

WESTERN DIVISION

PBNM

Norwalk

Thistle Unit 130H

Wellbore #1

Design #1

HOBBS OCD

DEC 05 2016

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Anticollision Report

03 October, 2016

Devon Energy
Anticollision Report

Company:	WESTERN DIVISION	Local Co-ordinate Reference:	Well Thistle Unit 130H
Project:	PBNM	TVD Reference:	RKB @ 3655.80ft
Reference Site:	Norwalk	MD Reference:	RKB @ 3655.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Thistle Unit 130H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000 US Production
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference	Design #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.00 ft	Error Surface:	Combined Covariances
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	9/1/2016		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,628.14	Design #1 (Wellbore #1)	MWD	MWD - Standard	

Summary		Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Site Name	Offset Well - Wellbore - Design						
Norwalk							
Thistle Unit 129H - Wellbore #1 - Design #1		3,300.02	3,300.22	30.27	19.98	2.942	CC, ES
Thistle Unit 129H - Wellbore #1 - Design #1		3,400.00	3,400.24	31.06	20.49	2.937	SF
Thistle Unit 147H - Wellbore #1 - Design #1		3,300.00	3,300.50	60.59	50.30	5.887	CC, ES
Thistle Unit 147H - Wellbore #1 - Design #1		17,628.14	17,161.81	967.59	778.90	5.128	SF

Norwalk - Thistle Unit 129H - Wellbore #1 - Design #1												Offset Site Error: 0.00 ft			
Survey Program: 0-MWD														Offset Well Error: 0.00 ft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
0.00	0.00	0.20	0.20	0.00	0.00	-82.75	3.82	-30.03	30.27						
100.00	100.00	100.20	100.20	0.08	0.08	-82.75	3.82	-30.03	30.27	30.15	0.12	253.283			
200.00	200.00	200.20	200.20	0.31	0.31	-82.75	3.82	-30.03	30.27	29.83	0.44	69.211			
300.00	300.00	300.20	300.20	0.53	0.53	-82.75	3.82	-30.03	30.27	29.52	0.76	40.082			
400.00	400.00	400.20	400.20	0.76	0.76	-82.75	3.82	-30.03	30.27	29.20	1.07	28.209			
500.00	500.00	500.20	500.20	0.98	0.98	-82.75	3.82	-30.03	30.27	28.88	1.39	21.763			
600.00	600.00	600.20	600.20	1.21	1.21	-82.75	3.82	-30.03	30.27	28.56	1.71	17.715			
700.00	700.00	700.20	700.20	1.43	1.43	-82.75	3.82	-30.03	30.27	28.25	2.03	14.936			
800.00	800.00	800.20	800.20	1.66	1.66	-82.75	3.82	-30.03	30.27	27.93	2.34	12.911			
900.00	900.00	900.20	900.20	1.88	1.88	-82.75	3.82	-30.03	30.27	27.61	2.66	11.370			
1,000.00	1,000.00	1,000.20	1,000.20	2.11	2.11	-82.75	3.82	-30.03	30.27	27.29	2.98	10.157			
1,100.00	1,100.00	1,100.20	1,100.20	2.33	2.33	-82.75	3.82	-30.03	30.27	26.97	3.30	9.178			
1,200.00	1,200.00	1,200.20	1,200.20	2.56	2.56	-82.75	3.82	-30.03	30.27	26.66	3.62	8.372			
1,300.00	1,300.00	1,300.20	1,300.20	2.78	2.78	-82.75	3.82	-30.03	30.27	26.34	3.93	7.695			
1,400.00	1,400.00	1,400.20	1,400.20	3.01	3.01	-82.75	3.82	-30.03	30.27	26.02	4.25	7.120			
1,500.00	1,500.00	1,500.20	1,500.20	3.23	3.23	-82.75	3.82	-30.03	30.27	25.70	4.57	6.625			
1,600.00	1,600.00	1,600.20	1,600.20	3.46	3.46	-82.75	3.82	-30.03	30.27	25.38	4.89	6.194			
1,700.00	1,700.00	1,700.20	1,700.20	3.68	3.68	-82.75	3.82	-30.03	30.27	25.07	5.21	5.816			
1,800.00	1,800.00	1,800.20	1,800.20	3.91	3.91	-82.75	3.82	-30.03	30.27	24.75	5.52	5.481			
1,900.00	1,900.00	1,900.20	1,900.20	4.13	4.13	-82.75	3.82	-30.03	30.27	24.43	5.84	5.183			
2,000.00	2,000.00	2,000.20	2,000.20	4.35	4.36	-82.75	3.82	-30.03	30.27	24.11	6.16	4.915			
2,100.00	2,100.00	2,100.20	2,100.20	4.58	4.58	-82.75	3.82	-30.03	30.27	23.80	6.48	4.674			
2,200.00	2,200.00	2,200.20	2,200.20	4.80	4.80	-82.75	3.82	-30.03	30.27	23.48	6.79	4.455			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Devon Energy

