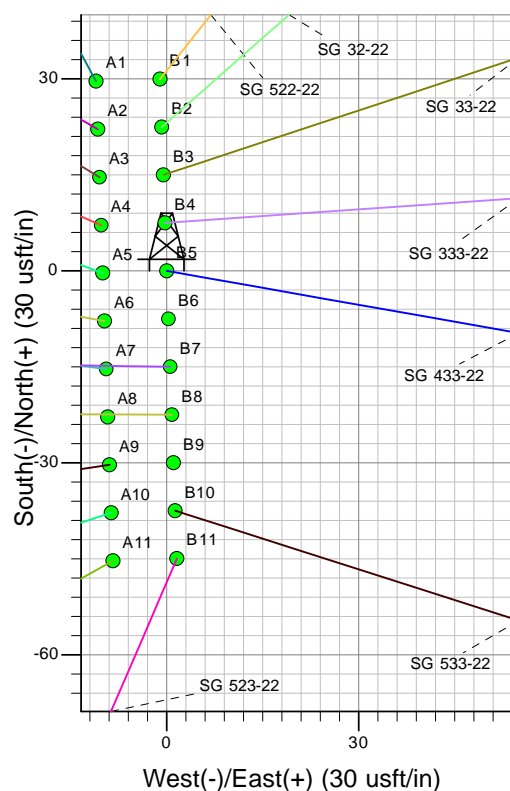
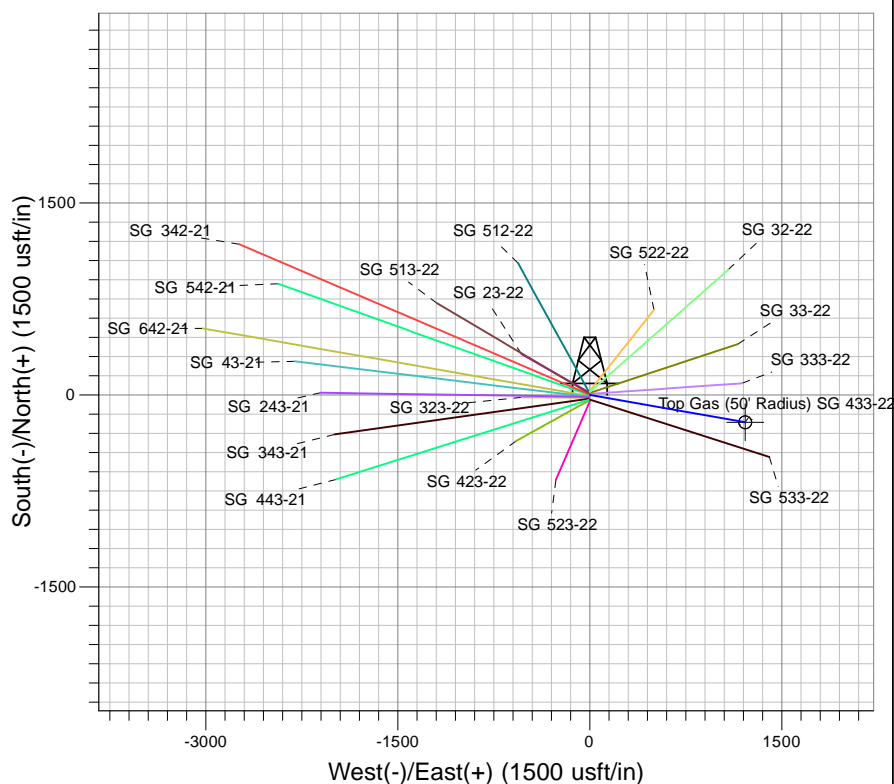
