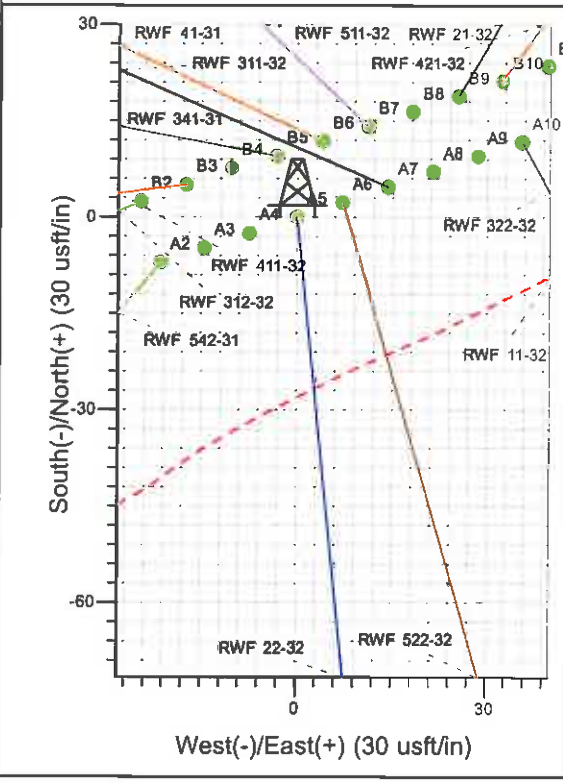
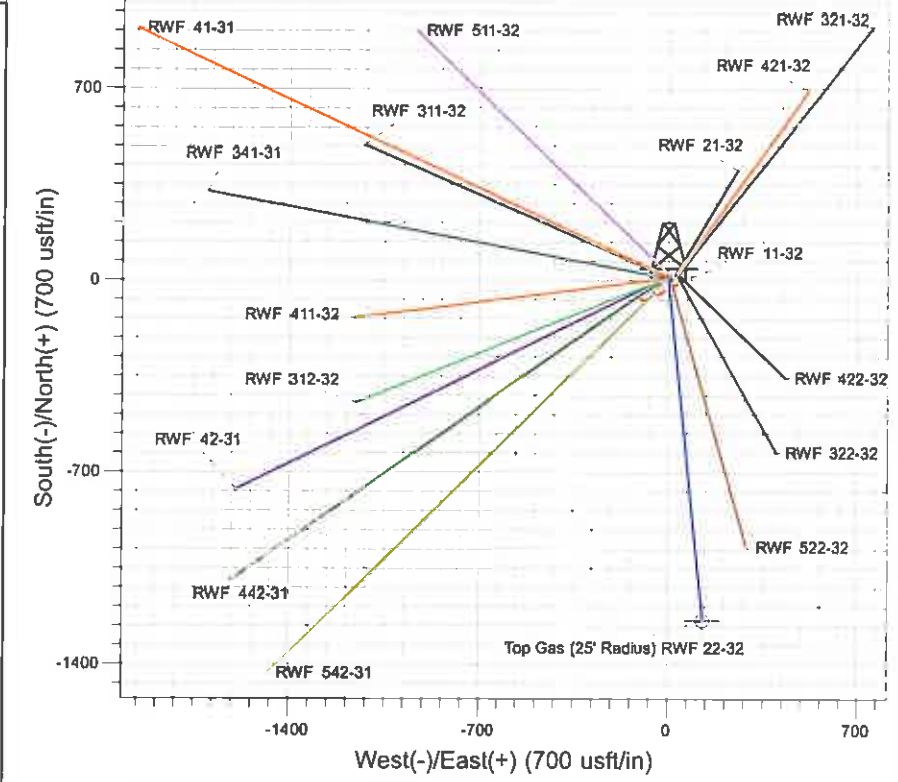
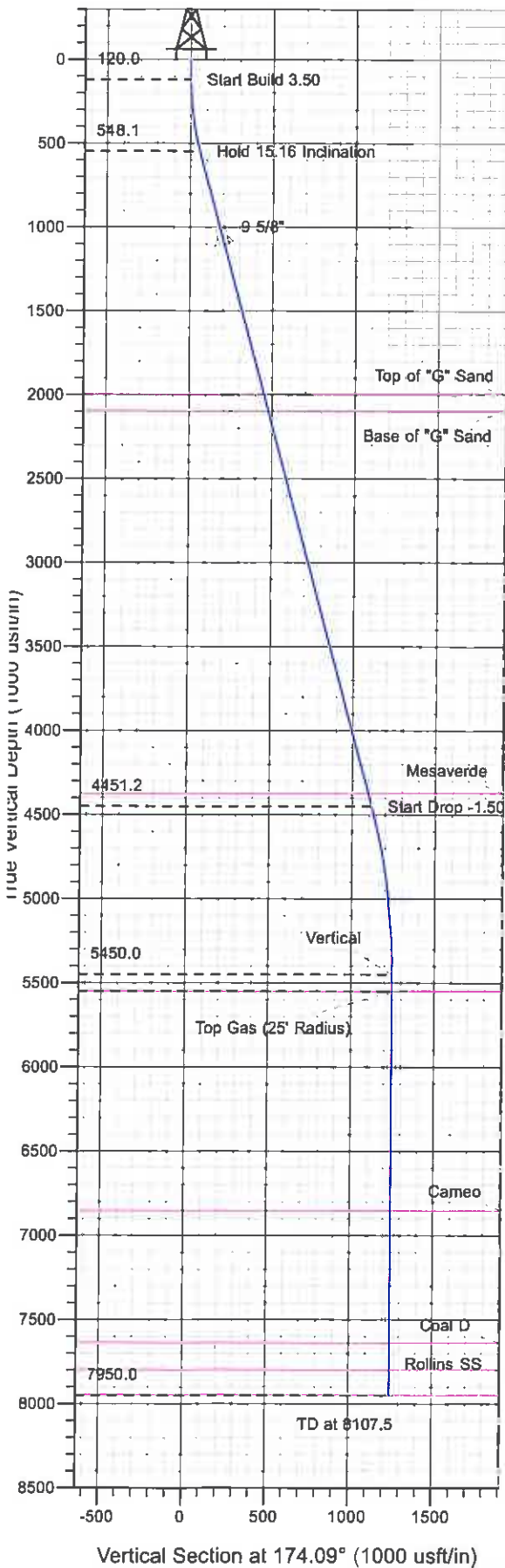




