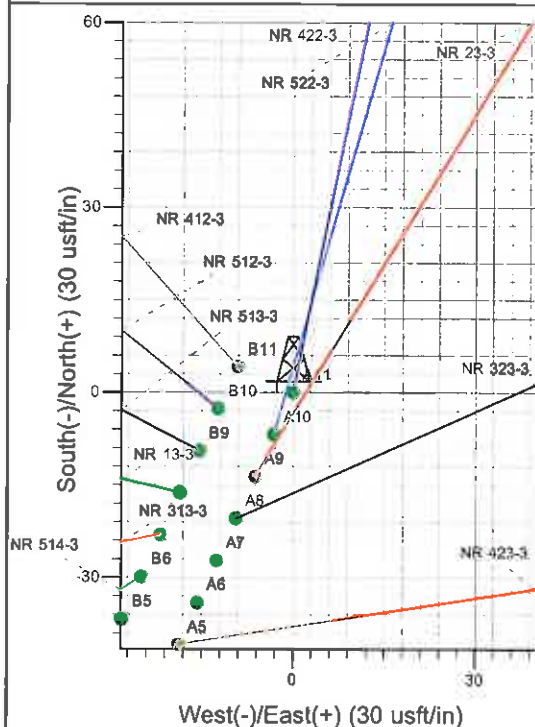
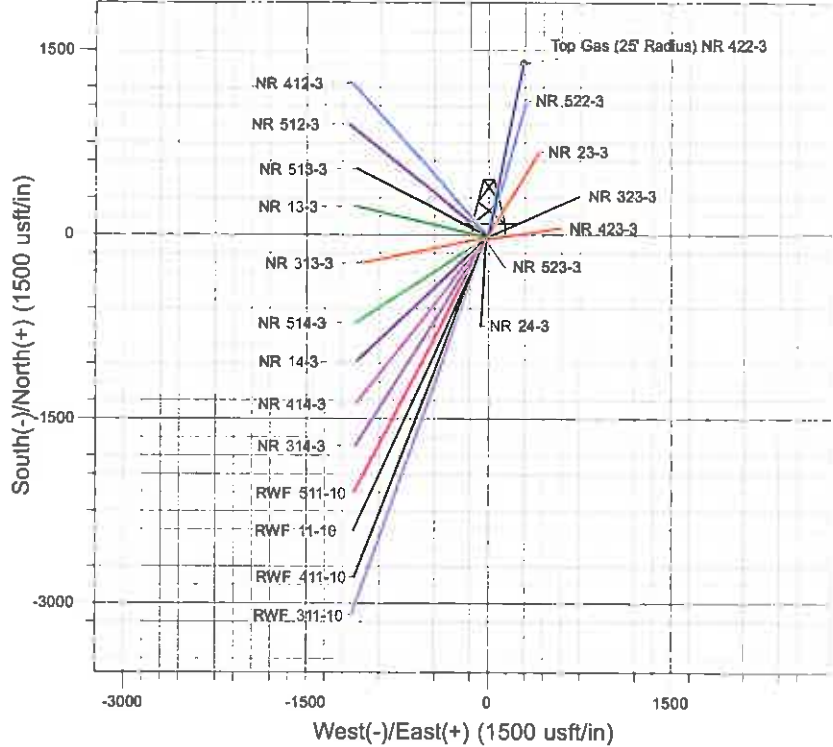
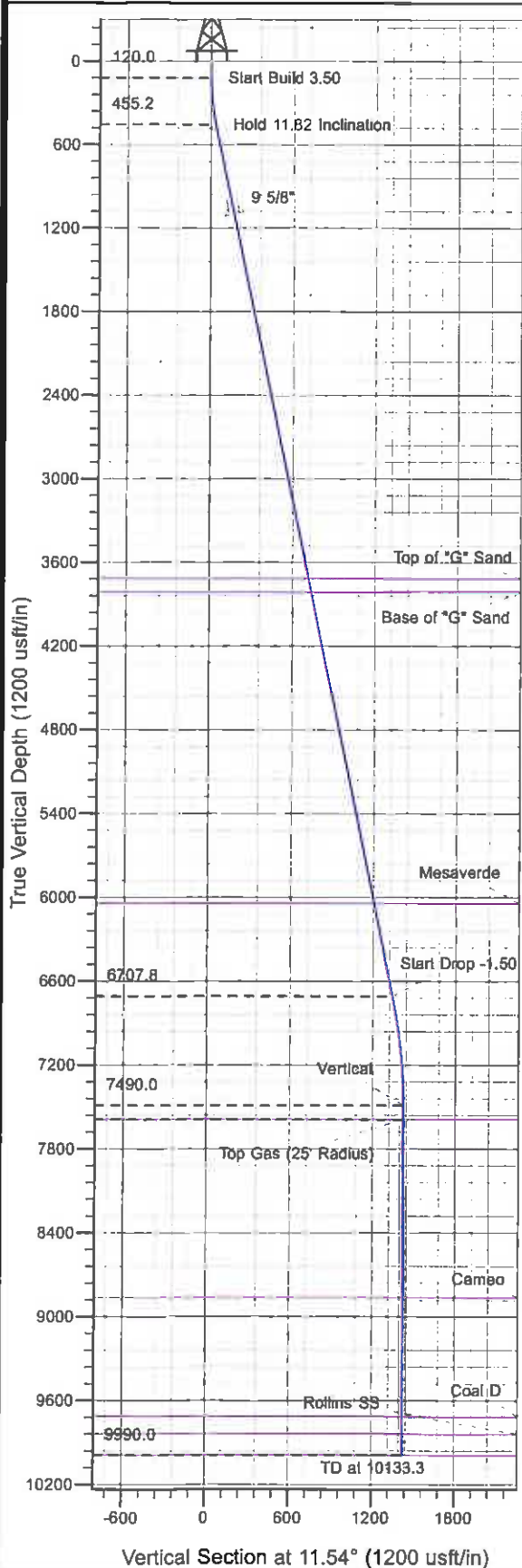




