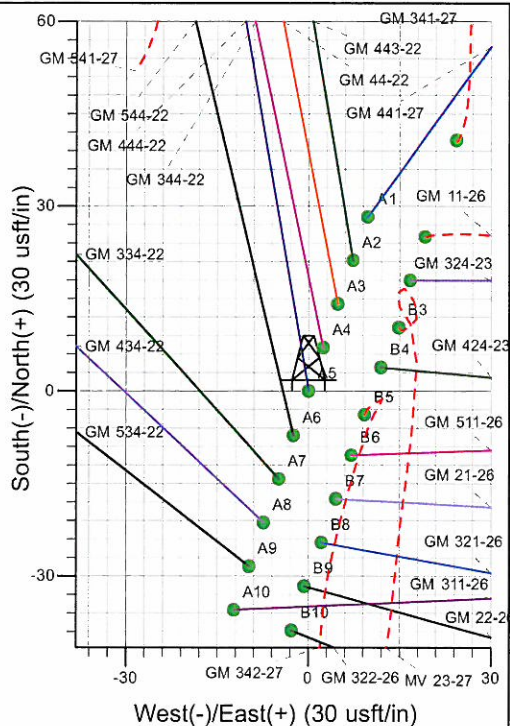
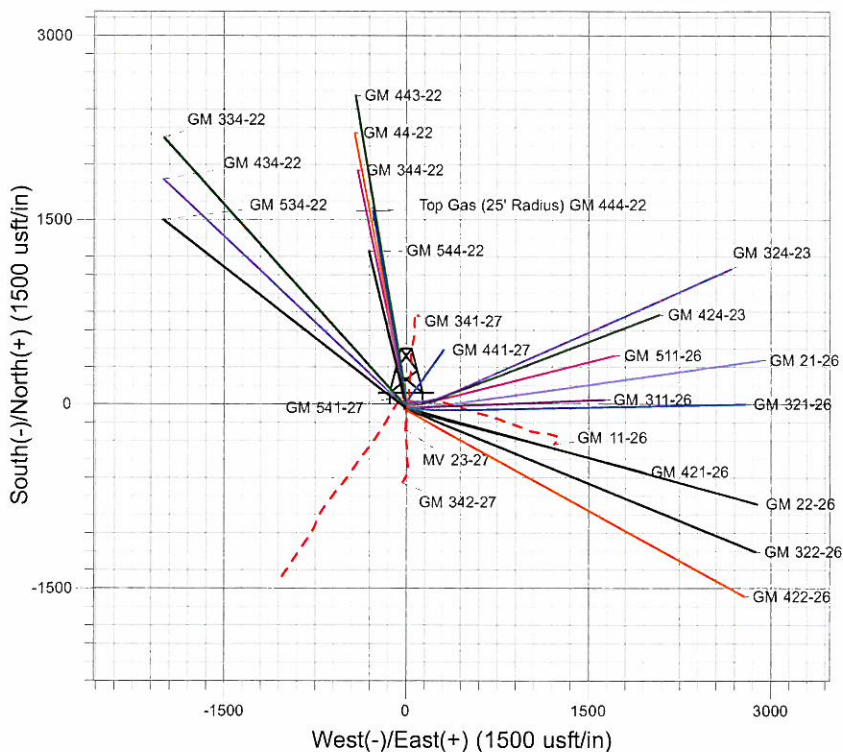
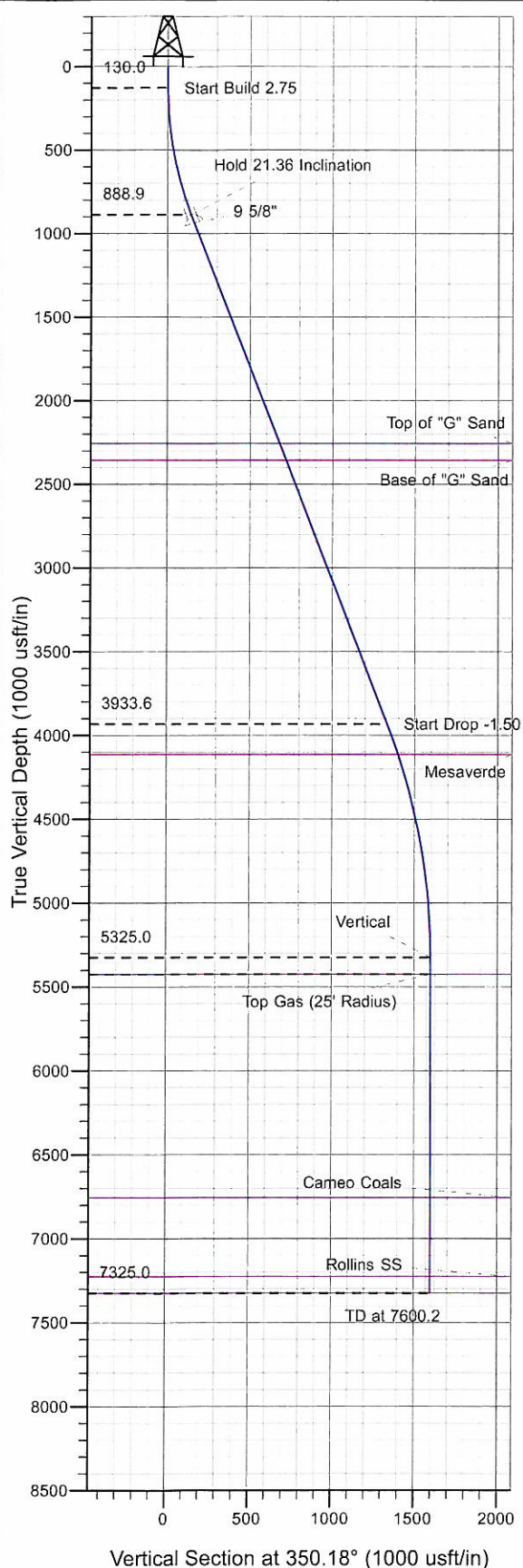




