

# **PICEANCE VLY NAD 83**

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

**SR 33-9 Pad**

**SR 444-9 - Slot A4**

**Wellbore #1**

**Plan: Plan #3 09Jun10 kjs**

## **Standard Planning Report - Geographic**

**13 July, 2010**

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well SR 444-9 - Slot A4
<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 444-9	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 09Jun10 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 444-9 - Slot A4		
<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 09Jun10 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	145.41

<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	
524.5	14.16	145.41	520.4	-40.9	28.2	3.50	3.50	0.00	145.412	
5,932.7	14.16	145.41	5,764.3	-1,129.9	779.1	0.00	0.00	0.00	0.000	
6,640.5	0.00	0.00	6,465.0	-1,201.5	828.5	2.00	-2.00	0.00	180.000	
6,740.5	0.00	0.00	6,565.0	-1,201.5	828.5	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
9,260.5	0.00	0.00	9,085.0	-1,201.5	828.5	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 444-9	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 09Jun10 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	1,597,912.50	2,325,836.60	39° 27' 2.576 N	107° 53' 15.687 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,597,912.50	2,325,836.60	39° 27' 2.576 N	107° 53' 15.687 W	
Start Build 3.50										
524.5	14.16	145.41	520.4	-40.9	28.2	1,597,870.84	2,325,863.74	39° 27' 2.171 N	107° 53' 15.328 W	
Hold 14.16 Inclination										
1,122.3	14.16	145.41	1,100.0	-161.3	111.2	1,597,748.34	2,325,943.54	39° 27' 0.982 N	107° 53' 14.270 W	
9 5/8"										
3,308.7	14.16	145.41	3,220.0	-601.5	414.8	1,597,300.31	2,326,235.42	39° 26' 56.631 N	107° 53' 10.400 W	
Top of "G" Sand										
3,411.8	14.16	145.41	3,320.0	-622.3	429.1	1,597,279.17	2,326,249.18	39° 26' 56.426 N	107° 53' 10.217 W	
Base of "G" Sand										
5,804.5	14.16	145.41	5,640.0	-1,104.1	761.3	1,596,788.87	2,326,568.59	39° 26' 51.664 N	107° 53' 5.983 W	
Mesaverde										
5,932.7	14.16	145.41	5,764.3	-1,129.9	779.1	1,596,762.59	2,326,585.71	39° 26' 51.409 N	107° 53' 5.756 W	
Start Drop -2.00										
6,640.5	0.00	0.00	6,465.0	-1,201.5	828.5	1,596,689.70	2,326,633.20	39° 26' 50.701 N	107° 53' 5.126 W	
Vertical										
6,740.5	0.00	0.00	6,565.0	-1,201.5	828.5	1,596,689.70	2,326,633.20	39° 26' 50.701 N	107° 53' 5.126 W	
Top Gas - Approx. Top Gas										
8,230.5	0.00	0.00	8,055.0	-1,201.5	828.5	1,596,689.70	2,326,633.20	39° 26' 50.701 N	107° 53' 5.126 W	
Cameo Coals										
8,915.5	0.00	0.00	8,740.0	-1,201.5	828.5	1,596,689.70	2,326,633.20	39° 26' 50.701 N	107° 53' 5.126 W	
Coal D										
9,015.5	0.00	0.00	8,840.0	-1,201.5	828.5	1,596,689.70	2,326,633.20	39° 26' 50.701 N	107° 53' 5.126 W	
Base L. Cameo Pay										
9,140.5	0.00	0.00	8,965.0	-1,201.5	828.5	1,596,689.70	2,326,633.20	39° 26' 50.701 N	107° 53' 5.126 W	
Rollins SS										
9,260.5	0.00	0.00	9,085.0	-1,201.5	828.5	1,596,689.70	2,326,633.20	39° 26' 50.701 N	107° 53' 5.126 W	
TD at 9260.5										

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	6,565.0	-1,201.5	828.5	1,596,689.70	2,326,633.20	39° 26' 50.701 N	107° 53' 5.126 W	
- plan hits target center										
- Circle (radius 25.0)										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,122.3	1,100.0	9 5/8"	9.625	12.250	

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<b>Well:</b>	SR 444-9	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 09Jun10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,308.7	3,220.0	Top of "G" Sand				
3,411.8	3,320.0	Base of "G" Sand				
5,804.5	5,640.0	Mesaverde				
6,740.5	6,565.0	Approx. Top Gas				
8,230.5	8,055.0	Cameo Coals				
8,915.5	8,740.0	Coal D				
9,015.5	8,840.0	Base L. Cameo Pay				
9,140.5	8,965.0	Rollins SS				

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	
524.5	520.4	-40.9	28.2	Hold 14.16 Inclination	
5,932.7	5,764.3	-1,129.9	779.1	Start Drop -2.00	
6,640.5	6,465.0	-1,201.5	828.5	Vertical	
6,740.5	6,565.0	-1,201.5	828.5	Top Gas	
9,260.5	9,085.0	-1,201.5	828.5	TD at 9260.5	