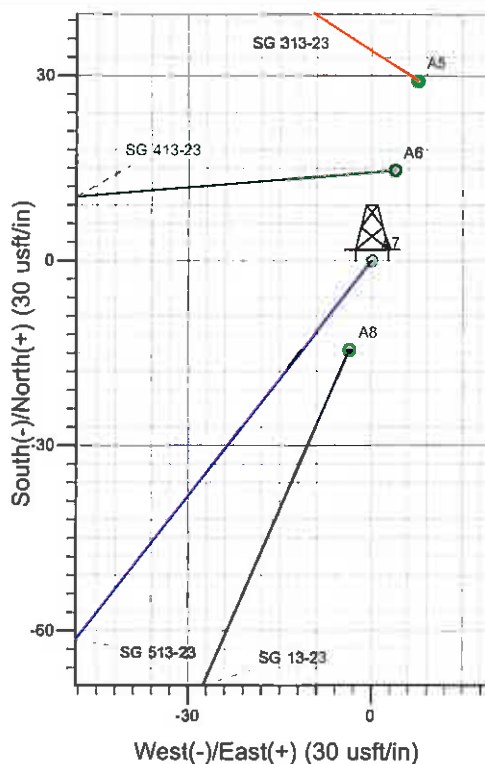
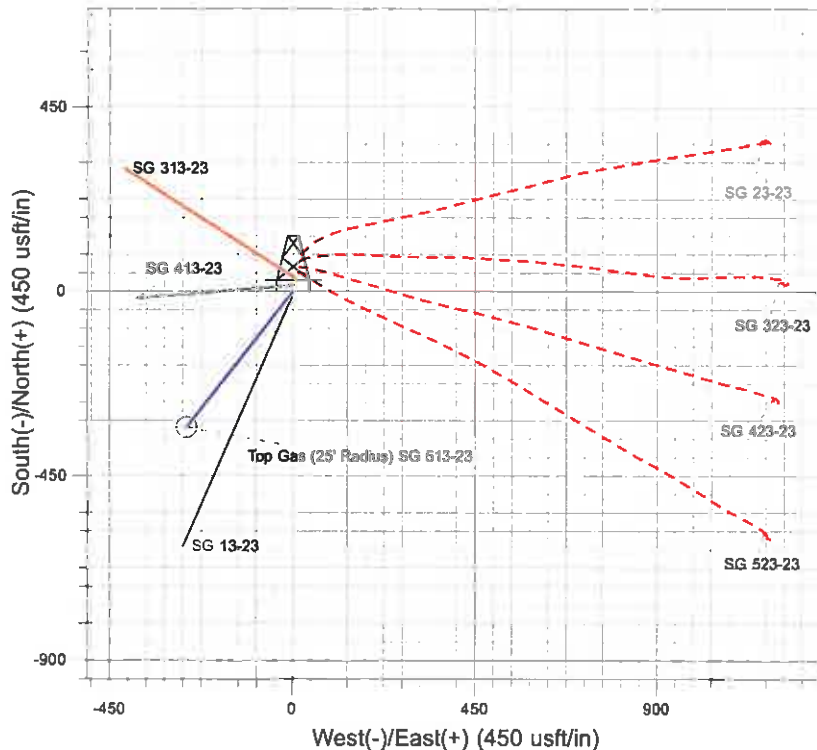
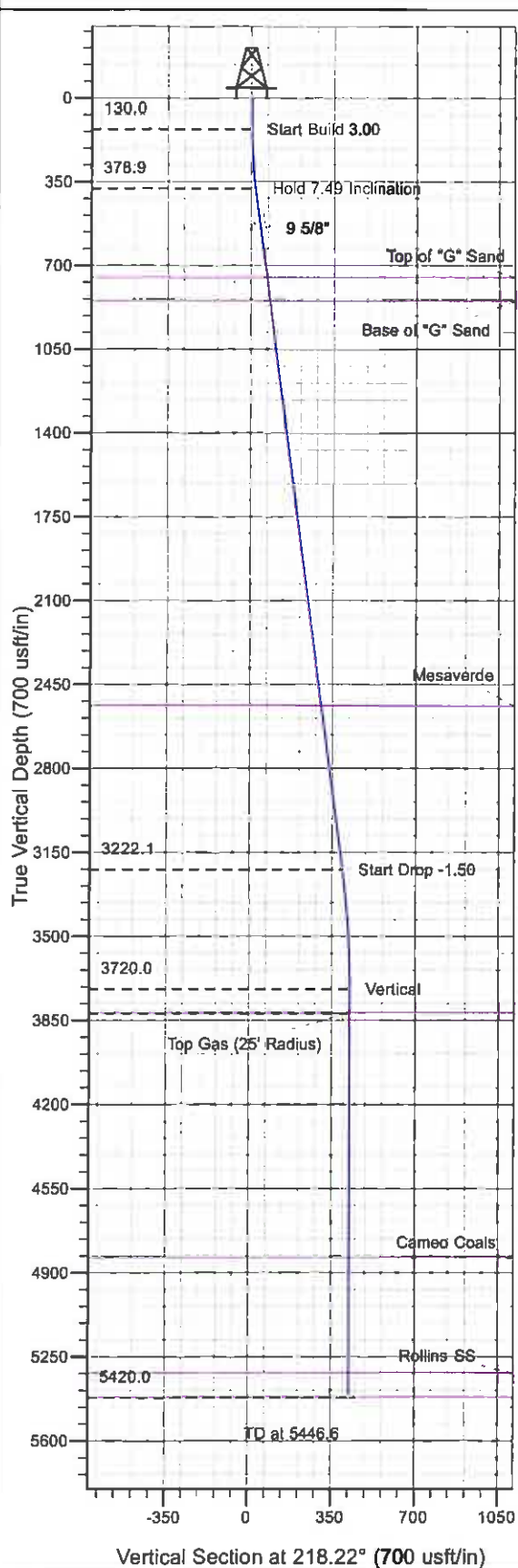




