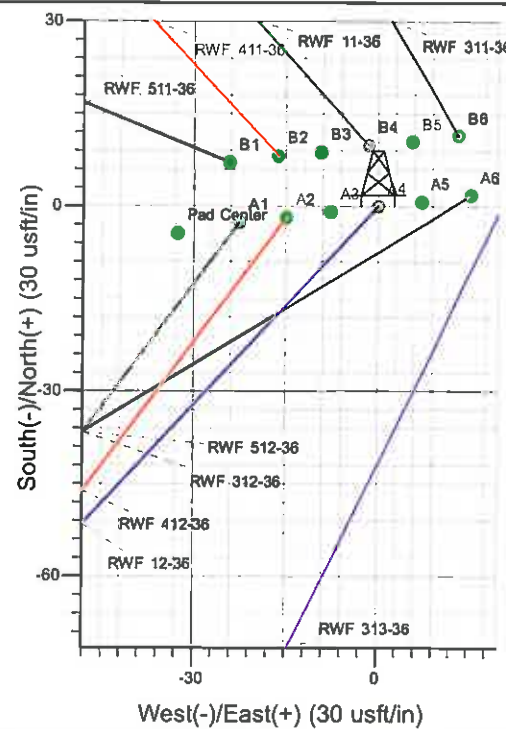
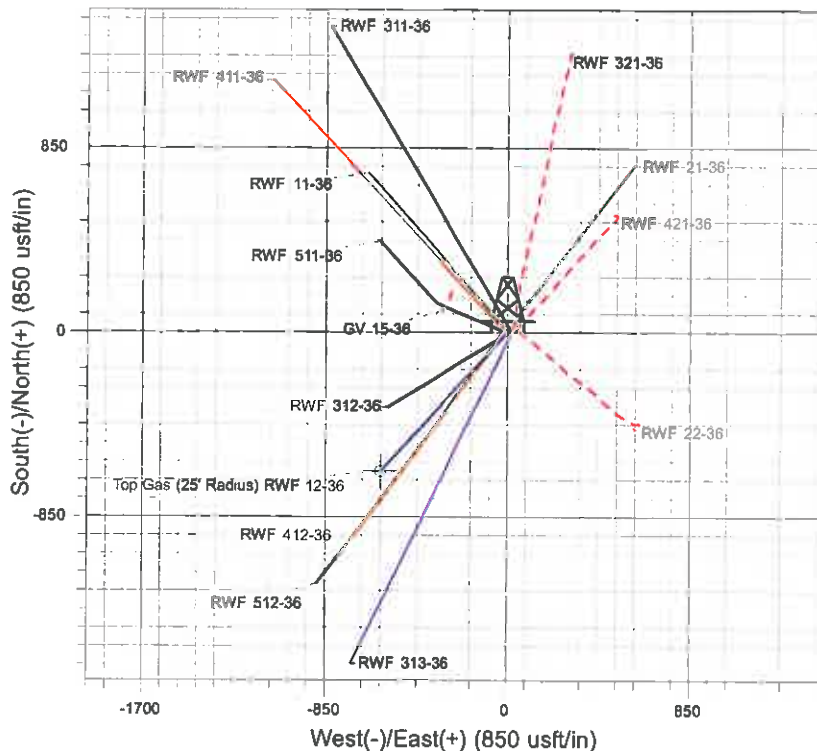
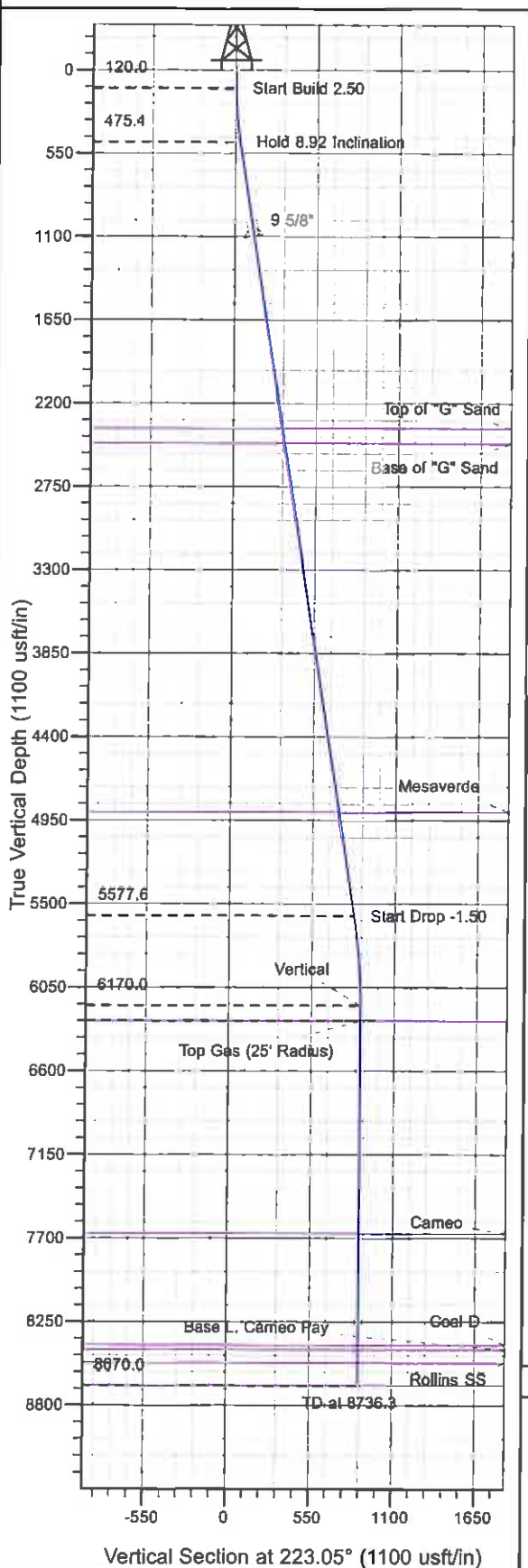




