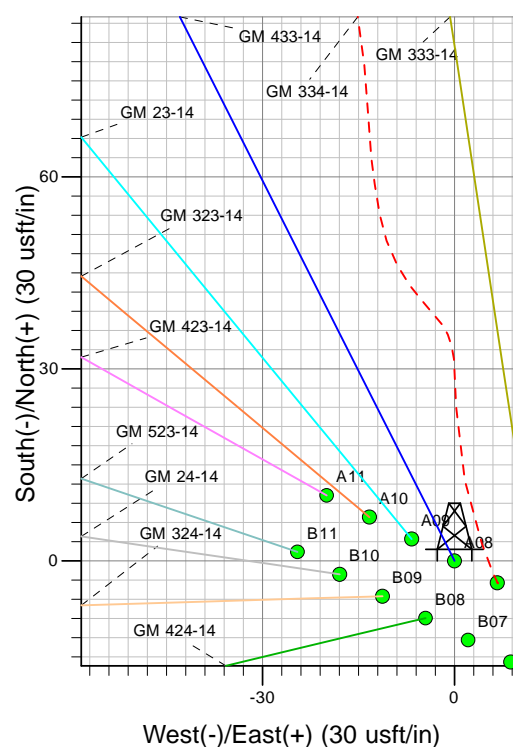
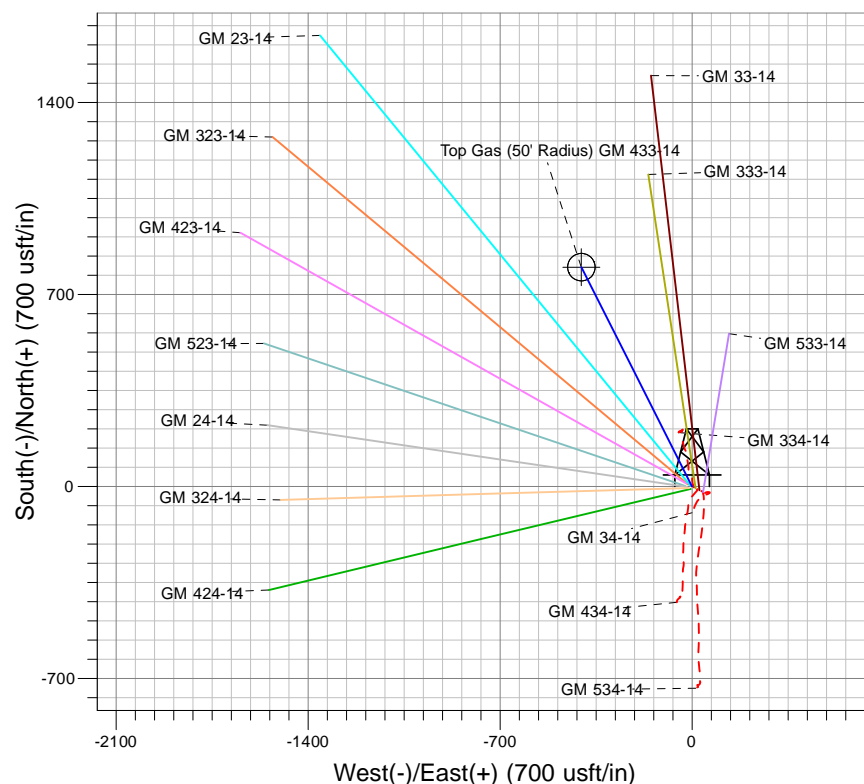
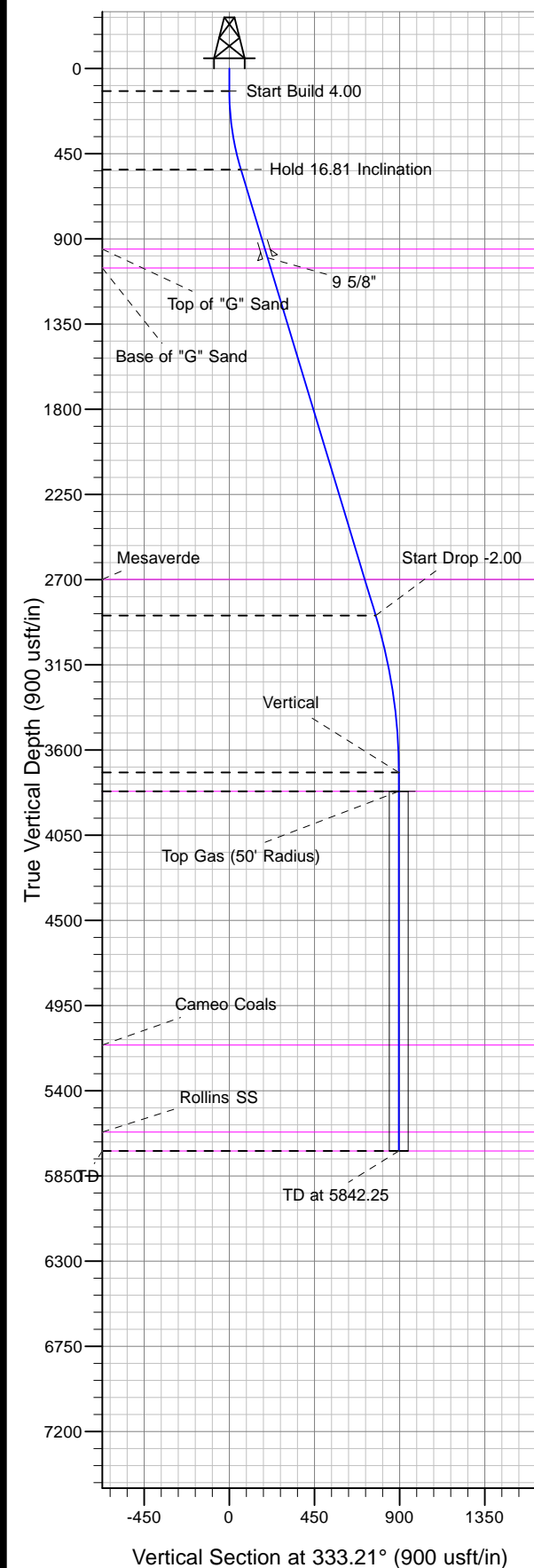




