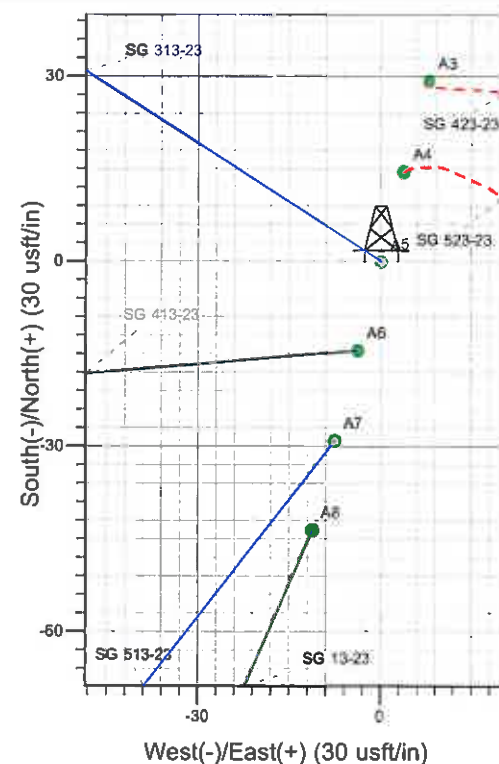
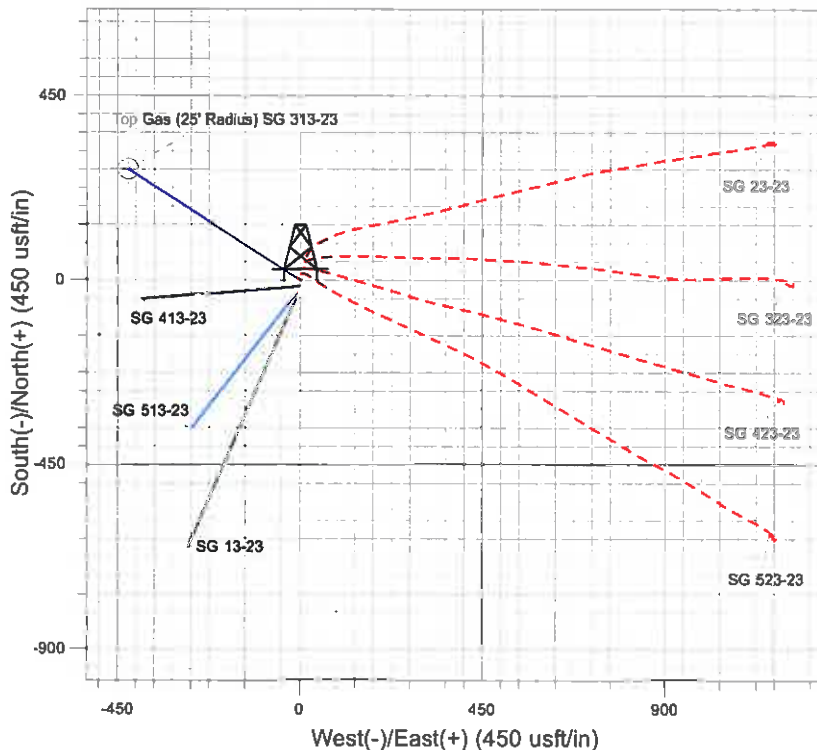
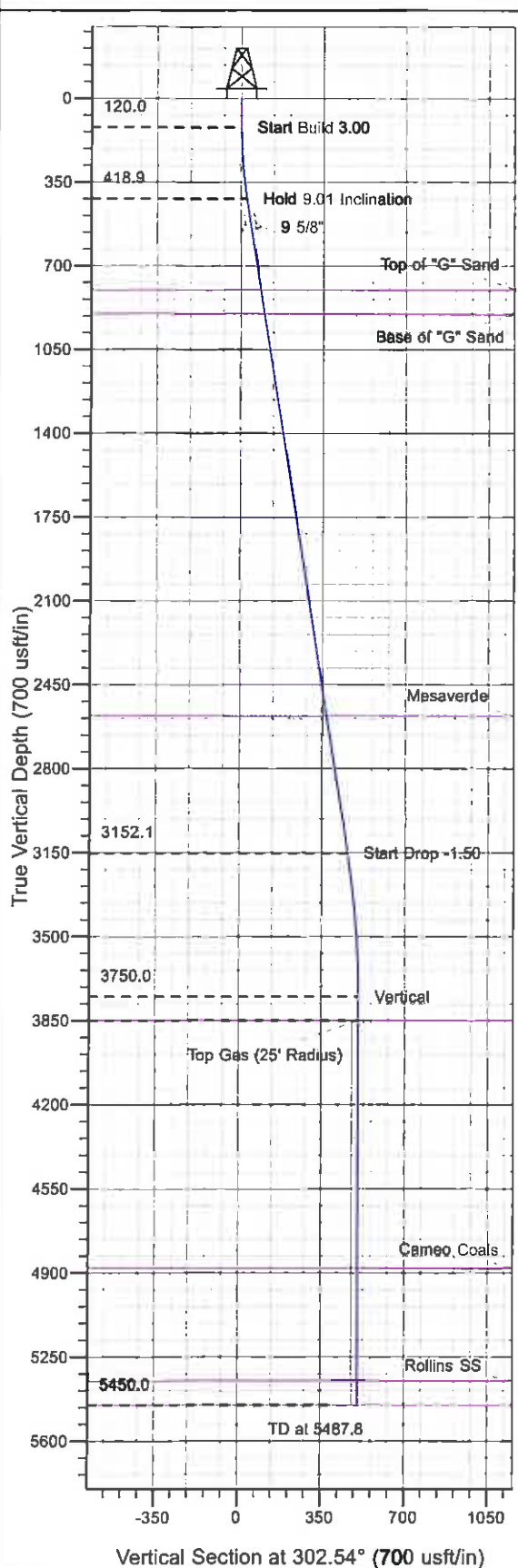




