

HOBBS OCD

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WESTERN DIVISION

PBNM

Norwalk

Thistle Unit 131H

Wellbore #1

Design #1

Anticollision Report

05 October, 2016

Devon Energy

Anticollision Report

Company:	WESTERN DIVISION	Local Co-ordinate Reference:	Well Thistle Unit 131H
Project:	PBNM	TVD Reference:	RKB @ 3674.80ft
Reference Site:	Norwalk	MD Reference:	RKB @ 3674.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Thistle Unit 131H	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	10/5/2016		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,585.48	Design #1 (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference	Offset	Distance		Separation	Warning
	Measured	Measured	Between	Between		
Offset Well - Wellbore - Design	Depth	Depth	Centres	Ellipses	Factor	
Norwalk						
Thistle Unit 118H - Wellbore #1 - Design #1	3,300.00	3,299.80	49.91	39.62	4.850	CC, ES
Thistle Unit 118H - Wellbore #1 - Design #1	17,500.00	16,669.91	369.67	291.10	4.705	SF
Thistle Unit 47H - ST01 - ST01	2,984.28	2,991.32	375.61	365.80	38.308	CC
Thistle Unit 47H - ST01 - ST01	4,100.00	4,088.09	379.12	365.40	27.636	ES
Thistle Unit 47H - ST01 - ST01	15,000.00	16,380.03	1,989.16	1,882.99	18.736	SF
Thistle Unit 48H - Wellbore #1 - Wellbore #1	8,845.63	8,847.76	276.20	252.06	11.443	CC
Thistle Unit 48H - Wellbore #1 - Wellbore #1	9,507.34	9,512.97	276.82	251.14	10.781	ES, SF

Offset Design		Norwalk - Thistle Unit 118H - 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								
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
0.00	0.00	0.00	0.00	0.00	0.00	19.45	47.06	16.62	49.91						
100.00	100.00	99.80	99.80	0.08	0.08	19.45	47.06	16.62	49.91	49.79	0.12	419.115			
200.00	200.00	199.80	199.80	0.31	0.31	19.45	47.06	16.62	49.91	49.47	0.44	114.273			
300.00	300.00	299.80	299.80	0.53	0.53	19.45	47.06	16.62	49.91	49.15	0.75	66.138			
400.00	400.00	399.80	399.80	0.76	0.76	19.45	47.06	16.62	49.91	48.84	1.07	46.536			
500.00	500.00	499.80	499.80	0.98	0.98	19.45	47.06	16.62	49.91	48.52	1.39	35.896			
600.00	600.00	599.80	599.80	1.21	1.21	19.45	47.06	16.62	49.91	48.20	1.71	29.217			
700.00	700.00	699.80	699.80	1.43	1.43	19.45	47.06	16.62	49.91	47.88	2.03	24.633			
800.00	800.00	799.80	799.80	1.66	1.66	19.45	47.06	16.62	49.91	47.56	2.34	21.293			
900.00	900.00	899.80	899.80	1.88	1.88	19.45	47.06	16.62	49.91	47.25	2.66	18.750			
1,000.00	1,000.00	999.80	999.80	2.11	2.11	19.45	47.06	16.62	49.91	46.93	2.98	16.750			
1,100.00	1,100.00	1,099.80	1,099.80	2.33	2.33	19.45	47.06	16.62	49.91	46.61	3.30	15.135			
1,200.00	1,200.00	1,199.80	1,199.80	2.56	2.56	19.45	47.06	16.62	49.91	46.29	3.62	13.804			
1,300.00	1,300.00	1,299.80	1,299.80	2.78	2.78	19.45	47.06	16.62	49.91	45.98	3.93	12.689			
1,400.00	1,400.00	1,399.80	1,399.80	3.01	3.01	19.45	47.06	16.62	49.91	45.66	4.25	11.740			
1,500.00	1,500.00	1,499.80	1,499.80	3.23	3.23	19.45	47.06	16.62	49.91	45.34	4.57	10.923			
1,600.00	1,600.00	1,599.80	1,599.80	3.46	3.46	19.45	47.06	16.62	49.91	45.02	4.89	10.213			
1,700.00	1,700.00	1,699.80	1,699.80	3.68	3.68	19.45	47.06	16.62	49.91	44.70	5.20	9.589			
1,800.00	1,800.00	1,799.80	1,799.80	3.91	3.90	19.45	47.06	16.62	49.91	44.39	5.52	9.037			
1,900.00	1,900.00	1,899.80	1,899.80	4.13	4.13	19.45	47.06	16.62	49.91	44.07	5.84	8.545			
2,000.00	2,000.00	1,999.80	1,999.80	4.35	4.35	19.45	47.06	16.62	49.91	43.75	6.16	8.104			

CC - Min centre to center distance or covergent 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 131H
 Well Error: 0.00 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Design #1

Local Co-ordinate Reference: Well Thistle Unit 131H
 TVD Reference: RKB @ 3674.80ft
 MD Reference: RKB @ 3674.80ft
 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