Well Name: GM 433-14
Surface Location: GM 34-14 Pad
North American Datum 1983 , US State Plane 1983, Colorado Central Zone
Ground Elevation: 5173.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1592879.70	2272806.10	39.43293	-108.07491	A08

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



Project: GV 14-07S-096W
Site: GM 34-14 Pad
Well: GM 433-14
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	V/Sect	Departure	Annotation
120.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 4.00
534.35	540.36	16.81	333.21	54.66	-27.60	61.24	61.24	Hold 16.81 Inclination
2890.30	3001.53	16.81	333.21	690.18	-348.53	773.18	773.18	Start Drop -2.00
3719.00	3842.25	0.00	0.00	799.50	-403.74	895.66	895.66	Vertical
3819.00	3942.25	0.00	0.00	799.50	-403.74	895.66	895.66	Top Gas
5719.00	5842.25	0.00	0.00	799.50	-403.74	895.66	895.66	TD at 5842.25



PICEANCE VLY NAD 83

GV 14-07S-096W

GM 34-14 Pad

GM 433-14 - Slot A08

Wellbore #1

Plan: Design #1 23Apr13 kjs

Standard Planning Report - Geographic

18 September, 2013



IBM Global Services
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well GM 433-14 - Slot A08
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 5199.00usft (Nabors rig (26' RKB) kjs)
Project:	GV 14-07S-096W	MD Reference:	KELLY BUSHING @ 5199.00usft (Nabors rig (26' RKB) kjs)
Site:	GM 34-14 Pad	North Reference:	True
Well:	GM 433-14	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 23Apr13 kjs		

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

Well	GM 433-14 - Slot A08				
Well Position	+N/-S	0.00 usft	Northing:	1,592,879.70 usft	Latitude: 39.43293
	+E/-W	0.00 usft	Easting:	2,272,806.10 usft	Longitude: -108.07491
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level: 5,173.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	4/23/2013	10.11	65.64	52,065

Design	Design #1 23Apr13 kjs			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	333.21

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
0.00	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	
540.36	16.81	333.21	534.35	54.66	-27.60	4.00	4.00	0.00	333.21	
3,001.53	16.81	333.21	2,890.30	690.18	-348.53	0.00	0.00	0.00	0.00	
3,842.25	0.00	0.00	3,719.00	799.50	-403.74	2.00	-2.00	0.00	180.00	
3,942.25	0.00	0.00	3,819.00	799.50	-403.74	0.00	0.00	0.00	0.00	Top Gas (50' Radius)
5,842.25	0.00	0.00	5,719.00	799.50	-403.74	0.00	0.00	0.00	0.00	



