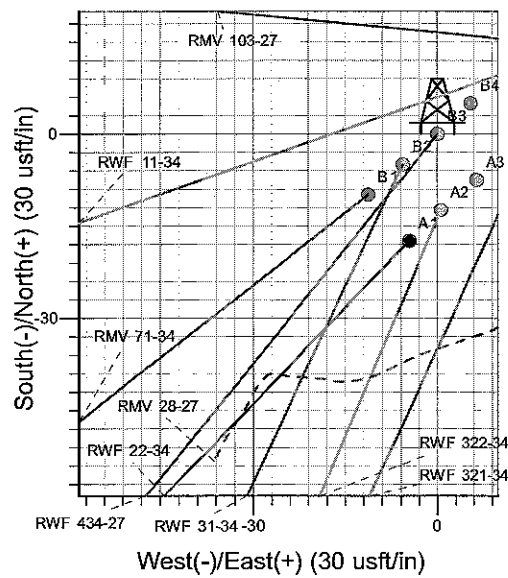
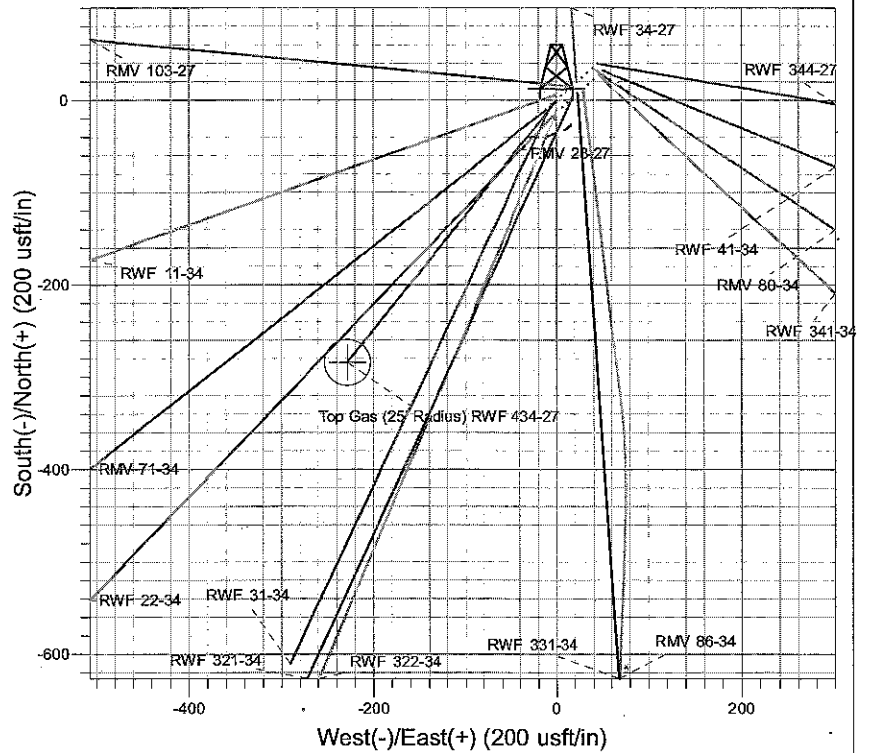
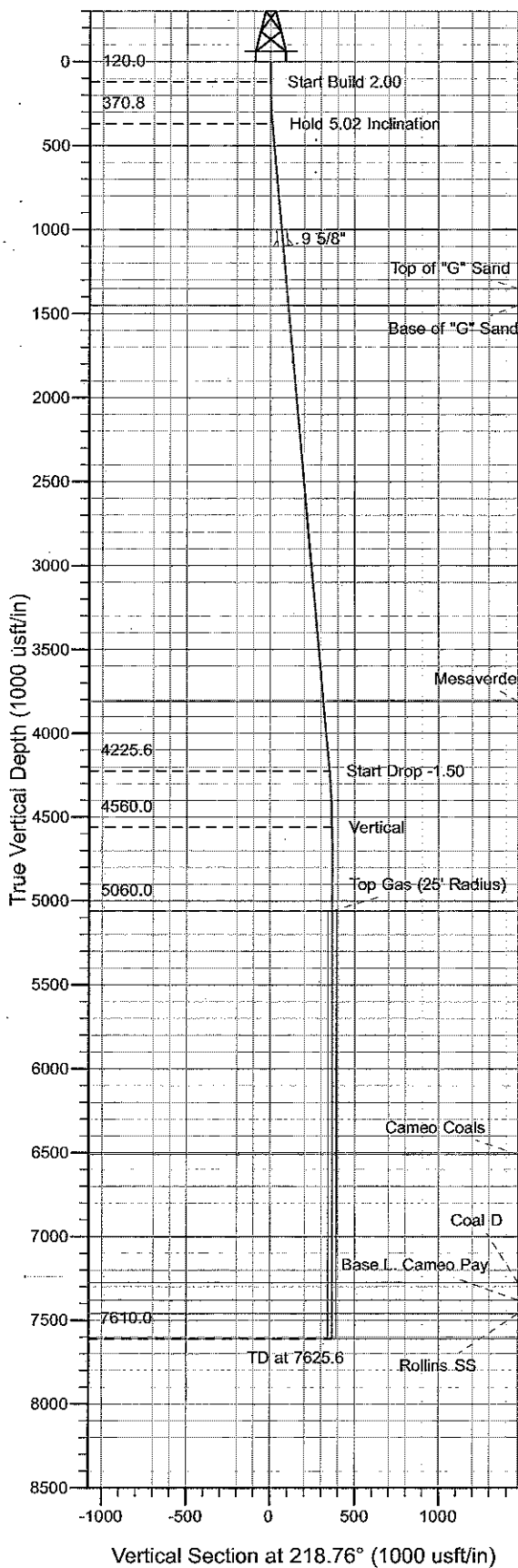




