



Well Name: Federal RGU 411-6-297

Surface Location: RGU 41-1-298 Pad

North American Datum 1983 , US State Plane 1983 , Colorado Central Zone

Ground Elevation: 6573.0

+N/-S
0.0

+E/-W
0.0

Northing
1768869.60

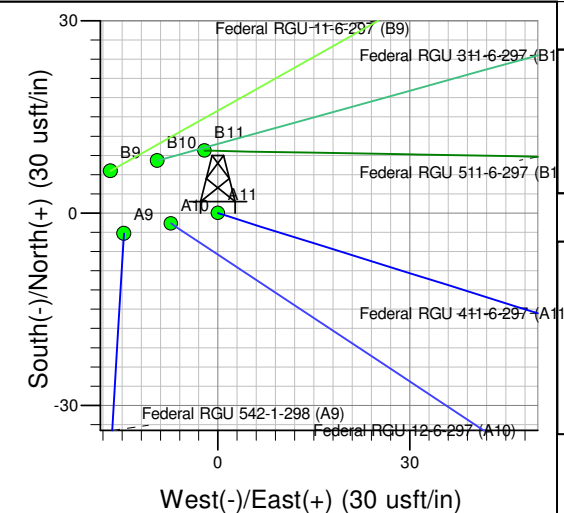
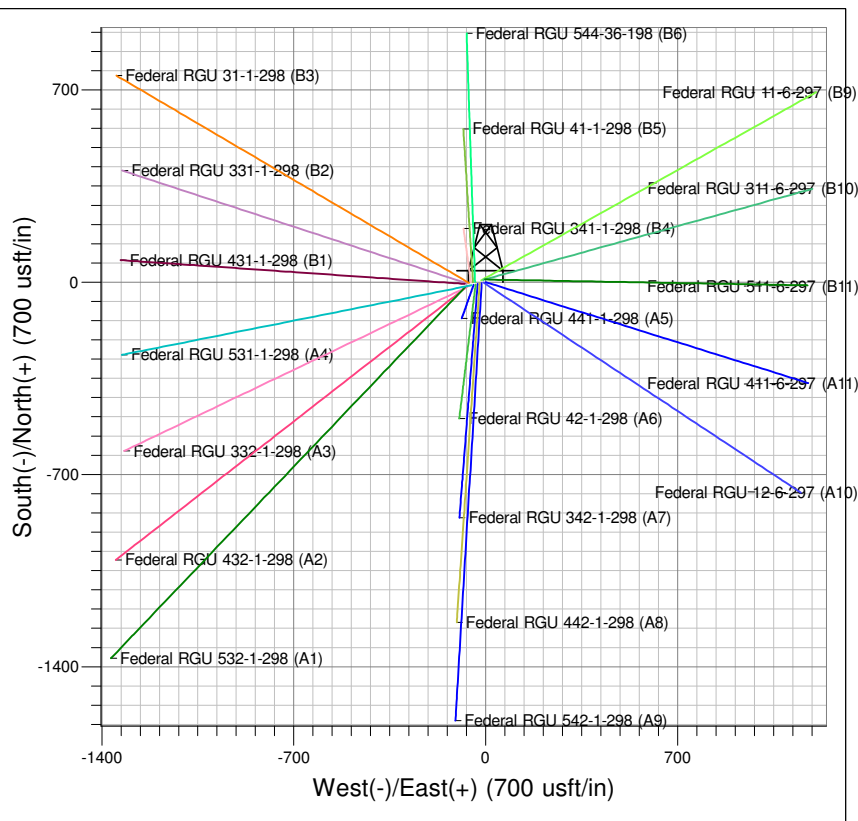
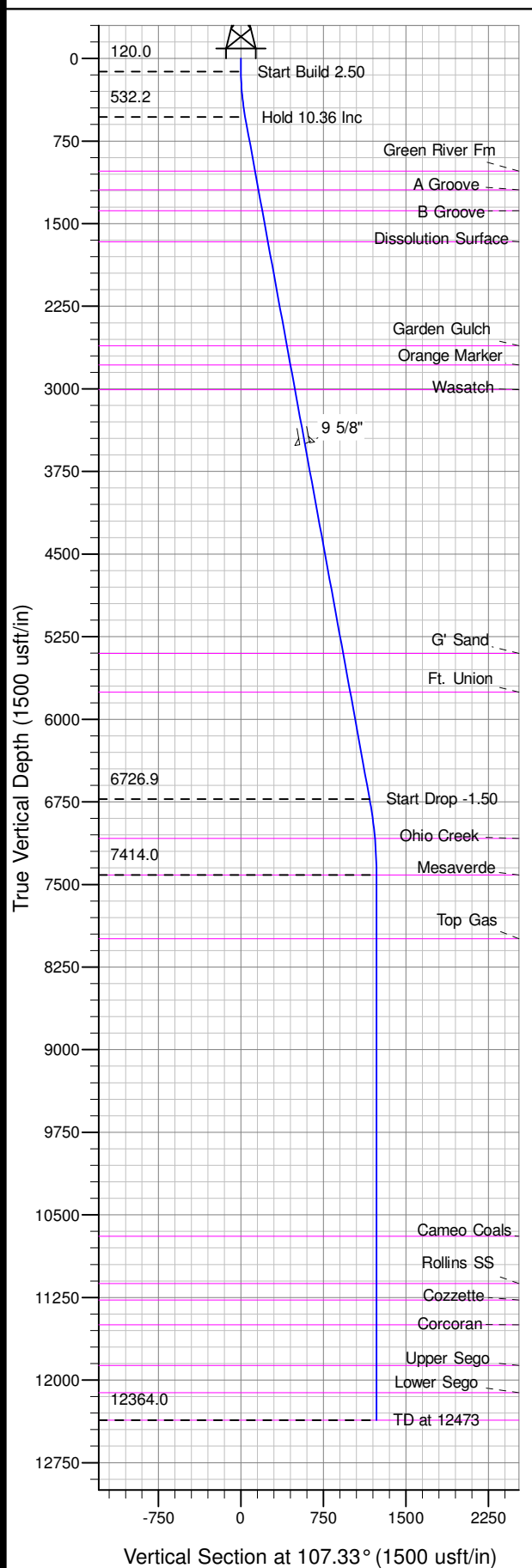
Easting
2204821.60