Well Name: SG 313-23  
 Surface Location: SG 23-23 Pad  
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
 Ground Elevation: 5065.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1588876.10 2270672.00 39° 25' 18.384 N 108° 4' 55.406 W A5  
 WELL @ 5089.0usft (H&P 280 (24' RKB) kjs)



Project: SG 23-07S-096W  
 Site: SG 23-23 Pad  
 Well: SG 313-23  
 Design #1 22Dec10 kjs



Azimuths to True North  
 Magnetic North: 10.42°  
 Magnetic Field  
 Strength: 52285.9nT  
 Dip Angle: 65.69°  
 Date: 12/21/2010  
 Model: IGRF2005-10

#### ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	V	Sed	Departure	Annotation
120.0	120.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	Start Build 3.00
418.9	420.2	9.01	302.54	12.7	-19.8	23.5	23.5	0.0	Hold 9.01 Inclination
3152.1	3187.5	9.01	302.54	245.6	-385.0	456.7	456.7	0.0	Start Drop -1.50
3750.0	3787.8	0.00	0.00	271.0	-424.7	503.8	503.8	0.0	Vertical
3850.0	3887.8	0.00	0.00	271.0	-424.7	503.8	503.8	0.0	Top Gas
5450.0	5487.8	0.00	0.00	271.0	-424.7	503.8	503.8	0.0	TD at 5487.8

# **PICEANCE VLY NAD 83**

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

**SG 23-23 Pad**

**SG 313-23 - Slot A5**

**Wellbore #1**

**Plan: Design #1 22Dec10 kjs**

## **Standard Planning Report - Geographic**

**16 February, 2011**

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well SG 313-23 - Slot A5
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	WELL @ 5089.0usft (H&P 280 (24' RKB) kjs)
<b>Project:</b>	SG 23-07S-096W	<b>MD Reference:</b>	WELL @ 5089.0usft (H&P 280 (24' RKB) kjs)
<b>Site:</b>	SG 23-23 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SG 313-23	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 22Dec10 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 23-23 Pad			
Site Position:		Northing:	1,588,829.90 usft	Latitude:	39° 25' 17.924 N
From:	Map	Easting:	2,270,658.40 usft	Longitude:	108° 4' 55.563 W
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in	Grid Convergence:	-1.629 °

Well	SG 313-23 - Slot A5					
Well Position	+N/-S	0.0 usft	Northing:	1,588,876.10 usft	Latitude:	39° 25' 18.384 N
	+E/-W	0.0 usft	Easting:	2,270,672.00 usft	Longitude:	108° 4' 55.406 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	5,065.0 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	12/21/2010	10.420	65.687	52,286

<b>Design</b>	Design #1 22Dec10 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	302.54

<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	
420.2	9.01	302.54	418.9	12.7	-19.8	3.00	3.00	0.00	302.538	
3,187.5	9.01	302.54	3,152.1	245.6	-385.0	0.00	0.00	0.00	0.000	
3,787.8	0.00	0.00	3,750.0	271.0	-424.7	1.50	-1.50	0.00	180.000	
3,887.8	0.00	0.00	3,850.0	271.0	-424.7	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
5,487.8	0.00	0.00	5,450.0	271.0	-424.7	0.00	0.00	0.00	0.000	

