

PICEANCE VLY NAD 83

RU 33-06S-094W

RWF 342-33 Pad

RWF 12-34 - Slot 8

Wellbore #1

Plan: Plan #4 11May11 kjs

Standard Planning Report - Geographic

11 May, 2011

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well RWF 12-34 - Slot 8
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 5354.0usft (H&P (24' RKB) kjs)
Project:	RU 33-06S-094W	MD Reference:	KELLY BUSHING @ 5354.0usft (H&P (24' RKB) kjs)
Site:	RWF 342-33 Pad	North Reference:	True
Well:	RWF 12-34	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 11May11 kjs		

Project	RU 33-06S-094W, Garfield County, CO, WC 21-03S-094W		
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	RWF 342-33 Pad		
Site Position:		Northing:	1,610,412.00 usft
From:	Map	Easting:	2,326,256.90 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in
		Latitude:	39° 29' 6.184 N
		Longitude:	107° 53' 14.518 W
		Grid Convergence:	-1.506 °

Well	RWF 12-34 - Slot 8		
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	12/5/2008	10.608	65.829	52,543

Design	Plan #4 11May11 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	98.58

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	
712.7	20.74	98.58	699.8	-15.8	104.9	3.50	3.50	0.00	98.578	
4,300.8	20.74	98.58	4,055.3	-205.4	1,361.6	0.00	0.00	0.00	0.000	
5,338.0	0.00	0.00	5,070.0	-233.1	1,545.2	2.00	-2.00	0.00	180.000	
5,438.0	0.00	0.00	5,170.0	-233.1	1,545.2	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
7,838.0	0.00	0.00	7,570.0	-233.1	1,545.2	0.00	0.00	0.00	0.000	

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Wellbore:	Wellbore #1		
Design:	Plan #4 11May11 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	1,610,412.70	2,326,294.10	39° 29' 6.200 N	107° 53' 14.044 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,610,412.70	2,326,294.10	39° 29' 6.200 N	107° 53' 14.044 W	
Start Build 3.50										
712.7	20.74	98.58	699.8	-15.8	104.9	1,610,394.12	2,326,398.58	39° 29' 6.044 N	107° 53' 12.706 W	
Hold 20.74 Inclination										
1,140.6	20.74	98.58	1,100.0	-38.4	254.8	1,610,367.58	2,326,547.80	39° 29' 5.820 N	107° 53' 10.794 W	
9 5/8"										
1,536.3	20.74	98.58	1,470.0	-59.3	393.4	1,610,343.04	2,326,685.76	39° 29' 5.614 N	107° 53' 9.027 W	
Top "G" Sand										
1,643.2	20.74	98.58	1,570.0	-65.0	430.8	1,610,336.41	2,326,723.05	39° 29' 5.558 N	107° 53' 8.549 W	
Base "G" Sand										
4,124.0	20.74	98.58	3,890.0	-196.1	1,299.7	1,610,182.57	2,327,588.12	39° 29' 4.262 N	107° 52' 57.468 W	
Mesaverde										
4,300.8	20.74	98.58	4,055.3	-205.4	1,361.6	1,610,171.61	2,327,649.77	39° 29' 4.170 N	107° 52' 56.678 W	
Start Drop -2.00										
5,338.0	0.00	0.00	5,070.0	-233.1	1,545.2	1,610,139.10	2,327,832.60	39° 29' 3.896 N	107° 52' 54.336 W	
Vertical										
5,438.0	0.00	0.00	5,170.0	-233.1	1,545.2	1,610,139.10	2,327,832.60	39° 29' 3.896 N	107° 52' 54.336 W	
Top Gas - Approx. Top Gas										
6,803.0	0.00	0.00	6,535.0	-233.1	1,545.2	1,610,139.10	2,327,832.60	39° 29' 3.896 N	107° 52' 54.336 W	
Cameo										
7,513.0	0.00	0.00	7,245.0	-233.1	1,545.2	1,610,139.10	2,327,832.60	39° 29' 3.896 N	107° 52' 54.336 W	
Coal D										
7,638.0	0.00	0.00	7,370.0	-233.1	1,545.2	1,610,139.10	2,327,832.60	39° 29' 3.896 N	107° 52' 54.336 W	
Base L. Cameo Pay										
7,688.0	0.00	0.00	7,420.0	-233.1	1,545.2	1,610,139.10	2,327,832.60	39° 29' 3.896 N	107° 52' 54.336 W	
Rollins SS										
7,838.0	0.00	0.00	7,570.0	-233.1	1,545.2	1,610,139.10	2,327,832.60	39° 29' 3.896 N	107° 52' 54.336 W	
TD at 7838.0 - 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) R\	0.00	0.00	5,170.0	-233.1	1,545.2	1,610,139.10	2,327,832.60	39° 29' 3.896 N	107° 52' 54.336 W	
- plan hits target center										
- Circle (radius 25.0)										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (in)	Hole Diameter (in)
1,140.6	1,100.0	9 5/8"		9.625	12.250

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Wellbore:	Wellbore #1		
Design:	Plan #4 11May11 kjs		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,536.3	1,470.0	Top "G" Sand		0.000	
1,643.2	1,570.0	Base "G" Sand		0.000	
4,124.0	3,890.0	Mesaverde		0.000	
5,438.0	5,170.0	Approx. Top Gas		0.000	
6,803.0	6,535.0	Cameo		0.000	
7,513.0	7,245.0	Coal D		0.000	
7,638.0	7,370.0	Base L. Cameo Pay		0.000	
7,688.0	7,420.0	Rollins SS		0.000	
7,838.0	7,570.0	TD		0.000	

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	
712.7	699.8	-15.8	104.9	Hold 20.74 Inclination	
4,300.8	4,055.3	-205.4	1,361.6	Start Drop -2.00	
5,338.0	5,070.0	-233.1	1,545.2	Vertical	
5,438.0	5,170.0	-233.1	1,545.2	Top Gas	
7,838.0	7,570.0	-233.1	1,545.2	TD at 7838.0	