

PICEANCE VLY NAD 83

PA 27-06S-095W

DOE 2-W-27 Pad

PA 31-27 - Slot B03

Wellbore #1

Plan: Design #3 23Apr14 mab

Standard Planning Report - Geographic

02 June, 2014

WPX
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well PA 31-27 - Slot B03
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 5882.00usft (Nabors 576 (26' RKB) mab)
Project:	PA 27-06S-095W	MD Reference:	KELLY BUSHING @ 5882.00usft (Nabors 576 (26' RKB) mab)
Site:	DOE 2-W-27 Pad	North Reference:	True
Well:	PA 31-27	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 23Apr14 mab		

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	DOE 2-W-27 Pad			
Site Position:		Northing:	1,615,065.30000 usft	Latitude: 39.49596
From: Map		Easting:	2,300,864.40000 usft	Longitude: -107.97775
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence: -1.56 °

Well	PA 31-27 - Slot B03			
Well Position	+N/-S	0.00 usft	Northing:	1,615,095.80278 usft
	+E/-W	0.00 usft	Easting:	2,300,855.79482 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	Ground Level: 5,856.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2000	12/31/2004	11.44	65.99	53,052

Design	Design #3 23Apr14 mab			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (bearing)
	0.00	0.00	0.00	317.91

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	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	
140.00	0.00	0.00	140.00	0.00	0.00	0.00	0.00	0.00	0.00	
985.93	21.15	317.91	966.85	114.54	-103.46	2.50	2.50	0.00	317.91	
5,220.17	21.15	317.91	4,915.92	1,248.19	-1,127.44	0.00	0.00	0.00	0.00	
6,630.05	0.00	0.00	6,294.00	1,439.09	-1,299.88	1.50	-1.50	0.00	180.00	
6,730.05	0.00	0.00	6,394.00	1,439.09	-1,299.88	0.00	0.00	0.00	0.00	Top Gas (50' Radius)
9,010.05	0.00	0.00	8,674.00	1,439.09	-1,299.88	0.00	0.00	0.00	0.00	

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Site:	DOE 2-W-27 Pad	North Reference:	True
Well:	PA 31-27	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 23Apr14 mab		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	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	1,615,095.80278	2,300,855.79482	39.49604	-107.97778
140.00	0.00	0.00	140.00	0.00	0.00	1,615,095.80278	2,300,855.79482	39.49604	-107.97778
Start Build 2.50									
200.00	1.50	317.91	199.99	0.58	-0.53	1,615,096.39970	2,300,855.28451	39.49604	-107.97779
400.00	6.50	317.91	399.44	10.93	-9.88	1,615,107.00020	2,300,846.22202	39.49607	-107.97782
600.00	11.50	317.91	596.92	34.14	-30.84	1,615,130.77267	2,300,825.89865	39.49613	-107.97789
800.00	16.50	317.91	790.92	70.04	-63.26	1,615,167.53618	2,300,794.46907	39.49623	-107.97801
985.93	21.15	317.91	966.85	114.54	-103.46	1,615,213.12128	2,300,755.49782	39.49635	-107.97815
Hold 21.15° Inc, 317.91° Az									
1,000.00	21.15	317.91	979.97	118.31	-106.87	1,615,216.98035	2,300,752.19866	39.49636	-107.97816
1,200.00	21.15	317.91	1,166.50	171.86	-155.23	1,615,271.82362	2,300,705.31248	39.49651	-107.97833
1,400.00	21.15	317.91	1,353.03	225.40	-203.60	1,615,326.66690	2,300,658.42629	39.49666	-107.97851
1,600.00	21.15	317.91	1,539.56	278.95	-251.97	1,615,381.51018	2,300,611.54011	39.49681	-107.97868
1,800.00	21.15	317.91	1,726.10	332.50	-300.33	1,615,436.35347	2,300,564.65393	39.49695	-107.97885
2,000.00	21.15	317.91	1,912.63	386.04	-348.70	1,615,491.19675	2,300,517.76774	39.49710	-107.97902
2,200.00	21.15	317.91	2,099.16	439.59	-397.06	1,615,546.04003	2,300,470.88157	39.49725	-107.97919
2,400.00	21.15	317.91	2,285.69	493.14	-445.43	1,615,600.88331	2,300,423.99539	39.49739	-107.97936
2,600.00	21.15	317.91	2,472.22	546.68	-493.80	1,615,655.72659	2,300,377.10920	39.49754	-107.97953
2,696.27	21.15	317.91	2,562.00	572.46	-517.08	1,615,682.12489	2,300,354.54097	39.49761	-107.97962
Top of "G" Sand									
2,800.00	21.15	317.91	2,658.75	600.23	-542.16	1,615,710.56987	2,300,330.22302	39.49769	-107.97971
2,857.10	21.15	317.91	2,712.00	615.52	-555.97	1,615,726.22765	2,300,316.83699	39.49773	-107.97975
Base of "G" Sand									
2,910.71	21.15	317.91	2,762.00	629.87	-568.94	1,615,740.92857	2,300,304.26899	39.49777	-107.97980
9 5/8"									
3,000.00	21.15	317.91	2,845.28	653.78	-590.53	1,615,765.41315	2,300,283.33684	39.49783	-107.97988
3,200.00	21.15	317.91	3,031.81	707.32	-638.90	1,615,820.25643	2,300,236.45065	39.49798	-107.98005
3,400.00	21.15	317.91	3,218.34	760.87	-687.26	1,615,875.09971	2,300,189.56447	39.49813	-107.98022
3,600.00	21.15	317.91	3,404.87	814.42	-735.63	1,615,929.94300	2,300,142.67828	39.49828	-107.98039
3,800.00	21.15	317.91	3,591.40	867.96	-784.00	1,615,984.78628	2,300,095.79210	39.49842	-107.98056
4,000.00	21.15	317.91	3,777.93	921.51	-832.36	1,616,039.62956	2,300,048.90593	39.49857	-107.98073
4,200.00	21.15	317.91	3,964.46	975.05	-880.73	1,616,094.47283	2,300,002.01974	39.49872	-107.98091
4,400.00	21.15	317.91	4,150.99	1,028.60	-929.09	1,616,149.31611	2,299,955.13356	39.49886	-107.98108
4,600.00	21.15	317.91	4,337.52	1,082.15	-977.46	1,616,204.15940	2,299,908.24738	39.49901	-107.98125
4,800.00	21.15	317.91	4,524.05	1,135.69	-1,025.83	1,616,259.00268	2,299,861.36119	39.49916	-107.98142
5,000.00	21.15	317.91	4,710.58	1,189.24	-1,074.19	1,616,313.84596	2,299,814.47501	39.49930	-107.98159
5,200.00	21.15	317.91	4,897.11	1,242.79	-1,122.56	1,616,368.68924	2,299,767.58883	39.49945	-107.98176
5,220.17	21.15	317.91	4,915.92	1,248.19	-1,127.44	1,616,374.22000	2,299,762.86051	39.49947	-107.98178
Begin Drop -1.50°/100									
5,258.78	20.57	317.91	4,952.00	1,258.39	-1,136.65	1,616,384.66980	2,299,753.92685	39.49949	-107.98181
Mesaverde									
5,400.00	18.45	317.91	5,085.10	1,293.39	-1,168.26	1,616,420.51408	2,299,723.28315	39.49959	-107.98192
5,600.00	15.45	317.91	5,276.39	1,336.65	-1,207.34	1,616,464.82813	2,299,685.39853	39.49971	-107.98206
5,800.00	12.45	317.91	5,470.47	1,372.43	-1,239.66	1,616,501.47224	2,299,654.07104	39.49981	-107.98218
6,000.00	9.45	317.91	5,666.81	1,400.62	-1,265.12	1,616,530.34594	2,299,629.38656	39.49988	-107.98227
6,200.00	6.45	317.91	5,864.86	1,421.15	-1,283.67	1,616,551.37011	2,299,611.41275	39.49994	-107.98233
6,400.00	3.45	317.91	6,064.09	1,433.95	-1,295.23	1,616,564.48711	2,299,600.19886	39.49998	-107.98237
6,600.00	0.45	317.91	6,263.95	1,439.01	-1,299.80	1,616,569.66100	2,299,595.77565	39.49999	-107.98239
6,630.05	0.00	0.00	6,294.00	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239
Vertical									

