



Project: RG 25-01S-098W
Site: RGU 31-25-198 Pad
Well: Federal RGU 444-24-198
Plan: Plan #1 14Jan09 kjs

Azimuths to True North
Magnetic North: 10.85°
Magnetic Field
Strength: 52701.8snT
Dip Angle: 66.11°
Date: 2/12/2009
Model: IGRF200510

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.000	0.0	
120.0	0.00	0.00	120.0	0.0	0.0	0.00	0.000	0.0	
638.3	10.37	74.24	635.5	12.7	45.0	2.00	74.242	46.8	
7335.8	10.37	74.24	7223.7	340.0	1204.9	0.00	0.000	1251.9	
8026.9	0.00	0.00	7911.0	356.9	1264.9	1.50	180.000	1314.3	Mesaverde (25' Radius) Federal RGU 444-24-198
2936.9	0.00	0.00	12821.0	356.9	1264.9	0.00	0.000	1314.3	

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Departure	Annotation
120.0	120.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 2.00
635.5	638.3	10.37	74.24	12.7	45.0	46.8	46.8	Hold 10.37 inc
7223.7	7335.8	10.37	74.24	340.0	1204.9	1251.9	1251.9	Start Drop -1.50
7911.0	8026.9	0.00	0.00	356.9	1264.9	1314.3	1314.3	Vertical
12821.0	12936.9	0.00	0.00	356.9	1264.9	1314.3	1314.3	TD at 12936.9

PICEANCE HL NAD 27

RG 25-01S-098W

RGU 31-25-198 Pad

Federal RGU 444-24-198 - Slot A10

Wellbore #1

Plan: Plan #1 14Jan09 kjs

Standard Planning Report - Geographic

25 January, 2010

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well Federal RGU 444-24-198 (A10) - Slot A10
Company:	PICEANCE HL NAD 27	TVD Reference:	KELLY BUSHING @ 6661.0usft (Cyclone 29 (21' RKB) jib)
Project:	RG 25-01S-098W	MD Reference:	KELLY BUSHING @ 6661.0usft (Cyclone 29 (21' RKB) jib)
Site:	RGU 31-25-198 Pad	North Reference:	True
Well:	Federal RGU 444-24-198	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 14Jan09 kjs		

Project	RG 25-01S-098W, Rio Blanco County, CO, RG 25-01S-098W		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Colorado North 501		Using geodetic scale factor

Site		RGU 31-25-198 Pad				
Site Position:		Northing:	234,112.07 usft	Latitude:	39° 56' 27.745 N	
From:	Map	Easting:	1,203,931.20 usft	Longitude:	108° 20' 22.202 W	
Position Uncertainty:		0.0 usft	Slot Radius:	0.000 in	Grid Convergence:	-1.835 °

Well	Federal RGU 444-24-198 - Slot A10					
Well Position	+N/-S	0.0 usft	Northing:	234,094.27 usft	Latitude:	39° 56' 27.574 N
	+E/-W	0.0 usft	Easting:	1,203,947.57 usft	Longitude:	108° 20' 21.984 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	6,640.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2/12/2009	10.848	66.113	52,702

Design	Plan #1 14Jan09 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	74.24	

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	
638.3	10.37	74.24	635.5	12.7	45.0	2.00	2.00	0.00	74.242	
7,335.8	10.37	74.24	7,223.7	340.0	1,204.9	0.00	0.00	0.00	0.000	
8,026.9	0.00	0.00	7,911.0	356.9	1,264.9	1.50	-1.50	0.00	180.000	Mesaverde (25' Radiu
12,936.9	0.00	0.00	12,821.0	356.9	1,264.9	0.00	0.00	0.00	0.000	

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Planning Report - Geographic

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Wellbore:	Wellbore #1		
Design:	Plan #1 14Jan09 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	234,094.27	1,203,947.57	39° 56' 27.574 N	108° 20' 21.984 W
120.0	0.00	0.00	120.0	0.0	0.0	234,094.27	1,203,947.57	39° 56' 27.574 N	108° 20' 21.984 W
638.3	10.37	74.24	635.5	12.7	45.0	234,105.52	1,203,992.96	39° 56' 27.700 N	108° 20' 21.406 W
7,335.8	10.37	74.24	7,223.7	340.0	1,204.9	234,395.49	1,205,162.68	39° 56' 30.934 N	108° 20' 6.515 W
8,026.9	0.00	0.00	7,911.0	356.9	1,264.9	234,410.50	1,205,223.20	39° 56' 31.101 N	108° 20' 5.745 W
12,936.9	0.00	0.00	12,821.0	356.9	1,264.9	234,410.50	1,205,223.20	39° 56' 31.101 N	108° 20' 5.745 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
East Hardline Federal R	0.00	0.00	10.0	356.9	1,264.9	234,410.50	1,205,223.20	39° 56' 31.101 N	108° 20' 5.745 W
- plan misses target center by 1314.3usft at 10.0usft MD (10.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			10.0	-200.0	52.0	234,208.94	1,205,268.77		True
Point 2			10.0	200.0	52.0	234,608.72	1,205,281.57		True
Mesaverde (50' Radius)	0.00	0.00	7,911.0	356.9	1,264.9	234,410.50	1,205,223.20	39° 56' 31.101 N	108° 20' 5.745 W
- plan hits target center									
- Circle (radius 50.0)									
Mesaverde (25' Radius)	0.00	0.00	7,911.0	356.9	1,264.9	234,410.50	1,205,223.20	39° 56' 31.101 N	108° 20' 5.745 W
- plan hits target center									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (in)	Hole Diameter (in)
3,960.0	3,903.0	9 5/8"		9.625	13.500

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Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,284.4	1,271.0	Green River Fm				
1,482.6	1,466.0	A Groove				
1,691.0	1,671.0	B Groove				
1,985.8	1,961.0	Dissolution Surface				
3,048.2	3,006.0	Garden Gulch				
3,226.1	3,181.0	Orange Marker				
3,459.9	3,411.0	Wasatch				
5,945.5	5,856.0	G' Sand				
6,326.7	6,231.0	Ft. Union				
7,736.6	7,621.0	Ohio Creek				
8,026.9	7,911.0	Mesaverde				
8,976.9	8,861.0	Top Gas				
11,336.9	11,221.0	Cameo Coals				
11,716.9	11,601.0	Rollins SS				
11,851.9	11,736.0	Cozzette				
12,066.9	11,951.0	Corcoran				
12,456.9	12,341.0	Upper Sego				
12,686.9	12,571.0	Lower Sego				
12,936.9	12,821.0	TD		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 2.00	
638.3	635.5	12.7	45.0	Hold 10.37 inc	
7,335.8	7,223.7	340.0	1,204.9	Start Drop -1.50	
8,026.9	7,911.0	356.9	1,264.9	Vertical	
12,936.9	12,821.0	356.9	1,264.9	TD at 12936.9	