Offset Design														Offset Site Error:	0.00 ft
Norwalk - Thistle Unit 118H - Wellbore #1 - Design #1														Offset Well Error:	0.00 ft
Survey Program: 0-MWD															
Reference		Offset		Semi Major Axis		Highside Tooface (°)	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)							
2,100.00	2,100.00	2,099.80	2,099.80	4.58	4.58	19.45	47.06	16.62	49.91	43.43	6.48	7.706			
2,200.00	2,200.00	2,199.80	2,199.80	4.80	4.80	19.45	47.06	16.62	49.91	43.11	6.79	7.346			
2,300.00	2,300.00	2,299.80	2,299.80	5.03	5.03	19.45	47.06	16.62	49.91	42.80	7.11	7.018			
2,400.00	2,400.00	2,399.80	2,399.80	5.25	5.25	19.45	47.06	16.62	49.91	42.48	7.43	6.717			
2,500.00	2,500.00	2,499.80	2,499.80	5.48	5.48	19.45	47.06	16.62	49.91	42.16	7.75	6.442			
2,600.00	2,600.00	2,599.80	2,599.80	5.70	5.70	19.45	47.06	16.62	49.91	41.84	8.07	6.188			
2,700.00	2,700.00	2,699.80	2,699.80	5.93	5.93	19.45	47.06	16.62	49.91	41.53	8.38	5.953			
2,800.00	2,800.00	2,799.80	2,799.80	6.15	6.15	19.45	47.06	16.62	49.91	41.21	8.70	5.736			
2,900.00	2,900.00	2,899.80	2,899.80	6.38	6.38	19.45	47.06	16.62	49.91	40.89	9.02	5.534			
3,000.00	3,000.00	2,999.80	2,999.80	6.60	6.60	19.45	47.06	16.62	49.91	40.57	9.34	5.345			
3,100.00	3,100.00	3,099.80	3,099.80	6.83	6.83	19.45	47.06	16.62	49.91	40.25	9.65	5.169			
3,200.00	3,200.00	3,199.80	3,199.80	7.05	7.05	19.45	47.06	16.62	49.91	39.94	9.97	5.004			
3,300.00	3,300.00	3,299.80	3,299.80	7.28	7.28	19.45	47.06	16.62	49.91	39.62	10.29	4.850 CC, ES			
3,400.00	3,400.00	3,399.80	3,399.80	7.47	7.50	-160.79	47.06	16.62	50.53	39.94	10.59	4.772			
3,500.00	3,499.98	3,499.78	3,499.78	7.64	7.73	-161.50	47.06	16.62	52.38	41.52	10.87	4.821			
3,600.00	3,599.92	3,599.72	3,599.72	7.81	7.95	-162.56	47.06	16.62	55.50	44.35	11.15	4.979			
3,700.00	3,699.82	3,699.62	3,699.62	7.99	8.18	-163.87	47.06	16.62	59.88	48.45	11.43	5.240			
3,800.00	3,799.64	3,799.44	3,799.44	8.16	8.40	-165.28	47.06	16.62	65.56	53.85	11.71	5.597			
3,900.00	3,899.38	3,899.18	3,899.18	8.34	8.62	-166.72	47.06	16.62	72.54	60.54	12.00	6.045			
3,966.67	3,965.82	3,965.62	3,965.62	8.47	8.77	-167.64	47.06	16.62	77.92	65.73	12.19	6.392			
4,000.00	3,999.03	3,998.83	3,998.83	8.53	8.85	-168.08	47.06	16.62	80.76	68.48	12.29	6.573			
4,100.00	4,098.65	4,098.45	4,098.45	8.72	9.07	-169.24	47.06	16.62	89.31	76.74	12.58	7.102			
4,200.00	4,198.27	4,198.07	4,198.07	8.92	9.30	-170.19	47.06	16.62	97.89	85.02	12.87	7.608			
4,300.00	4,297.89	4,297.69	4,297.69	9.12	9.52	-170.99	47.06	16.62	106.49	93.33	13.16	8.093			
4,400.00	4,397.51	4,397.31	4,397.31	9.32	9.74	-171.67	47.06	16.62	115.10	101.65	13.45	8.557			
4,500.00	4,497.12	4,496.92	4,496.92	9.53	9.97	-172.25	47.06	16.62	123.73	109.99	13.75	9.002			
4,600.00	4,596.74	4,596.54	4,596.54	9.74	10.19	-172.76	47.06	16.62	132.38	118.33	14.04	9.427			
4,700.00	4,696.36	4,696.16	4,696.16	9.96	10.41	-173.21	47.06	16.62	141.03	126.69	14.34	9.835			
4,800.00	4,795.98	4,795.78	4,795.78	10.17	10.64	-173.60	47.06	16.62	149.69	135.05	14.64	10.227			
4,900.00	4,895.60	4,895.40	4,895.40	10.39	10.86	-173.95	47.06	16.62	158.35	143.41	14.94	10.602			
5,000.00	4,995.22	4,995.02	4,995.02	10.62	11.09	-174.27	47.06	16.62	167.02	151.78	15.24	10.962			
5,100.00	5,094.84	5,094.64	5,094.64	10.84	11.31	-174.55	47.06	16.62	175.69	160.16	15.54	11.308			
5,200.00	5,194.46	5,194.26	5,194.26	11.07	11.53	-174.81	47.06	16.62	184.37	168.53	15.84	11.641			
5,300.00	5,294.08	5,293.88	5,293.88	11.30	11.76	-175.04	47.06	16.62	193.05	176.91	16.14	11.960			
5,400.00	5,393.70	5,393.50	5,393.50	11.53	11.98	-175.26	47.06	16.62	201.74	185.29	16.45	12.268			
5,500.00	5,493.32	5,493.12	5,493.12	11.77	12.21	-175.45	47.06	16.62	210.43	193.68	16.75	12.563			
5,600.00	5,592.94	5,592.74	5,592.74	12.00	12.43	-175.63	47.06	16.62	219.12	202.06	17.05	12.848			
5,700.00	5,692.56	5,692.36	5,692.36	12.24	12.65	-175.80	47.06	16.62	227.81	210.45	17.36	13.123			
5,800.00	5,792.18	5,791.98	5,791.98	12.48	12.88	-175.95	47.06	16.62	236.50	218.84	17.67	13.388			
5,900.00	5,891.80	5,891.60	5,891.60	12.72	13.10	-176.10	47.06	16.62	245.20	227.22	17.97	13.643			
6,000.00	5,991.42	5,991.22	5,991.22	12.97	13.33	-176.23	47.06	16.62	253.89	235.61	18.28	13.889			
6,100.00	6,091.04	6,090.84	6,090.84	13.21	13.55	-176.36	47.06	16.62	262.59	244.00	18.59	14.127			
6,200.00	6,190.66	6,190.46	6,190.46	13.46	13.77	-176.47	47.06	16.62	271.29	252.39	18.90	14.357			
6,300.00	6,290.28	6,290.08	6,290.08	13.70	14.00	-176.58	47.06	16.62	279.99	260.78	19.20	14.579			
6,400.00	6,389.89	6,389.69	6,389.69	13.95	14.22	-176.69	47.06	16.62	288.69	269.17	19.51	14.794			
6,500.00	6,489.51	6,489.31	6,489.31	14.20	14.45	-176.78	47.06	16.62	297.39	277.57	19.82	15.002			
6,600.00	6,589.13	6,588.93	6,588.93	14.45	14.67	-176.88	47.06	16.62	306.09	285.96	20.13	15.203			
6,700.00	6,688.75	6,688.55	6,688.55	14.70	14.89	-176.96	47.06	16.62	314.80	294.35	20.44	15.398			
6,800.00	6,788.37	6,788.17	6,788.17	14.95	15.12	-177.04	47.06	16.62	323.50	302.74	20.76	15.587			
6,900.00	6,887.99	6,887.79	6,887.79	15.20	15.34	-177.12	47.06	16.62	332.20	311.14	21.07	15.769			
7,000.00	6,987.61	6,987.41	6,987.41	15.46	15.56	-177.19	47.06	16.62	340.91	319.53	21.38	15.947			
7,100.00	7,087.23	7,087.03	7,087.03	15.71	15.79	-177.26	47.06	16.62	349.61	327.92	21.69	16.119			

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 131H
 Well Error: 0.00 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Design #1

Local Co-ordinate Reference: Well Thistle Unit 131H
 TVD Reference: RKB @ 3674.80ft
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 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

