



PICEANCE VLY NAD 83

PA 21-06S-095W

PA 22-21 Pad

PA 24-16 - Slot 2B11

Wellbore #1

Plan: Design #3 15Nov12 kjs

Standard Planning Report - Geographic

11 March, 2013



WPX Energy
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well PA 24-16 - Slot 2B11
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 6056.00usft (Nabors 26')
Project:	PA 21-06S-095W	MD Reference:	KELLY BUSHING @ 6056.00usft (Nabors 26')
Site:	PA 22-21 Pad	North Reference:	True
Well:	PA 24-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 15Nov12 kjs		

Project	PA 21-06S-095W, Garfield County, CO, 21-06S-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 22-21 Pad			
Site Position:		Northing:	1,620,701.00 usft	Latitude: 39.51079
From: Map		Easting:	2,292,437.50 usft	Longitude: -108.00815
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence: -1.58 °

Well	PA 24-16 - Slot 2B11			
Well Position	+N/-S	0.00 usft	Northing:	1,620,591.40 usft
	+E/-W	0.00 usft	Easting:	2,292,434.20 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	
			Ground Level:	6,030.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/6/2012	10.23	65.72	52,157

Design	Design #3 15Nov12 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	17.82

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	0.00	
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00	
220.00	1.50	280.00	219.99	0.23	-1.29	1.50	1.50	0.00	280.00	
600.14	1.50	280.00	600.00	1.96	-11.09	0.00	0.00	0.00	0.00	
1,177.63	12.00	349.13	1,173.02	62.43	-29.92	2.00	1.82	11.97	436.00	
2,347.74	33.44	16.73	2,248.47	496.74	40.93	2.00	1.83	2.36	40.00	
4,562.10	33.44	16.73	4,096.19	1,665.48	392.17	0.00	0.00	0.00	0.00	
4,787.43	33.44	24.91	4,284.31	1,781.31	436.22	2.00	0.00	3.63	93.47	
5,837.21	33.44	24.91	5,160.31	2,306.00	679.87	0.00	0.00	0.00	0.00	
7,509.22	0.00	226.65	6,739.00	2,736.11	879.61	2.00	-2.00	-9.46	-180.00	Top Gas (25' Radius)
9,609.22	0.00	226.65	8,839.00	2,736.11	879.60	0.00	0.00	0.00	0.00	TD / PBHL PA 24-16