Well Name: RWF 12-36  
 Surface Location: GV 15-36 Pad  
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
 Ground Elevation: 6387.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1610108.92 2339653.76 39° 29' 6.634 N 107° 50' 23.600 W A4  
 KELLY BUSHING @ 6411.0usft (H&P 271 (24' RKB) kjs)



Project: RU 36-06S-094W  
 Site: GV 15-36 Pad  
 Well: RWF 12-36  
 Plan #5 11Mar11 kjs

M Azimuths to True North  
 Magnetic North: 10.62°  
 Magnetic Field  
 Strength: 52567.0snT  
 Dip Angle: 65.84°  
 Date: 8/29/2008  
 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 2.50
475.4	476.9	8.92	223.05	-20.3	-18.9	27.7	27.7	Hold 8.92 Inclination
5577.6	5641.5	8.92	223.05	-605.6	-565.8	828.7	828.7	Start Drop -1.50
6170.0	6236.3	0.00	0.00	-639.3	-597.3	875.0	875.0	Vertical
6270.0	6336.3	0.00	0.00	-639.3	-597.3	875.0	875.0	Top Gas
8670.0	8736.3	0.00	0.00	-639.3	-597.3	875.0	875.0	TD at 8736.3

# **PICEANCE VLY NAD 83**

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

**GV 15-36 Pad**

**RWF 12-36 - Slot A4**

**Wellbore #1**

**Plan: Plan #5 11Mar11 kjs**

## **Standard Planning Report - Geographic**

**26 April, 2011**

**Williams**  
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well RWF 12-36 - Slot A4
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 6411.0usft (H&P 271 (24' RKB) kjs)
Project:	RU 36-06S-094W	MD Reference:	KELLY BUSHING @ 6411.0usft (H&P 271 (24' RKB) kjs)
Site:	GV 15-36 Pad	North Reference:	True
Well:	RWF 12-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #5 11Mar11 kjs		

Project	RU 36-06S-094W, Garfield County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		Using geodetic scale factor

Site	GV 15-36 Pad				
Site Position:		Northing:	1,610,105.50 usft	Latitude:	39° 29' 6.592 N
From:	Map	Easting:	2,339,621.10 usft	Longitude:	107° 50' 24.015 W
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in	Grid Convergence:	-1.476 °

Well	RWF 12-36 - Slot A4					
Well Position	+N/-S	0.0 usft	Northing:	1,610,108.91 usft	Latitude:	39° 29' 6.634 N
	+E/-W	0.0 usft	Easting:	2,339,653.76 usft	Longitude:	107° 50' 23.600 W
Position Uncertainty	0.0 usft	Wellhead Elevation:		Ground Level:	6,387.0 usft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	8/29/2008	10.621	65.845	52,567

Design	Plan #5 11Mar11 kjs			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	223.05

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	0.000	
120.0	0.00	0.00	120.0	0.0	0.0	0.00	0.00	0.00	0.000	
476.9	8.92	223.05	475.4	-20.3	-18.9	2.50	2.50	0.00	223.054	
5,641.5	8.92	223.05	5,577.6	-605.6	-565.8	0.00	0.00	0.00	0.000	
6,236.3	0.00	0.00	6,170.0	-639.3	-597.3	1.50	-1.50	0.00	180.000	
6,336.3	0.00	0.00	6,270.0	-639.3	-597.3	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
8,736.3	0.00	0.00	8,670.0	-639.3	-597.3	0.00	0.00	0.00	0.000	

