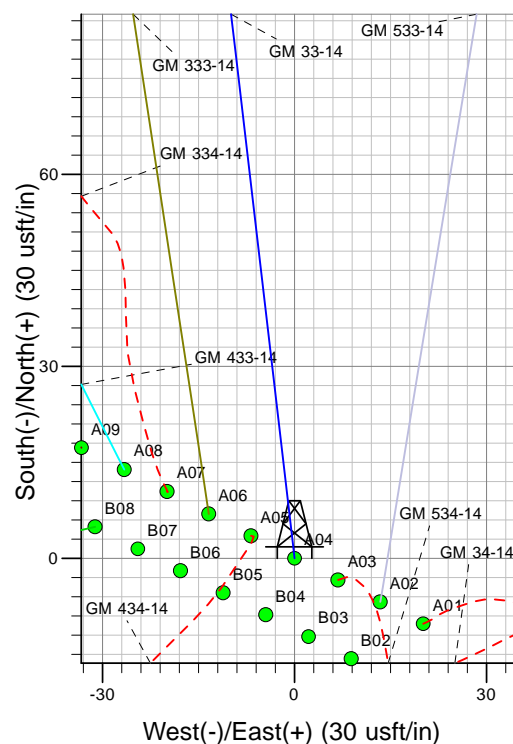
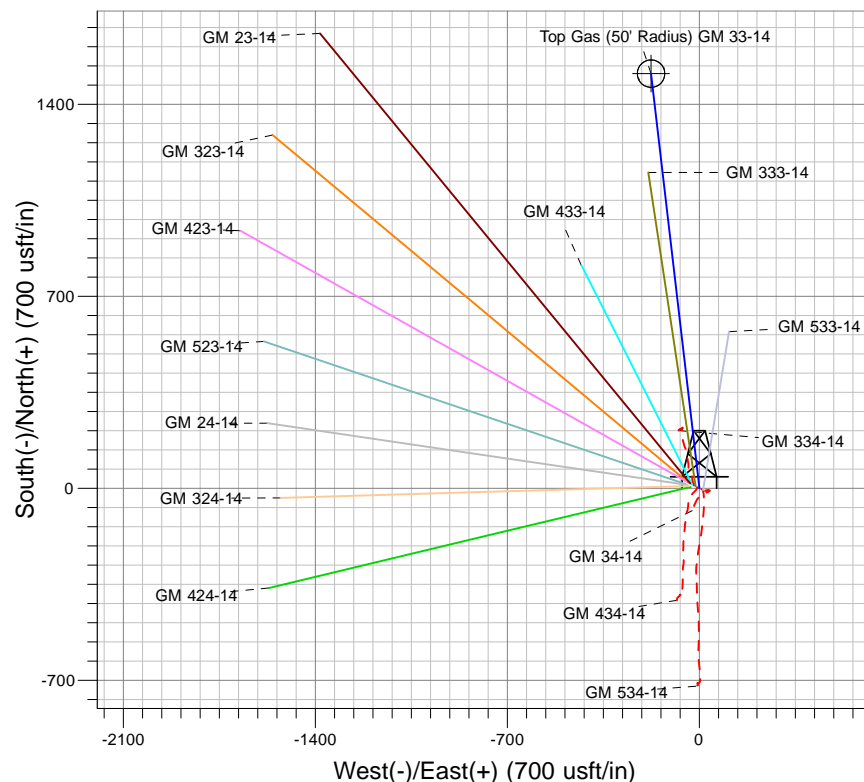
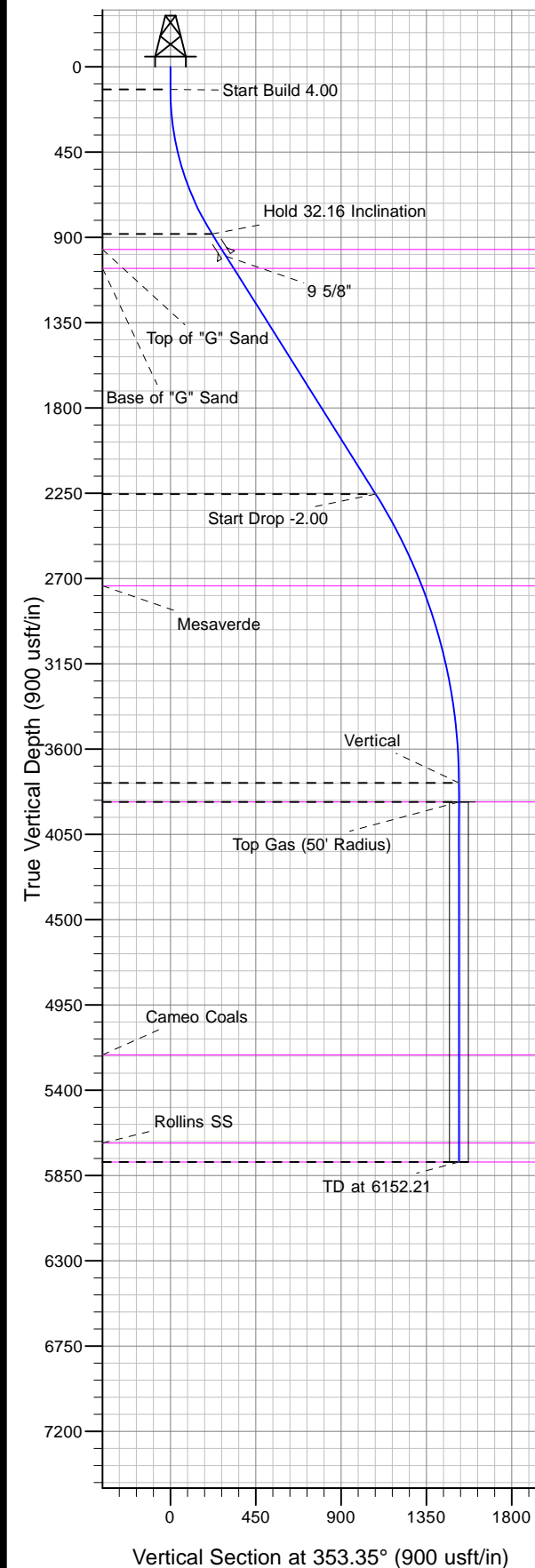