Well Name: RWF 434-27  
 Surface Location: RMV 28-27 Pad  
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
 Ground Elevation: 5297.0  
 +N/-S 0.0 +E/-W 0.0 Northing 1612169.40 Easting 2330489.80 Latitude 39° 29' 24.643 N Longitude 107° 52' 21.132 W Slot B3  
 KELLY BUSHING @ 5321.0usft (H&P (24' RKB) kjs)



Project: RU 27-06S-094W  
 Site: RMV 28-27 Pad  
 Well: RWF 434-27  
 Design #1 22Apr10 kjs

**T M** Azimuths to True North  
 Magnetic North: 10.42°  
 Magnetic Field  
 Strength: 52413.5snT  
 Dip Angle: 65.80°  
 Date: 4/22/2010  
 Model: IGRF2005-10

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 2.00
370.8	371.1	5.02	218.76	-8.6	-6.9	11.0	11.0	Hold 5.02 Inclination
4225.6	4240.8	5.02	218.76	-272.7	-219.0	349.8	349.8	Start Drop -1.50
4560.0	4575.6	0.00	0.00	-284.2	-228.2	364.4	364.4	Vertical
5060.0	5075.6	0.00	0.00	-284.2	-228.2	364.4	364.4	Top Gas
7610.0	7625.6	0.00	0.00	-284.2	-228.2	364.4	364.4	TD at 7625.6

# **PICEANCE VLY NAD 83**

**RU 27-06S-094W**

**RMV 28-27 Pad**

**RWF 434-27 - Slot B3**

**Wellbore #1**

**Plan: Design #1 22Apr10 kjs**

## **Standard Planning Report - Geographic**

**07 July, 2010**

# Williams

## Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well RWF 434-27 - Slot B3
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5321.0usft (H&P (24' RKB) kjs)
<b>Project:</b>	RU 27-06S-094W	<b>MD Reference:</b>	KELLY BUSHING @ 5321.0usft (H&P (24' RKB) kjs)
<b>Site:</b>	RMV 28-27 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RWF 434-27	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 22Apr10 kjs		

<b>Project</b>	RU 27-06S-094W, Garfield County, CO, 27-06S-094W		
<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>	RMV 28-27 Pad				
<b>Site Position:</b>		<b>Northing:</b>	1,612,143.20 usft	<b>Latitude:</b>	39° 29' 24.388 N
<b>From:</b>	Map	<b>Easting:</b>	2,330,505.00 usft	<b>Longitude:</b>	107° 52' 20.929 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-1.50 °

<b>Well</b>	RWF 434-27 - Slot B3					
<b>Well Position</b>	<b>+N-S</b>	0.0 usft	<b>Northing:</b>	1,612,169.40 usft	<b>Latitude:</b>	39° 29' 24.643 N
	<b>+E-W</b>	0.0 usft	<b>Easting:</b>	2,330,489.80 usft	<b>Longitude:</b>	107° 52' 21.132 W
<b>Position Uncertainty</b>	0.0 usft		<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	5,297.0 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>
	IGRF2005-10	4/22/2010	10.42	65.80	52,413

<b>Design</b>	Design #1 22Apr10 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	218.76

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	0.00	
120.0	0.00	0.00	120.0	0.0	0.0	0.00	0.00	0.00	0.00	
371.1	5.02	218.76	370.8	-8.6	-6.9	2.00	2.00	0.00	218.76	
4,240.8	5.02	218.76	4,225.6	-272.7	-219.0	0.00	0.00	0.00	0.00	
4,575.6	0.00	0.00	4,560.0	-284.2	-228.2	1.50	-1.50	0.00	180.00	
5,075.6	0.00	0.00	5,060.0	-284.2	-228.2	0.00	0.00	0.00	0.00	Top Gas (25' Radius)
7,625.6	0.00	0.00	7,610.0	-284.2	-228.2	0.00	0.00	0.00	0.00	

