

# **PICEANCE VLY NAD 83**

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

**AP 21-20-695 Pad**

**AP 323-17-695 - Slot B11**

**Wellbore #1**

**Plan: Design #1 13Jul10 kjs**

## **Standard Planning Report - Geographic**

**11 April, 2011**

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well AP 323-17-695 - Slot B11
<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 323-17-695	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 13Jul10 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 323-17-695 - Slot B11			
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	1,623,301.40 usft
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	2,288,324.00 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	7/13/2010	10.462	65.789	52,374

<b>Design</b>	Design #1 13Jul10 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	339.43

<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	
747.6	21.97	339.43	732.3	111.3	-41.7	3.50	3.50	0.00	339.435	
6,331.9	21.97	339.43	5,911.2	2,066.9	-775.5	0.00	0.00	0.00	0.000	
7,796.2	0.00	0.00	7,340.0	2,326.5	-872.9	1.50	-1.50	0.00	180.000	
7,896.2	0.00	0.00	7,440.0	2,326.5	-872.9	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
10,046.2	0.00	0.00	9,590.0	2,326.5	-872.9	0.00	0.00	0.00	0.000	

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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 323-17-695	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 13Jul10 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	1,623,301.40	2,288,324.00	39° 31' 3.400 N	108° 1' 22.727 W
120.0	0.00	0.00	120.0	0.0	0.0	1,623,301.40	2,288,324.00	39° 31' 3.400 N	108° 1' 22.727 W
<b>Start Build 3.50</b>									
747.6	21.97	339.43	732.3	111.3	-41.7	1,623,413.77	2,288,285.37	39° 31' 4.499 N	108° 1' 23.260 W
<b>Hold 21.97 Inclination</b>									
1,107.0	21.97	339.43	1,065.6	237.1	-89.0	1,623,540.90	2,288,241.66	39° 31' 5.743 N	108° 1' 23.863 W
<b>9 5/8"</b>									
4,039.2	21.97	339.43	3,785.0	1,264.0	-474.2	1,624,578.05	2,287,885.07	39° 31' 15.892 N	108° 1' 28.779 W
<b>Top of "G" Sand</b>									
4,147.0	21.97	339.43	3,885.0	1,301.8	-488.4	1,624,616.19	2,287,871.95	39° 31' 16.265 N	108° 1' 28.960 W
<b>Base of "G" Sand</b>									
6,331.9	21.97	339.43	5,911.2	2,066.9	-775.5	1,625,389.00	2,287,606.25	39° 31' 23.827 N	108° 1' 32.624 W
<b>Start Drop -1.50</b>									
6,443.1	20.30	339.43	6,015.0	2,104.5	-789.6	1,625,426.92	2,287,593.21	39° 31' 24.198 N	108° 1' 32.803 W
<b>Mesaverde</b>									
7,796.2	0.00	0.00	7,340.0	2,326.5	-872.9	1,625,651.20	2,287,516.10	39° 31' 26.393 N	108° 1' 33.867 W
<b>Vertical</b>									
7,896.2	0.00	0.00	7,440.0	2,326.5	-872.9	1,625,651.20	2,287,516.10	39° 31' 26.393 N	108° 1' 33.867 W
<b>Top Gas - Approx. Top Gas</b>									
9,171.2	0.00	0.00	8,715.0	2,326.5	-872.9	1,625,651.20	2,287,516.10	39° 31' 26.393 N	108° 1' 33.867 W
<b>Cameo Coals</b>									
9,896.2	0.00	0.00	9,440.0	2,326.5	-872.9	1,625,651.20	2,287,516.10	39° 31' 26.393 N	108° 1' 33.867 W
<b>Rollins SS</b>									
10,046.2	0.00	0.00	9,590.0	2,326.5	-872.9	1,625,651.20	2,287,516.10	39° 31' 26.393 N	108° 1' 33.867 W
<b>TD at 10046.2 - 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) Af - plan hits target center - Circle (radius 25.0)	0.00	0.00	7,440.0	2,326.5	-872.9	1,625,651.20	2,287,516.10	39° 31' 26.393 N	108° 1' 33.867 W

