

# **PICEANCE VLY NAD 83**

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

**AP 21-20-695 Pad**

**AP 34-17-695 - Slot A6**

**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 34-17-695 - Slot A6
<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 34-17-695	<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 34-17-695 - Slot A6			
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	1,623,266.40 usft
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	2,288,340.60 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	7/13/2010	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	22.15

<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	
130.0	0.00	0.00	130.0	0.0	0.0	0.00	0.00	0.00	0.000	
524.9	9.87	22.15	523.0	31.4	12.8	2.50	2.50	0.00	22.146	
6,764.4	9.87	22.15	6,670.0	1,022.4	416.1	0.00	0.00	0.00	0.000	
7,422.6	0.00	0.00	7,325.0	1,074.8	437.4	1.50	-1.50	0.00	180.000	
7,522.6	0.00	0.00	7,425.0	1,074.8	437.4	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
9,672.6	0.00	0.00	9,575.0	1,074.8	437.4	0.00	0.00	0.00	0.000	

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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 34-17-695	<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	1,623,266.40	2,288,340.60	39° 31' 3.058 N	108° 1' 22.503 W
130.0	0.00	0.00	130.0	0.0	0.0	1,623,266.40	2,288,340.60	39° 31' 3.058 N	108° 1' 22.503 W
<b>Start Build 2.50</b>									
524.9	9.87	22.15	523.0	31.4	12.8	1,623,297.47	2,288,354.26	39° 31' 3.369 N	108° 1' 22.340 W
<b>Hold 9.87 Inclination</b>									
1,067.0	9.87	22.15	1,057.0	117.5	47.8	1,623,382.55	2,288,391.68	39° 31' 4.220 N	108° 1' 21.893 W
<b>9 5/8"</b>									
3,815.7	9.87	22.15	3,765.0	554.1	225.5	1,623,813.98	2,288,581.40	39° 31' 8.534 N	108° 1' 19.626 W
<b>Top of "G" Sand</b>									
3,917.2	9.87	22.15	3,865.0	570.2	232.1	1,623,829.92	2,288,588.41	39° 31' 8.694 N	108° 1' 19.542 W
<b>Base of "G" Sand</b>									
6,079.2	9.87	22.15	5,995.0	913.6	371.8	1,624,169.27	2,288,737.64	39° 31' 12.087 N	108° 1' 17.759 W
<b>Mesaverde</b>									
6,764.4	9.87	22.15	6,670.0	1,022.4	416.1	1,624,276.81	2,288,784.93	39° 31' 13.163 N	108° 1' 17.193 W
<b>Start Drop -1.50</b>									
7,422.6	0.00	0.00	7,325.0	1,074.8	437.4	1,624,328.60	2,288,807.70	39° 31' 13.681 N	108° 1' 16.921 W
<b>Vertical</b>									
7,522.6	0.00	0.00	7,425.0	1,074.8	437.4	1,624,328.60	2,288,807.70	39° 31' 13.681 N	108° 1' 16.921 W
<b>Top Gas - Approx. Top Gas</b>									
8,707.6	0.00	0.00	8,610.0	1,074.8	437.4	1,624,328.60	2,288,807.70	39° 31' 13.681 N	108° 1' 16.921 W
<b>Cameo Coals</b>									
9,522.6	0.00	0.00	9,425.0	1,074.8	437.4	1,624,328.60	2,288,807.70	39° 31' 13.681 N	108° 1' 16.921 W
<b>Rollins SS</b>									
9,672.6	0.00	0.00	9,575.0	1,074.8	437.4	1,624,328.60	2,288,807.70	39° 31' 13.681 N	108° 1' 16.921 W
<b>TD at 9672.6 - 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	7,425.0	1,074.8	437.4	1,624,328.60	2,288,807.70	39° 31' 13.681 N	108° 1' 16.921 W