Anticollision Report

Company:	WESTERN DIVISION	Local Co-ordinate Reference:	Well Thistle Unit 130H
Project:	PBNM	TVD Reference:	RKB @ 3655.80ft
Reference Site:	Norwalk	MD Reference:	RKB @ 3655.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Thistle Unit 130H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000 US Production
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Norwalk - Thistle Unit 129H - Wellbore #1 - Design #1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (')	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
2,300.00	2,300.00	2,300.20	2,300.20	5.03	5.03	-82.75	3.82	-30.03	30.27	23.16	7.11	4.256		
2,400.00	2,400.00	2,400.20	2,400.20	5.25	5.25	-82.75	3.82	-30.03	30.27	22.84	7.43	4.074		
2,500.00	2,500.00	2,500.20	2,500.20	5.48	5.48	-82.75	3.82	-30.03	30.27	22.52	7.75	3.907		
2,600.00	2,600.00	2,600.20	2,600.20	5.70	5.70	-82.75	3.82	-30.03	30.27	22.21	8.07	3.753		
2,700.00	2,700.00	2,700.20	2,700.20	5.93	5.93	-82.75	3.82	-30.03	30.27	21.89	8.38	3.611		
2,800.00	2,800.00	2,800.20	2,800.20	6.15	6.15	-82.75	3.82	-30.03	30.27	21.57	8.70	3.479		
2,900.00	2,900.00	2,900.20	2,900.20	6.38	6.38	-82.75	3.82	-30.03	30.27	21.25	9.02	3.356		
3,000.00	3,000.00	3,000.20	3,000.20	6.60	6.60	-82.75	3.82	-30.03	30.27	20.93	9.34	3.242		
3,100.00	3,100.00	3,100.20	3,100.20	6.83	6.83	-82.75	3.82	-30.03	30.27	20.62	9.66	3.135		
3,200.00	3,200.00	3,200.20	3,200.20	7.05	7.05	-82.75	3.82	-30.03	30.27	20.30	9.97	3.035		
3,300.00	3,300.00	3,300.20	3,300.20	7.28	7.28	-82.75	3.82	-30.03	30.27	19.98	10.29	2.942		
3,300.02	3,300.02	3,300.22	3,300.22	7.28	7.28	-82.75	3.82	-30.03	30.27	19.98	10.29	2.942	CC, ES	
3,400.00	3,399.99	3,400.24	3,400.24	7.49	7.47	-174.16	3.16	-30.03	31.06	20.49	10.58	2.937	SF	
3,500.00	3,499.96	3,500.21	3,500.19	7.69	7.64	-177.95	1.20	-30.03	33.54	22.71	10.84	3.095		
3,600.00	3,599.86	3,600.06	3,599.98	7.89	7.81	176.86	-2.07	-30.03	37.94	26.84	11.10	3.419		
3,700.00	3,699.68	3,699.71	3,699.53	8.09	7.99	171.40	-6.63	-30.03	44.49	33.13	11.36	3.916		
3,800.00	3,799.37	3,799.26	3,798.94	8.30	8.16	167.07	-11.84	-30.03	53.17	41.54	11.63	4.573		
3,900.00	3,898.90	3,898.67	3,898.21	8.52	8.34	164.38	-17.05	-30.03	63.75	51.85	11.90	5.357		
4,000.00	3,998.26	3,997.89	3,997.29	8.74	8.52	162.85	-22.24	-30.03	76.07	63.90	12.17	6.248		
4,100.00	4,097.40	4,096.89	4,096.17	8.97	8.71	162.07	-27.42	-30.03	90.08	77.62	12.45	7.233		
4,200.00	4,196.43	4,195.78	4,194.92	9.21	8.89	161.69	-32.60	-30.03	104.91	92.18	12.73	8.238		
4,300.00	4,295.46	4,294.68	4,293.68	9.45	9.08	161.40	-37.77	-30.03	119.75	106.74	13.02	9.198		
4,400.00	4,394.48	4,393.57	4,392.43	9.70	9.28	161.18	-42.95	-30.03	134.60	121.29	13.31	10.114		
4,500.00	4,493.51	4,492.46	4,491.19	9.96	9.47	161.00	-48.12	-30.03	149.44	135.84	13.60	10.989		
4,600.00	4,592.54	4,591.35	4,589.94	10.22	9.67	160.85	-53.30	-30.03	164.29	150.39	13.89	11.826		
4,700.00	4,691.56	4,690.24	4,688.70	10.48	9.87	160.73	-58.47	-30.03	179.13	164.94	14.19	12.625		
4,800.00	4,790.59	4,789.88	4,788.23	10.75	10.08	160.77	-63.16	-30.03	193.81	179.31	14.50	13.369		
4,900.00	4,889.62	4,889.69	4,887.98	11.02	10.30	161.15	-68.56	-30.03	208.07	193.26	14.81	14.047		
5,000.00	4,988.64	4,989.58	4,987.85	11.30	10.53	161.80	-73.66	-30.03	222.93	206.81	15.13	14.671		
5,100.00	5,087.67	5,089.51	5,087.78	11.58	10.73	162.68	-78.45	-30.03	235.44	220.01	15.43	15.257		
5,200.00	5,186.70	5,188.63	5,186.90	11.86	10.94	163.64	-83.46	-30.03	248.77	233.04	15.73	15.813		
5,300.00	5,285.72	5,287.66	5,285.92	12.15	11.15	164.49	-88.46	-30.03	262.17	246.12	16.04	16.343		
5,400.00	5,384.75	5,386.69	5,384.95	12.43	11.37	165.27	-93.46	-30.03	275.61	259.26	16.35	16.855		
5,500.00	5,483.78	5,485.71	5,483.98	12.73	11.58	165.97	-98.46	-30.03	289.10	272.44	16.66	17.350		
5,600.00	5,582.81	5,584.74	5,583.01	13.02	11.80	166.61	-103.46	-30.03	302.63	285.65	16.97	17.829		
5,700.00	5,681.83	5,683.77	5,682.03	13.31	12.02	167.19	-108.46	-30.03	316.19	298.90	17.29	18.291		
5,800.00	5,780.86	5,782.79	5,781.06	13.61	12.24	167.73	-113.46	-30.03	329.78	312.18	17.60	18.738		
5,900.00	5,879.89	5,881.82	5,880.09	13.91	12.45	168.22	-118.46	-30.03	343.40	325.49	17.91	19.170		
6,000.00	5,978.91	5,980.85	5,979.11	14.21	12.67	168.68	-123.46	-30.03	357.04	338.81	18.23	19.588		
6,100.00	6,077.94	6,079.88	6,078.14	14.51	12.89	169.10	-128.46	-30.03	370.70	352.16	18.54	19.993		
6,200.00	6,176.97	6,178.90	6,177.17	14.82	13.11	169.49	-133.46	-30.03	384.38	365.52	18.86	20.384		
6,300.00	6,275.99	6,277.93	6,276.19	15.12	13.32	169.86	-138.46	-30.03	398.08	378.90	19.17	20.763		
6,400.00	6,375.02	6,376.96	6,375.22	15.43	13.54	170.20	-143.46	-30.03	411.79	392.30	19.49	21.129		
6,500.00	6,474.05	6,475.98	6,474.25	15.74	13.76	170.52	-148.46	-30.03	425.51	405.71	19.81	21.484		
6,600.00	6,573.07	6,575.01	6,573.27	16.05	13.98	170.81	-153.46	-30.03	439.25	419.13	20.12	21.828		
6,700.00	6,672.10	6,674.04	6,672.30	16.36	14.20	171.10	-158.46	-30.03	453.00	432.56	20.44	22.162		
6,800.00	6,771.13	6,773.06	6,771.33	16.67	14.42	171.36	-163.46	-30.03	466.75	446.00	20.76	22.485		
6,900.00	6,870.15	6,872.09	6,870.35	16.98	14.63	171.61	-168.46	-30.03	480.52	459.44	21.08	22.799		
7,000.00	6,969.18	6,971.12	6,969.38	17.29	14.85	171.84	-173.46	-30.03	494.30	472.90	21.40	23.103		
7,100.00	7,068.21	7,070.14	7,068.41	17.61	15.07	172.07	-178.46	-30.03	508.08	486.36	21.71	23.398		
7,200.00	7,167.23	7,169.17	7,167.43	17.92	15.29	172.28	-183.46	-30.03	521.87	499.84	22.03	23.685		
7,300.00	7,266.26	7,268.20	7,266.46	18.24	15.51	172.48	-188.46	-30.03	535.67	513.31	22.35	23.963		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

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Anticollision Report

Company:	WESTERN DIVISION	Local Co-ordinate Reference:	Well Thistle Unit 130H
Project:	PBNM	TVD Reference:	RKB @ 3655.80ft
Reference Site:	Norwalk	MD Reference:	RKB @ 3655.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Thistle Unit 130H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000 US Production
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Norwalk - Thistle Unit 129H - Wellbore #1 - Design #1												Offset Well Error:	0.00 ft
Survey Program: 0-MWD													
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,400.00	7,365.29	7,367.22	7,365.49	18.56	15.73	172.67	-69.46	-30.03	549.47	526.79	22.67	24.234	
7,500.00	7,464.31	7,466.25	7,464.51	18.87	15.95	172.85	-69.46	-30.03	563.28	540.28	22.99	24.497	
7,600.00	7,563.34	7,565.28	7,563.54	19.19	16.17	173.02	-69.46	-30.03	577.09	553.78	23.31	24.752	
7,700.00	7,662.37	7,664.30	7,662.57	19.51	16.39	173.18	-69.46	-30.03	590.91	567.27	23.64	25.001	
7,800.00	7,761.40	7,763.33	7,761.60	19.83	16.61	173.34	-69.46	-30.03	604.73	580.78	23.96	25.243	
7,900.00	7,860.42	7,862.36	7,860.62	20.15	16.83	173.49	-69.46	-30.03	618.56	594.28	24.28	25.478	
8,000.00	7,959.45	7,961.38	7,959.65	20.47	17.05	173.63	-69.46	-30.03	632.39	607.79	24.60	25.707	
8,100.00	8,058.48	8,060.41	8,058.68	20.79	17.27	173.77	-69.46	-30.03	646.23	621.30	24.92	25.930	
8,200.00	8,157.62	8,159.55	8,157.82	21.08	17.49	173.91	-69.46	-30.03	659.20	633.97	25.23	26.127	
8,300.00	8,256.97	8,258.91	8,257.17	21.32	17.71	174.02	-69.46	-30.03	670.46	644.94	25.53	26.267	
8,400.00	8,356.51	8,358.45	8,356.71	21.55	17.93	174.12	-69.46	-30.03	680.00	654.18	25.82	26.337	
8,500.00	8,456.20	8,458.14	8,456.40	21.76	18.15	174.19	-69.46	-30.03	687.80	661.69	26.11	26.341	
8,600.00	8,556.02	8,557.95	8,556.22	21.97	18.37	174.25	-69.46	-30.03	693.87	667.47	26.40	26.280	
8,700.00	8,655.92	8,657.86	8,656.12	22.16	18.59	174.29	-69.46	-30.03	698.22	671.52	26.69	26.157	
8,800.00	8,755.88	8,757.82	8,756.08	22.33	18.82	174.31	-69.46	-30.03	700.82	673.84	26.98	25.974	
8,900.00	8,855.88	8,857.82	8,856.08	22.50	19.04	-95.68	-69.46	-30.03	701.69	674.42	27.27	25.732	
9,000.00	8,955.88	8,957.81	8,956.08	22.67	19.26	-95.68	-69.46	-30.03	701.69	674.12	27.57	25.455	
9,100.00	9,055.88	9,057.81	9,056.08	22.86	19.48	-95.68	-69.46	-30.03	701.69	673.82	27.87	25.177	
9,200.00	9,155.88	9,157.81	9,156.08	23.04	19.71	-95.68	-69.46	-30.03	701.69	673.51	28.17	24.905	
9,300.00	9,255.88	9,257.81	9,256.08	23.23	19.93	-95.68	-69.46	-30.03	701.69	673.21	28.48	24.638	
9,400.00	9,355.88	9,357.81	9,356.08	23.42	20.15	-95.68	-69.46	-30.03	701.69	672.90	28.79	24.377	
9,500.00	9,455.88	9,457.81	9,456.08	23.60	20.37	-95.68	-69.46	-30.03	701.69	672.60	29.09	24.121	
9,540.00	9,495.88	9,498.73	9,496.99	23.68	20.47	-95.67	-69.35	-30.03	701.68	672.47	29.21	24.018	
9,550.00	9,505.88	9,509.65	9,507.91	23.70	20.49	-95.36	-69.05	-30.04	701.67	672.42	29.25	23.991	
9,580.31	9,536.15	9,542.72	9,540.91	23.75	20.56	-95.30	-66.85	-30.11	701.66	672.31	29.34	23.913	
9,600.00	9,555.77	9,564.19	9,562.23	23.79	20.60	-95.25	-64.40	-30.18	701.66	672.26	29.40	23.864	
9,650.00	9,605.20	9,618.57	9,615.70	23.88	20.72	-95.10	-54.65	-30.47	701.74	672.19	29.55	23.749	
9,700.00	9,653.81	9,672.75	9,667.83	23.98	20.83	-94.90	-39.94	-30.91	701.89	672.21	29.69	23.642	
9,750.00	9,701.21	9,726.69	9,718.11	24.07	20.94	-94.67	-20.47	-31.48	702.14	672.32	29.82	23.542	
9,800.00	9,747.05	9,780.36	9,766.10	24.16	21.05	-94.40	3.50	-32.20	702.47	672.51	29.96	23.445	
9,850.00	9,790.97	9,833.73	9,811.39	24.26	21.14	-94.10	31.68	-33.03	702.90	672.79	30.11	23.346	
9,900.00	9,832.66	9,886.77	9,853.61	24.35	21.24	-93.76	63.74	-33.98	703.41	673.15	30.26	23.242	
9,950.00	9,871.77	9,939.45	9,892.43	24.45	21.36	-93.40	99.31	-35.04	704.02	673.58	30.44	23.127	
10,000.00	9,908.03	9,991.78	9,927.59	24.55	21.50	-93.01	138.02	-36.19	704.72	674.08	30.64	22.998	
10,050.00	9,941.15	10,043.72	9,958.86	24.67	21.66	-92.60	179.45	-37.42	705.50	674.63	30.87	22.852	
10,100.00	9,970.88	10,095.27	9,986.06	24.79	21.85	-92.17	223.21	-38.72	706.37	675.24	31.14	22.686	
10,150.00	9,997.00	10,146.43	10,009.05	24.94	22.06	-91.73	268.88	-40.07	707.33	675.89	31.44	22.500	
10,200.00	10,019.30	10,197.20	10,027.75	25.11	22.30	-91.27	316.04	-41.48	708.35	676.58	31.78	22.292	
10,250.00	10,037.62	10,247.58	10,042.10	25.30	22.57	-90.81	364.29	-42.91	709.45	677.30	32.15	22.066	
10,300.00	10,051.82	10,297.57	10,052.10	25.52	22.86	-90.35	413.24	-44.36	710.60	678.04	32.56	21.821	
10,350.00	10,061.79	10,347.19	10,057.77	25.77	23.18	-89.88	462.49	-45.82	711.81	678.80	33.01	21.563	
10,400.00	10,067.44	10,396.57	10,059.22	26.06	23.52	-89.42	511.81	-47.29	713.06	679.58	33.49	21.293	
10,441.11	10,068.84	10,437.63	10,059.20	26.32	23.84	-89.21	552.86	-48.51	714.09	680.16	33.92	21.050	
10,500.00	10,068.73	10,496.51	10,059.16	26.73	24.30	-89.22	611.71	-50.25	715.52	680.95	34.58	20.694	
10,600.00	10,068.53	10,596.48	10,059.10	27.52	25.19	-89.23	711.63	-53.22	717.96	682.14	35.82	20.045	
10,700.00	10,068.34	10,696.45	10,059.05	28.41	26.18	-89.24	811.56	-56.19	720.40	683.20	37.20	19.365	
10,800.00	10,068.15	10,796.42	10,058.99	29.40	27.25	-89.26	911.49	-59.15	722.84	684.13	38.71	18.673	
10,900.00	10,067.96	10,896.39	10,058.93	30.48	28.41	-89.27	1,011.41	-62.12	725.28	684.95	40.33	17.983	
11,000.00	10,067.76	10,996.36	10,058.87	31.62	29.63	-89.28	1,111.34	-65.09	727.73	685.68	42.05	17.306	
11,100.00	10,067.57	11,096.33	10,058.81	32.83	30.92	-89.29	1,211.26	-68.05	730.17	686.31	43.86	16.650	
11,200.00	10,067.38	11,196.30	10,058.75	34.10	32.26	-89.31	1,311.19	-71.02	732.61	686.87	45.74	16.018	
11,300.00	10,067.19	11,296.27	10,058.70	35.42	33.65	-89.32	1,411.12	-73.99	735.05	687.36	47.69	15.414	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Devon Energy