**Casing Points**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,107.0	1,065.6	9 5/8"	9.625	12.250

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Planning Report - Geographic

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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 323-17-695	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 13Jul10 kjs		

**Formations**

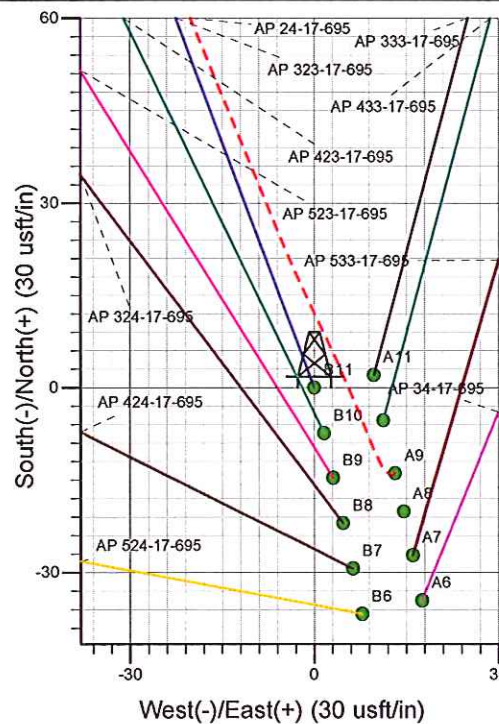
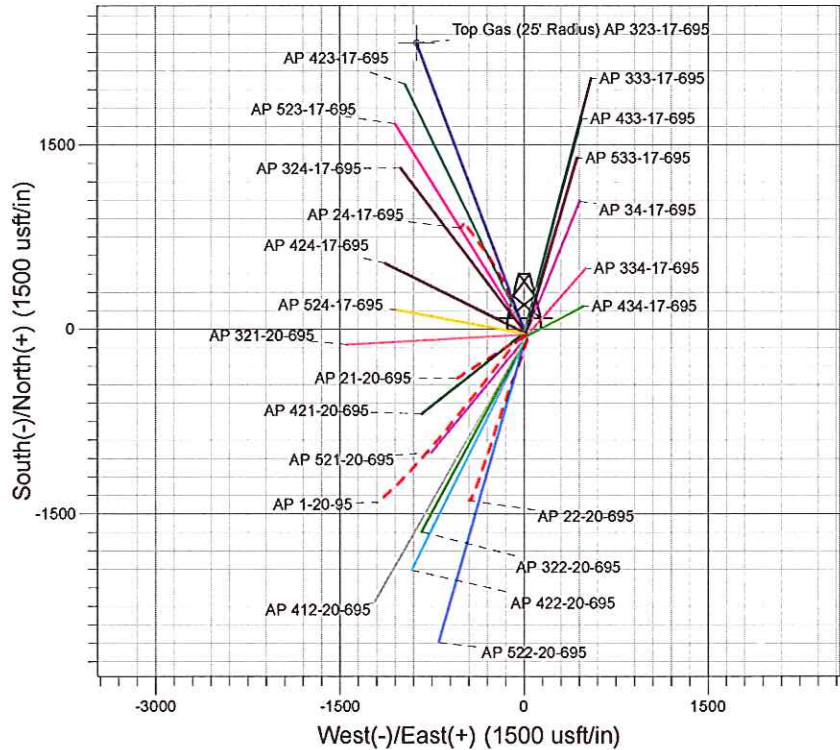
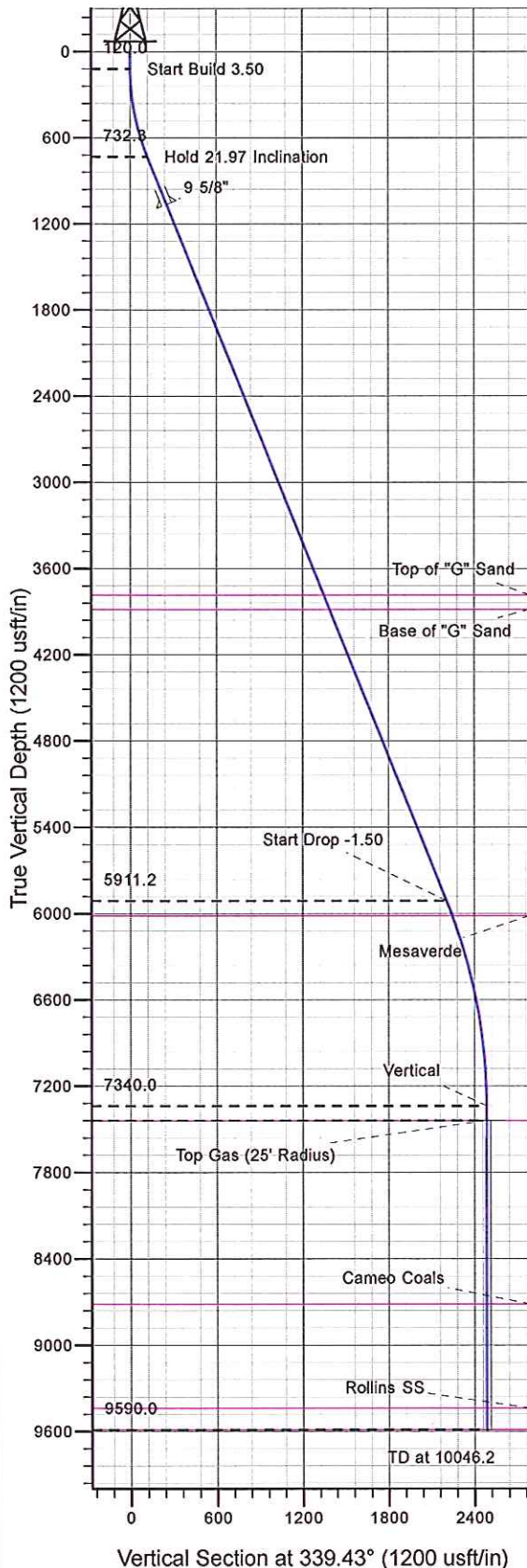
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,039.2	3,785.0	Top of "G" Sand			
4,147.0	3,885.0	Base of "G" Sand			
6,443.1	6,015.0	Mesaverde			
7,896.2	7,440.0	Approx. Top Gas			
9,171.2	8,715.0	Cameo Coals			
9,896.2	9,440.0	Rollins SS			
10,046.2	9,590.0	TD			

