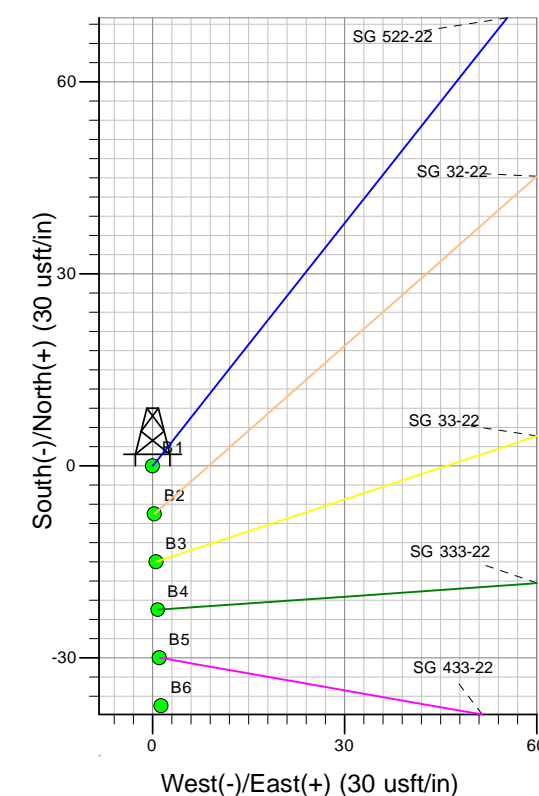
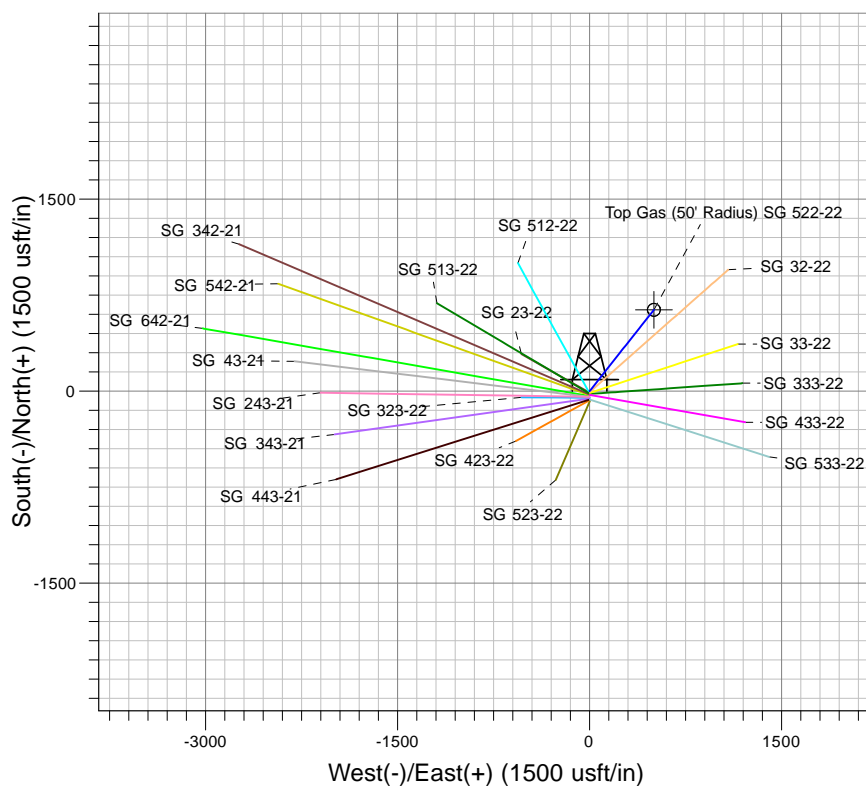
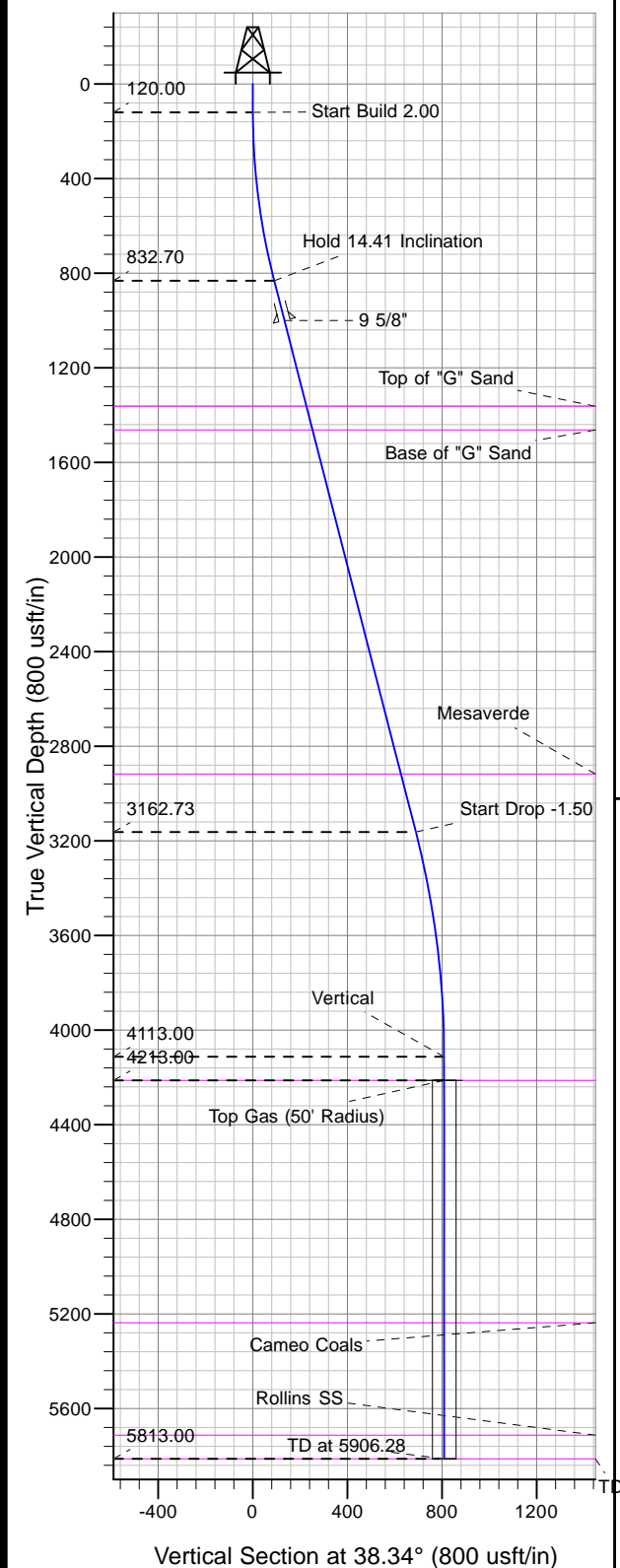




