460.3	-678.5	1,198.2	0.00	0.00	0.00	0.000	
5,408.3	0.00	0.00	5,065.0	-850.7	1,506.8	1.50	-1.50	0.00	180.000	
7,908.3	0.00	0.00	7,565.0	-850.7	1,506.8	0.00	0.00	0.00	0.000	

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<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 312-34	<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	1,610,412.00	2,326,263.80	39° 29' 6.185 N	107° 53' 14.430 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,610,412.00	2,326,263.80	39° 29' 6.185 N	107° 53' 14.430 W	
Start Build 3.50										
262.9	5.00	135.00	262.7	-4.4	4.4	1,610,407.48	2,326,268.09	39° 29' 6.142 N	107° 53' 14.374 W	
Begin 3.5°/100 Build & Turn										
836.4	24.84	119.16	814.3	-81.6	128.6	1,610,327.07	2,326,390.16	39° 29' 5.379 N	107° 53' 12.791 W	
Hold 24.84 Inclination										
1,151.3	24.84	119.16	1,100.0	-146.0	244.1	1,610,259.60	2,326,503.94	39° 29' 4.742 N	107° 53' 11.317 W	
9 5/8"										
1,581.0	24.84	119.16	1,490.0	-234.0	401.7	1,610,167.51	2,326,659.22	39° 29' 3.872 N	107° 53' 9.306 W	
Top "G" Sand										
1,691.2	24.84	119.16	1,590.0	-256.6	442.1	1,610,143.90	2,326,699.04	39° 29' 3.649 N	107° 53' 8.791 W	
Base "G" Sand										
3,752.3	24.84	119.16	3,460.3	-678.5	1,198.2	1,609,702.26	2,327,443.73	39° 28' 59.479 N	107° 52' 59.148 W	
Start Drop -1.50										
4,235.0	17.60	119.16	3,910.0	-763.6	1,350.7	1,609,613.20	2,327,593.91	39° 28' 58.638 N	107° 52' 57.203 W	
Mesaverde										
5,408.3	0.00	0.00	5,065.0	-850.7	1,506.8	1,609,522.00	2,327,747.70	39° 28' 57.777 N	107° 52' 55.212 W	
Vertical										
5,508.3	0.00	0.00	5,165.0	-850.7	1,506.8	1,609,522.00	2,327,747.70	39° 28' 57.777 N	107° 52' 55.212 W	
Top Gas - Approx. Top Gas										
6,898.3	0.00	0.00	6,555.0	-850.7	1,506.8	1,609,522.00	2,327,747.70	39° 28' 57.777 N	107° 52' 55.212 W	
Cameo										
7,588.3	0.00	0.00	7,245.0	-850.7	1,506.8	1,609,522.00	2,327,747.70	39° 28' 57.777 N	107° 52' 55.212 W	
Coal D										
7,708.3	0.00	0.00	7,365.0	-850.7	1,506.8	1,609,522.00	2,327,747.70	39° 28' 57.777 N	107° 52' 55.212 W	
Base L. Cameo Pay										
7,758.3	0.00	0.00	7,415.0	-850.7	1,506.8	1,609,522.00	2,327,747.70	39° 28' 57.777 N	107° 52' 55.212 W	
Rollins SS										
7,908.3	0.00	0.00	7,565.0	-850.7	1,506.8	1,609,522.00	2,327,747.70	39° 28' 57.777 N	107° 52' 55.212 W	
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) R1	0.00	0.00	5,165.0	-850.7	1,506.8	1,609,522.00	2,327,747.70	39° 28' 57.777 N	107° 52' 55.212 W	
- plan hits target center										
- Circle (radius 25.0)										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,151.3	1,100.0	9 5/8"	9.625	12.250	

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<b>Site:</b>	RWF 342-33 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RWF 312-34	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #4 11May11 kjs		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,581.0	1,490.0	Top "G" Sand		0.000	
1,691.2	1,590.0	Base "G" Sand		0.000	
4,235.0	3,910.0	Mesaverde		0.000	
5,508.3	5,165.0	Approx. Top Gas		0.000	
6,898.3	6,555.0	Cameo		0.000	
7,588.3	7,245.0	Coal D		0.000	
7,708.3	7,365.0	Base L. Cameo Pay		0.000	
7,758.3	7,415.0	Rollins SS		0.000	
7,908.3	7,565.0	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
262.9	262.7	-4.4	4.4	Begin 3.5°/100 Build & Turn
836.4	814.3	-81.6	128.6	Hold 24.84 Inclination
3,752.3	3,460.3	-678.5	1,198.2	Start Drop -1.50
5,408.3	5,065.0	-850.7	1,506.8	Vertical
5,508.3	5,165.0	-850.7	1,506.8	Top Gas
7,908.3	7,565.0	-850.7	1,506.8	TD at 7908.3