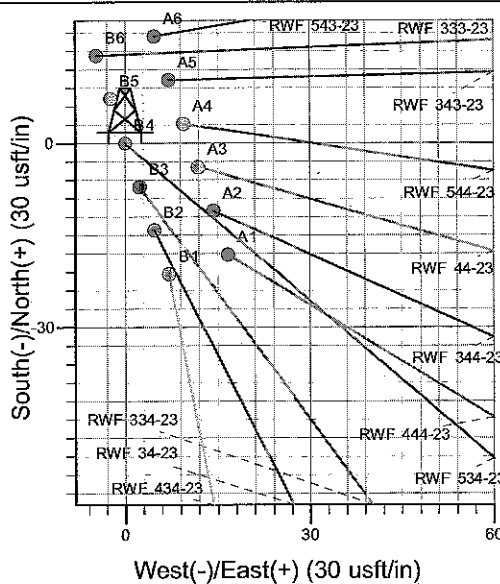
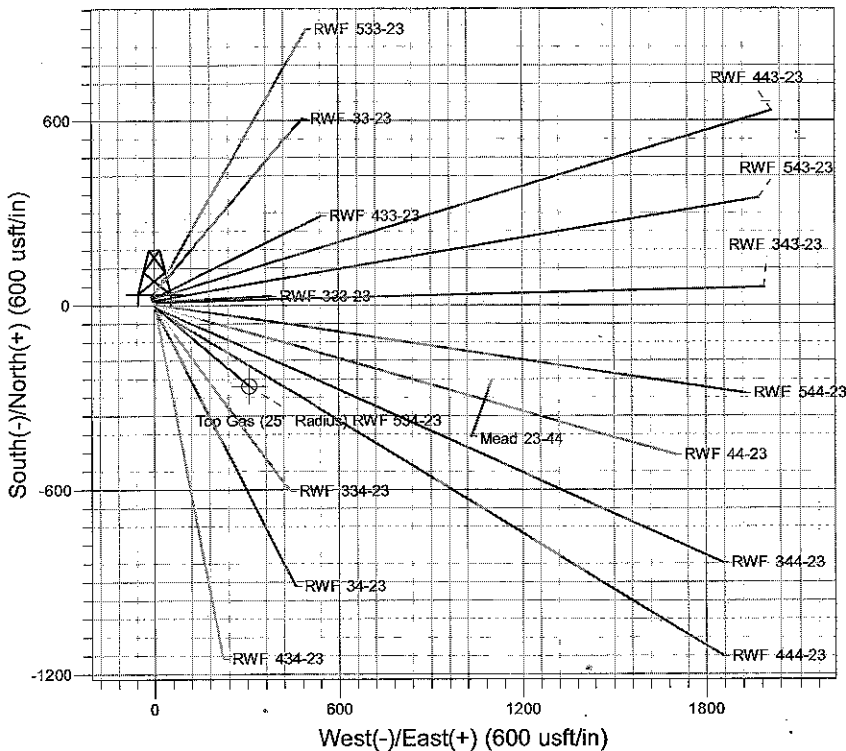
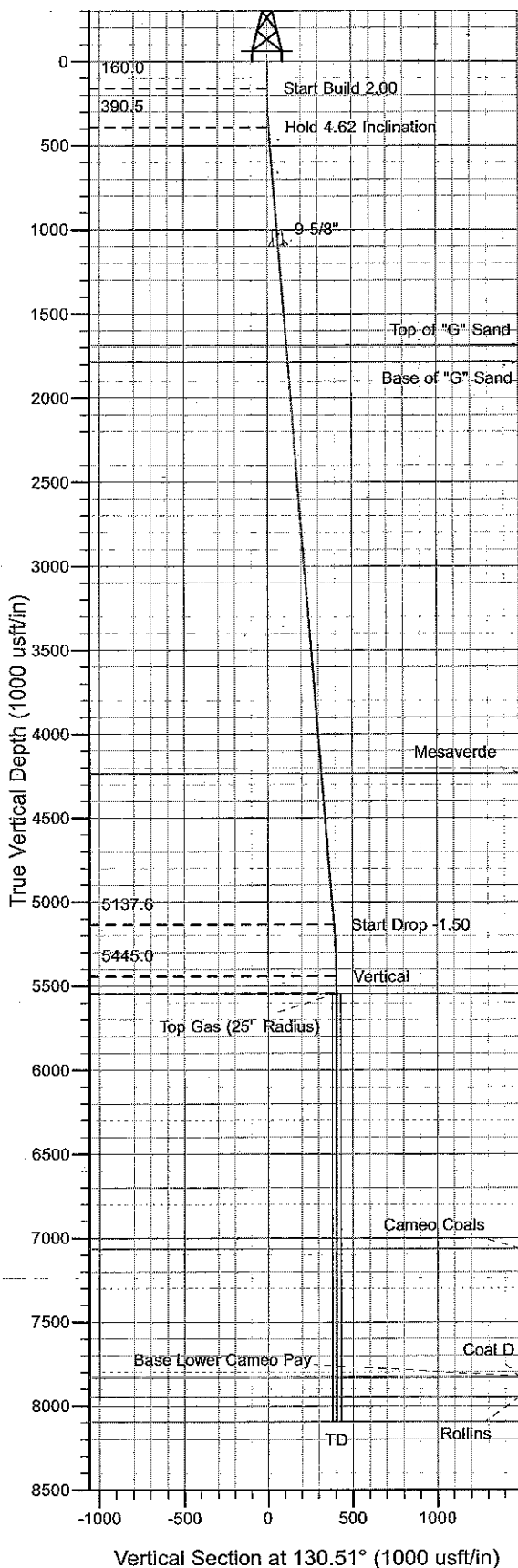