**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 3.50
747.6	732.3	111.3	-41.7	Hold 21.97 Inclination
6,331.9	5,911.2	2,066.9	-775.5	Start Drop -1.50
7,796.2	7,340.0	2,326.5	-872.9	Vertical
7,896.2	7,440.0	2,326.5	-872.9	Top Gas
10,046.2	9,590.0	2,326.5	-872.9	TD at 10046.2



Well Name: AP 323-17-695  
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 1623301.40 2288324.00 39° 31' 3.400 N 108° 1' 22.727 W B11  
KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)



Project: AP 20-06S-095W  
Site: AP 21-20-695 Pad  
Well: AP 323-17-695  
Design #1 13Jul10 kjs



Azimuths to True North  
Magnetic North: 10.46°  
Magnetic Field  
Strength: 52373.9snT  
Dip Angle: 65.79°  
Date: 7/13/2010  
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 3.50
732.3	747.6	21.97	339.43	111.3	-41.7	118.8	118.8	Hold 21.97 Inclination
5911.2	6331.9	21.97	339.43	2066.9	-775.5	2207.6	2207.6	Start Drop -1.50
7340.0	7796.2	0.00	0.00	2326.5	-872.9	2484.9	2484.9	Vertical
7440.0	7896.2	0.00	0.00	2326.5	-872.9	2484.9	2484.9	Top Gas
9590.0	10046.2	0.00	0.00	2326.5	-872.9	2484.9	2484.9	TD at 10046.2