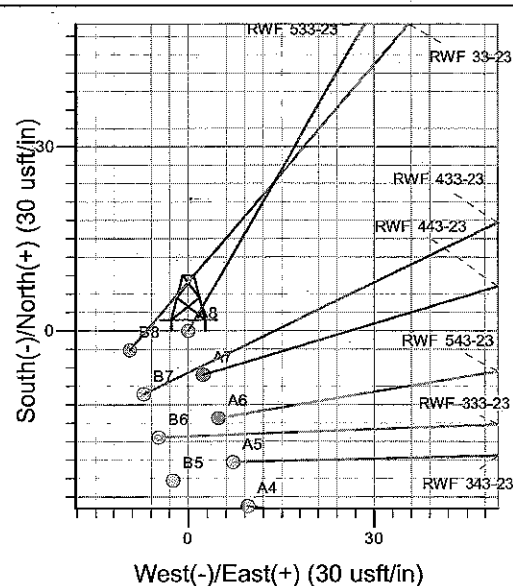
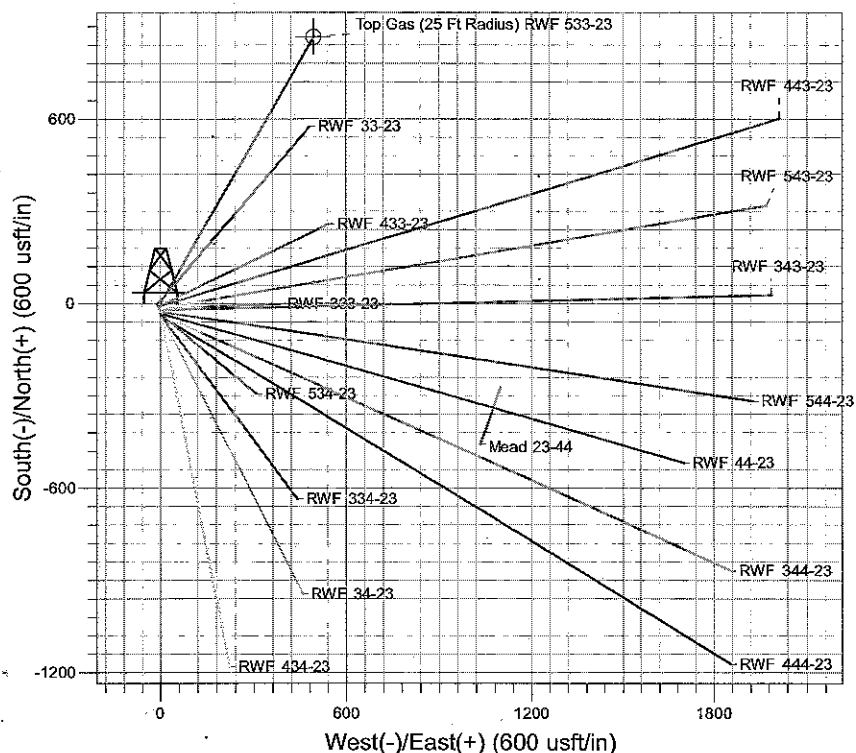
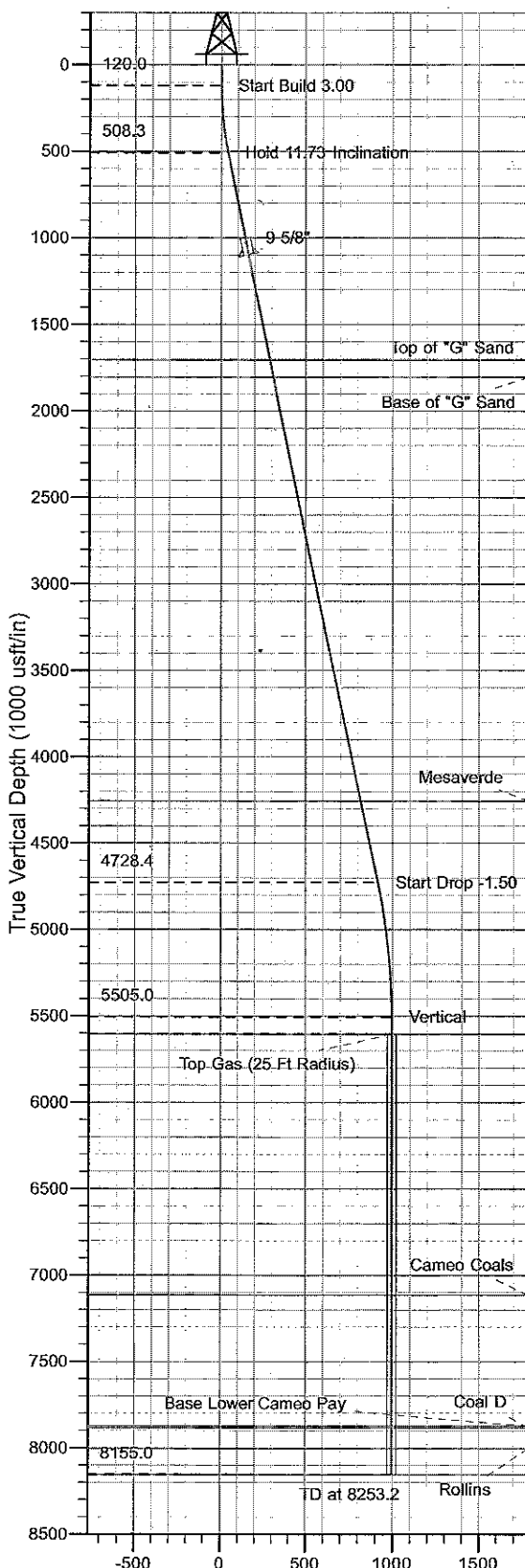