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Project:	PA 21-06S-095W	MD Reference:	KELLY BUSHING @ 6056.00usft (Nabors 26')
Site:	PA 22-21 Pad	North Reference:	True
Well:	PA 24-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 15Nov12 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	1,620,591.40	2,292,434.20	39.51049	-108.00815	
120.00	0.00	0.00	120.00	0.00	0.00	1,620,591.40	2,292,434.20	39.51049	-108.00815	
Start Build 1.50										
220.00	1.50	280.00	219.99	0.23	-1.29	1,620,591.66	2,292,432.92	39.51049	-108.00816	
Hold 1.50 Inc, 280° azi										
500.00	1.50	280.00	499.89	1.50	-8.51	1,620,593.13	2,292,425.74	39.51049	-108.00818	
600.14	1.50	280.00	600.00	1.96	-11.09	1,620,593.66	2,292,423.17	39.51049	-108.00819	
KOP 2°/100										
1,000.00	8.48	346.19	998.25	31.56	-23.30	1,620,623.59	2,292,411.78	39.51057	-108.00824	
1,177.63	12.00	349.13	1,173.02	62.43	-29.92	1,620,654.62	2,292,406.02	39.51066	-108.00826	
Begin 2°/100 Build & Turn										
1,500.00	17.43	3.07	1,484.80	143.64	-33.65	1,620,735.91	2,292,404.53	39.51088	-108.00827	
2,000.00	26.74	12.99	1,947.75	328.52	-4.28	1,620,919.89	2,292,438.99	39.51139	-108.00817	
2,347.74	33.44	16.73	2,248.47	496.74	40.93	1,621,086.79	2,292,488.83	39.51185	-108.00801	
Hold 33.44 Inc, 16.73° azi										
2,448.00	33.44	16.73	2,332.13	549.65	56.84	1,621,139.25	2,292,506.18	39.51200	-108.00795	
9 5/8"										
2,500.00	33.44	16.73	2,375.52	577.10	65.08	1,621,166.46	2,292,515.19	39.51207	-108.00792	
3,000.00	33.44	16.73	2,792.73	841.00	144.39	1,621,428.06	2,292,601.75	39.51280	-108.00764	
3,103.39	33.44	16.73	2,879.00	895.57	160.79	1,621,482.15	2,292,619.65	39.51295	-108.00758	
Top of "G" Sand										
3,223.23	33.44	16.73	2,979.00	958.82	179.80	1,621,544.85	2,292,640.39	39.51312	-108.00752	
Base of "G" Sand										
3,500.00	33.44	16.73	3,209.94	1,104.90	223.70	1,621,689.66	2,292,688.31	39.51352	-108.00736	
4,000.00	33.44	16.73	3,627.16	1,368.80	303.01	1,621,951.26	2,292,774.87	39.51424	-108.00708	
4,500.00	33.44	16.73	4,044.37	1,632.70	382.32	1,622,212.86	2,292,861.43	39.51497	-108.00680	
4,562.10	33.44	16.73	4,096.19	1,665.48	392.17	1,622,245.35	2,292,872.18	39.51506	-108.00676	
Begin 2°/100 Build & turn										
4,787.43	33.44	24.91	4,284.31	1,781.31	436.22	1,622,359.92	2,292,919.40	39.51538	-108.00661	
Hold 24.9° azi										
5,000.00	33.44	24.91	4,461.69	1,887.56	485.55	1,622,464.76	2,292,971.65	39.51567	-108.00643	
5,500.00	33.44	24.91	4,878.92	2,137.46	601.60	1,622,711.35	2,293,094.55	39.51636	-108.00602	
5,837.21	33.44	24.91	5,160.31	2,306.00	679.87	1,622,877.66	2,293,177.44	39.51682	-108.00574	
Begin 2°/100 Drop										
5,859.55	32.99	24.91	5,179.00	2,317.10	685.02	1,622,888.61	2,293,182.90	39.51685	-108.00573	
Mesaverde										
6,000.00	30.18	24.91	5,298.63	2,383.82	716.01	1,622,954.45	2,293,215.71	39.51703	-108.00562	
6,500.00	20.18	24.91	5,750.53	2,576.54	805.51	1,623,144.62	2,293,310.49	39.51756	-108.00530	
7,000.00	10.18	24.91	6,232.46	2,695.17	860.59	1,623,261.68	2,293,368.83	39.51789	-108.00510	
7,500.00	0.18	24.90	6,729.78	2,736.10	879.60	1,623,302.07	2,293,388.96	39.51800	-108.00504	
7,509.22	0.00	226.65	6,739.00	2,736.11	879.61	1,623,302.08	2,293,388.96	39.51800	-108.00504	
Top Gas - Approx. Top Gas										
8,000.00	0.00	226.65	7,229.78	2,736.11	879.60	1,623,302.08	2,293,388.96	39.51800	-108.00504	
8,500.00	0.00	226.65	7,729.78	2,736.11	879.60	1,623,302.08	2,293,388.96	39.51800	-108.00504	
8,629.22	0.00	226.65	7,859.00	2,736.11	879.60	1,623,302.08	2,293,388.96	39.51800	-108.00504	
Cameo Coals										
9,000.00	0.00	226.65	8,229.78	2,736.11	879.60	1,623,302.08	2,293,388.96	39.51800	-108.00504	
9,500.00	0.00	226.65	8,729.78	2,736.11	879.60	1,623,302.08	2,293,388.96	39.51800	-108.00504	
9,509.22	0.00	226.65	8,739.00	2,736.11	879.60	1,623,302.08	2,293,388.96	39.51800	-108.00504	
Rollins SS										



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Site:	PA 22-21 Pad	North Reference:	True
Well:	PA 24-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 15Nov12 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
9,609.22	0.00	226.65	8,839.00	2,736.11	879.60	1,623,302.08	2,293,388.96	39.51800	-108.00504
TD									

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 (25' Radius) P/ - plan hits target center - Circle (radius 25.00)	0.00	0.00	6,739.00	2,736.11	879.61	1,623,302.08	2,293,388.96	39.51800	-108.00504
TD / PBHL PA 24-16 - plan hits target center - Point	0.00	0.00	8,839.00	2,736.11	879.60	1,623,302.08	2,293,388.96	39.51800	-108.00504

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
2,448.00	2,332.13	9 5/8"	9.625	13.500	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,103.39	2,879.00	Top of "G" Sand				
3,223.23	2,979.00	Base of "G" Sand				
5,859.55	5,179.00	Mesaverde				
7,509.22	6,739.00	Approx. Top Gas				
8,629.22	7,859.00	Cameo Coals				
9,509.22	8,739.00	Rollins SS				
9,609.22	8,839.00	TD				



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Well:	PA 24-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 15Nov12 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 1.50
220.00	219.99	0.23	-1.29	Hold 1.50 Inc, 280° azi
600.14	600.00	1.96	-11.09	KOP 2°/100
1,177.63	1,173.02	62.43	-29.92	Begin 2°/100 Build & Turn
2,347.74	2,248.47	496.74	40.93	Hold 33.44 Inc, 16.73° azi
4,562.10	4,096.19	1,665.48	392.17	Begin 2°/100 Build & turn
4,787.43	4,284.31	1,781.31	436.22	Hold 24.9° azi
5,837.21	5,160.31	2,306.00	679.87	Begin 2°/100 Drop
7,509.22	6,739.00	2,736.11	879.61	Top Gas
9,609.22	8,839.00	2,736.11	879.60	TD at 9609.22