

# **PICEANCE VLY NAD 83**

**AP 20-06S-095W**

**AP 21-20-695 Pad**

**AP 422-20-695 - Slot A1**

**Wellbore #1**

**Plan: Plan #3 25Oct11 kjs**

## **Standard Planning Report - Geographic**

**26 October, 2011**

**Williams**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well AP 422-20-695 - Slot A1
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)
<b>Project:</b>	AP 20-06S-095W	<b>MD Reference:</b>	KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)
<b>Site:</b>	AP 21-20-695 Pad	<b>North Reference:</b>	True
<b>Well:</b>	AP 422-20-695	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 25Oct11 kjs		

<b>Project</b>	AP 20-06S-095W, Garfield County, CO, 20-06S-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>	AP 21-20-695 Pad			
<b>Site Position:</b>		<b>Northing:</b>	1,623,258.80 usft	<b>Latitude:</b> 39° 31' 2.984 N
<b>From:</b>	Map	<b>Easting:</b>	2,288,342.20 usft	<b>Longitude:</b> 108° 1' 22.480 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> -1.591 °

<b>Well</b>	AP 422-20-695 - Slot A1			
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	1,623,229.32 usft
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	2,288,347.60 usft
<b>Position Uncertainty</b>	0.0 usft		<b>Wellhead Elevation:</b>	<b>Ground Level:</b> 6,909.0 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	7/16/2010	10.461	65.788	52,373

<b>Design</b>	Plan #3 25Oct11 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	205.85

<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	
150.0	0.00	0.00	150.0	0.0	0.0	0.00	0.00	0.00	0.000	
806.5	19.70	205.85	793.7	-100.6	-48.7	3.00	3.00	0.00	205.853	
6,057.7	19.70	205.85	5,737.7	-1,693.2	-820.4	0.00	0.00	0.00	0.000	
7,370.8	0.00	0.00	7,025.0	-1,894.3	-917.9	1.50	-1.50	0.00	180.000	
7,470.8	0.00	0.00	7,125.0	-1,894.3	-917.9	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
9,620.8	0.00	0.00	9,275.0	-1,894.3	-917.9	0.00	0.00	0.00	0.000	

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<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well AP 422-20-695 - Slot A1
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<b>Project:</b>	AP 20-06S-095W	<b>MD Reference:</b>	KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)
<b>Site:</b>	AP 21-20-695 Pad	<b>North Reference:</b>	True
<b>Well:</b>	AP 422-20-695	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 25Oct11 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	1,623,229.32	2,288,347.60	39° 31' 2.694 N	108° 1' 22.401 W
150.0	0.00	0.00	150.0	0.0	0.0	1,623,229.32	2,288,347.60	39° 31' 2.694 N	108° 1' 22.401 W
<b>Start Build 3.00</b>									
806.5	19.70	205.85	793.7	-100.6	-48.7	1,623,130.16	2,288,296.11	39° 31' 1.700 N	108° 1' 23.023 W
<b>Hold 19.70 Inclination</b>									
1,062.0	19.70	205.85	1,034.2	-178.0	-86.3	1,623,053.75	2,288,256.43	39° 31' 0.934 N	108° 1' 23.502 W
<b>9 5/8"</b>									
3,882.8	19.70	205.85	3,690.0	-1,033.6	-500.8	1,622,210.09	2,287,818.29	39° 30' 52.479 N	108° 1' 28.791 W
<b>Top of "G" Sand</b>									
3,989.0	19.70	205.85	3,790.0	-1,065.8	-516.4	1,622,178.32	2,287,801.80	39° 30' 52.160 N	108° 1' 28.990 W
<b>Base of "G" Sand</b>									
6,057.7	19.70	205.85	5,737.7	-1,693.2	-820.4	1,621,559.61	2,287,480.49	39° 30' 45.959 N	108° 1' 32.869 W
<b>Start Drop -1.60</b>									
6,123.7	18.71	205.85	5,800.0	-1,712.7	-829.9	1,621,540.34	2,287,470.48	39° 30' 45.766 N	108° 1' 32.990 W
<b>Mesaverde</b>									
7,370.8	0.00	0.00	7,025.0	-1,894.3	-917.9	1,621,361.30	2,287,377.50	39° 30' 43.972 N	108° 1' 34.113 W
<b>Vertical</b>									
7,470.8	0.00	0.00	7,125.0	-1,894.3	-917.9	1,621,361.30	2,287,377.50	39° 30' 43.972 N	108° 1' 34.113 W
<b>Top Gas - Approx. Top Gas - Top Gas (25' Radius) AP 422-20-695</b>									
8,835.8	0.00	0.00	8,490.0	-1,894.3	-917.9	1,621,361.30	2,287,377.50	39° 30' 43.972 N	108° 1' 34.113 W
<b>Cameo Coals</b>									
9,470.8	0.00	0.00	9,125.0	-1,894.3	-917.9	1,621,361.30	2,287,377.50	39° 30' 43.972 N	108° 1' 34.113 W
<b>Rollins SS</b>									
9,620.8	0.00	0.00	9,275.0	-1,894.3	-917.9	1,621,361.30	2,287,377.50	39° 30' 43.972 N	108° 1' 34.113 W
<b>TD at 9620.8 - 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) AF	0.00	0.00	7,125.0	-1,894.3	-917.9	1,621,361.30	2,287,377.50	39° 30' 43.972 N	108° 1' 34.113 W
- plan hits target center									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,062.0	1,034.2	9 5/8"	9.625	12.250	



