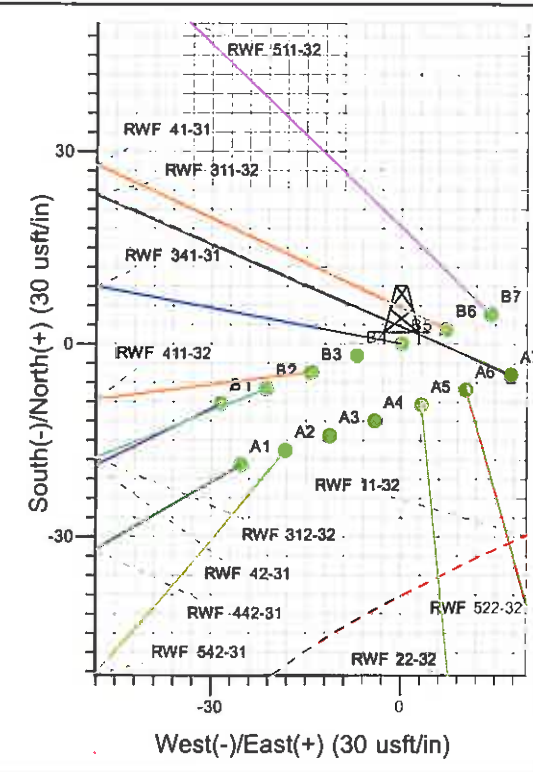
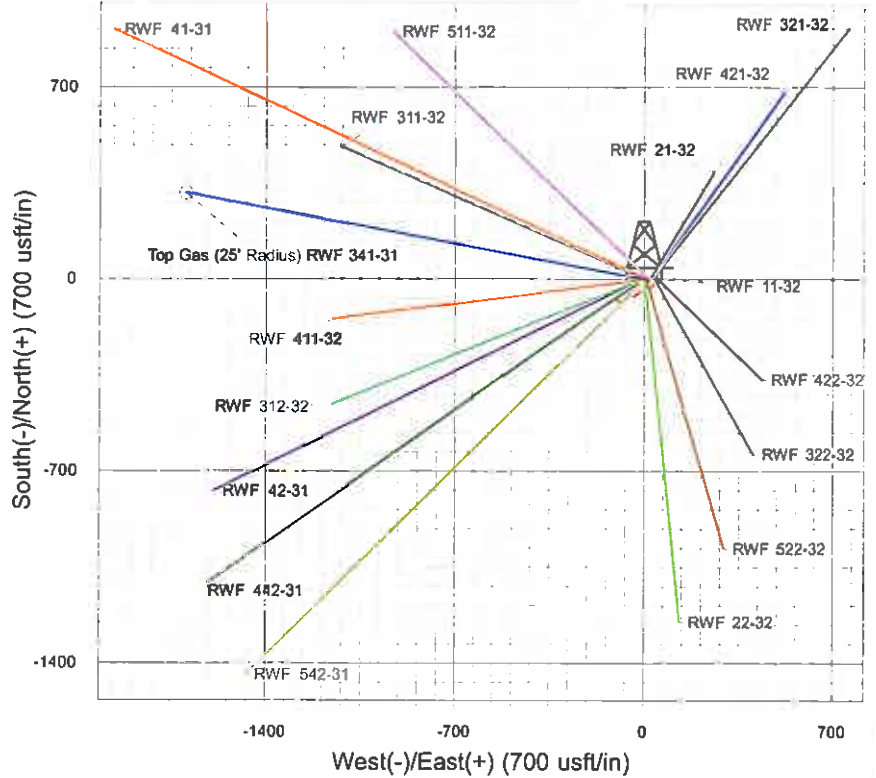
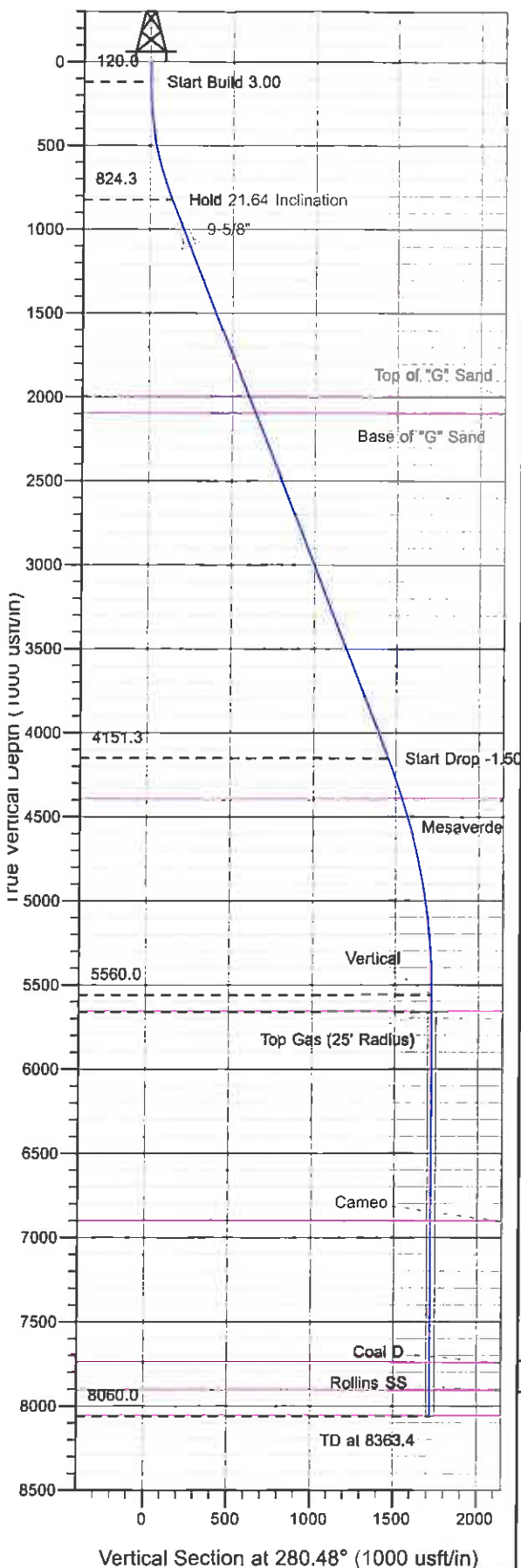




