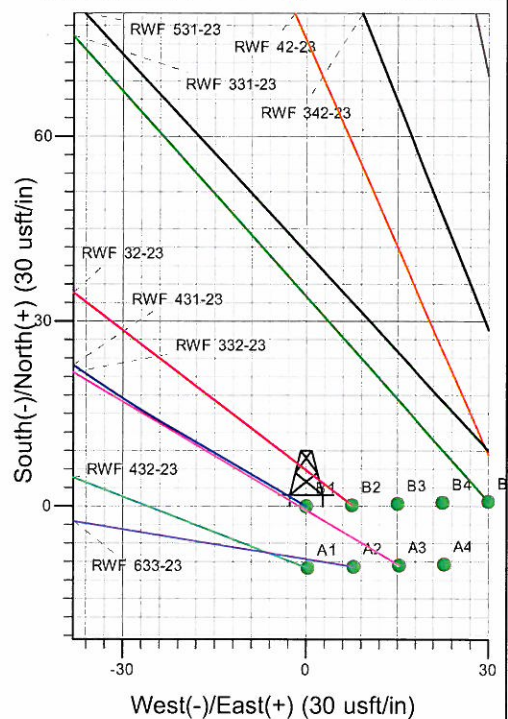
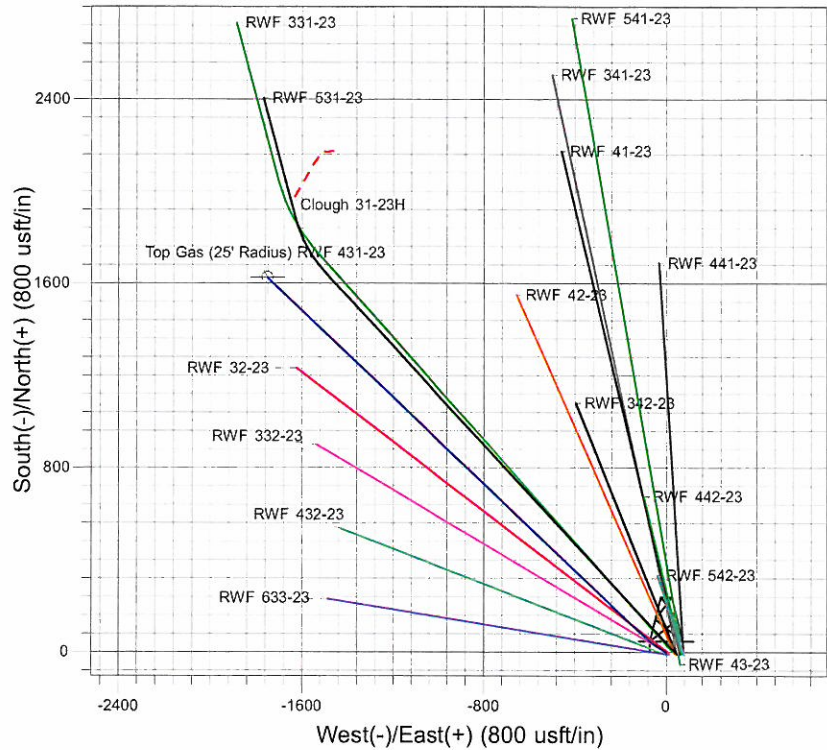
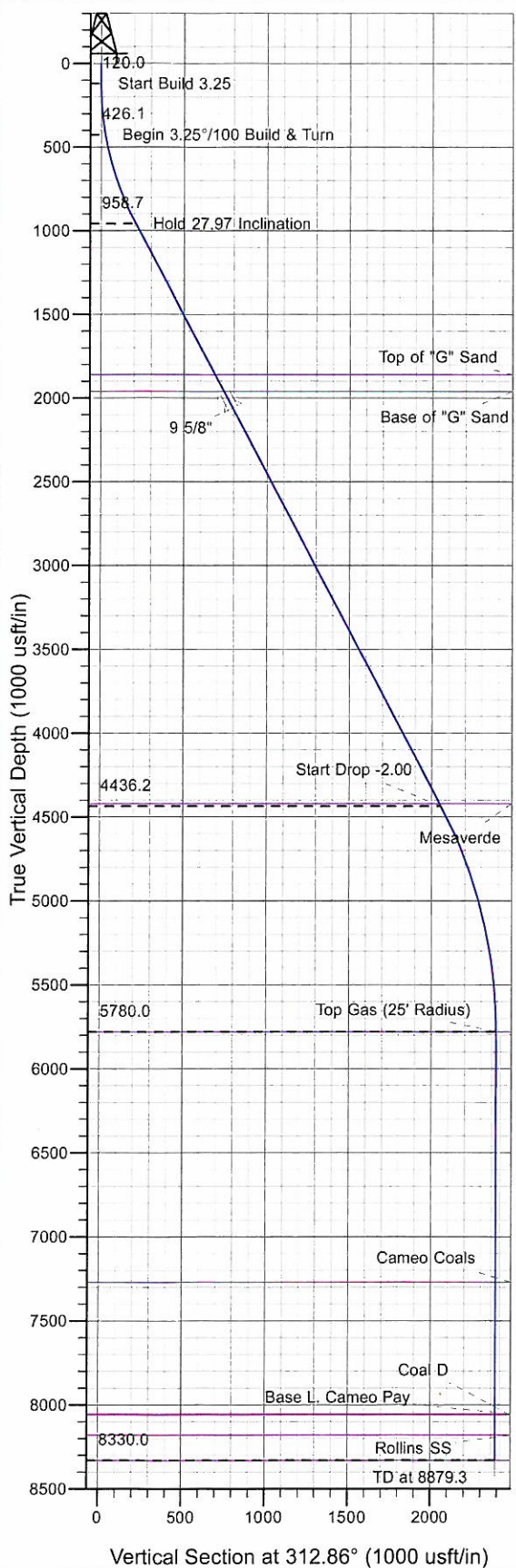




