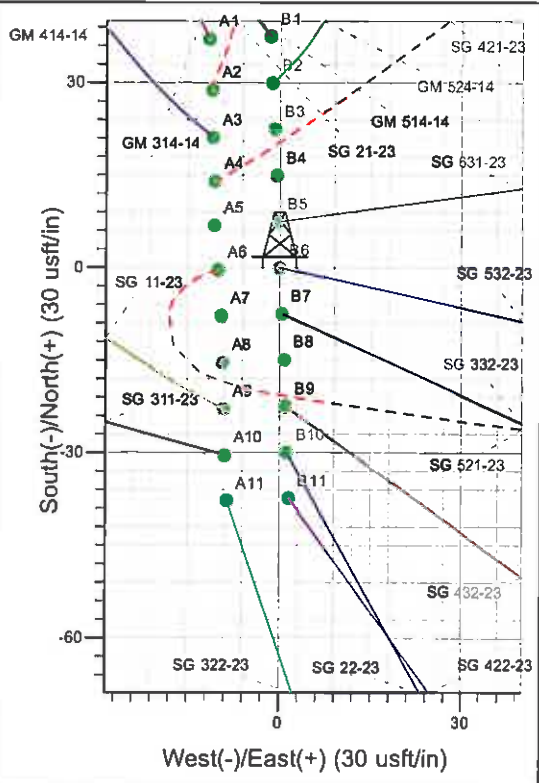
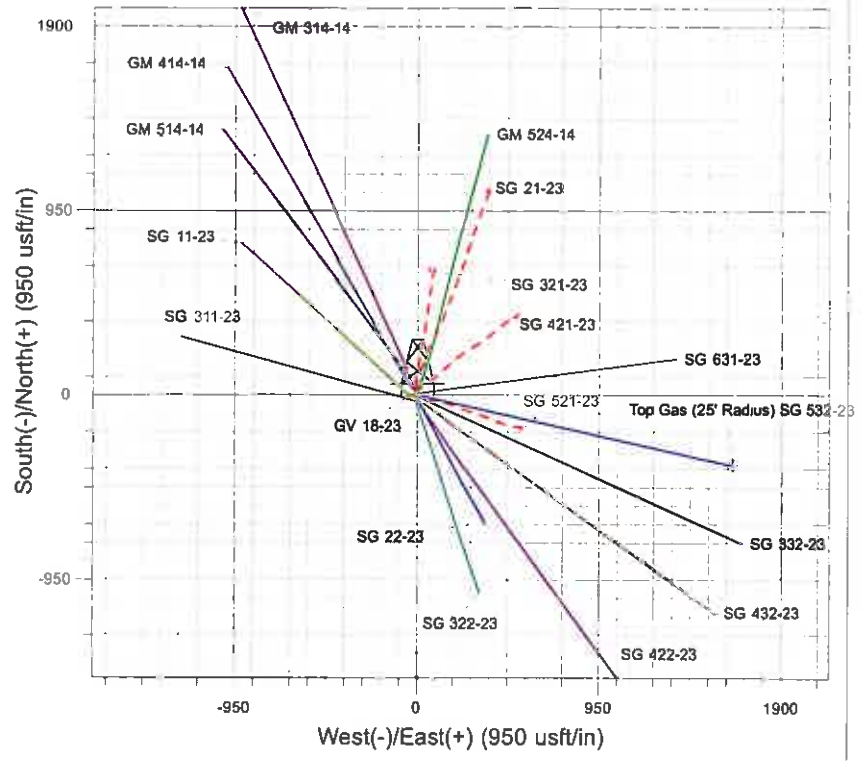
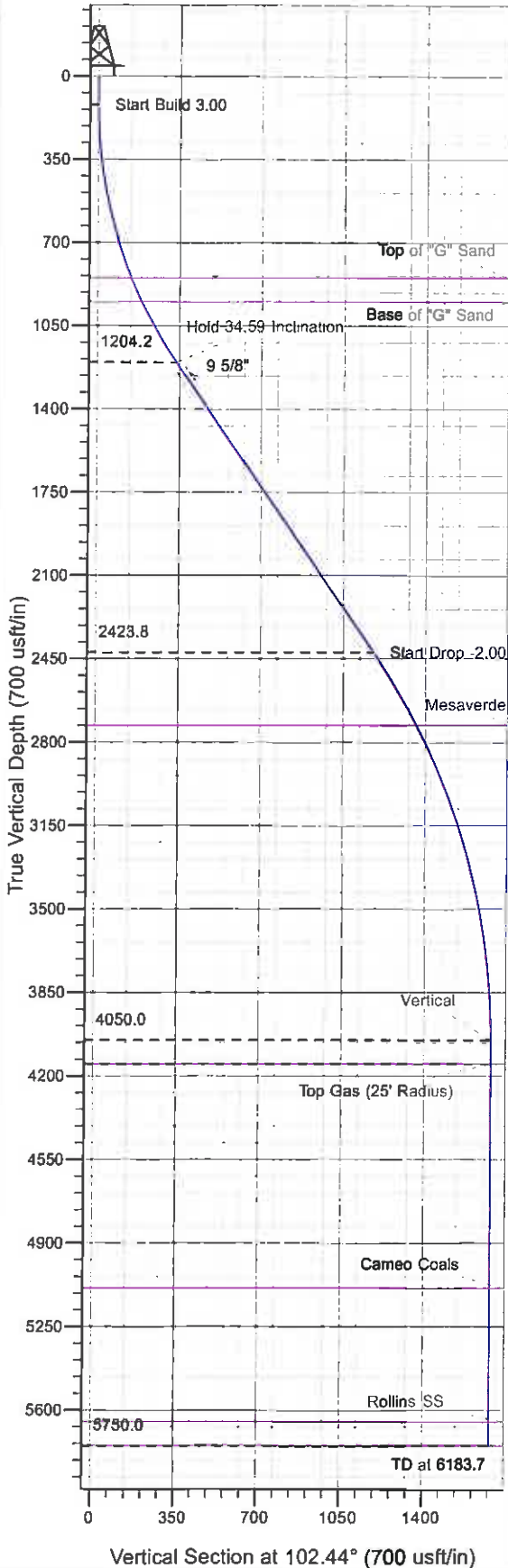