Anticollision Report

Company:	WESTERN DIVISION	Local Co-ordinate Reference:	Well Thistle Unit 130H
Project:	PBNM	TVD Reference:	RKB @ 3655.80ft
Reference Site:	Norwalk	MD Reference:	RKB @ 3655.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Thistle Unit 130H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000 US Production
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Norwalk - Thistle Unit 129H - Wellbore #1 - Design #1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
11,400.00	10,066.99	11,396.24	10,058.64	36.78	35.08	-89.33	1,511.04	-76.95	737.49	687.79		49.70	14.840	
11,500.00	10,066.80	11,496.21	10,058.58	38.18	36.55	-89.35	1,610.97	-79.92	739.93	688.17		51.76	14.296	
11,600.00	10,066.61	11,596.18	10,058.52	39.62	38.05	-89.36	1,710.89	-82.89	742.37	688.50		53.87	13.781	
11,700.00	10,066.42	11,696.15	10,058.46	41.09	39.58	-89.37	1,810.82	-85.85	744.81	688.79		56.02	13.296	
11,800.00	10,066.22	11,796.12	10,058.41	42.59	41.13	-89.38	1,910.75	-88.82	747.25	689.05		58.20	12.838	
11,900.00	10,066.03	11,896.09	10,058.35	44.12	42.71	-89.39	2,010.67	-91.79	749.69	689.27		60.42	12.407	
12,000.00	10,065.84	11,996.06	10,058.29	45.66	44.31	-89.41	2,110.60	-94.75	752.13	689.46		62.67	12.001	
12,100.00	10,065.65	12,096.03	10,058.23	47.23	45.92	-89.42	2,210.52	-97.72	754.57	689.63		64.95	11.618	
12,200.00	10,065.45	12,196.00	10,058.17	48.82	47.56	-89.43	2,310.45	-100.69	757.02	689.77		67.25	11.257	
12,300.00	10,065.26	12,295.97	10,058.11	50.42	49.21	-89.44	2,410.38	-103.66	759.46	689.89		69.57	10.917	
12,400.00	10,065.07	12,395.94	10,058.06	52.04	50.87	-89.45	2,510.30	-106.62	761.90	689.99		71.91	10.596	
12,500.00	10,064.88	12,495.91	10,058.00	53.67	52.54	-89.47	2,610.23	-109.59	764.34	690.07		74.26	10.292	
12,600.00	10,064.68	12,595.88	10,057.94	55.32	54.22	-89.48	2,710.15	-112.56	766.78	690.14		76.64	10.005	
12,700.00	10,064.49	12,695.85	10,057.88	56.97	55.92	-89.49	2,810.08	-115.52	769.22	690.20		79.02	9.734	
12,800.00	10,064.30	12,795.82	10,057.82	58.64	57.62	-89.50	2,910.01	-118.49	771.66	690.24		81.42	9.477	
12,900.00	10,064.10	12,895.79	10,057.76	60.32	59.33	-89.51	3,009.93	-121.46	774.10	690.27		83.84	9.234	
13,000.00	10,063.91	12,995.76	10,057.71	62.00	61.05	-89.52	3,109.86	-124.42	776.55	690.29		86.26	9.003	
13,100.00	10,063.72	13,095.73	10,057.65	63.70	62.78	-89.54	3,209.78	-127.39	778.99	690.30		88.69	8.783	
13,200.00	10,063.53	13,195.70	10,057.59	65.40	64.51	-89.55	3,309.71	-130.36	781.43	690.29		91.13	8.575	
13,300.00	10,063.33	13,295.67	10,057.53	67.11	66.25	-89.56	3,409.64	-133.32	783.87	690.28		93.58	8.376	
13,400.00	10,063.14	13,395.64	10,057.47	68.82	68.00	-89.57	3,509.56	-136.29	786.31	690.27		96.04	8.187	
13,500.00	10,062.95	13,495.61	10,057.42	70.54	69.75	-89.58	3,609.49	-139.26	788.75	690.24		98.51	8.007	
13,600.00	10,062.76	13,595.58	10,057.36	72.27	71.50	-89.59	3,709.41	-142.22	791.19	690.21		100.98	7.835	
13,700.00	10,062.56	13,695.55	10,057.30	74.00	73.26	-89.60	3,809.34	-145.19	793.64	690.17		103.46	7.671	
13,800.00	10,062.37	13,795.52	10,057.24	75.74	75.02	-89.61	3,909.27	-148.16	796.08	690.13		105.95	7.514	
13,900.00	10,062.18	13,895.49	10,057.18	77.48	76.79	-89.62	4,009.19	-151.12	798.52	690.08		108.44	7.364	
14,000.00	10,061.99	13,995.46	10,057.12	79.22	78.56	-89.64	4,109.12	-154.09	800.96	690.03		110.93	7.220	
14,100.00	10,061.79	14,095.43	10,057.07	80.97	80.33	-89.65	4,209.04	-157.06	803.40	689.97		113.43	7.083	
14,200.00	10,061.60	14,195.40	10,057.01	82.73	82.11	-89.66	4,308.97	-160.02	805.84	689.91		115.94	6.951	
14,300.00	10,061.41	14,295.37	10,056.95	84.48	83.89	-89.67	4,408.90	-162.99	808.28	689.84		118.44	6.824	
14,400.00	10,061.22	14,395.34	10,056.89	86.24	85.67	-89.68	4,508.82	-165.96	810.73	689.77		120.96	6.703	
14,500.00	10,061.02	14,495.31	10,056.83	88.00	87.46	-89.69	4,608.75	-168.92	813.17	689.70		123.47	6.586	
14,600.00	10,060.83	14,595.28	10,056.78	89.77	89.24	-89.70	4,708.67	-171.89	815.61	689.62		125.99	6.473	
14,700.00	10,060.64	14,695.25	10,056.72	91.54	91.03	-89.71	4,808.60	-174.86	818.05	689.54		128.52	6.365	
14,800.00	10,060.45	14,795.22	10,056.66	93.31	92.82	-89.72	4,908.53	-177.82	820.49	689.45		131.04	6.261	
14,900.00	10,060.25	14,895.19	10,056.60	95.08	94.62	-89.73	5,008.45	-180.79	822.94	689.37		133.57	6.161	
15,000.00	10,060.06	14,995.16	10,056.54	96.86	96.41	-89.74	5,108.38	-183.76	825.38	689.28		136.10	6.064	
15,100.00	10,059.87	15,095.13	10,056.48	98.64	98.21	-89.75	5,208.30	-186.72	827.82	689.18		138.64	5.971	
15,200.00	10,059.68	15,195.10	10,056.43	100.42	100.01	-89.76	5,308.23	-189.69	830.26	689.09		141.17	5.881	
15,300.00	10,059.48	15,295.07	10,056.37	102.20	101.81	-89.77	5,408.16	-192.66	832.70	688.99		143.71	5.794	
15,400.00	10,059.29	15,395.04	10,056.31	103.98	103.61	-89.78	5,508.08	-195.62	835.14	688.89		146.25	5.710	
15,500.00	10,059.10	15,495.01	10,056.25	105.77	105.41	-89.79	5,608.01	-198.59	837.59	688.79		148.79	5.629	
15,600.00	10,058.91	15,594.98	10,056.19	107.55	107.22	-89.80	5,707.93	-201.56	840.03	688.69		151.34	5.551	
15,700.00	10,058.71	15,694.95	10,056.14	109.34	109.02	-89.81	5,807.86	-204.53	842.47	688.58		153.89	5.475	
15,800.00	10,058.52	15,794.92	10,056.08	111.13	110.83	-89.82	5,907.79	-207.49	844.91	688.48		156.43	5.401	
15,900.00	10,058.33	15,894.89	10,056.02	112.92	112.64	-89.83	6,007.71	-210.46	847.36	688.37		158.98	5.330	
16,000.00	10,058.14	15,994.86	10,055.96	114.72	114.45	-89.84	6,107.64	-213.43	849.80	688.26		161.54	5.261	
16,100.00	10,057.94	16,094.83	10,055.90	116.51	116.26	-89.85	6,207.56	-216.39	852.24	688.15		164.09	5.194	
16,200.00	10,057.75	16,194.80	10,055.84	118.31	118.07	-89.86	6,307.49	-219.36	854.68	688.04		166.64	5.129	
16,300.00	10,057.56	16,294.77	10,055.79	120.10	119.88	-89.87	6,407.42	-222.33	857.12	687.92		169.20	5.066	
16,400.00	10,057.37	16,394.74	10,055.73	121.90	121.70	-89.87	6,507.34	-225.29	859.57	687.81		171.76	5.004	
16,500.00	10,057.17	16,494.71	10,055.67	123.70	123.51	-89.88	6,607.27	-228.26	862.01	687.69		174.32	4.945	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Devon Energy
Anticollision Report

