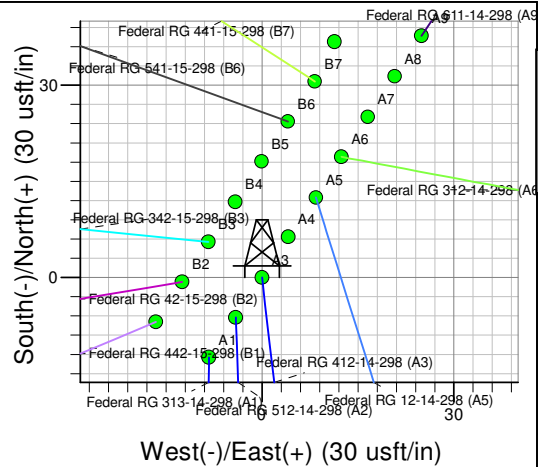
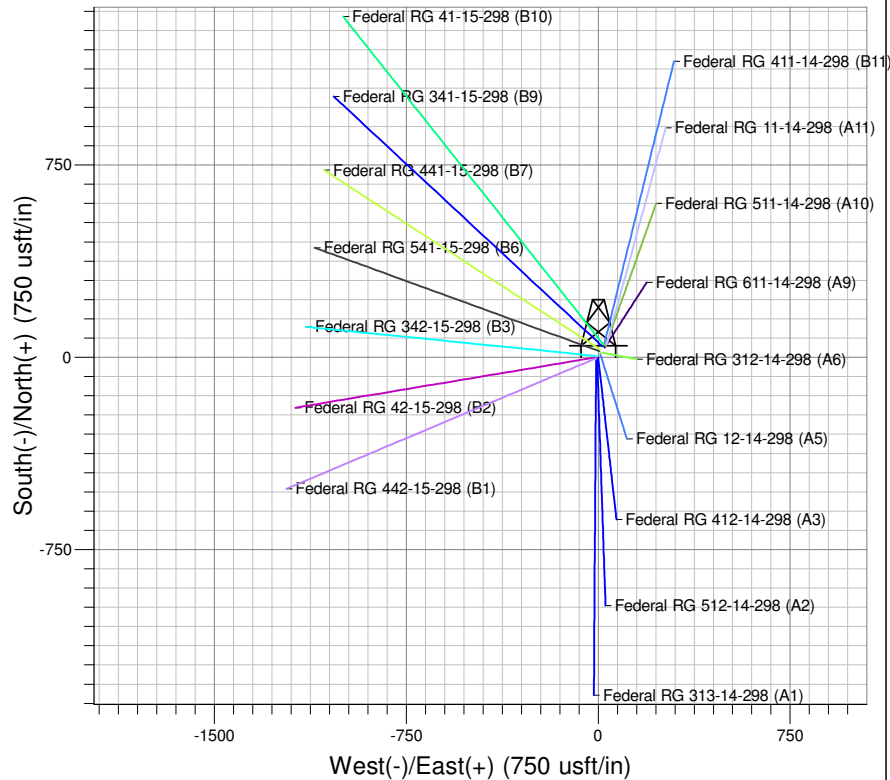


Well Name: Federal RG 412-14-298  
 Surface Location: RG 12-14-298 Pad  
 Federal RG 412-14-298  
 North American Datum 1983, US State Plane 1983 Colorado Central Zone  
 Ground Elevation: 6560.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1758307.10 2195514.10 39° 52' 49.862 N 108° 22' 0.828 W A3  
 KELLY BUSHING @ 6581.0usft



Project: RG 14-02S-098W  
 Site: RG 12-14-298 Pad  
 Well: Federal RG 412-14-298  
 Plan: Plan #2 21Mar10 kjs

Azimuths to True North  
 Magnetic North: 11.04°  
 Magnetic Field  
 Strength: 52808.4snT  
 Dip Angle: 66.10°  
 Date: 8/27/2007  
 Model: IGRF2005-10

#### 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	
527.8	6.12	173.56	527.1	-21.6	2.4	1.50	173.555	16.3	
6086.4	6.12	173.56	6053.9	-610.2	68.9	0.00	0.000	461.0	
6494.2	0.00	0.00	6461.0	-631.8	71.4	1.50	180.000	477.3	Mesaverde (25' Radius) Federal RG 412-14-298
10944.2	0.00	0.00	10911.0	-631.8	71.4	0.00	0.000	477.3	

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 1.50
527.1	527.8	6.12	173.56	-21.6	2.4	16.3	21.8	Hold 6.12 Inc
6053.9	6086.4	6.12	173.56	-610.2	68.9	461.0	614.1	Start Drop -1.50
6461.0	6494.2	0.00	0.00	-631.8	71.4	477.3	635.9	Vertical
10911.0	10944.2	0.00	0.00	-631.8	71.4	477.3	635.9	TD at 10944

# **PICEANCE HL NAD 83**

**RG 14-02S-098W**

**RG 12-14-298 Pad**

**Federal RG 412-14-298 - Slot A3**

**Federal RG 412-14-298**

**Plan: Plan #2 21Mar10 kjs**

## **Standard Planning Report - Geographic**

**30 March, 2010**

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well Federal RG 412-14-298 (A3) - Slot A3
<b>Company:</b>	PICEANCE HL NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 6581.0usft
<b>Project:</b>	RG 14-02S-098W	<b>MD Reference:</b>	KELLY BUSHING @ 6581.0usft
<b>Site:</b>	RG 12-14-298 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Federal RG 412-14-298	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Federal RG 412-14-298		
<b>Design:</b>	Plan #2 21Mar10 kjs		