**Williams**  
Planning Report - Geographic

Database: Compass R5000 WIN AUTH  
Company: PICEANCE VLY NAD 83  
Project: SG 23-07S-096W  
Site: SG 23-23 Pad  
Well: SG 313-23  
Wellbore: Wellbore #1  
Design: Design #1 22Dec10 kjs

Local Co-ordinate Reference:  
TVD Reference:  
MD Reference:  
North Reference:  
Survey Calculation Method:

Well SG 313-23 - Slot A5  
WELL @ 5089.0usft (H&P 280 (24' RKB) kjs)  
WELL @ 5089.0usft (H&P 280 (24' RKB) kjs)  
True  
Minimum Curvature

**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	1,588,876.10	2,270,672.00	39° 25' 18.384 N	108° 4' 55.406 W
120.0	0.00	0.00	120.0	0.0	0.0	1,588,876.10	2,270,672.00	39° 25' 18.384 N	108° 4' 55.406 W
<b>Start Build 3.00</b>									
420.2	9.01	302.54	418.9	12.7	-19.8	1,588,889.31	2,270,652.52	39° 25' 18.509 N	108° 4' 55.659 W
<b>Hold 9.01 inclination</b>									
549.0	9.01	302.54	546.2	23.5	-36.8	1,588,900.64	2,270,635.84	39° 25' 18.616 N	108° 4' 55.876 W
<b>9 5/8"</b>									
606.0	9.01	302.54	800.0	45.1	-70.8	1,588,923.23	2,270,602.56	39° 25' 18.830 N	108° 4' 56.308 W
<b>Top of "G" Sand</b>									
907.2	9.01	302.54	900.0	53.7	-84.1	1,588,932.13	2,270,589.45	39° 25' 18.914 N	108° 4' 56.478 W
<b>Base of "G" Sand</b>									
2,608.2	9.01	302.54	2,580.0	196.9	-308.6	1,589,081.64	2,270,369.17	39° 25' 20.330 N	108° 4' 59.336 W
<b>Mesaverde</b>									
3,187.5	9.01	302.54	3,152.1	245.6	-385.0	1,589,132.56	2,270,294.15	39° 25' 20.812 N	108° 5' 0.312 W
<b>Start Drop -1.50</b>									
3,787.8	0.00	0.00	3,750.0	271.0	-424.7	1,589,159.00	2,270,255.20	39° 25' 21.062 N	108° 5' 0.818 W
<b>Vertical</b>									
3,887.8	0.00	0.00	3,850.0	271.0	-424.7	1,589,159.00	2,270,255.20	39° 25' 21.062 N	108° 5' 0.818 W
<b>Top Gas - Approx. Top Gas</b>									
4,917.8	0.00	0.00	4,880.0	271.0	-424.7	1,589,159.00	2,270,255.20	39° 25' 21.062 N	108° 5' 0.818 W
<b>Cameo Coals</b>									
5,387.8	0.00	0.00	5,350.0	271.0	-424.7	1,589,159.00	2,270,255.20	39° 25' 21.062 N	108° 5' 0.818 W
<b>Rollins SS</b>									
5,487.8	0.00	0.00	5,450.0	271.0	-424.7	1,589,159.00	2,270,255.20	39° 25' 21.062 N	108° 5' 0.818 W
<b>TD at 5487.8 - TD</b>									

**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	3,850.0	271.0	-424.7	1,589,159.00	2,270,255.20	39° 25' 21.062 N	108° 5' 0.818 W
- plan hits target center									
- Circle (radius 25.0)									

**Casing Points**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
549.0	546.2	9 5/8"	9.625	12.250

**Williams**  
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well SG 313-23 - Slot A5
Company:	PICEANCE VLY NAD 83	TVD Reference:	WELL @ 5089.0usft (H&P 280 (24' RKB) kjs)
Project:	SG 23-07S-096W	MD Reference:	WELL @ 5089.0usft (H&P 280 (24' RKB) kjs)
Site:	SG 23-23 Pad	North Reference:	True
Well:	SG 313-23	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 22Dec10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
806.0	800.0	Top of "G" Sand				
907.2	900.0	Base of "G" Sand				
2,608.2	2,580.0	Mesaverde				
3,887.8	3,850.0	Approx. Top Gas				
4,917.8	4,880.0	Cameo Coals				
5,387.8	5,350.0	Rollins SS				
5,487.8	5,450.0	TD				

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 3.00	
420.2	418.9	12.7	-19.8	Hold 9.01 Inclination	
3,187.5	3,152.1	245.6	-385.0	Start Drop -1.50	
3,787.8	3,750.0	271.0	-424.7	Vertical	
3,887.8	3,850.0	271.0	-424.7	Top Gas	
5,487.8	5,450.0	271.0	-424.7	TD at 5487.8	