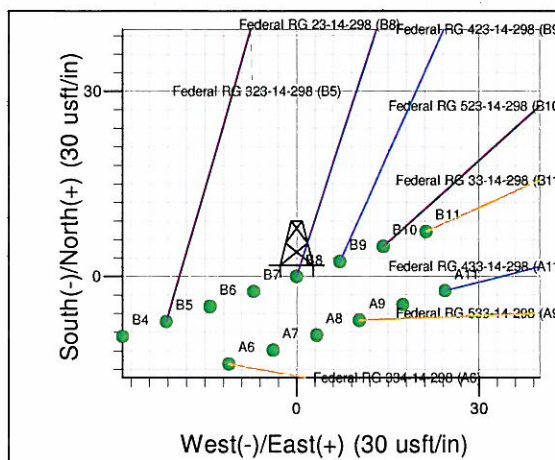
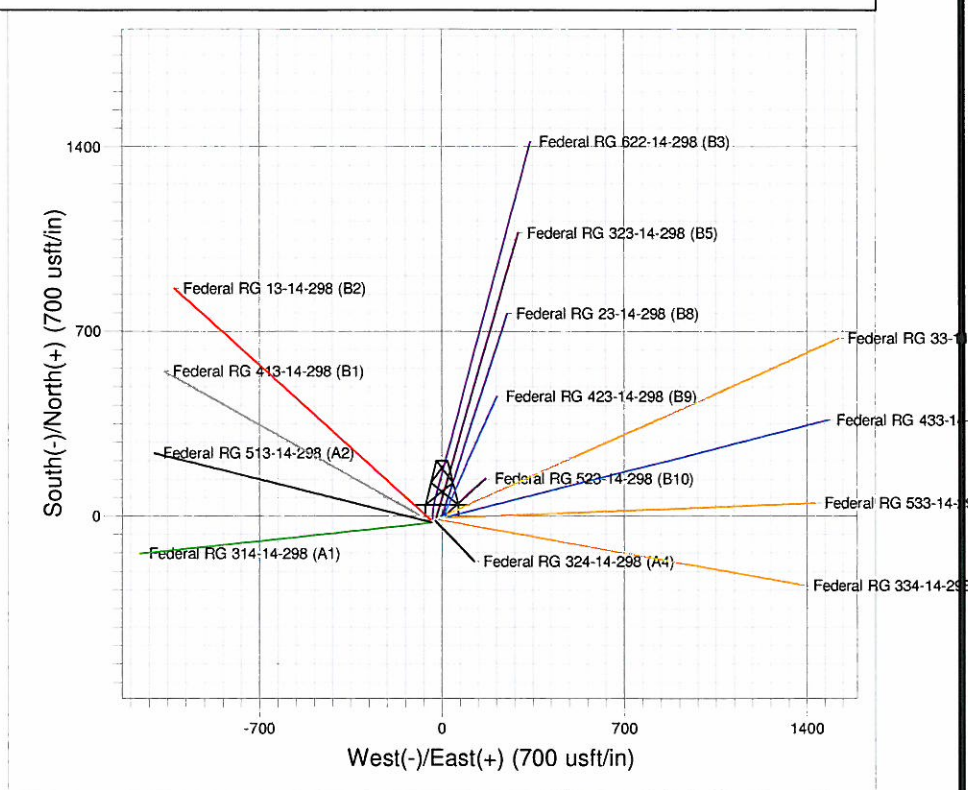



Well Name: Federal RG 23-14-298  
 Surface Location: RG 23-14-298 Pad  
 North American Datum 1983, US State Plane 1983 Colorado Central Zone  
 Ground Elevation: 6600.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1755786.52 2196402.81 39° 52' 25.242 N 108° 21' 48.415 W B8  
 Cyclone 29(21' RKB) @ 6621.0usft (Cyclone 29(21' RKB) jib)



Project: RG 14-02S-098W  
 Site: RG 23-14-298 Pad  
 Well: Federal RG 23-14-298  
 Plan: Plan #2 15mar10 kjs


 Azimuths to True North  
 Magnetic North: 10.80°  
 Magnetic Field  
 Strength: 52629.5snT  
 Dip Angle: 66.04°  
 Date: 6/16/2009  
 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	
130.0	0.00	0.00	130.0	0.0	0.0	0.00	0.000	0.0	
472.6	7.71	18.17	471.5	21.9	7.2	2.25	18.167	23.0	
6070.3	7.71	18.17	6018.7	735.2	241.2	0.00	0.000	773.8	
6584.2	0.00	0.00	6531.0	768.0	252.0	1.50	180.000	808.3	Mesaverde (25' Radius) Federal RG 23-14-298
11024.2	0.00	0.00	10971.0	768.0	252.0	0.00	0.000	808.3	

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation
130.0	130.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 2.25
471.5	472.6	7.71	18.17	21.9	7.2	23.0	23.0	Hold 7.71 Inc
6018.7	6070.3	7.71	18.17	735.2	241.2	773.8	773.8	Start Drop -1.50
6531.0	6584.2	0.00	0.00	768.0	252.0	808.3	808.3	Vertical
10971.0	11024.2	0.00	0.00	768.0	252.0	808.3	808.3	TD at 11024

# **PICEANCE HL NAD 83**

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

**RG 23-14-298 Pad**

**Federal RG 23-14-298 - Slot B8**

**Wellbore #1**

**Plan: Plan #2 15mar10 kjs**

## **Standard Planning Report - Geographic**

**02 April, 2010**



**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well Federal RG 23-14-298 (B8) - Slot B8
<b>Company:</b>	PICEANCE HL NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 6621.0usft (Cyclone 29(21' RKB) jib)
<b>Project:</b>	RG 14-02S-098W	<b>MD Reference:</b>	KELLY BUSHING @ 6621.0usft (Cyclone 29(21' RKB) jib)
<b>Site:</b>	RG 23-14-298 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Federal RG 23-14-298	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 15mar10 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

