



Well Name: Federal RGU 432-1-298
Surface Location: RGU 41-1-298 Pad
North American Datum 1983 , US State Plane 1983 , Colorado Central Zone
Ground Elevation: 6573.0
Northing 1768857.35 Easting 2204755.20 Latitude 39° 54' 36.936 N Longitude 108° 20' 6.573 W
KELLY BUSHING @ 6594.0usft

+N/-S
0.0

+E/-W
0.0

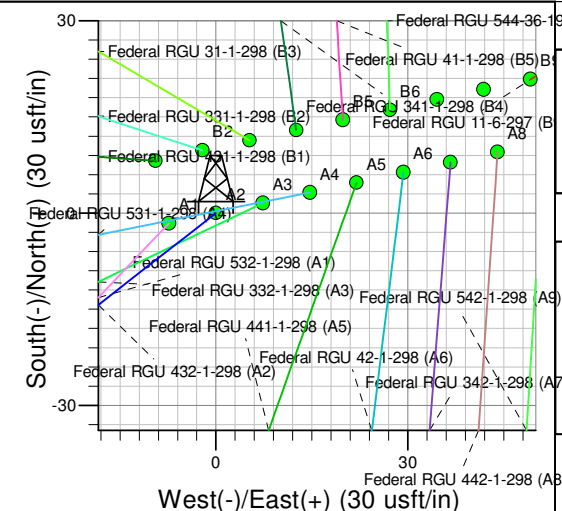
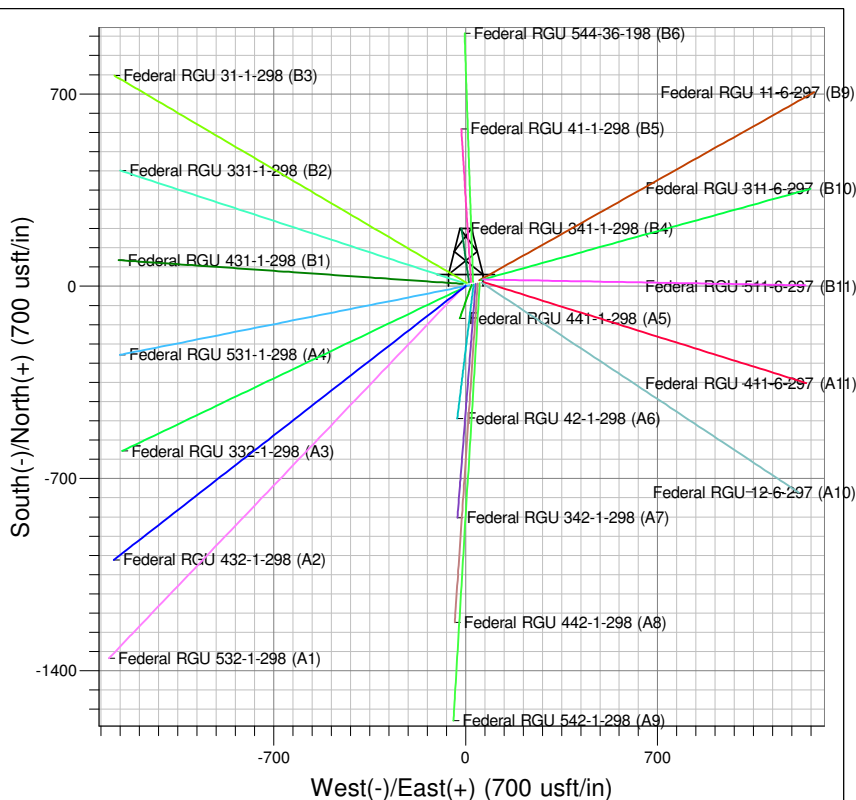
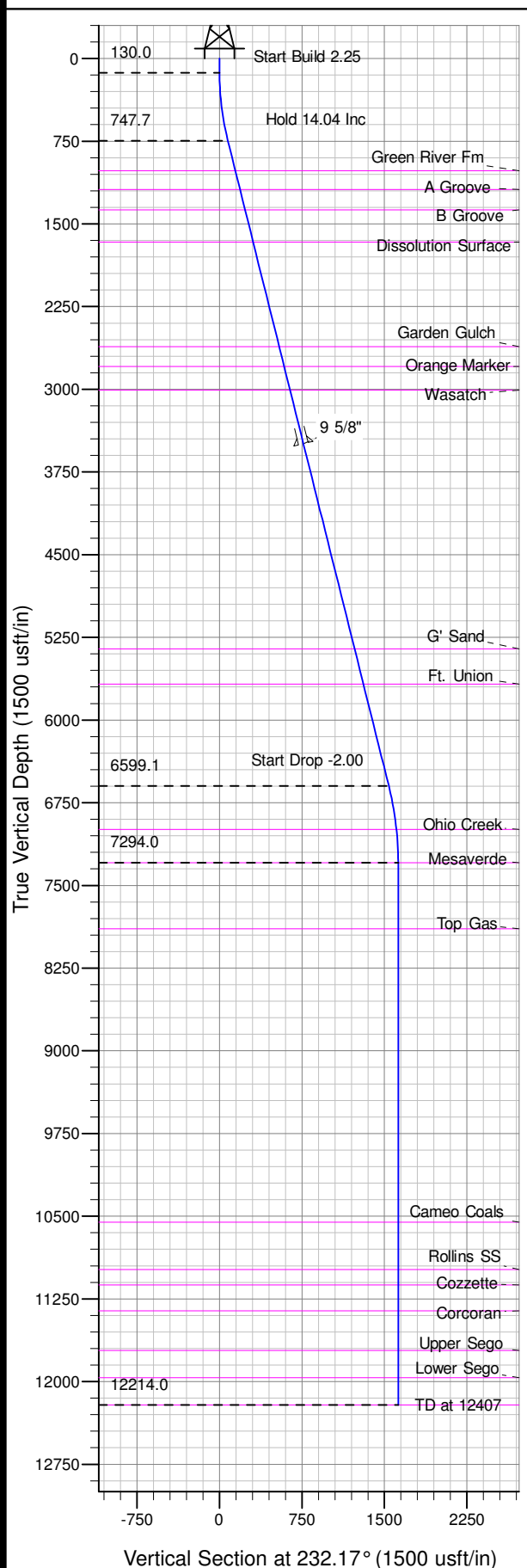
Northing
1768857.35