Well Name: GM 33-14  
Surface Location: GM 34-14 Pad  
North American Datum 1983 , US State Plane 1983, Colorado Central Zone  
Ground Elevation: 5173.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1592865.10	2272832.30	39.43289	-108.07481	A04

KELLY BUSHING @ 5199.00usft (Nabors rig (26' RKB) kjs)



Project: GV 14-07S-096W  
Site: GM 34-14 Pad  
Well: GM 33-14  
Design #1 23Apr13 kjs



Azimuths to True North  
Magnetic North: 10.11°  
Magnetic Field  
Strength: 52065.0snT  
Dip Angle: 65.64°  
Date: 4/23/2013  
Model: IGRF2005-10

#### ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation
120.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 4.00
882.36	923.91	32.16	353.35	218.25	-25.45	219.73	219.73	Hold 32.16 Inclination
2254.27	2544.40	32.16	353.35	1074.92	-125.34	1082.21	1082.21	Start Drop -2.00
3779.00	4152.21	0.00	0.00	1511.43	-176.24	1521.67	1521.67	Vertical
3879.00	4252.21	0.00	0.00	1511.43	-176.24	1521.67	1521.67	Top Gas
5779.00	6152.21	0.00	0.00	1511.43	-176.24	1521.67	1521.67	TD at 6152.21



