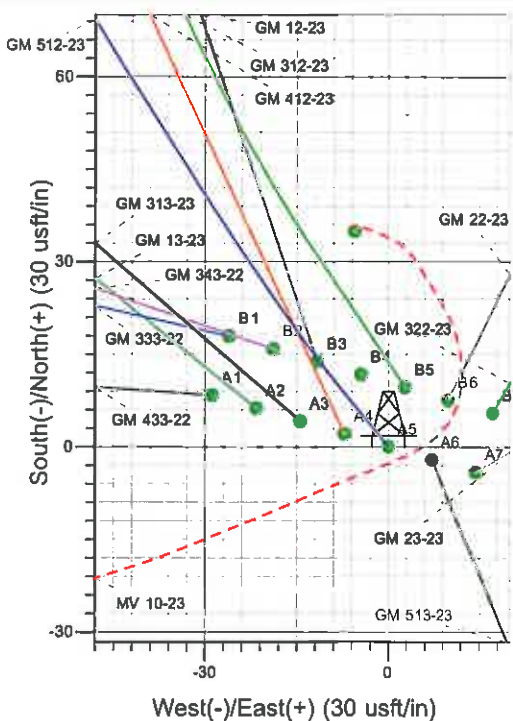
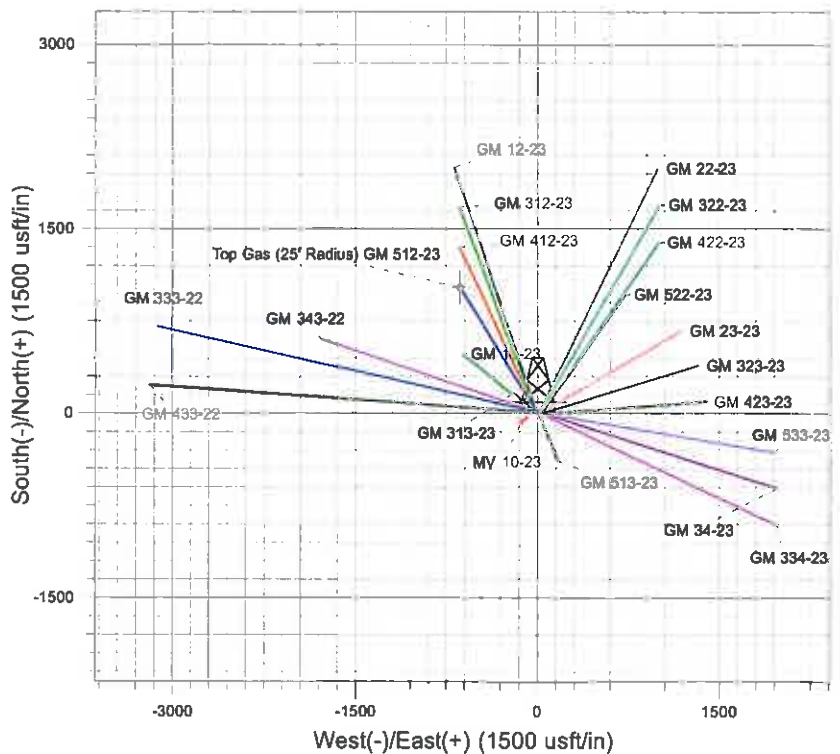
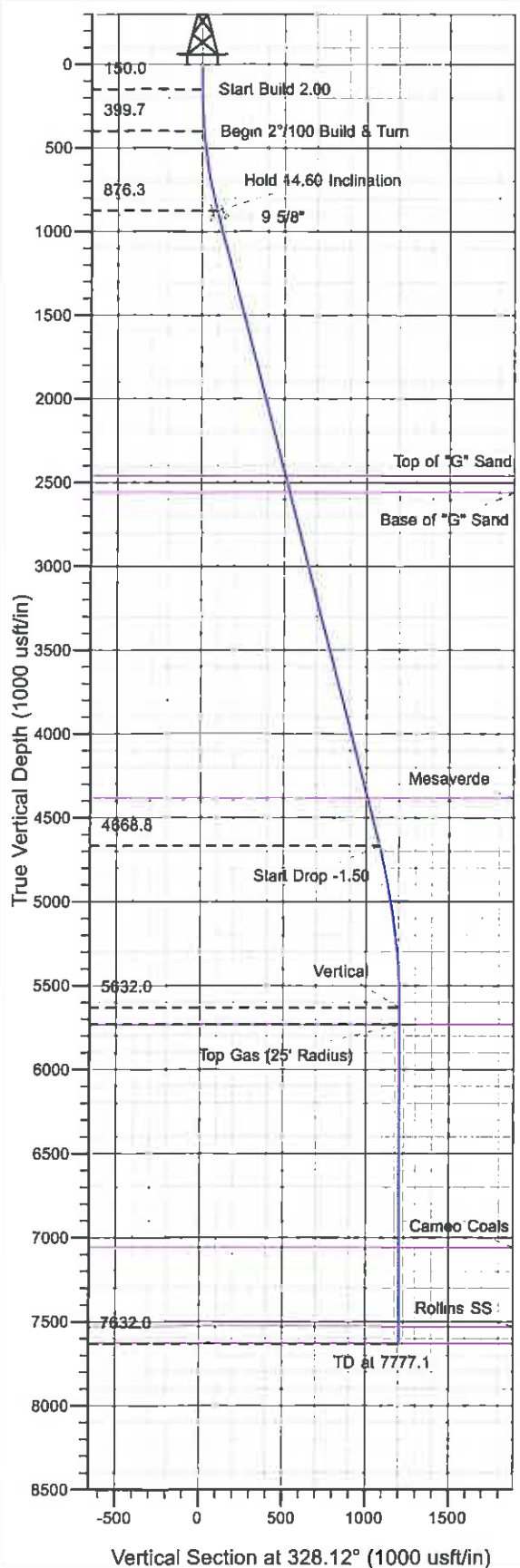