Well Name: SG 513-23
 Surface Location: SG 23-23 Pad
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone
 Ground Elevation: 5065.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1588847.20 2270663.60 39° 25' 18.096 N 108° 4' 55.503 W A7
 WELL @ 5089.0usft (H&P 280 (24' RKB) kjs)



Project: SG 23-07S-096W
 Site: SG 23-23 Pad
 Well: SG 513-23
 Design #1 22Dec10 kjs



M Azimuths to True North
 Magnetic North: 10.42°
 Magnetic Field
 Strength: 52285.6nT
 Dip Angle: 65.69°
 Date: 12/22/2010
 Model: IGRF2005-10

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	V	Sed	Departure	Annotation
130.0	130.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	Start Build 3.00
378.9	379.7	7.49	218.22	-12.8	-10.1	16.3	16.3	16.3	Hold 7.49 Inclination
3222.1	3247.3	7.49	218.22	-306.5	-241.3	390.1	390.1	390.1	Start Drop -1.50
3720.0	3746.6	0.00	0.00	-332.1	-261.5	422.7	422.7	422.7	Vertical
3820.0	3846.6	0.00	0.00	-332.1	-261.5	422.7	422.7	422.7	Top Gas
5420.0	5446.6	0.00	0.00	-332.1	-261.5	422.7	422.7	422.7	TD at 5446.6

PICEANCE VLY NAD 83

SG 23-07S-096W

SG 23-23 Pad

SG 513-23 - Slot A7

Wellbore #1

Plan: Design #1 22Dec10 kjs

Standard Planning Report - Geographic

16 February, 2011

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 513-23
Wellbore: Wellbore #1
Design: Design #1 22Dec10 kjs

Local Co-ordinate Reference:

TVD Reference:

MD Reference:

North Reference:

Survey Calculation Method:

Well SG 513-23 - Slot A7

WELL @ 5089.0usft (H&P 280 (24' RKB) kjs)

WELL @ 5089.0usft (H&P 280 (24' RKB) kjs)

True

Minimum Curvature

Project SG 23-07S-096W, Garfield County, CO, 23-07S-096W

Map System: US State Plane 1983

System Datum:

Mean Sea Level

Geo Datum: North American Datum 1983

Map Zone: 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 513-23 - Slot A7

Well Position	+N/-S	0.0 usft	Northing:	1,588,847.20 usft	Latitude:	39° 25' 18.096 N
	+E/-W	0.0 usft	Easting:	2,270,663.60 usft	Longitude:	108° 4' 55.503 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	5,065.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	12/22/2010	10.419	65.687	52,286

