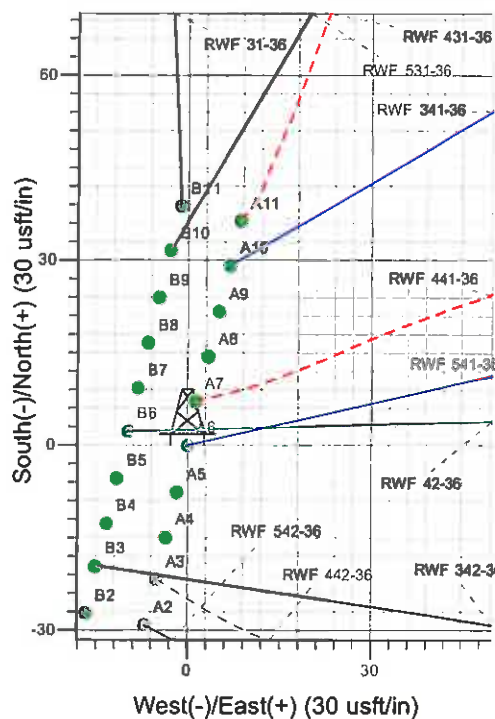
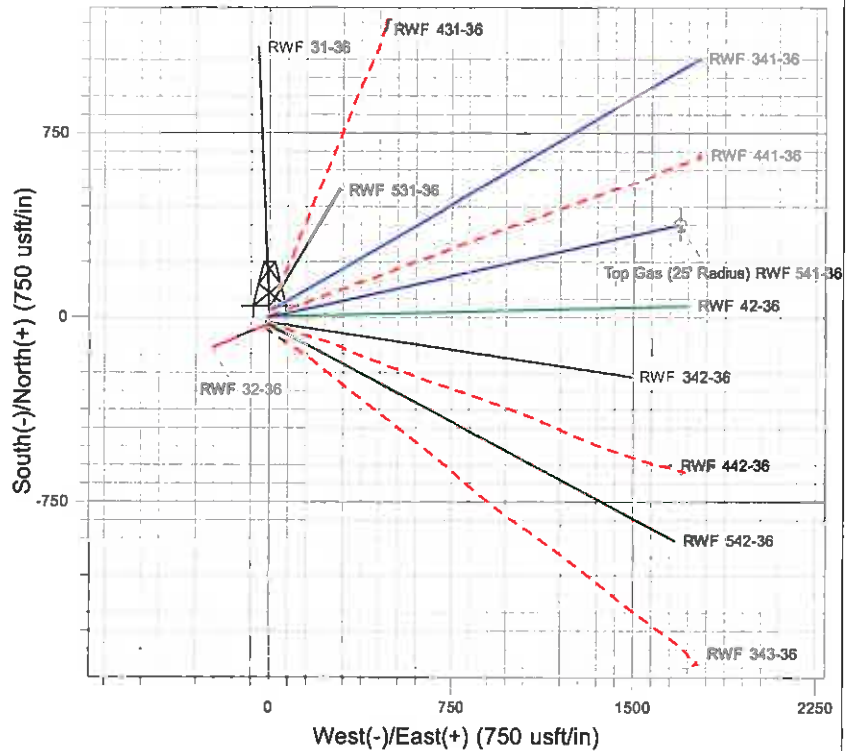
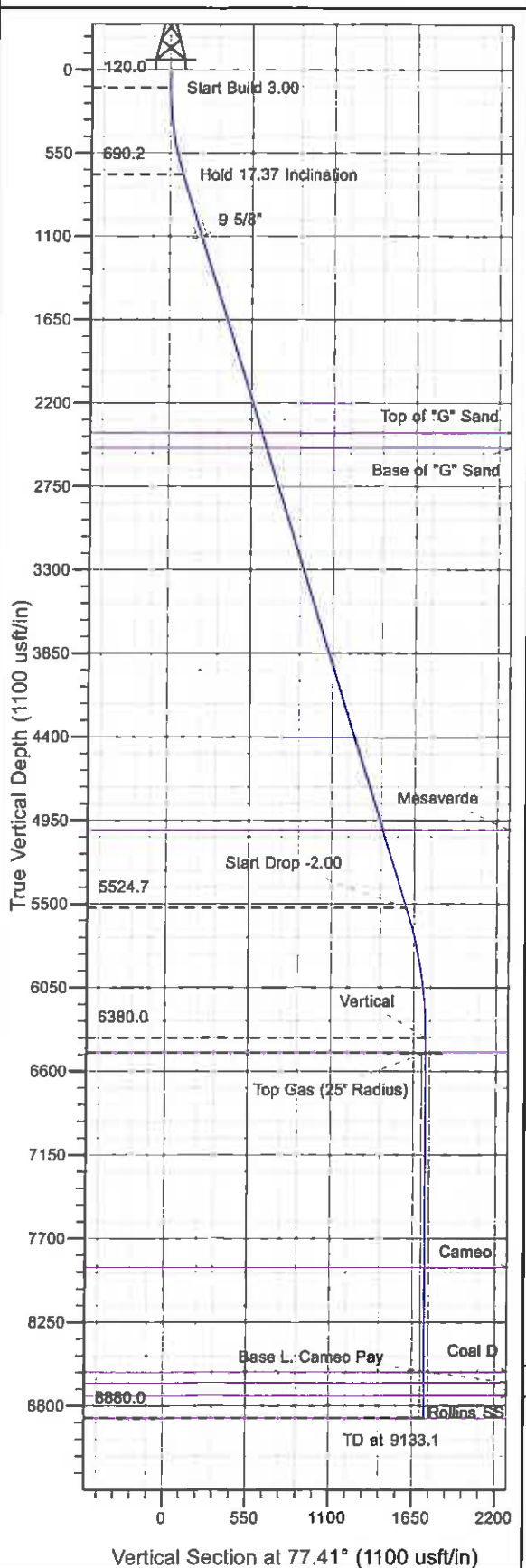




