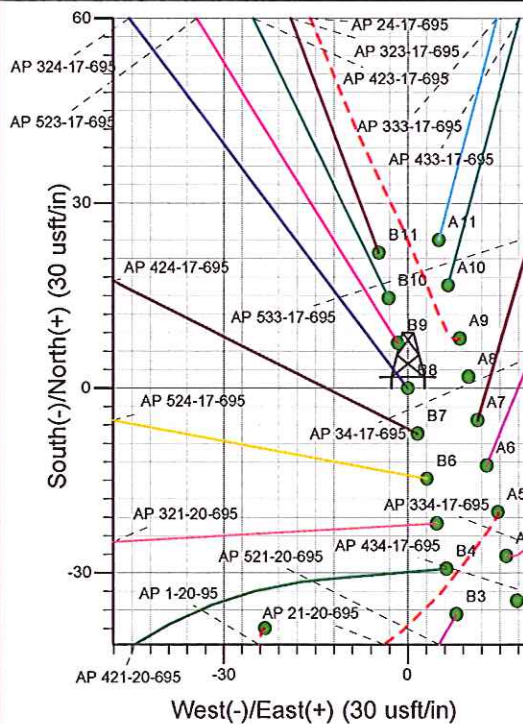
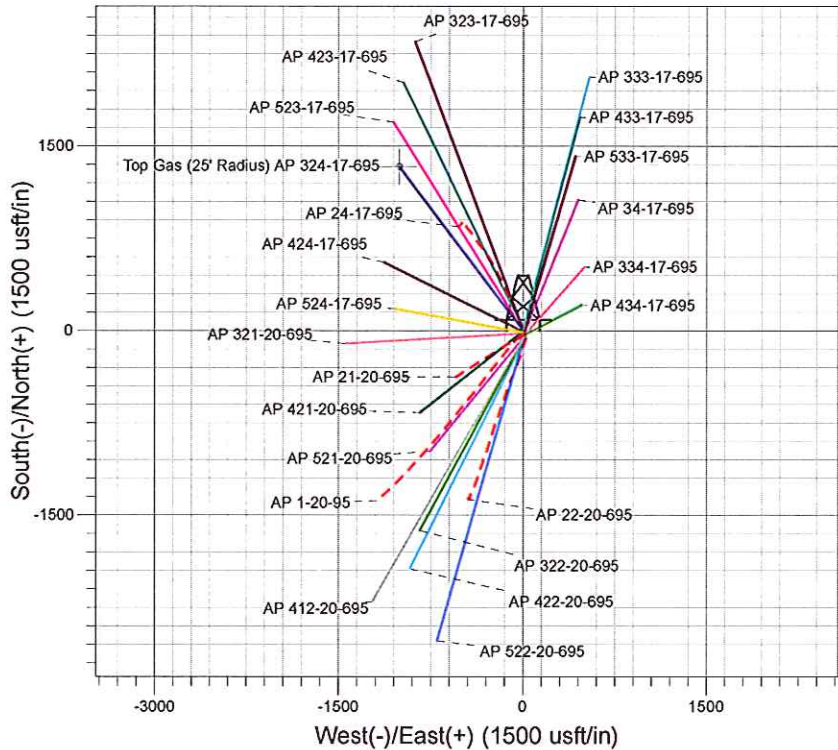
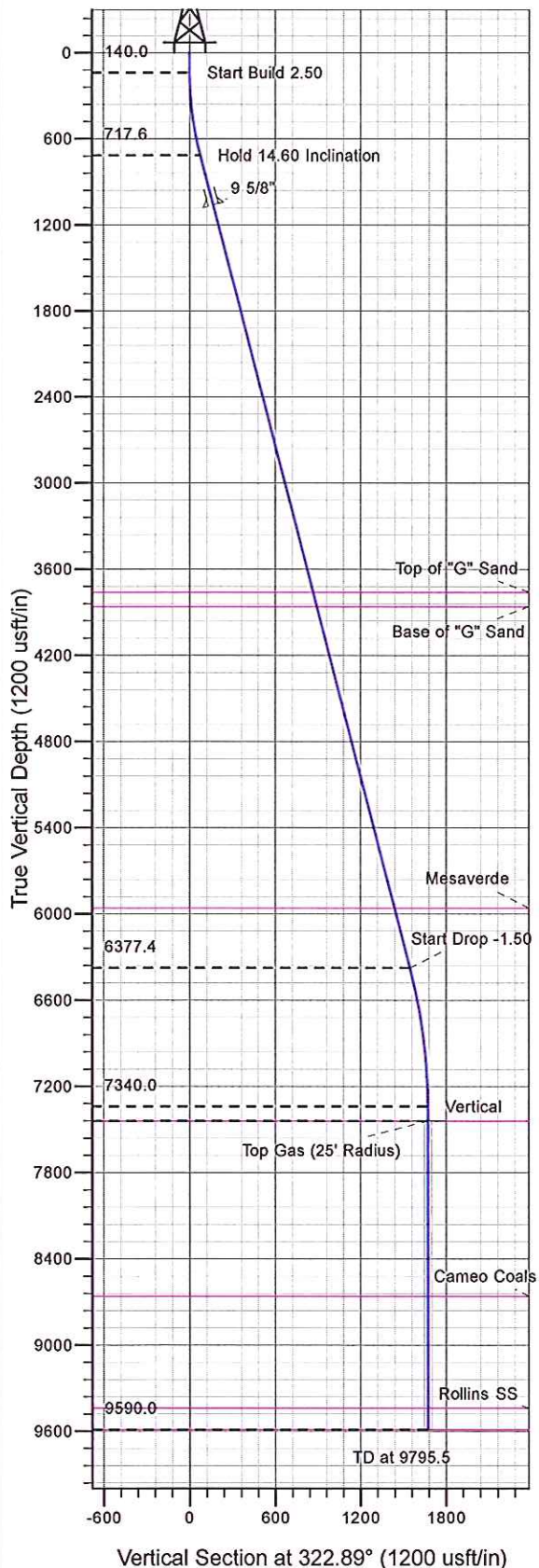




