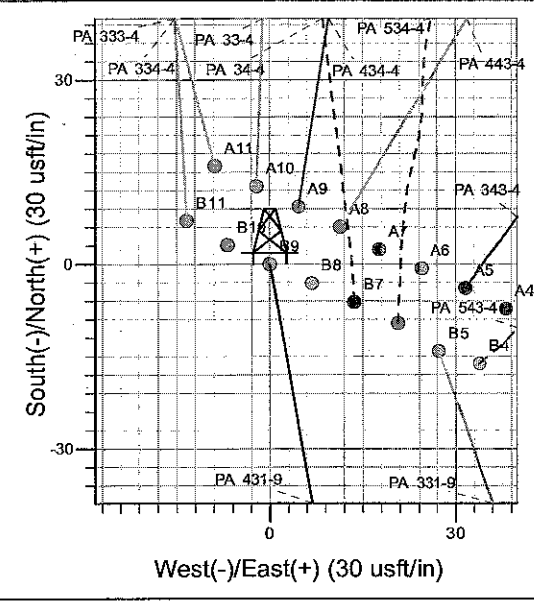
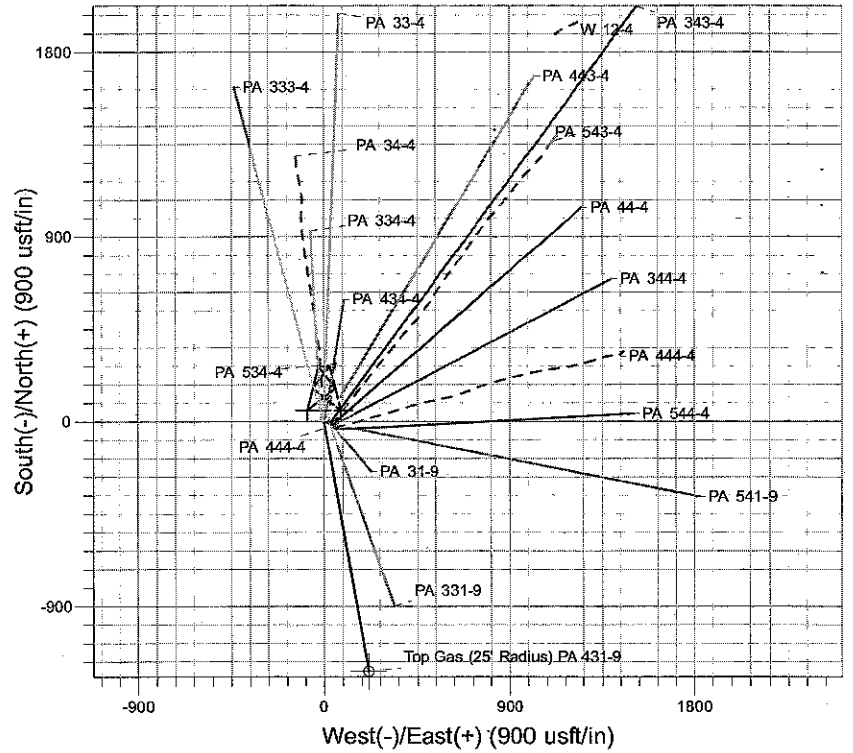
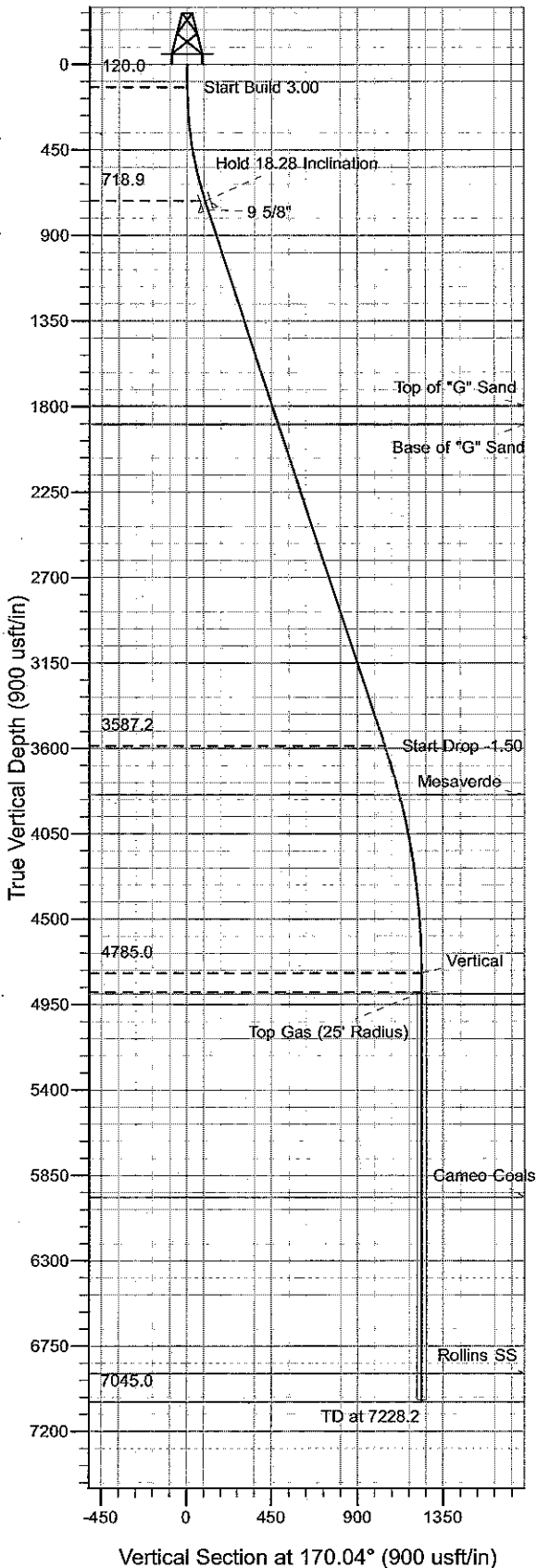