Easting
2204755.20

Latitude
39° 54' 36.936 N

Longitude
108° 20' 6.573 W

Slot
A2



Project: RG 01-02S-098W
Site: RGU 41-1-298 Pad
Well: Federal RGU 432-1-298
Plan #2 30Mar10 kjs

Azimuths to True North
Magnetic North: 10.57°
Magnetic Field
Strength: 52432.2snT
Dip Angle: 66.02°
Date: 5/22/2011
Model: IGRF2010

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.000	0.0	
2	130.0	0.00	0.00	130.0	0.0	0.0	0.00	0.000	0.0	
3	753.9	14.04	232.17	747.7	-46.6	-60.1	2.25	232.169	76.0	
4	6785.5	14.04	232.17	6599.1	-944.0	-1215.6	0.00	0.000	1539.1	
5	7467.4	0.00	0.00	7294.0	-996.4	-1283.2	2.00	180.000	1624.6	Mesaverde (25' Radius) Federal RGU 432-1-298
6	12407.4	0.00	0.00	12214.0	-996.4	-1283.2	0.00	0.000	1624.6	

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
130.0	130.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 2.25
747.7	753.9	14.04	232.17	-46.6	-60.1	76.0	76.0	Hold 14.04 Inc
6599.1	6785.5	14.04	232.17	-944.0	-1215.6	1539.1	1539.1	Start Drop -2.00
7294.0	7467.4	0.00	0.00	-996.4	-1283.2	1624.6	1624.6	Vertical
12214.0	12407.4	0.00	0.00	-996.4	-1283.2	1624.6	1624.6	TD at 12407

PICEANCE HL NAD 83

RG 01-02S-098W

RGU 41-1-298 Pad

Federal RGU 432-1-298 - Slot A2

Federal RGU 432-1-298

Plan: Plan #2 30Mar10 kjs

Standard Planning Report - Geographic

25 August, 2010

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well Federal RGU 432-1-298 (A2) - Slot A2
Company:	PICEANCE HL NAD 83	TVD Reference:	KELLY BUSHING @ 6594.0usft
Project:	RG 01-02S-098W	MD Reference:	KELLY BUSHING @ 6594.0usft
Site:	RGU 41-1-298 Pad	North Reference:	True
Well:	Federal RGU 432-1-298	Survey Calculation Method:	Minimum Curvature
Wellbore:	Federal RGU 432-1-298		
Design:	Plan #2 30Mar10 kjs		

Project	RG 01-02S-098W, Rio Blanco County, CO, RG 01-02S-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		RGU 41-1-298 Pad			
Site Position:		Northing:	1,768,871.26 usft	Latitude:	39° 54' 37.079 N
From:	Map	Easting:	2,204,775.51 usft	Longitude:	108° 20' 6.318 W
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in	Grid Convergence:	-1.788 °

Well							Federal RGU 432-1-298 - Slot A2						
Well Position		+N/-S	0.0 usft	Northing:		1,768,857.35 usft		Latitude:		39° 54' 36.936 N			
		+E/-W	0.0 usft			Easting:				2,204,755.20 usft		Longitude:	
Position Uncertainty		0.0 usft	Wellhead Elevation:				Ground Level:		6,573.0 usft				