Well Name: AP 324-17-695  
Surface Location: AP 21-20-695 Pad  
North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
Ground Elevation: 6909.0  
+N/-S 0.0 +E/-W 0.0 Northing 1623279.30 Easting 2288328.10 Latitude 39° 31' 3.182 N Longitude 108° 1' 22.667 W Slot B8  
KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)



Project: AP 20-06S-095W  
Site: AP 21-20-695 Pad  
Well: AP 324-17-695  
Design #1 16Jul10 kjs



Azimuths to True North  
Magnetic North: 10.46°  
Magnetic Field  
Strength: 52373.1snT  
Dip Angle: 65.79°  
Date: 7/16/2010  
Model: IGRF2005-10

#### ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
140.0	140.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 2.50
717.6	723.9	14.60	322.89	59.0	-44.6	74.0	74.0	Hold 14.60 Inclination
6377.4	6572.5	14.60	322.89	1234.4	-933.9	1547.9	1547.9	Start Drop -1.50
7340.0	7545.5	0.00	0.00	1332.7	-1008.3	1671.1	1671.1	Vertical
7440.0	7645.5	0.00	0.00	1332.7	-1008.3	1671.1	1671.1	Top Gas
9590.0	9795.5	0.00	0.00	1332.7	-1008.3	1671.1	1671.1	TD at 9795.5

# **PICEANCE VLY NAD 83**

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

**AP 21-20-695 Pad**

**AP 324-17-695 - Slot B8**

**Wellbore #1**

**Plan: Design #1 16Jul10 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 324-17-695 - Slot B8
<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 324-17-695	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 16Jul10 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 324-17-695 - Slot B8			
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	1,623,279.30 usft
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	2,288,328.10 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>	Design #1 16Jul10 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	322.89