**Williams**  
Planning Report - Geographic

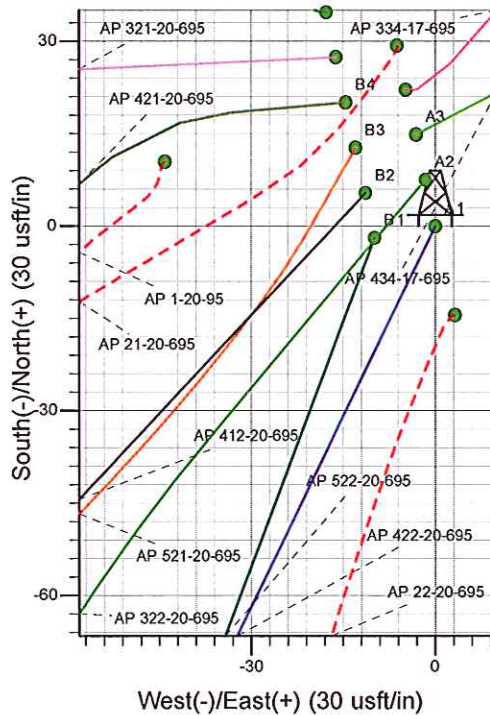
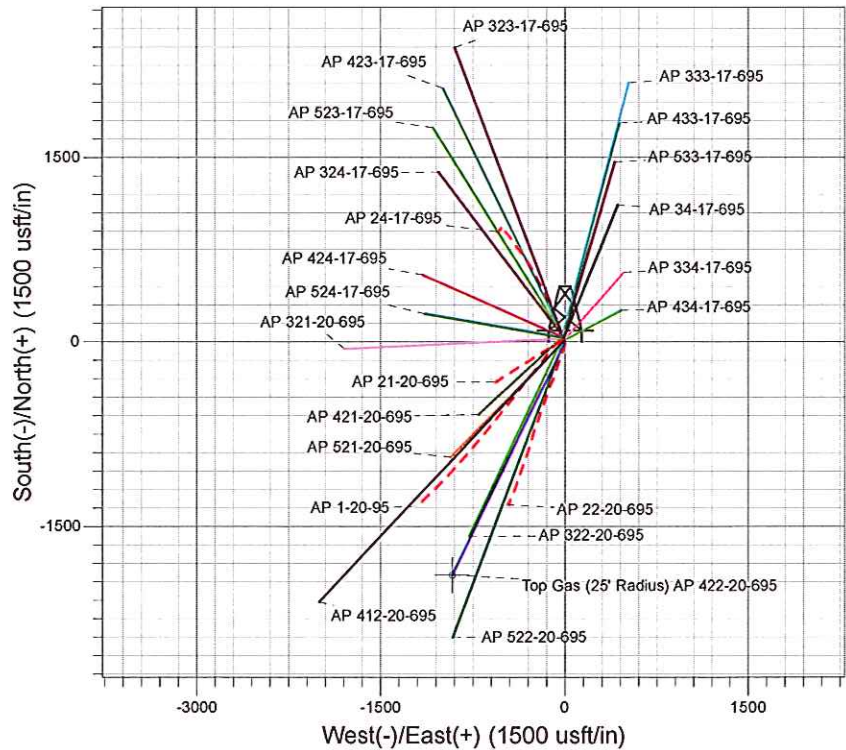
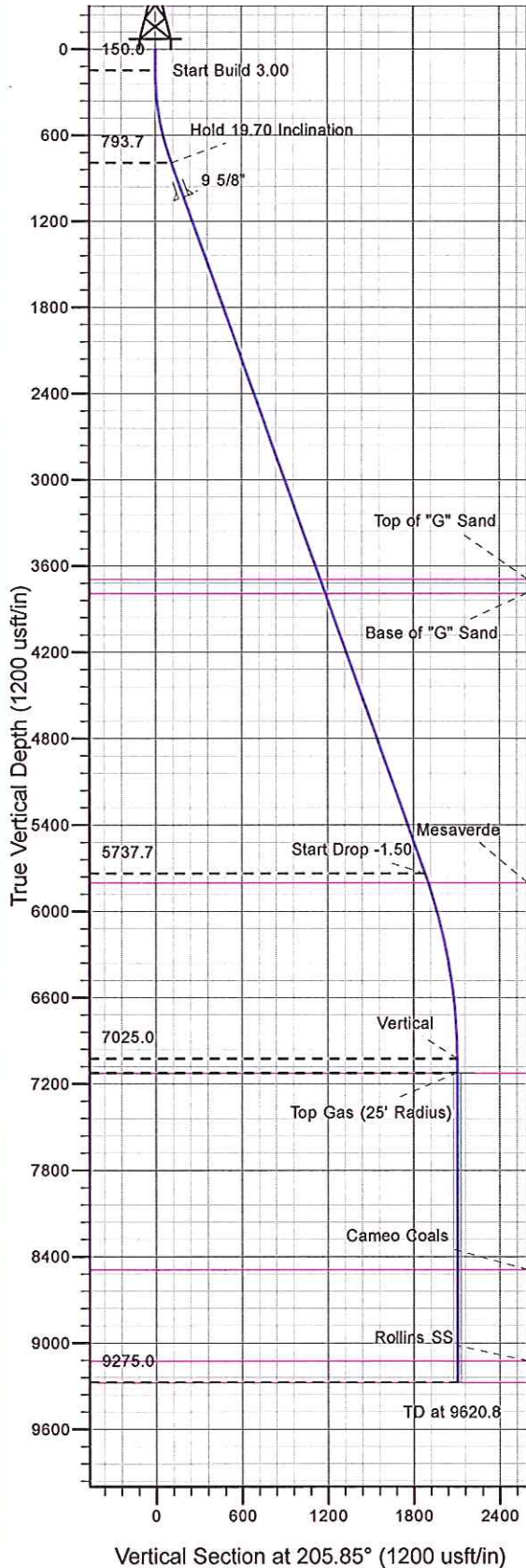
<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well AP 422-20-695 - Slot A1
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)
<b>Project:</b>	AP 20-06S-095W	<b>MD Reference:</b>	KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)
<b>Site:</b>	AP 21-20-695 Pad	<b>North Reference:</b>	True
<b>Well:</b>	AP 422-20-695	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 25Oct11 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,882.8	3,690.0	Top of "G" Sand				
3,989.0	3,790.0	Base of "G" Sand				
6,123.7	5,800.0	Mesaverde				
7,470.8	7,125.0	Approx. Top Gas				
8,835.8	8,490.0	Cameo Coals				
9,470.8	9,125.0	Rollins SS				
9,620.8	9,275.0	TD				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
150.0	150.0	0.0	0.0	Start Build 3.00	
806.5	793.7	-100.6	-48.7	Hold 19.70 Inclination	
6,057.7	5,737.7	-1,693.2	-820.4	Start Drop -1.50	
7,370.8	7,025.0	-1,894.3	-917.9	Vertical	
7,470.8	7,125.0	-1,894.3	-917.9	Top Gas	
9,620.8	9,275.0	-1,894.3	-917.9	TD at 9620.8	