Well Name: PA 431-9  
 Surface Location: PA 34-4 Pad  
 North American Datum 1983, US State Plane 1983, Colorado Central Zone  
 Ground Elevation: 5757.0  
 +N/-S 0.0 +E/-W 0.0 Northing 1602029.47 Easting 2294021.38 Latitude 39° 27' 34.793 N Longitude 108° 0' 2.581 W Slot B9  
 KELLY BUSHING @ 5779.0usft (Cyclone 17 (22' KB) kjs)



Project: PA 04-07S-095W  
 Site: PA 34-4 Pad  
 Well: PA 431-9  
 PA 431-9 plan #1 22Mar10 sam

**T** Azimuths to True North  
 Magnetic North: 10.49°  
 Magnetic Field  
 Strength: 52384.7snT  
 Dip Angle: 65.75°  
 Date: 3/22/2010  
 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 3.00
718.9	729.2	18.28	170.04	-94.9	16.7	96.3	96.3	Hold 18.28 Inclination
3587.2	3749.8	18.28	170.04	-1027.8	180.6	1043.6	1043.6	Start Drop -1.50
4785.0	4968.2	0.00	0.00	-1217.6	213.9	1236.2	1236.2	Vertical
4885.0	5068.2	0.00	0.00	-1217.6	213.9	1236.2	1236.2	Top Gas
7045.0	7228.2	0.00	0.00	-1217.6	213.9	1236.2	1236.2	TD at 7228.2

# **PICEANCE VLY NAD 83**

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

**PA 34-4 Pad**

**PA 431-9 - Slot B9**

**Wellbore #1**

**Plan: PA 431-9 plan #1 22Mar10 sam**

## **Standard Planning Report - Geographic**

**25 May, 2010**

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well PA 431-9 - Slot B9
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5779.0usft (Cyclone 17 (22' KB) kjs)
<b>Project:</b>	PA 04-07S-095W	<b>MD Reference:</b>	KELLY BUSHING @ 5779.0usft (Cyclone 17 (22' KB) kjs)
<b>Site:</b>	PA 34-4 Pad	<b>North Reference:</b>	True
<b>Well:</b>	PA 431-9	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	PA 431-9 plan #1 22Mar10 sam		

<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

<b>Site</b>	PA 34-4 Pad		
<b>Site Position:</b>	<b>Northing:</b>	1,602,022.90 usft	<b>Latitude:</b> 39° 27' 34.732 N
<b>From:</b> Map	<b>Easting:</b>	2,294,034.80 usft	<b>Longitude:</b> 108° 0' 2.407 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b> 13.200 in	<b>Grid Convergence:</b> -1.577 °

<b>Well</b>	PA 431-9 - Slot B9		
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b> 1,602,029.47 usft
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b> 2,294,021.38 usft
<b>Position Uncertainty</b>	0.0 usft	<b>Wellhead Elevation:</b>	<b>Ground Level:</b> 5,757.0 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	3/22/2010	10.486	65.753	52,385

<b>Design</b>	PA 431-9 plan #1 22Mar10 sam			
<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	170.04