Well Name: GM 512-23
 Surface Location: MV 10-23 Pad
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone
 Ground Elevation: 5976.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1619645.26	2271227.09	39° 30' 22.530 N	108° 4' 59.483 W	A5

KELLY BUSHING @ 6002.0usft (Nabors 576 (26' RKB) kjs)



Project: GV 23-06S-096W
 Site: MV 10-23 Pad
 Well: GM 512-23
 Design #1 04Oct10 kjs



Azimuths to True North
 Magnetic North: 10.48°

Magnetic Field
 Strength: 52314.3snT
 Dip Angle: 65.75°
 Date: 10/4/2010
 Model: IGRF2010

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
150.0	150.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 2.00
399.7	400.0	5.00	320.00	8.4	-7.0	10.8	10.9	Begin 2°/100 Build & Turn
876.3	884.2	14.61	328.34	76.6	-52.7	92.9	93.1	Hold 14.60 Inclination
4668.8	4803.4	14.61	328.34	917.8	-571.4	1081.2	1081.4	Start Drop -1.50
5632.0	5777.1	0.00	0.00	1022.9	-636.2	1204.6	1204.8	Vertical
5732.0	5877.1	0.00	0.00	1022.9	-636.2	1204.6	1204.8	Top Gas
7632.0	7777.1	0.00	0.00	1022.9	-636.2	1204.6	1204.8	TD at 7777.1

PICEANCE VLY NAD 83

GV 23-06S-096W

MV 10-23 Pad

GM 512-23 - Slot A5

Wellbore #1

Plan: Design #1 04Oct10 kjs

Standard Planning Report - Geographic

09 February, 2011

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well GM 512-23 - Slot A5
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 6002.0usft (Nabors 576 (26' RKB) kjs)
Project:	GV 23-06S-096W	MD Reference:	KELLY BUSHING @ 6002.0usft (Nabors 576 (26' RKB) kjs)
Site:	MV 10-23 Pad	North Reference:	True
Well:	GM 512-23	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 04Oct10 kjs		

Project	GV 23-06S-096W, Garfield County, CO, 23-06S-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	MV 10-23 Pad		
Site Position:		Northing:	1,619,663.89 usft
From:	Map	Easting:	2,271,201.54 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in
		Latitude:	39° 30' 22.707 N
		Longitude:	108° 4' 59.816 W
		Grid Convergence:	-1.629 °

Well	GM 512-23 - Slot A5		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	Ground Level:
			5,976.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	10/4/2010	10.482
			Dip Angle (°)
			65.750
			Field Strength (nT)
			52,314

Design	Design #1 04Oct10 kjs		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°)
			328.12

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	
150.0	0.00	0.00	150.0	0.0	0.0	0.00	0.00	0.00	0.000	
400.0	5.00	320.00	399.7	8.4	-7.0	2.00	2.00	0.00	320.000	
684.2	14.61	328.34	876.3	76.6	-52.7	2.00	1.98	1.72	12.562	
4,803.4	14.61	328.34	4,668.8	917.8	-571.4	0.00	0.00	0.00	0.000	
5,777.1	0.00	0.00	5,632.0	1,022.9	-636.2	1.50	-1.50	0.00	180.000	
7,777.1	0.00	0.00	7,632.0	1,022.9	-636.2	0.00	0.00	0.00	0.000	