Surface Location: RWF 11-32 Pad  
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
 Ground Elevation: 5539.0  
 Northing 1610856.70 Easting 2318229.20 Latitude 39° 29' 8.480 N Longitude 107° 54' 57.025 W Slot A5  
 KELLY BUSHING @ 5565.0usft (SSD 573 (26' RKB) kjs)



Project: RU 32-06S-094W  
 Site: RWF 11-32 Pad  
 Well: RWF 22-32  
 Design #1 06Jun11 kjs

Azimuths to True North  
 Magnetic North: 10.32°  
 Magnetic Field  
 Strength: 52260.9snT  
 Dip Angle: 65.75°  
 Date: 6/6/2011  
 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	0.0	Start Build 3.50
548.1	553.1	15.16	174.09	-56.7	5.9	57.0	57.0	57.0	Hold 15.16 Inclination
4451.2	4596.9	15.16	174.09	-1108.5	114.8	1114.4	1114.4	1114.4	Start Drop -1.50
5450.0	5607.5	0.00	0.00	-1240.7	128.5	1247.3	1247.3	1247.3	Vertical
5550.0	5707.5	0.00	0.00	-1240.7	128.5	1247.3	1247.3	1247.3	Top Gas
7950.0	8107.5	0.00	0.00	-1240.7	128.5	1247.3	1247.3	1247.3	TD at 8107.5

# **PICEANCE VLY NAD 83**

**RU 32-06S-094W**

**RWF 11-32 Pad**

**RWF 22-32 - Slot A5**

**Wellbore #1**

**Plan: Design #1 06Jun11 kjs**

## **Standard Planning Report - Geographic**

**27 July, 2011**

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well RWF 22-32 - Slot A5
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5565.0usft (SSD 573 (26' RKB) kjs)
<b>Project:</b>	RU 32-06S-094W	<b>MD Reference:</b>	KELLY BUSHING @ 5565.0usft (SSD 573 (26' RKB) kjs)
<b>Site:</b>	RWF 11-32 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RWF 22-32	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 06Jun11 kjs		

<b>Project</b>	RU 32-06S-094W, Garfield County, CO		
<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 11-32 Pad				
<b>Site Position:</b>		<b>Northng:</b>	1,610,858.10 usft	<b>Latitude:</b>	39° 29' 8.495 N
<b>From:</b>	Map	<b>Easting:</b>	2,318,234.00 usft	<b>Longitude:</b>	107° 54' 56.965 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b>	-1.524 °

<b>Well</b>	RWF 22-32 - Slot A5					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northng:</b>	1,610,856.70 usft	<b>Latitude:</b>	39° 29' 8.480 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	2,318,229.20 usft	<b>Longitude:</b>	107° 54' 57.025 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	5,539.0 usft

<b>Wellbore</b>	Wellbore #1
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<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	6/6/2011	10.319	65.746	52,261

<b>Design</b>	Design #1 06Jun11 kjs
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<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	174.09