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Well:	PA 31-27	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 23Apr14 mab		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,730.05	0.00	0.00	6,394.00	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239
Top Gas - Approx. Top Gas									
6,800.00	0.00	0.00	6,463.95	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239
7,000.00	0.00	0.00	6,663.95	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239
7,200.00	0.00	0.00	6,863.95	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239
7,400.00	0.00	0.00	7,063.95	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239
7,600.00	0.00	0.00	7,263.95	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239
7,800.00	0.00	0.00	7,463.95	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239
8,000.00	0.00	0.00	7,663.95	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239
8,128.05	0.00	0.00	7,792.00	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239
Cameo Coals									
8,200.00	0.00	0.00	7,863.95	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239
8,400.00	0.00	0.00	8,063.95	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239
8,600.00	0.00	0.00	8,263.95	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239
8,800.00	0.00	0.00	8,463.95	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239
8,860.05	0.00	0.00	8,524.00	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239
Rollins SS									
9,000.00	0.00	0.00	8,663.95	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239
9,010.05	0.00	0.00	8,674.00	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239
TD at 9010.05 - TD									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (bearing)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Top Gas (50' Radius) PA - plan hits target center - Circle (radius 50.00)	0.00	0.00	6,394.00	1,439.09	-1,299.88	1,616,569.75083	2,299,595.69885	39.49999	-107.98239

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
2,910.71	2,762.00	9 5/8"	9.625	13.500	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (bearing)	
2,696.27	2,562.00	Top of "G" Sand		0.00		
2,857.10	2,712.00	Base of "G" Sand				
5,258.78	4,952.00	Mesaverde				
6,730.05	6,394.00	Approx. Top Gas				
8,128.05	7,792.00	Cameo Coals				
8,860.05	8,524.00	Rollins SS				
9,010.05	8,674.00	TD				

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Site:	DOE 2-W-27 Pad	North Reference:	True
Well:	PA 31-27	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 23Apr14 mab		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
140.00	140.00	0.00	0.00	Start Build 2.50
985.93	966.85	114.54	-103.46	Hold 21.15° Inc, 317.91° Az
5,220.17	4,915.92	1,248.19	-1,127.44	Begin Drop -1.50°/100
6,630.05	6,294.00	1,439.09	-1,299.88	Vertical
6,730.05	6,394.00	1,439.09	-1,299.88	Top Gas
9,010.05	8,674.00	1,439.09	-1,299.88	TD at 9010.05