

PICEANCE VLY NAD 83

RU 09-07S-094W

SR 33-9 Pad

SR 443-9 - Slot A11

Wellbore #1

Plan: Plan #3 1Jul10 kjs

Standard Planning Report - Geographic

13 July, 2010

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well SR 443-9 - Slot A11
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 7027.0usft (H&P (24' RKB) kjs)
Project:	RU 09-07S-094W	MD Reference:	KELLY BUSHING @ 7027.0usft (H&P (24' RKB) kjs)
Site:	SR 33-9 Pad	North Reference:	True
Well:	SR 443-9	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 1Jul10 kjs		

Project	RU 09-07S-094W, 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	SR 33-9 Pad		
Site Position:		Northing:	1,597,935.60 usft
From:	Map	Easting:	2,325,884.60 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in
		Latitude:	39° 27' 2.817 N
		Longitude:	107° 53' 15.083 W
		Grid Convergence:	-1.506 °

Well	SR 443-9 - Slot A11		
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	2/9/2009	10.579	65.796	52,493

Design	Plan #3 1Jul10 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	70.78

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	
385.4	7.96	70.78	384.6	6.1	17.4	3.00	3.00	0.00	70.779	
6,036.2	7.96	70.78	5,980.8	263.8	756.6	0.00	0.00	0.00	0.000	
6,567.0	0.00	0.00	6,510.0	275.9	791.4	1.50	-1.50	0.00	180.000	
6,667.0	0.00	0.00	6,610.0	275.9	791.4	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
9,187.0	0.00	0.00	9,130.0	275.9	791.4	0.00	0.00	0.00	0.000	

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Wellbore:	Wellbore #1		
Design:	Plan #3 1Jul10 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	1,597,926.30	2,325,887.30	39° 27' 2.725 N	107° 53' 15.046 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,597,926.30	2,325,887.30	39° 27' 2.725 N	107° 53' 15.046 W	
Start Build 3.00										
385.4	7.96	70.78	384.6	6.1	17.4	1,597,931.90	2,325,904.84	39° 27' 2.785 N	107° 53' 14.824 W	
Hold 7.96 Inclination										
1,107.8	7.96	70.78	1,100.0	39.0	111.9	1,597,962.35	2,326,000.17	39° 27' 3.111 N	107° 53' 13.620 W	
9 5/8"										
3,243.4	7.96	70.78	3,215.0	136.4	391.3	1,598,052.37	2,326,281.98	39° 27' 4.074 N	107° 53' 10.058 W	
Top of "G" Sand										
3,344.4	7.96	70.78	3,315.0	141.0	404.5	1,598,056.62	2,326,295.31	39° 27' 4.119 N	107° 53' 9.890 W	
Base of "G" Sand										
5,687.0	7.96	70.78	5,635.0	247.9	710.9	1,598,155.37	2,326,604.44	39° 27' 5.175 N	107° 53' 5.983 W	
Mesaverde										
6,036.2	7.96	70.78	5,980.8	263.8	756.6	1,598,170.09	2,326,650.52	39° 27' 5.332 N	107° 53' 5.401 W	
Start Drop -1.50										
6,567.0	0.00	0.00	6,510.0	275.9	791.4	1,598,181.30	2,326,685.60	39° 27' 5.452 N	107° 53' 4.957 W	
Vertical										
6,667.0	0.00	0.00	6,610.0	275.9	791.4	1,598,181.30	2,326,685.60	39° 27' 5.452 N	107° 53' 4.957 W	
Top Gas - Approx. Top Gas										
8,112.0	0.00	0.00	8,055.0	275.9	791.4	1,598,181.30	2,326,685.60	39° 27' 5.452 N	107° 53' 4.957 W	
Cameo Coals										
8,817.0	0.00	0.00	8,760.0	275.9	791.4	1,598,181.30	2,326,685.60	39° 27' 5.452 N	107° 53' 4.957 W	
Coal D										
8,942.0	0.00	0.00	8,885.0	275.9	791.4	1,598,181.30	2,326,685.60	39° 27' 5.452 N	107° 53' 4.957 W	
Base L. Cameo Pay										
9,067.0	0.00	0.00	9,010.0	275.9	791.4	1,598,181.30	2,326,685.60	39° 27' 5.452 N	107° 53' 4.957 W	
Rollins SS										
9,187.0	0.00	0.00	9,130.0	275.9	791.4	1,598,181.30	2,326,685.60	39° 27' 5.452 N	107° 53' 4.957 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) SF	0.00	0.00	6,610.0	275.9	791.4	1,598,181.30	2,326,685.60	39° 27' 5.452 N	107° 53' 4.957 W	
- plan hits target center										
- Circle (radius 25.0)										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,107.8	1,100.0	9 5/8"	9.625	12.250	

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Wellbore:	Wellbore #1		
Design:	Plan #3 1Jul10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,243.4	3,215.0	Top of "G" Sand				
3,344.4	3,315.0	Base of "G" Sand				
5,687.0	5,635.0	Mesaverde				
6,667.0	6,610.0	Approx. Top Gas				
8,112.0	8,055.0	Cameo Coals				
8,817.0	8,760.0	Coal D				
8,942.0	8,885.0	Base L. Cameo Pay				
9,067.0	9,010.0	Rollins SS		0.000		
9,187.0	9,130.0	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	
385.4	384.6	6.1	17.4	Hold 7.96 Inclination	
6,036.2	5,980.8	263.8	756.6	Start Drop -1.50	
6,567.0	6,510.0	275.9	791.4	Vertical	
6,667.0	6,610.0	275.9	791.4	Top Gas	
9,187.0	9,130.0	275.9	791.4	TD at 9187.0	