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well GM 512-23 - Slot A5
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 6002.0usft (Nabors 576 (26' RKB) kjs)
Project:	GV 23-06S-096W	MD Reference:	KELLY BUSHING @ 6002.0usft (Nabors 576 (26' RKB) kjs)
Site:	MV 10-23 Pad	North Reference:	True
Well:	GM 512-23	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 04Oct10 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	1,619,645.26	2,271,227.09	39° 30' 22.530 N	108° 4' 59.483 W
150.0	0.00	0.00	150.0	0.0	0.0	1,619,645.26	2,271,227.09	39° 30' 22.530 N	108° 4' 59.483 W
Start Build 2.00									
400.0	5.00	320.00	399.7	8.4	-7.0	1,619,653.80	2,271,220.32	39° 30' 22.612 N	108° 4' 59.573 W
Begin 2"/100 Build & Turn									
884.2	14.61	328.34	876.3	76.6	-52.7	1,619,723.37	2,271,176.57	39° 30' 23.287 N	108° 5' 0.156 W
Hold 14.60 Inclination									
934.0	14.61	328.34	924.5	87.3	-59.3	1,619,734.23	2,271,170.29	39° 30' 23.393 N	108° 5' 0.240 W
9 5/8"									
2,520.8	14.61	328.34	2,460.0	427.9	-269.3	1,620,080.64	2,270,970.07	39° 30' 26.759 N	108° 5' 2.919 W
Top of "G" Sand									
2,624.1	14.61	328.34	2,560.0	450.1	-283.0	1,620,103.20	2,270,957.03	39° 30' 26.978 N	108° 5' 3.094 W
Base of "G" Sand									
4,509.1	14.61	328.34	4,384.0	854.7	-532.4	1,620,514.68	2,270,719.20	39° 30' 30.977 N	108° 5' 6.276 W
Mesaverde									
4,803.4	14.61	328.34	4,668.8	917.8	-571.4	1,620,578.94	2,270,682.06	39° 30' 31.601 N	108° 5' 6.773 W
Start Drop -1.50									
5,777.1	0.00	0.00	5,632.0	1,022.9	-636.2	1,620,685.80	2,270,620.30	39° 30' 32.639 N	108° 5' 7.600 W
Vertical									
5,877.1	0.00	0.00	5,732.0	1,022.9	-636.2	1,620,685.80	2,270,620.30	39° 30' 32.639 N	108° 5' 7.600 W
Top Gas - Approx. Top Gas									
7,205.1	0.00	0.00	7,060.0	1,022.9	-636.2	1,620,685.80	2,270,620.30	39° 30' 32.639 N	108° 5' 7.600 W
Cameo Coals									
7,677.1	0.00	0.00	7,532.0	1,022.9	-636.2	1,620,685.80	2,270,620.30	39° 30' 32.639 N	108° 5' 7.600 W
Rollins SS									
7,777.1	0.00	0.00	7,632.0	1,022.9	-636.2	1,620,685.80	2,270,620.30	39° 30' 32.639 N	108° 5' 7.600 W
TD at 7777.1 - 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) GI	0.00	0.00	5,732.0	1,022.9	-636.2	1,620,685.80	2,270,620.30	39° 30' 32.639 N	108° 5' 7.600 W
- plan hits target center									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
934.0	824.5	9 5/8"	9.625	12.250	

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well GM 512-23 - Slot A5
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 6002.0usft (Nabors 576 (26' RKB) kjs)
Project:	GV 23-06S-096W	MD Reference:	KELLY BUSHING @ 6002.0usft (Nabors 576 (26' RKB) kjs)
Site:	MV 10-23 Pad	North Reference:	True
Well:	GM 512-23	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 04Oct10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,520.8	2,460.0	Top of "G" Sand				
2,624.1	2,560.0	Base of "G" Sand				
4,509.1	4,384.0	Mesaverde				
5,877.1	5,732.0	Approx. Top Gas				
7,205.1	7,060.0	Cameo Coals				
7,677.1	7,532.0	Rollins SS				
7,777.1	7,632.0	TD				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
150.0	150.0	0.0	0.0	Start Build 2.00	
400.0	399.7	8.4	-7.0	Begin 2°/100 Build & Turn	
884.2	876.3	76.6	-52.7	Hold 14.60 Inclination	
4,803.4	4,668.8	917.8	-571.4	Start Drop -1.50	
5,777.1	5,632.0	1,022.9	-636.2	Vertical	
5,877.1	5,732.0	1,022.9	-636.2	Top Gas	
7,777.1	7,632.0	1,022.9	-636.2	TD at 7777.1	