<b>Project</b>	RG 14-02S-098W, Rio Blanco County, CO, RG 14-02S-098W		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		Using geodetic scale factor

Site		RG 12-14-298 Pad			
Site Position:		Northing:	1,758,307.10 usft	Latitude:	39° 52' 49.862 N
From:	Map	Easting:	2,195,514.10 usft	Longitude:	108° 22' 0.828 W
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in	Grid Convergence:	-1.808 °

Well							Federal RG 412-14-298 - Slot A3						
Well Position		+N/-S	0.0 usft	Northing:		1,758,307.10 usft	Latitude:		39° 52' 49.862 N				
		+E/-W	0.0 usft	Easting:		2,195,514.10 usft	Longitude:		108° 22' 0.828 W				
Position Uncertainty		0.0 usft	Wellhead Elevation:			Ground Level:		6,560.0 usft					

<b>Wellbore</b>	Federal RG 412-14-298				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2005-10	8/27/2007	11.044	66.096	52,808

<b>Design</b>	Plan #2 21Mar10 kjs			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	132.20

<b>Plan Sections</b>										
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	
527.8	6.12	173.56	527.1	-21.6	2.4	1.50	1.50	0.00	173.555	
6,086.4	6.12	173.56	6,053.9	-610.2	68.9	0.00	0.00	0.00	0.000	
6,494.2	0.00	0.00	6,461.0	-631.8	71.4	1.50	-1.50	0.00	180.000	Mesaverde (25' Radiu
10,944.2	0.00	0.00	10,911.0	-631.8	71.4	0.00	0.00	0.00	0.000	

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well Federal RG 412-14-298 (A3) - Slot A3
<b>Company:</b>	PICEANCE HL NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 6581.0usft
<b>Project:</b>	RG 14-02S-098W	<b>MD Reference:</b>	KELLY BUSHING @ 6581.0usft
<b>Site:</b>	RG 12-14-298 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Federal RG 412-14-298	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Federal RG 412-14-298		
<b>Design:</b>	Plan #2 21Mar10 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	1,758,307.10	2,195,514.10	39° 52' 49.862 N	108° 22' 0.828 W
120.0	0.00	0.00	120.0	0.0	0.0	1,758,307.10	2,195,514.10	39° 52' 49.862 N	108° 22' 0.828 W
527.8	6.12	173.56	527.1	-21.6	2.4	1,758,285.42	2,195,515.86	39° 52' 49.648 N	108° 22' 0.797 W
6,086.4	6.12	173.56	6,053.9	-610.2	68.9	1,757,694.98	2,195,563.74	39° 52' 43.831 N	108° 21' 59.944 W
6,494.2	0.00	0.00	6,461.0	-631.8	71.4	1,757,673.30	2,195,565.50	39° 52' 43.618 N	108° 21' 59.912 W
10,944.2	0.00	0.00	10,911.0	-631.8	71.4	1,757,673.30	2,195,565.50	39° 52' 43.618 N	108° 21' 59.912 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	6,461.0	-631.8	71.4	1,757,673.30	2,195,565.50	39° 52' 43.618 N	108° 21' 59.912 W
Mesaverde (50' Radius) - plan hits target center - Circle (radius 50.0)	0.00	0.00	6,461.0	-631.8	71.4	1,757,673.30	2,195,565.50	39° 52' 43.618 N	108° 21' 59.912 W

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
3,018.0	3,003.0	9 5/8"	9.625	13.500	

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well Federal RG 412-14-298 (A3) - Slot A3
<b>Company:</b>	PICEANCE HL NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 6581.0usft
<b>Project:</b>	RG 14-02S-098W	<b>MD Reference:</b>	KELLY BUSHING @ 6581.0usft
<b>Site:</b>	RG 12-14-298 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Federal RG 412-14-298	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Federal RG 412-14-298		
<b>Design:</b>	Plan #2 21Mar10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
748.0	746.0	Green River Fm				
898.9	896.0	A Groove				
1,084.9	1,081.0	B Groove				
1,396.7	1,391.0	Dissolution Surface				
2,130.9	2,121.0	Garden Gulch				
2,311.9	2,301.0	Orange Marker				
2,518.1	2,506.0	Wasatch				
4,413.9	4,391.0	G' Sand				
4,685.5	4,661.0	Ft. Union				
5,972.8	5,941.0	Ohio Creek				
6,494.2	6,461.0	Mesaverde				
7,364.2	7,331.0	Top Gas				
9,344.2	9,311.0	Cameo Coals				
9,744.2	9,711.0	Rollins SS				
9,869.2	9,836.0	Cozzette				
10,094.2	10,061.0	Corcoran				
10,449.2	10,416.0	Upper Sego				
10,694.2	10,661.0	Lower Sego				
10,944.2	10,911.0	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 1.50	
527.8	527.1	-21.6	2.4	Hold 6.12 Inc	
6,086.4	6,053.9	-610.2	68.9	Start Drop -1.50	
6,494.2	6,461.0	-631.8	71.4	Vertical	
10,944.2	10,911.0	-631.8	71.4	TD at 10944	