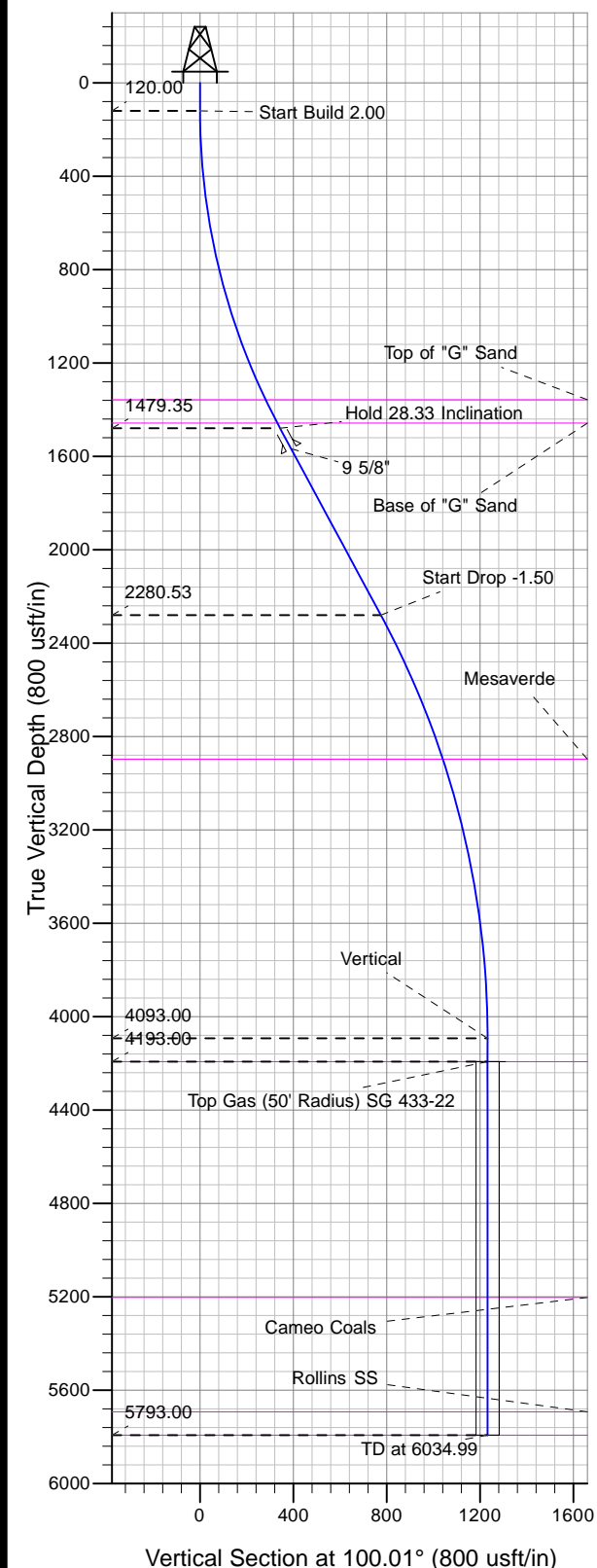