Well Name: SG 532-23  
 Surface Location: GV 18-23 Pad  
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
 Ground Elevation: 5134.0  
 +N/-S 0.0 +E/-W 0.0 Northing 1590884.10 Easting 2270839.40 Latitude 39° 25' 38.270 N Longitude 108° 4' 54.001 W Slot B6  
 WELL @ 5158.0usft (Original Well Elev)



Project: SG 23-07S-096W  
 Site: GV 18-23 Pad  
 Well: SG 532-23  
 Design #1 06Apr11 kjs

M Azimuths to True North  
 Magnetic North: 10.38°  
 Magnetic Field  
 Strength: 52260.2snT  
 Dip Angle: 65.68°  
 Date: 4/6/2011  
 Model: IGRF2005-10

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 3.00
1204.2	1272.9	34.59	102.44	-72.7	329.6	337.6	337.6	Hold 34.59 Inclination
2423.8	2754.3	34.59	102.44	-253.9	1150.8	1178.5	1178.5	Start Drop -2.00
4050.0	4483.7	0.00	0.00	-363.0	1645.3	1684.8	1684.8	Vertical
4150.0	4583.7	0.00	0.00	-363.0	1645.3	1684.8	1684.8	Top Gas
5750.0	6183.7	0.00	0.00	-363.0	1645.3	1684.8	1684.8	TD at 6183.7

# **PICEANCE VLY NAD 83**

**SG 23-07S-096W**

**GV 18-23 Pad**

**SG 532-23 - Slot B6**

**Wellbore #1**

**Plan: Design #1 06Apr11 kjs**

## **Standard Planning Report - Geographic**

**03 June, 2011**

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well SG 532-23 - Slot B6
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	WELL @ 5158.0usft (Original Well Elev)
<b>Project:</b>	SG 23-07S-096W	<b>MD Reference:</b>	WELL @ 5158.0usft (Original Well Elev)
<b>Site:</b>	GV 18-23 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SG 532-23	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 06Apr11 kjs		

<b>Project</b>	SG 23-07S-096W, Garfield County, CO, 23-07S-096W		
<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>	GV 18-23 Pad				
<b>Site Position:</b>	<b>Northing:</b>	1,590,884.00 usft	<b>Latitude:</b>	39° 25' 38.266 N	
<b>From:</b>	<b>Map</b>	<b>Easting:</b>	2,270,829.40 usft	<b>Longitude:</b>	108° 4' 54.128 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13.200 In	<b>Grid Convergence:</b>	-1.628 °

<b>Well</b>	SG 532-23 - Slot B6					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	1,590,884.10 usft	<b>Latitude:</b>	39° 25' 38.270 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	2,270,839.40 usft	<b>Longitude:</b>	108° 4' 54.001 W
<b>Position Uncertainty</b>	0.0 usft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	5,134.0 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</b>
	IGRF2005-10	4/6/2011	(°)	(°)	(nT)
			10.382	65.684	52,260

<b>Design</b>	Design #1 06Apr11 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)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	102.44

