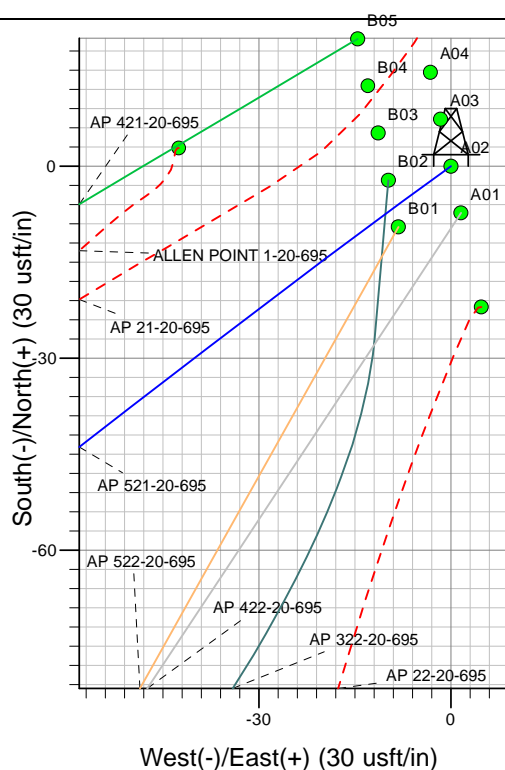
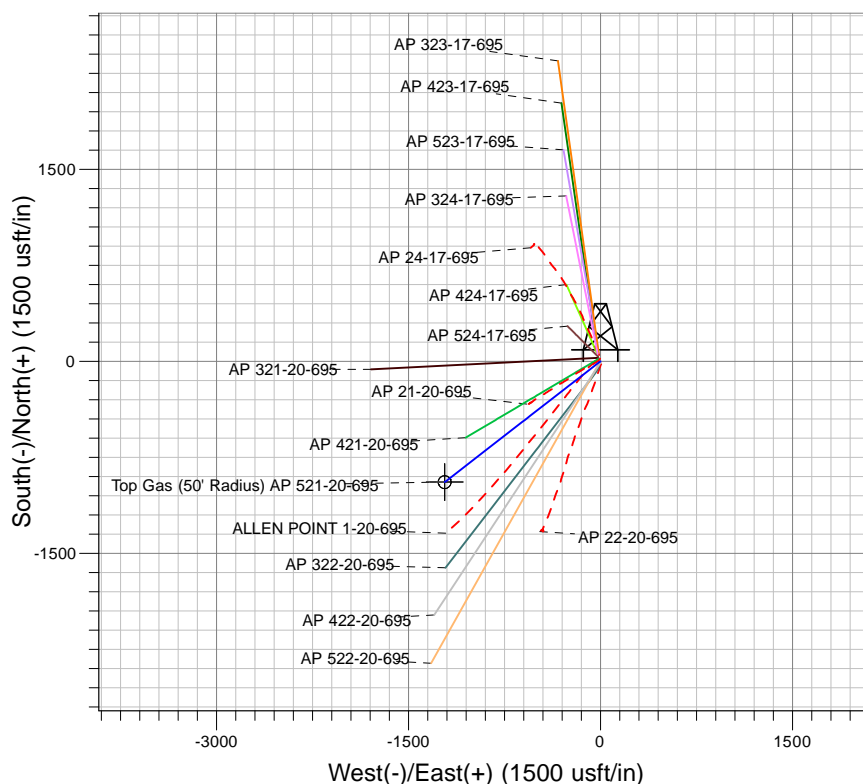
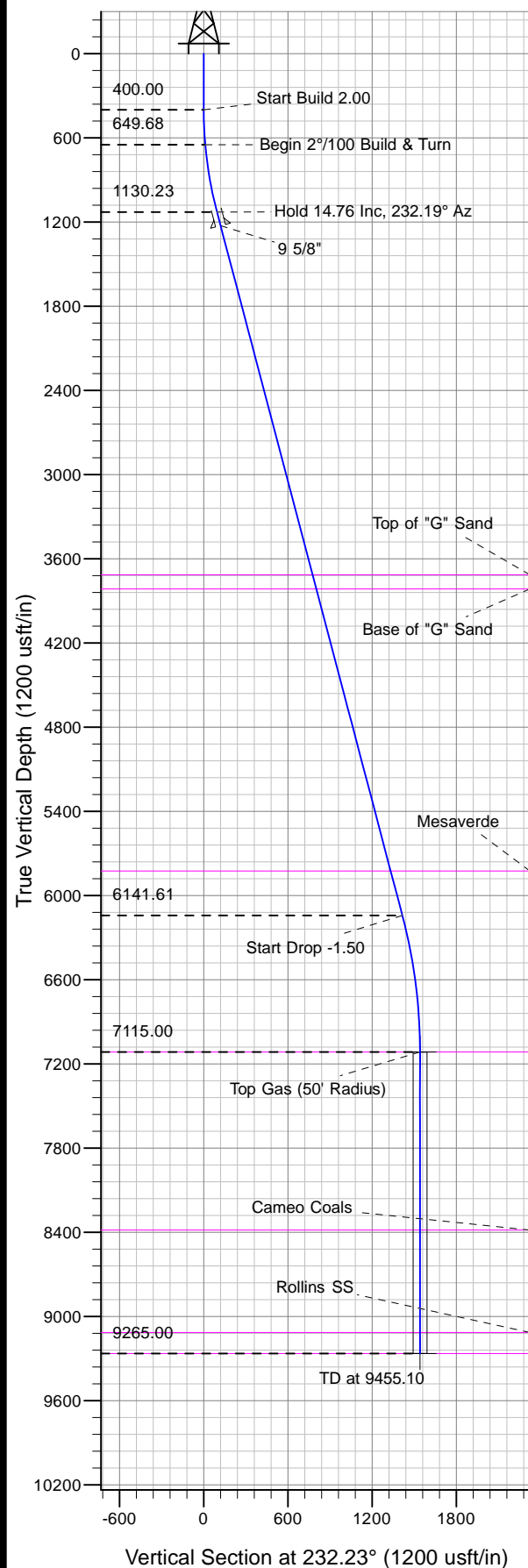




