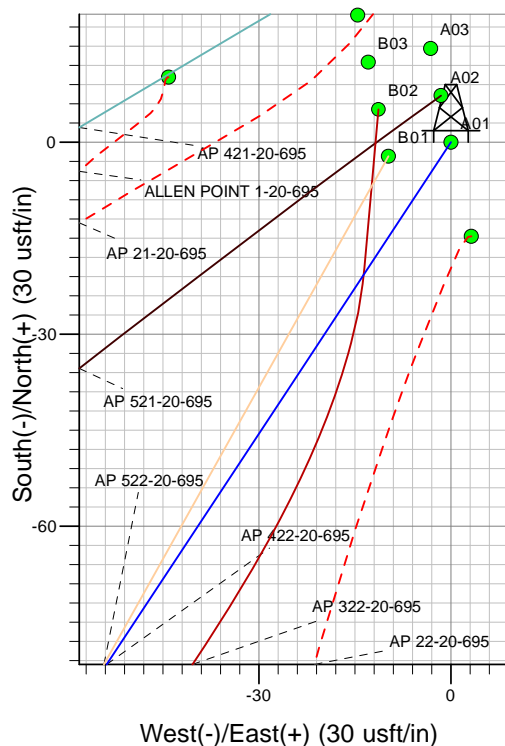
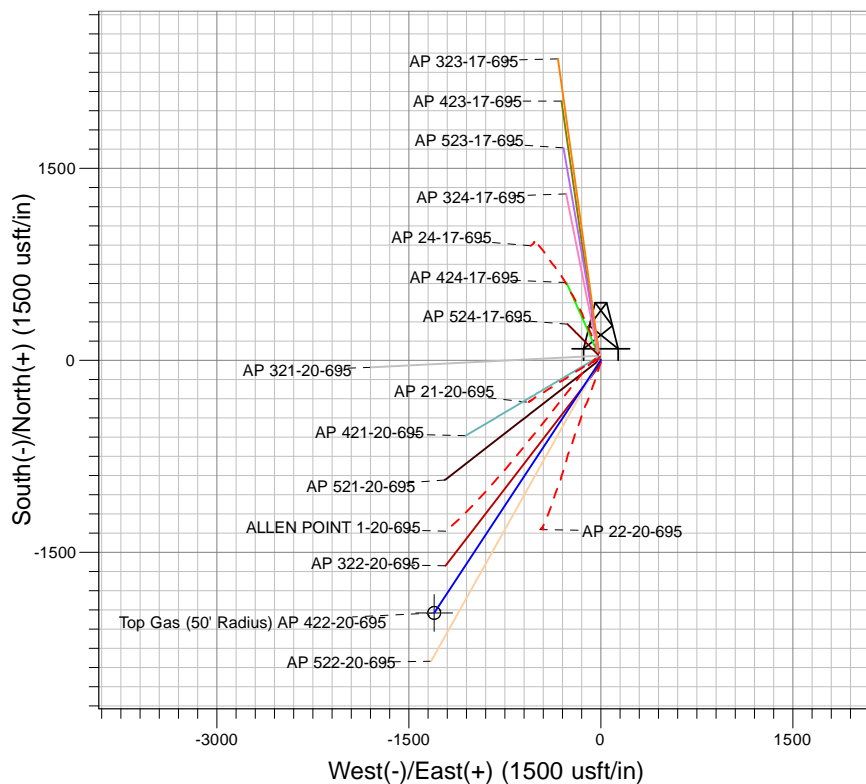
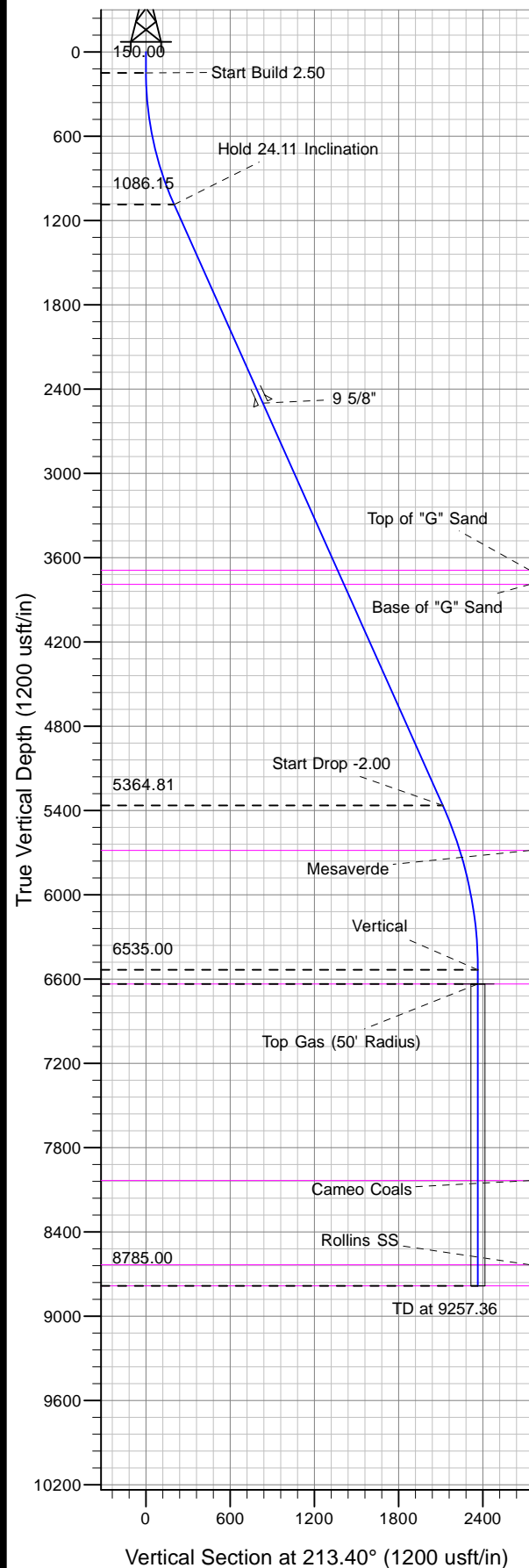