<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	
729.2	18.28	170.04	718.9	-94.9	16.7	3.00	3.00	0.00	170.035	
3,749.8	18.28	170.04	3,587.2	-1,027.8	180.6	0.00	0.00	0.00	0.000	
4,968.2	0.00	0.00	4,785.0	-1,217.6	213.9	1.50	-1.50	0.00	180.000	
5,068.2	0.00	0.00	4,885.0	-1,217.6	213.9	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
7,228.2	0.00	0.00	7,045.0	-1,217.6	213.9	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 431-9 -Slot B9
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5779.0usft (Cyclone 17 (22' KB) kjs)
<b>Project:</b>	PA 04-07S-095W	<b>MD Reference:</b>	KELLY BUSHING @ 5779.0usft (Cyclone 17 (22' KB) kjs)
<b>Site:</b>	PA 34-4 Pad	<b>North Reference:</b>	True
<b>Well:</b>	PA 431-9	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	PA 431-9 plan #1 22Mar10 sam		

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	1,602,029.47	2,294,021.38	39° 27' 34.793 N	108° 0' 2.581 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,602,029.47	2,294,021.38	39° 27' 34.793 N	108° 0' 2.581 W	
Start Build 3.00										
729.2	18.28	170.04	718.9	-94.9	16.7	1,601,934.17	2,294,035.43	39° 27' 33.855 N	108° 0' 2.368 W	
Hold 18.28 Inclination										
779.0	18.28	170.04	766.2	-110.3	19.4	1,601,918.71	2,294,037.71	39° 27' 33.703 N	108° 0' 2.334 W	
9 5/8"										
1,862.4	18.28	170.04	1,795.0	-444.9	78.2	1,601,582.61	2,294,087.27	39° 27' 30.396 N	108° 0' 1.584 W	
Top of "G" Sand										
1,967.8	18.28	170.04	1,895.0	-477.4	83.9	1,601,549.94	2,294,092.08	39° 27' 30.074 N	108° 0' 1.511 W	
Base of "G" Sand										
3,749.8	18.28	170.04	3,587.2	-1,027.8	180.6	1,600,997.10	2,294,173.60	39° 27' 24.635 N	108° 0' 0.278 W	
Start Drop -1.50										
4,018.4	14.25	170.04	3,845.0	-1,101.9	193.6	1,600,922.70	2,294,184.57	39° 27' 23.903 N	108° 0' 0.113 W	
Mesaverde										
4,968.2	0.00	0.00	4,785.0	-1,217.6	213.9	1,600,806.50	2,294,201.70	39° 27' 22.759 N	107° 59' 59.853 W	
Vertical										
5,068.2	0.00	0.00	4,885.0	-1,217.6	213.9	1,600,806.50	2,294,201.70	39° 27' 22.759 N	107° 59' 59.853 W	
Top Gas										
5,078.2	0.00	0.00	4,895.0	-1,217.6	213.9	1,600,806.50	2,294,201.70	39° 27' 22.759 N	107° 59' 59.853 W	
Approx. Top Gas										
6,148.2	0.00	0.00	5,965.0	-1,217.6	213.9	1,600,806.50	2,294,201.70	39° 27' 22.759 N	107° 59' 59.853 W	
Cameo Coals										
7,078.2	0.00	0.00	6,895.0	-1,217.6	213.9	1,600,806.50	2,294,201.70	39° 27' 22.759 N	107° 59' 59.853 W	
Rollins SS										
7,228.2	0.00	0.00	7,045.0	-1,217.6	213.9	1,600,806.50	2,294,201.70	39° 27' 22.759 N	107° 59' 59.853 W	
TD at 7228.2 - TD										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Top Gas (25' Radius) P/	0.00	0.00	4,885.0	-1,217.6	213.9	1,600,806.50	2,294,201.70	39° 27' 22.759 N	107° 59' 59.853 W	
- hit/miss target										
- Shape										
- plan hits target center										
- Circle (radius 25.0)										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)		Name	Casing Diameter (in)	Hole Diameter (in)
779.0	766.2	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 431-9 - Slot B9
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5779.0usft (Cyclone 17 (22' KB) kjs)
<b>Project:</b>	PA 04-07S-095W	<b>MD Reference:</b>	KELLY BUSHING @ 5779.0usft (Cyclone 17 (22' KB) kjs)
<b>Site:</b>	PA 34-4 Pad	<b>North Reference:</b>	True
<b>Well:</b>	PA 431-9	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	PA 431-9 plan #1 22Mar10 sam		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,862.4	1,795.0	Top of "G" Sand				
1,967.8	1,895.0	Base of "G" Sand				
4,018.4	3,845.0	Mesaverde				
5,078.2	4,895.0	Approx. Top Gas				
6,148.2	5,965.0	Cameo Coals				
7,078.2	6,895.0	Rollins SS				
7,228.2	7,045.0	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 3.00	
729.2	718.9	-94.9	16.7	Hold 18.28 Inclination	
3,749.8	3,587.2	-1,027.8	180.6	Start Drop -1.50	
4,968.2	4,785.0	-1,217.6	213.9	Vertical	
5,068.2	4,885.0	-1,217.6	213.9	Top Gas	
7,228.2	7,045.0	-1,217.6	213.9	TD at 7228.2	