Well Name: SG 433-22
Surface Location: SG 23-22 Pad
North American Datum 1983 , US State Plane 1983 , Colorado Central Zone
Ground Elevation: 5666.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1588927.71	2265715.37	39.42153	-108.09960	B5

KELLY BUSHING @ 5688.00usft (Cyclone 17 (22' RKB) kjs)



Project: SG 22-07S-096W
Site: SG 23-22 Pad
Well: SG 433-22
Design #1 15Mar13 kjs

Azimuths to True North
Magnetic North: 10.13°

Magnetic Field

Strength: 52062.2snT
Dip Angle: 65.63°
Date: 3/15/2013
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 2.00
1479.35	1536.35	28.33	100.01	-59.60	337.83	343.05	343.05	Hold 28.33 Inclination
2280.53	2446.52	28.33	100.01	-134.63	763.14	774.93	774.93	Start Drop -1.50
4093.00	4334.99	0.00	0.00	-214.10	1213.58	1232.32	1232.32	Vertical
4193.00	4434.99	0.00	0.00	-214.10	1213.58	1232.32	1232.32	Top Gas
5793.00	6034.99	0.00	0.00	-214.10	1213.58	1232.32	1232.32	TD at 6034.99



PICEANCE VLY NAD 83

SG 22-07S-096W

SG 23-22 Pad

SG 433-22 - Slot B5

Wellbore #1

Plan: Design #1 15Mar13 kjs

Standard Planning Report - Geographic

03 October, 2013



IBM Global Services
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well SG 433-22 - Slot B5
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 5688.00usft (Cyclone 17 (22' RKB) kjs)
Project:	SG 22-07S-096W	MD Reference:	KELLY BUSHING @ 5688.00usft (Cyclone 17 (22' RKB) kjs)
Site:	SG 23-22 Pad	North Reference:	True
Well:	SG 433-22	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 15Mar13 kjs		

Project	SG 22-07S-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 23-22 Pad		
Site Position:		Northing:	1,588,907.56 usft
From:	Map	Easting:	2,265,692.51 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in
		Grid Convergence:	-1.64 °

Well	SG 433-22 - Slot B5		
Well Position	+N/-S	0.00 usft	Northing: 1,588,927.71 usft
	+E/-W	0.00 usft	Easting: 2,265,715.37 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	Latitude: 39.42153
			Longitude: -108.09960
			Ground Level: 5,666.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	3/15/2013	10.13	65.63	52,062

Design	Design #1 15Mar13 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	100.01

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	
1,536.35	28.33	100.01	1,479.35	-59.60	337.83	2.00	2.00	0.00	100.01	
2,446.52	28.33	100.01	2,280.53	-134.63	763.14	0.00	0.00	0.00	0.00	
4,334.99	0.00	0.00	4,093.00	-214.10	1,213.58	1.50	-1.50	0.00	180.00	
4,434.99	0.00	0.00	4,193.00	-214.10	1,213.58	0.00	0.00	0.00	0.00	Top Gas (50' Radius)
6,034.99	0.00	0.00	5,793.00	-214.10	1,213.58	0.00	0.00	0.00	0.00	