Norwalk - Thistle Unit 118H - 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 Tooface (')	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)						
7,200.00	7,186.85	7,186.85	7,186.85	15.97	16.01	-177.33	47.06	16.62	358.32	336.32	22.00	16.286		
7,300.00	7,286.47	7,286.27	7,286.27	16.22	16.24	-177.39	47.06	16.62	367.03	344.71	22.31	16.448		
7,400.00	7,386.09	7,385.89	7,385.89	16.48	16.46	-177.46	47.06	16.62	375.73	353.11	22.63	16.605		
7,500.00	7,485.71	7,485.51	7,485.51	16.74	16.68	-177.51	47.06	16.62	384.44	361.50	22.94	16.758		
7,600.00	7,585.33	7,585.13	7,585.13	16.99	16.91	-177.57	47.06	16.62	393.15	369.89	23.25	16.906		
7,700.00	7,684.95	7,684.75	7,684.75	17.25	17.13	-177.62	47.06	16.62	401.86	378.29	23.57	17.051		
7,800.00	7,784.57	7,784.37	7,784.37	17.51	17.36	-177.67	47.06	16.62	410.56	386.68	23.88	17.191		
7,900.00	7,884.19	7,883.99	7,883.99	17.77	17.58	-177.72	47.06	16.62	419.27	395.08	24.20	17.328		
7,966.67	7,950.60	7,950.40	7,950.40	17.94	17.73	-177.75	47.06	16.62	425.08	400.67	24.41	17.417		
8,000.00	7,983.81	7,983.61	7,983.61	18.03	17.80	-177.77	47.06	16.62	427.91	403.40	24.51	17.459		
8,100.00	8,083.52	8,083.32	8,083.32	18.25	18.03	-177.81	47.06	16.62	435.53	410.72	24.82	17.550		
8,200.00	8,183.32	8,183.12	8,183.12	18.47	18.25	-177.84	47.06	16.62	441.85	416.73	25.12	17.587		
8,300.00	8,283.19	8,282.99	8,282.99	18.69	18.48	-177.87	47.06	16.62	446.86	421.43	25.43	17.573		
8,400.00	8,383.12	8,382.92	8,382.92	18.89	18.70	-177.89	47.06	16.62	450.57	424.83	25.73	17.508		
8,500.00	8,483.09	8,482.89	8,482.89	19.10	18.93	-177.90	47.06	16.62	452.97	426.93	26.04	17.395		
8,600.00	8,583.09	8,582.89	8,582.89	19.29	19.15	-177.90	47.06	16.62	454.06	427.71	26.34	17.236		
8,633.34	8,616.42	8,616.22	8,616.22	19.35	19.23	2.10	47.06	16.62	454.13	427.68	26.45	17.173		
8,700.00	8,683.09	8,682.89	8,682.89	19.48	19.38	2.10	47.06	16.62	454.13	427.48	26.65	17.041		
8,800.00	8,783.09	8,782.89	8,782.89	19.67	19.60	2.10	47.06	16.62	454.13	427.18	26.95	16.850		
8,900.00	8,883.09	8,882.89	8,882.89	19.86	19.83	2.10	47.06	16.62	454.13	426.87	27.26	16.662		
9,000.00	8,983.09	8,982.89	8,982.89	20.06	20.05	2.10	47.06	16.62	454.13	426.57	27.56	16.478		
9,100.00	9,083.09	9,082.89	9,082.89	20.25	20.27	2.10	47.06	16.62	454.13	426.26	27.86	16.298		
9,142.94	9,126.03	9,125.83	9,125.83	20.33	20.37	2.10	47.06	16.62	454.13	426.13	28.00	16.222		
9,200.00	9,183.09	9,150.00	9,150.00	20.44	20.43	2.10	47.37	16.62	455.63	427.58	28.05	16.245		
9,300.00	9,283.09	9,215.17	9,214.87	20.63	20.57	2.07	53.23	16.60	465.29	437.16	28.13	16.540		
9,400.00	9,383.09	9,268.86	9,267.54	20.83	20.69	2.02	63.56	16.56	484.54	456.52	28.02	17.292		
9,507.34	9,490.42	9,323.86	9,320.24	21.04	20.81	1.95	79.20	16.51	515.10	487.33	27.77	18.549		
9,550.00	9,533.05	9,350.00	9,344.71	21.11	20.87	1.93	88.39	16.48	528.47	500.77	27.70	19.078		
9,600.00	9,582.68	9,369.94	9,363.07	21.18	20.91	1.86	96.15	16.45	542.09	514.65	27.44	19.753		
9,650.00	9,631.62	9,400.00	9,390.23	21.23	20.98	1.79	109.04	16.41	553.69	526.39	27.30	20.280		
9,700.00	9,679.48	9,419.67	9,407.62	21.25	21.01	1.75	118.24	16.38	563.05	536.08	26.98	20.873		
9,750.00	9,725.90	9,450.00	9,433.78	21.27	21.08	1.71	133.57	16.32	570.35	543.56	26.79	21.290		
9,800.00	9,770.53	9,469.42	9,450.09	21.26	21.13	1.69	144.11	16.29	575.37	548.97	26.40	21.795		
9,850.00	9,813.02	9,500.00	9,475.02	21.25	21.20	1.67	161.81	16.23	578.32	552.14	26.18	22.093		
9,900.00	9,853.06	9,519.17	9,490.16	21.24	21.25	1.66	173.57	16.19	578.96	553.23	25.73	22.499		
9,950.00	9,890.35	9,550.00	9,513.65	21.22	21.33	1.67	193.53	16.12	577.53	552.04	25.48	22.664		
10,000.00	9,924.58	9,568.92	9,527.52	21.21	21.39	1.68	206.39	16.07	573.78	548.79	25.00	22.954		
10,050.00	9,955.52	9,600.00	9,549.37	21.21	21.48	1.70	228.50	16.00	567.99	543.26	24.73	22.967		
10,100.00	9,982.91	9,618.66	9,561.89	21.23	21.55	1.73	242.33	15.95	559.89	535.67	24.22	23.121		
10,150.00	10,006.56	9,650.00	9,581.90	21.26	21.65	1.78	266.45	15.87	549.77	525.82	23.95	22.951		
10,200.00	10,026.27	9,668.40	9,593.02	21.32	21.72	1.83	281.11	15.82	537.37	513.94	23.43	22.932		
10,250.00	10,041.91	9,700.00	9,611.00	21.41	21.85	1.91	307.09	15.73	523.02	499.83	23.19	22.556		
10,300.00	10,053.36	9,718.12	9,620.65	21.52	21.92	1.99	322.42	15.67	506.42	483.74	22.68	22.329		
10,350.00	10,060.52	9,750.00	9,636.44	21.67	22.06	2.11	350.11	15.58	487.94	465.47	22.47	21.716		
10,400.00	10,063.34	9,767.83	9,644.60	21.84	22.15	2.23	365.96	15.52	467.26	445.26	22.00	21.242		
10,406.49	10,063.38	9,771.05	9,646.02	21.87	22.17	2.24	368.86	15.51	464.44	442.48	21.96	21.150		
10,500.00	10,063.52	9,819.31	9,665.32	22.29	22.41	2.34	413.07	15.36	427.13	405.73	21.40	19.957		
10,600.00	10,063.67	9,874.61	9,682.78	22.88	22.73	2.43	465.52	15.18	395.68	374.72	20.96	18.882		
10,700.00	10,063.82	9,933.03	9,695.64	23.60	23.10	2.49	522.48	14.99	373.78	353.04	20.74	18.021		
10,800.00	10,063.96	10,000.00	9,703.16	24.43	23.56	2.52	588.99	14.76	362.21	341.37	20.84	17.382		
10,860.61	10,064.05	10,031.04	9,704.00	25.00	23.79	2.51	620.02	14.65	360.20	339.18	21.02	17.138		
10,900.00	10,064.11	10,069.94	9,704.00	25.37	24.10	2.49	658.91	14.52	360.25	339.09	21.16	17.024		

