

PICEANCE HL

TR 32-05S-097W

TR 41-32-597 Pad

TR 432-32-597 - Slot B8

Wellbore #1

Plan: Plan #1 14Jul09 sdb

Standard Planning Report - Geographic

06 August, 2009

Williams Production RMT Company

Planning Report - Geographic

Database: EDMDB_COMPASS	Local Co-ordinate Reference: Well TR 432-32-597 (B8) - Slot B8
Company: PICEANCE HL	TVD Reference: WELL @ 8288.0ft (Frontier 11 (28' RKB))
Project: TR 32-05S-097W	MD Reference: WELL @ 8288.0ft (Frontier 11 (28' RKB))
Site: TR 41-32-597 Pad	North Reference: True
Well: TR 432-32-597	Survey Calculation Method: Minimum Curvature
Wellbore: Wellbore #1	
Design: Plan #1 14Jul09 sdb	

Project TR 32-05S-097W, Garfield County, CO, 32-05S-097W		
Map System: US State Plane 1927 (Exact solution)	System Datum: Mean Sea Level	
Geo Datum: NAD 1927 (NADCON CONUS)		
Map Zone: Colorado Central 502	Using geodetic scale factor	

Site TR 41-32-597 Pad			
Site Position:	Northing: 646,275.90 ft	Latitude: 39° 34' 28.668 N	
From: Map	Easting: 1,212,816.50 ft	Longitude: 108° 17' 34.566 W	
Position Uncertainty: 0.0 ft	Slot Radius: in	Grid Convergence: -1.76 °	

Well TR 432-32-597 - Slot B8			
Well Position	+N/-S 0.0 ft	Northing: 646,272.10 ft	Latitude: 39° 34' 28.623 N
	+E/-W 0.0 ft	Easting: 1,212,792.30 ft	Longitude: 108° 17' 34.873 W
Position Uncertainty	0.0 ft	Wellhead Elevation: ft	Ground Level: 8,260.0 ft

Wellbore Wellbore #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	3/7/2008	10.90	65.84	52,652

Design Plan #1 14Jul09 sdb				
Audit Notes:				
Version:	Phase: PLAN	Tie On Depth: 0.0		
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	247.43

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
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	
1,183.8	23.94	247.43	1,153.1	-84.0	-202.2	2.25	2.25	0.00	247.43	
4,154.5	23.94	247.43	3,868.3	-546.6	-1,315.1	0.00	0.00	0.00	0.00	
5,750.1	0.00	0.00	5,418.0	-672.7	-1,618.4	1.50	-1.50	0.00	180.00	Mesaverde (25' Radiu
8,828.1	0.00	0.00	8,496.0	-672.7	-1,618.4	0.00	0.00	0.00	0.00	

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Wellbore: Wellbore #1	
Design: Plan #1 14Jul09 sdb	

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	646,272.10	1,212,792.30	39° 34' 28.623 N	108° 17' 34.873 W	
120.0	0.00	0.00	120.0	0.0	0.0	646,272.10	1,212,792.30	39° 34' 28.623 N	108° 17' 34.873 W	
Start Build 2.25° at 120'										
1,183.8	23.94	247.43	1,153.1	-84.0	-202.2	646,194.31	1,212,587.61	39° 34' 27.793 N	108° 17' 37.456 W	
Start 23.9° Hold at 1184'										
2,707.7	23.94	247.43	2,546.0	-321.3	-773.1	645,974.68	1,212,009.69	39° 34' 25.447 N	108° 17' 44.746 W	
Wasatch										
2,958.0	23.94	247.43	2,774.8	-360.3	-866.9	645,938.62	1,211,914.77	39° 34' 25.062 N	108° 17' 45.944 W	
9 5/8"										
4,154.5	23.94	247.43	3,868.3	-546.6	-1,315.1	645,766.18	1,211,461.04	39° 34' 23.221 N	108° 17' 51.668 W	
Start Drop -1.5° at 4155'										
4,496.8	18.80	247.43	4,187.0	-594.5	-1,430.2	645,721.89	1,211,344.50	39° 34' 22.748 N	108° 17' 53.138 W	
G Sand										
4,659.4	16.36	247.43	4,342.0	-613.3	-1,475.6	645,704.45	1,211,298.59	39° 34' 22.561 N	108° 17' 53.717 W	
Fort Union										
5,750.1	0.00	0.00	5,418.0	-672.7	-1,618.4	645,649.50	1,211,154.00	39° 34' 21.974 N	108° 17' 55.541 W	
Start 0° Hold at 5750' - Mesaverde - Mesaverde (25' Radius) TR 432-32-597										
6,436.1	0.00	0.00	6,104.0	-672.7	-1,618.4	645,649.50	1,211,154.00	39° 34' 21.974 N	108° 17' 55.541 W	
Approx Top of Gas										
8,044.1	0.00	0.00	7,712.0	-672.7	-1,618.4	645,649.50	1,211,154.00	39° 34' 21.974 N	108° 17' 55.541 W	
Cameo Coals										
8,428.1	0.00	0.00	8,096.0	-672.7	-1,618.4	645,649.50	1,211,154.00	39° 34' 21.974 N	108° 17' 55.541 W	
Rollins Sandstone										
8,828.1	0.00	0.00	8,496.0	-672.7	-1,618.4	645,649.50	1,211,154.00	39° 34' 21.974 N	108° 17' 55.541 W	
TD at 8828' - TD										

Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
Mesaverde (25' Radius) - hit/miss target - Shape - Circle (radius 25.0)	0.00	0.00	5,418.0	-672.7	-1,618.4	645,649.50	1,211,154.00	39° 34' 21.974 N	108° 17' 55.541 W	

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)		
2,958.0	2,774.8	9 5/8"	9.625	14.750		

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Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,707.7	2,546.00	Wasatch		0.00		
4,496.8	4,187.00	G Sand		0.00		
4,659.4	4,342.00	Fort Union		0.00		
5,750.1	5,418.00	Mesaverde		0.00		
6,436.1	6,104.00	Approx Top of Gas		0.00		
8,044.1	7,712.00	Cameo Coals		0.00		
8,428.1	8,096.00	Rollins Sandstone		0.00		
8,828.1	8,496.00	TD		0.00		

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 2.25° at 120'	
1,183.8	1,153.1	-84.0	-202.2	Start 23.9° Hold at 1184'	
4,154.5	3,868.3	-546.6	-1,315.1	Start Drop -1.5° at 4155'	
5,750.1	5,418.0	-672.7	-1,618.4	Start 0° Hold at 5750'	
8,828.1	8,496.0	-672.7	-1,618.4	TD at 8828'	