Latitude
39° 54' 37.077 N

Longitude
108° 20' 5.726 W

Slot
A11

KELLY BUSHING @ 6594.0usft



Project: RG 01-02S-098W
Site: RGU 41-1-298 Pad
Well: Federal RGU 411-6-297
Plan #2 30Mar10 kjs

M Azimuths to True North
Magnetic North: 10.55°
Magnetic Field
Strength: 52417.3snT
Dip Angle: 66.01°
Date: 7/15/2011
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	120.0	0.00	0.00	120.0	0.0	0.0	0.00	0.000	0.0	
3	534.5	10.36	107.33	532.2	-11.1	35.7	2.50	107.328	37.4	
4	6831.9	10.36	107.33	6726.9	-348.5	117.0	0.00	0.000	1170.1	
5	7522.7	0.00	0.00	7414.0	-367.1	1176.5	1.50	180.000	1232.4	Mesaverde (25' Radius) Federal RGU 411-6-297
6	12472.7	0.00	0.00	12364.0	-367.1	1176.5	0.00	0.000	1232.4	

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
120.0	120.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 2.50
532.2	534.5	10.36	107.33	-11.1	35.7	37.4	37.4	Hold 10.36 Inc
6726.9	6831.9	10.36	107.33	-348.5	117.0	1170.1	1170.1	Start Drop -1.50
7414.0	7522.7	0.00	0.00	-367.1	1176.5	1232.4	1232.4	Vertical
12364.0	12472.7	0.00	0.00	-367.1	1176.5	1232.4	1232.4	TD at 12473