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 131H
Project:	PBNM	TVD Reference:	RKB @ 3674.80ft
Reference Site:	Norwalk	MD Reference:	RKB @ 3674.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Thistle Unit 131H	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 118H - 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 (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
11,000.00	10,064.26	10,169.94	9,704.00	26.40	24.97	2.46	758.91	14.17	360.39	338.83	21.56	16.716		
11,100.00	10,064.41	10,269.94	9,704.00	27.52	25.92	2.42	858.91	13.83	360.53	338.53	22.00	16.389		
11,200.00	10,064.56	10,369.94	9,704.00	28.71	26.97	2.38	958.91	13.49	360.67	338.19	22.48	16.046		
11,300.00	10,064.70	10,469.94	9,704.00	29.96	28.10	2.34	1,058.91	13.14	360.80	337.81	22.99	15.693		
11,400.00	10,064.85	10,569.94	9,704.00	31.27	29.30	2.30	1,158.91	12.80	360.94	337.40	23.54	15.332		
11,500.00	10,065.00	10,669.94	9,704.00	32.63	30.57	2.27	1,258.90	12.46	361.08	336.96	24.12	14.968		
11,600.00	10,065.15	10,769.94	9,704.00	34.04	31.89	2.23	1,358.90	12.11	361.22	336.48	24.74	14.603		
11,700.00	10,065.29	10,869.93	9,704.00	35.49	33.26	2.19	1,458.90	11.77	361.36	335.98	25.38	14.240		
11,800.00	10,065.44	10,969.93	9,704.00	36.96	34.67	2.15	1,558.90	11.43	361.50	335.46	26.04	13.882		
11,900.00	10,065.59	11,069.93	9,704.00	38.48	36.12	2.11	1,658.90	11.08	361.64	334.91	26.73	13.529		
12,000.00	10,065.74	11,169.93	9,704.00	40.01	37.60	2.08	1,758.90	10.74	361.78	334.33	27.44	13.184		
12,100.00	10,065.89	11,269.93	9,704.00	41.57	39.11	2.04	1,858.90	10.40	361.92	333.74	28.17	12.846		
12,200.00	10,066.03	11,369.93	9,704.00	43.16	40.65	2.00	1,958.90	10.05	362.05	333.13	28.92	12.518		
12,300.00	10,066.18	11,469.93	9,704.00	44.76	42.21	1.96	2,058.90	9.71	362.19	332.50	29.69	12.199		
12,400.00	10,066.33	11,569.93	9,704.00	46.38	43.80	1.92	2,158.90	9.36	362.33	331.86	30.47	11.890		
12,500.00	10,066.48	11,669.93	9,704.00	48.01	45.40	1.89	2,258.89	9.02	362.47	331.20	31.27	11.592		
12,600.00	10,066.63	11,769.93	9,704.00	49.66	47.02	1.85	2,358.89	8.68	362.61	330.53	32.08	11.303		
12,700.00	10,066.77	11,869.93	9,704.00	51.32	48.66	1.81	2,458.89	8.33	362.75	329.85	32.91	11.024		
12,800.00	10,066.92	11,969.93	9,704.00	52.99	50.30	1.77	2,558.89	7.99	362.90	329.15	33.74	10.755		
12,900.00	10,067.07	12,069.93	9,704.00	54.67	51.97	1.73	2,658.89	7.65	363.04	328.45	34.59	10.496		
13,000.00	10,067.22	12,169.93	9,704.00	56.37	53.64	1.70	2,758.89	7.30	363.18	327.73	35.44	10.246		
13,100.00	10,067.37	12,269.93	9,704.00	58.07	55.32	1.66	2,858.89	6.96	363.32	327.01	36.31	10.006		
13,200.00	10,067.51	12,369.93	9,704.00	59.77	57.01	1.62	2,958.89	6.62	363.46	326.27	37.18	9.775		
13,300.00	10,067.66	12,469.93	9,704.00	61.49	58.71	1.58	3,058.89	6.27	363.60	325.53	38.07	9.552		
13,400.00	10,067.81	12,569.93	9,704.00	63.21	60.42	1.55	3,158.89	5.93	363.74	324.79	38.96	9.337		
13,500.00	10,067.96	12,669.93	9,704.00	64.94	62.14	1.51	3,258.88	5.59	363.88	324.03	39.85	9.131		
13,600.00	10,068.11	12,769.93	9,704.00	66.67	63.86	1.47	3,358.88	5.24	364.03	323.27	40.76	8.932		
13,700.00	10,068.25	12,869.93	9,704.00	68.41	65.59	1.43	3,458.88	4.90	364.17	322.50	41.67	8.740		
13,800.00	10,068.40	12,969.93	9,704.00	70.16	67.32	1.40	3,558.88	4.56	364.31	321.73	42.58	8.556		
13,900.00	10,068.55	13,069.93	9,704.00	71.91	69.06	1.36	3,658.88	4.21	364.45	320.95	43.50	8.378		
14,000.00	10,068.70	13,169.93	9,704.00	73.66	70.80	1.32	3,758.88	3.87	364.59	320.17	44.43	8.207		
14,100.00	10,068.84	13,269.93	9,704.00	75.41	72.55	1.28	3,858.88	3.52	364.74	319.38	45.36	8.041		
14,200.00	10,068.99	13,369.93	9,704.00	77.17	74.30	1.25	3,958.88	3.18	364.88	318.59	46.29	7.882		
14,300.00	10,069.14	13,469.92	9,704.00	78.94	76.06	1.21	4,058.88	2.84	365.02	317.79	47.23	7.729		
14,400.00	10,069.29	13,569.92	9,704.00	80.70	77.82	1.17	4,158.88	2.49	365.16	316.99	48.17	7.580		
14,500.00	10,069.44	13,669.92	9,704.00	82.47	79.58	1.14	4,258.88	2.15	365.31	316.19	49.12	7.437		
14,600.00	10,069.58	13,769.92	9,704.00	84.24	81.35	1.10	4,358.87	1.81	365.45	315.38	50.07	7.299		
14,700.00	10,069.73	13,869.92	9,704.00	86.02	83.12	1.06	4,458.87	1.46	365.59	314.57	51.02	7.165		
14,800.00	10,069.88	13,969.92	9,704.00	87.80	84.89	1.02	4,558.87	1.12	365.74	313.76	51.98	7.036		
14,900.00	10,070.03	14,069.92	9,704.00	89.57	86.66	0.99	4,658.87	0.78	365.88	312.94	52.94	6.912		
15,000.00	10,070.18	14,169.92	9,704.00	91.36	88.44	0.95	4,758.87	0.43	366.03	312.13	53.90	6.791		
15,100.00	10,070.32	14,269.92	9,704.00	93.14	90.22	0.91	4,858.87	0.09	366.17	311.31	54.86	6.674		
15,200.00	10,070.47	14,369.92	9,704.00	94.92	92.00	0.88	4,958.87	-0.25	366.31	310.48	55.83	6.561		
15,300.00	10,070.62	14,469.92	9,704.00	96.71	93.79	0.84	5,058.87	-0.60	366.46	309.66	56.80	6.452		
15,400.00	10,070.77	14,569.92	9,704.00	98.50	95.57	0.80	5,158.87	-0.94	366.60	308.83	57.77	6.346		
15,500.00	10,070.92	14,669.92	9,704.00	100.29	97.36	0.76	5,258.87	-1.29	366.75	308.00	58.75	6.243		
15,600.00	10,071.06	14,769.92	9,704.00	102.08	99.15	0.73	5,358.86	-1.63	366.89	307.17	59.72	6.143		
15,700.00	10,071.21	14,869.92	9,704.00	103.88	100.94	0.69	5,458.86	-1.97	367.04	306.34	60.70	6.047		
15,800.00	10,071.36	14,969.92	9,704.00	105.67	102.73	0.65	5,558.86	-2.32	367.18	305.50	61.68	5.953		
15,900.00	10,071.51	15,069.92	9,704.00	107.47	104.52	0.62	5,658.86	-2.66	367.33	304.66	62.66	5.862		
16,000.00	10,071.66	15,169.92	9,704.00	109.26	106.32	0.58	5,758.86	-3.00	367.47	303.83	63.65	5.774		
16,100.00	10,071.80	15,269.92	9,704.00	111.06	108.11	0.54	5,858.86	-3.35	367.62	302.99	64.63	5.688		

