



# **PICEANCE VLY NAD 83**

**GV 27-06S-096W**

**GM 24-27 Pad**

**GM 513-27 - Slot B6**

**Wellbore #1**

**Plan: Plan #1 11Dec08 kjs**

## **Standard Planning Report - Geographic**

**11 August, 2009**

# Williams Production RMT Company

## Planning Report - Geographic

<b>Database:</b> EDMDB_COMPASS	<b>Local Co-ordinate Reference:</b> Well GM 513-27 - Slot B6
<b>Company:</b> PICEANCE VLY NAD 83	<b>TVD Reference:</b> KELLY BUSHING @ 5628.0ft (H&P 278 (24') kjs)
<b>Project:</b> GV 27-06S-096W	<b>MD Reference:</b> KELLY BUSHING @ 5628.0ft (H&P 278 (24') kjs)
<b>Site:</b> GM 24-27 Pad	<b>North Reference:</b> True
<b>Well:</b> GM 513-27	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Wellbore:</b> Wellbore #1	
<b>Design:</b> Plan #1 11Dec08 kjs	

<b>Project</b> GV 27-06S-096W, Garfield County, CO, 27-06S-096W			
<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> GM 24-27 Pad			
<b>Site Position:</b>	<b>Northing:</b> 1,614,217.60 ft	<b>Latitude:</b> 39° 29' 27.917 N	
<b>From:</b> Map	<b>Easting:</b> 2,267,712.90 ft	<b>Longitude:</b> 108° 5' 42.324 W	
<b>Position Uncertainty:</b> 0.0 ft	<b>Slot Radius:</b> "	<b>Grid Convergence:</b> -1.64 °	

<b>Well</b> GM 513-27 - Slot B6			
<b>Well Position</b> +N/-S	0.0 ft	<b>Northing:</b> 1,614,208.20 ft	<b>Latitude:</b> 39° 29' 27.814 N
+E/-W	0.0 ft	<b>Easting:</b> 2,267,675.30 ft	<b>Longitude:</b> 108° 5' 42.800 W
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b> ft	<b>Ground Level:</b> 5,604.0 ft

<b>Wellbore</b> Wellbore #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	12/11/2008	10.70	65.79	52,560

<b>Design</b> Plan #1 11Dec08 kjs				
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b> PLAN	<b>Tie On Depth:</b> 0.0		
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	279.89

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	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	
286.7	5.00	245.00	286.5	-3.1	-6.6	3.00	3.00	0.00	245.00	
1,960.8	28.97	281.55	1,878.2	48.1	-477.4	1.50	1.43	2.18	42.81	
3,454.5	28.97	281.55	3,185.1	192.9	-1,186.2	0.00	0.00	0.00	0.00	
5,385.6	0.00	0.00	5,035.0	288.6	-1,654.4	1.50	-1.50	0.00	180.00	Top Gas (25' Radius)
7,285.6	0.00	0.00	6,935.0	288.6	-1,654.4	0.00	0.00	0.00	0.00	TD / PBHL GM 513-2

**Williams Production RMT Company**  
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<b>Site:</b>	GM 24-27 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 513-27	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 11Dec08 kjs		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	1,614,208.20	2,267,675.30	39° 29' 27.814 N	108° 5' 42.800 W
120.0	0.00	0.00	120.0	0.0	0.0	1,614,208.20	2,267,675.30	39° 29' 27.814 N	108° 5' 42.800 W
286.7	5.00	245.00	286.5	-3.1	-6.6	1,614,205.32	2,267,668.63	39° 29' 27.783 N	108° 5' 42.884 W
1,960.8	28.97	281.55	1,878.2	48.1	-477.4	1,614,269.89	2,267,199.44	39° 29' 28.289 N	108° 5' 48.890 W
2,011.0	28.97	281.55	1,922.2	52.9	-501.3	1,614,275.44	2,267,175.76	39° 29' 28.337 N	108° 5' 49.194 W
<b>9 5/8"</b>									
2,157.1	28.97	281.55	2,050.0	67.1	-570.6	1,614,291.58	2,267,106.87	39° 29' 28.477 N	108° 5' 50.078 W
<b>Top of "G" Sand</b>									
2,271.4	28.97	281.55	2,150.0	78.2	-624.8	1,614,304.21	2,267,052.98	39° 29' 28.586 N	108° 5' 50.770 W
<b>Base of "G" Sand</b>									
3,454.5	28.97	281.55	3,185.1	192.9	-1,186.2	1,614,434.91	2,266,495.12	39° 29' 29.720 N	108° 5' 57.931 W
4,117.5	19.02	281.55	3,790.0	246.8	-1,450.0	1,614,496.32	2,266,232.99	39° 29' 30.253 N	108° 6' 1.295 W
<b>Mesaverde</b>									
5,385.6	0.00	0.00	5,035.0	288.6	-1,654.4	1,614,543.90	2,266,029.90	39° 29' 30.665 N	108° 6' 3.902 W
<b>Approx. Top Gas</b>									
6,740.6	0.00	0.00	6,390.0	288.6	-1,654.4	1,614,543.90	2,266,029.90	39° 29' 30.665 N	108° 6' 3.902 W
<b>Cameo Coals</b>									
7,185.6	0.00	0.00	6,835.0	288.6	-1,654.4	1,614,543.90	2,266,029.90	39° 29' 30.665 N	108° 6' 3.902 W
<b>Rollins SS</b>									
7,285.6	0.00	0.00	6,935.0	288.6	-1,654.4	1,614,543.90	2,266,029.90	39° 29' 30.665 N	108° 6' 3.902 W
<b>TD</b>									

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
TD / PBHL GM 513-27 - hit/miss target - Shape - Point	0.00	0.00	6,935.0	288.6	-1,654.4	1,614,543.90	2,266,029.90	39° 29' 30.665 N	108° 6' 3.902 W
Top Gas (25' Radius) GI - plan hits target - Circle (radius 25.0)	0.00	0.00	5,035.0	288.6	-1,654.4	1,614,543.90	2,266,029.90	39° 29' 30.665 N	108° 6' 3.902 W

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
2,011.0	1,922.2	9 5/8"	9-5/8	12-1/4	

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<b>Wellbore:</b> Wellbore #1		
<b>Design:</b> Plan #1 11Dec08 kjs		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,157.1	2,050.00	Top of "G" Sand				
2,271.4	2,150.00	Base of "G" Sand				
4,117.5	3,790.00	Mesaverde				
5,385.6	5,035.00	Approx. Top Gas				
6,740.6	6,390.00	Cameo Coals				
7,185.6	6,835.00	Rollins SS				
7,285.6	6,935.00	TD				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
120.0	120.0	0.0	0.0	Start Build 3.00	
286.7	286.5	-3.1	-6.6	Begin 1.5/100 Build & Turn	
1,960.8	1,878.2	48.1	-477.4	Hold 28.97 Inclination	
3,454.5	3,185.1	192.9	-1,186.2	Start Drop -1.50	
5,385.6	5,035.0	288.6	-1,654.4	Top Gas	
7,285.6	6,935.0	288.6	-1,654.4	TD at 7285.6	