Design Design #1 22Dec10 kjs

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	218.22

Plan Sections

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	
379.7	7.49	218.22	378.9	-12.8	-10.1	3.00	3.00	0.00	218.217	
3,247.3	7.49	218.22	3,222.1	-306.5	-241.3	0.00	0.00	0.00	0.000	
3,746.6	0.00	0.00	3,720.0	-332.1	-261.5	1.50	-1.50	0.00	180.000	
3,846.6	0.00	0.00	3,820.0	-332.1	-261.5	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
5,446.6	0.00	0.00	5,420.0	-332.1	-261.5	0.00	0.00	0.00	0.000	

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well SG 513-23 - Slot A7
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 513-23	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 22Dec10 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	1,588,847.20	2,270,663.60	39° 25' 18.096 N	108° 4' 55.503 W
130.0	0.00	0.00	130.0	0.0	0.0	1,588,847.20	2,270,663.60	39° 25' 18.096 N	108° 4' 55.503 W
Start Build 3.00									
379.7	7.49	218.22	378.9	-12.8	-10.1	1,588,834.69	2,270,653.16	39° 25' 17.970 N	108° 4' 55.631 W
Hold 7.49 Inclination									
545.0	7.49	218.22	542.9	-29.7	-23.4	1,588,818.14	2,270,639.35	39° 25' 17.802 N	108° 4' 55.801 W
9 5/8"									
753.9	7.49	218.22	750.0	-51.1	-40.3	1,588,797.23	2,270,621.91	39° 25' 17.591 N	108° 4' 56.016 W
Top of "G" Sand									
854.8	7.49	218.22	850.0	-61.5	-48.4	1,588,787.14	2,270,613.48	39° 25' 17.489 N	108° 4' 56.119 W
Base of "G" Sand									
2,559.3	7.49	218.22	2,540.0	-236.0	-185.8	1,588,616.56	2,270,471.13	39° 25' 15.763 N	108° 4' 57.871 W
Mesaverde									
3,247.3	7.49	218.22	3,222.1	-306.5	-241.3	1,588,547.71	2,270,413.66	39° 25' 15.067 N	108° 4' 58.578 W
Start Drop -1.50									
3,746.6	0.00	0.00	3,720.0	-332.1	-261.5	1,588,522.70	2,270,392.80	39° 25' 14.814 N	108° 4' 58.835 W
Vertical									
3,846.6	0.00	0.00	3,820.0	-332.1	-261.5	1,588,522.70	2,270,392.80	39° 25' 14.814 N	108° 4' 58.835 W
Top Gas - Approx. Top Gas									
4,866.6	0.00	0.00	4,840.0	-332.1	-261.5	1,588,522.70	2,270,392.80	39° 25' 14.814 N	108° 4' 58.835 W
Cameo Coals									
5,346.6	0.00	0.00	5,320.0	-332.1	-261.5	1,588,522.70	2,270,392.80	39° 25' 14.814 N	108° 4' 58.835 W
Rollins SS									
5,446.6	0.00	0.00	5,420.0	-332.1	-261.5	1,588,522.70	2,270,392.80	39° 25' 14.814 N	108° 4' 58.835 W
TD at 5446.6 - TD									

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
Top Gas (25' Radius) SC - plan hits target center - Circle (radius 25.0)	0.00	0.00	3,820.0	-332.1	-261.5	1,588,522.70	2,270,392.80	39° 25' 14.814 N	108° 4' 58.835 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
545.0	542.9	9 5/8"	9.625	12.250

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well SG 513-23 - Slot A7
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 513-23	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 (")
753.9	750.0	Top of "G" Sand			
854.8	850.0	Base of "G" Sand			
2,559.3	2,540.0	Mesaverde			
3,846.6	3,820.0	Approx. Top Gas			
4,866.6	4,840.0	Cameo Coals			
5,346.6	5,320.0	Rollins SS			
5,446.6	5,420.0	TD			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
130.0	130.0	0.0	0.0	Start Bulld 3.00
379.7	378.9	-12.8	-10.1	Hold 7.49 Inclination
3,247.3	3,222.1	-306.5	-241.3	Start Drop -1.50
3,746.6	3,720.0	-332.1	-261.5	Vertical
3,846.6	3,820.0	-332.1	-261.5	Top Gas
5,446.6	5,420.0	-332.1	-261.5	TD at 5446.6