

PICEANCE VLY NAD 83

AP 20-06S-095W

AP 21-20-695 Pad

AP 412-20-695 - Slot B2

Wellbore #1

Plan: Plan #3 25Oct11 kjs

Standard Planning Report - Geographic

26 October, 2011

Williams
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well AP 412-20-695 - Slot B2
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 412-20-695	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 25Oct11 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 412-20-695 - Slot B2			
Well Position	+N/-S	0.0 usft	Northing:	1,623,235.00 usft
	+E/-W	0.0 usft	Easting:	2,288,336.40 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	7/16/2010	10.461	65.788	52,373

Design	Plan #3 25Oct11 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	223.23

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	
906.0	31.44	223.23	867.1	-153.2	-144.0	4.00	4.00	0.00	223.232	
4,462.5	31.44	223.23	3,901.5	-1,504.8	-1,414.6	0.00	0.00	0.00	0.000	
7,606.3	0.00	0.00	6,890.0	-2,117.6	-1,990.7	1.00	-1.00	0.00	180.000	
7,806.3	0.00	0.00	7,090.0	-2,117.6	-1,990.7	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
9,956.3	0.00	0.00	9,240.0	-2,117.6	-1,990.7	0.00	0.00	0.00	0.000	

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Planning Report - Geographic

Database: COMPASS-PICEANCE
Company: PICEANCE VLY NAD 83

Project: AP 20-06S-095W

Site: AP 21-20-695 Pad
Well: AP 412-20-695
Wellbore: Wellbore #1
Design: Plan #3 25Oct11 kjs

Local Co-ordinate Reference: Well AP 412-20-695 - Slot B2
TVD Reference: KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)
MD Reference: KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)
North Reference: True
Survey Calculation Method: Minimum Curvature

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	1,623,235.00	2,288,336.40	39° 31' 2.747 N	108° 1' 22.546 W
120.0	0.00	0.00	120.0	0.0	0.0	1,623,235.00	2,288,336.40	39° 31' 2.747 N	108° 1' 22.546 W
Start Build 4.00									
906.0	31.44	223.23	867.1	-153.2	-144.0	1,623,085.86	2,288,188.18	39° 31' 1.233 N	108° 1' 24.384 W
Hold 31.44 Inclination									
1,096.0	31.44	223.23	1,029.3	-225.4	-211.9	1,623,015.55	2,288,118.31	39° 31' 0.519 N	108° 1' 25.250 W
9 5/8"									
4,208.7	31.44	223.23	3,685.0	-1,408.3	-1,324.0	1,621,864.05	2,286,973.90	39° 30' 48.828 N	108° 1' 39.439 W
Top of "G" Sand									
4,325.9	31.44	223.23	3,785.0	-1,452.8	-1,365.8	1,621,820.69	2,286,930.81	39° 30' 48.388 N	108° 1' 39.973 W
Base of "G" Sand									
4,462.5	31.44	223.23	3,901.5	-1,504.8	-1,414.6	1,621,770.16	2,286,880.59	39° 30' 47.875 N	108° 1' 40.596 W
Start Drop -1.00									
6,494.4	11.12	223.23	5,785.0	-2,039.2	-1,917.1	1,621,249.89	2,286,363.52	39° 30' 42.592 N	108° 1' 47.006 W
Mesaverde									
7,606.3	0.00	0.00	6,890.0	-2,117.6	-1,990.7	1,621,173.60	2,286,287.70	39° 30' 41.818 N	108° 1' 47.946 W
Vertical									
7,806.3	0.00	0.00	7,090.0	-2,117.6	-1,990.7	1,621,173.60	2,286,287.70	39° 30' 41.818 N	108° 1' 47.946 W
Top Gas - Approx. Top Gas - Top Gas (25' Radius) AP 412-20-695									
9,181.3	0.00	0.00	8,465.0	-2,117.6	-1,990.7	1,621,173.60	2,286,287.70	39° 30' 41.818 N	108° 1' 47.946 W
Cameo Coals									
9,806.3	0.00	0.00	9,090.0	-2,117.6	-1,990.7	1,621,173.60	2,286,287.70	39° 30' 41.818 N	108° 1' 47.946 W
Rollins SS									
9,956.3	0.00	0.00	9,240.0	-2,117.6	-1,990.7	1,621,173.60	2,286,287.70	39° 30' 41.818 N	108° 1' 47.946 W
TD at 9956.3									

