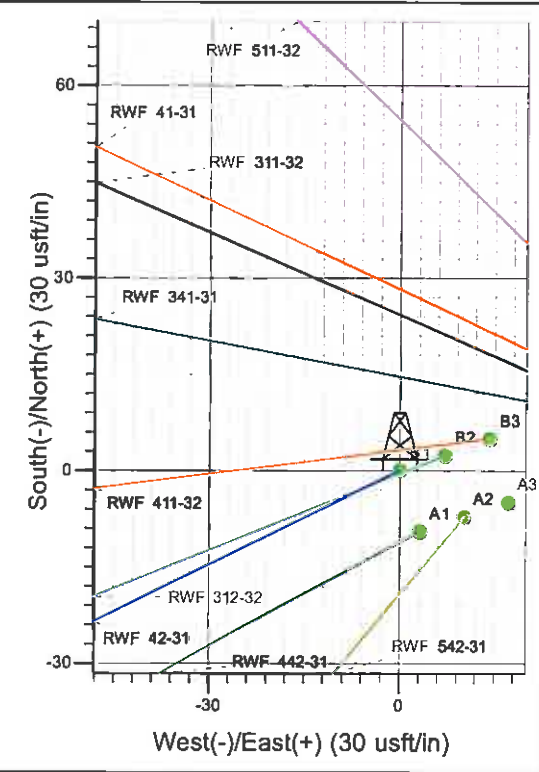
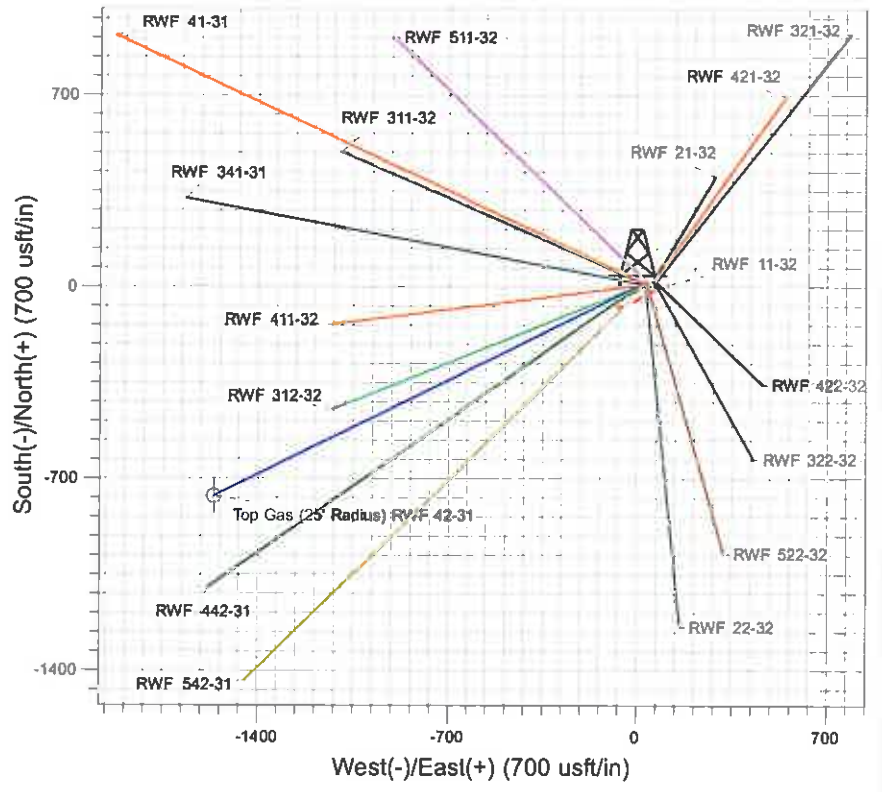
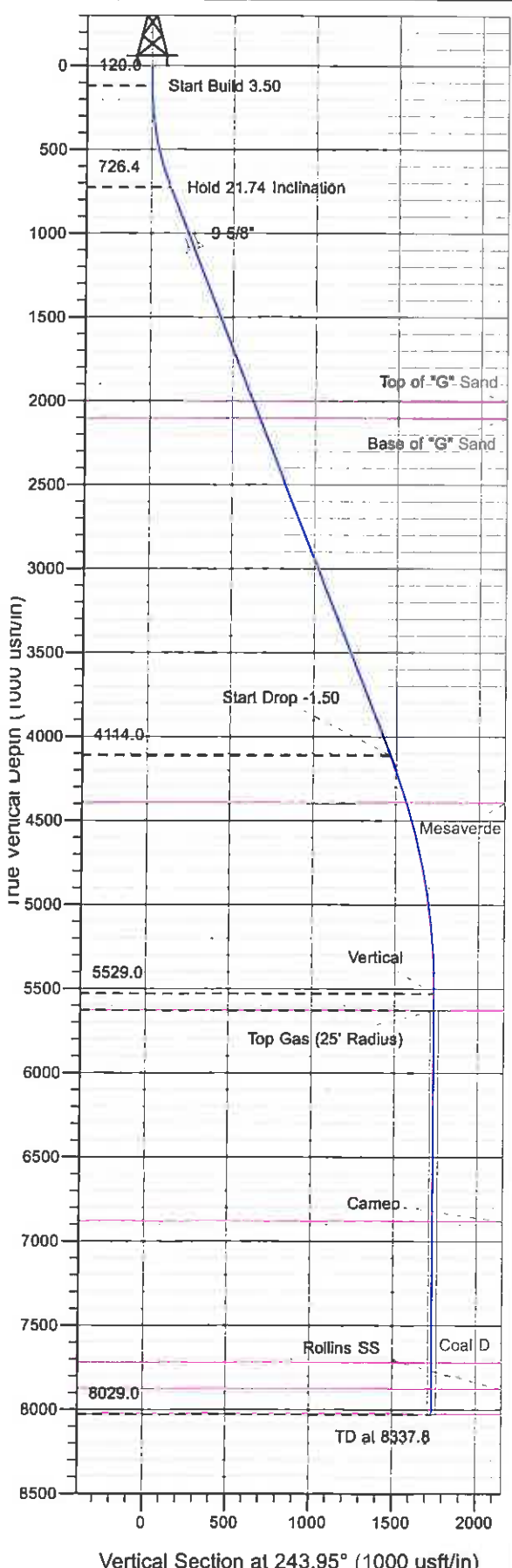