Company:	WESTERN DIVISION	Local Co-ordinate Reference:	Well Thistle Unit 130H
Project:	PBNM	TVD Reference:	RKB @ 3655.80ft
Reference Site:	Norwalk	MD Reference:	RKB @ 3655.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Thistle Unit 130H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000 US Production
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design Norwalk - Thistle Unit 129H - Wellbore #1 - Design #1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
16,600.00	10,056.98	16,594.68	10,055.61	125.50	125.33	-89.89	6,707.20	-231.23	864.45	687.57	176.88	4.887		
16,700.00	10,056.79	16,694.65	10,055.55	127.30	127.14	-89.90	6,807.12	-234.19	866.89	687.45	179.44	4.831		
16,800.00	10,056.59	16,794.62	10,055.49	129.10	128.96	-89.91	6,907.05	-237.16	869.33	687.33	182.00	4.777		
16,900.00	10,056.40	16,894.59	10,055.44	130.90	130.78	-89.92	7,006.97	-240.13	871.78	687.21	184.56	4.723		
17,000.00	10,056.21	16,994.56	10,055.38	132.71	132.60	-89.93	7,106.90	-243.09	874.22	687.09	187.13	4.672		
17,100.00	10,056.02	17,094.53	10,055.32	134.51	134.41	-89.94	7,206.83	-246.06	876.66	686.97	189.69	4.621		
17,200.00	10,055.82	17,194.50	10,055.26	136.32	136.23	-89.95	7,306.75	-249.03	879.10	686.84	192.26	4.572		
17,300.00	10,055.63	17,294.47	10,055.20	138.12	138.05	-89.96	7,406.68	-251.99	881.55	686.72	194.83	4.525		
17,400.00	10,055.44	17,394.44	10,055.15	139.93	139.87	-89.97	7,506.60	-254.96	883.99	686.59	197.40	4.478		
17,500.00	10,055.25	17,494.41	10,055.09	141.74	141.70	-89.97	7,606.53	-257.93	886.43	686.47	199.96	4.433		
17,600.00	10,055.05	17,594.38	10,055.03	143.54	143.52	-89.98	7,706.46	-260.89	888.87	686.34	202.53	4.389		
17,628.14	10,055.00	17,622.52	10,055.01	144.05	144.03	-89.99	7,734.58	-261.73	889.56	686.30	203.26	4.377		

