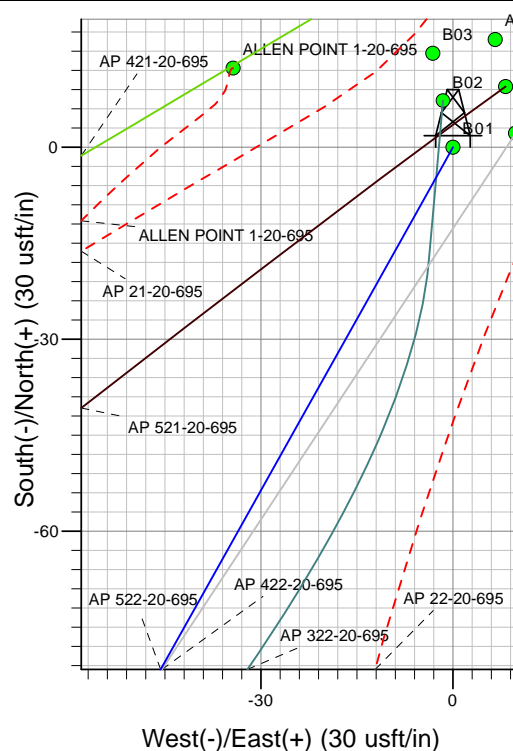
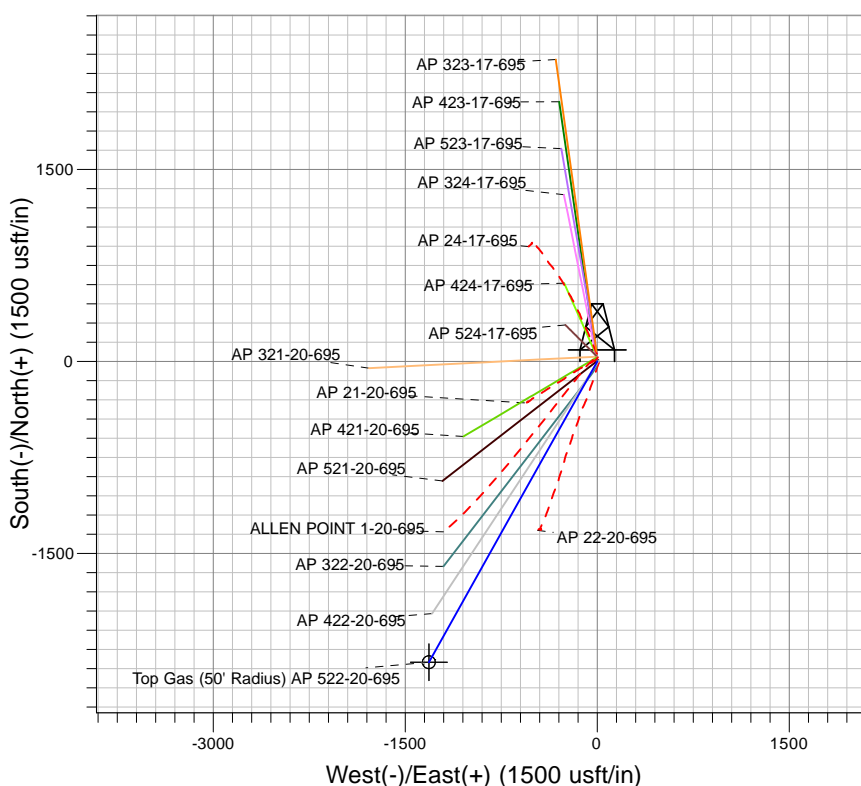
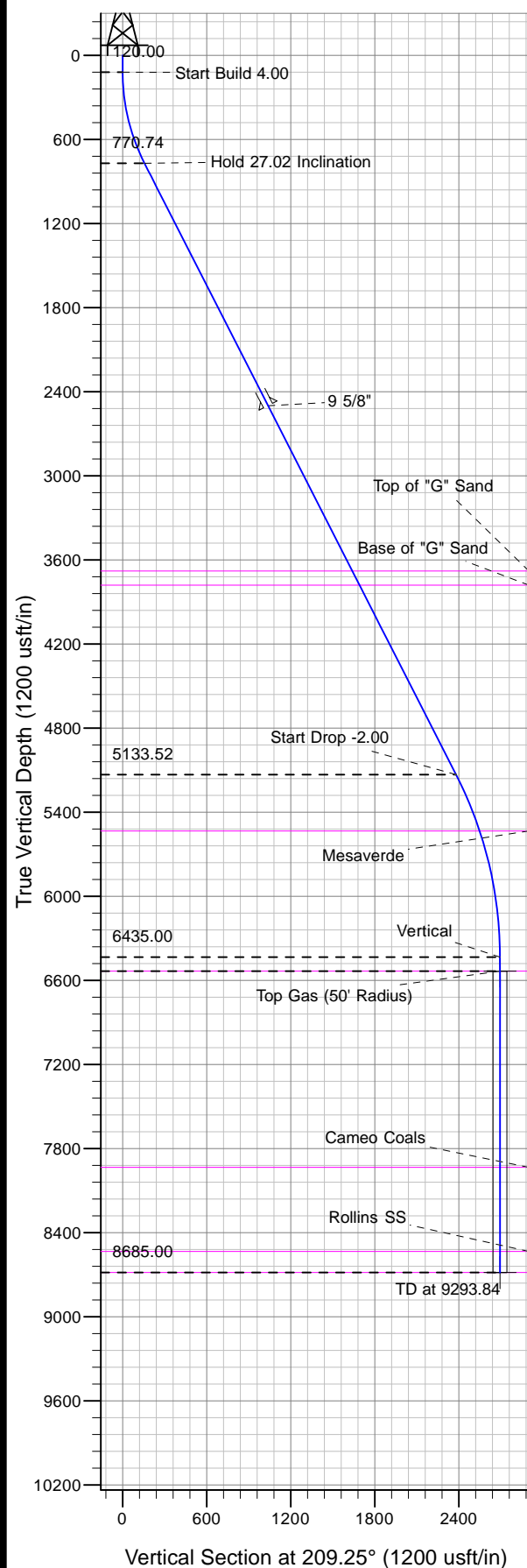