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	7,090.0	-2,117.6	-1,990.7	1,621,173.60	2,286,287.70	39° 30' 41.818 N	108° 1' 47.946 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,096.0	1,029.3	9 5/8"	9.625	12.250

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Planning Report - Geographic

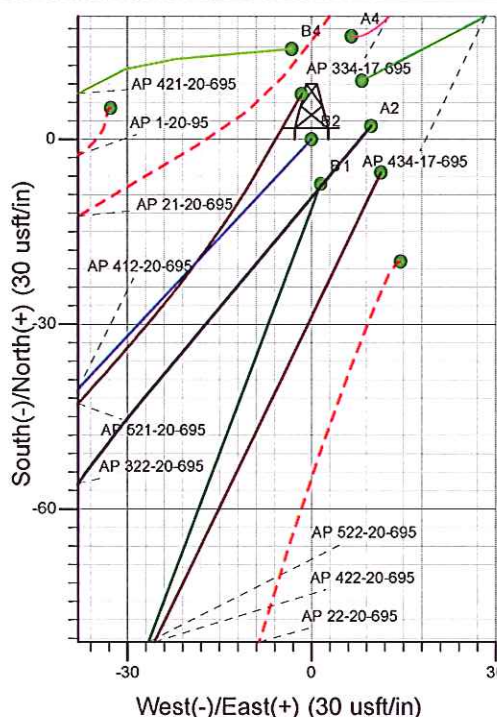
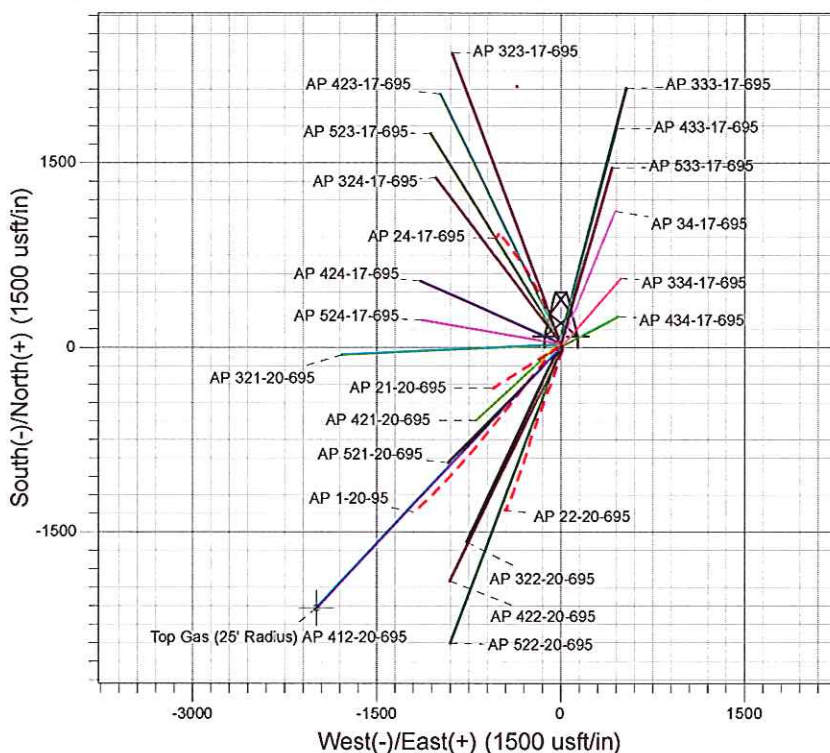
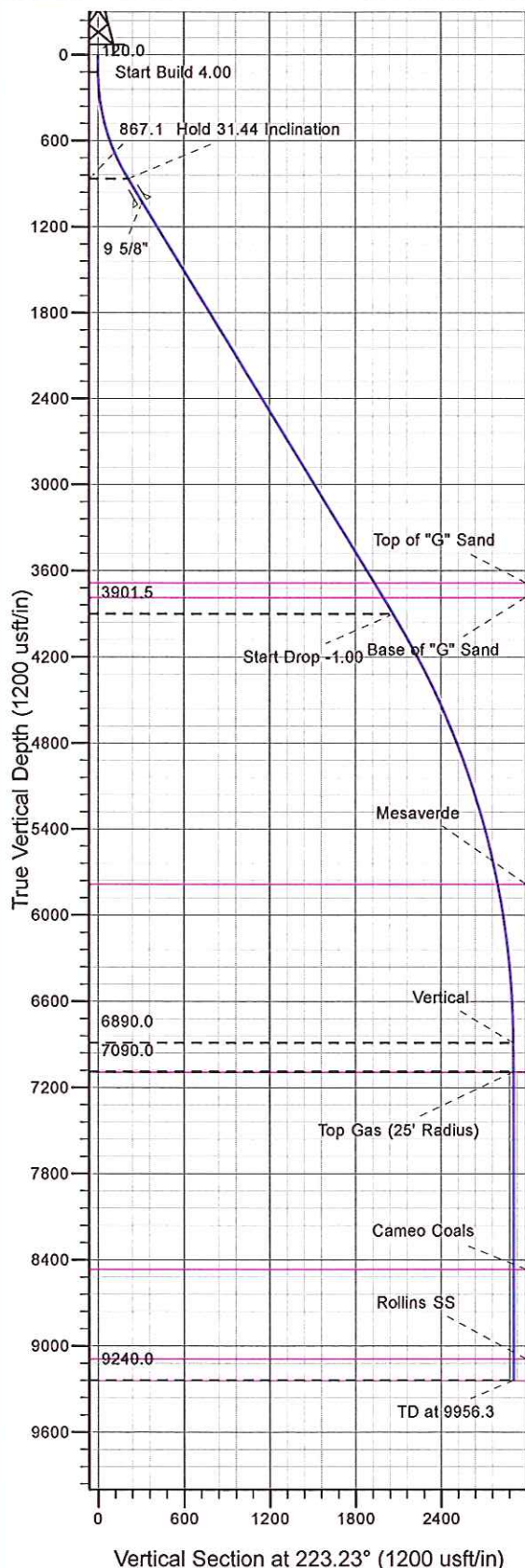
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Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)
Project:	AP 20-06S-095W	MD Reference:	KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)
Site:	AP 21-20-695 Pad	North Reference:	True
Well:	AP 412-20-695	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 25Oct11 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,208.7	3,685.0	Top of "G" Sand				
4,325.9	3,785.0	Base of "G" Sand				
6,494.4	5,785.0	Mesaverde				
7,806.3	7,090.0	Approx. Top Gas				
9,181.3	8,465.0	Cameo Coals				
9,806.3	9,090.0	Rollins SS				