Devon Energy

Anticollision Report

Company:	WESTERN DIVISION	Local Co-ordinate Reference:	Well Thistle Unit 130H
Project:	PBNM	TVD Reference:	RKB @ 3655.80ft
Reference Site:	Norwalk	MD Reference:	RKB @ 3655.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Thistle Unit 130H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000 US Production
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Norwalk - Thistle Unit 147H - Wellbore #1 - Design #1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	0.50	0.50	0.00	0.00	-82.73	7.67	-60.10	60.59					
100.00	100.00	100.50	100.50	0.08	0.09	-82.73	7.67	-60.10	60.59	60.47	0.12	504.906		
200.00	200.00	200.50	200.50	0.31	0.31	-82.73	7.67	-60.10	60.59	60.15	0.44	138.371		
300.00	300.00	300.50	300.50	0.53	0.53	-82.73	7.67	-60.10	60.59	59.83	0.76	80.171		
400.00	400.00	400.50	400.50	0.76	0.76	-82.73	7.67	-60.10	60.59	59.51	1.07	56.434		
500.00	500.00	500.50	500.50	0.98	0.98	-82.73	7.67	-60.10	60.59	59.20	1.39	43.542		
600.00	600.00	600.50	600.50	1.21	1.21	-82.73	7.67	-60.10	60.59	58.88	1.71	35.445		
700.00	700.00	700.50	700.50	1.43	1.43	-82.73	7.67	-60.10	60.59	58.56	2.03	29.887		
800.00	800.00	800.50	800.50	1.66	1.66	-82.73	7.67	-60.10	60.59	58.24	2.35	25.836		
900.00	900.00	900.50	900.50	1.88	1.88	-82.73	7.67	-60.10	60.59	57.92	2.66	22.752		
1,000.00	1,000.00	1,000.50	1,000.50	2.11	2.11	-82.73	7.67	-60.10	60.59	57.61	2.98	20.326		
1,100.00	1,100.00	1,100.50	1,100.50	2.33	2.33	-82.73	7.67	-60.10	60.59	57.29	3.30	18.367		
1,200.00	1,200.00	1,200.50	1,200.50	2.56	2.56	-82.73	7.67	-60.10	60.59	56.97	3.62	16.753		
1,300.00	1,300.00	1,300.50	1,300.50	2.78	2.78	-82.73	7.67	-60.10	60.59	56.65	3.93	15.399		
1,400.00	1,400.00	1,400.50	1,400.50	3.01	3.01	-82.73	7.67	-60.10	60.59	56.34	4.25	14.248		
1,500.00	1,500.00	1,500.50	1,500.50	3.23	3.23	-82.73	7.67	-60.10	60.59	56.02	4.57	13.257		
1,600.00	1,600.00	1,600.50	1,600.50	3.46	3.46	-82.73	7.67	-60.10	60.59	55.70	4.89	12.395		
1,700.00	1,700.00	1,700.50	1,700.50	3.68	3.68	-82.73	7.67	-60.10	60.59	55.38	5.21	11.638		
1,800.00	1,800.00	1,800.50	1,800.50	3.91	3.91	-82.73	7.67	-60.10	60.59	55.06	5.52	10.969		
1,900.00	1,900.00	1,900.50	1,900.50	4.13	4.13	-82.73	7.67	-60.10	60.59	54.75	5.84	10.372		
2,000.00	2,000.00	2,000.50	2,000.50	4.35	4.36	-82.73	7.67	-60.10	60.59	54.43	6.16	9.836		
2,100.00	2,100.00	2,100.50	2,100.50	4.58	4.58	-82.73	7.67	-60.10	60.59	54.11	6.48	9.354		
2,200.00	2,200.00	2,200.50	2,200.50	4.80	4.81	-82.73	7.67	-60.10	60.59	53.79	6.80	8.916		
2,300.00	2,300.00	2,300.50	2,300.50	5.03	5.03	-82.73	7.67	-60.10	60.59	53.47	7.11	8.518		
2,400.00	2,400.00	2,400.50	2,400.50	5.25	5.26	-82.73	7.67	-60.10	60.59	53.16	7.43	8.153		
2,500.00	2,500.00	2,500.50	2,500.50	5.48	5.48	-82.73	7.67	-60.10	60.59	52.84	7.75	7.819		
2,600.00	2,600.00	2,600.50	2,600.50	5.70	5.70	-82.73	7.67	-60.10	60.59	52.52	8.07	7.511		
2,700.00	2,700.00	2,700.50	2,700.50	5.93	5.93	-82.73	7.67	-60.10	60.59	52.20	8.38	7.226		
2,800.00	2,800.00	2,800.50	2,800.50	6.15	6.15	-82.73	7.67	-60.10	60.59	51.89	8.70	6.962		
2,900.00	2,900.00	2,900.50	2,900.50	6.38	6.38	-82.73	7.67	-60.10	60.59	51.57	9.02	6.717		
3,000.00	3,000.00	3,000.50	3,000.50	6.60	6.60	-82.73	7.67	-60.10	60.59	51.25	9.34	6.488		
3,100.00	3,100.00	3,100.50	3,100.50	6.83	6.83	-82.73	7.67	-60.10	60.59	50.93	9.66	6.275		
3,200.00	3,200.00	3,200.50	3,200.50	7.05	7.05	-82.73	7.67	-60.10	60.59	50.61	9.97	6.075		
3,300.00	3,300.00	3,300.50	3,300.50	7.28	7.28	-82.73	7.67	-60.10	60.59	50.30	10.29	5.887 CC, ES		
3,400.00	3,399.99	3,400.49	3,400.49	7.49	7.50	-172.83	7.67	-60.10	61.45	50.85	10.60	5.798		
3,500.00	3,499.96	3,500.46	3,500.46	7.69	7.73	-173.12	7.67	-60.10	64.05	53.15	10.90	5.878		
3,600.00	3,599.86	3,600.36	3,600.36	7.89	7.95	-173.55	7.67	-60.10	68.38	57.19	11.20	6.107		
3,700.00	3,699.68	3,700.18	3,700.18	8.09	8.18	-174.07	7.67	-60.10	74.45	62.96	11.50	6.476		
3,800.00	3,799.37	3,799.87	3,799.87	8.30	8.40	-174.63	7.67	-60.10	82.26	70.46	11.80	6.973		
3,900.00	3,898.90	3,899.40	3,899.40	8.52	8.62	-175.18	7.67	-60.10	91.81	79.71	12.10	7.588		
4,000.00	3,998.26	3,998.76	3,998.76	8.74	8.85	-175.70	7.67	-60.10	103.09	90.69	12.40	8.313		
4,100.00	4,097.40	4,097.90	4,097.90	8.97	9.07	-176.18	7.67	-60.10	116.11	103.41	12.71	9.139		
4,200.00	4,196.43	4,196.93	4,196.93	9.21	9.29	-176.58	7.67	-60.10	130.00	116.99	13.01	9.993		
4,300.00	4,295.46	4,295.96	4,295.96	9.45	9.52	-176.91	7.67	-60.10	143.90	130.59	13.31	10.808		
4,400.00	4,394.48	4,394.98	4,394.98	9.70	9.74	-177.19	7.67	-60.10	157.80	144.18	13.62	11.586		
4,500.00	4,493.51	4,494.01	4,494.01	9.96	9.96	-177.41	7.67	-60.10	171.70	157.77	13.93	12.329		
4,600.00	4,592.54	4,593.04	4,593.04	10.22	10.18	-177.61	7.67	-60.10	185.60	171.37	14.23	13.039		
4,700.00	4,691.56	4,692.06	4,692.06	10.48	10.41	-177.78	7.67	-60.10	199.51	184.97	14.54	13.719		
4,800.00	4,790.59	4,791.09	4,791.09	10.75	10.63	-177.92	7.67	-60.10	213.42	198.57	14.85	14.369		
4,900.00	4,889.62	4,890.12	4,890.12	11.02	10.85	-178.05	7.67	-60.10	227.33	212.16	15.16	14.992		
5,000.00	4,988.64	4,989.14	4,989.14	11.30	11.07	-178.16	7.67	-60.10	241.24	225.76	15.48	15.589		
5,100.00	5,087.67	5,088.17	5,088.17	11.58	11.30	-178.26	7.67	-60.10	255.15	239.36	15.79	16.161		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Devon Energy

