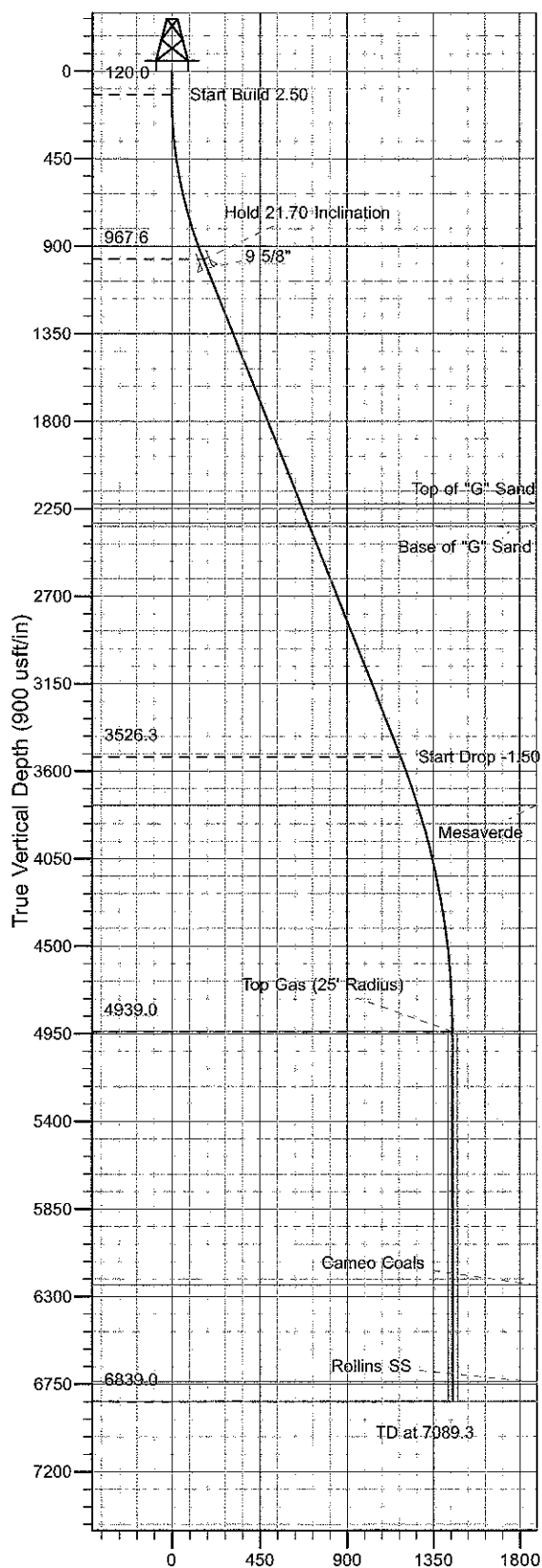
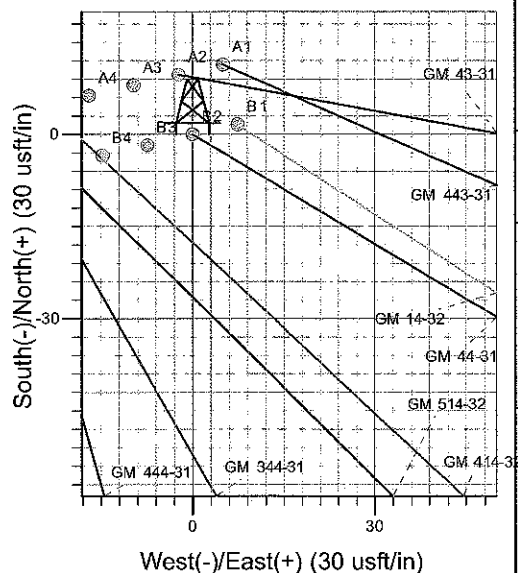
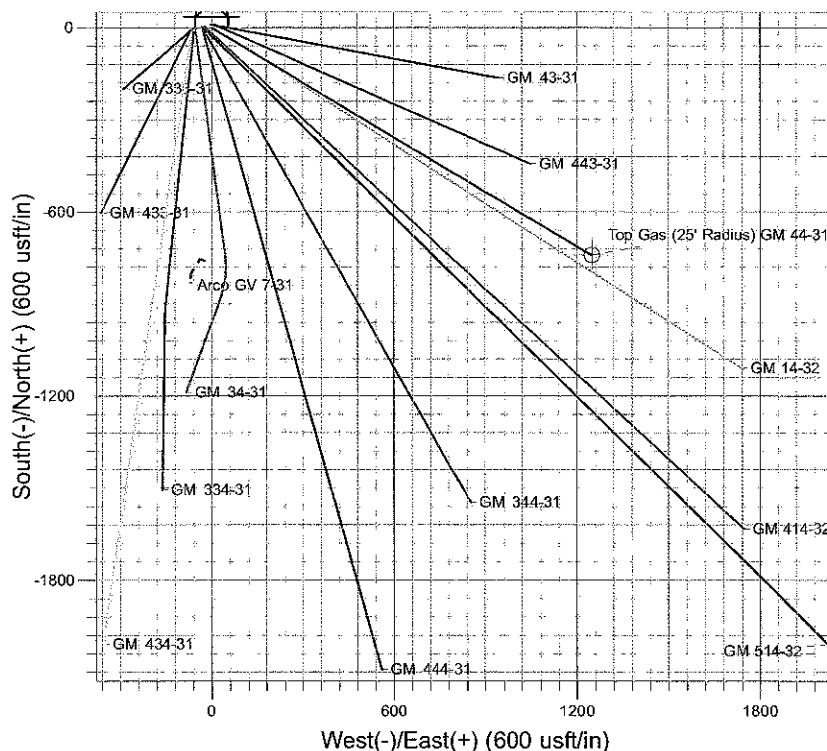