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 4.00	
906.0	867.1	-153.2	-144.0	Hold 31.44 Inclination	
4,462.5	3,901.5	-1,504.8	-1,414.6	Start Drop -1.00	
7,606.3	6,890.0	-2,117.6	-1,990.7	Vertical	
7,806.3	7,090.0	-2,117.6	-1,990.7	Top Gas	
9,956.3	9,240.0	-2,117.6	-1,990.7	TD at 9956.3	



Well Name: AP 412-20-695
 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 1623235.00 2288336.40 39° 31' 2.747 N 108° 1' 22.546 W B2
 KELLY BUSHING @ 6935.0usft (Nabors 574 (26' RKB) kjs)



Project: AP 20-06S-095W
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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
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.0	Start Build 4.00
906.0	31.44	223.23	867.1	-153.2	-144.0	210.3	210.3	Hold 31.44 Inclination
4482.5	31.44	223.23	3901.5	-1504.8	-1414.6	2065.3	2065.3	Start Drop -1.00
7606.3	0.00	0.00	6890.0	-2117.6	-1990.7	2906.4	2906.4	Vertical
7806.3	0.00	0.00	7090.0	-2117.6	-1990.7	2906.4	2906.4	Top Gas
9956.3	0.00	0.00	9240.0	-2117.6	-1990.7	2906.4	2906.4	TD at 9956.3