Well Name: SG 522-22
Surface Location: SG 23-22 Pad
North American Datum 1983 , US State Plane 1983, Colorado Central Zone
Ground Elevation: 5666.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1588957.70	2265715.18	39.42161	-108.09960	B 1

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



Project: SG 22-07S-096W
Site: SG 23-22 Pad
Well: SG 522-22
Design #1 15Mar13 kjs

T M 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
832.70	840.27	14.41	38.34	70.64	55.87	90.07	90.07	Hold 14.41 Inclination
3162.73	3245.93	14.41	38.34	540.05	427.14	688.55	688.55	Start Drop -1.50
4113.00	4206.28	0.00	0.00	634.24	501.63	808.64	808.64	Vertical
4213.00	4306.28	0.00	0.00	634.24	501.63	808.64	808.64	Top Gas
5813.00	5906.28	0.00	0.00	634.24	501.63	808.64	808.64	TD at 5906.28



PICEANCE VLY NAD 83

SG 22-07S-096W

SG 23-22 Pad

SG 522-22 - Slot B1

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 522-22 - Slot B1
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 522-22	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	Latitude: 39.42147
From: Map		Easting:	2,265,692.51 usft	Longitude: -108.09968
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence: -1.64 °

Well	SG 522-22 - Slot B1					
Well Position	+N/-S	0.00 usft	Northing:	1,588,957.70 usft	Latitude:	39.42161
	+E/-W	0.00 usft	Easting:	2,265,715.18 usft	Longitude:	-108.09961
Position Uncertainty		0.00 usft	Wellhead Elevation:		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	38.34

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	
840.27	14.41	38.34	832.70	70.64	55.87	2.00	2.00	0.00	38.34	
3,245.93	14.41	38.34	3,162.73	540.05	427.14	0.00	0.00	0.00	0.00	
4,206.28	0.00	0.00	4,113.00	634.24	501.63	1.50	-1.50	0.00	180.00	
4,306.28	0.00	0.00	4,213.00	634.24	501.63	0.00	0.00	0.00	0.00	Top Gas (50' Radius)
5,906.28	0.00	0.00	5,813.00	634.24	501.63	0.00	0.00	0.00	0.00	