## **PICEANCE VLY NAD 83**

**GV 14-07S-096W**

**GM 34-14 Pad**

**GM 33-14 - Slot A04**

**Wellbore #1**

**Plan: Design #1 23Apr13 kjs**

## **Standard Planning Report - Geographic**

**18 September, 2013**



IBM Global Services  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well GM 33-14 - Slot A04
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5199.00usft (Nabors rig (26' RKB) kjs)
<b>Project:</b>	GV 14-07S-096W	<b>MD Reference:</b>	KELLY BUSHING @ 5199.00usft (Nabors rig (26' RKB) kjs)
<b>Site:</b>	GM 34-14 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 33-14	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 23Apr13 kjs		

<b>Project</b>	GV 14-07S-096W, Garfield County, CO, 14-07S-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>	GM 34-14 Pad			
<b>Site Position:</b>		<b>Northing:</b>	1,592,854.30 usft	<b>Latitude:</b> 39.43286
<b>From:</b> Map		<b>Easting:</b>	2,272,852.10 usft	<b>Longitude:</b> -108.07474
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> -1.62 °

<b>Well</b>	GM 33-14 - Slot A04			
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	1,592,865.10 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	2,272,832.30 usft
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	
			<b>Ground Level:</b>	5,173.00 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	4/23/2013	10.11	65.64	52,065

<b>Design</b>	Design #1 23Apr13 kjs			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	353.35

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00	
923.91	32.16	353.35	882.36	218.25	-25.45	4.00	4.00	0.00	353.35	
2,544.40	32.16	353.35	2,254.27	1,074.92	-125.34	0.00	0.00	0.00	0.00	
4,152.21	0.00	0.00	3,779.00	1,511.43	-176.24	2.00	-2.00	0.00	180.00	
4,252.21	0.00	0.00	3,879.00	1,511.43	-176.24	0.00	0.00	0.00	0.00	Top Gas (50' Radius)
6,152.21	0.00	0.00	5,779.00	1,511.43	-176.24	0.00	0.00	0.00	0.00	