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 131H
Well Error: 0.00 ft
Reference Wellbore: Wellbore #1
Reference Design: Design #1

Local Co-ordinate Reference: Well Thistle Unit 131H
TVD Reference: RKB @ 3674.80ft
MD Reference: RKB @ 3674.80ft
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

Offset Design		Norwalk - Thistle Unit 118H - 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 (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
16,200.00	10,071.95	15,369.92	9,704.00	112.86	109.91	0.51	5,958.86	-3.69	367.77	302.15	65.62	5.605			
16,300.00	10,072.10	15,469.92	9,704.00	114.66	111.71	0.47	6,058.86	-4.03	367.91	301.30	66.61	5.524			
16,400.00	10,072.25	15,569.92	9,704.00	116.46	113.51	0.43	6,158.86	-4.38	368.06	300.46	67.60	5.445			
16,500.00	10,072.39	15,669.92	9,704.00	118.27	115.31	0.40	6,258.86	-4.72	368.20	299.61	68.59	5.368			
16,600.00	10,072.54	15,769.92	9,704.00	120.07	117.11	0.36	6,358.85	-5.06	368.35	298.77	69.58	5.294			
16,700.00	10,072.69	15,869.92	9,704.00	121.87	118.92	0.32	6,458.85	-5.41	368.50	297.92	70.58	5.221			
16,800.00	10,072.84	15,969.92	9,704.00	123.68	120.72	0.29	6,558.85	-5.75	368.64	297.07	71.57	5.151			
16,900.00	10,072.99	16,069.91	9,704.00	125.48	122.52	0.25	6,658.85	-6.10	368.79	296.22	72.57	5.082			
17,000.00	10,073.13	16,169.91	9,704.00	127.29	124.33	0.21	6,758.85	-6.44	368.94	295.37	73.57	5.015			
17,100.00	10,073.28	16,269.91	9,704.00	129.10	126.14	0.18	6,858.85	-6.78	369.08	294.52	74.56	4.950			
17,200.00	10,073.43	16,369.91	9,704.00	130.91	127.94	0.14	6,958.85	-7.13	369.23	293.67	75.56	4.886			
17,300.00	10,073.58	16,469.91	9,704.00	132.72	129.75	0.10	7,058.85	-7.47	369.38	292.81	76.57	4.824			
17,400.00	10,073.73	16,569.91	9,704.00	134.53	131.56	0.07	7,158.85	-7.81	369.53	291.96	77.57	4.764			
17,500.00	10,073.87	16,669.91	9,704.00	136.34	133.37	0.03	7,258.85	-8.16	369.67	291.10	78.57	4.705 SF			

Devon Energy

Anticollision Report

Company: WESTERN DIVISION
 Project: PBNM
 Reference Site: Norwalk
 Site Error: 0.00 ft
 Reference Well: Thistle Unit 131H
 Well Error: 0.00 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Design #1

Local Co-ordinate Reference: Well Thistle Unit 131H
 TVD Reference: RKB @ 3674.80ft
 MD Reference: RKB @ 3674.80ft
 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

