

PICEANCE VLY NAD 83

PA 29-06S-095W

DOE 3-W-29 Pad

PA 323-29 - Slot B1

Wellbore #1

Plan: Plan #1 05Feb09 kjs

Standard Planning Report - Geographic

07 August, 2009

Williams Production RMT Company

Planning Report - Geographic

Database:	EDMDB_COMPASS	Local Co-ordinate Reference:	Well PA 323-29 - Slot B1
Company:	PICEANCE VLY NAD 83	TVD Reference:	WELL @ 5702.0ft (Nabors 577 (26') kjs)
Project:	PA 29-06S-095W	MD Reference:	WELL @ 5702.0ft (Nabors 577 (26') kjs)
Site:	DOE 3-W-29 Pad	North Reference:	True
Well:	PA 323-29	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 05Feb09 kjs		

Project	PA 29-06S-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	DOE 3-W-29 Pad		
Site Position:		Northing:	1,613,247.00 ft
From:	Map	Easting:	2,287,962.20 ft
Position Uncertainty:	0.0 ft	Slot Radius:	in
		Latitude:	39° 29' 23.965 N
		Longitude:	108° 1' 23.779 W
		Grid Convergence:	-1.59 °

Well	PA 323-29 - Slot B1		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	0.0 ft	Easting:
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	39° 29' 23.498 N
		Longitude:	108° 1' 23.039 W
		Ground Level:	5,676.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2005	2/3/2009	10.64	65.76	52,543

Design	Plan #1 05Feb09 kjs			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	346.38

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(ft)	(ft)	Rate	Rate	Rate	(°)	
(ft)			(ft)			(°/100ft)	(°/100ft)	(°/100ft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
120.0	0.00	0.00	120.0	0.0	0.0	0.00	0.00	0.00	0.00	
719.7	14.99	346.38	712.9	75.8	-18.4	2.50	2.50	0.00	346.38	
4,571.8	14.99	346.38	4,433.8	1,044.3	-253.0	0.00	0.00	0.00	0.00	
5,571.3	0.00	0.00	5,422.0	1,170.7	-283.6	1.50	-1.50	0.00	180.00	Top Gas (25' Radius)
7,721.3	0.00	0.00	7,572.0	1,170.7	-283.6	0.00	0.00	0.00	0.00	

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Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	1,613,198.20	2,288,018.90	39° 29' 23.498 N	108° 1' 23.039 W
120.0	0.00	0.00	120.0	0.0	0.0	1,613,198.20	2,288,018.90	39° 29' 23.498 N	108° 1' 23.039 W
719.7	14.99	346.38	712.9	75.8	-18.4	1,613,274.50	2,288,002.64	39° 29' 24.248 N	108° 1' 23.273 W
2,012.8	14.99	346.38	1,962.0	401.0	-97.1	1,613,601.68	2,287,932.94	39° 29' 27.461 N	108° 1' 24.278 W
Top of "G" Sand									
2,116.4	14.99	346.38	2,062.0	427.0	-103.4	1,613,627.87	2,287,927.36	39° 29' 27.718 N	108° 1' 24.359 W
Base of "G" Sand									
2,219.9	14.99	346.38	2,162.0	453.0	-109.8	1,613,654.07	2,287,921.78	39° 29' 27.976 N	108° 1' 24.439 W
9 5/8"									
4,176.5	14.99	346.38	4,052.0	945.0	-228.9	1,614,149.11	2,287,816.30	39° 29' 32.838 N	108° 1' 25.959 W
Mesaverde									
4,571.8	14.99	346.38	4,433.8	1,044.3	-253.0	1,614,249.13	2,287,795.00	39° 29' 33.820 N	108° 1' 26.266 W
5,571.3	0.00	0.00	5,422.0	1,170.7	-283.6	1,614,376.30	2,287,767.90	39° 29' 35.069 N	108° 1' 26.657 W
Approx. Top Gas									
7,021.3	0.00	0.00	6,872.0	1,170.7	-283.6	1,614,376.30	2,287,767.90	39° 29' 35.069 N	108° 1' 26.657 W
Cameo Coals									
7,571.3	0.00	0.00	7,422.0	1,170.7	-283.6	1,614,376.30	2,287,767.90	39° 29' 35.069 N	108° 1' 26.657 W
Rollins SS									
7,721.3	0.00	0.00	7,572.0	1,170.7	-283.6	1,614,376.30	2,287,767.90	39° 29' 35.069 N	108° 1' 26.657 W
TD									

Targets									
Target Name									
- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
Top Gas (25' Radius) P/	0.00	0.00	5,422.0	1,170.7	-283.6	1,614,376.30	2,287,767.90	39° 29' 35.069 N	108° 1' 26.657 W
- plan hits target									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
2,219.9	2,162.0	9 5/8"	9.625	12.250	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,012.8	1,962.00	Top of "G" Sand				
2,116.4	2,062.00	Base of "G" Sand				
4,176.5	4,052.00	Mesaverde				
5,571.3	5,422.00	Approx. Top Gas				
7,021.3	6,872.00	Cameo Coals				
7,571.3	7,422.00	Rollins SS				
7,721.3	7,572.00	TD				

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Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
120.0	120.0	0.0	0.0	Start Build 2.50
719.7	712.9	75.8	-18.4	Hold 14.99 Inclination
4,571.8	4,433.8	1,044.3	-253.0	Start Drop -1.50
5,571.3	5,422.0	1,170.7	-283.6	Top Gas
7,721.3	7,572.0	1,170.7	-283.6	TD at 7721.3