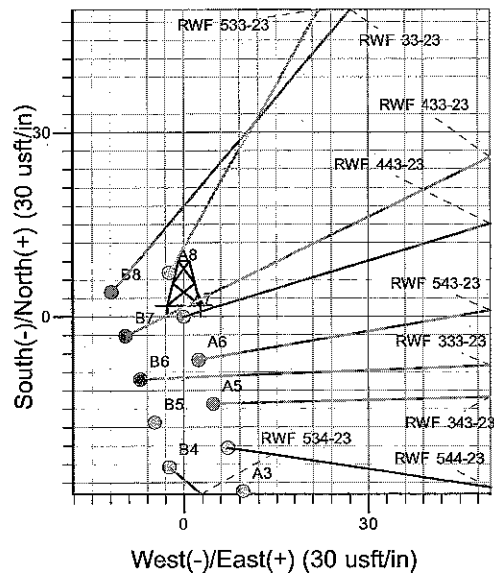
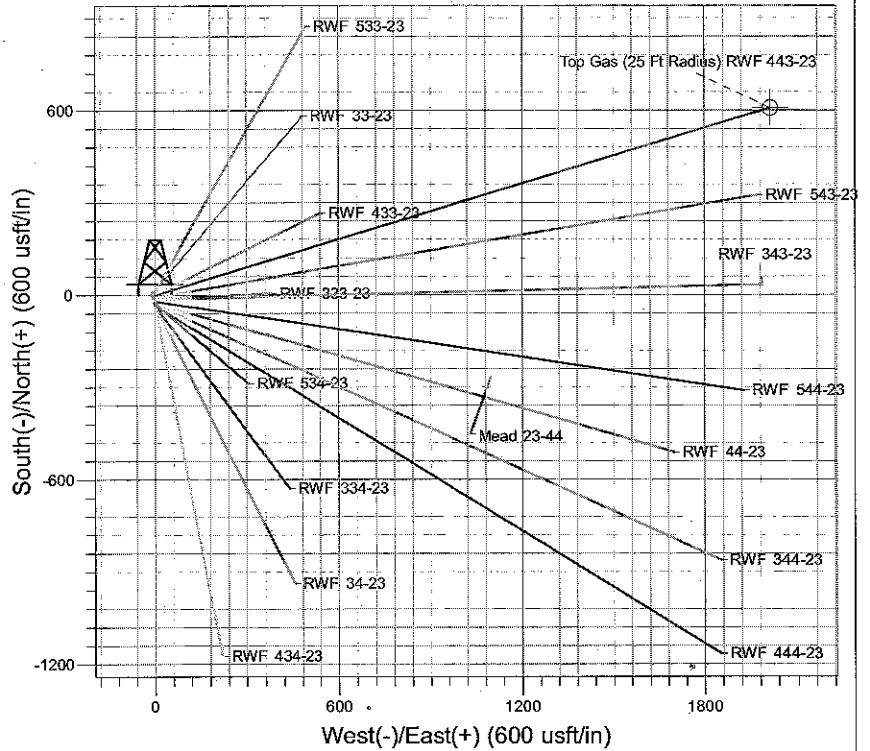
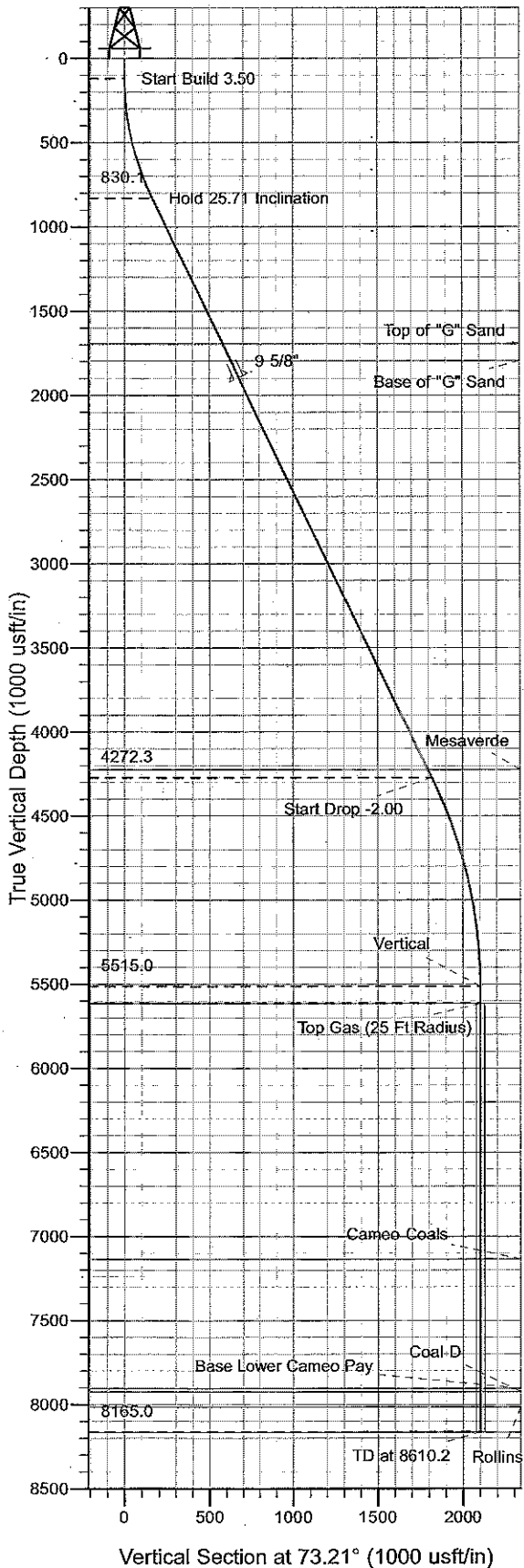




