

PICEANCE VLY NAD 83

PA 14-07S-095W

SP 32-14 Pad

SP 31-14 - Slot B1

Wellbore #1

Plan: Design #1 25Jan10 kjs

Standard Planning Report - Geographic

04 May, 2010

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well SP 31-14 - Slot B1
Company:	PICEANCE VLY NAD 83	TVD Reference:	WELL @ 7662.0usft (Cyclone 30 23'KB JMS)
Project:	PA 14-07S-095W	MD Reference:	WELL @ 7662.0usft (Cyclone 30 23'KB JMS)
Site:	SP 32-14 Pad	North Reference:	True
Well:	SP 31-14	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 25Jan10 kjs		

Project	PA 14-07S-095W, Garfield County, CO		
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		SP 32-14 Pad			
Site Position:		Northing:	1,593,867.70 usft	Latitude:	39° 26' 16.834 N
From:	Map	Easting:	2,303,941.70 usft	Longitude:	107° 57' 53.317 W
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in	Grid Convergence:	-1.555 °

Well	SP 31-14 - Slot B1					
Well Position	+N/-S	0.0 usft	Northing:	1,593,927.80 usft	Latitude:	39° 26' 17.406 N
	+E/-W	0.0 usft	Easting:	2,303,861.70 usft	Longitude:	107° 57' 54.357 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	7,639.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	1/25/2010	10.486	65.746	52,377

Design	Design #1 25Jan10 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	14.97

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	
751.3	22.09	14.97	735.7	116.1	31.1	3.50	3.50	0.00	14.969	
5,966.8	22.09	14.97	5,568.3	2,011.3	537.8	0.00	0.00	0.00	0.000	
7,439.8	0.00	0.00	7,005.0	2,282.3	610.2	1.50	-1.50	0.00	180.000	Top Gas (25' Radius)
9,589.8	0.00	0.00	9,155.0	2,282.3	610.2	0.00	0.00	0.00	0.000	

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Wellbore:	Wellbore #1		
Design:	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	1,593,927.80	2,303,861.70	39° 26' 17.406 N	107° 57' 54.357 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,593,927.80	2,303,861.70	39° 26' 17.406 N	107° 57' 54.357 W	
Start Build 3.50										
751.3	22.09	14.97	735.7	116.1	31.1	1,594,043.04	2,303,895.89	39° 26' 18.554 N	107° 57' 53.961 W	
Hold 22.09 Inclination										
959.0	22.09	14.97	928.2	191.6	51.2	1,594,117.94	2,303,918.11	39° 26' 19.300 N	107° 57' 53.704 W	
9 5/8"										
3,864.1	22.09	14.97	3,620.0	1,247.3	333.5	1,595,165.49	2,304,228.89	39° 26' 29.733 N	107° 57' 50.106 W	
Top of "G" Sand										
3,972.1	22.09	14.97	3,720.0	1,286.5	344.0	1,595,204.41	2,304,240.44	39° 26' 30.121 N	107° 57' 49.973 W	
Base of "G" Sand										
5,966.8	22.09	14.97	5,568.3	2,011.3	537.8	1,595,923.69	2,304,453.82	39° 26' 37.284 N	107° 57' 47.502 W	
Start Drop -1.50										
6,086.7	20.30	14.97	5,680.0	2,053.2	549.0	1,595,965.23	2,304,466.15	39° 26' 37.698 N	107° 57' 47.359 W	
Mesaverde										
7,439.8	0.00	0.00	7,005.0	2,282.3	610.2	1,596,192.60	2,304,533.60	39° 26' 39.962 N	107° 57' 46.578 W	
Top Gas - Approx. Top Gas										
8,454.8	0.00	0.00	8,020.0	2,282.3	610.2	1,596,192.60	2,304,533.60	39° 26' 39.962 N	107° 57' 46.578 W	
Cameo Coals										
9,439.8	0.00	0.00	9,005.0	2,282.3	610.2	1,596,192.60	2,304,533.60	39° 26' 39.962 N	107° 57' 46.578 W	
Rollins SS										
9,589.8	0.00	0.00	9,155.0	2,282.3	610.2	1,596,192.60	2,304,533.60	39° 26' 39.962 N	107° 57' 46.578 W	
TD at 9589.8										

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	7,005.0	2,282.3	610.2	1,596,192.60	2,304,533.60	39° 26' 39.962 N	107° 57' 46.578 W	
- plan hits target center										
- Circle (radius 25.0)										

Casing Points							Casing Diameter (in)	Hole Diameter (in)
Measured Depth (usft)	Vertical Depth (usft)	Name						
959.0	928.2	9 5/8"					9.625	12.250

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Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,864.1	3,620.0	Top of "G" Sand				
3,972.1	3,720.0	Base of "G" Sand				
6,086.7	5,680.0	Mesaverde				
7,439.8	7,005.0	Approx. Top Gas				
8,454.8	8,020.0	Cameo Coals				
9,439.8	9,005.0	Rollins SS				
9,589.8	9,155.0	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	
751.3	735.7	116.1	31.1	Hold 22.09 Inclination	
5,966.8	5,568.3	2,011.3	537.8	Start Drop -1.50	
7,439.8	7,005.0	2,282.3	610.2	Top Gas	
9,589.8	9,155.0	2,282.3	610.2	TD at 9589.8	