

# **PICEANCE VLY NAD 83**

**PA 14-07S-095W**

**SP 32-14 Pad**

**SP 432-14 - Slot A7**

**Wellbore #1**

**Plan: Design #1 25Jan10 kjs**

## **Standard Planning Report - Geographic**

**04 May, 2010**

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well SP 432-14 - Slot A7
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	WELL @ 7662.0usft (Cyclone 30 (23'KB) JMS)
<b>Project:</b>	PA 14-07S-095W	<b>MD Reference:</b>	WELL @ 7662.0usft (Cyclone 30 (23'KB) JMS)
<b>Site:</b>	SP 32-14 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SP 432-14	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 25Jan10 kjs		

<b>Project</b>	PA 14-07S-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 32-14 Pad		
<b>Site Position:</b>		<b>Northing:</b>	1,593,867.70 usft
<b>From:</b>	Map	<b>Easting:</b>	2,303,941.70 usft
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13.200 in
		<b>Latitude:</b>	39° 26' 16.834 N
		<b>Longitude:</b>	107° 57' 53.317 W
		<b>Grid Convergence:</b>	-1.555 °

<b>Well</b>	SP 432-14 - Slot A7		
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>
<b>Position Uncertainty</b>	0.0 usft		<b>Wellhead Elevation:</b>
			<b>Latitude:</b>
			<b>Longitude:</b>
			<b>Ground Level:</b>

<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	1/25/2010	10.486	65.746	52,377

<b>Design</b>	Design #1 25Jan10 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	53.07

<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	
337.2	6.52	53.07	336.7	7.4	9.9	3.00	3.00	0.00	53.070	
6,567.3	6.52	53.07	6,526.5	432.2	575.0	0.00	0.00	0.00	0.000	
7,001.6	0.00	0.00	6,960.0	447.0	594.7	1.50	-1.50	0.00	180.000	Top Gas (25' Radius)
9,151.6	0.00	0.00	9,110.0	447.0	594.7	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 SP 432-14 - Slot A7
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	WELL @ 7662.0usft (Cyclone 30 (23'KB) JMS)
<b>Project:</b>	PA 14-07S-095W	<b>MD Reference:</b>	WELL @ 7662.0usft (Cyclone 30 (23'KB) JMS)
<b>Site:</b>	SP 32-14 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SP 432-14	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 25Jan10 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	1,593,891.70	2,303,892.80	39° 26' 17.058 N	107° 57' 53.948 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,593,891.70	2,303,892.80	39° 26' 17.058 N	107° 57' 53.948 W	
Start Build 3.00										
337.2	6.52	53.07	336.7	7.4	9.9	1,593,898.84	2,303,902.86	39° 26' 17.131 N	107° 57' 53.823 W	
Hold 6.52 Inclination										
915.0	6.52	53.07	910.8	46.8	62.3	1,593,936.80	2,303,956.32	39° 26' 17.520 N	107° 57' 53.155 W	
9 5/8"										
3,646.8	6.52	53.07	3,625.0	233.1	310.1	1,594,116.26	2,304,209.08	39° 26' 19.361 N	107° 57' 49.996 W	
Top of "G" Sand										
3,747.5	6.52	53.07	3,725.0	239.9	319.2	1,594,122.87	2,304,218.39	39° 26' 19.429 N	107° 57' 49.880 W	
Base of "G" Sand										
5,715.2	6.52	53.07	5,680.0	374.1	497.7	1,594,252.14	2,304,400.45	39° 26' 20.755 N	107° 57' 47.605 W	
Mesaverde										
6,567.3	6.52	53.07	6,526.5	432.2	575.0	1,594,308.11	2,304,479.28	39° 26' 21.329 N	107° 57' 46.619 W	
Start Drop -1.50										
7,001.6	0.00	0.00	6,960.0	447.0	594.7	1,594,322.40	2,304,499.40	39° 26' 21.476 N	107° 57' 46.368 W	
Top Gas - Approx. Top Gas										
8,001.6	0.00	0.00	7,960.0	447.0	594.7	1,594,322.40	2,304,499.40	39° 26' 21.476 N	107° 57' 46.368 W	
Cameo Coals										
9,001.6	0.00	0.00	8,960.0	447.0	594.7	1,594,322.40	2,304,499.40	39° 26' 21.476 N	107° 57' 46.368 W	
Rollins SS										
9,151.6	0.00	0.00	9,110.0	447.0	594.7	1,594,322.40	2,304,499.40	39° 26' 21.476 N	107° 57' 46.368 W	
TD at 9151.6										

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) SF	0.00	0.00	6,960.0	447.0	594.7	1,594,322.40	2,304,499.40	39° 26' 21.476 N	107° 57' 46.368 W	
- plan hits target center										
- Circle (radius 25.0)										

Casing Points							Casing Diameter (in)	Hole Diameter (in)
Measured Depth (usft)	Vertical Depth (usft)	Name						
915.0	910.8	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 SP 432-14 - Slot A7
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	WELL @ 7662.0usft (Cyclone 30 (23'KB) JMS)
<b>Project:</b>	PA 14-07S-095W	<b>MD Reference:</b>	WELL @ 7662.0usft (Cyclone 30 (23'KB) JMS)
<b>Site:</b>	SP 32-14 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SP 432-14	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 25Jan10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,646.8	3,625.0	Top of "G" Sand				
3,747.5	3,725.0	Base of "G" Sand				
5,715.2	5,680.0	Mesaverde				
7,001.6	6,960.0	Approx. Top Gas				
8,001.6	7,960.0	Cameo Coals				
9,001.6	8,960.0	Rollins SS				
9,151.6	9,110.0	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 3.00	
337.2	336.7	7.4	9.9	Hold 6.52 Inclination	
6,567.3	6,526.5	432.2	575.0	Start Drop -1.50	
7,001.6	6,960.0	447.0	594.7	Top Gas	
9,151.6	9,110.0	447.0	594.7	TD at 9151.6	