Offset Design Norwalk - Thistle Unit 47H - ST01 - ST01												Offset Site Error: 0.00 ft		
Survey Program: 100-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	0.00	0.00	0.00	0.00	131.83	-295.80	330.51	443.84					
100.00	100.00	92.24	92.24	0.08	0.08	131.87	-295.96	330.18	443.41	443.30	0.12	3,853.604		
200.00	200.00	191.75	191.75	0.31	0.29	132.01	-296.60	329.26	443.15	442.72	0.42	1,044.344		
254.57	254.57	245.48	245.47	0.43	0.41	132.13	-297.21	328.63	443.09	442.50	0.60	743.289		
300.00	300.00	290.14	290.12	0.53	0.51	132.23	-297.85	328.10	443.13	442.39	0.74	599.544		
400.00	400.00	390.54	390.50	0.76	0.72	132.47	-299.33	326.96	443.29	442.25	1.04	425.146		
500.00	500.00	490.81	490.76	0.98	0.91	132.66	-300.44	326.02	443.35	442.01	1.34	330.879		
600.00	600.00	590.98	590.92	1.21	1.12	132.84	-301.45	325.11	443.36	441.71	1.65	269.261		
700.00	700.00	691.36	691.29	1.43	1.33	133.01	-302.40	324.17	443.32	441.36	1.95	226.773		
800.00	800.00	791.51	791.44	1.66	1.54	133.14	-303.05	323.42	443.21	440.95	2.26	196.047		
900.00	900.00	892.19	892.11	1.88	1.75	133.22	-303.37	322.84	443.02	440.45	2.57	172.402		
1,000.00	1,000.00	991.38	991.31	2.11	1.96	133.29	-303.63	322.34	442.82	439.95	2.88	153.994		
1,100.00	1,100.00	1,091.63	1,091.55	2.33	2.17	133.37	-304.03	321.81	442.71	439.53	3.18	139.086		
1,200.00	1,200.00	1,191.51	1,191.43	2.56	2.38	133.45	-304.37	321.30	442.58	439.09	3.49	126.788		
1,239.35	1,239.35	1,230.33	1,230.25	2.65	2.46	133.48	-304.53	321.11	442.55	438.94	3.61	122.567		
1,300.00	1,300.00	1,290.31	1,290.22	2.78	2.58	133.54	-304.87	320.86	442.61	438.81	3.80	116.605		
1,400.00	1,400.00	1,389.89	1,389.80	3.01	2.79	133.65	-305.65	320.40	442.81	438.71	4.10	107.939		
1,500.00	1,500.00	1,495.36	1,495.24	3.23	3.01	133.91	-307.02	318.88	442.68	438.26	4.42	100.182		
1,600.00	1,600.00	1,605.90	1,605.65	3.46	3.26	134.55	-308.86	313.77	440.53	435.78	4.75	92.834		
1,700.00	1,700.00	1,717.14	1,716.46	3.68	3.51	135.62	-310.97	304.30	435.83	430.75	5.08	85.808		
1,800.00	1,800.00	1,823.75	1,822.29	3.91	3.77	137.04	-313.24	291.70	429.18	423.76	5.42	79.229		
1,900.00	1,900.00	1,926.54	1,923.86	4.13	4.05	138.89	-316.60	276.28	421.48	415.72	5.76	73.117		
2,000.00	2,000.00	2,025.10	2,021.12	4.35	4.33	140.83	-319.96	260.68	413.82	407.70	6.11	67.681		
2,100.00	2,100.00	2,121.83	2,116.72	4.58	4.59	142.68	-323.02	246.23	406.98	400.52	6.46	62.986		
2,200.00	2,200.00	2,219.05	2,212.76	4.80	4.88	144.67	-326.76	231.62	401.12	394.30	6.82	58.815		
2,300.00	2,300.00	2,318.09	2,310.54	5.03	5.17	146.82	-331.01	216.46	395.99	388.80	7.19	55.075		
2,400.00	2,400.00	2,417.51	2,408.76	5.25	5.46	148.95	-334.78	201.58	391.19	383.63	7.56	51.768		
2,500.00	2,500.00	2,516.77	2,506.88	5.48	5.76	151.08	-338.31	186.93	386.85	378.92	7.93	48.789		
2,600.00	2,600.00	2,614.65	2,603.48	5.70	6.07	153.36	-342.21	171.70	383.08	374.76	8.32	46.070		
2,700.00	2,700.00	2,713.39	2,700.87	5.93	6.39	155.77	-346.57	155.98	380.19	371.48	8.71	43.671		
2,800.00	2,800.00	2,812.64	2,798.82	6.15	6.70	158.16	-350.62	140.54	377.82	368.73	9.09	41.563		
2,900.00	2,900.00	2,910.42	2,895.37	6.38	7.01	160.50	-354.53	125.58	376.14	366.66	9.48	39.693		
2,984.28	2,984.28	2,991.32	2,975.18	6.57	7.28	162.51	-358.24	112.90	375.61	365.80	9.80	38.308 CC		
3,000.00	3,000.00	3,006.33	2,989.99	6.60	7.33	162.89	-359.00	110.52	375.63	365.76	9.87	38.072		
3,100.00	3,100.00	3,105.08	3,087.40	6.83	7.66	165.36	-364.05	95.13	376.29	366.03	10.26	36.685		
3,200.00	3,200.00	3,203.75	3,184.81	7.05	7.98	167.74	-368.89	80.17	377.55	366.90	10.64	35.469		
3,300.00	3,300.00	3,300.92	3,280.53	7.28	8.32	170.24	-374.05	64.33	379.68	368.65	11.04	34.396		
3,400.00	3,400.00	3,398.97	3,376.85	7.47	8.68	-7.04	-379.75	46.85	382.24	370.82	11.42	33.459		
3,500.00	3,499.98	3,499.51	3,475.62	7.64	9.05	-4.32	-385.34	28.93	384.12	372.33	11.79	32.589		
3,600.00	3,599.92	3,599.32	3,573.90	7.81	9.38	-1.83	-390.38	12.29	385.06	372.93	12.13	31.748		
3,700.00	3,699.82	3,699.89	3,673.20	7.99	9.71	0.44	-394.96	-2.97	384.90	372.43	12.46	30.882		
3,800.00	3,799.64	3,797.51	3,769.61	8.16	10.04	2.63	-399.43	-17.63	384.05	371.26	12.79	30.032		
3,900.00	3,899.38	3,897.24	3,868.06	8.34	10.38	4.93	-404.03	-32.89	382.54	369.42	13.12	29.166		
3,966.67	3,965.82	3,964.70	3,934.71	8.47	10.60	6.48	-406.91	-42.95	380.91	367.58	13.33	28.571		
4,000.00	3,999.03	3,995.59	3,965.22	8.53	10.70	7.18	-408.24	-47.51	380.06	366.63	13.43	28.298		
4,092.78	4,091.45	4,081.24	4,049.74	8.71	10.99	9.21	-412.87	-60.65	379.11	365.42	13.70	27.679		
4,100.00	4,098.65	4,088.09	4,056.49	8.72	11.02	9.37	-413.29	-61.72	379.12	365.40	13.72	27.636 ES		
4,200.00	4,198.27	4,184.87	4,151.83	8.92	11.36	11.71	-419.63	-77.13	380.01	366.00	14.02	27.109		
4,300.00	4,297.89	4,286.71	4,252.24	9.12	11.71	14.09	-426.03	-92.80	381.19	366.86	14.33	26.607		
4,400.00	4,397.51	4,387.85	4,352.18	9.32	12.04	16.27	-432.07	-107.11	382.33	367.71	14.62	26.152		
4,500.00	4,497.12	4,489.51	4,452.81	9.53	12.36	18.30	-437.81	-120.38	383.36	368.45	14.91	25.714		
4,600.00	4,596.74	4,592.11	4,554.41	9.74	12.68	20.39	-442.78	-133.81	384.11	368.91	15.19	25.280		

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 131H
 Well Error: 0.00 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Design #1

Local Co-ordinate Reference: Well Thistle Unit 131H
 TVD Reference: RKB @ 3674.80ft
 MD Reference: RKB @ 3674.80ft
 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

