

PICEANCE HL NAD 83

RG 14-02S-098W

RG 23-14-298 Pad

Federal RG 314-14-298 - Slot A1

Wellbore #1

Plan: Plan #2 15Mar10 kjs

Standard Planning Report - Geographic

01 April, 2010

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well Federal RG 314-14-298 (A1) - Slot A1
Company:	PICEANCE HL NAD 83	TVD Reference:	KELLY BUSHING @ 6621.0usft (Cyclone 29 (21' RKB) jib)
Project:	RG 14-02S-098W	MD Reference:	KELLY BUSHING @ 6621.0usft (Cyclone 29 (21' RKB) jib)
Site:	RG 23-14-298 Pad	North Reference:	True
Well:	Federal RG 314-14-298	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 15Mar10 kjs		

Project	RG 14-02S-098W, Rio Blanco County, CO, RG 14-02S-098W		
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	RG 23-14-298 Pad		
Site Position:		Northing:	1,755,786.50 usft
From:	Map	Easting:	2,196,402.80 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in
		Latitude:	39° 52' 25.242 N
		Longitude:	108° 21' 48.415 W
		Grid Convergence:	-1.806 °

Well	Federal RG 314-14-298 - Slot A1		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	6/16/2009	10.804	66.045	52,629

Design	Plan #2 15Mar10 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	264.03

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	
563.1	11.08	264.03	560.4	-4.4	-42.5	2.50	2.50	0.00	264.028	
5,766.8	11.08	264.03	5,667.1	-108.5	-1,036.9	0.00	0.00	0.00	0.000	
6,505.3	0.00	0.00	6,401.0	-115.9	-1,107.7	1.50	-1.50	0.00	180.000	Mesaverde (25' Radiu
10,925.3	0.00	0.00	10,821.0	-115.9	-1,107.7	0.00	0.00	0.00	0.000	

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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	1,755,761.60	2,196,355.50	39° 52' 24.981 N	108° 21' 49.012 W
120.0	0.00	0.00	120.0	0.0	0.0	1,755,761.60	2,196,355.50	39° 52' 24.981 N	108° 21' 49.012 W
563.1	11.08	264.03	560.4	-4.4	-42.5	1,755,758.50	2,196,312.91	39° 52' 24.937 N	108° 21' 49.556 W
5,766.8	11.08	264.03	5,667.1	-108.5	-1,036.9	1,755,685.87	2,195,315.68	39° 52' 23.909 N	108° 22' 2.311 W
6,505.3	0.00	0.00	6,401.0	-115.9	-1,107.7	1,755,680.70	2,195,244.70	39° 52' 23.836 N	108° 22' 3.219 W
10,925.3	0.00	0.00	10,821.0	-115.9	-1,107.7	1,755,680.70	2,195,244.70	39° 52' 23.836 N	108° 22' 3.219 W

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
Mesaverde (25' Radius) - plan hits target center - Circle (radius 25.0)	0.00	0.00	6,401.0	-115.9	-1,107.7	1,755,680.70	2,195,244.70	39° 52' 23.836 N	108° 22' 3.219 W
Mesaverde (50' Radius) - plan hits target center - Circle (radius 50.0)	0.00	0.00	6,401.0	-115.9	-1,107.7	1,755,680.70	2,195,244.70	39° 52' 23.836 N	108° 22' 3.219 W

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
3,010.0	2,961.7	9 5/8"	9.625	13.500	

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Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
757.4	751.0	Green River		0.000		
900.0	891.0	A Groove		0.000		
1,093.6	1,081.0	B Groove		0.000		
1,409.5	1,391.0	Dissolution Surface		0.000		
2,117.7	2,086.0	Garden Gulch		0.000		
2,306.2	2,271.0	Orange Marker		0.000		
2,510.0	2,471.0	Wasatch		0.000		
4,415.5	4,341.0	G' Sand		0.000		
4,680.5	4,601.0	Ft. Union		0.000		
5,998.8	5,896.0	Ohio Creek		0.000		
6,505.3	6,401.0	Mesaverde		0.000		
7,225.3	7,121.0	Approx Top of Gas		0.000		
9,325.3	9,221.0	Cameo Coals		0.000		
9,725.3	9,621.0	Rollins SS		0.000		
9,850.3	9,746.0	Cozzette		0.000		
10,070.3	9,966.0	Corcoran		0.000		
10,430.3	10,326.0	Upper Sego		0.000		
10,675.3	10,571.0	Lower Sego		0.000		

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 2.50	
563.1	560.4	-4.4	-42.5	Hold 11.08 Inc	
5,766.8	5,667.1	-108.5	-1,036.9	Start Drop -1.50	
6,505.3	6,401.0	-115.9	-1,107.7	Vertical	
10,925.3	10,821.0	-115.9	-1,107.7	TD at 10925	