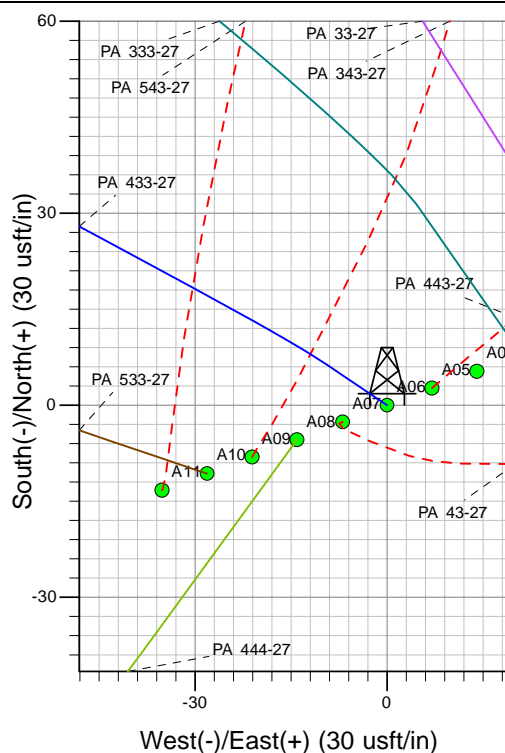
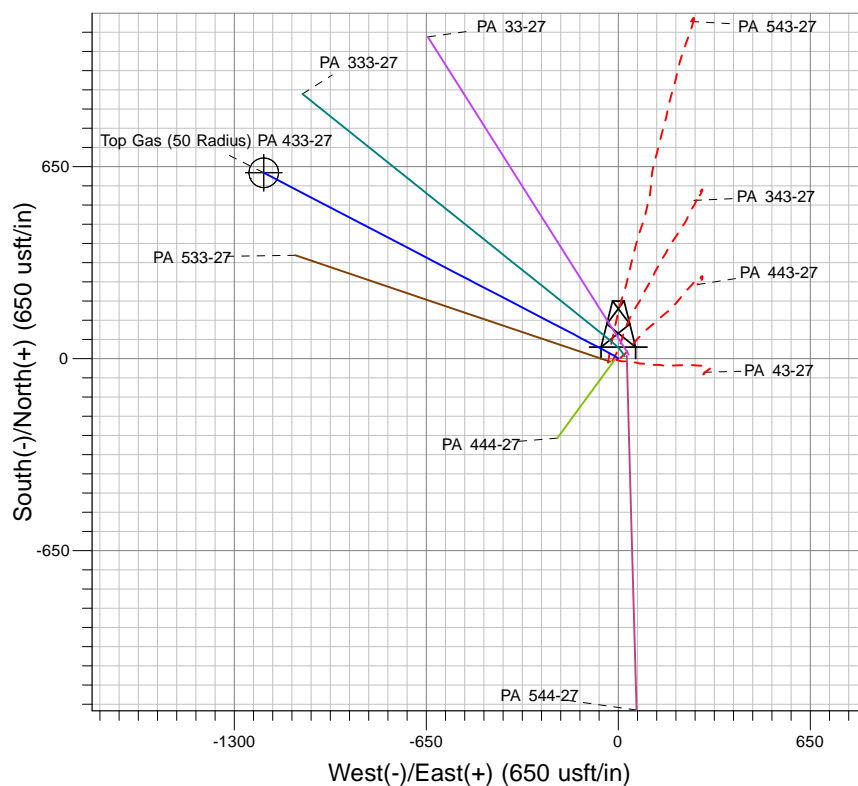
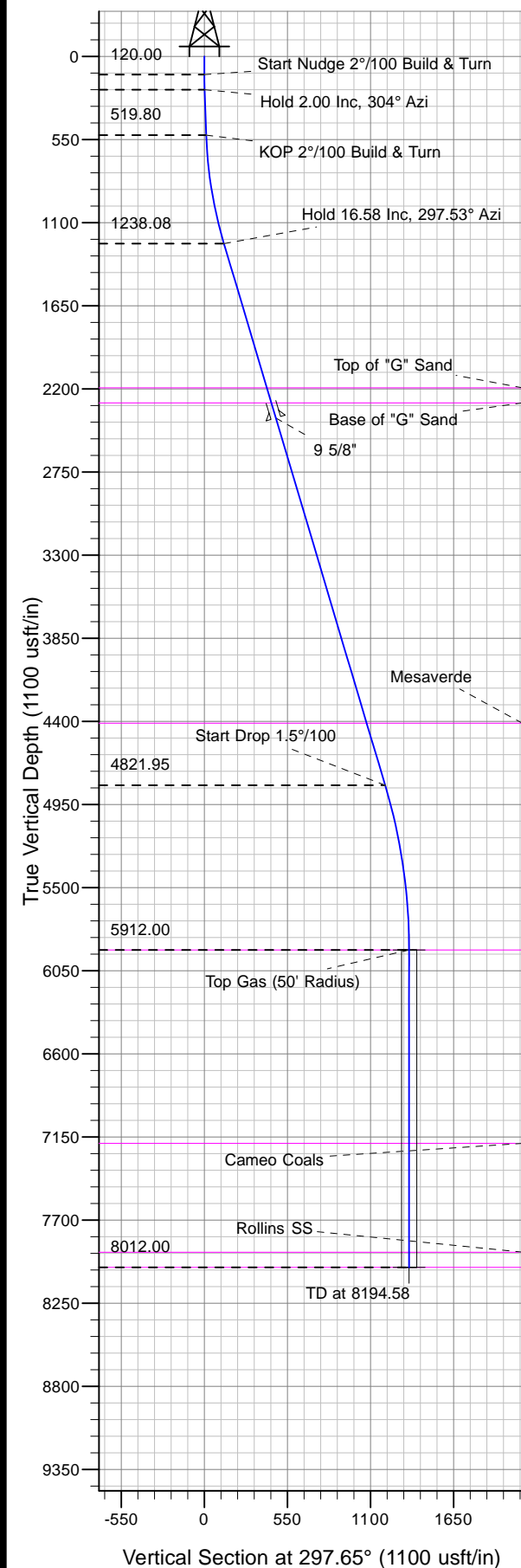




