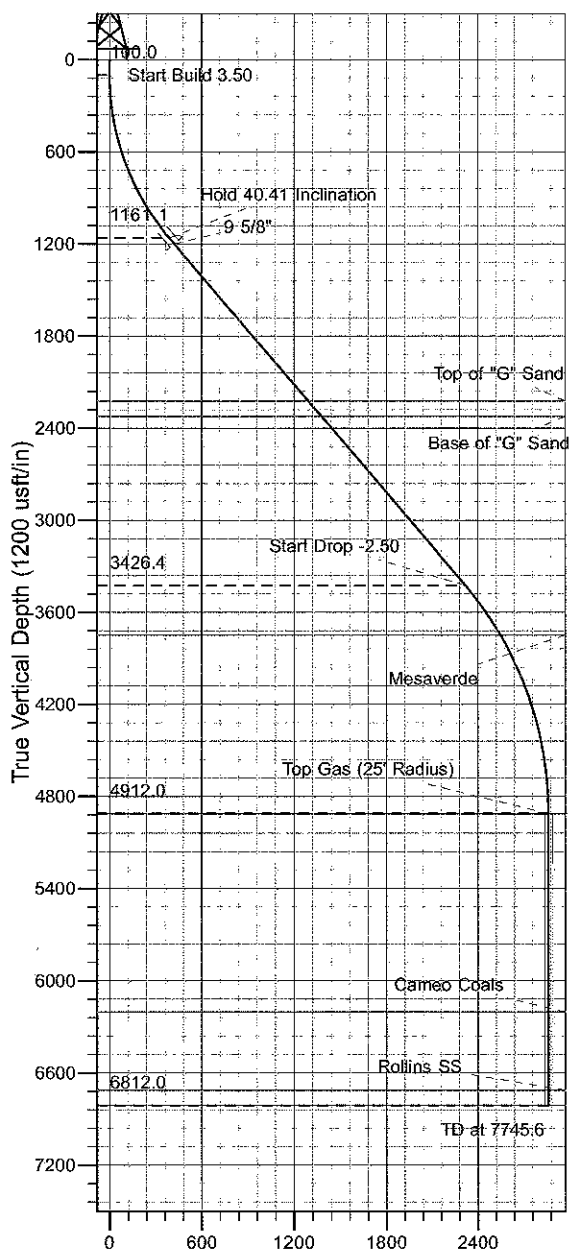
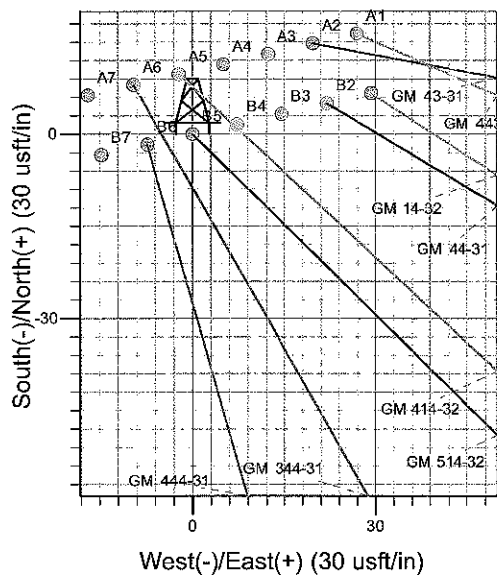
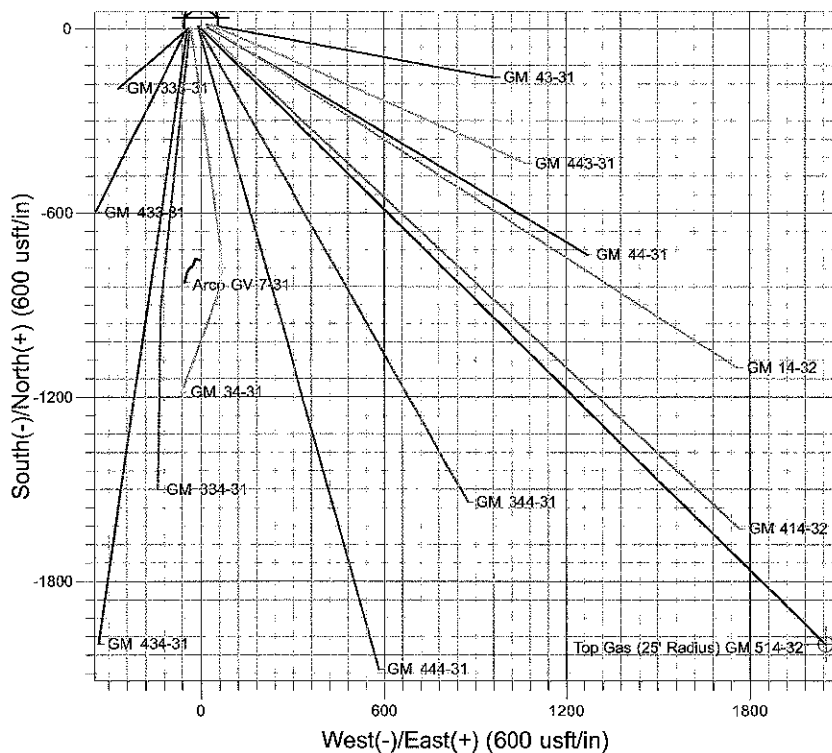




Well Name: GM 514-32  
 Surface Location: GM 333-31 Pad  
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
 Ground Elevation: 6100.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1610351.50 2252806.70 39° 28' 45.471 N 108° 8' 50.949 W B5  
 KELLY BUSHING @ 6124.0usft (H&P 280 (24') kjs)