**Casing Points**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,067.0	1,057.0	9 5/8"	9.625	12.250



**Williams**  
Planning Report - Geographic

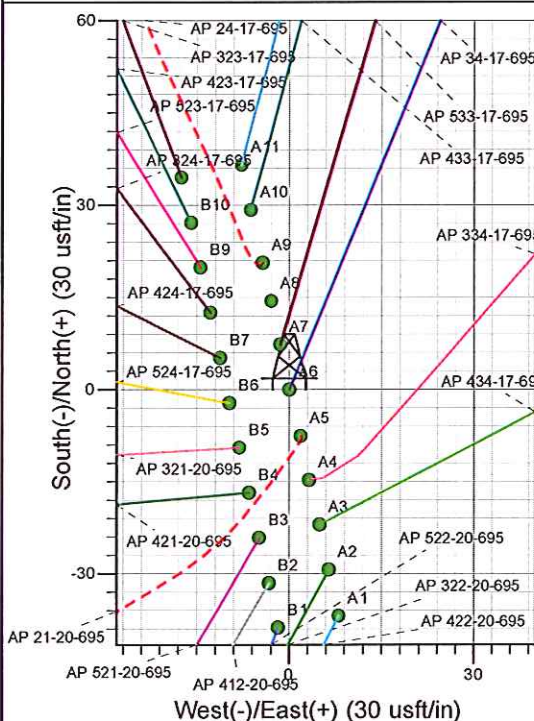
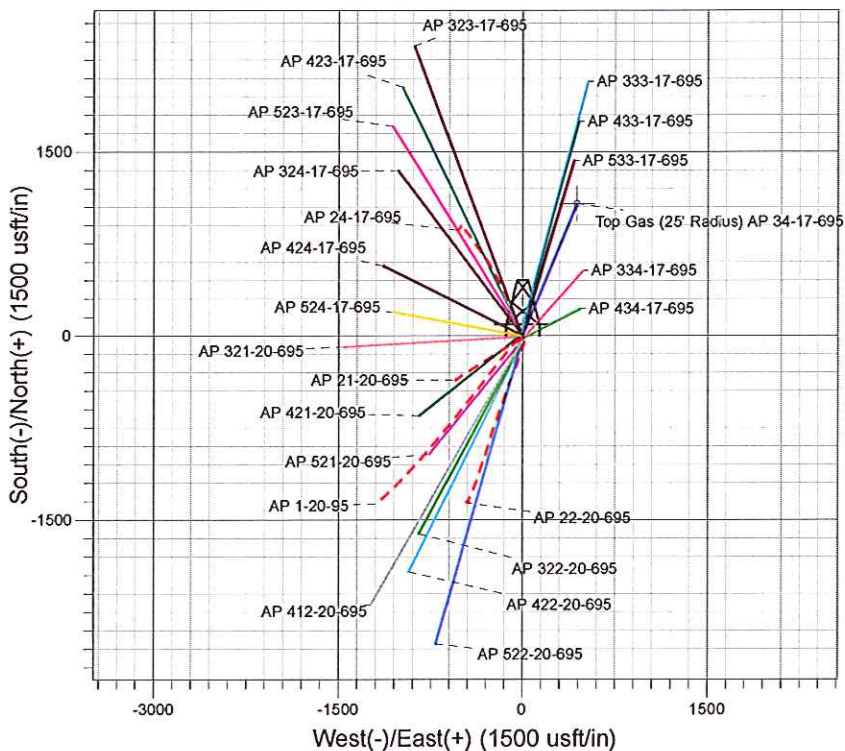
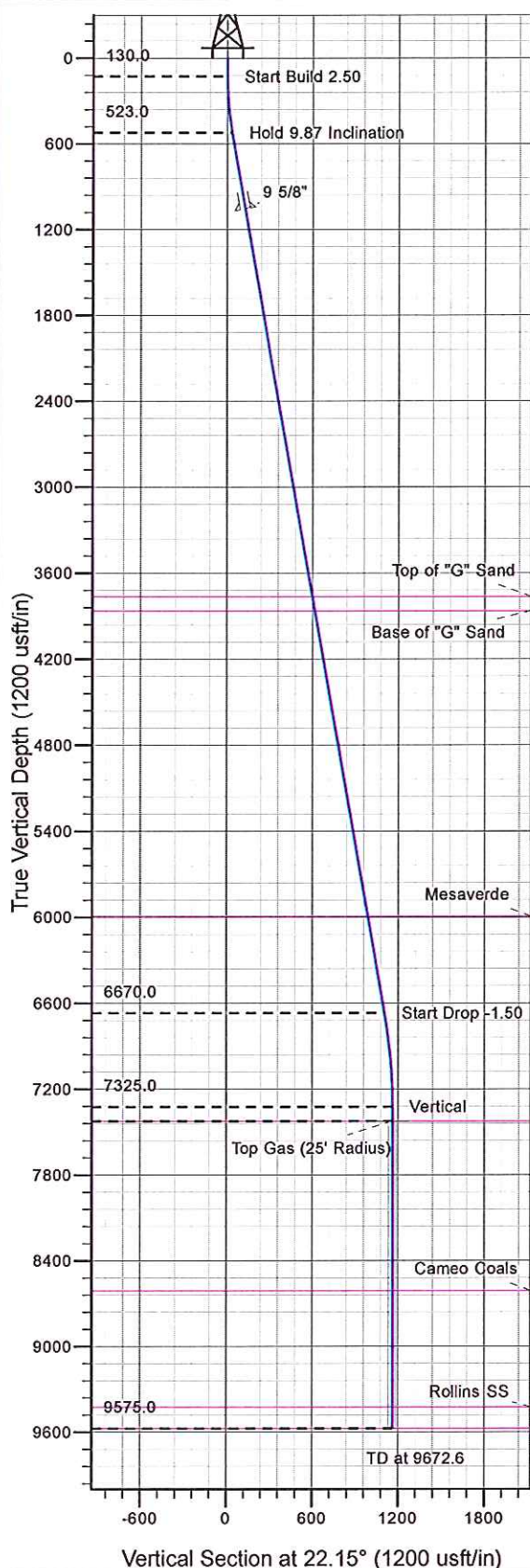
<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well AP 34-17-695 - Slot A6
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)
<b>Project:</b>	AP 20-06S-095W	<b>MD Reference:</b>	KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)
<b>Site:</b>	AP 21-20-695 Pad	<b>North Reference:</b>	True
<b>Well:</b>	AP 34-17-695	<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 (°)	
3,815.7	3,765.0	Top of "G" Sand		0.000		
3,917.2	3,865.0	Base of "G" Sand		0.000		
6,079.2	5,995.0	Mesaverde		0.000		
7,522.6	7,425.0	Approx. Top Gas		0.000		
8,707.6	8,610.0	Cameo Coals		0.000		
9,522.6	9,425.0	Rollins SS		0.000		
9,672.6	9,575.0	TD		0.000		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
130.0	130.0	0.0	0.0	Start Build 2.50	