PICEANCE HL NAD 83

RG 01-02S-098W

RGU 41-1-298 Pad

Federal RGU 411-6-297 - Slot A11

Federal RGU 411-6-297

Plan: Plan #2 30Mar10 kjs

Standard Planning Report - Geographic

26 August, 2010

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well Federal RGU 411-6-297 (A11) - Slot A11
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 411-6-297	Survey Calculation Method:	Minimum Curvature
Wellbore:	Federal RGU 411-6-297		
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 411-6-297 - Slot A11						
Well Position		+N/-S	0.0 usft	Northing:		1,768,869.60 usft	Latitude:		39° 54' 37.077 N				
		+E/-W	0.0 usft	Easting:		2,204,821.60 usft	Longitude:		108° 20' 5.726 W				
Position Uncertainty		0.0 usft	Wellhead Elevation:			Ground Level:		6,573.0 usft					

Wellbore	Federal RGU 411-6-297				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/15/2011	10.548	66.015	52,417

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	107.33

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	
534.5	10.36	107.33	532.2	-11.1	35.7	2.50	2.50	0.00	107.328	
6,831.9	10.36	107.33	6,726.9	-348.5	1,117.0	0.00	0.00	0.00	0.000	
7,522.7	0.00	0.00	7,414.0	-367.1	1,176.5	1.50	-1.50	0.00	180.000	Mesaverde (25' Radiu
12,472.7	0.00	0.00	12,364.0	-367.1	1,176.5	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 411-6-297 (A11) - Slot A11
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 411-6-297	Survey Calculation Method:	Minimum Curvature
Wellbore:	Federal RGU 411-6-297		
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	1,768,869.60	2,204,821.60	39° 54' 37.077 N	108° 20' 5.726 W
120.0	0.00	0.00	120.0	0.0	0.0	1,768,869.60	2,204,821.60	39° 54' 37.077 N	108° 20' 5.726 W
534.5	10.36	107.33	532.2	-11.1	35.7	1,768,857.36	2,204,856.92	39° 54' 36.967 N	108° 20' 5.268 W
6,831.9	10.36	107.33	6,726.9	-348.5	1,117.0	1,768,486.40	2,205,927.23	39° 54' 33.633 N	108° 19' 51.392 W
7,522.7	0.00	0.00	7,414.0	-367.1	1,176.5	1,768,466.00	2,205,986.10	39° 54' 33.449 N	108° 19' 50.629 W
12,472.7	0.00	0.00	12,364.0	-367.1	1,176.5	1,768,466.00	2,205,986.10	39° 54' 33.449 N	108° 19' 50.629 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 (50' Radius) - plan hits target center - Circle (radius 50.0)	0.00	0.00	7,414.0	-367.1	1,176.5	1,768,466.00	2,205,986.10	39° 54' 33.449 N	108° 19' 50.629 W
Mesaverde (25' Radius) - plan hits target center - Circle (radius 25.0)	0.00	0.00	7,414.0	-367.1	1,176.5	1,768,466.00	2,205,986.10	39° 54' 33.449 N	108° 19' 50.629 W

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
3,552.0	3,500.5	9 5/8"	9.625	13.500	

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Site:	RGU 41-1-298 Pad	North Reference:	True
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Wellbore:	Federal RGU 411-6-297		
Design:	Plan #2 30Mar10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,034.4	1,024.0	Green River Fm				
1,207.2	1,194.0	A Groove				
1,400.4	1,384.0	B Groove				
1,685.0	1,664.0	Dissolution Surface				
2,645.7	2,609.0	Garden Gulch				
2,823.6	2,784.0	Orange Marker				
3,052.3	3,009.0	Wasatch				
5,487.0	5,404.0	G' Sand				
5,842.8	5,754.0	Ft. Union				
7,192.3	7,084.0	Ohio Creek				
7,522.7	7,414.0	Mesaverde				
8,102.7	7,994.0	Top Gas				
10,802.7	10,694.0	Cameo Coals				
11,232.7	11,124.0	Rollins SS				
11,382.7	11,274.0	Cozzette				
11,607.7	11,499.0	Corcoran				
11,977.7	11,869.0	Upper Sego				
12,222.7	12,114.0	Lower Sego				
12,472.7	12,364.0	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 2.50	
534.5	532.2	-11.1	35.7	Hold 10.36 Inc	
6,831.9	6,726.9	-348.5	1,117.0	Start Drop -1.50	
7,522.7	7,414.0	-367.1	1,176.5	Vertical	
12,472.7	12,364.0	-367.1	1,176.5	TD at 12473	