

PICEANCE VLY NAD 83

RU 32-06S-094W

RWF 44-32 Pad

RWF 334-32 - Slot A11

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 334-32 - Slot A11
Company:	PICEANCE VLY NAD 83	TVD Reference:	WELL @ 6038.0ft (Original Well Elev)
Project:	RU 32-06S-094W	MD Reference:	WELL @ 6038.0ft (Original Well Elev)
Site:	RWF 44-32 Pad	North Reference:	True
Well:	RWF 334-32	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 334-32 - Slot A11					
Well Position	+N/-S	0.0 ft	Northing:	1,607,767.64 ft	Latitude:	39° 28' 38.695 N
	+E/-W	0.0 ft	Easting:	2,321,033.28 ft	Longitude:	107° 54' 20.229 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	220.75

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	
405.7	10.00	220.75	404.3	-18.8	-16.2	3.50	3.50	0.00	220.75	
2,929.8	10.00	220.75	2,890.0	-350.9	-302.3	0.00	0.00	0.00	0.00	
3,072.0	14.27	220.76	3,029.0	-373.5	-321.8	3.00	3.00	0.00	0.00	
4,960.0	14.27	220.76	4,858.7	-725.9	-625.6	0.00	0.00	0.00	0.00	
5,911.0	0.00	0.00	5,800.0	-815.2	-702.5	1.50	-1.50	0.00	180.00	Top Gas (25' Radius)
8,461.0	0.00	0.00	8,350.0	-815.2	-702.5	0.00	0.00	0.00	0.00	

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Wellbore:	Wellbore #1		
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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	1,607,767.64	2,321,033.28	39° 28' 38.695 N	107° 54' 20.229 W
120.0	0.00	0.00	120.0	0.0	0.0	1,607,767.64	2,321,033.28	39° 28' 38.695 N	107° 54' 20.229 W
405.7	10.00	220.75	404.3	-18.8	-16.2	1,607,749.24	2,321,016.55	39° 28' 38.509 N	107° 54' 20.436 W
1,112.2	10.00	220.75	1,100.0	-111.8	-96.3	1,607,658.46	2,320,934.04	39° 28' 37.590 N	107° 54' 21.457 W
9 5/8"									
2,422.1	10.00	220.75	2,390.0	-284.1	-244.8	1,607,490.14	2,320,781.06	39° 28' 35.887 N	107° 54' 23.350 W
Top of "G" Sand									
2,523.6	10.00	220.75	2,490.0	-297.5	-256.3	1,607,477.09	2,320,769.20	39° 28' 35.755 N	107° 54' 23.497 W
Base of "G" Sand									
2,929.8	10.00	220.75	2,890.0	-350.9	-302.3	1,607,424.90	2,320,721.77	39° 28' 35.227 N	107° 54' 24.084 W
3,072.0	14.27	220.76	3,029.0	-373.5	-321.8	1,607,402.79	2,320,701.67	39° 28' 35.003 N	107° 54' 24.333 W
4,827.1	14.27	220.76	4,730.0	-701.1	-604.2	1,607,082.77	2,320,410.75	39° 28' 31.765 N	107° 54' 27.934 W
Mesaverde									
4,960.0	14.27	220.76	4,858.7	-725.9	-625.6	1,607,058.55	2,320,388.73	39° 28' 31.520 N	107° 54' 28.206 W
5,911.0	0.00	0.00	5,800.0	-815.2	-702.5	1,606,971.40	2,320,309.50	39° 28' 30.638 N	107° 54' 29.187 W
Approx. Top Gas									
7,331.0	0.00	0.00	7,220.0	-815.2	-702.5	1,606,971.40	2,320,309.50	39° 28' 30.638 N	107° 54' 29.187 W
Cameo Coals									
8,121.0	0.00	0.00	8,010.0	-815.2	-702.5	1,606,971.40	2,320,309.50	39° 28' 30.638 N	107° 54' 29.187 W
Coal D									
8,261.0	0.00	0.00	8,150.0	-815.2	-702.5	1,606,971.40	2,320,309.50	39° 28' 30.638 N	107° 54' 29.187 W
Base Lower Cameo Pay									
8,311.0	0.00	0.00	8,200.0	-815.2	-702.5	1,606,971.40	2,320,309.50	39° 28' 30.638 N	107° 54' 29.187 W
Rollins									
8,461.0	0.00	0.00	8,350.0	-815.2	-702.5	1,606,971.40	2,320,309.50	39° 28' 30.638 N	107° 54' 29.187 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	-815.2	-702.5	1,606,971.40	2,320,309.50	39° 28' 30.638 N	107° 54' 29.187 W
- plan hits target									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
1,112.2	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 (°)	
2,422.1	2,390.00	Top of "G" Sand				
2,523.6	2,490.00	Base of "G" Sand				
4,827.1	4,730.00	Mesaverde				
5,911.0	5,800.00	Approx. Top Gas				
7,331.0	7,220.00	Cameo Coals				
8,121.0	8,010.00	Coal D				
8,261.0	8,150.00	Base Lower Cameo Pay				
8,311.0	8,200.00	Rollins				
8,461.0	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 3.50	
405.7	404.3	-18.8	-16.2	Hold 10.00 Inclination	
2,929.8	2,890.0	-350.9	-302.3	Start Build 3.00	
3,072.0	3,029.0	-373.5	-321.8	Hold 14.27 Inclination	
4,960.0	4,858.7	-725.9	-625.6	Start Drop -1.50	
5,911.0	5,800.0	-815.2	-702.5	Top Gas	
8,461.0	8,350.0	-815.2	-702.5	TD at 8461.0	