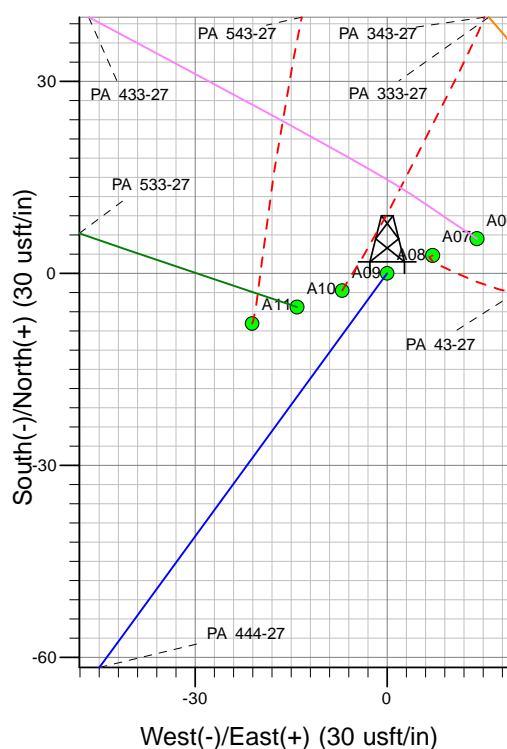
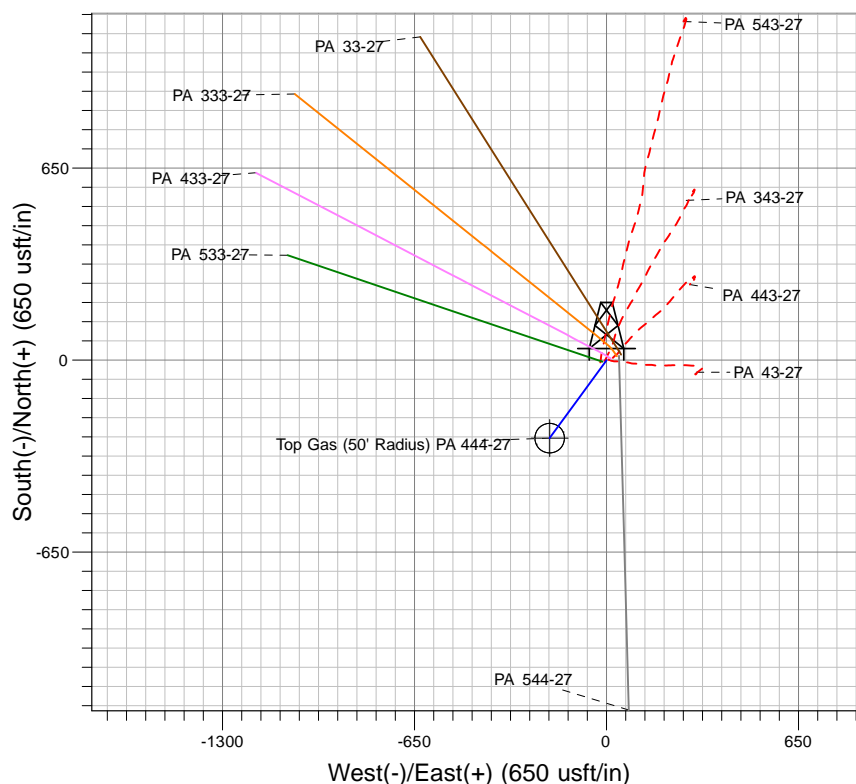
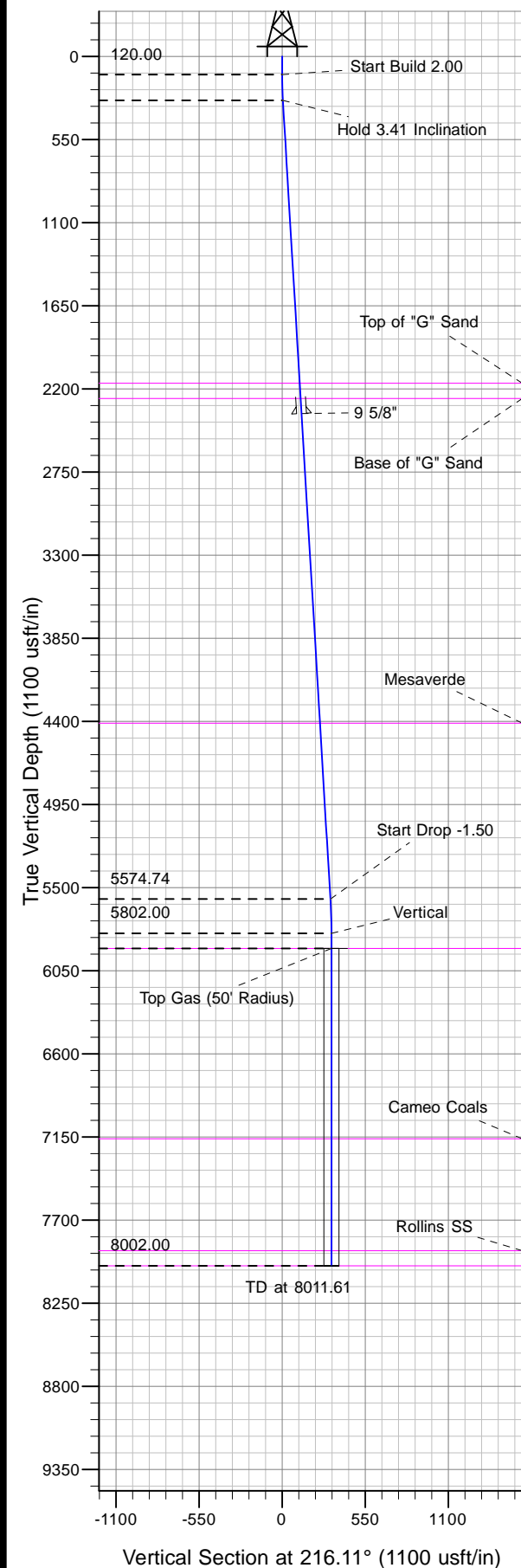