IBM Global Services
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well SG 522-22 - Slot B1
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 522-22	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	1,588,957.70	2,265,715.18	39.42161	-108.09961	
120.00	0.00	0.00	120.00	0.00	0.00	1,588,957.70	2,265,715.18	39.42161	-108.0996	
Start Build 2.00										
500.00	7.60	38.34	498.89	19.74	15.61	1,588,976.98	2,265,731.35	39.42166	-108.09955	
840.27	14.41	38.34	832.70	70.64	55.87	1,589,026.71	2,265,773.05	39.42180	-108.09941	
Hold 14.41 Inclination										
1,000.00	14.41	38.34	987.41	101.81	80.52	1,589,057.16	2,265,798.58	39.42189	-108.09932	
1,012.99	14.41	38.34	1,000.00	104.35	82.53	1,589,059.63	2,265,800.66	39.42190	-108.09932	
9 5/8"										
1,387.78	14.41	38.34	1,363.00	177.48	140.37	1,589,131.08	2,265,860.56	39.42210	-108.09911	
Top of "G" Sand										
1,491.02	14.41	38.34	1,463.00	197.62	156.30	1,589,150.76	2,265,877.07	39.42215	-108.09905	
Base of "G" Sand										
1,500.00	14.41	38.34	1,471.69	199.37	157.69	1,589,152.47	2,265,878.50	39.42216	-108.09905	
2,000.00	14.41	38.34	1,955.97	296.94	234.85	1,589,247.78	2,265,958.42	39.42243	-108.09878	
2,500.00	14.41	38.34	2,440.25	394.50	312.02	1,589,343.09	2,266,038.34	39.42269	-108.09850	
2,993.25	14.41	38.34	2,918.00	490.75	388.14	1,589,437.11	2,266,117.18	39.42296	-108.09823	
Mesaverde										
3,000.00	14.41	38.34	2,924.53	492.06	389.18	1,589,438.40	2,266,118.26	39.42296	-108.09823	
3,245.93	14.41	38.34	3,162.73	540.05	427.14	1,589,485.28	2,266,157.57	39.42309	-108.09810	
Start Drop -1.50										
3,500.00	10.59	38.34	3,410.73	583.17	461.24	1,589,527.41	2,266,192.90	39.42321	-108.09797	
4,000.00	3.09	38.34	3,906.82	629.87	498.18	1,589,573.03	2,266,231.15	39.42334	-108.09784	
4,206.28	0.00	0.00	4,113.00	634.24	501.63	1,589,577.30	2,266,234.73	39.42335	-108.09783	
Vertical										
4,306.28	0.00	0.00	4,213.00	634.24	501.63	1,589,577.30	2,266,234.73	39.42335	-108.09783	
Top Gas - Approx. Top Gas										
4,500.00	0.00	0.00	4,406.72	634.24	501.63	1,589,577.30	2,266,234.73	39.42335	-108.09783	
5,000.00	0.00	0.00	4,906.72	634.24	501.63	1,589,577.30	2,266,234.73	39.42335	-108.09783	
5,331.28	0.00	0.00	5,238.00	634.24	501.63	1,589,577.30	2,266,234.73	39.42335	-108.09783	
Cameo Coals										
5,500.00	0.00	0.00	5,406.72	634.24	501.63	1,589,577.30	2,266,234.73	39.42335	-108.09783	
5,806.28	0.00	0.00	5,713.00	634.24	501.63	1,589,577.30	2,266,234.73	39.42335	-108.09783	
Rollins SS										
5,906.28	0.00	0.00	5,813.00	634.24	501.63	1,589,577.30	2,266,234.73	39.42335	-108.09783	
TD at 5906.28 - 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	4,213.00	634.24	501.63	1,589,577.30	2,266,234.73	39.42335	-108.09783	



IBM Global Services
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well SG 522-22 - Slot B1
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 522-22	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)	
1,012.99	1,000.00	9 5/8"	9.625	12.250	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,387.78	1,363.00	Top of "G" Sand				
1,491.02	1,463.00	Base of "G" Sand				
2,993.25	2,918.00	Mesaverde				
4,306.28	4,213.00	Approx. Top Gas				
5,331.28	5,238.00	Cameo Coals				
5,806.28	5,713.00	Rollins SS				
5,906.28	5,813.00	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	
840.27	832.70	70.64	55.87	Hold 14.41 Inclination	
3,245.93	3,162.73	540.05	427.14	Start Drop -1.50	
4,206.28	4,113.00	634.24	501.63	Vertical	
4,306.28	4,213.00	634.24	501.63	Top Gas	
5,906.28	5,813.00	634.24	501.63	TD at 5906.28	