Surface Location: RWF 11-32 Pad  
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
 Ground Elevation: 5539.0  
 Northing 1610866.30 Easting 2318226.30 Latitude 39° 29' 8.574 N Longitude 107° 54' 57.066 W Slot B5  
 KELLY BUSHING @ 5565.0usft (SSD 573 (26' RKB) kjs)



Project: RU 32-06S-094W  
 Site: RWF 11-32 Pad  
 Well: RWF 341-31  
 Design #1 08Jun11 kjs

Azimuths to True North  
 Magnetic North: 10.32°  
 Magnetic Field  
 Strength: 52261.0snT  
 Dip Angle: 65.75°  
 Date: 6/6/2011  
 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 00
824.3	841.4	21.64	280.48	24.5	-132.4	134.6	134.6	Hold 21.64 Inclusion
4151.3	4420.7	21.64	280.48	264.5	-1430.4	1454.6	1454.6	Start Drop -1 50
5560.0	5863.4	0.00	0.00	313.5	-1695.1	1723.8	1723.8	Vertical
5660.0	5963.4	0.00	0.00	313.5	-1695.1	1723.8	1723.8	Top Gas
8060.0	8363.4	0.00	0.00	313.5	-1695.1	1723.8	1723.8	TD at 8363.4

# **PICEANCE VLY NAD 83**

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

**RWF 11-32 Pad**

**RWF 341-31 - Slot B5**

**Wellbore #1**

**Plan: Design #1 08Jun11 kjs**

## **Standard Planning Report - Geographic**

**26 July, 2011**

**Williams**  
**Planning Report - Geographic**

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well RWF 341-31 - Slot B5
<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 341-31	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 08Jun11 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
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<b>Site Position:</b>		<b>Northing:</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 341-31 - Slot B5
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<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	1,610,866.30 usft	<b>Latitude:</b>	39° 29' 8.574 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	2,318,226.30 usft	<b>Longitude:</b>	107° 54' 57.066 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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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/6/2011	10.319	65.746	52,261

<b>Design</b>	Design #1 08Jun11 kjs
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**Audit Notes:**

<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
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<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	280.48