Well Name: AP 422-20-695
Surface Location: AP 21-20-695 Pad
North American Datum 1983 , US State Plane 1983, Colorado Central Zone
Ground Elevation: 6909.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1623229.58	2288347.59	39.51742	-108.02289	A01

KELLY BUSHING @ 6935.00usft (Nabors 573 (26' RKB) kjs)



Project: AP 20-06S-095W
Site: AP 21-20-695 Pad
Well: AP 422-20-695
Plan 4 29Aug13 kjs



Azimuths to True North
Magnetic North: 10.46°

Magnetic Field
Strength: 52373.0snT
Dip Angle: 65.79°
Date: 7/16/2010
Model: IGRF2005-10

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Departure	Annotation
150.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.50
1086.15	1114.36	24.11	213.40	-166.90	-110.05	199.92	199.92	Hold 24.11 Inclination
5364.81	5801.91	24.11	213.40	-1765.42	-1164.09	2114.66	2114.66	Start Drop -2.00
6535.00	7007.36	0.00	0.00	-1794.04	-1301.65	2364.56	2364.56	Vertical
6635.00	7107.36	0.00	0.00	-1974.04	-1301.65	2364.56	2364.56	Top Gas
8785.00	9257.36	0.00	0.00	-1974.04	-1301.65	2364.56	2364.56	TD at 9257.36



PICEANCE VLY NAD 83

AP 20-06S-095W

AP 21-20-695 Pad

AP 422-20-695 - Slot A01

Wellbore #1

Plan: Plan 4 29Aug13 kjs

Standard Planning Report - Geographic

12 November, 2013



IBM Global Services
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well AP 422-20-695 - Slot A01
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 6935.00usft (Nabors 573 (26' RKB) kjs)
Project:	AP 20-06S-095W	MD Reference:	KELLY BUSHING @ 6935.00usft (Nabors 573 (26' RKB) kjs)
Site:	AP 21-20-695 Pad	North Reference:	True
Well:	AP 422-20-695	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 4 29Aug13 kjs		