Offset Design Norwalk - Thistle Unit 47H - ST01 - ST01														Offset Site Error:	0.00 ft
Survey Program: 100-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)				Between Centres (ft)	Between Ellipses (ft)		
4,700.00	4,896.36	4,893.24	4,854.62	9.96	12.99	22.44	-446.82	-146.78	384.46	368.99		15.47	24.849		
4,800.00	4,795.98	4,791.28	4,751.76	10.17	13.30	24.46	-450.56	-159.51	385.20	369.47		15.74	24.477		
4,900.00	4,895.60	4,887.74	4,847.30	10.39	13.60	26.41	-454.78	-172.09	386.96	370.97		15.99	24.196		
5,000.00	4,995.22	4,976.95	4,935.51	10.62	13.89	28.20	-459.83	-184.35	390.67	374.45		16.22	24.088		
5,100.00	5,094.84	5,070.57	5,027.66	10.84	14.23	30.27	-466.07	-199.65	397.02	380.56		16.46	24.118		
5,200.00	5,194.46	5,171.43	5,126.77	11.07	14.61	32.59	-472.53	-217.24	404.35	387.61		16.74	24.158		
5,300.00	5,294.08	5,275.24	5,228.98	11.30	14.98	34.83	-478.50	-234.37	411.22	394.19		17.03	24.150		
5,400.00	5,393.70	5,378.90	5,331.08	11.53	15.35	37.18	-482.56	-251.82	417.41	400.10		17.31	24.113		
5,500.00	5,493.32	5,479.71	5,430.33	11.77	15.70	39.60	-484.78	-269.29	423.26	405.69		17.58	24.080		
5,600.00	5,592.94	5,579.35	5,528.53	12.00	16.05	41.87	-486.99	-286.08	429.52	411.67		17.84	24.073		
5,700.00	5,692.56	5,678.01	5,623.85	12.24	16.38	43.95	-489.30	-301.95	436.24	418.15		18.10	24.105		
5,800.00	5,792.18	5,765.79	5,712.29	12.48	16.70	45.74	-492.69	-316.96	444.74	426.41		18.33	24.267		
5,900.00	5,891.80	5,864.70	5,809.63	12.72	17.06	47.52	-497.90	-333.75	454.89	436.28		18.60	24.450		
6,000.00	5,991.42	5,963.72	5,907.13	12.97	17.42	49.17	-503.40	-350.10	465.29	446.40		18.89	24.636		
6,100.00	6,091.04	6,065.01	6,006.96	13.21	17.78	50.70	-509.29	-366.20	475.74	456.56		19.18	24.799		
6,200.00	6,190.66	6,169.29	6,109.83	13.46	18.14	52.29	-514.31	-382.51	485.70	466.20		19.50	24.914		
6,300.00	6,290.28	6,274.63	6,213.96	13.70	18.49	53.87	-518.20	-397.97	494.54	474.72		19.81	24.962		
6,400.00	6,389.89	6,375.69	6,313.98	13.95	18.82	55.27	-522.01	-411.94	503.03	482.92		20.11	25.010		
6,500.00	6,489.51	6,469.83	6,407.19	14.20	19.12	56.50	-525.53	-424.62	511.53	491.13		20.39	25.083		
6,600.00	6,589.13	6,557.70	6,493.86	14.45	19.43	57.69	-529.43	-438.56	522.61	501.96		20.65	25.308		
6,700.00	6,688.75	6,659.45	6,594.15	14.70	19.79	59.02	-534.12	-455.13	534.46	513.48		20.97	25.482		
6,800.00	6,788.37	6,761.53	6,694.91	14.95	20.15	60.26	-538.67	-470.84	545.71	524.41		21.30	25.618		
6,900.00	6,887.99	6,862.69	6,794.81	15.20	20.49	61.41	-543.30	-486.04	556.93	535.30		21.63	25.750		
7,000.00	6,987.61	6,962.02	6,892.98	15.46	20.82	62.53	-547.29	-500.66	567.82	545.87		21.95	25.869		
7,100.00	7,087.23	7,061.80	6,991.53	15.71	21.16	63.70	-550.54	-515.89	579.08	556.81		22.28	25.996		
7,200.00	7,186.85	7,154.04	7,082.64	15.97	21.48	64.73	-553.65	-529.95	590.62	568.04		22.58	26.162		
7,300.00	7,286.47	7,251.04	7,178.28	16.22	21.82	65.65	-558.70	-545.33	603.63	580.73		22.90	26.359		
7,400.00	7,386.09	7,354.32	7,280.21	16.48	22.18	66.57	-563.89	-561.13	616.22	592.97		23.25	26.499		
7,500.00	7,485.71	7,458.07	7,382.73	16.74	22.53	67.47	-568.79	-576.31	628.23	604.62		23.61	26.608		
7,600.00	7,585.33	7,545.05	7,468.63	16.99	22.83	68.20	-572.89	-589.32	640.68	616.78		23.90	26.805		
7,700.00	7,684.95	7,642.82	7,564.94	17.25	23.18	68.99	-578.09	-605.30	654.75	630.51		24.24	27.010		
7,800.00	7,784.57	7,751.61	7,672.28	17.51	23.57	69.80	-583.91	-622.01	668.03	643.41		24.63	27.125		
7,900.00	7,884.19	7,863.76	7,783.27	17.77	23.94	70.57	-589.48	-637.08	679.45	654.43		25.02	27.155		
7,966.67	7,950.60	7,925.90	7,844.82	17.94	24.13	71.00	-592.23	-645.20	686.77	661.53		25.24	27.212		
8,000.00	7,983.81	7,956.03	7,874.64	18.03	24.23	71.24	-593.53	-649.29	690.62	665.28		25.34	27.255		
8,100.00	8,083.52	8,041.23	7,958.82	18.25	24.51	71.87	-597.27	-661.92	703.73	678.12		25.61	27.478		
8,200.00	8,183.32	8,141.68	8,057.91	18.47	24.86	72.52	-601.63	-677.76	718.20	692.25		25.94	27.684		
8,300.00	8,283.19	8,246.72	8,161.68	18.69	25.22	73.05	-606.07	-693.43	732.23	705.94		26.29	27.855		
8,400.00	8,383.12	8,331.57	8,245.38	18.89	25.52	73.42	-609.79	-706.84	747.56	721.01		26.55	28.159		
8,500.00	8,483.09	8,437.83	8,350.15	19.10	25.89	73.74	-614.57	-723.97	763.63	736.74		26.89	28.398		
8,600.00	8,583.09	8,545.92	8,456.91	19.29	26.27	73.96	-619.03	-740.23	778.94	751.70		27.23	28.604		
8,633.34	8,616.42	8,581.62	8,492.21	19.35	26.39	-105.99	-620.39	-745.36	783.87	756.53		27.34	28.668		
8,700.00	8,683.09	8,642.99	8,552.91	19.48	26.60	-105.98	-622.71	-754.11	793.70	766.17		27.53	28.831		
8,800.00	8,783.09	8,733.09	8,641.83	19.67	26.91	-105.97	-626.59	-768.06	809.76	781.96		27.80	29.130		
8,900.00	8,883.09	8,839.98	8,747.37	19.86	27.27	-105.93	-630.70	-784.56	825.66	797.53		28.13	29.351		
9,000.00	8,983.09	8,934.23	8,840.54	20.06	27.60	-105.90	-634.22	-798.39	840.82	812.40		28.42	29.589		
9,100.00	9,083.09	9,022.45	8,927.49	20.25	27.91	-105.89	-638.16	-812.73	857.63	828.95		28.68	29.902		
9,200.00	9,183.09	9,140.19	9,043.65	20.44	28.32	-105.88	-643.30	-831.24	874.01	844.95		29.06	30.081		
9,300.00	9,283.09	9,253.07	9,155.43	20.63	28.69	-105.90	-647.78	-846.22	887.83	858.43		29.40	30.197		
9,400.00	9,383.09	9,346.58	9,248.09	20.83	28.99	-105.88	-651.03	-858.47	901.38	871.70		29.69	30.364		
9,507.34	9,490.42	9,442.49	9,342.97	21.04	29.29	-105.82	-653.95	-872.11	916.96	886.98		29.98	30.589		
9,550.00	9,533.05	9,476.60	9,376.68	21.11	29.41	-105.14	-655.20	-877.22	923.96	893.89		30.07	30.723		