Well Name: GM 44-31  
 Surface Location: GM 333-31 Pad  
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
 Ground Elevation: 6100.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1610355.90 2252828.80 39° 28' 45.521 N 108° 8' 50.669 W B2  
 KELLY BUSHING @ 6124.0usft (H&P 280 (24') kjs)



Vertical Section at 120.70° (900 usft/in)



Project: GV 31-06S-096W  
 Site: GM 333-31 Pad  
 Well: GM 44-31  
 Plan #2 14Jul09 kjs

**T M** Azimuths to True North  
 Magnetic North: 10.93°  
 Magnetic Field  
 Strength: 52652.8snT  
 Dip Angle: 65.81°  
 Date: 5/7/2007  
 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
967.6	988.2	21.71	120.70	-83.0	139.7	162.5	162.5	Hold 21.70 Inclination
3526.3	3742.2	21.71	120.70	-603.0	1015.5	1181.0	1181.0	Start Drop -1.50
4939.0	5189.3	0.00	0.00	-741.3	1248.4	1451.9	1451.9	Top Gas
6839.0	7089.3	0.00	0.00	-741.3	1248.4	1451.9	1451.9	TD at 7089.3

# **PICEANCE VLY NAD 83**

**GV 31-06S-096W**

**GM 333-31 Pad**

**GM 44-31 - Slot B2**

**GM 44-31**

**Plan: Plan #2 14Jul09 kjs**

## **Standard Planning Report - Geographic**

**09 March, 2010**

# Williams

## Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well GM 44-31 - Slot B2
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 6124.0usft (H&P 280 (24') kjs)
<b>Project:</b>	GV 31-06S-096W	<b>MD Reference:</b>	KELLY BUSHING @ 6124.0usft (H&P 280 (24') kjs)
<b>Site:</b>	GM 333-31 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 44-31	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	GM 44-31		
<b>Design:</b>	Plan #2 14Jul09 kjs		

<b>Project</b>	GV 31-06S-096W, Garfield County, CO, 31-06S-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 333-31 Pad			
<b>Site Position:</b>		<b>Northing:</b>	1,610,367.10 usft	<b>Latitude:</b> 39° 28' 45.634 N
<b>From:</b>	Map	<b>Easting:</b>	2,252,834.10 usft	<b>Longitude:</b> 108° 8' 50.606 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> -1.670 °

<b>Well</b>	GM 44-31 - Slot B2			
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	1,610,355.90 usft
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	2,252,828.80 usft
<b>Position Uncertainty</b>	0.0 usft		<b>Wellhead Elevation:</b>	<b>Ground Level:</b> 6,100.0 usft

<b>Wellbore</b>	GM 44-31				
<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	5/7/2007	10.929	65.814	52,653

<b>Design</b>	Plan #2 14Jul09 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	120.70