Well Name: RWF 443-23  
 Surface Location: RWF 33-23 Pad  
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
 Ground Elevation: 5501.5  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1618350.10 2335775.40 39° 30' 27.069 N 107° 51' 15.775 W A7  
 WELL @ 5525.5usft (H&P (24") kjs)



Project: RU 23-06S-094W  
 Site: RWF 33-23 Pad  
 Well: RWF 443-23  
 Plan #3 11Jun10 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 3.50
830.1	854.5	25.71	73.21	46.8	155.1	162.0	162.0	Hold 25.71 Inclination
4272.3	4674.9	25.71	73.21	525.6	1741.6	1819.2	1819.2	Start Drop -2.00
5515.0	5960.2	0.00	0.00	607.5	2013.1	2102.8	2102.8	Vertical
5615.0	6060.2	0.00	0.00	607.5	2013.1	2102.8	2102.8	Top Gas
8165.0	8610.2	0.00	0.00	607.5	2013.1	2102.8	2102.8	TD at 8610.2

# **PICEANCE VLY NAD 83**

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

**RWF 33-23 Pad**

**RWF 443-23 - Slot A7**

**Wellbore #1**

**Plan: Plan #3 11Jun10 kjs**

## **Standard Planning Report - Geographic**

**22 July, 2010**

# Williams

## Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well RWF 443-23 - Slot A7
<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 443-23	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 11Jun10 kjs		

<b>Project</b>	RU 23-06S-094W, Garfield County, CO, 23-06S-094W		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		Using geodetic scale factor

<b>Site</b>	RWF 33-23 Pad		
<b>Site Position:</b>		<b>Northing:</b>	1,618,354.40 usft
<b>From:</b>	Map	<b>Easting:</b>	2,335,763.80 usft
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13.200 in
		<b>Latitude:</b>	39° 30' 27.108 N
		<b>Longitude:</b>	107° 51' 15.924 W
		<b>Grid Convergence:</b>	-1.485 °

<b>Well</b>	RWF 443-23 - Slot A7		
<b>Well Position</b>	<b>+N-S</b>	0.0 usft	<b>Northing:</b> 1,618,350.10 usft
	<b>+E-W</b>	0.0 usft	<b>Easting:</b> 2,335,775.40 usft
<b>Position Uncertainty</b>	0.0 usft	<b>Wellhead Elevation:</b>	<b>Ground Level:</b> 5,501.5 usft

<b>Wellbore</b>	Wellbore #1		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>
	IGRF2005-10	10/16/2008	(°)
			10.614
			<b>Dip Angle</b>
			(°)
			65.857
			<b>Field Strength</b>
			(nT)
			52,572

<b>Design</b>	Plan #3 11Jun10 kjs		
<b>Audit Notes:</b>			
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b> 0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N-S</b>	<b>+E-W</b>
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			<b>Direction</b>
			(°)
			73.21

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	
854.5	25.71	73.21	830.1	46.8	155.1	3.50	3.50	0.00	73.208	
4,674.9	25.71	73.21	4,272.3	525.6	1,741.6	0.00	0.00	0.00	0.000	
5,960.2	0.00	0.00	5,515.0	607.5	2,013.1	2.00	-2.00	0.00	180.000	
6,060.2	0.00	0.00	5,615.0	607.5	2,013.1	0.00	0.00	0.00	0.000	Top Gas (25 Ft Radiu
8,610.2	0.00	0.00	8,165.0	607.5	2,013.1	0.00	0.00	0.00	0.000	

**Williams**  
Planning Report - Geographic

Database: Compass R5000 WIN AUTH  
Company: PICEANCE VLY NAD 83  
Project: RU 23-06S-094W  
Site: RWF 33-23 Pad  
Well: RWF 443-23  
Wellbore: Wellbore #1  
Design: Plan #3 11Jun10 kjs