Vertical Section at 134.39° (1200 usft/in)



Project: GV 31-06S-096W  
 Site: GM 333-31 Pad  
 Well: GM 514-32  
 Plan #2 14Jul09 kjs

**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
100.0	100.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 3.50
1161.1	1254.5	40.41	134.39	-273.2	279.0	390.5	390.5	Hold 40.41 Inclination
3426.4	4229.4	40.41	134.39	-1822.2	1656.9	2318.8	2318.8	Start Drop -2.50
4912.0	5845.6	0.00	0.00	-2004.7	2047.6	2865.5	2865.5	Top Gas
6812.0	7745.6	0.00	0.00	-2004.7	2047.6	2865.5	2865.5	TD at 7745.6

# **PICEANCE VLY NAD 83**

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

**GM 333-31 Pad**

**GM 514-32 - Slot B5**

**GM 514-32**

**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 514-32 - Slot B5
<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 514-32	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	GM 514-32		
<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 514-32 - Slot B5			
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	1,610,351.50 usft
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	2,252,806.70 usft
<b>Position Uncertainty</b>	0.0 usft		<b>Wellhead Elevation:</b>	<b>Ground Level:</b> 6,100.0 usft

<b>Wellbore</b>	GM 514-32				
<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	134.39

<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	
100.0	0.00	0.00	100.0	0.0	0.0	0.00	0.00	0.00	0.000	
1,254.5	40.41	134.39	1,161.1	-273.2	279.0	3.50	3.50	0.00	134.394	
4,229.4	40.41	134.39	3,426.4	-1,622.2	1,656.9	0.00	0.00	0.00	0.000	
5,845.6	0.00	0.00	4,912.0	-2,004.7	2,047.6	2.50	-2.50	0.00	180.000	Top Gas (25' Radius)
7,745.6	0.00	0.00	6,812.0	-2,004.7	2,047.6	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 514-32 - Slot B5
<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 514-32	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	GM 514-32		
<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	1,610,351.50	2,252,806.70	39° 28' 45.471 N	108° 8' 50.949 W	
100.0	0.00	0.00	100.0	0.0	0.0	1,610,351.50	2,252,806.70	39° 28' 45.471 N	108° 8' 50.949 W	
<b>Start Build 3.50</b>										
1,254.5	40.41	134.39	1,161.1	-273.2	279.0	1,610,070.32	2,253,077.63	39° 28' 42.772 N	108° 8' 47.391 W	
<b>Hold 40.41 Inclination</b>										
1,304.0	40.41	134.39	1,198.8	-295.6	302.0	1,610,047.20	2,253,099.91	39° 28' 42.550 N	108° 8' 47.098 W	
<b>9 5/8"</b>										
2,650.3	40.41	134.39	2,224.0	-906.1	925.5	1,609,418.80	2,253,705.40	39° 28' 36.516 N	108° 8' 39.146 W	
<b>Top of "G" Sand</b>										
2,781.6	40.41	134.39	2,324.0	-965.7	986.4	1,609,357.50	2,253,764.47	39° 28' 35.927 N	108° 8' 38.370 W	
<b>Base of "G" Sand</b>										
4,229.4	40.41	134.39	3,426.4	-1,622.2	1,656.9	1,608,681.75	2,254,415.59	39° 28' 29.438 N	108° 8' 29.819 W	
<b>Start Drop -2.50</b>										
4,625.9	30.49	134.39	3,749.0	-1,782.9	1,821.0	1,608,516.37	2,254,574.95	39° 28' 27.850 N	108° 8' 27.727 W	
<b>Mesaverde</b>										
5,845.6	0.00	0.00	4,912.0	-2,004.7	2,047.6	1,608,288.10	2,254,794.90	39° 28' 25.658 N	108° 8' 24.838 W	
<b>Top Gas - Approx. Top Gas</b>										
7,137.6	0.00	0.00	6,204.0	-2,004.7	2,047.6	1,608,288.10	2,254,794.90	39° 28' 25.658 N	108° 8' 24.838 W	
<b>Cameo Coals</b>										
7,645.6	0.00	0.00	6,712.0	-2,004.7	2,047.6	1,608,288.10	2,254,794.90	39° 28' 25.658 N	108° 8' 24.838 W	
<b>Rollins SS</b>										
7,745.6	0.00	0.00	6,812.0	-2,004.7	2,047.6	1,608,288.10	2,254,794.90	39° 28' 25.658 N	108° 8' 24.838 W	
<b>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	4,912.0	-2,004.7	2,047.6	1,608,288.10	2,254,794.90	39° 28' 25.658 N	108° 8' 24.838 W	
- plan hits target center										
- Circle (radius 25.0)										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,304.0	1,198.8	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 514-32 - Slot B5
<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 514-32	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	GM 514-32		
<b>Design:</b>	Plan #2 14Jul09 kjs		

### Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,650.3	2,224.0	Top of "G" Sand			
2,781.6	2,324.0	Base of "G" Sand			
4,625.9	3,749.0	Mesaverde			
5,845.6	4,912.0	Approx. Top Gas			
7,137.6	6,204.0	Cameo Coals			
7,645.6	6,712.0	Rollins SS			
7,745.6	6,812.0	TD			

### Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
100.0	100.0	0.0	0.0	Start Build 3.50
1,254.5	1,161.1	-273.2	279.0	Hold 40.41 Inclination
4,229.4	3,426.4	-1,622.2	1,656.9	Start Drop -2.50
5,845.6	4,912.0	-2,004.7	2,047.6	Top Gas
7,745.6	6,812.0	-2,004.7	2,047.6	TD at 7745.6