Anticollision Report

Company:	WESTERN DIVISION	Local Co-ordinate Reference:	Well Thistle Unit 130H
Project:	PBNM	TVD Reference:	RKB @ 3655.80ft
Reference Site:	Norwalk	MD Reference:	RKB @ 3655.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Thistle Unit 130H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000 US Production
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Norwalk - Thistle Unit 147H - Wellbore #1 - Design #1														Offset Site Error:	0.00 ft
Survey Program: 0-MWD														Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
5,200.00	5,186.70	5,187.20	5,187.20	11.86	11.52	-178.35	7.67	-80.10	269.06	252.96	16.10	16.711			
5,300.00	5,285.72	5,286.22	5,286.22	12.15	11.74	-178.43	7.67	-80.10	282.97	266.56	16.41	17.240			
5,400.00	5,384.75	5,385.25	5,385.25	12.43	11.96	-178.51	7.67	-80.10	296.88	280.16	16.73	17.747			
5,500.00	5,483.78	5,484.28	5,484.28	12.73	12.19	-178.57	7.67	-80.10	310.80	293.75	17.04	18.236			
5,600.00	5,582.81	5,583.31	5,583.31	13.02	12.41	-178.63	7.67	-80.10	324.71	307.35	17.36	18.706			
5,700.00	5,681.83	5,682.33	5,682.33	13.31	12.63	-178.69	7.67	-80.10	338.62	320.95	17.68	19.158			
5,800.00	5,780.86	5,781.36	5,781.36	13.61	12.85	-178.74	7.67	-80.10	352.54	334.55	17.99	19.595			
5,900.00	5,879.89	5,880.39	5,880.39	13.91	13.08	-178.79	7.67	-80.10	366.45	348.14	18.31	20.015			
6,000.00	5,978.91	5,979.41	5,979.41	14.21	13.30	-178.83	7.67	-80.10	380.37	361.74	18.63	20.421			
6,100.00	6,077.94	6,078.44	6,078.44	14.51	13.52	-178.87	7.67	-80.10	394.28	375.34	18.94	20.813			
6,200.00	6,176.97	6,177.47	6,177.47	14.82	13.74	-178.91	7.67	-80.10	408.20	388.93	19.26	21.191			
6,300.00	6,275.99	6,276.49	6,276.49	15.12	13.97	-178.95	7.67	-80.10	422.11	402.53	19.58	21.556			
6,400.00	6,375.02	6,375.52	6,375.52	15.43	14.19	-178.98	7.67	-80.10	436.03	416.12	19.90	21.910			
6,500.00	6,474.05	6,474.55	6,474.55	15.74	14.41	-179.01	7.67	-80.10	449.94	429.72	20.22	22.252			
6,600.00	6,573.07	6,573.57	6,573.57	16.05	14.63	-179.04	7.67	-80.10	463.86	443.32	20.54	22.583			
6,700.00	6,672.10	6,672.60	6,672.60	16.36	14.86	-179.07	7.67	-80.10	477.77	456.91	20.86	22.903			
6,800.00	6,771.13	6,771.63	6,771.63	16.67	15.08	-179.10	7.67	-80.10	491.69	470.51	21.18	23.213			
6,900.00	6,870.15	6,870.65	6,870.65	16.98	15.30	-179.12	7.67	-80.10	505.60	484.10	21.50	23.514			
7,000.00	6,969.18	6,969.68	6,969.68	17.29	15.52	-179.15	7.67	-80.10	519.52	497.69	21.82	23.805			
7,100.00	7,068.21	7,068.71	7,068.71	17.61	15.75	-179.17	7.67	-80.10	533.43	511.29	22.15	24.088			
7,200.00	7,167.23	7,167.73	7,167.73	17.92	15.97	-179.19	7.67	-80.10	547.35	524.88	22.47	24.362			
7,300.00	7,266.26	7,266.76	7,266.76	18.24	16.19	-179.21	7.67	-80.10	561.27	538.48	22.79	24.628			
7,400.00	7,365.29	7,365.79	7,365.79	18.56	16.42	-179.23	7.67	-80.10	575.18	552.07	23.11	24.887			
7,500.00	7,464.31	7,464.81	7,464.81	18.87	16.64	-179.25	7.67	-80.10	589.10	565.66	23.43	25.138			
7,600.00	7,563.34	7,563.84	7,563.84	19.19	16.86	-179.26	7.67	-80.10	603.01	579.26	23.76	25.382			
7,700.00	7,662.37	7,662.87	7,662.87	19.51	17.08	-179.28	7.67	-80.10	616.93	592.85	24.08	25.620			
7,800.00	7,761.40	7,761.90	7,761.90	19.83	17.31	-179.30	7.67	-80.10	630.85	606.44	24.40	25.851			
7,900.00	7,860.42	7,860.92	7,860.92	20.15	17.53	-179.31	7.67	-80.10	644.76	620.04	24.73	26.075			
8,000.00	7,959.45	7,959.95	7,959.95	20.47	17.75	-179.33	7.67	-80.10	658.68	633.63	25.05	26.294			
8,100.00	8,058.48	8,058.98	8,058.98	20.79	17.97	-179.34	7.67	-80.10	672.60	647.22	25.37	26.506			
8,200.00	8,157.52	8,158.02	8,158.02	21.08	18.20	-179.35	7.67	-80.10	686.55	659.96	25.69	26.693			
8,300.00	8,256.57	8,257.07	8,257.07	21.32	18.42	-179.37	7.67	-80.10	696.97	670.98	25.98	26.823			
8,400.00	8,356.51	8,357.01	8,357.01	21.55	18.64	-179.38	7.67	-80.10	706.55	680.27	26.28	26.884			
8,500.00	8,456.20	8,456.70	8,456.70	21.76	18.87	-179.38	7.67	-80.10	714.40	687.82	26.58	26.880			
8,600.00	8,556.02	8,556.52	8,556.52	21.97	19.09	-179.39	7.67	-80.10	720.50	693.63	26.87	26.812			
8,700.00	8,655.92	8,656.42	8,656.42	22.16	19.32	-179.39	7.67	-80.10	724.86	697.70	27.17	26.683			
8,800.00	8,755.88	8,756.38	8,756.38	22.33	19.54	-179.40	7.67	-80.10	727.48	700.02	27.46	26.495			
8,900.00	8,855.88	8,856.38	8,856.38	22.50	19.77	-89.40	7.67	-80.10	728.35	700.61	27.75	26.249			
9,000.00	8,955.88	8,956.38	8,956.38	22.67	19.99	-89.40	7.67	-80.10	728.35	700.31	28.05	25.970			
9,100.00	9,055.88	9,056.38	9,056.38	22.86	20.22	-89.40	7.67	-80.10	728.35	700.00	28.35	25.689			
9,130.33	9,086.21	9,086.71	9,086.71	22.91	20.28	-89.40	7.67	-80.10	728.35	699.91	28.45	25.605			
9,200.00	9,155.88	9,153.82	9,153.75	23.04	20.43	-89.21	10.01	-80.16	728.45	699.80	28.65	25.424			
9,300.00	9,255.88	9,246.38	9,244.86	23.23	20.64	-87.98	25.75	-80.57	729.33	700.40	28.93	25.209			
9,400.00	9,355.88	9,331.89	9,325.77	23.42	20.83	-85.83	53.14	-81.29	732.07	702.89	29.18	25.085			
9,500.00	9,455.88	9,407.84	9,393.53	23.60	20.99	-83.18	87.33	-82.18	738.27	708.88	29.39	25.120			
9,540.00	9,495.88	9,435.35	9,416.86	23.68	21.05	-82.06	101.88	-82.56	742.11	712.66	29.45	25.197			
9,550.00	9,505.88	9,442.00	9,422.40	23.70	21.06	-81.38	105.57	-82.66	743.20	713.73	29.47	25.223			
9,600.00	9,555.77	9,474.93	9,449.16	23.79	21.15	-79.46	124.75	-83.16	749.09	719.57	29.52	25.372			
9,650.00	9,605.20	9,507.33	9,474.37	23.88	21.23	-77.59	145.09	-83.69	755.61	726.05	29.57	25.556			
9,700.00	9,653.81	9,539.28	9,498.06	23.98	21.33	-75.77	166.51	-84.25	762.60	733.01	29.59	25.768			
9,750.00	9,701.21	9,570.82	9,520.25	24.07	21.42	-74.03	188.92	-84.83	769.90	740.29	29.61	26.000			
9,800.00	9,747.05	9,600.00	9,539.64	24.16	21.52	-72.44	210.71	-85.40	777.36	747.76	29.60	26.262			

Devon Energy

Anticollision Report

Company:	WESTERN DIVISION	Local Co-ordinate Reference:	Well Thistle Unit 130H
Project:	PBNM	TVD Reference:	RKB @ 3655.80ft
Reference Site:	Norwalk	MD Reference:	RKB @ 3655.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Thistle Unit 130H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000 US Production
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Norwalk - Thistle Unit 147H - Wellbore #1 - Design #1														Offset Site Error:	0.00 ft
Survey Program: 0-MWD														Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)							
9,850.00	9,790.97	9,632.95	9,560.17	24.26	21.64	-70.82	236.46	-66.07	784.83	755.21	29.62	26.498			
9,900.00	9,832.66	9,663.61	9,577.92	24.35	21.76	-69.37	261.45	-66.72	792.18	762.56	29.62	26.746			
9,950.00	9,871.77	9,700.00	9,597.21	24.45	21.91	-67.92	292.29	-67.53	799.32	769.65	29.67	26.937			
10,000.00	9,908.03	9,724.31	9,609.00	24.55	22.02	-66.83	313.55	-68.08	806.05	776.41	29.64	27.198			
10,050.00	9,941.15	9,750.00	9,620.45	24.67	22.14	-65.81	336.52	-68.68	812.38	782.76	29.62	27.426			
10,100.00	9,970.88	9,784.38	9,634.15	24.79	22.32	-64.79	368.04	-69.51	818.13	788.42	29.71	27.538			
10,150.00	9,997.00	9,814.23	9,644.49	24.94	22.49	-63.98	396.03	-70.24	823.29	793.51	29.78	27.646			
10,200.00	10,019.30	9,850.00	9,654.94	25.11	22.70	-63.24	430.22	-71.13	827.81	797.88	29.93	27.655			
10,250.00	10,037.62	9,873.68	9,660.68	25.30	22.85	-62.75	453.18	-71.73	831.53	801.51	30.01	27.705			
10,300.00	10,051.82	9,900.00	9,665.94	25.52	23.02	-62.35	478.96	-72.40	834.52	804.37	30.15	27.677			
10,350.00	10,061.79	9,932.92	9,670.84	25.77	23.25	-62.07	511.50	-73.25	836.68	806.29	30.39	27.530			
10,400.00	10,067.44	9,962.50	9,673.64	26.06	23.46	-61.94	540.94	-74.02	838.04	807.40	30.64	27.351			
10,441.11	10,068.84	9,986.83	9,674.80	26.32	23.64	-61.93	565.22	-74.65	838.52	807.65	30.88	27.157			
10,500.00	10,068.73	10,035.23	9,675.00	26.73	24.02	-61.98	613.61	-75.92	839.39	808.03	31.36	26.767			
10,600.00	10,068.53	10,135.21	9,675.00	27.52	24.88	-62.06	713.55	-78.53	841.14	808.72	32.42	25.944			
10,700.00	10,068.34	10,235.18	9,675.00	28.41	25.84	-62.14	813.49	-81.14	842.90	809.28	33.62	25.074			
10,800.00	10,068.15	10,335.16	9,675.00	29.40	26.90	-62.21	913.44	-83.74	844.65	809.72	34.93	24.181			
10,900.00	10,067.96	10,435.14	9,675.00	30.48	28.03	-62.29	1,013.35	-86.35	846.40	810.05	36.35	23.283			
11,000.00	10,067.76	10,535.12	9,675.00	31.62	29.24	-62.37	1,113.33	-88.96	848.16	810.29	37.87	22.396			
11,100.00	10,067.57	10,635.10	9,675.00	32.83	30.51	-62.45	1,213.27	-91.57	849.92	810.44	39.47	21.531			
11,200.00	10,067.38	10,735.07	9,675.00	34.10	31.84	-62.52	1,313.22	-94.18	851.68	810.52	41.15	20.695			
11,300.00	10,067.19	10,835.05	9,675.00	35.42	33.21	-62.60	1,413.16	-96.79	853.44	810.54	42.90	19.893			
11,400.00	10,066.99	10,935.03	9,675.00	36.78	34.63	-62.67	1,513.10	-99.40	855.20	810.50	44.71	19.129			
11,500.00	10,066.80	11,035.01	9,675.00	38.18	36.09	-62.75	1,613.05	-102.01	856.97	810.40	46.57	18.403			
11,600.00	10,066.61	11,134.99	9,675.00	39.62	37.58	-62.82	1,712.99	-104.62	858.73	810.26	48.47	17.715			
11,700.00	10,066.42	11,234.96	9,675.00	41.09	39.10	-62.90	1,812.94	-107.23	860.50	810.08	50.42	17.065			
11,800.00	10,066.22	11,334.94	9,675.00	42.59	40.65	-62.97	1,912.88	-109.83	862.27	809.86	52.41	16.452			
11,900.00	10,066.03	11,434.92	9,675.00	44.12	42.22	-63.05	2,012.82	-112.44	864.04	809.60	54.43	15.873			
12,000.00	10,065.84	11,534.90	9,675.00	45.66	43.81	-63.12	2,112.77	-115.05	865.81	809.32	56.49	15.328			
12,100.00	10,065.65	11,634.88	9,675.00	47.23	45.42	-63.20	2,212.71	-117.66	867.58	809.02	58.57	14.814			
12,200.00	10,065.45	11,734.85	9,675.00	48.82	47.05	-63.27	2,312.66	-120.27	869.36	808.69	60.67	14.329			
12,300.00	10,065.26	11,834.83	9,675.00	50.42	48.70	-63.34	2,412.60	-122.88	871.13	808.33	62.80	13.871			
12,400.00	10,065.07	11,934.81	9,675.00	52.04	50.35	-63.41	2,512.54	-125.49	872.91	807.96	64.95	13.440			
12,500.00	10,064.88	12,034.79	9,675.00	53.67	52.02	-63.49	2,612.49	-128.10	874.69	807.57	67.12	13.032			
12,600.00	10,064.68	12,134.77	9,675.00	55.32	53.70	-63.56	2,712.43	-130.71	876.47	807.17	69.30	12.647			
12,700.00	10,064.49	12,234.75	9,675.00	56.97	55.40	-63.63	2,812.38	-133.32	878.25	806.75	71.50	12.282			
12,800.00	10,064.30	12,334.72	9,675.00	58.64	57.10	-63.70	2,912.32	-135.92	880.03	806.31	73.72	11.937			
12,900.00	10,064.10	12,434.70	9,675.00	60.32	58.81	-63.77	3,012.26	-138.53	881.82	805.87	75.95	11.610			
13,000.00	10,063.91	12,534.68	9,675.00	62.00	60.52	-63.84	3,112.21	-141.14	883.60	805.41	78.19	11.300			
13,100.00	10,063.72	12,634.66	9,675.00	63.70	62.25	-63.91	3,212.15	-143.75	885.39	804.94	80.45	11.006			
13,200.00	10,063.53	12,734.64	9,675.00	65.40	63.98	-63.99	3,312.10	-146.36	887.18	804.46	82.72	10.726			
13,300.00	10,063.33	12,834.61	9,675.00	67.11	65.71	-64.06	3,412.04	-148.97	888.97	803.98	84.99	10.459			
13,400.00	10,063.14	12,934.59	9,675.00	68.82	67.46	-64.12	3,511.98	-151.58	890.76	803.48	87.28	10.206			
13,500.00	10,062.95	13,034.57	9,675.00	70.54	69.20	-64.19	3,611.93	-154.19	892.55	802.98	89.57	9.965			
13,600.00	10,062.76	13,134.55	9,675.00	72.27	70.96	-64.26	3,711.87	-156.80	894.34	802.47	91.88	9.734			
13,700.00	10,062.56	13,234.53	9,675.00	74.00	72.71	-64.33	3,811.82	-159.40	896.14	801.95	94.19	9.514			
13,800.00	10,062.37	13,334.50	9,675.00	75.74	74.47	-64.40	3,911.76	-162.01	897.93	801.43	96.51	9.304			
13,900.00	10,062.18	13,434.48	9,675.00	77.48	76.24	-64.47	4,011.70	-164.62	899.73	800.90	98.83	9.104			
14,000.00	10,061.99	13,534.46	9,675.00	79.22	78.01	-64.54	4,111.65	-167.23	901.53	800.37	101.17	8.911			
14,100.00	10,061.79	13,634.44	9,675.00	80.97	79.78	-64.61	4,211.59	-169.84	903.33	799.83	103.50	8.727			
14,200.00	10,061.60	13,734.42	9,675.00	82.73	81.55	-64.67	4,311.54	-172.45	905.13	799.28	105.85	8.551			
14,300.00	10,061.41	13,834.39	9,675.00	84.48	83.33	-64.74	4,411.48	-175.06	906.93	798.73	108.20	8.382			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Devon Energy