Well Name: PA 433-27
Surface Location: PA 543-27 Pad
North American Datum 1983 , US State Plane 1983, Colorado Central Zone
Ground Elevation: 5566.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1613689.10	2300626.00	39.49216	-107.97846	A06

KELLY BUSHING @ 5592.00usft (Nabors 573 (26' RKB) kjs)



Project: PA 27-06S-095W
Site: PA 543-27 Pad
Well: PA 433-27
Design #1 13Jun13 kjs

Azimuths to True North
Magnetic North: 11.45°

Magnetic Field
Strength: 53051.8snT
Dip Angle: 65.99°
Date: 12/31/2004
Model: IGRF2000

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 Nudge 2°/100 Build & Turn
219.98	220.00	2.00	304.00	0.98	-1.45	1.73	1.75	Hold 2.00 Inc, 304° Azi
519.80	520.00	2.00	304.00	6.83	-10.13	12.14	12.22	KOP 2°/100 Build & Turn
1238.08	1249.79	16.58	297.53	62.39	-113.58	129.56	129.66	Hold 16.58 Inc, 297.53° Azi
4821.95	4989.16	16.58	297.53	555.69	-1059.85	1196.69	1196.79	Start Drop 1.5°/100
5912.00	6094.58	0.00	356.12	629.11	-1200.70	1355.53	1355.63	Top Gas
8012.00	8194.58	0.00	356.12	629.12	-1200.70	1355.53	1355.64	TD at 8194.58



PICEANCE VLY NAD 83

PA 27-06S-095W

PA 543-27 Pad

PA 433-27 - Slot A06

Wellbore #1

Plan: Design #1 13Jun13 kjs

Standard Planning Report - Geographic

19 November, 2013



IBM Global Services
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well PA 433-27 - Slot A06
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 5592.00usft (Nabors 573 (26' RKB) kjs)
Project:	PA 27-06S-095W	MD Reference:	KELLY BUSHING @ 5592.00usft (Nabors 573 (26' RKB) kjs)
Site:	PA 543-27 Pad	North Reference:	True
Well:	PA 433-27	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 13Jun13 kjs		