Well Name: AP 422-20-695  
Surface Location: AP 21-20-695 Pad  
North American Datum 1983 , US State Plane 1983, Colorado Central Zone  
Ground Elevation: 6909.0  
+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1623229.32 2288347.60 39° 31' 2.694 N 108° 1' 22.401 W A1  
KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)



Project: AP 20-06S-095W  
Site: AP 21-20-695 Pad  
Well: AP 422-20-695  
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Azimuths to True North  
Magnetic North: 10.46°  
Magnetic Field  
Strength: 52373.0snT  
Dip Angle: 65.79°  
Date: 7/16/2010  
Model: IGRF2005-10

#### ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
150.0	0.00	0.00	150.0	0.0	0.0	0.0	0.0	Start Build 3.00
806.5	19.70	205.85	793.7	-100.6	-48.7	111.7	111.7	Hold 19.70 Inclination
6057.7	19.70	205.85	5737.7	-1693.2	-820.4	1881.5	1881.5	Start Drop -1.50
7370.8	0.00	0.00	7025.0	-1894.3	-917.9	2105.0	2105.0	Vertical
7470.8	0.00	0.00	7125.0	-1894.3	-917.9	2105.0	2105.0	Top Gas
9620.8	0.00	0.00	9275.0	-1894.3	-917.9	2105.0	2105.0	TD at 9620.8