Surface Location: RWF 11-32 Pad  
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
 Ground Elevation: 5539.0  
 Northing 1610857.70 Easting 2318197.60 Latitude 39° 29' 8.482 N Longitude 107° 54' 57.429 W Slot B1  
 KELLY BUSHING @ 5565.0usft (SSD 573 (26' RKB) kjs)



Project: RU 32-06S-094W  
 Site: RWF 11-32 Pad  
 Well: RWF 42-31  
 Design #1 08Jun11 kjs

Magnetic Field  
 Strength: 52260.9nT  
 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 3.50
726.4	741.3	21.74	243.95	-51.2	-104.6	116.5	116.5	Hold 21.74 Inclination
4114.0	4388.2	21.74	243.95	-644.5	-1318.4	1467.5	1467.5	Start Drop -1.50
5529.0	5837.8	0.00	0.00	-763.9	-1562.6	1739.3	1739.3	Vertical
5629.0	5937.8	0.00	0.00	-763.9	-1562.6	1739.3	1739.3	Top Gas
8029.0	8337.8	0.00	0.00	-763.9	-1562.6	1739.3	1739.3	TD at 8337.8

# **PICEANCE VLY NAD 83**

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

**RWF 11-32 Pad**

**RWF 42-31 - Slot B1**

**Wellbore #1**

**Plan: Design #1 08Jun11 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 42-31 - Slot B1
<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 42-31	<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				
<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 42-31 - Slot B1					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	1,610,857.70 usft	<b>Latitude:</b>	39° 29' 8.482 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	2,318,197.60 usft	<b>Longitude:</b>	107° 54' 57.429 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				
<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 08Jun11 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	243.95