**IBM Global Services**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well GM 33-14 - Slot A04
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5199.00usft (Nabors rig (26' RKB) kjs)
<b>Project:</b>	GV 14-07S-096W	<b>MD Reference:</b>	KELLY BUSHING @ 5199.00usft (Nabors rig (26' RKB) kjs)
<b>Site:</b>	GM 34-14 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 33-14	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 23Apr13 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	
0.00	0.00	0.00	0.00	0.00	0.00	1,592,865.10	2,272,832.30	39.43289	-108.07482	
120.00	0.00	0.00	120.00	0.00	0.00	1,592,865.10	2,272,832.30	39.43289	-108.07482	
Start Build 4.00										
500.00	15.20	353.35	495.56	49.77	-5.80	1,592,915.01	2,272,827.91	39.43303	-108.07484	
923.91	32.16	353.35	882.36	218.25	-25.45	1,593,083.97	2,272,813.05	39.43349	-108.07491	
Hold 32.16 Inclination										
1,000.00	32.16	353.35	946.78	258.48	-30.14	1,593,124.31	2,272,809.50	39.43360	-108.07492	
1,020.34	32.16	353.35	964.00	269.23	-31.39	1,593,135.09	2,272,808.55	39.43363	-108.07493	
Top of "G" Sand										
1,062.86	32.16	353.35	1,000.00	291.71	-34.01	1,593,157.64	2,272,806.57	39.43369	-108.07494	
9 5/8"										
1,138.45	32.16	353.35	1,064.00	331.67	-38.67	1,593,197.71	2,272,803.04	39.43380	-108.07495	
Base of "G" Sand										
1,500.00	32.16	353.35	1,370.08	522.80	-60.96	1,593,389.39	2,272,786.18	39.43433	-108.07503	
2,000.00	32.16	353.35	1,793.38	787.13	-91.78	1,593,654.47	2,272,762.87	39.43505	-108.07514	
2,500.00	32.16	353.35	2,216.68	1,051.45	-122.60	1,593,919.55	2,272,739.55	39.43578	-108.07525	
2,544.40	32.16	353.35	2,254.27	1,074.92	-125.34	1,593,943.09	2,272,737.48	39.43584	-108.07526	
Start Drop -2.00										
3,000.00	23.04	353.35	2,657.60	1,284.36	-149.76	1,594,153.13	2,272,719.00	39.43642	-108.07535	
3,087.90	21.29	353.35	2,739.00	1,317.30	-153.60	1,594,186.16	2,272,716.10	39.43651	-108.07536	
Mesaverde										
3,500.00	13.04	353.35	3,132.41	1,438.00	-167.68	1,594,307.20	2,272,705.45	39.43684	-108.07541	
4,000.00	3.04	353.35	3,626.86	1,507.41	-175.77	1,594,376.81	2,272,699.33	39.43703	-108.07544	
4,152.21	0.00	0.00	3,779.00	1,511.43	-176.24	1,594,380.84	2,272,698.97	39.43704	-108.07544	
Vertical										
4,252.21	0.00	0.00	3,879.00	1,511.43	-176.24	1,594,380.84	2,272,698.97	39.43704	-108.07544	
Top Gas - Approx. Top Gas										
4,500.00	0.00	0.00	4,126.79	1,511.43	-176.24	1,594,380.84	2,272,698.97	39.43704	-108.07544	
5,000.00	0.00	0.00	4,626.79	1,511.43	-176.24	1,594,380.84	2,272,698.97	39.43704	-108.07544	
5,500.00	0.00	0.00	5,126.79	1,511.43	-176.24	1,594,380.84	2,272,698.97	39.43704	-108.07544	
5,587.21	0.00	0.00	5,214.00	1,511.43	-176.24	1,594,380.84	2,272,698.97	39.43704	-108.07544	
Cameo Coals										
6,000.00	0.00	0.00	5,626.79	1,511.43	-176.24	1,594,380.84	2,272,698.97	39.43704	-108.07544	
6,052.21	0.00	0.00	5,679.00	1,511.43	-176.24	1,594,380.84	2,272,698.97	39.43704	-108.07544	
Rollins SS										
6,152.21	0.00	0.00	5,779.00	1,511.43	-176.24	1,594,380.84	2,272,698.97	39.43704	-108.07544	
TD at 6152.21 - 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 (50' Radius) GI	0.00	0.00	3,879.00	1,511.43	-176.24	1,594,380.84	2,272,698.97	39.43704	-108.07544	
- plan hits target center										
- Circle (radius 50.00)										



**IBM Global Services**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well GM 33-14 - Slot A04
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 5199.00usft (Nabors rig (26' RKB) kjs)
<b>Project:</b>	GV 14-07S-096W	<b>MD Reference:</b>	KELLY BUSHING @ 5199.00usft (Nabors rig (26' RKB) kjs)
<b>Site:</b>	GM 34-14 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 33-14	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 23Apr13 kjs		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,062.86	1,000.00	9 5/8"	9.625	12.250	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,020.34	964.00	Top of "G" Sand				
1,138.45	1,064.00	Base of "G" Sand				
3,087.90	2,739.00	Mesaverde				
4,252.21	3,879.00	Approx. Top Gas				
5,587.21	5,214.00	Cameo Coals				
6,052.21	5,679.00	Rollins SS				
6,152.21	5,779.00	TD				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
120.00	120.00	0.00	0.00	Start Build 4.00	
923.91	882.36	218.25	-25.45	Hold 32.16 Inclination	
2,544.40	2,254.27	1,074.92	-125.34	Start Drop -2.00	
4,152.21	3,779.00	1,511.43	-176.24	Vertical	
4,252.21	3,879.00	1,511.43	-176.24	Top Gas	
6,152.21	5,779.00	1,511.43	-176.24	TD at 6152.21	