Well Name: RWF 534-23  
 Surface Location: RWF 33-23 Pad  
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
 Ground Elevation: 5501.5  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1618325.70 2335772.40 39° 30' 26.827 N 107° 51' 15.805 W B4  
 WELL @ 5525.5usft (H&P (24") kjs)



Project: RU 23-06S-094W  
 Site: RWF 33-23 Pad  
 Well: RWF 534-23  
 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
160.0	160.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 2.00
390.5	390.8	4.62	130.51	-6.0	7.1	9.3	9.3	Hold 4.62 Inclination
5137.6	5153.3	4.62	130.51	-255.0	298.4	392.5	392.5	Start Drop -1.50
5445.0	5461.0	0.00	0.00	-263.0	307.8	404.9	404.9	Vertical
5545.0	5561.0	0.00	0.00	-263.0	307.8	404.9	404.9	Top Gas
8095.0	8111.0	0.00	0.00	-263.0	307.8	404.9	404.9	TD at 8111.0

# **PICEANCE VLY NAD 83**

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

**RWF 33-23 Pad**

**RWF 534-23 - Slot B4**

**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 534-23 - Slot B4
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 534-23	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 534-23 - Slot B4		
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
			39° 30' 26.827 N
			107° 51' 15.805 W

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
			130.51

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	
160.0	0.00	0.00	160.0	0.0	0.0	0.00	0.00	0.00	0.000	
390.8	4.62	130.51	390.5	-6.0	7.1	2.00	2.00	0.00	130.512	
5,153.3	4.62	130.51	5,137.6	-255.0	298.4	0.00	0.00	0.00	0.000	
5,461.0	0.00	0.00	5,445.0	-263.0	307.8	1.50	-1.50	0.00	180.000	
5,561.0	0.00	0.00	5,545.0	-263.0	307.8	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
8,111.0	0.00	0.00	8,095.0	-263.0	307.8	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 534-23  
Wellbore: Wellbore #1  
Design: Plan #2 07Apr10 kjs

