

PICEANCE VLY NAD 83

PA 04-07S-095W

GV 80-4 Pad

PA 314-4 - Slot A3

Wellbore #1

Plan: Plan #2 27Apr10 kjs

Standard Planning Report - Geographic

11 August, 2010

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well PA 314-4 - Slot A3
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 5612.0usft (Nabors SSD (26' RKB) kjs)
Project:	PA 04-07S-095W	MD Reference:	KELLY BUSHING @ 5612.0usft (Nabors SSD (26' RKB) kjs)
Site:	GV 80-4 Pad	North Reference:	True
Well:	PA 314-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 27Apr10 kjs		

Project	PA 04-07S-095W, Garfield County, CO, 04-07S-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		GV 80-4 Pad			
Site Position:		Northing:	1,603,479.50 usft	Latitude:	39° 27' 48.655 N
From:	Map	Easting:	2,292,316.70 usft	Longitude:	108° 0' 24.818 W
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in	Grid Convergence:	-1.581 °

Well	PA 314-4 - Slot A3					
Well Position	+N/-S	0.0 usft	Northing:	1,603,440.49 usft	Latitude:	39° 27' 48.275 N
	+E/-W	0.0 usft	Easting:	2,292,338.50 usft	Longitude:	108° 0' 24.526 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	5,586.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	11/7/2007	10.799	65.815	52,618

Design	Plan #2 27Apr10 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	231.10

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	
150.0	0.00	0.00	150.0	0.0	0.0	0.00	0.00	0.00	0.000	
797.7	16.19	231.10	789.1	-57.1	-70.7	2.50	2.50	0.00	231.097	
3,731.9	16.19	231.10	3,606.9	-570.9	-707.5	0.00	0.00	0.00	0.000	
4,811.3	0.00	0.00	4,672.0	-666.1	-825.4	1.50	-1.50	0.00	180.000	
4,911.3	0.00	0.00	4,772.0	-666.1	-825.4	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
7,061.3	0.00	0.00	6,922.0	-666.1	-825.4	0.00	0.00	0.00	0.000	

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Wellbore:	Wellbore #1		
Design:	Plan #2 27Apr10 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	1,603,440.49	2,292,338.50	39° 27' 48.275 N	108° 0' 24.526 W	
150.0	0.00	0.00	150.0	0.0	0.0	1,603,440.49	2,292,338.50	39° 27' 48.275 N	108° 0' 24.526 W	
Start Build 2.50										
797.7	16.19	231.10	789.1	-57.1	-70.7	1,603,385.38	2,292,266.21	39° 27' 47.711 N	108° 0' 25.428 W	
Hold 16.19 Inclination										
909.0	16.19	231.10	896.0	-76.6	-94.9	1,603,366.56	2,292,241.52	39° 27' 47.519 N	108° 0' 25.736 W	
9 5/8"										
1,675.4	16.19	231.10	1,632.0	-210.8	-261.2	1,603,237.00	2,292,071.58	39° 27' 46.192 N	108° 0' 27.857 W	
Top of "G" Sand										
1,779.5	16.19	231.10	1,732.0	-229.0	-283.8	1,603,219.39	2,292,048.49	39° 27' 46.012 N	108° 0' 28.145 W	
Base of "G" Sand										
3,731.9	16.19	231.10	3,606.9	-570.9	-707.5	1,602,889.35	2,291,615.58	39° 27' 42.633 N	108° 0' 33.546 W	
Start Drop -1.50										
3,799.5	15.18	231.10	3,672.0	-582.4	-721.7	1,602,878.26	2,291,601.04	39° 27' 42.519 N	108° 0' 33.728 W	
Mesaverde										
4,811.3	0.00	0.00	4,672.0	-666.1	-825.4	1,602,797.50	2,291,495.10	39° 27' 41.693 N	108° 0' 35.050 W	
Vertical										
4,911.3	0.00	0.00	4,772.0	-666.1	-825.4	1,602,797.50	2,291,495.10	39° 27' 41.693 N	108° 0' 35.050 W	
Top Gas - Approx. Top Gas										
6,001.3	0.00	0.00	5,862.0	-666.1	-825.4	1,602,797.50	2,291,495.10	39° 27' 41.693 N	108° 0' 35.050 W	
Cameo Coals										
6,911.3	0.00	0.00	6,772.0	-666.1	-825.4	1,602,797.50	2,291,495.10	39° 27' 41.693 N	108° 0' 35.050 W	
Rollins SS										
7,061.3	0.00	0.00	6,922.0	-666.1	-825.4	1,602,797.50	2,291,495.10	39° 27' 41.693 N	108° 0' 35.050 W	
TD at 7061.3 - TD										

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) P/ - plan hits target center - Circle (radius 25.0)	0.00	0.00	4,772.0	-666.1	-825.4	1,602,797.50	2,291,495.10	39° 27' 41.693 N	108° 0' 35.050 W	

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name			Casing Diameter (in)	Hole Diameter (in)
909.0	896.0	9 5/8"			9.625	12.250

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Wellbore:	Wellbore #1		
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Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,675.4	1,632.0	Top of "G" Sand				
1,779.5	1,732.0	Base of "G" Sand				
3,799.5	3,672.0	Mesaverde				
4,911.3	4,772.0	Approx. Top Gas				
6,001.3	5,862.0	Cameo Coals				
6,911.3	6,772.0	Rollins SS				
7,061.3	6,922.0	TD				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
150.0	150.0	0.0	0.0	Start Build 2.50	
797.7	789.1	-57.1	-70.7	Hold 16.19 Inclination	
3,731.9	3,606.9	-570.9	-707.5	Start Drop -1.50	
4,811.3	4,672.0	-666.1	-825.4	Vertical	
4,911.3	4,772.0	-666.1	-825.4	Top Gas	
7,061.3	6,922.0	-666.1	-825.4	TD at 7061.3	