<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	
140.0	0.00	0.00	140.0	0.0	0.0	0.00	0.00	0.00	0.000	
723.9	14.60	322.89	717.6	59.0	-44.6	2.50	2.50	0.00	322.888	
6,572.5	14.60	322.89	6,377.4	1,234.4	-933.9	0.00	0.00	0.00	0.000	
7,545.5	0.00	0.00	7,340.0	1,332.7	-1,008.3	1.50	-1.50	0.00	180.000	
7,645.5	0.00	0.00	7,440.0	1,332.7	-1,008.3	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
9,795.5	0.00	0.00	9,590.0	1,332.7	-1,008.3	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 AP 324-17-695 - Slot B8
<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 324-17-695	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 16Jul10 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	1,623,279.30	2,288,328.10	39° 31' 3.182 N	108° 1' 22.667 W
140.0	0.00	0.00	140.0	0.0	0.0	1,623,279.30	2,288,328.10	39° 31' 3.182 N	108° 1' 22.667 W
<b>Start Build 2.50</b>									
723.9	14.60	322.89	717.6	59.0	-44.6	1,623,339.50	2,288,285.13	39° 31' 3.765 N	108° 1' 23.237 W
<b>Hold 14.60 Inclination</b>									
1,080.0	14.60	322.89	1,062.2	130.6	-98.8	1,623,412.54	2,288,232.98	39° 31' 4.473 N	108° 1' 23.928 W
<b>9 5/8"</b>									
3,867.8	14.60	322.89	3,760.0	690.8	-522.7	1,623,984.32	2,287,824.82	39° 31' 10.010 N	108° 1' 29.337 W
<b>Top of "G" Sand</b>									
3,971.1	14.60	322.89	3,860.0	711.6	-538.4	1,624,005.52	2,287,809.69	39° 31' 10.215 N	108° 1' 29.538 W
<b>Base of "G" Sand</b>									
6,141.1	14.60	322.89	5,960.0	1,147.7	-868.4	1,624,450.60	2,287,491.97	39° 31' 14.525 N	108° 1' 33.748 W
<b>Mesaverde</b>									
6,572.5	14.60	322.89	6,377.4	1,234.4	-933.9	1,624,539.06	2,287,428.82	39° 31' 15.381 N	108° 1' 34.585 W
<b>Start Drop -1.50</b>									
7,545.5	0.00	0.00	7,340.0	1,332.7	-1,008.3	1,624,639.40	2,287,357.20	39° 31' 16.353 N	108° 1' 35.535 W
<b>Vertical</b>									
7,645.5	0.00	0.00	7,440.0	1,332.7	-1,008.3	1,624,639.40	2,287,357.20	39° 31' 16.353 N	108° 1' 35.535 W
<b>Top Gas - Approx. Top Gas</b>									
8,865.5	0.00	0.00	8,660.0	1,332.7	-1,008.3	1,624,639.40	2,287,357.20	39° 31' 16.353 N	108° 1' 35.535 W
<b>Cameo Coals</b>									
9,645.5	0.00	0.00	9,440.0	1,332.7	-1,008.3	1,624,639.40	2,287,357.20	39° 31' 16.353 N	108° 1' 35.535 W
<b>Rollins SS</b>									
9,795.5	0.00	0.00	9,590.0	1,332.7	-1,008.3	1,624,639.40	2,287,357.20	39° 31' 16.353 N	108° 1' 35.535 W
<b>TD at 9795.5</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	1,332.7	-1,008.3	1,624,639.40	2,287,357.20	39° 31' 16.353 N	108° 1' 35.535 W

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (in)	Hole Diameter (in)
1,080.0	1,062.2	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 AP 324-17-695 - Slot B8
<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 324-17-695	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 16Jul10 kjs		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,867.8	3,760.0	Top of "G" Sand			
3,971.1	3,860.0	Base of "G" Sand			
6,141.1	5,960.0	Mesaverde			
7,645.5	7,440.0	Approx. Top Gas			
8,865.5	8,660.0	Cameo Coals			
9,645.5	9,440.0	Rollins SS			

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
140.0	140.0	0.0	0.0	Start Build 2.50
723.9	717.6	59.0	-44.6	Hold 14.60 Inclination
6,572.5	6,377.4	1,234.4	-933.9	Start Drop -1.50
7,545.5	7,340.0	1,332.7	-1,008.3	Vertical
7,645.5	7,440.0	1,332.7	-1,008.3	Top Gas
9,795.5	9,590.0	1,332.7	-1,008.3	TD at 9795.5