Local Co-ordinate Reference: Well RWF 534-23- Slot B4  
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	1,618,325.70	2,335,772.40	39° 30' 26.827 N	107° 51' 15.805 W
160.0	0.00	0.00	160.0	0.0	0.0	1,618,325.70	2,335,772.40	39° 30' 26.827 N	107° 51' 15.805 W
<b>Start Build 2.00</b>									
390.8	4.62	130.51	390.5	-6.0	7.1	1,618,319.48	2,335,779.31	39° 30' 26.767 N	107° 51' 15.715 W
<b>Hold 4.62 Inclination</b>									
1,102.6	4.62	130.51	1,100.0	-43.2	50.6	1,618,281.16	2,335,821.87	39° 30' 26.400 N	107° 51' 15.160 W
<b>9 5/8"</b>									
1,689.5	4.62	130.51	1,685.0	-73.9	86.5	1,618,249.56	2,335,856.96	39° 30' 26.096 N	107° 51' 14.701 W
<b>Top of "G" Sand</b>									
1,789.8	4.62	130.51	1,785.0	-79.2	92.6	1,618,244.16	2,335,862.96	39° 30' 26.044 N	107° 51' 14.623 W
<b>Base of "G" Sand</b>									
4,247.8	4.62	130.51	4,235.0	-207.6	243.0	1,618,111.84	2,336,009.95	39° 30' 24.775 N	107° 51' 12.705 W
<b>Mesaverde</b>									
5,153.3	4.62	130.51	5,137.6	-255.0	298.4	1,618,063.08	2,336,064.10	39° 30' 24.307 N	107° 51' 11.998 W
<b>Start Drop -1.50</b>									
5,461.0	0.00	0.00	5,445.0	-263.0	307.8	1,618,054.80	2,336,073.30	39° 30' 24.227 N	107° 51' 11.878 W
<b>Vertical</b>									
5,561.0	0.00	0.00	5,545.0	-263.0	307.8	1,618,054.80	2,336,073.30	39° 30' 24.227 N	107° 51' 11.878 W
<b>Top Gas - Approx. Top Gas</b>									
7,081.0	0.00	0.00	7,065.0	-263.0	307.8	1,618,054.80	2,336,073.30	39° 30' 24.227 N	107° 51' 11.878 W
<b>Cameo Coals</b>									
7,841.0	0.00	0.00	7,825.0	-263.0	307.8	1,618,054.80	2,336,073.30	39° 30' 24.227 N	107° 51' 11.878 W
<b>Base Lower Cameo Pay</b>									
7,851.0	0.00	0.00	7,835.0	-263.0	307.8	1,618,054.80	2,336,073.30	39° 30' 24.227 N	107° 51' 11.878 W
<b>Coal D</b>									
7,961.0	0.00	0.00	7,945.0	-263.0	307.8	1,618,054.80	2,336,073.30	39° 30' 24.227 N	107° 51' 11.878 W
<b>Rollins</b>									
8,111.0	0.00	0.00	8,095.0	-263.0	307.8	1,618,054.80	2,336,073.30	39° 30' 24.227 N	107° 51' 11.878 W
<b>TD at 8111.0 - 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	5,545.0	-263.0	307.8	1,618,054.80	2,336,073.30	39° 30' 24.227 N	107° 51' 11.878 W
- plan hits target center									
- Circle (radius 25.0)									

**Casing Points**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,102.6	1,100.0	9 5/8"	9.625	12.250

**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 534-23  
**Wellbore:** Wellbore #1  
**Design:** Plan #2 07Apr10 kjs

**Local Co-ordinate Reference:** Well RWF 534-23 - Slot B4  
**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

**Formations**

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,689.5	1,685.0	Top of "G" Sand			
1,789.8	1,785.0	Base of "G" Sand			
4,247.8	4,235.0	Mesaverde			
5,561.0	5,545.0	Approx. Top Gas			
7,081.0	7,065.0	Cameo Coals			
7,841.0	7,825.0	Base Lower Cameo Pay			
7,851.0	7,835.0	Coal D			
7,961.0	7,945.0	Rollins			
8,111.0	8,095.0	TD			

**Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
160.0	160.0	0.0	0.0	Start Build 2.00
390.8	390.5	-6.0	7.1	Hold 4.62 Inclination
5,153.3	5,137.6	-255.0	298.4	Start Drop -1.50
5,461.0	5,445.0	-263.0	307.8	Vertical
5,561.0	5,545.0	-263.0	307.8	Top Gas
8,111.0	8,095.0	-263.0	307.8	TD at 8111.0