<b>Site</b>	RG 23-14-298 Pad			
<b>Site Position:</b>		<b>Northing:</b>	1,755,786.50 usft	<b>Latitude:</b> 39° 52' 25.242 N
<b>From:</b> Map		<b>Easting:</b>	2,196,402.80 usft	<b>Longitude:</b> 108° 21' 48.415 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> -1.806 °

<b>Well</b>	Federal RG 23-14-298 - Slot B8			
<b>Well Position</b>	+N/-S	0.0 usft	<b>Northing:</b> 1,755,786.52 usft	<b>Latitude:</b> 39° 52' 25.242 N
	+E/-W	0.0 usft	<b>Easting:</b> 2,196,402.81 usft	<b>Longitude:</b> 108° 21' 48.415 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	<b>Ground Level:</b> 6,600.0 usft

<b>Wellbore</b>	Wellbore #1				
<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	6/16/2009	10.804	66.045	52,630

<b>Design</b>	Plan #2 15mar10 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	18.17

<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	
130.0	0.00	0.00	130.0	0.0	0.0	0.00	0.00	0.00	0.000	
472.6	7.71	18.17	471.5	21.9	7.2	2.25	2.25	0.00	18.167	
6,070.3	7.71	18.17	6,018.7	735.2	241.2	0.00	0.00	0.00	0.000	
6,584.2	0.00	0.00	6,531.0	768.0	252.0	1.50	-1.50	0.00	180.000	Mesaverde (25' Radiu
11,024.2	0.00	0.00	10,971.0	768.0	252.0	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 23-14-298 (B8) - Slot B8
<b>Company:</b>	PICEANCE HL NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 6621.0usft (Cyclone 29(21' RKB) jib)
<b>Project:</b>	RG 14-02S-098W	<b>MD Reference:</b>	KELLY BUSHING @ 6621.0usft (Cyclone 29(21' RKB) jib)
<b>Site:</b>	RG 23-14-298 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Federal RG 23-14-298	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 15mar10 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	1,755,786.52	2,196,402.81	39° 52' 25.242 N	108° 21' 48.415 W
130.0	0.00	0.00	130.0	0.0	0.0	1,755,786.52	2,196,402.81	39° 52' 25.242 N	108° 21' 48.415 W
472.6	7.71	18.17	471.5	21.9	7.2	1,755,808.14	2,196,410.66	39° 52' 25.458 N	108° 21' 48.323 W
6,070.3	7.71	18.17	6,018.7	735.2	241.2	1,756,513.76	2,196,667.11	39° 52' 32.508 N	108° 21' 45.321 W
6,584.2	0.00	0.00	6,531.0	768.0	252.0	1,756,546.20	2,196,678.90	39° 52' 32.832 N	108° 21' 45.183 W
11,024.2	0.00	0.00	10,971.0	768.0	252.0	1,756,546.20	2,196,678.90	39° 52' 32.832 N	108° 21' 45.183 W

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Mesaverde (25' Radius)	0.00	0.00	6,531.0	768.0	252.0	1,756,546.20	2,196,678.90	39° 52' 32.832 N	108° 21' 45.183 W
- plan hits target center									
- Circle (radius 25.0)									
Mesaverde (50' Radius)	0.00	0.00	6,531.0	768.0	252.0	1,756,546.20	2,196,678.90	39° 52' 32.832 N	108° 21' 45.183 W
- plan hits target center									
- Circle (radius 50.0)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
3,011.0	2,987.0	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 23-14-298 (B8) - Slot B8
<b>Company:</b>	PICEANCE HL NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 6621.0usft (Cyclone 29(21' RKB) jib)
<b>Project:</b>	RG 14-02S-098W	<b>MD Reference:</b>	KELLY BUSHING @ 6621.0usft (Cyclone 29(21' RKB) jib)
<b>Site:</b>	RG 23-14-298 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Federal RG 23-14-298	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 15mar10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
754.6	751.0	Green River		0.000		
895.9	891.0	A Groove		0.000		
1,082.5	1,076.0	B Groove		0.000		
1,400.4	1,391.0	Dissolution Surface		0.000		
2,121.9	2,106.0	Garden Gulch		0.000		
2,308.6	2,291.0	Orange Marker		0.000		
2,510.4	2,491.0	Wasatch		0.000		
4,447.9	4,411.0	G' Sand		0.000		
4,720.4	4,681.0	Ft. Union		0.000		
6,052.4	6,001.0	Ohio Creek		0.000		
6,584.2	6,531.0	Mesaverde		0.000		
7,354.2	7,301.0	Approx Top of Gas		0.000		
9,414.2	9,361.0	Cameo Coals		0.000		
9,814.2	9,761.0	Rollins SS		0.000		
9,944.2	9,891.0	Cozzette		0.000		
10,174.2	10,121.0	Corcoran		0.000		
10,529.2	10,476.0	Upper Sego		0.000		
10,774.2	10,721.0	Lower Sego		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	
472.6	471.5	21.9	7.2	Hold 7.71 Inc	
6,070.3	6,018.7	735.2	241.2	Start Drop -1.50	
6,584.2	6,531.0	768.0	252.0	Vertical	
11,024.2	10,971.0	768.0	252.0	TD at 11024	