

PICEANCE VLY NAD 83

RU 09-07S-094W

SR 33-9 Pad

SR 334-9 - Slot A1

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 334-9 - Slot A1
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 334-9	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 334-9 - Slot A1		
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	213.35

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	
419.7	8.99	213.35	418.4	-19.6	-12.9	3.00	3.00	0.00	213.353	
5,932.1	8.99	213.35	5,863.2	-739.1	-486.5	0.00	0.00	0.00	0.000	
6,531.4	0.00	0.00	6,460.0	-778.3	-512.2	1.50	-1.50	0.00	180.000	
6,631.4	0.00	0.00	6,560.0	-778.3	-512.2	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
9,151.4	0.00	0.00	9,080.0	-778.3	-512.2	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	1,597,906.40	2,325,814.90	39° 27' 2.510 N	107° 53' 15.962 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,597,906.40	2,325,814.90	39° 27' 2.510 N	107° 53' 15.962 W	
Start Build 3.00										
419.7	8.99	213.35	418.4	-19.6	-12.9	1,597,887.15	2,325,801.49	39° 27' 2.316 N	107° 53' 16.126 W	
Hold 8.99 Inclination										
1,109.7	8.99	213.35	1,100.0	-109.7	-72.2	1,597,798.67	2,325,739.87	39° 27' 1.426 N	107° 53' 16.882 W	
9 5/8"										
3,256.1	8.99	213.35	3,220.0	-389.8	-256.6	1,597,523.49	2,325,548.19	39° 26' 58.657 N	107° 53' 19.233 W	
Top of "G" Sand										
3,357.3	8.99	213.35	3,320.0	-403.0	-265.3	1,597,510.51	2,325,539.15	39° 26' 58.527 N	107° 53' 19.343 W	
Base of "G" Sand										
5,706.2	8.99	213.35	5,640.0	-709.6	-467.0	1,597,209.36	2,325,329.39	39° 26' 55.497 N	107° 53' 21.916 W	
Mesaverde										
5,932.1	8.99	213.35	5,863.2	-739.1	-486.5	1,597,180.39	2,325,309.22	39° 26' 55.205 N	107° 53' 22.163 W	
Start Drop -1.50										
6,531.4	0.00	0.00	6,460.0	-778.3	-512.2	1,597,141.90	2,325,282.40	39° 26' 54.818 N	107° 53' 22.492 W	
Vertical										
6,631.4	0.00	0.00	6,560.0	-778.3	-512.2	1,597,141.90	2,325,282.40	39° 26' 54.818 N	107° 53' 22.492 W	
Top Gas - Approx. Top Gas										
8,161.4	0.00	0.00	8,090.0	-778.3	-512.2	1,597,141.90	2,325,282.40	39° 26' 54.818 N	107° 53' 22.492 W	
Cameo Coals										
8,881.4	0.00	0.00	8,810.0	-778.3	-512.2	1,597,141.90	2,325,282.40	39° 26' 54.818 N	107° 53' 22.492 W	
Coal D										
8,906.4	0.00	0.00	8,835.0	-778.3	-512.2	1,597,141.90	2,325,282.40	39° 26' 54.818 N	107° 53' 22.492 W	
Base L. Cameo Pay										
9,031.4	0.00	0.00	8,960.0	-778.3	-512.2	1,597,141.90	2,325,282.40	39° 26' 54.818 N	107° 53' 22.492 W	
Rollins SS										
9,151.4	0.00	0.00	9,080.0	-778.3	-512.2	1,597,141.90	2,325,282.40	39° 26' 54.818 N	107° 53' 22.492 W	
TD at 9151.4 - TD										

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting		
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)	Latitude	Longitude
Top Gas (25' Radius) SF	0.00	0.00	6,560.0	-778.3	-512.2	1,597,141.90	2,325,282.40	39° 26' 54.818 N	107° 53' 22.492 W
- plan hits target center									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,109.7	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 (°)	
3,256.1	3,220.0	Top of "G" Sand				
3,357.3	3,320.0	Base of "G" Sand				
5,706.2	5,640.0	Mesaverde				
6,631.4	6,560.0	Approx. Top Gas				
8,161.4	8,090.0	Cameo Coals				
8,881.4	8,810.0	Coal D				
8,906.4	8,835.0	Base L. Cameo Pay				
9,031.4	8,960.0	Rollins SS				
9,151.4	9,080.0	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	
419.7	418.4	-19.6	-12.9	Hold 8.99 Inclination	
5,932.1	5,863.2	-739.1	-486.5	Start Drop -1.50	
6,531.4	6,460.0	-778.3	-512.2	Vertical	
6,631.4	6,560.0	-778.3	-512.2	Top Gas	
9,151.4	9,080.0	-778.3	-512.2	TD at 9151.4	