IBM Global Services
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well GM 433-14 - Slot A08
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 5199.00usft (Nabors rig (26' RKB) kjs)
Project:	GV 14-07S-096W	MD Reference:	KELLY BUSHING @ 5199.00usft (Nabors rig (26' RKB) kjs)
Site:	GM 34-14 Pad	North Reference:	True
Well:	GM 433-14	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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	1,592,879.70	2,272,806.10	39.43293	-108.07491	
120.00	0.00	0.00	120.00	0.00	0.00	1,592,879.70	2,272,806.10	39.43293	-108.07491	
Start Build 4.00										
500.00	15.20	333.21	495.56	44.73	-22.59	1,592,925.05	2,272,784.79	39.43305	-108.07499	
540.36	16.81	333.21	534.35	54.66	-27.60	1,592,935.12	2,272,780.06	39.43308	-108.07501	
Hold 16.81 Inclination										
978.75	16.81	333.21	954.00	167.86	-84.77	1,593,049.89	2,272,726.13	39.43339	-108.07521	
Top of "G" Sand										
1,000.00	16.81	333.21	974.34	173.35	-87.54	1,593,055.45	2,272,723.51	39.43340	-108.07522	
1,026.80	16.81	333.21	1,000.00	180.27	-91.03	1,593,062.47	2,272,720.22	39.43342	-108.07523	
9 5/8"										
1,083.22	16.81	333.21	1,054.00	194.84	-98.39	1,593,077.23	2,272,713.28	39.43346	-108.07526	
Base of "G" Sand										
1,500.00	16.81	333.21	1,452.96	302.46	-152.74	1,593,186.35	2,272,662.00	39.43376	-108.07545	
2,000.00	16.81	333.21	1,931.59	431.57	-217.93	1,593,317.24	2,272,600.49	39.43411	-108.07568	
2,500.00	16.81	333.21	2,410.21	560.67	-283.13	1,593,448.14	2,272,538.99	39.43447	-108.07591	
2,801.69	16.81	333.21	2,699.00	638.57	-322.47	1,593,527.12	2,272,501.87	39.43468	-108.07605	
Mesaverde										
3,000.00	16.81	333.21	2,888.84	689.78	-348.33	1,593,579.04	2,272,477.48	39.43482	-108.07614	
3,001.53	16.81	333.21	2,890.30	690.18	-348.53	1,593,579.44	2,272,477.29	39.43482	-108.07614	
Start Drop -2.00										
3,500.00	6.84	333.21	3,377.57	781.28	-394.53	1,593,671.80	2,272,433.89	39.43507	-108.07631	
3,842.25	0.00	0.00	3,719.00	799.50	-403.74	1,593,690.28	2,272,425.20	39.43512	-108.07634	
Vertical										
3,942.25	0.00	0.00	3,819.00	799.50	-403.74	1,593,690.28	2,272,425.20	39.43512	-108.07634	
Top Gas - Approx. Top Gas										
4,000.00	0.00	0.00	3,876.75	799.50	-403.74	1,593,690.28	2,272,425.20	39.43512	-108.07634	
4,500.00	0.00	0.00	4,376.75	799.50	-403.74	1,593,690.28	2,272,425.20	39.43512	-108.07634	
5,000.00	0.00	0.00	4,876.75	799.50	-403.74	1,593,690.28	2,272,425.20	39.43512	-108.07634	
5,282.25	0.00	0.00	5,159.00	799.50	-403.74	1,593,690.28	2,272,425.20	39.43512	-108.07634	
Cameo Coals										
5,500.00	0.00	0.00	5,376.75	799.50	-403.74	1,593,690.28	2,272,425.20	39.43512	-108.07634	
5,742.25	0.00	0.00	5,619.00	799.50	-403.74	1,593,690.28	2,272,425.20	39.43512	-108.07634	
Rollins SS										
5,842.25	0.00	0.00	5,719.00	799.50	-403.74	1,593,690.28	2,272,425.20	39.43512	-108.07634	
TD at 5842.25 - 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 (50' Radius) GI - plan hits target center - Circle (radius 50.00)	0.00	0.00	3,819.00	799.50	-403.74	1,593,690.28	2,272,425.20	39.43512	-108.07634	



IBM Global Services
Planning Report - Geographic

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Project:	GV 14-07S-096W	MD Reference:	KELLY BUSHING @ 5199.00usft (Nabors rig (26' RKB) kjs)
Site:	GM 34-14 Pad	North Reference:	True
Well:	GM 433-14	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 23Apr13 kjs		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,026.80	1,000.00	9 5/8"	9.625	12.250	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
978.75	954.00	Top of "G" Sand				
1,083.22	1,054.00	Base of "G" Sand				
2,801.69	2,699.00	Mesaverde				
3,942.25	3,819.00	Approx. Top Gas				
5,282.25	5,159.00	Cameo Coals				
5,742.25	5,619.00	Rollins SS				
5,842.25	5,719.00	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	
540.36	534.35	54.66	-27.60	Hold 16.81 Inclination	
3,001.53	2,890.30	690.18	-348.53	Start Drop -2.00	
3,842.25	3,719.00	799.50	-403.74	Vertical	
3,942.25	3,819.00	799.50	-403.74	Top Gas	
5,842.25	5,719.00	799.50	-403.74	TD at 5842.25	