Well Name: GM 444-22  
 Surface Location: MV 23-27 Pad  
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
 Ground Elevation: 5770.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1617320.60 2269883.80 39° 29' 59.185 N 108° 5' 15.770 W A5  
 KELLY BUSHING @ 5794.0usft (H&P 280 (24' RKB) kjs)



Project: GV 27-06S-096W  
 Site: MV 23-27 Pad  
 Well: GM 444-22  
 Plan #2 27Sep10 kjs



Azimuths to True North  
 Magnetic North: 10.54°  
 Magnetic Field  
 Strength: 52357.8nT  
 Dip Angle: 65.76°  
 Date: 4/21/2010  
 Model: IGRF2010

#### ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
130.0	130.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 2.75
888.9	906.8	21.36	350.18	141.0	-24.4	143.1	143.1	Hold 21.36 Inclination
3933.6	4176.1	21.36	350.18	1314.5	-227.6	1334.0	1334.0	Start Drop -1.50
5325.0	5600.2	0.00	0.00	1573.0	-272.3	1596.4	1596.4	Vertical
5425.0	5700.2	0.00	0.00	1573.0	-272.3	1596.4	1596.4	Top Gas
7325.0	7600.2	0.00	0.00	1573.0	-272.3	1596.4	1596.4	TD at 7600.2

# **PICEANCE VLY NAD 83**

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

**MV 23-27 Pad**

**GM 444-22 - Slot A5**

**Wellbore #1**

**Plan: Plan #2 27Sep10 kjs**

## **Standard Planning Report - Geographic**

**27 October, 2010**

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well GM 444-22 - Slot A5
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5794.0usft (H&P 280 (24' RKB) kjs)
<b>Project:</b>	GV 27-06S-096W	<b>MD Reference:</b>	KELLY BUSHING @ 5794.0usft (H&P 280 (24' RKB) kjs)
<b>Site:</b>	MV 23-27 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 444-22	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 27Sep10 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

Site		MV 23-27 Pad			
Site Position:		Northing:		1,617,330.50 usft	
From:	Map	Easting:		2,269,898.90 usft	
Position Uncertainty:		0.0 usft	Slot Radius:		13.200 in
				Grid Convergence:	-1.632

Well	GM 444-22 - Slot A5					
Well Position	+N/-S	0.0 usft	Northing:	1,617,320.60 usft	Latitude:	39° 29' 59.185 N
	+E/-W	0.0 usft	Easting:	2,269,883.80 usft	Longitude:	108° 5' 15.770 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	5,770.0 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	4/21/2010	10.542	65.756	52,358

<b>Design</b>	Plan #2 27Sep10 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	350.18