Well Name: RWF 431-23  
 Surface Location: RWF 43-23 Pad  
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
 Ground Elevation: 5599.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1619214.50 2337844.00 39° 30' 36.138 N 107° 50' 49.676 W B1  
 KELLY BUSHING @ 5623.0usft (H&P (24' RKB) kjs)



Project: RU 23-06S-094W  
 Site: RWF 43-23 Pad  
 Well: RWF 431-23  
 Plan #3 24Aug10 kjs

Compass Rose  
 Azimuths to True North  
 Magnetic North: 10.43°  
 Magnetic Field  
 Strength: 52395.0nT  
 Dip Angle: 65.81°  
 Date: 4/27/2010  
 Model: IGRF2010

#### 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 3.25
426.1	427.7	10.00	300.00	13.4	-23.2	26.1	26.8	Begin 3.25°/100 Build & Turn
958.7	993.0	27.97	313.28	129.8	-163.4	208.1	210.0	Hold 27.97° Inclination
4436.2	4930.6	27.97	313.28	1396.1	-1508.0	2055.0	2056.9	Start Drop -2.00
5780.0	6329.3	0.00	0.00	1625.6	-1751.6	2389.7	2391.6	Top Gas
8330.0	8879.3	0.00	0.00	1625.6	-1751.6	2389.7	2391.6	TD at 8879.3

# **PICEANCE VLY NAD 83**

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

**RWF 43-23 Pad**

**RWF 431-23 - Slot B1**

**Wellbore #1**

**Plan: Plan #3 24Aug10 kjs**

## **Standard Planning Report - Geographic**

**26 August, 2010**



**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well RWF 431-23 - Slot B1
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5623.0usft (H&P (24' RKB) kjs)
<b>Project:</b>	RU 23-06S-094W	<b>MD Reference:</b>	KELLY BUSHING @ 5623.0usft (H&P (24' RKB) kjs)
<b>Site:</b>	RWF 43-23 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RWF 431-23	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 24Aug10 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

Site		RWF 43-23 Pad			
Site Position:		Northing:	1,619,204.50 usft	Latitude:	39° 30' 36.053 N
From:	Map	Easting:	2,337,897.00 usft	Longitude:	107° 50' 48.996 W
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in	Grid Convergence:	-1.480 °

Well	RWF 431-23 - Slot B1					
Well Position	+N/-S	0.0 usft	Northing:	1,619,214.50 usft	Latitude:	39° 30' 36.138 N
	+E/-W	0.0 usft	Easting:	2,337,844.00 usft	Longitude:	107° 50' 49.676 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	5,599.0 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	4/27/2010	10.434	65.810	52,395

<b>Design</b>	Plan #3 24Aug10 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) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	312.86

<b>Plan Sections</b>										
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	
427.7	10.00	300.00	426.1	13.4	-23.2	3.25	3.25	0.00	300.000	
993.0	27.97	313.28	958.7	129.8	-163.4	3.25	3.18	2.35	19.992	
4,930.6	27.97	313.28	4,436.2	1,396.1	-1,508.0	0.00	0.00	0.00	0.000	
6,329.3	0.00	0.00	5,780.0	1,625.6	-1,751.6	2.00	-2.00	0.00	180.000	Top Gas (25' Radius)
8,879.3	0.00	0.00	8,330.0	1,625.6	-1,751.6	0.00	0.00	0.00	0.000	TD / PBHL RWF 431-