Well Name: AP 521-20-695  
Surface Location: AP 21-20-695 Pad  
North American Datum 1983 , US State Plane 1983, Colorado Central Zone  
Ground Elevation: 6909.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1623236.92	2288346.22	39.51744	-108.02289	A02

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



Project: AP 20-06S-095W  
Site: AP 21-20-695 Pad  
Well: AP 521-20-695  
Plan #2 16Aug11 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
400.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
649.68	650.00	5.00	234.00	-6.41	-8.82	10.90	10.90	Begin 2°/100 Build & Turn
1130.23	1138.37	14.76	232.19	-57.19	-75.36	94.60	94.61	Hold 14.76 Inc, 232.19° Az
6141.61	6320.85	14.76	232.19	-866.78	-1118.78	1415.27	1415.28	Start Drop -1.50
7115.00	7305.10	0.00	0.00	-944.08	-1218.42	1541.37	1541.38	Top Gas
9265.00	9455.10	0.00	0.00	-944.08	-1218.41	1541.37	1541.38	TD at 9455.10



## **PICEANCE VLY NAD 83**

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

**AP 21-20-695 Pad**

**AP 521-20-695 - Slot A02**

**Wellbore #1**

**Plan: Plan #2 16Aug11 kjs**

## **Standard Planning Report - Geographic**

**28 October, 2013**



IBM Global Services  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well AP 521-20-695 - Slot A02
<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 521-20-695	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 16Aug11 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> -1.59 °

<b>Well</b>	AP 521-20-695 - Slot A02			
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	1,623,236.92 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	2,288,346.22 usft
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	
			<b>Ground Level:</b>	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	7/16/2010	10.46	65.79	52,373

<b>Design</b>	Plan #2 16Aug11 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	232.23

<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	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
650.00	5.00	234.00	649.68	-6.41	-8.82	2.00	2.00	0.00	234.00	
1,138.37	14.76	232.19	1,130.23	-57.19	-75.36	2.00	2.00	-0.37	-2.72	
6,320.85	14.76	232.19	6,141.61	-866.78	-1,118.78	0.00	0.00	0.00	0.00	
7,305.10	0.00	0.00	7,115.00	-944.08	-1,218.42	1.50	-1.50	0.00	180.00	Top Gas (50' Radius)
9,455.10	0.00	0.00	9,265.00	-944.08	-1,218.41	0.00	0.00	0.00	0.00	TD / PBHL AP 521-2C