<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	
130.0	0.00	0.00	130.0	0.0	0.0	0.00	0.00	0.00	0.000	
906.8	21.36	350.18	888.9	141.0	-24.4	2.75	2.75	0.00	350.178	
4,176.1	21.36	350.18	3,933.6	1,314.5	-227.6	0.00	0.00	0.00	0.000	
5,600.2	0.00	0.00	5,325.0	1,573.0	-272.3	1.50	-1.50	0.00	180.000	
5,700.2	0.00	0.00	5,425.0	1,573.0	-272.3	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
7,600.2	0.00	0.00	7,325.0	1,573.0	-272.3	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 GM 444-22 - Slot A5
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5794.0usft (H&P 280 (24' RKB) kjs)
<b>Project:</b>	GV 27-06S-096W	<b>MD Reference:</b>	KELLY BUSHING @ 5794.0usft (H&P 280 (24' RKB) kjs)
<b>Site:</b>	MV 23-27 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 444-22	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 27Sep10 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	1,617,320.60	2,269,883.80	39° 29' 59.185 N	108° 5' 15.770 W
130.0	0.00	0.00	130.0	0.0	0.0	1,617,320.60	2,269,883.80	39° 29' 59.185 N	108° 5' 15.770 W
<b>Start Build 2.75</b>									
906.8	21.36	350.18	888.9	141.0	-24.4	1,617,462.27	2,269,863.41	39° 30' 0.579 N	108° 5' 16.082 W
<b>Hold 21.36 Inclination</b>									
957.0	21.36	350.18	935.7	159.1	-27.5	1,617,480.37	2,269,860.81	39° 30' 0.757 N	108° 5' 16.121 W
<b>9 5/8"</b>									
2,374.7	21.36	350.18	2,256.0	667.9	-115.6	1,617,991.50	2,269,787.25	39° 30' 5.787 N	108° 5' 17.245 W
<b>Top of "G" Sand</b>									
2,482.1	21.36	350.18	2,356.0	706.5	-122.3	1,618,030.21	2,269,781.68	39° 30' 6.167 N	108° 5' 17.330 W
<b>Base of "G" Sand</b>									
4,176.1	21.36	350.18	3,933.6	1,314.5	-227.6	1,618,640.96	2,269,693.78	39° 30' 12.177 N	108° 5' 18.673 W
<b>Start Drop -1.50</b>									
4,368.0	18.48	350.18	4,114.0	1,378.9	-238.7	1,618,705.66	2,269,684.47	39° 30' 12.813 N	108° 5' 18.816 W
<b>Mesaverde</b>									
5,600.2	0.00	0.00	5,325.0	1,573.0	-272.3	1,618,900.70	2,269,656.40	39° 30' 14.732 N	108° 5' 19.244 W
<b>Vertical</b>									
5,700.2	0.00	0.00	5,425.0	1,573.0	-272.3	1,618,900.70	2,269,656.40	39° 30' 14.732 N	108° 5' 19.244 W
<b>Top Gas - Approx. Top Gas</b>									
7,031.2	0.00	0.00	6,756.0	1,573.0	-272.3	1,618,900.70	2,269,656.40	39° 30' 14.732 N	108° 5' 19.244 W
<b>Cameo Coals</b>									
7,500.2	0.00	0.00	7,225.0	1,573.0	-272.3	1,618,900.70	2,269,656.40	39° 30' 14.732 N	108° 5' 19.244 W
<b>Rollins SS</b>									
7,600.2	0.00	0.00	7,325.0	1,573.0	-272.3	1,618,900.70	2,269,656.40	39° 30' 14.732 N	108° 5' 19.244 W
<b>TD at 7600.2 - TD</b>									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hi/miss target									
- Shape									
Top Gas (25' Radius) GI	0.00	0.00	5,425.0	1,573.0	-272.3	1,618,900.70	2,269,656.40	39° 30' 14.732 N	108° 5' 19.244 W
- plan hits target center									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
957.0	935.7	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 GM 444-22 - Slot A5
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5794.0usft (H&P 280 (24' RKB) kjs)
<b>Project:</b>	GV 27-06S-096W	<b>MD Reference:</b>	KELLY BUSHING @ 5794.0usft (H&P 280 (24' RKB) kjs)
<b>Site:</b>	MV 23-27 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 444-22	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 27Sep10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,374.7	2,256.0	Top of "G" Sand				
2,482.1	2,356.0	Base of "G" Sand				
4,368.0	4,114.0	Mesaverde				
5,700.2	5,425.0	Approx. Top Gas				
7,031.2	6,756.0	Cameo Coals				
7,500.2	7,225.0	Rollins SS				
7,600.2	7,325.0	TD				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
130.0	130.0	0.0	0.0	Start Build 2.75	
906.8	888.9	141.0	-24.4	Hold 21.36 Inclination	
4,176.1	3,933.6	1,314.5	-227.6	Start Drop -1.50	
5,600.2	5,325.0	1,573.0	-272.3	Vertical	
5,700.2	5,425.0	1,573.0	-272.3	Top Gas	
7,600.2	7,325.0	1,573.0	-272.3	TD at 7600.2	