Well Name: NR 422-3  
 Surface Location: NR 23-3 Pad (West)  
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
 Ground Elevation: 6720.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1635005.20 2329740.60 39° 33' 10.070 N 107° 52' 38.307 W A11  
 KELLY BUSHING @ 6744.0usft (H&P (24') kjs)



Project: RU 03-06S-094W  
 Site: NR 23-3 Pad (West)  
 Well: NR 422-3  
 Design #1 30Aug10 kjs

M Azimuths to True North  
 Magnetic North 10.41°  
 Magnetic Field  
 Strength: 52370.7nT  
 Dip Angle: 65.83°  
 Date: 8/30/2010  
 Model: IGRF2010

#### ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	V/Sed	Departure	Annotation
120.0	120.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 3.50
455.2	457.6	11.82	11.54	34.0	6.9	34.7	34.7	Hold 11.82 Inclination
6707.8	6845.5	11.82	11.54	1315.7	268.7	1342.9	1342.9	Start Drop -1.50
7490.0	7633.3	0.00	0.00	1395.0	284.9	1423.8	1423.8	Vertical
7590.0	7733.3	0.00	0.00	1395.0	284.9	1423.8	1423.8	Top Gas
9990.0	10133.3	0.00	0.00	1395.0	284.9	1423.8	1423.8	TD at 10133.3



# **PICEANCE VLY NAD 83**

**RU 03-06S-094W**

**NR 23-3 Pad (West)**

**NR 422-3 - Slot A11**

**Wellbore #1**

**Plan: Design #1 30Aug10 kjs**

## **Standard Planning Report - Geographic**

**22 February, 2011**



**Williams**  
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well NR 422-3 - Slot A11
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 6744.0usft (H&P (24') kjs)
Project:	RU 03-06S-094W	MD Reference:	KELLY BUSHING @ 6744.0usft (H&P (24') kjs)
Site:	NR 23-3 Pad (West)	North Reference:	True
Well:	NR 422-3	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 30Aug10 kjs		

Project	RU 03-06S-094W, Garfield County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site	NR 23-3 Pad (West)		
Site Position:		Northing:	1,634,937.90 usft
From:	Map	Easting:	2,329,707.50 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in
		Latitude:	39° 33' 9.397 N
		Longitude:	107° 52' 38.707 W
		Grid Convergence:	-1.499 °

Well	NR 422-3 - Slot A11		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	Ground Level:
			6,720.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	8/30/2010	10.408
			Dip Angle
			(°)
			65.830
			Field Strength
			(nT)
			52,371

Design	Design #1 30Aug10 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
			(°)
			11.54

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	
457.6	11.82	11.54	455.2	34.0	6.9	3.50	3.50	0.00	11.542	
6,845.5	11.82	11.54	6,707.8	1,315.7	268.7	0.00	0.00	0.00	0.000	
7,633.3	0.00	0.00	7,490.0	1,395.0	284.9	1.50	-1.50	0.00	180.000	
7,733.3	0.00	0.00	7,590.0	1,395.0	284.9	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
10,133.3	0.00	0.00	9,990.0	1,395.0	284.9	0.00	0.00	0.00	0.000	



