

# **PICEANCE VLY NAD 83**

**RU 09-07S-094W**

**SR 33-9 Pad**

**SR 534-9 - Slot A2**

**Wellbore #1**

**Plan: Plan #3 07Jun10 kjs**

## **Standard Planning Report - Geographic**

**12 July, 2010**

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well SR 534-9 - Slot A2
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 7027.0usft (H&P (24' RKB) kjs)
<b>Project:</b>	RU 09-07S-094W	<b>MD Reference:</b>	KELLY BUSHING @ 7027.0usft (H&P (24' RKB) kjs)
<b>Site:</b>	SR 33-9 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SR 534-9	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 07Jun10 kjs		

<b>Project</b>	RU 09-07S-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>	SR 33-9 Pad		
<b>Site Position:</b>		<b>Northing:</b>	1,597,935.60 usft
<b>From:</b>	Map	<b>Easting:</b>	2,325,884.60 usft
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13.200 in
		<b>Latitude:</b>	39° 27' 2.817 N
		<b>Longitude:</b>	107° 53' 15.083 W
		<b>Grid Convergence:</b>	-1.506 °

<b>Well</b>	SR 534-9 - Slot A2		
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>
<b>Position Uncertainty</b>	0.0 usft		<b>Wellhead Elevation:</b>
			<b>Latitude:</b>
			<b>Longitude:</b>
			<b>Ground Level:</b>

<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	2/9/2009	10.579	65.796	52,493

<b>Design</b>	Plan #3 07Jun10 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	191.94

<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	
542.8	14.80	191.94	538.1	-53.1	-11.2	3.50	3.50	0.00	191.942	
5,638.1	14.80	191.94	5,464.5	-1,326.3	-280.5	0.00	0.00	0.00	0.000	
6,624.6	0.00	0.00	6,440.0	-1,450.2	-306.7	1.50	-1.50	0.00	180.000	
6,724.6	0.00	0.00	6,540.0	-1,450.2	-306.7	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
9,244.6	0.00	0.00	9,060.0	-1,450.2	-306.7	0.00	0.00	0.00	0.000	

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<b>Project:</b>	RU 09-07S-094W	<b>MD Reference:</b>	KELLY BUSHING @ 7027.0usft (H&P (24' RKB) kjs)
<b>Site:</b>	SR 33-9 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SR 534-9	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 07Jun10 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	1,597,908.50	2,325,822.10	39° 27' 2.533 N	107° 53' 15.871 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,597,908.50	2,325,822.10	39° 27' 2.533 N	107° 53' 15.871 W	
Start Build 3.50										
542.8	14.80	191.94	538.1	-53.1	-11.2	1,597,855.70	2,325,809.48	39° 27' 2.008 N	107° 53' 16.014 W	
Hold 14.80 Inclination										
1,124.0	14.80	191.94	1,100.0	-198.3	-41.9	1,597,711.34	2,325,774.96	39° 27' 0.572 N	107° 53' 16.406 W	
9 5/8"										
3,316.7	14.80	191.94	3,220.0	-746.2	-157.8	1,597,166.70	2,325,644.73	39° 26' 55.157 N	107° 53' 17.883 W	
Top of "G" Sand										
3,420.1	14.80	191.94	3,320.0	-772.1	-163.3	1,597,141.01	2,325,638.59	39° 26' 54.902 N	107° 53' 17.952 W	
Base of "G" Sand										
5,638.1	14.80	191.94	5,464.5	-1,326.3	-280.5	1,596,590.09	2,325,506.86	39° 26' 49.425 N	107° 53' 19.446 W	
Start Drop -1.50										
5,818.6	12.09	191.94	5,640.0	-1,367.3	-289.2	1,596,549.28	2,325,497.10	39° 26' 49.019 N	107° 53' 19.557 W	
Mesaverde										
6,624.6	0.00	0.00	6,440.0	-1,450.2	-306.7	1,596,466.90	2,325,477.40	39° 26' 48.200 N	107° 53' 19.781 W	
Vertical										
6,724.6	0.00	0.00	6,540.0	-1,450.2	-306.7	1,596,466.90	2,325,477.40	39° 26' 48.200 N	107° 53' 19.781 W	
Top Gas - Approx. Top Gas										
8,259.6	0.00	0.00	8,075.0	-1,450.2	-306.7	1,596,466.90	2,325,477.40	39° 26' 48.200 N	107° 53' 19.781 W	
Cameo Coals										
8,974.6	0.00	0.00	8,790.0	-1,450.2	-306.7	1,596,466.90	2,325,477.40	39° 26' 48.200 N	107° 53' 19.781 W	
Coal D										
8,999.6	0.00	0.00	8,815.0	-1,450.2	-306.7	1,596,466.90	2,325,477.40	39° 26' 48.200 N	107° 53' 19.781 W	
Base L. Cameo Pay										
9,124.6	0.00	0.00	8,940.0	-1,450.2	-306.7	1,596,466.90	2,325,477.40	39° 26' 48.200 N	107° 53' 19.781 W	
Rollins SS										
9,244.6	0.00	0.00	9,060.0	-1,450.2	-306.7	1,596,466.90	2,325,477.40	39° 26' 48.200 N	107° 53' 19.781 W	
TD at 9244.6 - 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) SF	0.00	0.00	6,540.0	-1,450.2	-306.7	1,596,466.90	2,325,477.40	39° 26' 48.200 N	107° 53' 19.781 W	
- plan hits target center										
- Circle (radius 25.0)										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (in)	Hole Diameter (in)
1,124.0	1,100.0	9 5/8"		9.625	12.250

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<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 07Jun10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,316.7	3,220.0	Top of "G" Sand				
3,420.1	3,320.0	Base of "G" Sand				
5,818.6	5,640.0	Mesaverde				
6,724.6	6,540.0	Approx. Top Gas				
8,259.6	8,075.0	Cameo Coals				
8,974.6	8,790.0	Coal D				
8,999.6	8,815.0	Base L. Cameo Pay				
9,124.6	8,940.0	Rollins SS		0.000		
9,244.6	9,060.0	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 3.50	
542.8	538.1	-53.1	-11.2	Hold 14.80 Inclination	
5,638.1	5,464.5	-1,326.3	-280.5	Start Drop -1.50	
6,624.6	6,440.0	-1,450.2	-306.7	Vertical	
6,724.6	6,540.0	-1,450.2	-306.7	Top Gas	
9,244.6	9,060.0	-1,450.2	-306.7	TD at 9244.6	