<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	
988.2	21.71	120.70	967.6	-83.0	139.7	2.50	2.50	0.00	120.701	
3,742.2	21.71	120.70	3,526.3	-603.0	1,015.5	0.00	0.00	0.00	0.000	
5,189.3	0.00	0.00	4,939.0	-741.3	1,248.4	1.50	-1.50	0.00	180.000	Top Gas (25' Radius)
7,089.3	0.00	0.00	6,839.0	-741.3	1,248.4	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 44-31 - Slot B2
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 6124.0usft (H&P 280 (24") kjs)
<b>Project:</b>	GV 31-06S-096W	<b>MD Reference:</b>	KELLY BUSHING @ 6124.0usft (H&P 280 (24") kjs)
<b>Site:</b>	GM 333-31 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 44-31	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	GM 44-31		
<b>Design:</b>	Plan #2 14Jul09 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	1,610,355.90	2,252,828.80	39° 28' 45.521 N	108° 8' 50.669 W
120.0	0.00	0.00	120.0	0.0	0.0	1,610,355.90	2,252,828.80	39° 28' 45.521 N	108° 8' 50.669 W
<b>Start Build 2.50</b>									
988.2	21.71	120.70	967.6	-83.0	139.7	1,610,268.90	2,252,966.04	39° 28' 44.701 N	108° 8' 48.887 W
<b>Hold 21.70 Inclination</b>									
1,038.0	21.71	120.70	1,013.9	-92.4	155.6	1,610,259.04	2,252,981.59	39° 28' 44.608 N	108° 8' 48.686 W
<b>9 5/8"</b>									
2,340.5	21.71	120.70	2,224.0	-338.3	569.8	1,610,001.14	2,253,388.43	39° 28' 42.178 N	108° 8' 43.403 W
<b>Top of "G" Sand</b>									
2,448.1	21.71	120.70	2,324.0	-358.6	604.0	1,609,979.83	2,253,422.05	39° 28' 41.977 N	108° 8' 42.967 W
<b>Base of "G" Sand</b>									
3,742.2	21.71	120.70	3,526.3	-603.0	1,015.5	1,609,723.60	2,253,826.26	39° 28' 39.562 N	108° 8' 37.719 W
<b>Start Drop -1.50</b>									
4,005.4	17.76	120.70	3,774.0	-648.4	1,091.9	1,609,676.03	2,253,901.29	39° 28' 39.113 N	108° 8' 36.744 W
<b>Mesaverde</b>									
5,189.3	0.00	0.00	4,939.0	-741.3	1,248.4	1,609,578.60	2,254,055.00	39° 28' 38.195 N	108° 8' 34.749 W
<b>Top Gas - Approx. Top Gas</b>									
6,492.3	0.00	0.00	6,242.0	-741.3	1,248.4	1,609,578.60	2,254,055.00	39° 28' 38.195 N	108° 8' 34.749 W
<b>Cameo Coals</b>									
6,989.3	0.00	0.00	6,739.0	-741.3	1,248.4	1,609,578.60	2,254,055.00	39° 28' 38.195 N	108° 8' 34.749 W
<b>Rollins SS</b>									
7,089.3	0.00	0.00	6,839.0	-741.3	1,248.4	1,609,578.60	2,254,055.00	39° 28' 38.195 N	108° 8' 34.749 W
<b>TD at 7089.3 - TD</b>									

### 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) GI	0.00	0.00	4,939.0	-741.3	1,248.4	1,609,578.60	2,254,055.00	39° 28' 38.195 N	108° 8' 34.749 W
- plan hits target center									
- Circle (radius 25.0)									

### Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,038.0	1,013.9	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 44-31 - Slot B2
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 6124.0usft (H&P 280 (24') kjs)
<b>Project:</b>	GV 31-06S-096W	<b>MD Reference:</b>	KELLY BUSHING @ 6124.0usft (H&P 280 (24') kjs)
<b>Site:</b>	GM 333-31 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 44-31	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	GM 44-31		
<b>Design:</b>	Plan #2 14Jul09 kjs		

### Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,340.5	2,224.0	Top of "G" Sand			
2,448.1	2,324.0	Base of "G" Sand			
4,005.4	3,774.0	Mesaverde			
5,189.3	4,939.0	Approx. Top Gas			
6,492.3	6,242.0	Cameo Coals			
6,989.3	6,739.0	Rollins SS			
7,089.3	6,839.0	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 2.50
988.2	967.6	-83.0	139.7	Hold 21.70 Inclination
3,742.2	3,526.3	-603.0	1,015.5	Start Drop -1.50
5,189.3	4,939.0	-741.3	1,248.4	Top Gas
7,089.3	6,839.0	-741.3	1,248.4	TD at 7089.3