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well RWF 434-27 - Slot B3
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5321.0usft (H&P (24' RKB) kjs)
<b>Project:</b>	RU 27-06S-094W	<b>MD Reference:</b>	KELLY BUSHING @ 5321.0usft (H&P (24' RKB) kjs)
<b>Site:</b>	RMV 28-27 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RWF 434-27	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 22Apr10 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	1,612,169.40	2,330,489.80	39° 29' 24.643 N	107° 52' 21.132 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,612,169.40	2,330,489.80	39° 29' 24.643 N	107° 52' 21.132 W	
<b>Start Build 2.00</b>										
371.1	5.02	218.76	370.8	-8.6	-6.9	1,612,161.00	2,330,482.69	39° 29' 24.558 N	107° 52' 21.219 W	
<b>Hold 5.02 Inclination</b>										
1,103.1	5.02	218.76	1,100.0	-58.5	-47.0	1,612,112.10	2,330,441.28	39° 29' 24.064 N	107° 52' 21.731 W	
<b>9 5/8"</b>										
1,354.1	5.02	218.76	1,350.0	-75.7	-60.8	1,612,095.33	2,330,427.09	39° 29' 23.895 N	107° 52' 21.907 W	
<b>Top of "G" Sand</b>										
1,454.5	5.02	218.76	1,450.0	-82.5	-66.3	1,612,088.63	2,330,421.41	39° 29' 23.827 N	107° 52' 21.977 W	
<b>Base of "G" Sand</b>										
3,823.6	5.02	218.76	3,810.0	-244.3	-196.1	1,611,930.36	2,330,287.38	39° 29' 22.229 N	107° 52' 23.633 W	
<b>Mesaverde</b>										
4,240.8	5.02	218.76	4,225.6	-272.7	-219.0	1,611,902.49	2,330,263.78	39° 29' 21.947 N	107° 52' 23.925 W	
<b>Start Drop -1.50</b>										
4,575.6	0.00	0.00	4,560.0	-284.2	-228.2	1,611,891.30	2,330,254.30	39° 29' 21.834 N	107° 52' 24.042 W	
<b>Vertical</b>										
5,075.6	0.00	0.00	5,060.0	-284.2	-228.2	1,611,891.30	2,330,254.30	39° 29' 21.834 N	107° 52' 24.042 W	
<b>Top Gas - Approx. Top Gas</b>										
6,525.6	0.00	0.00	6,510.0	-284.2	-228.2	1,611,891.30	2,330,254.30	39° 29' 21.834 N	107° 52' 24.042 W	
<b>Cameo Coals</b>										
7,290.6	0.00	0.00	7,275.0	-284.2	-228.2	1,611,891.30	2,330,254.30	39° 29' 21.834 N	107° 52' 24.042 W	
<b>Coal D</b>										
7,395.6	0.00	0.00	7,380.0	-284.2	-228.2	1,611,891.30	2,330,254.30	39° 29' 21.834 N	107° 52' 24.042 W	
<b>Base L. Cameo Pay</b>										
7,475.6	0.00	0.00	7,460.0	-284.2	-228.2	1,611,891.30	2,330,254.30	39° 29' 21.834 N	107° 52' 24.042 W	
<b>Rollins SS</b>										
7,625.6	0.00	0.00	7,610.0	-284.2	-228.2	1,611,891.30	2,330,254.30	39° 29' 21.834 N	107° 52' 24.042 W	
<b>TD at 7625.6 - 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	0.00	0.00	5,060.0	-284.2	-228.2	1,611,891.30	2,330,254.30	39° 29' 21.834 N	107° 52' 24.042 W	
- hit/miss target										
- Shape										
- plan hits target center										
- Circle (radius 25.0)										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,103.1	1,100.0	9 5/8"	9-5/8	12-1/4	

**Williams**  
 Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well RWF 434-27 - Slot B3
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5321.0usft (H&P (24' RKB) kjs)
<b>Project:</b>	RU 27-06S-094W	<b>MD Reference:</b>	KELLY BUSHING @ 5321.0usft (H&P (24' RKB) kjs)
<b>Site:</b>	RMV 28-27 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RWF 434-27	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 22Apr10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,354.1	1,350.0	Top of "G" Sand				
1,454.5	1,450.0	Base of "G" Sand				
3,823.6	3,810.0	Mesaverde				
5,075.6	5,060.0	Approx. Top Gas				
6,525.6	6,510.0	Cameo Coals				
7,290.6	7,275.0	Coal D				
7,395.6	7,380.0	Base L. Cameo Pay				
7,475.6	7,460.0	Rollins SS				
7,625.6	7,610.0	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 2.00	
371.1	370.8	-8.6	-6.9	Hold 5.02 Inclination	
4,240.8	4,225.6	-272.7	-219.0	Start Drop -1.50	
4,575.6	4,560.0	-284.2	-228.2	Vertical	
5,075.6	5,060.0	-284.2	-228.2	Top Gas	
7,625.6	7,610.0	-284.2	-228.2	TD at 7625.6	