Well Name: RWF 533-23  
 Surface Location: RWF 33-23 Pad  
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
 Ground Elevation: 5501.5  
 Northing 1618357.30 Easting 2335773.20 Latitude 39° 30' 27.139 N Longitude 107° 51' 15.805 W Slot A8  
 WELL @ 5525.5usft (H&P (24') kjs)



Project: RU 23-06S-094W  
 Site: RWF 33-23 Pad  
 Well: RWF 533-23  
 Plan #2 07Apr10 kjs

Azimuths to True North  
 Magnetic North: 10.61°  
 Magnetic Field  
 Strength: 52571.6snT  
 Dip Angle: 65.86°  
 Date: 10/16/2008  
 Model: IGRF2005-10

# ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
120.0	120.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 3.00
508.3	511.0	11.73	29.68	34.7	19.8	39.9	39.9	Hold 11.73 Inclination
4728.4	4821.2	11.73	29.68	796.0	453.7	916.2	916.2	Start Drop -1.50
5505.0	5603.2	0.00	0.00	865.3	493.2	996.0	996.0	Vertical
5605.0	5703.2	0.00	0.00	865.3	493.2	996.0	996.0	Top Gas
8155.0	8253.2	0.00	0.00	865.3	493.2	996.0	996.0	TD at 8253.2

Vertical Section at 29.68° (1000 usft/in)

# **PICEANCE VLY NAD 83**

**RU 23-06S-094W**

**RWF 33-23 Pad**

**RWF 533-23 - Slot A8**

**Wellbore #1**

**Plan: Plan #2 07Apr10 kjs**

## **Standard Planning Report - Geographic**

**22 July, 2010**

# Williams

## Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well RWF 533-23 - Slot A8
Company:	PICEANCE VLY NAD 83	TVD Reference:	WELL @ 5525.5usft (H&P (24') kjs)
Project:	RU 23-06S-094W	MD Reference:	WELL @ 5525.5usft (H&P (24') kjs)
Site:	RWF 33-23 Pad	North Reference:	True
Well:	RWF 533-23	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 07Apr10 kjs		

Project	RU 23-06S-094W, Garfield County, CO, 23-06S-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 33-23 Pad		
Site Position:		Northing:	1,618,354.40 usft
From:	Map	Easting:	2,335,763.80 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in
		Latitude:	39° 30' 27.108 N
		Longitude:	107° 51' 15.924 W
		Grid Convergence:	-1.485 °

Well	RWF 533-23 - Slot A8		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	Ground Level:
			5,501.5 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
	IGRF2005-10	10/16/2008	10.614
			Dip Angle
			65.857
			Field Strength
			52,572

Design	Plan #2 07Apr10 kjs		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			29.68

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	
511.0	11.73	29.68	508.3	34.7	19.8	3.00	3.00	0.00	29.680	
4,821.2	11.73	29.68	4,728.4	796.0	453.7	0.00	0.00	0.00	0.000	
5,603.2	0.00	0.00	5,505.0	865.3	493.2	1.50	-1.50	0.00	180.000	
5,703.2	0.00	0.00	5,605.0	865.3	493.2	0.00	0.00	0.00	0.000	Top Gas (25 Ft Radius)
8,253.2	0.00	0.00	8,155.0	865.3	493.2	0.00	0.00	0.00	0.000	