Anticollision Report

Company:	WESTERN DIVISION	Local Co-ordinate Reference:	Well Thistle Unit 130H
Project:	PBNM	TVD Reference:	RKB @ 3655.80ft
Reference Site:	Norwalk	MD Reference:	RKB @ 3655.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Thistle Unit 130H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000 US Production
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design Norwalk - Thistle Unit 147H - Wellbore #1 - Design #1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD													Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
14,400.00	10,061.22	13,934.37	9,675.00	86.24	85.11	-64.81	4,511.42	-177.67	908.74	798.18	110.56	8.219		
14,500.00	10,061.02	14,034.35	9,675.00	88.00	86.89	-64.87	4,611.37	-180.28	910.54	797.62	112.92	8.064		
14,600.00	10,060.83	14,134.33	9,675.00	89.77	88.68	-64.94	4,711.31	-182.89	912.35	797.06	115.29	7.914		
14,700.00	10,060.64	14,234.31	9,675.00	91.54	90.47	-65.01	4,811.26	-185.49	914.16	796.49	117.66	7.769		
14,800.00	10,060.45	14,334.29	9,675.00	93.31	92.26	-65.07	4,911.20	-188.10	915.96	795.93	120.04	7.631		
14,900.00	10,060.25	14,434.26	9,675.00	95.08	94.05	-65.14	5,011.14	-190.71	917.77	795.35	122.42	7.497		
15,000.00	10,060.06	14,534.24	9,675.00	96.86	95.84	-65.20	5,111.09	-193.32	919.59	794.78	124.81	7.368		
15,100.00	10,059.87	14,634.22	9,675.00	98.64	97.64	-65.27	5,211.03	-195.93	921.40	794.20	127.20	7.244		
15,200.00	10,059.68	14,734.20	9,675.00	100.42	99.44	-65.33	5,310.98	-198.54	923.21	793.62	129.59	7.124		
15,300.00	10,059.48	14,834.18	9,675.00	102.20	101.23	-65.40	5,410.92	-201.15	925.03	793.04	131.99	7.008		
15,400.00	10,059.29	14,934.15	9,675.00	103.98	103.03	-65.46	5,510.87	-203.76	926.84	792.45	134.39	6.897		
15,500.00	10,059.10	15,034.13	9,675.00	105.77	104.84	-65.53	5,610.81	-206.37	928.66	791.86	136.80	6.789		
15,600.00	10,058.91	15,134.11	9,675.00	107.55	106.64	-65.59	5,710.75	-208.98	930.48	791.27	139.20	6.684		
15,700.00	10,058.71	15,234.09	9,675.00	109.34	108.44	-65.66	5,810.70	-211.58	932.30	790.68	141.62	6.583		
15,800.00	10,058.52	15,334.07	9,675.00	111.13	110.25	-65.72	5,910.64	-214.19	934.12	790.08	144.03	6.485		
15,900.00	10,058.33	15,434.04	9,675.00	112.92	112.06	-65.78	6,010.59	-216.80	935.94	789.49	146.45	6.391		
16,000.00	10,058.14	15,534.02	9,675.00	114.72	113.86	-65.85	6,110.53	-219.41	937.76	788.89	148.87	6.299		
16,100.00	10,057.94	15,634.00	9,675.00	116.51	115.67	-65.91	6,210.47	-222.02	939.58	788.28	151.30	6.210		
16,200.00	10,057.75	15,733.98	9,675.00	118.31	117.48	-65.97	6,310.42	-224.63	941.41	787.68	153.73	6.124		
16,300.00	10,057.56	15,833.96	9,675.00	120.10	119.29	-66.03	6,410.36	-227.24	943.23	787.08	156.16	6.040		
16,400.00	10,057.37	15,933.93	9,675.00	121.90	121.11	-66.09	6,510.31	-229.85	945.06	786.47	158.59	5.959		
16,500.00	10,057.17	16,033.91	9,675.00	123.70	122.92	-66.16	6,610.25	-232.46	946.89	785.86	161.03	5.880		
16,600.00	10,056.98	16,133.89	9,675.00	125.50	124.73	-66.22	6,710.19	-235.07	948.72	785.25	163.47	5.804		
16,700.00	10,056.79	16,233.87	9,675.00	127.30	126.55	-66.28	6,810.14	-237.67	950.55	784.64	165.91	5.729		
16,800.00	10,056.59	16,333.85	9,675.00	129.10	128.36	-66.34	6,910.08	-240.28	952.38	784.03	168.35	5.657		
16,900.00	10,056.40	16,433.83	9,675.00	130.90	130.18	-66.40	7,010.03	-242.89	954.21	783.41	170.80	5.587		
17,000.00	10,056.21	16,533.80	9,675.00	132.71	132.00	-66.46	7,109.97	-245.50	956.05	782.80	173.25	5.518		
17,100.00	10,056.02	16,633.78	9,675.00	134.51	133.81	-66.52	7,209.91	-248.11	957.88	782.18	175.70	5.452		
17,200.00	10,055.82	16,733.76	9,675.00	136.32	135.63	-66.58	7,309.86	-250.72	959.72	781.56	178.15	5.387		
17,300.00	10,055.63	16,833.74	9,675.00	138.12	137.45	-66.64	7,409.80	-253.33	961.55	780.94	180.61	5.324		
17,400.00	10,055.44	16,933.72	9,675.00	139.93	139.27	-66.70	7,509.75	-255.94	963.39	780.32	183.07	5.262		
17,500.00	10,055.25	17,033.69	9,675.00	141.74	141.09	-66.76	7,609.69	-258.55	965.23	779.70	185.53	5.203		
17,600.00	10,055.05	17,133.67	9,675.00	143.54	142.91	-66.82	7,709.63	-261.15	967.07	779.08	187.99	5.144		
17,628.14	10,055.00	17,161.81	9,675.00	144.05	143.42	-66.84	7,737.76	-261.89	967.59	778.90	188.68	5.128 SF		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

