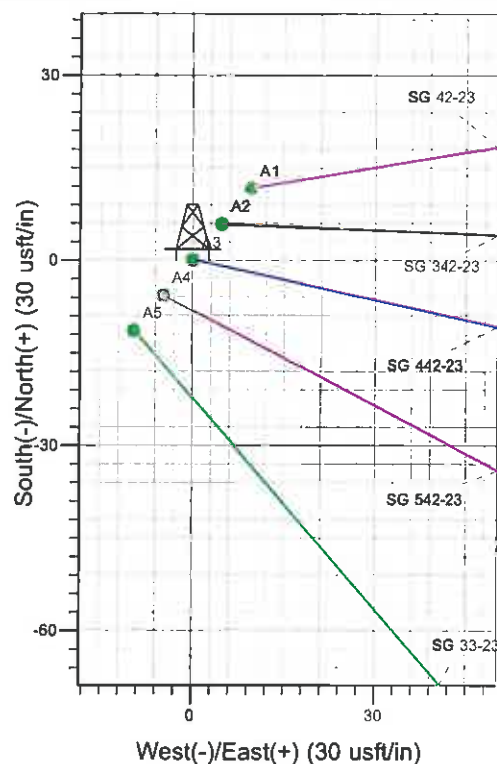
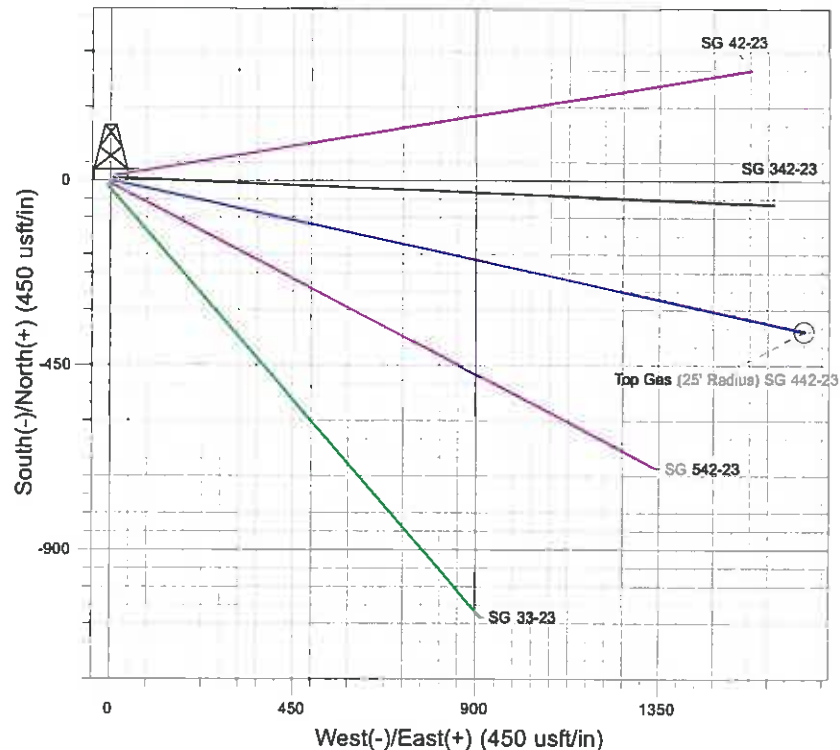
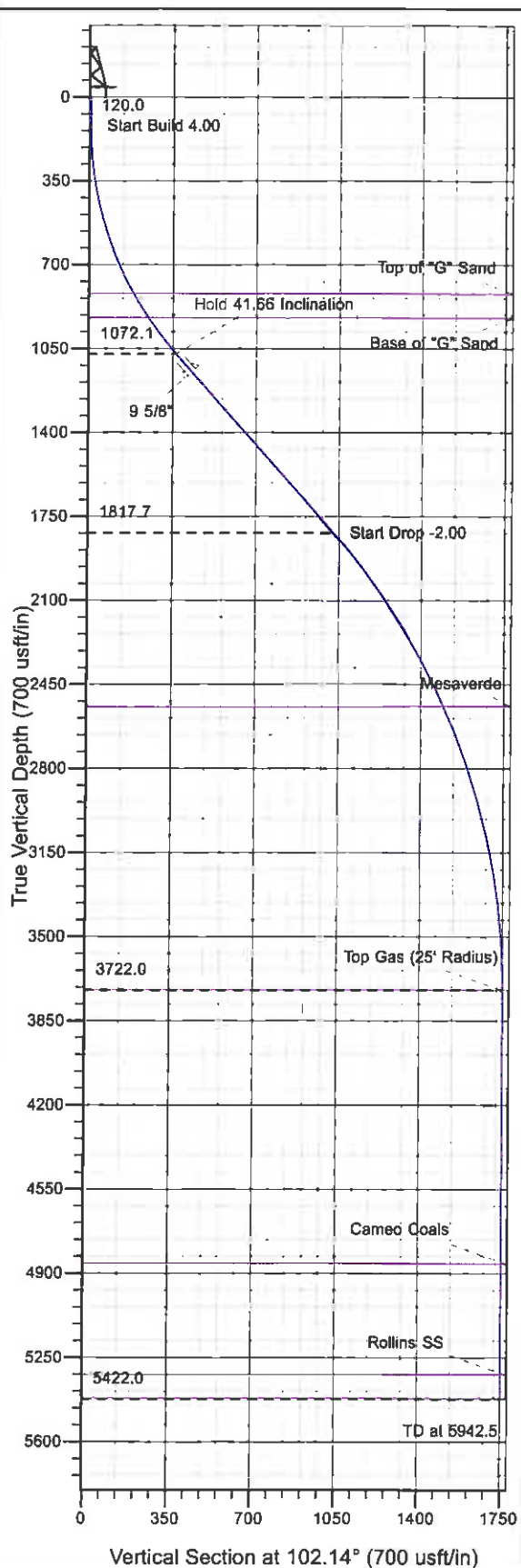