<b>Plan Sections</b>	
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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	
841.4	21.64	280.48	824.3	24.5	-132.4	3.00	3.00	0.00	280.477	
4,420.7	21.64	280.48	4,151.3	264.5	-1,430.4	0.00	0.00	0.00	0.000	
5,863.4	0.00	0.00	5,560.0	313.5	-1,695.1	1.50	-1.50	0.00	180.000	
5,963.4	0.00	0.00	5,660.0	313.5	-1,695.1	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
8,363.4	0.00	0.00	8,060.0	313.5	-1,695.1	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 341-31 - Slot B5
<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 341-31	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 08Jun11 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	1,610,866.30	2,318,226.30	39° 29' 8.574 N	107° 54' 57.066 W
120.0	0.00	0.00	120.0	0.0	0.0	1,610,866.30	2,318,226.30	39° 29' 8.574 N	107° 54' 57.066 W
<b>Start Build 3.00</b>									
841.4	21.64	280.48	824.3	24.5	-132.4	1,610,894.28	2,318,094.63	39° 29' 8.816 N	107° 54' 58.754 W
<b>Hold 21.64 Inclination</b>									
1,137.9	21.64	280.48	1,100.0	44.4	-239.9	1,610,917.02	2,317,987.65	39° 29' 9.013 N	107° 55' 0.126 W
<b>9 5/8"</b>									
2,100.8	21.64	280.48	1,995.0	108.9	-589.1	1,610,990.85	2,317,640.34	39° 29' 9.651 N	107° 55' 4.579 W
<b>Top of "G" Sand</b>									
2,208.4	21.64	280.48	2,095.0	116.1	-628.1	1,610,999.10	2,317,601.53	39° 29' 9.722 N	107° 55' 5.077 W
<b>Base of "G" Sand</b>									
4,420.7	21.64	280.48	4,151.3	264.5	-1,430.4	1,611,168.72	2,316,803.54	39° 29' 11.188 N	107° 55' 15.309 W
<b>Start Drop -1.50</b>									
4,679.5	17.76	280.48	4,395.0	280.4	-1,516.1	1,611,186.86	2,316,718.21	39° 29' 11.344 N	107° 55' 16.403 W
<b>Mesaverde</b>									
5,863.4	0.00	0.00	5,560.0	313.5	-1,695.1	1,611,224.70	2,316,540.20	39° 29' 11.671 N	107° 55' 18.686 W
<b>Vertical</b>									
5,963.4	0.00	0.00	5,660.0	313.5	-1,695.1	1,611,224.70	2,316,540.20	39° 29' 11.671 N	107° 55' 18.686 W
<b>Top Gas - Approx. Top Gas - Top Gas (25' Radius) RWF 341-31</b>									
7,208.4	0.00	0.00	6,905.0	313.5	-1,695.1	1,611,224.70	2,316,540.20	39° 29' 11.671 N	107° 55' 18.686 W
<b>Cameo</b>									
8,048.4	0.00	0.00	7,745.0	313.5	-1,695.1	1,611,224.70	2,316,540.20	39° 29' 11.671 N	107° 55' 18.686 W
<b>Coal D</b>									
8,213.4	0.00	0.00	7,910.0	313.5	-1,695.1	1,611,224.70	2,316,540.20	39° 29' 11.671 N	107° 55' 18.686 W
<b>Rollins SS</b>									
8,363.4	0.00	0.00	8,060.0	313.5	-1,695.1	1,611,224.70	2,316,540.20	39° 29' 11.671 N	107° 55' 18.686 W
<b>TD at 8363.4 - 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 - plan hils target center - Circle (radius 25.0)	0.00	0.00	5,660.0	313.5	-1,695.1	1,611,224.70	2,316,540.20	39° 29' 11.671 N	107° 55' 18.686 W

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,137.9	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 341-31 - Slot B5
<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 341-31	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 08Jun11 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,100.8	1,995.0	Top of "G" Sand				
2,208.4	2,095.0	Base of "G" Sand				
4,679.5	4,395.0	Mesaverde				
5,963.4	5,660.0	Approx. Top Gas				
7,208.4	6,905.0	Cameo				
8,048.4	7,745.0	Coal D				
8,213.4	7,910.0	Rollins SS				
8,363.4	8,060.0	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 3.00	
841.4	824.3	24.5	-132.4	Hold 21.64 Inclination	
4,420.7	4,151.3	264.5	-1,430.4	Start Drop -1.50	
5,863.4	5,560.0	313.5	-1,695.1	Vertical	
5,963.4	5,660.0	313.5	-1,695.1	Top Gas	
8,363.4	8,060.0	313.5	-1,695.1	TD at 8363.4	