Well Name: AP 522-20-695  
Surface Location: AP 21-20-695 Pad  
North American Datum 1983 , US State Plane 1983, Colorado Central Zone  
Ground Elevation: 6909.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1623227.67	2288337.75	39.51741	-108.02292	B01

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



Project: AP 20-06S-095W  
Site: AP 21-20-695 Pad  
Well: AP 522-20-695  
Plan 4 29Aug13 kjs

Azimuths to True North  
Magnetic North: 10.46°  
Magnetic Field  
Strength: 52373.8snT  
Dip Angle: 65.79°  
Date: 7/13/2010  
Model: IGRF2005-10

#### ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSection	Departure	Annotation
120.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 4.00
770.74	795.50	27.02	209.25	-136.42	-76.39	156.35	156.35	Hold 27.02 Inclination
5133.52	5692.84	27.02	209.25	-2077.65	-1163.45	2381.23	2381.23	Start Drop -2.00
6435.00	7043.84	0.00	0.00	-2350.48	-1316.24	2693.93	2693.93	Vertical
6535.00	7143.84	0.00	0.00	-2350.48	-1316.24	2693.93	2693.93	Top Gas
8685.00	9293.84	0.00	0.00	-2350.48	-1316.24	2693.93	2693.93	TD at 9293.84



## **PICEANCE VLY NAD 83**

**AP 20-06S-095W**

**AP 21-20-695 Pad**

**AP 522-20-695 - Slot B01**

**Wellbore #1**

**Plan: Plan 4 29Aug13 kjs**

## **Standard Planning Report - Geographic**

**12 November, 2013**



IBM Global Services  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well AP 522-20-695 - Slot B01
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 6935.00usft (Nabors 573 (26' RKB) kjs)
<b>Project:</b>	AP 20-06S-095W	<b>MD Reference:</b>	KELLY BUSHING @ 6935.00usft (Nabors 573 (26' RKB) kjs)
<b>Site:</b>	AP 21-20-695 Pad	<b>North Reference:</b>	True
<b>Well:</b>	AP 522-20-695	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan 4 29Aug13 kjs		

