

# **PICEANCE VLY NAD 83**

**PA 13-07S-095W**

**SP 13-13 Pad East**

**SP 43-14 - Slot A1**

**Wellbore #1**

**Plan: Design #1 12Nov10 kjs**

## **Standard Planning Report - Geographic**

**10 January, 2011**

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well SP 43-14 - Slot A1
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 8010.0usft (H&P 278 (24' RKB) kjs)
<b>Project:</b>	PA 13-07S-095W	<b>MD Reference:</b>	KELLY BUSHING @ 8010.0usft (H&P 278 (24' RKB) kjs)
<b>Site:</b>	SP 13-13 Pad East	<b>North Reference:</b>	True
<b>Well:</b>	SP 43-14	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 12Nov10 kjs		

<b>Project</b>	PA 13-07S-095W, Garfield County, CO		
<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>	SP 13-13 Pad East				
<b>Site Position:</b>		<b>Northing:</b>	1,592,728.84 usft	<b>Latitude:</b>	39° 26' 6.316 N
<b>From:</b>	Map	<b>Easting:</b>	2,306,685.15 usft	<b>Longitude:</b>	107° 57' 17.968 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b>	-1.548 °

<b>Well</b>	SP 43-14 - Slot A1					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	1,592,718.56 usft	<b>Latitude:</b>	39° 26' 6.218 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	2,306,698.70 usft	<b>Longitude:</b>	107° 57' 17.792 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	7,986.0 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>
	IGRF2010	11/12/2010	10.401	65.713	52,266

<b>Design</b>	Design #1 12Nov10 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	308.12

<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	
120.0	0.00	0.00	120.0	0.0	0.0	0.00	0.00	0.00	0.000	
434.4	9.43	308.12	433.0	15.9	-20.3	3.00	3.00	0.00	308.120	
6,664.6	9.43	308.12	6,579.0	646.3	-823.6	0.00	0.00	0.00	0.000	
7,293.5	0.00	0.00	7,205.0	678.2	-864.3	1.50	-1.50	0.00	180.000	
7,393.5	0.00	0.00	7,305.0	678.2	-864.3	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
9,543.5	0.00	0.00	9,455.0	678.2	-864.3	0.00	0.00	0.00	0.000	

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<b>Project:</b>	PA 13-07S-095W	<b>MD Reference:</b>	KELLY BUSHING @ 8010.0usft (H&P 278 (24' RKB) kjs)
<b>Site:</b>	SP 13-13 Pad East	<b>North Reference:</b>	True
<b>Well:</b>	SP 43-14	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 12Nov10 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	1,592,718.56	2,306,698.70	39° 26' 6.218 N	107° 57' 17.792 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,592,718.56	2,306,698.70	39° 26' 6.218 N	107° 57' 17.792 W	
<b>Start Build 3.00</b>										
434.4	9.43	308.12	433.0	15.9	-20.3	1,592,735.05	2,306,678.82	39° 26' 6.375 N	107° 57' 18.051 W	
<b>Hold 9.43 Inclination</b>										
1,110.6	9.43	308.12	1,100.0	84.3	-107.5	1,592,805.78	2,306,593.52	39° 26' 7.051 N	107° 57' 19.162 W	
<b>9 5/8"</b>										
4,019.9	9.43	308.12	3,970.0	378.7	-482.6	1,593,110.15	2,306,226.50	39° 26' 9.960 N	107° 57' 23.944 W	
<b>Top of "G" Sand</b>										
4,121.3	9.43	308.12	4,070.0	389.0	-495.7	1,593,120.75	2,306,213.71	39° 26' 10.062 N	107° 57' 24.110 W	
<b>Base of "G" Sand</b>										
6,138.6	9.43	308.12	6,060.0	593.0	-755.8	1,593,331.79	2,305,959.23	39° 26' 12.079 N	107° 57' 27.426 W	
<b>Mesaverde</b>										
6,664.6	9.43	308.12	6,579.0	646.3	-823.6	1,593,386.83	2,305,892.86	39° 26' 12.605 N	107° 57' 28.290 W	
<b>Start Drop -1.50</b>										
7,293.5	0.00	0.00	7,205.0	678.2	-864.3	1,593,419.80	2,305,853.10	39° 26' 12.920 N	107° 57' 28.808 W	
<b>Vertical</b>										
7,393.5	0.00	0.00	7,305.0	678.2	-864.3	1,593,419.80	2,305,853.10	39° 26' 12.920 N	107° 57' 28.808 W	
<b>Top Gas - Approx. Top Gas</b>										
8,403.5	0.00	0.00	8,315.0	678.2	-864.3	1,593,419.80	2,305,853.10	39° 26' 12.920 N	107° 57' 28.808 W	
<b>Cameo Coals</b>										
9,393.5	0.00	0.00	9,305.0	678.2	-864.3	1,593,419.80	2,305,853.10	39° 26' 12.920 N	107° 57' 28.808 W	
<b>Rollins SS</b>										
9,543.5	0.00	0.00	9,455.0	678.2	-864.3	1,593,419.80	2,305,853.10	39° 26' 12.920 N	107° 57' 28.808 W	
<b>TD at 9543.5 - 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) SF - plan hits target center - Circle (radius 25.0)	0.00	0.00	7,305.0	678.2	-864.3	1,593,419.80	2,305,853.10	39° 26' 12.920 N	107° 57' 28.808 W	

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)		Name	Casing Diameter (in)	Hole Diameter (in)	
1,110.6	1,100.0	9 5/8"		9.625	12.250	

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<b>Well:</b>	SP 43-14	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 12Nov10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,019.9	3,970.0	Top of "G" Sand				
4,121.3	4,070.0	Base of "G" Sand				
6,138.6	6,060.0	Mesaverde				
7,393.5	7,305.0	Approx. Top Gas				
8,403.5	8,315.0	Cameo Coals				
9,393.5	9,305.0	Rollins SS				
9,543.5	9,455.0	TD		0.000		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
120.0	120.0	0.0	0.0	Start Build 3.00	
434.4	433.0	15.9	-20.3	Hold 9.43 Inclination	
6,664.6	6,579.0	646.3	-823.6	Start Drop -1.50	
7,293.5	7,205.0	678.2	-864.3	Vertical	
7,393.5	7,305.0	678.2	-864.3	Top Gas	
9,543.5	9,455.0	678.2	-864.3	TD at 9543.5	