IBM Global Services
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well SG 433-22 - Slot B5
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 5688.00usft (Cyclone 17 (22' RKB) kjs)
Project:	SG 22-07S-096W	MD Reference:	KELLY BUSHING @ 5688.00usft (Cyclone 17 (22' RKB) kjs)
Site:	SG 23-22 Pad	North Reference:	True
Well:	SG 433-22	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 15Mar13 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	1,588,927.71	2,265,715.37	39.42153	-108.09960
120.00	0.00	0.00	120.00	0.00	0.00	1,588,927.71	2,265,715.37	39.42153	-108.09960
Start Build 2.00									
500.00	7.60	100.01	498.89	-4.37	24.78	1,588,922.63	2,265,740.02	39.42152	-108.09952
1,000.00	17.60	100.01	986.23	-23.30	132.06	1,588,900.64	2,265,846.70	39.42146	-108.09914
1,400.18	25.60	100.01	1,358.00	-48.87	277.03	1,588,870.93	2,265,990.88	39.42139	-108.09862
Top of "G" Sand									
1,500.00	27.60	100.01	1,447.25	-56.64	321.05	1,588,861.91	2,266,034.65	39.42137	-108.09847
1,512.15	27.84	100.01	1,458.00	-57.62	326.61	1,588,860.77	2,266,040.18	39.42137	-108.09845
Base of "G" Sand									
1,536.35	28.33	100.01	1,479.35	-59.60	337.83	1,588,858.47	2,266,051.34	39.42136	-108.09841
Hold 28.33 Inclination									
1,637.00	28.33	100.01	1,567.95	-67.90	384.86	1,588,848.83	2,266,098.11	39.42134	-108.09824
9 5/8"									
2,000.00	28.33	100.01	1,887.48	-97.82	554.49	1,588,814.06	2,266,266.81	39.42126	-108.09764
2,446.52	28.33	100.01	2,280.53	-134.63	763.14	1,588,771.30	2,266,474.31	39.42116	-108.09690
Start Drop -1.50									
2,500.00	27.52	100.01	2,327.78	-138.98	787.81	1,588,766.25	2,266,498.84	39.42115	-108.09682
3,000.00	20.02	100.01	2,785.03	-173.98	986.17	1,588,725.59	2,266,696.11	39.42105	-108.09611
3,119.58	18.23	100.01	2,898.00	-180.79	1,024.76	1,588,717.68	2,266,734.49	39.42103	-108.09598
Mesaverde									
3,500.00	12.52	100.01	3,264.65	-198.30	1,124.06	1,588,697.33	2,266,833.25	39.42098	-108.09562
4,000.00	5.02	100.01	3,758.44	-211.55	1,199.12	1,588,681.95	2,266,907.89	39.42095	-108.09536
4,334.99	0.00	0.00	4,093.00	-214.10	1,213.58	1,588,678.99	2,266,922.27	39.42094	-108.09531
Vertical									
4,434.99	0.00	0.00	4,193.00	-214.10	1,213.58	1,588,678.99	2,266,922.27	39.42094	-108.09531
Top Gas - Approx. Top Gas									
4,500.00	0.00	0.00	4,258.01	-214.10	1,213.58	1,588,678.99	2,266,922.27	39.42094	-108.09531
5,000.00	0.00	0.00	4,758.01	-214.10	1,213.58	1,588,678.99	2,266,922.27	39.42094	-108.09531
5,444.99	0.00	0.00	5,203.00	-214.10	1,213.58	1,588,678.99	2,266,922.27	39.42094	-108.09531
Cameo Coals									
5,500.00	0.00	0.00	5,258.01	-214.10	1,213.58	1,588,678.99	2,266,922.27	39.42094	-108.09531
5,934.99	0.00	0.00	5,693.00	-214.10	1,213.58	1,588,678.99	2,266,922.27	39.42094	-108.09531
Rollins SS									
6,000.00	0.00	0.00	5,758.01	-214.10	1,213.58	1,588,678.99	2,266,922.27	39.42094	-108.09531
6,034.99	0.00	0.00	5,793.00	-214.10	1,213.58	1,588,678.99	2,266,922.27	39.42094	-108.09531
TD at 6034.99 - 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) SC - plan hits target center - Circle (radius 50.00)	0.00	0.00	4,193.00	-214.10	1,213.58	1,588,678.99	2,266,922.27	39.42094	-108.09531



IBM Global Services
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well SG 433-22 - Slot B5
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 5688.00usft (Cyclone 17 (22' RKB) kjs)
Project:	SG 22-07S-096W	MD Reference:	KELLY BUSHING @ 5688.00usft (Cyclone 17 (22' RKB) kjs)
Site:	SG 23-22 Pad	North Reference:	True
Well:	SG 433-22	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 15Mar13 kjs		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,637.00	1,567.95	9 5/8"	9.625	12.250	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,400.18	1,358.00	Top of "G" Sand				
1,512.15	1,458.00	Base of "G" Sand				
3,119.58	2,898.00	Mesaverde				
4,434.99	4,193.00	Approx. Top Gas				
5,444.99	5,203.00	Cameo Coals				
5,934.99	5,693.00	Rollins SS				
6,034.99	5,793.00	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 2.00	
1,536.35	1,479.35	-59.60	337.83	Hold 28.33 Inclination	
2,446.52	2,280.53	-134.63	763.14	Start Drop -1.50	
4,334.99	4,093.00	-214.10	1,213.58	Vertical	
4,434.99	4,193.00	-214.10	1,213.58	Top Gas	
6,034.99	5,793.00	-214.10	1,213.58	TD at 6034.99	