

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation
500.0	500.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 3.25
1563.3	1641.3	37.09	182.67	-356.3	-16.6	356.7	356.7	Hold 37.09 Inclination
3452.2	4009.5	37.09	182.67	-1783.0	-83.2	1785.0	1785.0	Start Drop -2.00
5180.0	5864.1	0.00	0.00	-2362.1	-110.2	2364.7	2364.7	Top Gas
7730.0	8414.1	0.00	0.00	-2362.1	-110.2	2364.7	2364.7	TD at 8414.1

PICEANCE VLY NAD 83

RU 34-06S-094W

RMV 83-34 Pad

RWF 432-3 - Slot A2-10

Wellbore #1

Plan: Design #1 14Apr10 JMS

Standard Planning Report - Geographic

29 April, 2010

Williams

Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well RWF 432-3 - Slot A2-10
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 5650.0usft (H&P 24' KB JMS)
Project:	RU 34-06S-094W	MD Reference:	KELLY BUSHING @ 5650.0usft (H&P 24' KB JMS)
Site:	RMV 83-34 Pad	North Reference:	True
Well:	RWF 432-3	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 14Apr10 JMS		

Project	RU 34-06S-094W, Garfield County, CO, 34-06S-094W		
Map System:	US State Plane 1983	System Datum:	Ground Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		Using geodetic scale factor

Site		RMV 83-34 Pad			
Site Position:		Northing:	1,607,043.10 usft	Latitude:	39° 28' 34.035 N
From:	Map	Easting:	2,330,648.70 usft	Longitude:	107° 52' 17.399 W
Position Uncertainty:	0.0 usft	Slot Radius:	0.000 in	Grid Convergence:	-1.496 °

Well	RWF 432-3 - Slot A2-10					
Well Position	+N/-S	0.0 usft	Northing:	1,607,079.70 usft	Latitude:	39° 28' 34.403 N
	+E/-W	0.0 usft	Easting:	2,330,673.50 usft	Longitude:	107° 52' 17.095 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	5,626.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	4/14/2010	(°)	(°)	(nT)
			10.445	65.778	52,377

Design	Design #1 14Apr10 JMS			
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	182.67

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	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.000	
1,641.3	37.09	182.67	1,563.3	-356.3	-16.6	3.25	3.25	0.00	182.671	
4,009.5	37.09	182.67	3,452.2	-1,783.0	-83.2	0.00	0.00	0.00	0.000	
5,864.1	0.00	0.00	5,180.0	-2,362.1	-110.2	2.00	-2.00	0.00	180.000	Top Gas (25' Radius)
8,414.1	0.00	0.00	7,730.0	-2,362.1	-110.2	0.00	0.00	0.00	0.000	

Williams
Planning Report - Geographic

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Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 5650.0usft (H&P 24' KB JMS)
Project:	RU 34-06S-094W	MD Reference:	KELLY BUSHING @ 5650.0usft (H&P 24' KB JMS)
Site:	RMV 83-31 Pad	North Reference:	True
Well:	RWF 432-3	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 14Apr10 JMS		

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	1,607,079.70	2,330,673.50	39° 28' 34.403 N	107° 52' 17.095 W
500.0	0.00	0.00	500.0	0.0	0.0	1,607,079.70	2,330,673.50	39° 28' 34.403 N	107° 52' 17.095 W
Start Build 3.25									
1,641.3	37.09	182.67	1,563.3	-356.3	-16.6	1,606,723.93	2,330,647.58	39° 28' 30.881 N	107° 52' 17.307 W
Hold 37.09 Inclination									
1,687.4	37.09	182.67	1,600.0	-384.1	-17.9	1,606,696.22	2,330,645.57	39° 28' 30.607 N	107° 52' 17.323 W
Top of "G" Sand									
1,812.8	37.09	182.67	1,700.0	-459.6	-21.4	1,606,620.82	2,330,640.07	39° 28' 29.860 N	107° 52' 17.368 W
Base of "G" Sand									
1,938.1	37.09	182.67	1,800.0	-535.1	-25.0	1,606,545.41	2,330,634.58	39° 28' 29.114 N	107° 52' 17.413 W
9 5/8"									
4,009.5	37.09	182.67	3,452.2	-1,783.0	-83.2	1,605,299.52	2,330,543.82	39° 28' 16.781 N	107° 52' 18.155 W
Start Drop -2.00									
4,735.1	22.58	182.67	4,080.0	-2,142.7	-100.0	1,604,940.41	2,330,517.66	39° 28' 13.226 N	107° 52' 18.369 W
Mesaverde									
5,864.1	0.00	0.00	5,180.0	-2,362.1	-110.2	1,604,721.40	2,330,501.70	39° 28' 11.058 N	107° 52' 18.500 W
Top Gas - Approx. Top Gas									
7,414.1	0.00	0.00	6,730.0	-2,362.1	-110.2	1,604,721.40	2,330,501.70	39° 28' 11.058 N	107° 52' 18.500 W
Cameo Coals									
8,084.1	0.00	0.00	7,400.0	-2,362.1	-110.2	1,604,721.40	2,330,501.70	39° 28' 11.058 N	107° 52' 18.500 W
Coal D									
8,184.1	0.00	0.00	7,500.0	-2,362.1	-110.2	1,604,721.40	2,330,501.70	39° 28' 11.058 N	107° 52' 18.500 W
Base L. Cameo Pay									
8,264.1	0.00	0.00	7,580.0	-2,362.1	-110.2	1,604,721.40	2,330,501.70	39° 28' 11.058 N	107° 52' 18.500 W
Rollins SS									
8,414.1	0.00	0.00	7,730.0	-2,362.1	-110.2	1,604,721.40	2,330,501.70	39° 28' 11.058 N	107° 52' 18.500 W
TD at 8414.1 - 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) R1	0.00	0.00	5,180.0	-2,362.1	-110.2	1,604,721.40	2,330,501.70	39° 28' 11.058 N	107° 52' 18.500 W
- plan hits target center									
- Circle (radius 25.0)									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,938.1	1,800.0	9 5/8"	9.625	12.250

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Planning Report - Geographic

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Project:	RU 34-06S-094W	MD Reference:	KELLY BUSHING @ 5650.0usft (H&P 24' KB JMS)
Site:	RMV 83-34 Pad	North Reference:	True
Well:	RWF 432-3	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 14Apr10 JMS		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,687.4	1,600.0	Top of "G" Sand				
1,812.8	1,700.0	Base of "G" Sand				
4,735.1	4,080.0	Mesaverde				
5,864.1	5,180.0	Approx. Top Gas				
7,414.1	6,730.0	Cameo Coals				
8,084.1	7,400.0	Coal D				
8,184.1	7,500.0	Base L. Cameo Pay				
8,264.1	7,580.0	Rollins SS				
8,414.1	7,730.0	TD				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
500.0	500.0	0.0	0.0	Start Build 3.25	
1,641.3	1,563.3	-356.3	-16.6	Hold 37.09 Inclination	
4,009.5	3,452.2	-1,783.0	-83.2	Start Drop -2.00	
5,864.1	5,180.0	-2,362.1	-110.2	Top Gas	
8,414.1	7,730.0	-2,362.1	-110.2	TD at 8414.1	