Well Name: SG 442-23  
 Surface Location: SG 32-23 Pad  
 North American Datum 1983, US State Plane 1983 Colorado Central Zone  
 Ground Elevation: 5038.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1590081.30 2272309.00 39° 25' 30.750 N 108° 4' 34.989 W A3  
 KELLY BUSHING @ 5062.0usft (H&P 280 (24' RKB) kjs)



Project: SG 23-07S-096W  
 Site: SG 32-23 Pad  
 Well: SG 442-23  
 Design #1 13Jun11 kjs



Azimuths to True North  
 Magnetic North: 10.36°  
 Magnetic Field  
 Strength: 52242.4snT  
 Dip Angle: 65.68°  
 Date: 6/13/2011  
 Model: IGRF2005-10

#### ANNOTATIONS

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 4.00
1072.1	1161.5	41.66	102.14	-76.2	354.2	362.3	362.3	Hold 41.66 Inclination
1817.7	2159.5	41.66	102.14	-215.7	1002.7	1025.6	1025.6	Start Drop -2.00
3722.0	4242.5	0.00	0.00	-368.1	1711.0	1750.1	1750.1	Top Gas
5422.0	5942.5	0.00	0.00	-368.1	1711.0	1750.1	1750.1	TD at 5942.5

# **PICEANCE VLY NAD 83**

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

**SG 32-23 Pad**

**SG 442-23 - Slot A3**

**Wellbore #1**

**Plan: Design #1 13Jun11 kjs**

## **Standard Planning Report - Geographic**

**14 September, 2011**

**Williams**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well SG 442-23 - Slot A3
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5062.0usft (H&P 280 (24' RKB) kjs)
<b>Project:</b>	SG 23-07S-096W	<b>MD Reference:</b>	KELLY BUSHING @ 5062.0usft (H&P 280 (24' RKB) kjs)
<b>Site:</b>	SG 32-23 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SG 442-23	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 13Jun11 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

Site	SG 32-23 Pad				
Site Position:		Northing:	1,590,092.50 usft	Latitude:	39° 25' 30.865 N
From:	Map	Easting:	2,272,322.00 usft	Longitude:	108° 4' 34.827 W
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in	Grid Convergence:	-1.625 °

Well	SG 442-23 - Slot A3					
Well Position	+N/-S	0.0 usft	Northing:	1,590,081.30 usft	Latitude:	39° 25' 30.750 N
	+E/-W	0.0 usft	Easting:	2,272,309.00 usft	Longitude:	108° 4' 34.989 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	5,038.0 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	6/13/2011	10.355	65.679	52,242

<b>Design</b>	Design #1 13Jun11 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	102.14