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	<b>TFO (°)</b>	<b>Target</b>
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	
553.1	15.16	174.09	548.1	-56.7	5.9	3.50	3.50	0.00	174.085	
4,596.9	15.16	174.09	4,451.2	-1,108.5	114.8	0.00	0.00	0.00	0.000	
5,607.5	0.00	0.00	5,450.0	-1,240.7	128.5	1.50	-1.50	0.00	180.000	
5,707.5	0.00	0.00	5,550.0	-1,240.7	128.5	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
8,107.5	0.00	0.00	7,950.0	-1,240.7	128.5	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 22-32 - Slot A5
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5565.0usft (SSD 573 (26' RKB) kjs)
<b>Project:</b>	RU 32-06S-094W	<b>MD Reference:</b>	KELLY BUSHING @ 5565.0usft (SSD 573 (26' RKB) kjs)
<b>Site:</b>	RWF 11-32 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RWF 22-32	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 06Jun11 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	1,610,856.70	2,318,229.20	39° 29' 8.480 N	107° 54' 57.025 W
120.0	0.00	0.00	120.0	0.0	0.0	1,610,856.70	2,318,229.20	39° 29' 8.480 N	107° 54' 57.025 W
<b>Start Bull 3.50</b>									
553.1	15.16	174.09	548.1	-56.7	5.9	1,610,799.90	2,318,233.56	39° 29' 7.920 N	107° 54' 56.950 W
<b>Hold 15.16 Inclination 9 5/8"</b>									
1,124.9	15.16	174.09	1,100.0	-205.4	21.3	1,610,650.82	2,318,245.01	39° 29' 6.450 N	107° 54' 56.754 W
2,052.2	15.16	174.09	1,995.0	-446.6	46.3	1,610,409.06	2,318,263.58	39° 29' 4.066 N	107° 54' 56.435 W
<b>Top of "G" Sand</b>									
2,155.8	15.16	174.09	2,095.0	-473.5	49.1	1,610,382.05	2,318,265.65	39° 29' 3.800 N	107° 54' 56.400 W
<b>Base of "G" Sand</b>									
4,518.0	15.16	174.09	4,375.0	-1,087.9	112.7	1,609,766.18	2,318,312.95	39° 28' 57.728 N	107° 54' 55.588 W
<b>Mesaverde</b>									
4,596.9	15.16	174.09	4,451.2	-1,108.5	114.8	1,609,745.61	2,318,314.53	39° 28' 57.525 N	107° 54' 55.561 W
<b>Start Drop -1.50</b>									
5,607.5	0.00	0.00	5,450.0	-1,240.7	128.5	1,609,613.10	2,318,324.70	39° 28' 56.218 N	107° 54' 55.386 W
<b>Vertical</b>									
5,707.5	0.00	0.00	5,550.0	-1,240.7	128.5	1,609,613.10	2,318,324.70	39° 28' 56.218 N	107° 54' 55.386 W
<b>Top Gas - Approx. Top Gas - Top Gas (25' Radius) RWF 22-32</b>									
7,012.5	0.00	0.00	6,855.0	-1,240.7	128.5	1,609,613.10	2,318,324.70	39° 28' 56.218 N	107° 54' 55.386 W
<b>Cameo</b>									
7,797.5	0.00	0.00	7,640.0	-1,240.7	128.5	1,609,613.10	2,318,324.70	39° 28' 56.218 N	107° 54' 55.386 W
<b>Coal D</b>									
7,957.5	0.00	0.00	7,800.0	-1,240.7	128.5	1,609,613.10	2,318,324.70	39° 28' 56.218 N	107° 54' 55.386 W
<b>Rollins SS</b>									
8,107.5	0.00	0.00	7,950.0	-1,240.7	128.5	1,609,613.10	2,318,324.70	39° 28' 56.218 N	107° 54' 55.386 W
<b>TD at 8107.5 - TD</b>									

**Design Targets**

Target Name	Dip Angle (")	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Top Gas (25' Radius) R1 - hit/miss target - Shape - Circle (radius 25.0)	0.00	0.00	5,550.0	-1,240.7	128.5	1,609,613.10	2,318,324.70	39° 28' 56.218 N	107° 54' 55.386 W

**Casing Points**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,124.9	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 22-32 - Slot A5
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5565.0usft (SSD 573 (26' RKB) kjs)
<b>Project:</b>	RU 32-06S-094W	<b>MD Reference:</b>	KELLY BUSHING @ 5565.0usft (SSD 573 (26' RKB) kjs)
<b>Site:</b>	RWF 11-32 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RWF 22-32	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 06Jun11 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,052.2	1,995.0	Top of "G" Sand				
2,155.8	2,095.0	Base of "G" Sand				
4,518.0	4,375.0	Mesaverde				
5,707.5	5,550.0	Approx. Top Gas				
7,012.5	6,855.0	Cameo				
7,797.5	7,640.0	Coal D				
7,957.5	7,800.0	Rollins SS				
8,107.5	7,950.0	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	
553.1	548.1	-56.7	5.9	Hold 15.16 Inclination	
4,596.9	4,451.2	-1,108.5	114.8	Start Drop -1.50	
5,607.5	5,450.0	-1,240.7	128.5	Vertical	
5,707.5	5,550.0	-1,240.7	128.5	Top Gas	
8,107.5	7,950.0	-1,240.7	128.5	TD at 8107.5	