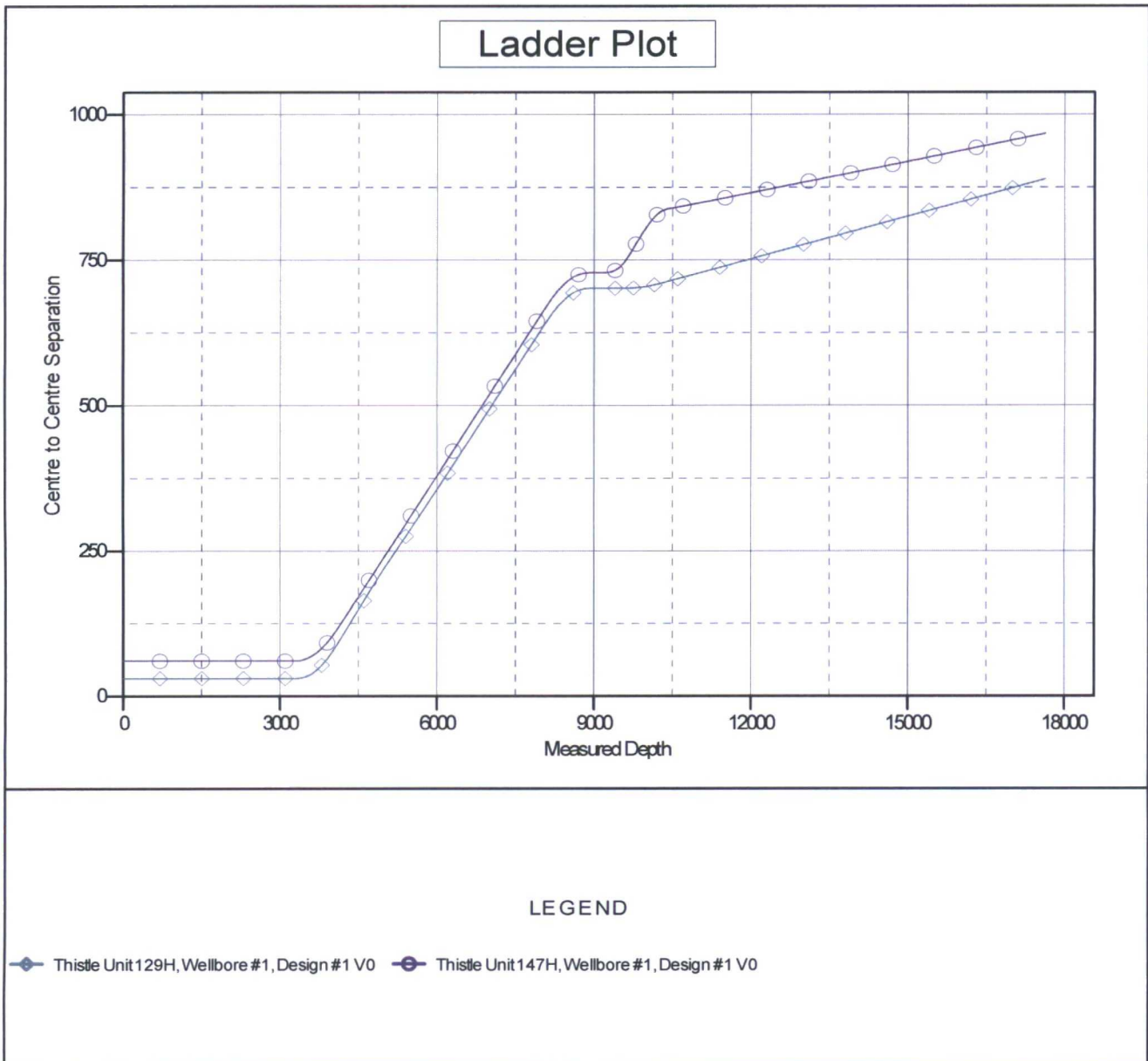
Devon Energy
Anticollision Report

Company: WESTERN DIVISION
Project: PBNM
Reference Site: Norwalk
Site Error: 0.00 ft
Reference Well: Thistle Unit 130H
Well Error: 0.00 ft
Reference Wellbore: Wellbore #1
Reference Design: Design #1

Local Co-ordinate Reference: Well Thistle Unit 130H
TVD Reference: RKB @ 3655.80ft
MD Reference: RKB @ 3655.80ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM r5000 US Production
Offset TVD Reference: Offset Datum

Reference Depths are relative to RKB @ 3655.80ft
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Thistle Unit 130H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.41°



Devon Energy

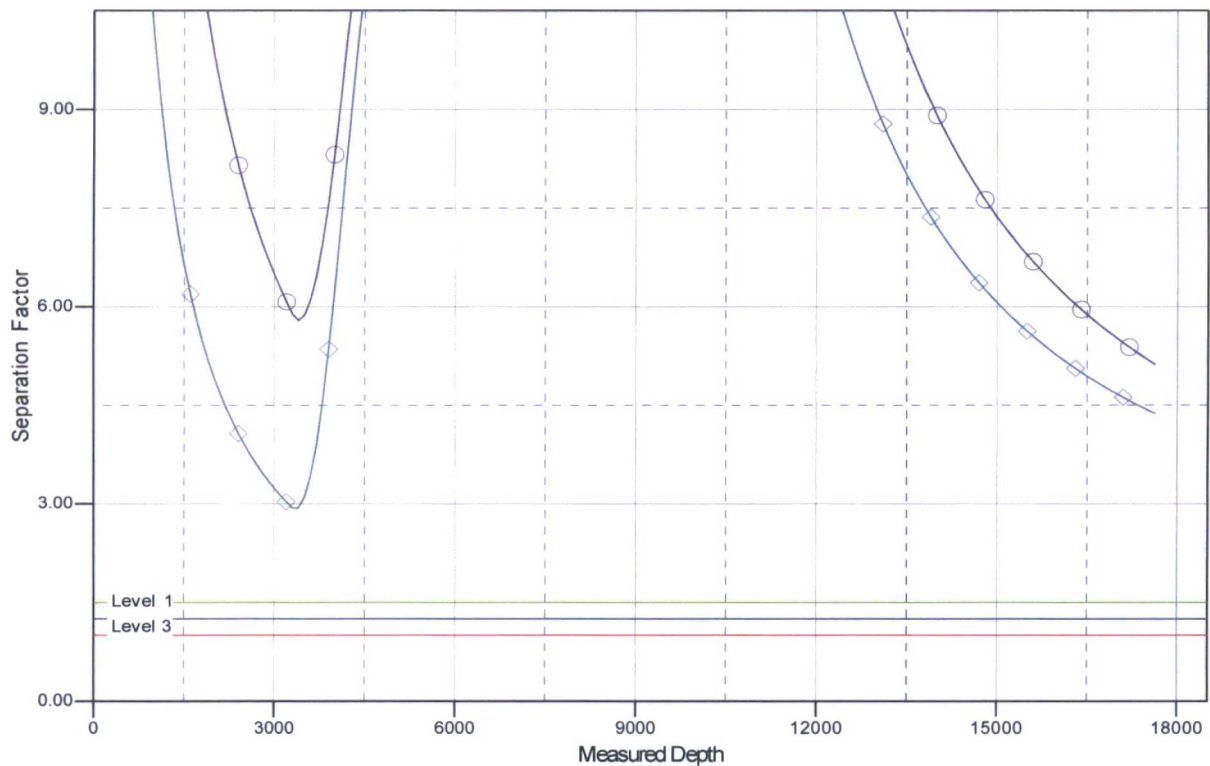
Anticollision Report

Company:	WESTERN DIVISION	Local Co-ordinate Reference:	Well Thistle Unit 130H
Project:	PBNM	TVD Reference:	RKB @ 3655.80ft
Reference Site:	Norwalk	MD Reference:	RKB @ 3655.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Thistle Unit 130H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000 US Production
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB @ 3655.80ft
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Thistle Unit 130H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.41°

Separation Factor Plot



LEGEND

◆ Thistle Unit 129H, Wellbore #1, Design #1 V0 ● Thistle Unit 147H, Wellbore #1, Design #1 V0