<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	
1,161.5	41.66	102.14	1,072.1	-76.2	354.2	4.00	4.00	0.00	102.140	
2,159.5	41.66	102.14	1,817.7	-215.7	1,002.7	0.00	0.00	0.00	0.000	
4,242.5	0.00	0.00	3,722.0	-368.1	1,711.0	2.00	-2.00	0.00	180.000	Top Gas (25' Radius)
5,942.5	0.00	0.00	5,422.0	-368.1	1,711.0	0.00	0.00	0.00	0.000	

**Williams**  
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well SG 442-23 - Slot A3
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 5062.0usft (H&P 280 (24' RKB) kjs)
Project:	SG 23-07S-096W	MD Reference:	KELLY BUSHING @ 5062.0usft (H&P 280 (24' RKB) kjs)
Site:	SG 32-23 Pad	North Reference:	True
Well:	SG 442-23	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 13Jun11 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	1,590,081.30	2,272,309.00	39° 25' 30.750 N	108° 4' 34.989 W
120.0	0.00	0.00	120.0	0.0	0.0	1,590,081.30	2,272,309.00	39° 25' 30.750 N	108° 4' 34.989 W
Start Build 4.00									
853.7	29.35	102.14	822.0	-38.7	179.7	1,590,037.56	2,272,487.53	39° 25' 30.368 N	108° 4' 32.699 W
Top of "G" Sand									
971.2	34.05	102.14	922.0	-51.6	240.1	1,590,022.87	2,272,547.51	39° 25' 30.240 N	108° 4' 31.930 W
Base of "G" Sand									
1,161.5	41.66	102.14	1,072.1	-76.2	354.2	1,589,995.11	2,272,660.83	39° 25' 29.997 N	108° 4' 30.476 W
Hold 41.66 Inclination									
1,262.0	41.66	102.14	1,147.2	-90.2	419.5	1,589,979.21	2,272,725.71	39° 25' 29.859 N	108° 4' 29.644 W
9 5/8"									
2,159.5	41.66	102.14	1,817.7	-215.7	1,002.7	1,589,837.27	2,273,305.14	39° 25' 28.618 N	108° 4' 22.211 W
Start Drop -2.00									
3,026.3	24.32	102.14	2,542.0	-314.6	1,462.4	1,589,725.40	2,273,761.81	39° 25' 27.641 N	108° 4' 16.353 W
Mesaverde									
4,242.5	0.00	0.00	3,722.0	-368.1	1,711.0	1,589,664.90	2,274,008.80	39° 25' 27.112 N	108° 4' 13.185 W
Top Gas - Approx. Top Gas - Top Gas (25' Radius) SG 442-23									
5,382.5	0.00	0.00	4,862.0	-368.1	1,711.0	1,589,664.90	2,274,008.80	39° 25' 27.112 N	108° 4' 13.185 W
Cameo Coals									
5,842.5	0.00	0.00	5,322.0	-368.1	1,711.0	1,589,664.90	2,274,008.80	39° 25' 27.112 N	108° 4' 13.185 W
Rollins SS									
5,942.5	0.00	0.00	5,422.0	-368.1	1,711.0	1,589,664.90	2,274,008.80	39° 25' 27.112 N	108° 4' 13.185 W
TD at 5842.5 - TD									

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									
Top Gas (25' Radius) SC	0.00	0.00	3,722.0	-368.1	1,711.0	1,589,664.90	2,274,008.80	39° 25' 27.112 N	108° 4' 13.185 W
- plan hits target center									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,262.0	1,147.2	9 5/8"	9.625	12.250	

**Williams**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well SG 442-23 - Slot A3
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5062.0usft (H&P 280 (24' RKB) kjs)
<b>Project:</b>	SG 23-07S-096W	<b>MD Reference:</b>	KELLY BUSHING @ 5062.0usft (H&P 280 (24' RKB) kjs)
<b>Site:</b>	SG 32-23 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SG 442-23	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 13Jun11 kjs		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (")	Dip Direction (")
853.7	822.0	Top of "G" Sand			
971.2	922.0	Base of "G" Sand			
3,026.3	2,542.0	Mesaverde			
4,242.5	3,722.0	Approx. Top Gas			
5,382.5	4,862.0	Cameo Coals			
5,842.5	5,322.0	Rollins SS			
5,942.5	5,422.0	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 4.00
1,161.5	1,072.1	-76.2	354.2	Hold 41.66 Inclination
2,159.5	1,817.7	-215.7	1,002.7	Start Drop -2.00
4,242.5	3,722.0	-368.1	1,711.0	Top Gas
5,942.5	5,422.0	-368.1	1,711.0	TD at 5942.5