

PICEANCE VLY NAD 83

AP 20-06S-095W

AP 21-20-695 Pad

AP 333-17-695 - Slot A11

Wellbore #1

Plan: Design #1 13Jul10 kjs

Standard Planning Report - Geographic

11 April, 2011

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well AP 333-17-695 - Slot A11
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)
Project:	AP 20-06S-095W	MD Reference:	KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)
Site:	AP 21-20-695 Pad	North Reference:	True
Well:	AP 333-17-695	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 13Jul10 kjs		

Project	AP 20-06S-095W, Garfield County, CO, 20-06S-095W		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		Using geodetic scale factor

Site	AP 21-20-695 Pad			
Site Position:		Northing:	1,623,258.80 usft	Latitude: 39° 31' 2.984 N
From: Map		Easting:	2,288,342.20 usft	Longitude: 108° 1' 22.480 W
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in	Grid Convergence: -1.591 °

Well	AP 333-17-695 - Slot A11			
Well Position	+N/-S	0.0 usft	Northing:	1,623,303.20 usft
	+E/-W	0.0 usft	Easting:	2,288,333.80 usft
Position Uncertainty	0.0 usft		Wellhead Elevation:	Ground Level: 6,909.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	7/13/2010	10.462	65.789	52,374

Design	Design #1 13Jul10 kjs			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	14.74

Plan Sections										
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	
639.6	18.19	14.74	630.9	79.1	20.8	3.50	3.50	0.00	14.742	
6,512.9	18.19	14.74	6,210.9	1,851.7	487.2	0.00	0.00	0.00	0.000	
7,725.3	0.00	0.00	7,403.0	2,036.2	535.8	1.50	-1.50	0.00	180.000	
7,825.3	0.00	0.00	7,503.0	2,036.2	535.8	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
9,975.3	0.00	0.00	9,653.0	2,036.2	535.8	0.00	0.00	0.00	0.000	

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Site:	AP 21-20-695 Pad	North Reference:	True
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Wellbore:	Wellbore #1		
Design:	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	1,623,303.20	2,288,333.80	39° 31' 3.420 N	108° 1' 22.603 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,623,303.20	2,288,333.80	39° 31' 3.420 N	108° 1' 22.603 W	
Start Build 3.50										
639.6	18.19	14.74	630.9	79.1	20.8	1,623,381.66	2,288,356.79	39° 31' 4.201 N	108° 1' 22.338 W	
Hold 18.19 Inclination										
1,098.0	18.19	14.74	1,066.4	217.4	57.2	1,623,518.95	2,288,397.03	39° 31' 5.569 N	108° 1' 21.873 W	
9 5/8"										
3,959.5	18.19	14.74	3,785.0	1,081.1	284.5	1,624,375.91	2,288,648.16	39° 31' 14.104 N	108° 1' 18.973 W	
Top of "G" Sand										
4,064.8	18.19	14.74	3,885.0	1,112.8	292.8	1,624,407.43	2,288,657.39	39° 31' 14.418 N	108° 1' 18.866 W	
Base of "G" Sand										
6,333.0	18.19	14.74	6,040.0	1,797.4	473.0	1,625,086.74	2,288,856.46	39° 31' 21.184 N	108° 1' 16.568 W	
Mesaverde										
6,512.9	18.19	14.74	6,210.9	1,851.7	487.2	1,625,140.62	2,288,872.25	39° 31' 21.721 N	108° 1' 16.385 W	
Start Drop -1.50										
7,725.3	0.00	0.00	7,403.0	2,036.2	535.8	1,625,323.70	2,288,925.90	39° 31' 23.544 N	108° 1' 15.766 W	
Vertical										
7,825.3	0.00	0.00	7,503.0	2,036.2	535.8	1,625,323.70	2,288,925.90	39° 31' 23.544 N	108° 1' 15.766 W	
Top Gas - Approx. Top Gas										
8,992.3	0.00	0.00	8,670.0	2,036.2	535.8	1,625,323.70	2,288,925.90	39° 31' 23.544 N	108° 1' 15.766 W	
Cameo Coals										
9,825.3	0.00	0.00	9,503.0	2,036.2	535.8	1,625,323.70	2,288,925.90	39° 31' 23.544 N	108° 1' 15.766 W	
Rollins SS										
9,975.3	0.00	0.00	9,653.0	2,036.2	535.8	1,625,323.70	2,288,925.90	39° 31' 23.544 N	108° 1' 15.766 W	
TD at 9975.3 - TD										

