

# **PICEANCE VLY NAD 83**

**PA 04-07S-095W**

**GV 80-4 Pad**

**PA 524-4 - Slot B1**

**Wellbore #1**

**Plan: Plan #3 11Aug10 kjs**

## **Standard Planning Report - Geographic**

**11 August, 2010**

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well PA 524-4 - Slot B1
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5612.0usft (Nabors SSD (26' RKB) kjs)
<b>Project:</b>	PA 04-07S-095W	<b>MD Reference:</b>	KELLY BUSHING @ 5612.0usft (Nabors SSD (26' RKB) kjs)
<b>Site:</b>	GV 80-4 Pad	<b>North Reference:</b>	True
<b>Well:</b>	PA 524-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 11Aug10 kjs		

<b>Project</b>	PA 04-07S-095W, Garfield County, CO, 04-07S-095W		
<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		GV 80-4 Pad			
Site Position:		Northing:	1,603,479.50 usft	Latitude:	39° 27' 48.655 N
From:	Map	Easting:	2,292,316.70 usft	Longitude:	108° 0' 24.818 W
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in	Grid Convergence:	-1.581 °

Well	PA 524-4 - Slot B1					
Well Position	+N/-S	0.0 usft	Northing:	1,603,422.50 usft	Latitude:	39° 27' 48.097 N
	+E/-W	0.0 usft	Easting:	2,292,337.20 usft	Longitude:	108° 0' 24.536 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	5,586.0 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>
	IGRF2005-10	11/7/2007	10.799	65.815	52,618

<b>Design</b>	Plan #3 11Aug10 kjs				
<b>Audit Notes:</b>	changed STD Ted's Box				
<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	153.10	

<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	
740.0	21.70	150.61	725.3	-101.1	56.9	3.50	3.50	0.00	150.605	
3,451.6	21.70	150.61	3,244.7	-974.6	549.0	0.00	0.00	0.00	0.000	
4,898.2	0.00	0.00	4,657.0	-1,210.4	681.9	1.50	-1.50	0.00	180.000	
4,998.2	0.00	0.00	4,757.0	-1,210.4	681.9	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
7,148.2	0.00	0.00	6,907.0	-1,210.4	681.9	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 PA 524-4 - Slot B1
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5612.0usft (Nabors SSD (26' RKB) kjs)
<b>Project:</b>	PA 04-07S-095W	<b>MD Reference:</b>	KELLY BUSHING @ 5612.0usft (Nabors SSD (26' RKB) kjs)
<b>Site:</b>	GV 80-4 Pad	<b>North Reference:</b>	True
<b>Well:</b>	PA 524-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 11Aug10 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	1,603,422.50	2,292,337.20	39° 27' 48.097 N	108° 0' 24.536 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,603,422.50	2,292,337.20	39° 27' 48.097 N	108° 0' 24.536 W	
<b>Start Build 3.50</b>										
740.0	21.70	150.61	725.3	-101.1	56.9	1,603,319.90	2,292,391.33	39° 27' 47.098 N	108° 0' 23.810 W	
<b>Hold 21.70 Inclination</b>										
790.0	21.70	150.61	771.7	-117.2	66.0	1,603,303.54	2,292,399.96	39° 27' 46.939 N	108° 0' 23.695 W	
<b>9 5/8"</b>										
1,715.9	21.70	150.61	1,632.0	-415.4	234.0	1,603,000.78	2,292,559.68	39° 27' 43.991 N	108° 0' 21.552 W	
<b>Top of "G" Sand</b>										
1,823.5	21.70	150.61	1,732.0	-450.1	253.6	1,602,965.58	2,292,578.25	39° 27' 43.649 N	108° 0' 21.303 W	
<b>Base of "G" Sand</b>										
3,451.6	21.70	150.61	3,244.7	-974.6	549.0	1,602,433.19	2,292,859.11	39° 27' 38.465 N	108° 0' 17.536 W	
<b>Start Drop -1.50</b>										
3,886.4	15.18	150.61	3,657.0	-1,094.3	616.5	1,602,311.62	2,292,923.24	39° 27' 37.282 N	108° 0' 16.676 W	
<b>Mesaverde</b>										
4,898.2	0.00	0.00	4,657.0	-1,210.4	681.9	1,602,193.80	2,292,985.40	39° 27' 36.134 N	108° 0' 15.842 W	
<b>Vertical</b>										
4,998.2	0.00	0.00	4,757.0	-1,210.4	681.9	1,602,193.80	2,292,985.40	39° 27' 36.134 N	108° 0' 15.842 W	
<b>Top Gas - Approx. Top Gas</b>										
6,063.2	0.00	0.00	5,822.0	-1,210.4	681.9	1,602,193.80	2,292,985.40	39° 27' 36.134 N	108° 0' 15.842 W	
<b>Cameo Coals</b>										
6,998.2	0.00	0.00	6,757.0	-1,210.4	681.9	1,602,193.80	2,292,985.40	39° 27' 36.134 N	108° 0' 15.842 W	
<b>Rollins SS</b>										
7,148.2	0.00	0.00	6,907.0	-1,210.4	681.9	1,602,193.80	2,292,985.40	39° 27' 36.134 N	108° 0' 15.842 W	
<b>TD at 7148.2 - TD</b>										

Design Targets										
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Top Gas (25' Radius) P/ - plan hits target center - Circle (radius 25.0)	0.00	0.00	4,757.0	-1,210.4	681.9	1,602,193.80	2,292,985.40	39° 27' 36.134 N	108° 0' 15.842 W	

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
790.0	771.7	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 PA 524-4 - Slot B1
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5612.0usft (Nabors SSD (26' RKB) kjs)
<b>Project:</b>	PA 04-07S-095W	<b>MD Reference:</b>	KELLY BUSHING @ 5612.0usft (Nabors SSD (26' RKB) kjs)
<b>Site:</b>	GV 80-4 Pad	<b>North Reference:</b>	True
<b>Well:</b>	PA 524-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 11Aug10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,715.9	1,632.0	Top of "G" Sand				
1,823.5	1,732.0	Base of "G" Sand				
3,886.4	3,657.0	Mesaverde				
4,998.2	4,757.0	Approx. Top Gas				
6,063.2	5,822.0	Cameo Coals				
6,998.2	6,757.0	Rollins SS				
7,148.2	6,907.0	TD				

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 3.50	
740.0	725.3	-101.1	56.9	Hold 21.70 Inclination	
3,451.6	3,244.7	-974.6	549.0	Start Drop -1.50	
4,898.2	4,657.0	-1,210.4	681.9	Vertical	
4,998.2	4,757.0	-1,210.4	681.9	Top Gas	
7,148.2	6,907.0	-1,210.4	681.9	TD at 7148.2	