Project	PA 27-06S-095W, Garfield County, CO, 27-06S-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	PA 543-27 Pad			
Site Position:		Northing:	1,613,691.56 usft	Latitude: 39.49217
From: Map		Easting:	2,300,633.09 usft	Longitude: -107.97844
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence: -1.563 °

Well	PA 433-27 - Slot A06					
Well Position	+N/-S	0.00 usft	Northing:	1,613,689.10 usft	Latitude:	39.49216
	+E/-W	0.00 usft	Easting:	2,300,626.00 usft	Longitude:	-107.97846
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	5,566.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2000	12/31/2004	11.445	65.987	53,052

Design	Design #1 13Jun13 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	297.65

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	
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.000	
220.00	2.00	304.00	219.98	0.98	-1.45	2.00	2.00	0.00	304.000	
520.00	2.00	304.00	519.80	6.83	-10.13	0.00	0.00	0.00	0.000	
1,249.79	16.58	297.53	1,238.08	62.39	-113.58	2.00	2.00	-0.89	-7.327	
4,989.16	16.58	297.53	4,821.95	555.69	-1,059.85	0.00	0.00	0.00	0.000	
6,094.58	0.00	356.12	5,912.00	629.11	-1,200.70	1.50	-1.50	5.30	180.000	Top Gas (50' Radius)
8,194.58	0.00	356.12	8,012.00	629.12	-1,200.70	0.00	0.00	0.00	0.000	TD PA 433-27