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

Well	AP 522-20-695 - Slot B01					
Well Position	+N/-S	0.00 usft	Northing:	1,623,227.67 usft	Latitude:	39.51741
	+E/-W	0.00 usft	Easting:	2,288,337.75 usft	Longitude:	-108.02293
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	6,909.00 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	7/13/2010	10.462	65.788	52,374

<b>Design</b>	Plan 4 29Aug13 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	209.25

<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	0.000	
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.000	
795.50	27.02	209.25	770.74	-136.42	-76.39	4.00	4.00	0.00	209.248	
5,692.84	27.02	209.25	5,133.52	-2,077.65	-1,163.45	0.00	0.00	0.00	0.000	
7,043.84	0.00	0.00	6,435.00	-2,350.48	-1,316.24	2.00	-2.00	0.00	180.000	
7,143.84	0.00	0.00	6,535.00	-2,350.48	-1,316.24	0.00	0.00	0.00	0.000	Top Gas (50' Radius)
9,293.84	0.00	0.00	8,685.00	-2,350.48	-1,316.24	0.00	0.00	0.00	0.000	

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well AP 522-20-695 - Slot B01
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 6935.00usft (Nabors 573 (26' RKB) kjs)
<b>Project:</b>	AP 20-06S-095W	<b>MD Reference:</b>	KELLY BUSHING @ 6935.00usft (Nabors 573 (26' RKB) kjs)
<b>Site:</b>	AP 21-20-695 Pad	<b>North Reference:</b>	True
<b>Well:</b>	AP 522-20-695	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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	1,623,227.67	2,288,337.75	39.51741	-108.02293
120.00	0.00	0.00	120.00	0.00	0.00	1,623,227.67	2,288,337.75	39.51741	-108.02293
<b>Start Build 4.00</b>									
500.00	15.20	209.25	495.56	-43.72	-24.48	1,623,184.64	2,288,312.06	39.51729	-108.02301
795.50	27.02	209.25	770.74	-136.42	-76.39	1,623,093.43	2,288,257.60	39.51704	-108.02320
<b>Hold 27.02 Inclination</b>									
1,000.00	27.02	209.25	952.92	-217.48	-121.78	1,623,013.66	2,288,209.98	39.51681	-108.02336
1,500.00	27.02	209.25	1,398.34	-415.67	-232.77	1,622,818.64	2,288,093.54	39.51627	-108.02375
2,000.00	27.02	209.25	1,843.76	-613.86	-343.75	1,622,623.61	2,287,977.10	39.51573	-108.02415
2,500.00	27.02	209.25	2,289.19	-812.05	-454.74	1,622,428.58	2,287,860.66	39.51518	-108.02454
2,736.64	27.02	209.25	2,500.00	-905.86	-507.27	1,622,336.28	2,287,805.55	39.51492	-108.02472
<b>9 5/8"</b>									
3,000.00	27.02	209.25	2,734.61	-1,010.25	-565.72	1,622,233.56	2,287,744.21	39.51464	-108.02493
3,500.00	27.02	209.25	3,180.03	-1,208.44	-676.71	1,622,038.53	2,287,627.77	39.51409	-108.02533
4,000.00	27.02	209.25	3,625.46	-1,406.63	-787.70	1,621,843.50	2,287,511.33	39.51355	-108.02572
4,061.23	27.02	209.25	3,680.00	-1,430.90	-801.29	1,621,819.62	2,287,497.07	39.51348	-108.02577
<b>Top of "G" Sand</b>									
4,173.48	27.02	209.25	3,780.00	-1,475.40	-826.20	1,621,775.84	2,287,470.93	39.51336	-108.02585
<b>Base of "G" Sand</b>									
4,500.00	27.02	209.25	4,070.88	-1,604.82	-898.68	1,621,648.47	2,287,394.89	39.51300	-108.02611
5,000.00	27.02	209.25	4,516.30	-1,803.02	-1,009.67	1,621,453.45	2,287,278.45	39.51246	-108.02651
5,500.00	27.02	209.25	4,961.73	-2,001.21	-1,120.65	1,621,258.42	2,287,162.01	39.51192	-108.02690
5,692.84	27.02	209.25	5,133.52	-2,077.65	-1,163.45	1,621,183.20	2,287,117.10	39.51171	-108.02705
<b>Start Drop -2.00</b>									
6,000.00	20.88	209.25	5,414.10	-2,186.38	-1,224.35	1,621,076.21	2,287,053.22	39.51141	-108.02727
6,128.34	18.31	209.25	5,535.00	-2,223.93	-1,245.37	1,621,039.26	2,287,031.16	39.51131	-108.02734
<b>Mesaverde</b>									
6,500.00	10.88	209.25	5,894.42	-2,305.58	-1,291.09	1,620,958.91	2,286,983.19	39.51108	-108.02750
7,000.00	0.88	209.25	6,391.16	-2,350.19	-1,316.08	1,620,915.02	2,286,956.98	39.51096	-108.02759
7,043.84	0.00	0.00	6,435.00	-2,350.48	-1,316.24	1,620,914.73	2,286,956.80	39.51096	-108.02759
<b>Vertical</b>									
7,143.84	0.00	0.00	6,535.00	-2,350.48	-1,316.24	1,620,914.73	2,286,956.80	39.51096	-108.02759
<b>Top Gas - Approx. Top Gas</b>									
7,500.00	0.00	0.00	6,891.16	-2,350.48	-1,316.24	1,620,914.73	2,286,956.80	39.51096	-108.02759
8,000.00	0.00	0.00	7,391.16	-2,350.48	-1,316.24	1,620,914.73	2,286,956.80	39.51096	-108.02759
8,500.00	0.00	0.00	7,891.16	-2,350.48	-1,316.24	1,620,914.73	2,286,956.80	39.51096	-108.02759
8,543.84	0.00	0.00	7,935.00	-2,350.48	-1,316.24	1,620,914.73	2,286,956.80	39.51096	-108.02759
<b>Cameo Coals</b>									
9,000.00	0.00	0.00	8,391.16	-2,350.48	-1,316.24	1,620,914.73	2,286,956.80	39.51096	-108.02759
9,143.84	0.00	0.00	8,535.00	-2,350.48	-1,316.24	1,620,914.73	2,286,956.80	39.51096	-108.02759
<b>Rollins SS</b>									
9,293.84	0.00	0.00	8,685.00	-2,350.48	-1,316.24	1,620,914.73	2,286,956.80	39.51096	-108.02759
<b>TD at 9293.84 - TD</b>									