Well Name: PA 444-27
Surface Location: PA 543-27 Pad
North American Datum 1983 , US State Plane 1983, Colorado Central Zone
Ground Elevation: 5566.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1613684.10	2300611.80	39.49215	-107.97851	A08

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



Project: PA 27-06S-095W
Site: PA 543-27 Pad
Well: PA 444-27
Design #1 13Jun13 kjs



Azimuths to True North
Magnetic North: 11.45°
Magnetic Field
Strength: 53051.7snT
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 Build 2.00
290.44	290.55	3.41	216.11	-4.10	-2.99	5.07	5.07	Hold 3.41 Inclination
5574.74	5584.22	3.41	216.11	-258.55	-188.60	320.03	320.03	Start Drop -1.50
5802.00	5811.61	0.00	0.00	-264.02	-192.59	326.80	326.80	Vertical
5902.00	5911.61	0.00	0.00	-264.02	-192.59	326.80	326.80	Top Gas
8002.00	8011.61	0.00	0.00	-264.02	-192.59	326.80	326.80	TD at 8011.61



PICEANCE VLY NAD 83

PA 27-06S-095W

PA 543-27 Pad

PA 444-27 - Slot A08

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 444-27 - Slot A08
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 444-27	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 444-27 - Slot A08			
Well Position	+N/-S	0.00 usft	Northing:	1,613,684.10 usft
	+E/-W	0.00 usft	Easting:	2,300,611.80 usft
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	216.11

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	
290.55	3.41	216.11	290.44	-4.10	-2.99	2.00	2.00	0.00	216.110	
5,584.22	3.41	216.11	5,574.74	-258.55	-188.60	0.00	0.00	0.00	0.000	
5,811.61	0.00	0.00	5,802.00	-264.02	-192.59	1.50	-1.50	0.00	180.000	
5,911.61	0.00	0.00	5,902.00	-264.02	-192.59	0.00	0.00	0.00	0.000	Top Gas (50' Radius)
8,011.61	0.00	0.00	8,002.00	-264.02	-192.59	0.00	0.00	0.00	0.000	