IBM Global Services
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well PA 433-27 - Slot A06
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 5592.00usft (Nabors 573 (26' RKB) kjs)
Project:	PA 27-06S-095W	MD Reference:	KELLY BUSHING @ 5592.00usft (Nabors 573 (26' RKB) kjs)
Site:	PA 543-27 Pad	North Reference:	True
Well:	PA 433-27	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 13Jun13 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	1,613,689.10	2,300,626.00	39.49216	-107.97846	
120.00	0.00	0.00	120.00	0.00	0.00	1,613,689.10	2,300,626.00	39.49216	-107.97846	
Start Nudge 2°/100 Build & Turn										
200.00	1.60	304.00	199.99	0.62	-0.93	1,613,689.75	2,300,625.09	39.49216	-107.97847	
220.00	2.00	304.00	219.98	0.98	-1.45	1,613,690.11	2,300,624.58	39.49216	-107.97847	
Hold 2.00 Inc, 304° Azi										
400.00	2.00	304.00	399.87	4.49	-6.65	1,613,693.76	2,300,619.47	39.49217	-107.97849	
520.00	2.00	304.00	519.80	6.83	-10.13	1,613,696.20	2,300,616.07	39.49218	-107.97850	
KOP 2°/100 Build & Turn										
600.00	3.59	300.74	599.70	8.89	-13.44	1,613,698.35	2,300,612.81	39.49219	-107.97851	
800.00	7.59	298.59	798.71	18.42	-30.43	1,613,708.34	2,300,596.09	39.49221	-107.97857	
1,000.00	11.59	297.92	995.87	34.15	-59.78	1,613,724.86	2,300,567.18	39.49226	-107.97867	
1,200.00	15.59	297.59	1,190.24	56.01	-101.35	1,613,747.84	2,300,526.22	39.49232	-107.97882	
1,249.79	16.58	297.53	1,238.08	62.39	-113.58	1,613,754.56	2,300,514.17	39.49233	-107.97887	
Hold 16.58 Inc, 297.53° Azi										
1,400.00	16.58	297.53	1,382.04	82.21	-151.59	1,613,775.40	2,300,476.71	39.49239	-107.97900	
1,600.00	16.58	297.53	1,573.73	108.59	-202.21	1,613,803.16	2,300,426.84	39.49246	-107.97918	
1,800.00	16.58	297.53	1,765.41	134.97	-252.82	1,613,830.91	2,300,376.97	39.49253	-107.97936	
2,000.00	16.58	297.53	1,957.09	161.36	-303.43	1,613,858.66	2,300,327.10	39.49260	-107.97954	
2,200.00	16.58	297.53	2,148.78	187.74	-354.04	1,613,886.42	2,300,277.23	39.49268	-107.97972	
2,245.10	16.58	297.53	2,192.00	193.69	-365.45	1,613,892.68	2,300,265.99	39.49269	-107.97976	
Top of "G" Sand										
2,349.44	16.58	297.53	2,292.00	207.46	-391.85	1,613,907.15	2,300,239.97	39.49273	-107.97985	
Base of "G" Sand										
2,400.00	16.58	297.53	2,340.46	214.13	-404.65	1,613,914.17	2,300,227.36	39.49275	-107.97990	
2,453.78	16.58	297.53	2,392.00	221.22	-418.26	1,613,921.63	2,300,213.95	39.49277	-107.97994	
9 5/8"										
2,600.00	16.58	297.53	2,532.14	240.51	-455.26	1,613,941.92	2,300,177.49	39.49282	-107.98008	
2,800.00	16.58	297.53	2,723.82	266.89	-505.87	1,613,969.68	2,300,127.62	39.49289	-107.98026	
3,000.00	16.58	297.53	2,915.51	293.28	-556.48	1,613,997.43	2,300,077.75	39.49297	-107.98043	
3,200.00	16.58	297.53	3,107.19	319.66	-607.09	1,614,025.19	2,300,027.88	39.49304	-107.98061	
3,400.00	16.58	297.53	3,298.87	346.05	-657.70	1,614,052.94	2,299,978.01	39.49311	-107.98079	
3,600.00	16.58	297.53	3,490.56	372.43	-708.31	1,614,080.69	2,299,928.14	39.49318	-107.98097	
3,800.00	16.58	297.53	3,682.24	398.81	-758.92	1,614,108.45	2,299,878.27	39.49326	-107.98115	
4,000.00	16.58	297.53	3,873.92	425.20	-809.54	1,614,136.20	2,299,828.40	39.49333	-107.98133	
4,200.00	16.58	297.53	4,065.61	451.58	-860.15	1,614,163.95	2,299,778.53	39.49340	-107.98151	
4,400.00	16.58	297.53	4,257.29	477.97	-910.76	1,614,191.71	2,299,728.66	39.49347	-107.98169	
4,561.42	16.58	297.53	4,412.00	499.26	-951.61	1,614,214.11	2,299,688.41	39.49353	-107.98183	
Mesaverde										
4,600.00	16.58	297.53	4,448.97	504.35	-961.37	1,614,219.46	2,299,678.79	39.49355	-107.98187	
4,800.00	16.58	297.53	4,640.66	530.73	-1,011.98	1,614,247.21	2,299,628.92	39.49362	-107.98205	
4,989.16	16.58	297.53	4,821.95	555.69	-1,059.85	1,614,273.46	2,299,581.75	39.49369	-107.98222	
Start Drop 1.5°/100										
5,000.00	16.42	297.53	4,832.34	557.11	-1,062.58	1,614,274.96	2,299,579.06	39.49369	-107.98223	
5,200.00	13.42	297.53	5,025.58	580.91	-1,108.23	1,614,300.00	2,299,534.08	39.49376	-107.98239	
5,400.00	10.42	297.53	5,221.25	600.00	-1,144.85	1,614,320.08	2,299,497.99	39.49381	-107.98252	
5,600.00	7.42	297.53	5,418.81	614.33	-1,172.34	1,614,335.15	2,299,470.90	39.49385	-107.98262	
5,800.00	4.42	297.53	5,617.72	623.87	-1,190.63	1,614,345.18	2,299,452.88	39.49387	-107.98268	
6,000.00	1.42	297.54	5,817.43	628.57	-1,199.66	1,614,350.13	2,299,443.98	39.49389	-107.98271	
6,094.58	0.00	356.12	5,912.00	629.11	-1,200.70	1,614,350.70	2,299,442.96	39.49389	-107.98272	
Top Gas - Approx. Top Gas										