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well RWF 533-23 - Slot A8
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	WELL @ 5525.5usft (H&P (24") kjs)
<b>Project:</b>	RU 23-06S-094W	<b>MD Reference:</b>	WELL @ 5525.5usft (H&P (24") kjs)
<b>Site:</b>	RWF 33-23 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RWF 533-23	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2.07Apr10.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	1,618,357.30	2,335,773.20	39° 30' 27.139 N	107° 51' 15.805 W
120.0	0.00	0.00	120.0	0.0	0.0	1,618,357.30	2,335,773.20	39° 30' 27.139 N	107° 51' 15.805 W
<b>Start Build 3.00</b>									
511.0	11.73	29.68	508.3	34.7	19.8	1,618,391.43	2,335,793.84	39° 30' 27.482 N	107° 51' 15.553 W
<b>Hold 11.73 Inclination</b>									
1,115.3	11.73	29.68	1,100.0	141.4	80.6	1,618,496.56	2,335,857.43	39° 30' 28.537 N	107° 51' 14.777 W
<b>9 5/8"</b>									
1,733.3	11.73	29.68	1,705.0	250.5	142.8	1,618,604.05	2,335,922.44	39° 30' 29.616 N	107° 51' 13.984 W
<b>Top of "G" Sand</b>									
1,835.4	11.73	29.68	1,805.0	268.6	153.1	1,618,621.82	2,335,933.18	39° 30' 29.794 N	107° 51' 13.852 W
<b>Base of "G" Sand</b>									
4,337.6	11.73	29.68	4,255.0	710.6	405.0	1,619,057.12	2,336,196.45	39° 30' 34.162 N	107° 51' 10.638 W
<b>Mesaverde</b>									
4,821.2	11.73	29.68	4,728.4	796.0	453.7	1,619,141.23	2,336,247.32	39° 30' 35.006 N	107° 51' 10.017 W
<b>Start Drop -1.50</b>									
5,603.2	0.00	0.00	5,505.0	865.3	493.2	1,619,209.50	2,336,288.60	39° 30' 35.691 N	107° 51' 9.513 W
<b>Vertical</b>									
5,703.2	0.00	0.00	5,605.0	865.3	493.2	1,619,209.50	2,336,288.60	39° 30' 35.691 N	107° 51' 9.513 W
<b>Top Gas - Approx. Top Gas</b>									
7,213.2	0.00	0.00	7,115.0	865.3	493.2	1,619,209.50	2,336,288.60	39° 30' 35.691 N	107° 51' 9.513 W
<b>Cameo Coals</b>									
7,973.2	0.00	0.00	7,875.0	865.3	493.2	1,619,209.50	2,336,288.60	39° 30' 35.691 N	107° 51' 9.513 W
<b>Base Lower Cameo Pay</b>									
7,983.2	0.00	0.00	7,885.0	865.3	493.2	1,619,209.50	2,336,288.60	39° 30' 35.691 N	107° 51' 9.513 W
<b>Coal D</b>									
8,103.2	0.00	0.00	8,005.0	865.3	493.2	1,619,209.50	2,336,288.60	39° 30' 35.691 N	107° 51' 9.513 W
<b>Rollins</b>									
8,253.2	0.00	0.00	8,155.0	865.3	493.2	1,619,209.50	2,336,288.60	39° 30' 35.691 N	107° 51' 9.513 W
<b>TD</b>									

**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 Ft Radius)	0.00	0.00	5,605.0	865.3	493.2	1,619,209.50	2,336,288.60	39° 30' 35.691 N	107° 51' 9.513 W
- plan hits target center									
- Circle (radius 25.0)									

**Casing Points**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,115.3	1,100.0	9 5/8"	9.625	12.250

# Williams

## Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well RWF 533-23 - Slot A8
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	WELL @ 5525.5usft (H&P (24') kjs)
<b>Project:</b>	RU 23-06S-094W	<b>MD Reference:</b>	WELL @ 5525.5usft (H&P (24') kjs)
<b>Site:</b>	RWF 33-23 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RWF 533-23	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2.07Apr10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,733.3	1,705.0	Top of "G" Sand				
1,835.4	1,805.0	Base of "G" Sand				
4,337.6	4,255.0	Mesaverde				
5,703.2	5,605.0	Approx. Top Gas				
7,213.2	7,115.0	Cameo Coals				
7,973.2	7,875.0	Base Lower Cameo Pay				
7,983.2	7,885.0	Coal D				
8,103.2	8,005.0	Rollins				
8,253.2	8,155.0	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	
511.0	508.3	34.7	19.8	Hold 11.73 Inclination	
4,821.2	4,728.4	796.0	453.7	Start Drop -1.50	
5,603.2	5,505.0	865.3	493.2	Vertical	
5,703.2	5,605.0	865.3	493.2	Top Gas	
8,253.2	8,155.0	865.3	493.2	TD at 8253.2	