Wellbore	Federal RGU 432-1-298				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/22/2011	10.567	66.019	52,432

Design	Plan #2 30Mar10 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	232.17

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	
130.0	0.00	0.00	130.0	0.0	0.0	0.00	0.00	0.00	0.000	
753.9	14.04	232.17	747.7	-46.6	-60.1	2.25	2.25	0.00	232.169	
6,785.5	14.04	232.17	6,599.1	-944.0	-1,215.6	0.00	0.00	0.00	0.000	
7,487.4	0.00	0.00	7,294.0	-996.4	-1,283.2	2.00	-2.00	0.00	180.000	Mesaverde (25' Radiu
12,407.4	0.00	0.00	12,214.0	-996.4	-1,283.2	0.00	0.00	0.00	0.000	

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Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well Federal RGU 432-1-298 (A2) - Slot A2
Company:	PICEANCE HL NAD 83	TVD Reference:	KELLY BUSHING @ 6594.0usft
Project:	RG 01-02S-098W	MD Reference:	KELLY BUSHING @ 6594.0usft
Site:	RGU 41-1-298 Pad	North Reference:	True
Well:	Federal RGU 432-1-298	Survey Calculation Method:	Minimum Curvature
Wellbore:	Federal RGU 432-1-298		
Design:	Plan #2 30Mar10 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	1,768,857.35	2,204,755.20	39° 54' 36.936 N	108° 20' 6.573 W	
130.0	0.00	0.00	130.0	0.0	0.0	1,768,857.35	2,204,755.20	39° 54' 36.936 N	108° 20' 6.573 W	
753.9	14.04	232.17	747.7	-46.6	-60.1	1,768,812.60	2,204,693.71	39° 54' 36.475 N	108° 20' 7.344 W	
6,785.5	14.04	232.17	6,599.1	-944.0	-1,215.6	1,767,951.74	2,203,510.68	39° 54' 27.607 N	108° 20' 22.172 W	
7,487.4	0.00	0.00	7,294.0	-996.4	-1,283.2	1,767,901.40	2,203,441.50	39° 54' 27.088 N	108° 20' 23.039 W	
12,407.4	0.00	0.00	12,214.0	-996.4	-1,283.2	1,767,901.40	2,203,441.50	39° 54' 27.088 N	108° 20' 23.039 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	7,294.0	-996.4	-1,283.2	1,767,901.40	2,203,441.50	39° 54' 27.088 N	108° 20' 23.039 W	
Mesaverde (50' Radius) - plan hits target center - Circle (radius 50.0)	0.00	0.00	7,294.0	-996.4	-1,283.2	1,767,901.40	2,203,441.50	39° 54' 27.088 N	108° 20' 23.039 W	

Casing Points							Casing Diameter (in)	Hole Diameter (in)
Measured Depth (usft)	Vertical Depth (usft)	Name						
3,585.0	3,494.2	9 5/8"					9.625	13.500

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Planning Report - Geographic

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Project:	RG 01-02S-098W	MD Reference:	KELLY BUSHING @ 6594.0usft
Site:	RGU 41-1-298 Pad	North Reference:	True
Well:	Federal RGU 432-1-298	Survey Calculation Method:	Minimum Curvature
Wellbore:	Federal RGU 432-1-298		
Design:	Plan #2 30Mar10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,033.6	1,019.0	Green River Fm				
1,208.8	1,189.0	A Groove				
1,399.5	1,374.0	B Groove				
1,698.4	1,664.0	Dissolution Surface				
2,677.7	2,614.0	Garden Gulch				
2,863.2	2,794.0	Orange Marker				
3,084.8	3,009.0	Wasatch				
5,502.0	5,354.0	G' Sand				
5,831.9	5,674.0	Ft. Union				
7,186.8	6,994.0	Ohio Creek				
7,487.4	7,294.0	Mesaverde				
8,087.4	7,894.0	Top Gas				
10,747.4	10,554.0	Cameo Coals				
11,177.4	10,984.0	Rollins SS				
11,317.4	11,124.0	Cozzette				
11,552.4	11,359.0	Corcoran				
11,912.4	11,719.0	Upper Sego				
12,157.4	11,964.0	Lower Sego				
12,407.4	12,214.0	TD		0.000		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
130.0	130.0	0.0	0.0	Start Build 2.25	
753.9	747.7	-46.6	-60.1	Hold 14.04 Inc	
6,785.5	6,599.1	-944.0	-1,215.6	Start Drop -2.00	
7,487.4	7,294.0	-996.4	-1,283.2	Vertical	
12,407.4	12,214.0	-996.4	-1,283.2	TD at 12407	