IBM Global Services
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well PA 444-27 - Slot A08
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 444-27	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	1,613,684.10	2,300,611.80	39.49215	-107.97851	
120.00	0.00	0.00	120.00	0.00	0.00	1,613,684.10	2,300,611.80	39.49215	-107.97851	
Start Build 2.00										
200.00	1.60	216.11	199.99	-0.90	-0.66	1,613,683.21	2,300,611.12	39.49214	-107.97851	
290.55	3.41	216.11	290.44	-4.10	-2.99	1,613,680.08	2,300,608.70	39.49214	-107.97852	
Hold 3.41 Inclination										
400.00	3.41	216.11	399.71	-9.36	-6.83	1,613,674.93	2,300,604.72	39.49212	-107.97854	
600.00	3.41	216.11	599.35	-18.97	-13.84	1,613,665.51	2,300,597.45	39.49209	-107.97856	
800.00	3.41	216.11	799.00	-28.59	-20.85	1,613,656.09	2,300,590.18	39.49207	-107.97859	
1,000.00	3.41	216.11	998.64	-38.20	-27.87	1,613,646.67	2,300,582.90	39.49204	-107.97861	
1,200.00	3.41	216.11	1,198.29	-47.81	-34.88	1,613,637.25	2,300,575.63	39.49202	-107.97864	
1,400.00	3.41	216.11	1,397.93	-57.43	-41.89	1,613,627.83	2,300,568.36	39.49199	-107.97866	
1,600.00	3.41	216.11	1,597.58	-67.04	-48.90	1,613,618.42	2,300,561.09	39.49196	-107.97869	
1,800.00	3.41	216.11	1,797.23	-76.65	-55.92	1,613,609.00	2,300,553.82	39.49194	-107.97871	
2,000.00	3.41	216.11	1,996.87	-86.27	-62.93	1,613,599.58	2,300,546.54	39.49191	-107.97874	
2,165.42	3.41	216.11	2,162.00	-94.22	-68.73	1,613,591.79	2,300,540.53	39.49189	-107.97876	
Top of "G" Sand										
2,200.00	3.41	216.11	2,196.52	-95.88	-69.94	1,613,590.16	2,300,539.27	39.49188	-107.97876	
2,265.60	3.41	216.11	2,262.00	-99.03	-72.24	1,613,587.07	2,300,536.89	39.49187	-107.97877	
Base of "G" Sand										
2,365.78	3.41	216.11	2,362.00	-103.85	-75.75	1,613,582.36	2,300,533.25	39.49186	-107.97878	
9 5/8"										
2,400.00	3.41	216.11	2,396.16	-105.49	-76.95	1,613,580.74	2,300,532.00	39.49186	-107.97879	
2,600.00	3.41	216.11	2,595.81	-115.11	-83.97	1,613,571.33	2,300,524.73	39.49183	-107.97881	
2,800.00	3.41	216.11	2,795.45	-124.72	-90.98	1,613,561.91	2,300,517.46	39.49180	-107.97884	
3,000.00	3.41	216.11	2,995.10	-134.33	-97.99	1,613,552.49	2,300,510.18	39.49178	-107.97886	
3,200.00	3.41	216.11	3,194.75	-143.95	-105.01	1,613,543.07	2,300,502.91	39.49175	-107.97888	
3,400.00	3.41	216.11	3,394.39	-153.56	-112.02	1,613,533.65	2,300,495.64	39.49173	-107.97891	
3,600.00	3.41	216.11	3,594.04	-163.17	-119.03	1,613,524.24	2,300,488.37	39.49170	-107.97893	
3,800.00	3.41	216.11	3,793.68	-172.79	-126.04	1,613,514.82	2,300,481.10	39.49167	-107.97896	
4,000.00	3.41	216.11	3,993.33	-182.40	-133.06	1,613,505.40	2,300,473.83	39.49165	-107.97898	
4,200.00	3.41	216.11	4,192.97	-192.01	-140.07	1,613,495.98	2,300,466.55	39.49162	-107.97901	
4,400.00	3.41	216.11	4,392.62	-201.63	-147.08	1,613,486.56	2,300,459.28	39.49159	-107.97903	
4,419.42	3.41	216.11	4,412.00	-202.56	-147.76	1,613,485.65	2,300,458.58	39.49159	-107.97904	
Mesaverde										
4,600.00	3.41	216.11	4,592.27	-211.24	-154.09	1,613,477.15	2,300,452.01	39.49157	-107.97906	
4,800.00	3.41	216.11	4,791.91	-220.85	-161.11	1,613,467.73	2,300,444.74	39.49154	-107.97908	
5,000.00	3.41	216.11	4,991.56	-230.47	-168.12	1,613,458.31	2,300,437.47	39.49151	-107.97911	
5,200.00	3.41	216.11	5,191.20	-240.08	-175.13	1,613,448.89	2,300,430.19	39.49149	-107.97913	
5,400.00	3.41	216.11	5,390.85	-249.69	-182.14	1,613,439.47	2,300,422.92	39.49146	-107.97916	
5,584.22	3.41	216.11	5,574.74	-258.55	-188.60	1,613,430.80	2,300,416.22	39.49144	-107.97918	
Start Drop -1.50										
5,600.00	3.17	216.11	5,590.50	-259.28	-189.14	1,613,430.08	2,300,415.67	39.49143	-107.97918	
5,800.00	0.17	216.11	5,790.39	-264.00	-192.58	1,613,425.46	2,300,412.10	39.49142	-107.97920	
5,811.61	0.00	0.00	5,802.00	-264.02	-192.59	1,613,425.44	2,300,412.09	39.49142	-107.97920	
Vertical										
5,911.61	0.00	0.00	5,902.00	-264.02	-192.59	1,613,425.44	2,300,412.09	39.49142	-107.97920	
Top Gas - Approx. Top Gas										
6,000.00	0.00	0.00	5,990.39	-264.02	-192.59	1,613,425.44	2,300,412.09	39.49142	-107.97920	
6,200.00	0.00	0.00	6,190.39	-264.02	-192.59	1,613,425.44	2,300,412.09	39.49142	-107.97920	
6,400.00	0.00	0.00	6,390.39	-264.02	-192.59	1,613,425.44	2,300,412.09	39.49142	-107.97920	
6,600.00	0.00	0.00	6,590.39	-264.02	-192.59	1,613,425.44	2,300,412.09	39.49142	-107.97920	