Local Co-ordinate Reference: Well RWF 443-23 - Slot A7  
TVD Reference: WELL @ 5525.5usft (H&P (24') kjs)  
MD Reference: WELL @ 5525.5usft (H&P (24') kjs)  
North Reference: True  
Survey Calculation Method: Minimum Curvature

**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	1,618,350.10	2,335,775.40	39° 30' 27.069 N	107° 51' 15.775 W
120.0	0.00	0.00	120.0	0.0	0.0	1,618,350.10	2,335,775.40	39° 30' 27.069 N	107° 51' 15.775 W
<b>Start Build 3.50</b>									
854.5	25.71	73.21	830.1	46.8	155.1	1,618,392.87	2,335,931.68	39° 30' 27.531 N	107° 51' 13.796 W
<b>Hold 25.71 Inclination</b>									
1,814.4	25.71	73.21	1,695.0	167.1	553.8	1,618,502.79	2,336,333.28	39° 30' 28.720 N	107° 51' 8.710 W
<b>Top of "G" Sand</b>									
1,925.4	25.71	73.21	1,795.0	181.0	599.8	1,618,515.50	2,336,379.71	39° 30' 28.858 N	107° 51' 8.122 W
<b>Base of "G" Sand</b>									
2,036.4	25.71	73.21	1,895.0	194.9	645.9	1,618,528.21	2,336,426.15	39° 30' 28.995 N	107° 51' 7.534 W
<b>9 5/8"</b>									
4,622.3	25.71	73.21	4,225.0	519.0	1,719.8	1,618,824.33	2,337,508.04	39° 30' 32.197 N	107° 50' 53.832 W
<b>Mesaverde</b>									
4,674.9	25.71	73.21	4,272.3	525.6	1,741.6	1,618,830.34	2,337,530.01	39° 30' 32.262 N	107° 50' 53.554 W
<b>Start Drop -2.00</b>									
5,960.2	0.00	0.00	5,515.0	607.5	2,013.1	1,618,905.20	2,337,803.50	39° 30' 33.072 N	107° 50' 50.090 W
<b>Vertical</b>									
6,060.2	0.00	0.00	5,615.0	607.5	2,013.1	1,618,905.20	2,337,803.50	39° 30' 33.072 N	107° 50' 50.090 W
<b>Top Gas - Approx. Top Gas</b>									
7,580.2	0.00	0.00	7,135.0	607.5	2,013.1	1,618,905.20	2,337,803.50	39° 30' 33.072 N	107° 50' 50.090 W
<b>Cameo Coals</b>									
8,350.2	0.00	0.00	7,905.0	607.5	2,013.1	1,618,905.20	2,337,803.50	39° 30' 33.072 N	107° 50' 50.090 W
<b>Base Lower Cameo Pay</b>									
8,370.2	0.00	0.00	7,925.0	607.5	2,013.1	1,618,905.20	2,337,803.50	39° 30' 33.072 N	107° 50' 50.090 W
<b>Coal D</b>									
8,460.2	0.00	0.00	8,015.0	607.5	2,013.1	1,618,905.20	2,337,803.50	39° 30' 33.072 N	107° 50' 50.090 W
<b>Rollins</b>									
8,610.2	0.00	0.00	8,165.0	607.5	2,013.1	1,618,905.20	2,337,803.50	39° 30' 33.072 N	107° 50' 50.090 W
<b>TD at 8610.2</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	5,615.0	607.5	2,013.1	1,618,905.20	2,337,803.50	39° 30' 33.072 N	107° 50' 50.090 W
- plan hits target center									
- Circle (radius 25.0)									

**Casing Points**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
2,036.4	1,895.0	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 443-23 - Slot A7
<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 443-23	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3,11Jun10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,814.4	1,695.0	Top of "G" Sand				
1,925.4	1,795.0	Base of "G" Sand				
4,622.3	4,225.0	Mesaverde				
6,060.2	5,615.0	Approx. Top Gas				
7,580.2	7,135.0	Cameo Coals				
8,350.2	7,905.0	Base Lower Cameo Pay				
8,370.2	7,925.0	Coal D				
8,460.2	8,015.0	Rollins				
8,610.2	8,165.0	TD				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
120.0	120.0	0.0	0.0	Start Build 3.50
854.5	830.1	46.8	155.1	Hold 25.71 Inclination
4,674.9	4,272.3	525.6	1,741.6	Start Drop -2.00
5,960.2	5,515.0	607.5	2,013.1	Vertical
6,060.2	5,615.0	607.5	2,013.1	Top Gas
8,610.2	8,165.0	607.5	2,013.1	TD at 8610.2