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well AP 522-20-695 - Slot B01
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 6935.00usft (Nabors 573 (26' RKB) kjs)
<b>Project:</b>	AP 20-06S-095W	<b>MD Reference:</b>	KELLY BUSHING @ 6935.00usft (Nabors 573 (26' RKB) kjs)
<b>Site:</b>	AP 21-20-695 Pad	<b>North Reference:</b>	True
<b>Well:</b>	AP 522-20-695	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan 4 29Aug13 kjs		

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) AF - plan hits target center - Circle (radius 50.00)	0.00	0.00	6,535.00	-2,350.48	-1,316.24	1,620,914.73	2,286,956.80	39.51096	-108.02759
TD / PBHL AP 522-20-6 - plan hits target center - Point	0.00	0.00	8,685.00	-2,350.48	-1,316.24	1,620,914.73	2,286,956.80	39.51096	-108.02759

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
2,736.64	2,500.00	9 5/8"	9.625	12.250	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,061.23	3,680.00	Top of "G" Sand				
4,173.48	3,780.00	Base of "G" Sand				
6,128.34	5,535.00	Mesaverde				
7,143.84	6,535.00	Approx. Top Gas				
8,543.84	7,935.00	Cameo Coals				
9,143.84	8,535.00	Rollins SS				
9,293.84	8,685.00	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	
795.50	770.74	-136.42	-76.39	Hold 27.02 Inclination	
5,692.84	5,133.52	-2,077.65	-1,163.45	Start Drop -2.00	
7,043.84	6,435.00	-2,350.48	-1,316.24	Vertical	
7,143.84	6,535.00	-2,350.48	-1,316.24	Top Gas	
9,293.84	8,685.00	-2,350.48	-1,316.24	TD at 9293.84	