

PICEANCE VLY NAD 83

RU 32-06S-094W

RWF 44-32 Pad

RWF 34-32 - Slot A10

Wellbore #1

Plan: Plan #1 13Aug09 kjs

Standard Planning Report - Geographic

09 October, 2009

Williams Production RMT Company

Planning Report - Geographic

Database:	EDMDB_COMPASS	Local Co-ordinate Reference:	Well RWF 34-32 - Slot A10
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 6036.0ft (H&P (24' RKB) kjs)
Project:	RU 32-06S-094W	MD Reference:	KELLY BUSHING @ 6036.0ft (H&P (24' RKB) kjs)
Site:	RWF 44-32 Pad	North Reference:	True
Well:	RWF 34-32	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 13Aug09 kjs		

Project	RU 32-06S-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		RWF 44-32 Pad			
Site Position:		Northing:	1,607,842.20 ft	Latitude:	39° 28' 39.429 N
From:	Map	Easting:	2,321,025.20 ft	Longitude:	107° 54' 20.357 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	-1.52 °

Well	RWF 34-32 - Slot A10					
Well Position	+N/-S	0.0 ft	Northing:	1,607,775.10 ft	Latitude:	39° 28' 38.768 N
	+E/-W	0.0 ft	Easting:	2,321,032.47 ft	Longitude:	107° 54' 20.241 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,012.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	8/13/2009	10.53	65.80	52,513

Design	Plan #1 13Aug09 kjs			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	244.20

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
120.0	0.00	0.00	120.0	0.0	0.0	0.00	0.00	0.00	0.00	
386.7	8.00	244.20	385.8	-8.1	-16.7	3.00	3.00	0.00	244.20	
2,915.5	8.00	244.20	2,890.0	-161.3	-333.6	0.00	0.00	0.00	0.00	
3,171.1	15.67	244.20	3,140.0	-184.1	-380.8	3.00	3.00	0.00	0.00	
4,862.4	15.67	244.20	4,768.4	-382.9	-792.0	0.00	0.00	0.00	0.00	
5,906.9	0.00	0.00	5,800.0	-444.6	-919.8	1.50	-1.50	0.00	180.00	Top Gas (25' Radius)
8,456.9	0.00	0.00	8,350.0	-444.6	-919.8	0.00	0.00	0.00	0.00	

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Wellbore:	Wellbore #1		
Design:	Plan #1 13Aug09 kjs		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	1,607,775.10	2,321,032.47	39° 28' 38.768 N	107° 54' 20.241 W
120.0	0.00	0.00	120.0	0.0	0.0	1,607,775.10	2,321,032.47	39° 28' 38.768 N	107° 54' 20.241 W
386.7	8.00	244.20	385.8	-8.1	-16.7	1,607,767.45	2,321,015.53	39° 28' 38.688 N	107° 54' 20.455 W
1,107.9	8.00	244.20	1,100.0	-51.8	-107.1	1,607,726.18	2,320,924.04	39° 28' 38.257 N	107° 54' 21.607 W
9 5/8"									
2,410.6	8.00	244.20	2,390.0	-130.7	-270.3	1,607,651.62	2,320,758.79	39° 28' 37.477 N	107° 54' 23.689 W
Top of "G" Sand									
2,511.5	8.00	244.20	2,490.0	-136.8	-283.0	1,607,645.84	2,320,745.98	39° 28' 37.416 N	107° 54' 23.850 W
Base of "G" Sand									
2,915.5	8.00	244.20	2,890.0	-161.3	-333.6	1,607,622.73	2,320,694.74	39° 28' 37.175 N	107° 54' 24.496 W
3,171.1	15.67	244.20	3,140.0	-184.1	-380.8	1,607,601.19	2,320,647.00	39° 28' 36.949 N	107° 54' 25.097 W
4,822.5	15.67	244.20	4,730.0	-378.2	-782.3	1,607,417.80	2,320,240.49	39° 28' 35.031 N	107° 54' 30.217 W
Mesaverde									
4,862.4	15.67	244.20	4,768.4	-382.9	-792.0	1,607,413.36	2,320,230.67	39° 28' 34.984 N	107° 54' 30.341 W
5,906.9	0.00	0.00	5,800.0	-444.6	-919.8	1,607,355.00	2,320,101.30	39° 28' 34.374 N	107° 54' 31.971 W
Approx. Top Gas									
7,331.9	0.00	0.00	7,225.0	-444.6	-919.8	1,607,355.00	2,320,101.30	39° 28' 34.374 N	107° 54' 31.971 W
Cameo Coals									
8,126.9	0.00	0.00	8,020.0	-444.6	-919.8	1,607,355.00	2,320,101.30	39° 28' 34.374 N	107° 54' 31.971 W
Coal D									
8,256.9	0.00	0.00	8,150.0	-444.6	-919.8	1,607,355.00	2,320,101.30	39° 28' 34.374 N	107° 54' 31.971 W
Base Lower Cameo Pay									
8,306.9	0.00	0.00	8,200.0	-444.6	-919.8	1,607,355.00	2,320,101.30	39° 28' 34.374 N	107° 54' 31.971 W
Rollins									
8,456.9	0.00	0.00	8,350.0	-444.6	-919.8	1,607,355.00	2,320,101.30	39° 28' 34.374 N	107° 54' 31.971 W
TD									

Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
- hit/miss target										
- Shape										
Top Gas (25' Radius) R\	0.00	0.00	5,800.0	-444.6	-919.8	1,607,355.00	2,320,101.30	39° 28' 34.374 N	107° 54' 31.971 W	
- plan hits target										
- Circle (radius 25.0)										

Casing Points										
Measured Depth (ft)	Vertical Depth (ft)	Name				Casing Diameter (")	Hole Diameter (")			
1,107.9	1,100.0	9 5/8"				9-5/8	12-1/4			

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Wellbore:	Wellbore #1		
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Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,410.6	2,390.00	Top of "G" Sand				
2,511.5	2,490.00	Base of "G" Sand				
4,822.5	4,730.00	Mesaverde				
5,906.9	5,800.00	Approx. Top Gas				
7,331.9	7,225.00	Cameo Coals				
8,126.9	8,020.00	Coal D				
8,256.9	8,150.00	Base Lower Cameo Pay				
8,306.9	8,200.00	Rollins				
8,456.9	8,350.00	TD				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
120.0	120.0	0.0	0.0	Start Build 3.00	
386.7	385.8	-8.1	-16.7	Hold 8.00 Inclination	
2,915.5	2,890.0	-161.3	-333.6	Start Build 3.00	
3,171.1	3,140.0	-184.1	-380.8	Hold 15.67 Inclination	
4,862.4	4,768.4	-382.9	-792.0	Start Drop -1.50	
5,906.9	5,800.0	-444.6	-919.8	Top Gas	
8,456.9	8,350.0	-444.6	-919.8	TD at 8456.9	