Well Name: RWF 541-36  
 Surface Location: RWF 32-36 Pad  
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
 Ground Elevation: 6424.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1610186.40 2340901.02 39° 29' 7.716 N 107° 50' 7.722 W A6  
 KELLY BUSHING @ 6448.0usft (H&P 271 (24' RKB) kjs)



Project: RU 36-06S-094W  
 Site: RWF 32-36 Pad  
 Well: RWF 541-36  
 Plan #4 01Mar11 kjs

M Azimuths to True North  
 Magnetic North: 10.62°  
 Magnetic Field  
 Strength: 52566 4nT  
 Dip Angle: 65.85°  
 Date: 9/2/2008  
 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 3.00
690.2	699.1	17.37	77.41	19.0	85.0	87.1	87.1	Hold 17.37 Inclination
5524.7	5764.5	17.37	77.41	348.6	1581.1	1599.5	1599.5	Start Drop -2.00
6380.0	6633.1	0.00	0.00	377.0	1688.6	1730.2	1730.2	Vertical
6480.0	6733.1	0.00	0.00	377.0	1688.6	1730.2	1730.2	Top Gas
8880.0	9133.1	0.00	0.00	377.0	1688.6	1730.2	1730.2	TD at 9133.1

# **PICEANCE VLY NAD 83**

**RU 36-06S-094W**

**RWF 32-36 Pad**

**RWF 541-36 - Slot A6**

**Wellbore #1**

**Plan: Plan #4 01Mar11 kjs**

## **Standard Planning Report - Geographic**

**28 April, 2011**

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well RWF 541-36 - Slot A6
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 6448.0usft (H&P 271 (24' RKB) kjs)
<b>Project:</b>	RU 36-06S-094W	<b>MD Reference:</b>	KELLY BUSHING @ 6448.0usft (H&P 271 (24' RKB) kjs)
<b>Site:</b>	RWF 32-36 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RWF 541-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #4 01Mar11 kjs		

<b>Project</b>	RU 36-06S-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 32-36 Pad			
<b>Site Position:</b>		<b>Northing:</b>	1,610,174.30 usft	<b>Latitude:</b> 39° 29' 7.596 N
<b>From:</b>	Map	<b>Easting:</b>	2,340,897.80 usft	<b>Longitude:</b> 107° 50' 7.759 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> -1.473 °

<b>Well</b>	RWF 541-36 - Slot A6			
<b>Well Position</b>	+N/-S	0.0 usft	<b>Northing:</b> 1,610,186.40 usft	<b>Latitude:</b> 39° 29' 7.716 N
	+E/-W	0.0 usft	<b>Easting:</b> 2,340,901.02 usft	<b>Longitude:</b> 107° 50' 7.722 W
<b>Position Uncertainty</b>	0.0 usft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b> 6,424.0 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	9/2/2008	10.618	65.845	52,566

<b>Design</b>	Plan #4 01Mar11 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	77.41

<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	
699.1	17.37	77.41	690.2	19.0	85.0	3.00	3.00	0.00	77.413	
5,764.5	17.37	77.41	5,524.7	348.6	1,561.1	0.00	0.00	0.00	0.000	
6,633.1	0.00	0.00	6,380.0	377.0	1,688.6	2.00	-2.00	0.00	180.000	
6,733.1	0.00	0.00	6,480.0	377.0	1,688.6	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
9,133.1	0.00	0.00	8,880.0	377.0	1,688.6	0.00	0.00	0.00	0.000	

