

PICEANCE VLY NAD 83

RU 09-07S-094W

SR 33-9 Pad

SR 344-9 - Slot A5

Wellbore #1

Plan: Plan #3 09Jun10 kjs

Standard Planning Report - Geographic

12 July, 2010

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well SR 344-9 - Slot A5
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 344-9	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 09Jun10 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 344-9 - Slot A5		
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 09Jun10 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	136.47

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	
516.1	11.88	136.47	513.3	-29.7	28.2	3.00	3.00	0.00	136.468	
5,804.6	11.88	136.47	5,688.5	-819.2	778.2	0.00	0.00	0.00	0.000	
6,596.8	0.00	0.00	6,475.0	-878.5	834.6	1.50	-1.50	0.00	180.000	
6,696.8	0.00	0.00	6,575.0	-878.5	834.6	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
9,216.8	0.00	0.00	9,095.0	-878.5	834.6	0.00	0.00	0.00	0.000	

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Wellbore:	Wellbore #1		
Design:	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	1,597,914.50	2,325,843.70	39° 27' 2.598 N	107° 53' 15.598 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,597,914.50	2,325,843.70	39° 27' 2.598 N	107° 53' 15.598 W	
Start Build 3.00										
516.1	11.88	136.47	513.3	-29.7	28.2	1,597,884.09	2,325,871.10	39° 27' 2.304 N	107° 53' 15.238 W	
Hold 11.88 Inclination										
1,115.7	11.88	136.47	1,100.0	-119.2	113.2	1,597,792.39	2,325,953.75	39° 27' 1.420 N	107° 53' 14.154 W	
9 5/8"										
3,282.1	11.88	136.47	3,220.0	-442.6	420.5	1,597,461.03	2,326,252.38	39° 26' 58.223 N	107° 53' 10.237 W	
Top of "G" Sand										
3,384.3	11.88	136.47	3,320.0	-457.8	435.0	1,597,445.40	2,326,266.47	39° 26' 58.072 N	107° 53' 10.053 W	
Base of "G" Sand										
5,755.1	11.88	136.47	5,640.0	-811.8	771.2	1,597,082.77	2,326,593.28	39° 26' 54.574 N	107° 53' 5.766 W	
Mesaverde										
5,804.6	11.88	136.47	5,688.5	-819.2	778.2	1,597,075.20	2,326,600.10	39° 26' 54.501 N	107° 53' 5.677 W	
Start Drop -1.50										
6,596.8	0.00	0.00	6,475.0	-878.5	834.6	1,597,014.40	2,326,654.90	39° 26' 53.915 N	107° 53' 4.958 W	
Vertical										
6,696.8	0.00	0.00	6,575.0	-878.5	834.6	1,597,014.40	2,326,654.90	39° 26' 53.915 N	107° 53' 4.958 W	
Top Gas - Approx. Top Gas										
8,181.8	0.00	0.00	8,060.0	-878.5	834.6	1,597,014.40	2,326,654.90	39° 26' 53.915 N	107° 53' 4.958 W	
Cameo Coals										
8,881.8	0.00	0.00	8,760.0	-878.5	834.6	1,597,014.40	2,326,654.90	39° 26' 53.915 N	107° 53' 4.958 W	
Coal D										
8,971.8	0.00	0.00	8,850.0	-878.5	834.6	1,597,014.40	2,326,654.90	39° 26' 53.915 N	107° 53' 4.958 W	
Base L. Cameo Pay										
9,096.8	0.00	0.00	8,975.0	-878.5	834.6	1,597,014.40	2,326,654.90	39° 26' 53.915 N	107° 53' 4.958 W	
Rollins SS										
9,216.8	0.00	0.00	9,095.0	-878.5	834.6	1,597,014.40	2,326,654.90	39° 26' 53.915 N	107° 53' 4.958 W	
TD at 9216.8 - TD										

Design Targets										
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Top Gas (25' Radius) SF - plan hits target center - Circle (radius 25.0)	0.00	0.00	6,575.0	-878.5	834.6	1,597,014.40	2,326,654.90	39° 26' 53.915 N	107° 53' 4.958 W	
TD / PBHL SR 344-9 - plan hits target center - Point	0.00	0.00	9,095.0	-878.5	834.6	1,597,014.40	2,326,654.90	39° 26' 53.915 N	107° 53' 4.958 W	

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (in)	Hole Diameter (in)
1,115.7	1,100.0	9 5/8"		9.625	12.250

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Wellbore:	Wellbore #1		
Design:	Plan #3 09Jun10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,282.1	3,220.0	Top of "G" Sand				
3,384.3	3,320.0	Base of "G" Sand				
5,755.1	5,640.0	Mesaverde				
6,696.8	6,575.0	Approx. Top Gas				
8,181.8	8,060.0	Cameo Coals				
8,881.8	8,760.0	Coal D				
8,971.8	8,850.0	Base L. Cameo Pay				
9,096.8	8,975.0	Rollins SS				
9,216.8	9,095.0	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	
516.1	513.3	-29.7	28.2	Hold 11.88 Inclination	
5,804.6	5,688.5	-819.2	778.2	Start Drop -1.50	
6,596.8	6,475.0	-878.5	834.6	Vertical	
6,696.8	6,575.0	-878.5	834.6	Top Gas	
9,216.8	9,095.0	-878.5	834.6	TD at 9216.8	