IBM Global Services
Planning Report - Geographic

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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 444-27	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
6,800.00	0.00	0.00	6,790.39	-264.02	-192.59	1,613,425.44	2,300,412.09	39.49142	-107.97920
7,000.00	0.00	0.00	6,990.39	-264.02	-192.59	1,613,425.44	2,300,412.09	39.49142	-107.97920
7,171.61	0.00	0.00	7,162.00	-264.02	-192.59	1,613,425.44	2,300,412.09	39.49142	-107.97920
Cameo Coals									
7,200.00	0.00	0.00	7,190.39	-264.02	-192.59	1,613,425.44	2,300,412.09	39.49142	-107.97920
7,400.00	0.00	0.00	7,390.39	-264.02	-192.59	1,613,425.44	2,300,412.09	39.49142	-107.97920
7,600.00	0.00	0.00	7,590.39	-264.02	-192.59	1,613,425.44	2,300,412.09	39.49142	-107.97920
7,800.00	0.00	0.00	7,790.39	-264.02	-192.59	1,613,425.44	2,300,412.09	39.49142	-107.97920
7,911.61	0.00	0.00	7,902.00	-264.02	-192.59	1,613,425.44	2,300,412.09	39.49142	-107.97920
Rollins SS									
8,000.00	0.00	0.00	7,990.39	-264.02	-192.59	1,613,425.44	2,300,412.09	39.49142	-107.97920
8,011.61	0.00	0.00	8,002.00	-264.02	-192.59	1,613,425.44	2,300,412.09	39.49142	-107.97920
TD at 8011.61 - 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	5,902.00	-264.02	-192.59	1,613,425.44	2,300,412.09	39.49142	-107.97920
- plan hits target center									
- Circle (radius 50.00)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
2,365.78	2,362.00	9 5/8"	9.625	12.250	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,165.42	2,162.00	Top of "G" Sand				
2,265.60	2,262.00	Base of "G" Sand				
4,419.42	4,412.00	Mesaverde				
5,911.61	5,902.00	Approx. Top Gas				
7,171.61	7,162.00	Cameo Coals				
7,911.61	7,902.00	Rollins SS				
8,011.61	8,002.00	TD				



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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 444-27	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 Build 2.00
290.55	290.44	-4.10	-2.99	Hold 3.41 Inclination
5,584.22	5,574.74	-258.55	-188.60	Start Drop -1.50
5,811.61	5,802.00	-264.02	-192.59	Vertical
5,911.61	5,902.00	-264.02	-192.59	Top Gas
8,011.61	8,002.00	-264.02	-192.59	TD at 8011.61