**Williams**  
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well RWF 541-36 - Slot A6
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 6448.0usft (H&P 271 (24' RKB) kjs)
Project:	RU 36-06S-094W	MD Reference:	KELLY BUSHING @ 6448.0usft (H&P 271 (24' RKB) kjs)
Site:	RWF 32-36 Pad	North Reference:	True
Well:	RWF 541-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 01Mar11 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	1,610,186.40	2,340,901.02	39° 29' 7.716 N	107° 50' 7.722 W
120.0	0.00	0.00	120.0	0.0	0.0	1,610,186.40	2,340,901.02	39° 29' 7.716 N	107° 50' 7.722 W
Start Build 3.00									
699.1	17.37	77.41	690.2	19.0	85.0	1,610,203.19	2,340,986.50	39° 29' 7.904 N	107° 50' 6.637 W
Hold 17.37 Inclination									
1,128.4	17.37	77.41	1,100.0	46.9	210.1	1,610,227.90	2,341,112.28	39° 29' 8.180 N	107° 50' 5.041 W
9 5/8"									
2,485.3	17.37	77.41	2,395.0	135.2	605.5	1,610,305.99	2,341,509.80	39° 29' 9.053 N	107° 49' 59.998 W
Top of "G" Sand									
2,590.1	17.37	77.41	2,485.0	142.0	636.1	1,610,312.02	2,341,540.50	39° 29' 9.120 N	107° 49' 59.609 W
Base of "G" Sand									
5,230.5	17.37	77.41	5,015.0	313.8	1,405.5	1,610,463.98	2,342,314.04	39° 29' 10.818 N	107° 48' 49.795 W
Mesaverde									
5,764.5	17.37	77.41	5,524.7	348.6	1,561.1	1,610,494.71	2,342,470.49	39° 29' 11.161 N	107° 49' 47.810 W
Start Drop -2.00									
6,633.1	0.00	0.00	6,380.0	377.0	1,688.6	1,610,519.90	2,342,598.70	39° 29' 11.442 N	107° 49' 46.184 W
Vertical									
6,733.1	0.00	0.00	6,480.0	377.0	1,688.6	1,610,519.90	2,342,598.70	39° 29' 11.442 N	107° 49' 46.184 W
Top Gas - Approx. Top Gas									
8,143.1	0.00	0.00	7,890.0	377.0	1,688.6	1,610,519.90	2,342,598.70	39° 29' 11.442 N	107° 49' 46.184 W
Cameo									
8,828.1	0.00	0.00	8,575.0	377.0	1,688.6	1,610,519.90	2,342,598.70	39° 29' 11.442 N	107° 49' 46.184 W
Coal D									
8,898.1	0.00	0.00	8,645.0	377.0	1,688.6	1,610,519.90	2,342,598.70	39° 29' 11.442 N	107° 49' 46.184 W
Base L. Cameo Pay									
8,983.1	0.00	0.00	8,730.0	377.0	1,688.6	1,610,519.90	2,342,598.70	39° 29' 11.442 N	107° 49' 46.184 W
Rollins SS									
9,133.1	0.00	0.00	8,880.0	377.0	1,688.6	1,610,519.90	2,342,598.70	39° 29' 11.442 N	107° 49' 46.184 W
TD at 9133.1									

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) R1	0.00	0.00	6,480.0	377.0	1,688.6	1,610,519.90	2,342,598.70	39° 29' 11.442 N	107° 49' 46.184 W
- plan hits target center									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,128.4	1,100.0	9 5/8"	9.625	12.250	

**Williams**  
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well RWF 541-36 - Slot A6
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 6448.0usft (H&P 271 (24' RKB) kjs)
Project:	RU 36-06S-094W	MD Reference:	KELLY BUSHING @ 6448.0usft (H&P 271 (24' RKB) kjs)
Site:	RWF 32-36 Pad	North Reference:	True
Well:	RWF 541-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 01Mar11 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (")	Dip Direction (")	
2,485.3	2,395.0	Top of "G" Sand				
2,590.1	2,495.0	Base of "G" Sand				
5,230.5	5,015.0	Mesaverde				
6,733.1	6,480.0	Approx. Top Gas				
8,143.1	7,890.0	Cameo				
8,828.1	8,575.0	Coal D				
8,898.1	8,645.0	Base L. Cameo Pay				
8,983.1	8,730.0	Rollins SS				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
120.0	120.0	0.0	0.0	Start Build 3.00	
699.1	690.2	19.0	85.0	Hold 17.37 Inclination	
5,764.5	5,524.7	348.6	1,561.1	Start Drop -2.00	
6,633.1	6,380.0	377.0	1,688.6	Vertical	
6,733.1	6,480.0	377.0	1,688.6	Top Gas	
9,133.1	8,880.0	377.0	1,688.6	TD at 9133.1	