<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	
1,272.9	34.59	102.44	1,204.2	-72.7	329.6	3.00	3.00	0.00	102.443	
2,754.3	34.59	102.44	2,423.8	-253.9	1,150.8	0.00	0.00	0.00	0.000	
4,483.7	0.00	0.00	4,050.0	-363.0	1,645.3	2.00	-2.00	0.00	180.000	
4,583.7	0.00	0.00	4,150.0	-363.0	1,645.3	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
6,183.7	0.00	0.00	5,750.0	-363.0	1,645.3	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 SG 532-23 - Slot B6
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	WELL @ 5158.0usft (Original Well Elev)
<b>Project:</b>	SG 23-07S-096W	<b>MD Reference:</b>	WELL @ 5158.0usft (Original Well Elev)
<b>Site:</b>	GV 18-23 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SG 532-23	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 06Apr11 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	1,590,884.10	2,270,839.40	39° 25' 38.270 N	108° 4' 54.001 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,590,884.10	2,270,839.40	39° 25' 38.270 N	108° 4' 54.001 W	
<b>Start Build 3.00</b>										
869.1	22.47	102.44	850.0	-31.2	141.6	1,590,848.84	2,270,980.06	39° 25' 37.961 N	108° 4' 52.196 W	
<b>Top of "G" Sand</b>										
978.6	25.76	102.44	950.0	-40.9	185.3	1,590,837.96	2,271,023.48	39° 25' 37.865 N	108° 4' 51.639 W	
<b>Base of "G" Sand</b>										
1,272.9	34.59	102.44	1,204.2	-72.7	329.6	1,590,802.03	2,271,166.81	39° 25' 37.551 N	108° 4' 49.800 W	
<b>Hold 34.59 Inclination</b>										
1,373.0	34.59	102.44	1,286.6	-85.0	385.1	1,590,788.22	2,271,221.91	39° 25' 37.430 N	108° 4' 49.093 W	
<b>9 5/8"</b>										
2,754.3	34.59	102.44	2,423.8	-253.9	1,150.8	1,590,597.59	2,271,982.49	39° 25' 35.760 N	108° 4' 39.335 W	
<b>Start Drop -2.00</b>										
3,111.9	27.44	102.44	2,730.0	-293.6	1,330.6	1,590,552.83	2,272,161.06	39° 25' 35.368 N	108° 4' 37.044 W	
<b>Mesaverde</b>										
4,483.7	0.00	0.00	4,050.0	-363.0	1,645.3	1,590,474.50	2,272,473.60	39° 25' 34.681 N	108° 4' 33.034 W	
<b>Vertical</b>										
4,583.7	0.00	0.00	4,150.0	-363.0	1,645.3	1,590,474.50	2,272,473.60	39° 25' 34.681 N	108° 4' 33.034 W	
<b>Top Gas - Approx. Top Gas</b>										
5,523.7	0.00	0.00	5,090.0	-363.0	1,645.3	1,590,474.50	2,272,473.60	39° 25' 34.681 N	108° 4' 33.034 W	
<b>Cameo Coals</b>										
6,083.7	0.00	0.00	5,650.0	-363.0	1,645.3	1,590,474.50	2,272,473.60	39° 25' 34.681 N	108° 4' 33.034 W	
<b>Rollins SS</b>										
6,183.7	0.00	0.00	5,750.0	-363.0	1,645.3	1,590,474.50	2,272,473.60	39° 25' 34.681 N	108° 4' 33.034 W	
<b>TD at 6183.7 - TD</b>										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Top Gas (25' Radius) SC - hit/miss target - Shape - Circle (radius 25.0)	0.00	0.00	4,150.0	-363.0	1,645.3	1,590,474.50	2,272,473.60	39° 25' 34.681 N	108° 4' 33.034 W	

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,373.0	1,286.6	9 5/8"	9.625	12.250	

**Williams**  
 Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well SG 532-23 - Slot B6
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	WELL @ 5158.0usft (Original Well Elev)
<b>Project:</b>	SG 23-07S-096W	<b>MD Reference:</b>	WELL @ 5158.0usft (Original Well Elev)
<b>Site:</b>	GV 18-23 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SG 532-23	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 06Apr11 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (")	Dip Direction (")	
869.1	850.0	Top of "G" Sand				
978.6	950.0	Base of "G" Sand				
3,111.9	2,730.0	Mesaverde				
4,583.7	4,150.0	Approx. Top Gas				
5,523.7	5,090.0	Cameo Coals				
6,083.7	5,650.0	Rollins SS				
6,183.7	5,750.0	TD				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
120.0	120.0	0.0	0.0	Start Build 3.00	
1,272.9	1,204.2	-72.7	329.6	Hold 34.59 Inclination	
2,754.3	2,423.8	-253.9	1,150.8	Start Drop -2.00	
4,483.7	4,050.0	-363.0	1,645.3	Vertical	
4,583.7	4,150.0	-363.0	1,645.3	Top Gas	
6,183.7	5,750.0	-363.0	1,645.3	TD at 6183.7	