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well PA 433-27 - Slot A06
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 5592.00usft (Nabors 573 (26' RKB) kjs)
Project:	PA 27-06S-095W	MD Reference:	KELLY BUSHING @ 5592.00usft (Nabors 573 (26' RKB) kjs)
Site:	PA 543-27 Pad	North Reference:	True
Well:	PA 433-27	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 13Jun13 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	
6,200.00	0.00	356.12	6,017.42	629.12	-1,200.70	1,614,350.70	2,299,442.96	39.49389	-107.98272	
6,400.00	0.00	356.12	6,217.42	629.12	-1,200.70	1,614,350.70	2,299,442.96	39.49389	-107.98272	
6,600.00	0.00	356.12	6,417.42	629.12	-1,200.70	1,614,350.70	2,299,442.96	39.49389	-107.98272	
6,800.00	0.00	356.12	6,617.42	629.12	-1,200.70	1,614,350.71	2,299,442.96	39.49389	-107.98272	
7,000.00	0.00	356.12	6,817.42	629.12	-1,200.70	1,614,350.71	2,299,442.96	39.49389	-107.98272	
7,200.00	0.00	356.12	7,017.42	629.12	-1,200.70	1,614,350.71	2,299,442.96	39.49389	-107.98272	
7,374.58	0.00	356.12	7,192.00	629.12	-1,200.70	1,614,350.71	2,299,442.96	39.49389	-107.98272	
Cameo Coals										
7,400.00	0.00	356.12	7,217.42	629.12	-1,200.70	1,614,350.71	2,299,442.96	39.49389	-107.98272	
7,600.00	0.00	356.12	7,417.42	629.12	-1,200.70	1,614,350.71	2,299,442.96	39.49389	-107.98272	
7,800.00	0.00	356.12	7,617.42	629.12	-1,200.70	1,614,350.71	2,299,442.96	39.49389	-107.98272	
8,000.00	0.00	356.12	7,817.42	629.12	-1,200.70	1,614,350.71	2,299,442.96	39.49389	-107.98272	
8,094.58	0.00	356.12	7,912.00	629.12	-1,200.70	1,614,350.71	2,299,442.96	39.49389	-107.98272	
Rollins SS										
8,194.58	0.00	356.12	8,012.00	629.12	-1,200.70	1,614,350.71	2,299,442.96	39.49389	-107.98272	
TD at 8194.58 - TD										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
Top Gas (50' Radius) P/	0.00	0.00	5,912.00	629.11	-1,200.70	1,614,350.70	2,299,442.96	39.49389	-107.98272	
- plan hits target center										
- Circle (radius 50.00)										
TD PA 433-27	0.00	0.00	8,012.00	629.12	-1,200.70	1,614,350.71	2,299,442.96	39.49389	-107.98272	
- plan hits target center										
- Point										

Casing Points							Casing Diameter (in)	Hole Diameter (in)
Measured Depth (usft)	Vertical Depth (usft)	Name						
2,453.78	2,392.00	9 5/8"					9.625	12.250

Formations							
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)		
2,245.10	2,192.00	Top of "G" Sand					
2,349.44	2,292.00	Base of "G" Sand					
4,561.42	4,412.00	Mesaverde					
6,094.58	5,912.00	Approx. Top Gas					
7,374.58	7,192.00	Cameo Coals					
8,094.58	7,912.00	Rollins SS					
8,194.58	8,012.00	TD					



IBM Global Services
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well PA 433-27 - Slot A06
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 5592.00usft (Nabors 573 (26' RKB) kjs)
Project:	PA 27-06S-095W	MD Reference:	KELLY BUSHING @ 5592.00usft (Nabors 573 (26' RKB) kjs)
Site:	PA 543-27 Pad	North Reference:	True
Well:	PA 433-27	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 13Jun13 kjs		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
120.00	120.00	0.00	0.00	Start Nudge 2°/100 Build & Turn
220.00	219.98	0.98	-1.45	Hold 2.00 Inc, 304° Azi
520.00	519.80	6.83	-10.13	KOP 2°/100 Build & Turn
1,249.79	1,238.08	62.39	-113.58	Hold 16.58 Inc, 297.53° Azi
4,989.16	4,821.95	555.69	-1,059.85	Start Drop 1.5°/100
6,094.58	5,912.00	629.11	-1,200.70	Top Gas
8,194.58	8,012.00	629.12	-1,200.70	TD at 8194.58