<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	
741.3	21.74	243.95	726.4	-51.2	-104.6	3.50	3.50	0.00	243.949	
4,388.2	21.74	243.95	4,114.0	-644.5	-1,318.4	0.00	0.00	0.00	0.000	
5,837.8	0.00	0.00	5,529.0	-763.9	-1,562.6	1.50	-1.50	0.00	180.000	
5,937.8	0.00	0.00	5,629.0	-763.9	-1,562.6	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
8,337.8	0.00	0.00	8,029.0	-763.9	-1,562.6	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 42-31 - Slot B1
<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 42-31	<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	1,610,857.70	2,318,197.60	39° 29' 8.482 N	107° 54' 57.429 W
120.0	0.00	0.00	120.0	0.0	0.0	1,610,857.70	2,318,197.60	39° 29' 8.482 N	107° 54' 57.429 W
<b>Start Build 3.50</b>									
741.3	21.74	243.95	726.4	-51.2	-104.6	1,610,809.35	2,318,091.64	39° 29' 7.976 N	107° 54' 58.763 W
<b>Hold 21.74 Inclination</b>									
1,143.4	21.74	243.95	1,100.0	-116.6	-238.5	1,610,747.50	2,317,956.10	39° 29' 7.329 N	107° 55' 0.470 W
<b>9 5/8"</b>									
2,116.7	21.74	243.95	2,004.0	-274.9	-562.4	1,610,597.84	2,317,628.10	39° 29' 5.764 N	107° 55' 4.602 W
<b>Top of "G" Sand</b>									
2,224.3	21.74	243.95	2,104.0	-292.4	-598.2	1,610,581.28	2,317,591.82	39° 29' 5.591 N	107° 55' 5.059 W
<b>Base of "G" Sand</b>									
4,388.2	21.74	243.95	4,114.0	-644.5	-1,318.4	1,610,248.51	2,316,862.54	39° 29' 2.112 N	107° 55' 14.244 W
<b>Start Drop -1.50</b>									
4,685.4	17.29	243.95	4,394.0	-688.1	-1,407.6	1,610,207.31	2,316,772.25	39° 29' 1.681 N	107° 55' 15.381 W
<b>Mesaverde</b>									
5,837.8	0.00	0.00	5,529.0	-763.9	-1,562.6	1,610,135.70	2,316,615.30	39° 29' 0.932 N	107° 55' 17.358 W
<b>Vertical</b>									
5,937.8	0.00	0.00	5,629.0	-763.9	-1,562.6	1,610,135.70	2,316,615.30	39° 29' 0.932 N	107° 55' 17.358 W
<b>Top Gas - Approx. Top Gas - Top Gas (25' Radius) RWF 42-31</b>									
7,192.8	0.00	0.00	6,884.0	-763.9	-1,562.6	1,610,135.70	2,316,615.30	39° 29' 0.932 N	107° 55' 17.358 W
<b>Cameo</b>									
8,032.8	0.00	0.00	7,724.0	-763.9	-1,562.6	1,610,135.70	2,316,615.30	39° 29' 0.932 N	107° 55' 17.358 W
<b>Coal D</b>									
8,187.8	0.00	0.00	7,879.0	-763.9	-1,562.6	1,610,135.70	2,316,615.30	39° 29' 0.932 N	107° 55' 17.358 W
<b>Rollins SS</b>									
8,337.8	0.00	0.00	8,029.0	-763.9	-1,562.6	1,610,135.70	2,316,615.30	39° 29' 0.932 N	107° 55' 17.358 W
<b>TD at 8337.8 - TD</b>									

**Design Targets**

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Top Gas (25' Radius) R1 - plan hits target center - Circle (radius 25.0)	0.00	0.00	5,629.0	-763.9	-1,562.6	1,610,135.70	2,316,615.30	39° 29' 0.932 N	107° 55' 17.358 W

**Casing Points**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,143.4	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 42-31 - Slot B1
<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 42-31	<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 (°)	
2,116.7	2,004.0	Top of "G" Sand				
2,224.3	2,104.0	Base of "G" Sand				
4,685.4	4,394.0	Mesaverde				
5,937.8	5,629.0	Approx. Top Gas				
7,192.8	6,884.0	Cameo				
8,032.8	7,724.0	Coal D				
8,187.8	7,879.0	Rollins SS				
8,337.8	8,029.0	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	
741.3	726.4	-51.2	-104.6	Hold 21.74 Inclination	
4,388.2	4,114.0	-644.5	-1,318.4	Start Drop -1.50	
5,837.8	5,529.0	-763.9	-1,562.6	Vertical	
5,937.8	5,629.0	-763.9	-1,562.6	Top Gas	
8,337.8	8,029.0	-763.9	-1,562.6	TD at 8337.8	