524.9	523.0	31.4	12.8	Hold 9.87 Inclination	
6,764.4	6,670.0	1,022.4	416.1	Start Drop -1.50	
7,422.6	7,325.0	1,074.8	437.4	Vertical	
7,522.6	7,425.0	1,074.8	437.4	Top Gas	
9,672.6	9,575.0	1,074.8	437.4	TD at 9672.6	



Well Name: AP 34-17-695  
Surface Location: AP 21-20-695 Pad  
North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
Ground Elevation: 6909.0  
+N/-S 0.0 +E/-W 0.0 Northing 1623266.40 Easting 2288340.60 Latitude 39° 31' 3.058 N Longitude 108° 1' 22.503 W Slot A6  
KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)



Project: AP 20-06S-095W  
Site: AP 21-20-695 Pad  
Well: AP 34-17-695  
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
130.0	130.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 2.50
523.0	524.9	9.87	22.15	31.4	12.8	33.9	33.9	Hold 9.87 Inclination
6670.0	6764.4	9.87	22.15	1022.4	416.1	1103.8	1103.8	Start Drop -1.50
7325.0	7422.6	0.00	0.00	1074.8	437.4	1160.4	1160.4	Vertical
7425.0	7522.6	0.00	0.00	1074.8	437.4	1160.4	1160.4	Top Gas
9575.0	9672.6	0.00	0.00	1074.8	437.4	1160.4	1160.4	TD at 9672.6