**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well RWF 431-23 - Slot B1
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5623.0usft (H&P (24' RKB) kjs)
<b>Project:</b>	RU 23-06S-094W	<b>MD Reference:</b>	KELLY BUSHING @ 5623.0usft (H&P (24' RKB) kjs)
<b>Site:</b>	RWF 43-23 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RWF 431-23	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 24Aug10 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	1,619,214.50	2,337,844.00	39° 30' 36.138 N	107° 50' 49.676 W
120.0	0.00	0.00	120.0	0.0	0.0	1,619,214.50	2,337,844.00	39° 30' 36.138 N	107° 50' 49.676 W
<b>Start Build 3.25</b>									
427.7	10.00	300.00	426.1	13.4	-23.2	1,619,228.48	2,337,821.16	39° 30' 36.271 N	107° 50' 49.971 W
<b>Begin 3.25°/100 Build &amp; Turn</b>									
993.0	27.97	313.28	958.7	129.8	-163.4	1,619,348.50	2,337,683.99	39° 30' 37.421 N	107° 50' 51.761 W
<b>Hold 27.97 Inclination</b>									
2,013.5	27.97	313.28	1,860.0	458.0	-511.9	1,619,685.56	2,337,344.12	39° 30' 40.665 N	107° 50' 56.207 W
<b>Top of "G" Sand</b>									
2,126.8	27.97	313.28	1,960.0	494.4	-550.6	1,619,722.96	2,337,306.41	39° 30' 41.025 N	107° 50' 56.700 W
<b>Base of "G" Sand</b>									
2,240.0	27.97	313.28	2,060.0	530.8	-589.2	1,619,760.36	2,337,268.70	39° 30' 41.384 N	107° 50' 57.194 W
<b>9 5/8"</b>									
4,912.2	27.97	313.28	4,420.0	1,390.2	-1,501.7	1,620,642.94	2,336,378.77	39° 30' 49.877 N	107° 51' 8.837 W
<b>Mesaverde</b>									
4,930.6	27.97	313.28	4,436.2	1,396.1	-1,508.0	1,620,649.02	2,336,372.64	39° 30' 49.936 N	107° 51' 8.917 W
<b>Start Drop -2.00</b>									
6,329.3	0.00	0.00	5,780.0	1,625.6	-1,751.6	1,620,884.70	2,336,135.00	39° 30' 52.203 N	107° 51' 12.026 W
<b>Top Gas - Approx. Top Gas</b>									
7,819.3	0.00	0.00	7,270.0	1,625.6	-1,751.6	1,620,884.70	2,336,135.00	39° 30' 52.203 N	107° 51' 12.026 W
<b>Cameo Coals</b>									
8,604.3	0.00	0.00	8,055.0	1,625.6	-1,751.6	1,620,884.70	2,336,135.00	39° 30' 52.203 N	107° 51' 12.026 W
<b>Base L. Cameo Pay</b>									
8,609.3	0.00	0.00	8,060.0	1,625.6	-1,751.6	1,620,884.70	2,336,135.00	39° 30' 52.203 N	107° 51' 12.026 W
<b>Coal D</b>									
8,729.3	0.00	0.00	8,180.0	1,625.6	-1,751.6	1,620,884.70	2,336,135.00	39° 30' 52.203 N	107° 51' 12.026 W
<b>Rollins SS</b>									
8,879.3	0.00	0.00	8,330.0	1,625.6	-1,751.6	1,620,884.70	2,336,135.00	39° 30' 52.203 N	107° 51' 12.026 W
<b>TD at 8879.3 - 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' Radius) R\	0.00	0.00	5,780.0	1,625.6	-1,751.6	1,620,884.70	2,336,135.00	39° 30' 52.203 N	107° 51' 12.026 W
- plan hits target center									
- Circle (radius 25.0)									
TD / PBHL RWF 431-23	0.00	0.00	8,330.0	1,625.6	-1,751.6	1,620,884.70	2,336,135.00	39° 30' 52.203 N	107° 51' 12.026 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (in)	Hole Diameter (in)
2,240.0	2,060.0	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 431-23 - Slot B1
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5623.0usft (H&P (24' RKB) kjs)
<b>Project:</b>	RU 23-06S-094W	<b>MD Reference:</b>	KELLY BUSHING @ 5623.0usft (H&P (24' RKB) kjs)
<b>Site:</b>	RWF 43-23 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RWF 431-23	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 24Aug10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,013.5	1,860.0	Top of "G" Sand				
2,126.8	1,960.0	Base of "G" Sand				
4,912.2	4,420.0	Mesaverde				
6,329.3	5,780.0	Approx. Top Gas				
7,819.3	7,270.0	Cameo Coals				
8,604.3	8,055.0	Base L. Cameo Pay				
8,609.3	8,060.0	Coal D				
8,729.3	8,180.0	Rollins SS				
8,879.3	8,330.0	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 3.25	
427.7	426.1	13.4	-23.2	Begin 3.25°/100 Build & Turn	
993.0	958.7	129.8	-163.4	Hold 27.97 Inclination	
4,930.6	4,436.2	1,396.1	-1,508.0	Start Drop -2.00	
6,329.3	5,780.0	1,625.6	-1,751.6	Top Gas	
8,879.3	8,330.0	1,625.6	-1,751.6	TD at 8879.3	