**Williams**  
Planning Report - Geographic

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Project:	RU 03-06S-094W	MD Reference:	KELLY BUSHING @ 6744.0usft (H&P (24') kjs)
Site:	NR 23-3 Pad (West)	North Reference:	True
Well:	NR 422-3	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 30Aug10 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	1,635,005.20	2,329,740.60	39° 33' 10.070 N	107° 52' 38.307 W
120.0	0.00	0.00	120.0	0.0	0.0	1,635,005.20	2,329,740.60	39° 33' 10.070 N	107° 52' 38.307 W
Start Build 3.50									
457.6	11.82	11.54	455.2	34.0	6.9	1,635,039.00	2,329,748.43	39° 33' 10.406 N	107° 52' 38.218 W
Hold 11.82 Inclination									
1,116.3	11.82	11.54	1,100.0	166.2	33.9	1,635,170.42	2,329,778.87	39° 33' 11.713 N	107° 52' 37.874 W
9 5/8"									
3,788.0	11.82	11.54	3,715.0	702.2	143.4	1,635,703.42	2,329,902.34	39° 33' 17.011 N	107° 52' 36.476 W
Top of "G" Sand									
3,890.1	11.82	11.54	3,815.0	722.7	147.6	1,635,723.81	2,329,907.06	39° 33' 17.213 N	107° 52' 36.422 W
Base of "G" Sand									
6,168.4	11.82	11.54	6,045.0	1,179.9	241.0	1,636,178.34	2,330,012.34	39° 33' 21.731 N	107° 52' 35.230 W
Mesaverde									
6,845.5	11.82	11.54	6,707.8	1,315.7	268.7	1,636,313.43	2,330,043.63	39° 33' 23.074 N	107° 52' 34.876 W
Start Drop -1.50									
7,633.3	0.00	0.00	7,490.0	1,395.0	284.9	1,636,392.30	2,330,061.90	39° 33' 23.858 N	107° 52' 34.669 W
Vertical									
7,733.3	0.00	0.00	7,590.0	1,395.0	284.9	1,636,392.30	2,330,061.90	39° 33' 23.858 N	107° 52' 34.669 W
Top Gas - Approx. Top Gas									
9,008.3	0.00	0.00	8,865.0	1,395.0	284.9	1,636,392.30	2,330,061.90	39° 33' 23.858 N	107° 52' 34.669 W
Cameo									
9,858.3	0.00	0.00	9,715.0	1,395.0	284.9	1,636,392.30	2,330,061.90	39° 33' 23.858 N	107° 52' 34.669 W
Coal D									
9,983.3	0.00	0.00	9,840.0	1,395.0	284.9	1,636,392.30	2,330,061.90	39° 33' 23.858 N	107° 52' 34.669 W
Rollins SS									
10,133.3	0.00	0.00	9,990.0	1,395.0	284.9	1,636,392.30	2,330,061.90	39° 33' 23.858 N	107° 52' 34.669 W
TD at 10133.3 - 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) NF	0.00	0.00	7,590.0	1,395.0	284.9	1,636,392.30	2,330,061.90	39° 33' 23.858 N	107° 52' 34.669 W
- plan hits target center									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,116.3	1,100.0	9 5/8"	9.625	12.250	



**Williams**  
Planning Report - Geographic

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Project:	RU 03-06S-094W	MD Reference:	KELLY BUSHING @ 6744.0usft (H&P (24') kjs)
Site:	NR 23-3 Pad (West)	North Reference:	True
Well:	NR 422-3	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 30Aug10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (")	Dip Direction (")	
3,788.0	3,715.0	Top of "G" Sand				
3,890.1	3,815.0	Base of "G" Sand				
6,168.4	6,045.0	Mesaverde				
7,733.3	7,590.0	Approx. Top Gas				
9,008.3	8,865.0	Cameo				
9,858.3	9,715.0	Coal D				
9,983.3	9,840.0	Rollins SS				
10,133.3	9,990.0	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
457.6	455.2	34.0	6.9	Hold 11.82 Inclination
6,845.5	6,707.8	1,315.7	268.7	Start Drop -1.50
7,633.3	7,490.0	1,395.0	284.9	Vertical
7,733.3	7,590.0	1,395.0	284.9	Top Gas
10,133.3	9,990.0	1,395.0	284.9	TD at 10133.3