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	7,503.0	2,036.2	535.8	1,625,323.70	2,288,925.90	39° 31' 23.544 N	108° 1' 15.766 W	
- plan hits target center										
- Circle (radius 25.0)										

Casing Points							Casing Diameter (in)	Hole Diameter (in)
Measured Depth (usft)	Vertical Depth (usft)	Name						
1,098.0	1,066.4	9 5/8"					9.625	12.250

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Well:	AP 333-17-695	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 13Jul10 kjs		

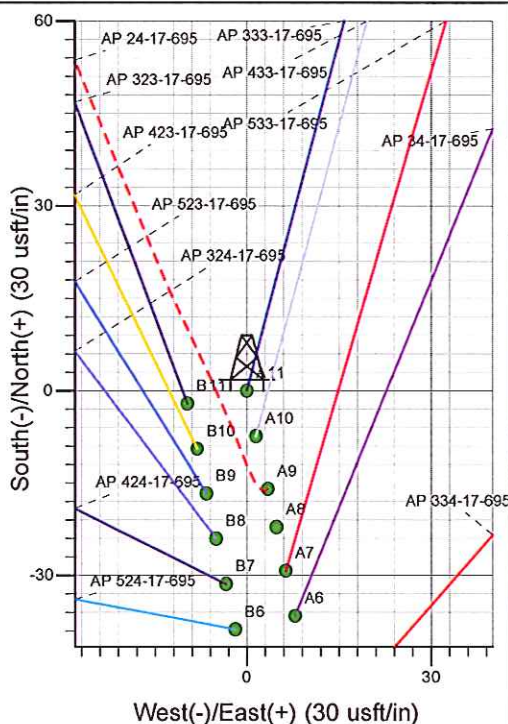
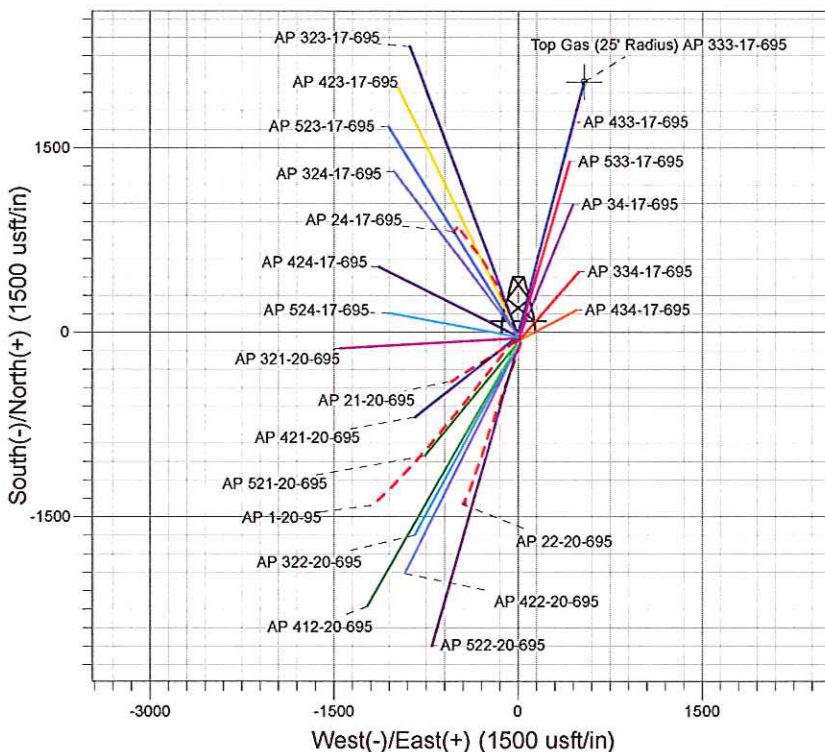
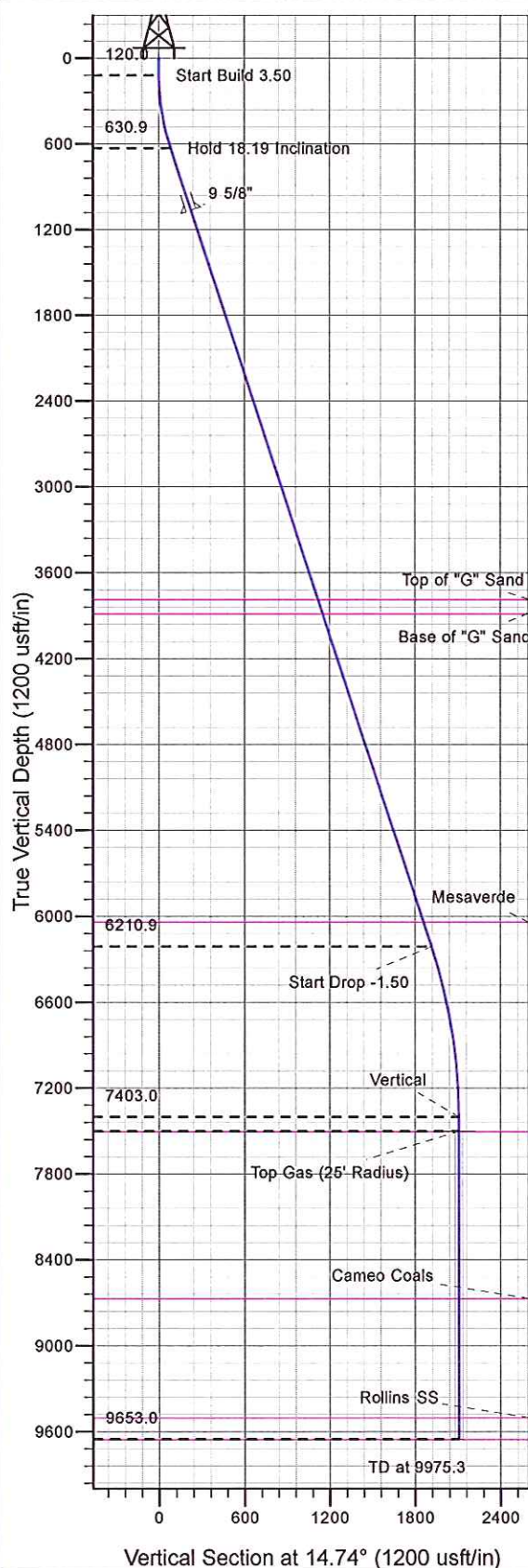
Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,959.5	3,785.0	Top of "G" Sand				
4,064.8	3,885.0	Base of "G" Sand				
6,333.0	6,040.0	Mesaverde				
7,825.3	7,503.0	Approx. Top Gas				
8,992.3	8,670.0	Cameo Coals				
9,825.3	9,503.0	Rollins SS				
9,975.3	9,653.0	TD				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
120.0	120.0	0.0	0.0	Start Build 3.50	
639.6	630.9	79.1	20.8	Hold 18.19 Inclination	
6,512.9	6,210.9	1,851.7	487.2	Start Drop -1.50	
7,725.3	7,403.0	2,036.2	535.8	Vertical	
7,825.3	7,503.0	2,036.2	535.8	Top Gas	
9,975.3	9,653.0	2,036.2	535.8	TD at 9975.3	



Well Name: AP 333-17-695
 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 1623303.20 2288333.80 39° 31' 3.420 N 108° 1' 22.603 W A11
 KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)



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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
630.9	639.6	18.19	14.74	79.1	20.8	81.8	81.8	Hold 18.19 Inclination
6210.9	6512.9	18.19	14.74	1851.7	487.2	1914.8	1914.8	Start Drop -1.50
7403.0	7725.3	0.00	0.00	2036.2	535.8	2105.5	2105.5	Vertical
7503.0	7825.3	0.00	0.00	2036.2	535.8	2105.5	2105.5	Top Gas
9653.0	9975.3	0.00	0.00	2036.2	535.8	2105.5	2105.5	TD at 9975.3