**IBM Global Services**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well AP 521-20-695 - Slot A02
<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 521-20-695	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 16Aug11 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	1,623,236.92	2,288,346.22	39.51744	-108.02290	
400.00	0.00	0.00	400.00	0.00	0.00	1,623,236.92	2,288,346.22	39.51744	-108.02290	
Start Build 2.00										
500.00	2.00	234.00	499.98	-1.03	-1.41	1,623,235.93	2,288,344.78	39.51743	-108.02290	
650.00	5.00	234.00	649.68	-6.41	-8.82	1,623,230.76	2,288,337.23	39.51742	-108.02293	
Begin 2°/100 Build & Turn										
1,000.00	12.00	232.41	995.63	-37.60	-50.03	1,623,200.72	2,288,295.17	39.51733	-108.02307	
1,138.37	14.76	232.19	1,130.23	-57.19	-75.36	1,623,181.85	2,288,269.30	39.51728	-108.02316	
Hold 14.76 Inc, 232.19° Az										
1,239.00	14.76	232.19	1,227.53	-72.91	-95.62	1,623,166.70	2,288,248.62	39.51724	-108.02324	
9 5/8"										
1,500.00	14.76	232.19	1,479.92	-113.68	-148.17	1,623,127.40	2,288,194.96	39.51712	-108.02342	
2,000.00	14.76	232.19	1,963.41	-191.79	-248.84	1,623,052.12	2,288,092.16	39.51691	-108.02378	
2,500.00	14.76	232.19	2,446.90	-269.90	-349.51	1,622,976.84	2,287,989.37	39.51670	-108.02414	
3,000.00	14.76	232.19	2,930.39	-348.00	-450.17	1,622,901.56	2,287,886.57	39.51648	-108.02449	
3,500.00	14.76	232.19	3,413.89	-426.11	-550.84	1,622,826.28	2,287,783.78	39.51627	-108.02485	
3,811.39	14.76	232.19	3,715.00	-474.76	-613.54	1,622,779.40	2,287,719.76	39.51613	-108.02507	
Top of "G" Sand										
3,914.81	14.76	232.19	3,815.00	-490.91	-634.36	1,622,763.83	2,287,698.50	39.51609	-108.02515	
Base of "G" Sand										
4,000.00	14.76	232.19	3,897.38	-504.22	-651.51	1,622,751.00	2,287,680.99	39.51605	-108.02521	
4,500.00	14.76	232.19	4,380.87	-582.33	-752.18	1,622,675.72	2,287,578.19	39.51584	-108.02556	
5,000.00	14.76	232.19	4,864.36	-660.44	-852.85	1,622,600.44	2,287,475.40	39.51562	-108.02592	
5,500.00	14.76	232.19	5,347.86	-738.55	-953.52	1,622,525.16	2,287,372.60	39.51541	-108.02628	
5,993.43	14.76	232.19	5,825.00	-815.63	-1,052.86	1,622,450.87	2,287,271.16	39.51520	-108.02663	
Mesaverde										
6,000.00	14.76	232.19	5,831.35	-816.65	-1,054.18	1,622,449.88	2,287,269.81	39.51519	-108.02663	
6,320.85	14.76	232.19	6,141.61	-866.78	-1,118.78	1,622,401.57	2,287,203.84	39.51506	-108.02686	
Start Drop -1.50										
6,500.00	12.08	232.19	6,315.85	-892.26	-1,151.63	1,622,377.01	2,287,170.30	39.51499	-108.02698	
7,000.00	4.58	232.19	6,810.23	-936.62	-1,208.80	1,622,334.26	2,287,111.93	39.51487	-108.02718	
7,305.10	0.00	0.00	7,115.00	-944.08	-1,218.42	1,622,327.06	2,287,102.11	39.51484	-108.02722	
Top Gas - Approx. Top Gas										
7,500.00	0.00	0.00	7,309.90	-944.08	-1,218.42	1,622,327.06	2,287,102.11	39.51484	-108.02722	
8,000.00	0.00	0.00	7,809.90	-944.08	-1,218.42	1,622,327.06	2,287,102.11	39.51484	-108.02722	
8,500.00	0.00	0.00	8,309.90	-944.08	-1,218.42	1,622,327.06	2,287,102.11	39.51484	-108.02722	
8,575.10	0.00	0.00	8,385.00	-944.08	-1,218.42	1,622,327.06	2,287,102.11	39.51484	-108.02722	
Cameo Coals										
9,000.00	0.00	0.00	8,809.90	-944.08	-1,218.42	1,622,327.06	2,287,102.11	39.51484	-108.02722	
9,305.10	0.00	0.00	9,115.00	-944.08	-1,218.42	1,622,327.06	2,287,102.11	39.51484	-108.02722	
Rollins SS										
9,455.10	0.00	0.00	9,265.00	-944.08	-1,218.41	1,622,327.07	2,287,102.11	39.51484	-108.02722	
TD at 9455.10 - TD										



<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well AP 521-20-695 - Slot A02
<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 521-20-695	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 16Aug11 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	7,115.00	-944.08	-1,218.42	1,622,327.06	2,287,102.11	39.51484	-108.02722
TD / PBHL AP 521-20-6' - plan hits target center - Point	0.00	0.00	9,265.00	-944.08	-1,218.41	1,622,327.07	2,287,102.11	39.51484	-108.02722

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,239.00	1,227.53	9 5/8"	9.625	12.250	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,811.39	3,715.00	Top of "G" Sand				
3,914.81	3,815.00	Base of "G" Sand				
5,993.43	5,825.00	Mesaverde				
7,305.10	7,115.00	Approx. Top Gas				
8,575.10	8,385.00	Cameo Coals				
9,305.10	9,115.00	Rollins SS				
9,455.10	9,265.00	TD				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
400.00	400.00	0.00	0.00	Start Build 2.00	
650.00	649.68	-6.41	-8.82	Begin 2°/100 Build & Turn	
1,138.37	1,130.23	-57.19	-75.36	Hold 14.76 Inc, 232.19° Az	
6,320.85	6,141.61	-866.78	-1,118.78	Start Drop -1.50	
7,305.10	7,115.00	-944.08	-1,218.42	Top Gas	
9,455.10	9,265.00	-944.08	-1,218.41	TD at 9455.10	