**Williams**  
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well RWF 12-36 - Slot A4
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 6411.0usft (H&P 271 (24' RKB) kjs)
Project:	RU 36-06S-094W	MD Reference:	KELLY BUSHING @ 6411.0usft (H&P 271 (24' RKB) kjs)
Site:	GV 15-36 Pad	North Reference:	True
Well:	RWF 12-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #5 11Mar11 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	1,610,108.91	2,339,653.76	39° 29' 6.634 N	107° 50' 23.600 W
120.0	0.00	0.00	120.0	0.0	0.0	1,610,108.91	2,339,653.76	39° 29' 6.634 N	107° 50' 23.600 W
Start Build 2.50									
476.9	8.92	223.05	475.4	-20.3	-18.9	1,610,089.14	2,339,634.31	39° 29' 6.433 N	107° 50' 23.841 W
Hold 8.92 Inclination									
1,109.1	8.92	223.05	1,100.0	-91.9	-85.9	1,610,019.25	2,339,565.56	39° 29' 5.725 N	107° 50' 24.695 W
9 5/8"									
2,389.6	8.92	223.05	2,365.0	-237.0	-221.4	1,609,877.68	2,339,426.29	39° 29' 4.291 N	107° 50' 26.424 W
Top of "G" Sand									
2,490.8	8.92	223.05	2,465.0	-248.5	-232.2	1,609,866.49	2,339,415.28	39° 29' 4.178 N	107° 50' 26.561 W
Base of "G" Sand									
4,950.6	8.92	223.05	4,895.0	-527.3	-492.6	1,609,594.53	2,339,147.76	39° 29' 1.423 N	107° 50' 29.882 W
Mesaverde									
5,641.5	8.92	223.05	5,577.6	-605.6	-565.8	1,609,518.14	2,339,072.61	39° 29' 0.649 N	107° 50' 30.815 W
Start Drop -1.50									
6,236.3	0.00	0.00	6,170.0	-639.3	-597.3	1,609,485.20	2,339,040.20	39° 29' 0.315 N	107° 50' 31.218 W
Vertical									
6,336.3	0.00	0.00	6,270.0	-639.3	-597.3	1,609,485.20	2,339,040.20	39° 29' 0.315 N	107° 50' 31.218 W
Top Gas - Approx. Top Gas									
7,736.3	0.00	0.00	7,670.0	-639.3	-597.3	1,609,485.20	2,339,040.20	39° 29' 0.315 N	107° 50' 31.218 W
Cameo									
8,471.3	0.00	0.00	8,405.0	-639.3	-597.3	1,609,485.20	2,339,040.20	39° 29' 0.315 N	107° 50' 31.218 W
Coal D									
8,501.3	0.00	0.00	8,435.0	-639.3	-597.3	1,609,485.20	2,339,040.20	39° 29' 0.315 N	107° 50' 31.218 W
Base L. Cameo Pay									
8,586.3	0.00	0.00	8,520.0	-639.3	-597.3	1,609,485.20	2,339,040.20	39° 29' 0.315 N	107° 50' 31.218 W
Rollins SS									
8,736.3	0.00	0.00	8,670.0	-639.3	-597.3	1,609,485.20	2,339,040.20	39° 29' 0.315 N	107° 50' 31.218 W
TD at 8736.3									

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	6,270.0	-639.3	-597.3	1,609,485.20	2,339,040.20	39° 29' 0.315 N	107° 50' 31.218 W
- plan hits target center									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,109.1	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 12-36 - Slot A4
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 6411.0usft (H&P 271 (24' RKB) kjs)
Project:	RU 36-06S-094W	MD Reference:	KELLY BUSHING @ 6411.0usft (H&P 271 (24' RKB) kjs)
Site:	GV 15-36 Pad	North Reference:	True
Well:	RWF 12-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #5 11Mar11 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (")	Dip Direction (")	
2,389.6	2,365.0	Top of "G" Sand				
2,490.8	2,465.0	Base of "G" Sand				
4,950.6	4,895.0	Mesaverde				
6,336.3	6,270.0	Approx. Top Gas				
7,736.3	7,670.0	Cameo				
8,471.3	8,405.0	Coal D				
8,501.3	8,435.0	Base L. Cameo Pay				
8,586.3	8,520.0	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 2.50	
476.9	475.4	-20.3	-18.9	Hold 8.92 Inclination	
5,641.5	5,577.6	-605.6	-565.8	Start Drop -1.50	
6,236.3	6,170.0	-639.3	-597.3	Vertical	
6,336.3	6,270.0	-639.3	-597.3	Top Gas	
8,736.3	8,670.0	-639.3	-597.3	TD at 8736.3	