Project	AP 20-06S-095W, Garfield County, CO, 20-06S-095W		
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	AP 21-20-695 Pad			
Site Position:		Northing:	1,623,258.80 usft	Latitude: 39.51750
From: Map		Easting:	2,288,342.20 usft	Longitude: -108.02291
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence: -1.591 °

Well	AP 422-20-695 - Slot A01			
Well Position	+N/-S	0.00 usft	Northing:	1,623,229.58 usft
	+E/-W	0.00 usft	Easting:	2,288,347.59 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	
			Ground Level:	6,909.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	7/16/2010	10.461	65.788	52,373

Design	Plan 4 29Aug13 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	213.40

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	0.000	
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,114.36	24.11	213.40	1,086.15	-166.90	-110.05	2.50	2.50	0.00	213.400	
5,801.91	24.11	213.40	5,364.81	-1,765.42	-1,164.09	0.00	0.00	0.00	0.000	
7,007.36	0.00	0.00	6,535.00	-1,974.04	-1,301.65	2.00	-2.00	0.00	180.000	
7,107.36	0.00	0.00	6,635.00	-1,974.04	-1,301.65	0.00	0.00	0.00	0.000	Top Gas (50' Radius)
9,257.36	0.00	0.00	8,785.00	-1,974.04	-1,301.65	0.00	0.00	0.00	0.000	

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well AP 422-20-695 - Slot A01
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 6935.00usft (Nabors 573 (26' RKB) kjs)
Project:	AP 20-06S-095W	MD Reference:	KELLY BUSHING @ 6935.00usft (Nabors 573 (26' RKB) kjs)
Site:	AP 21-20-695 Pad	North Reference:	True
Well:	AP 422-20-695	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 4 29Aug13 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	1,623,229.58	2,288,347.59	39.51742	-108.02289
150.00	0.00	0.00	150.00	0.00	0.00	1,623,229.58	2,288,347.59	39.51742	-108.02289
Start Build 2.50									
500.00	8.75	213.40	498.64	-22.27	-14.68	1,623,207.73	2,288,332.29	39.51736	-108.02294
1,000.00	21.25	213.40	980.65	-130.09	-85.78	1,623,101.92	2,288,258.23	39.51706	-108.02320
1,114.36	24.11	213.40	1,086.15	-166.90	-110.05	1,623,065.80	2,288,232.95	39.51696	-108.02328
Hold 24.11 Inclination									
1,500.00	24.11	213.40	1,438.15	-298.41	-196.76	1,622,936.76	2,288,142.62	39.51660	-108.02359
2,000.00	24.11	213.40	1,894.54	-468.91	-309.19	1,622,769.45	2,288,025.50	39.51613	-108.02399
2,500.00	24.11	213.40	2,350.92	-639.42	-421.62	1,622,602.13	2,287,908.39	39.51566	-108.02439
2,663.32	24.11	213.40	2,500.00	-695.12	-458.35	1,622,547.48	2,287,870.13	39.51551	-108.02452
9 5/8"									
3,000.00	24.11	213.40	2,807.31	-809.93	-534.05	1,622,434.82	2,287,791.27	39.51519	-108.02478
3,500.00	24.11	213.40	3,263.69	-980.43	-646.48	1,622,267.51	2,287,674.16	39.51473	-108.02518
3,967.05	24.11	213.40	3,690.00	-1,139.70	-751.50	1,622,111.22	2,287,564.76	39.51429	-108.02556
Top of "G" Sand									
4,000.00	24.11	213.40	3,720.08	-1,150.94	-758.91	1,622,100.19	2,287,557.04	39.51426	-108.02558
4,076.60	24.11	213.40	3,790.00	-1,177.06	-776.14	1,622,074.56	2,287,539.10	39.51419	-108.02564
Base of "G" Sand									
4,500.00	24.11	213.40	4,176.46	-1,321.45	-871.34	1,621,932.88	2,287,439.92	39.51379	-108.02598
5,000.00	24.11	213.40	4,632.85	-1,491.95	-983.77	1,621,765.57	2,287,322.81	39.51332	-108.02638
5,500.00	24.11	213.40	5,089.23	-1,662.46	-1,096.20	1,621,598.26	2,287,205.69	39.51285	-108.02678
5,801.91	24.11	213.40	5,364.81	-1,765.42	-1,164.09	1,621,497.23	2,287,134.97	39.51257	-108.02702
Start Drop -2.00									
6,000.00	20.15	213.40	5,548.27	-1,827.70	-1,205.15	1,621,436.12	2,287,092.20	39.51240	-108.02716
6,144.37	17.26	213.40	5,685.00	-1,866.34	-1,230.63	1,621,398.19	2,287,065.65	39.51229	-108.02725
Mesaverde									
6,500.00	10.15	213.40	6,030.29	-1,936.63	-1,276.98	1,621,329.22	2,287,017.37	39.51210	-108.02742
7,000.00	0.15	213.40	6,527.64	-1,974.03	-1,301.64	1,621,292.52	2,286,991.68	39.51200	-108.02751
7,007.36	0.00	0.00	6,535.00	-1,974.04	-1,301.65	1,621,292.51	2,286,991.68	39.51200	-108.02751
Vertical									
7,107.36	0.00	0.00	6,635.00	-1,974.04	-1,301.65	1,621,292.51	2,286,991.68	39.51200	-108.02751
Top Gas - Approx. Top Gas									
7,500.00	0.00	0.00	7,027.64	-1,974.04	-1,301.65	1,621,292.51	2,286,991.68	39.51200	-108.02751
8,000.00	0.00	0.00	7,527.64	-1,974.04	-1,301.65	1,621,292.51	2,286,991.68	39.51200	-108.02751
8,500.00	0.00	0.00	8,027.64	-1,974.04	-1,301.65	1,621,292.51	2,286,991.68	39.51200	-108.02751
8,507.36	0.00	0.00	8,035.00	-1,974.04	-1,301.65	1,621,292.51	2,286,991.68	39.51200	-108.02751
Cameo Coals									
9,000.00	0.00	0.00	8,527.64	-1,974.04	-1,301.65	1,621,292.51	2,286,991.68	39.51200	-108.02751
9,107.36	0.00	0.00	8,635.00	-1,974.04	-1,301.65	1,621,292.51	2,286,991.68	39.51200	-108.02751
Rollins SS									
9,257.36	0.00	0.00	8,785.00	-1,974.04	-1,301.65	1,621,292.51	2,286,991.68	39.51200	-108.02751
TD at 9257.36 - TD									



Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well AP 422-20-695 - Slot A01
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 6935.00usft (Nabors 573 (26' RKB) kjs)
Project:	AP 20-06S-095W	MD Reference:	KELLY BUSHING @ 6935.00usft (Nabors 573 (26' RKB) kjs)
Site:	AP 21-20-695 Pad	North Reference:	True
Well:	AP 422-20-695	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 4 29Aug13 kjs		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
Top Gas (50' Radius) AF	0.00	0.00	6,635.00	-1,974.04	-1,301.65	1,621,292.51	2,286,991.68	39.51200	-108.02751
- plan hits target center									
- Circle (radius 50.00)									

Casing Points					
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter	
(usft)	(usft)		(in)	(in)	
2,663.32	2,500.00	9 5/8"	9.625	12.250	

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
3,967.05	3,690.00	Top of "G" Sand				
4,076.60	3,790.00	Base of "G" Sand				
6,144.37	5,685.00	Mesaverde				
7,107.36	6,635.00	Approx. Top Gas				
8,507.36	8,035.00	Cameo Coals				
9,107.36	8,635.00	Rollins SS				
9,257.36	8,785.00	TD				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)		
150.00	150.00	0.00	0.00	Start Build 2.50	
1,114.36	1,086.15	-166.90	-110.05	Hold 24.11 Inclination	
5,801.91	5,364.81	-1,765.42	-1,164.09	Start Drop -2.00	
7,007.36	6,535.00	-1,974.04	-1,301.65	Vertical	
7,107.36	6,635.00	-1,974.04	-1,301.65	Top Gas	
9,257.36	8,785.00	-1,974.04	-1,301.65	TD at 9257.36	