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 131H
 Well Error: 0.00 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Design #1

Local Co-ordinate Reference: Well Thistle Unit 131H
 TVD Reference: RKB @ 3674.80ft
 MD Reference: RKB @ 3674.80ft
 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

Offset Design Norwalk - Thistle Unit 47H - ST01 - ST01													Offset Site Error: 0.00 ft
Survey Program: 100-MWD													Offset Well Error: 0.00 ft
Reference		Offset		Semi Major Axis		Highside Tooface (°)	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)					
9,600.00	9,582.68	9,512.75	9,412.32	21.18	29.54	-104.42	-656.63	-883.05	933.81	903.65	30.16	30.963	
9,650.00	9,631.62	9,554.02	9,452.91	21.23	29.68	-103.77	-658.40	-890.28	945.44	915.19	30.25	31.255	
9,700.00	9,679.48	9,602.94	9,501.01	21.25	29.86	-103.34	-660.66	-898.92	958.36	928.00	30.36	31.565	
9,750.00	9,725.90	9,658.48	9,555.74	21.27	30.07	-103.20	-663.42	-907.99	971.95	941.46	30.49	31.874	
9,800.00	9,770.53	9,704.90	9,601.53	21.26	30.23	-102.95	-665.60	-915.28	986.59	956.00	30.59	32.249	
9,850.00	9,813.02	9,748.30	9,644.36	21.25	30.38	-102.65	-667.42	-922.03	1,002.53	971.84	30.69	32.667	
9,900.00	9,853.06	9,783.93	9,679.53	21.24	30.51	-102.06	-668.82	-927.62	1,020.04	989.26	30.77	33.146	
9,950.00	9,890.35	9,816.94	9,712.08	21.22	30.62	-101.29	-670.09	-932.90	1,039.26	1,008.39	30.87	33.666	
10,000.00	9,924.58	9,838.02	9,732.87	21.21	30.70	-99.89	-670.89	-936.33	1,060.29	1,029.34	30.95	34.259	
10,050.00	9,955.52	9,866.12	9,760.55	21.21	30.80	-98.62	-672.00	-941.04	1,083.15	1,052.07	31.08	34.849	
10,100.00	9,982.91	9,884.31	9,778.44	21.23	30.87	-96.68	-672.78	-944.22	1,107.90	1,076.69	31.21	35.500	
10,150.00	10,006.56	9,899.57	9,793.44	21.26	30.92	-94.37	-673.48	-946.97	1,134.41	1,103.05	31.36	36.178	
10,200.00	10,026.27	9,911.85	9,805.49	21.32	30.97	-91.65	-674.06	-949.24	1,162.50	1,130.97	31.52	36.877	
10,250.00	10,041.91	9,933.02	9,826.25	21.41	31.05	-89.21	-675.12	-953.25	1,192.06	1,160.32	31.75	37.550	
10,300.00	10,053.36	9,933.02	9,826.25	21.52	31.05	-85.35	-675.12	-953.25	1,222.66	1,190.74	31.92	38.302	
10,350.00	10,060.52	9,933.02	9,826.25	21.67	31.05	-81.31	-675.12	-953.25	1,254.23	1,222.11	32.12	39.053	
10,400.00	10,063.34	9,933.02	9,826.25	21.84	31.05	-77.16	-675.12	-953.25	1,286.47	1,254.15	32.33	39.796	
10,406.49	10,063.38	9,933.02	9,826.25	21.87	31.05	-76.62	-675.12	-953.25	1,290.69	1,258.34	32.35	39.893	
10,500.00	10,063.52	9,933.02	9,826.25	22.29	31.05	-76.62	-675.12	-953.25	1,353.40	1,320.63	32.77	41.299	
10,600.00	10,063.67	9,933.02	9,826.25	22.88	31.05	-76.62	-675.12	-953.25	1,424.20	1,390.98	33.22	42.871	
10,700.00	10,063.82	9,933.02	9,826.25	23.60	31.05	-76.62	-675.12	-953.25	1,498.33	1,464.67	33.66	44.513	
10,800.00	10,063.96	9,933.02	9,826.25	24.43	31.05	-76.62	-675.12	-953.25	1,575.33	1,541.24	34.08	46.222	
10,900.00	10,064.11	9,914.21	9,807.80	25.37	30.98	-75.52	-674.18	-949.68	1,654.62	1,620.20	34.43	48.064	
11,000.00	10,064.26	9,911.11	9,804.77	26.40	30.97	-75.34	-674.03	-949.10	1,736.15	1,701.36	34.79	49.904	
11,100.00	10,064.41	9,908.08	9,801.79	27.52	30.96	-75.17	-673.88	-948.54	1,819.52	1,784.39	35.13	51.796	
11,200.00	10,064.56	12,974.21	11,235.20	28.71	46.40	-129.16	970.60	-1,449.81	1,868.04	1,831.09	36.95	50.562	
11,300.00	10,064.70	13,072.65	11,236.80	29.96	47.27	-129.24	1,069.00	-1,447.70	1,867.23	1,829.00	38.23	48.846	
11,363.49	10,064.80	13,122.68	11,237.71	30.79	47.73	-129.28	1,119.02	-1,446.78	1,866.95	1,827.87	39.09	47.763	
11,400.00	10,064.85	13,149.30	11,238.26	31.27	47.98	-129.30	1,145.63	-1,446.48	1,867.05	1,827.46	39.59	47.160	
11,500.00	10,065.00	13,225.93	11,239.94	32.63	48.72	-129.34	1,222.24	-1,446.48	1,868.25	1,827.24	41.01	45.558	
11,600.00	10,065.15	13,301.61	11,240.82	34.04	49.50	-129.32	1,297.89	-1,448.23	1,870.62	1,828.12	42.50	44.020	
11,700.00	10,065.29	13,372.03	11,240.70	35.49	50.27	-129.25	1,368.20	-1,452.08	1,874.54	1,830.48	44.05	42.550	
11,800.00	10,065.44	13,483.95	11,238.62	36.96	51.60	-129.03	1,479.80	-1,460.40	1,878.98	1,833.24	45.73	41.085	
11,900.00	10,065.59	13,607.07	11,234.75	38.48	53.14	-128.77	1,602.53	-1,469.33	1,882.50	1,834.98	47.52	39.615	
12,000.00	10,065.74	13,706.04	11,230.85	40.01	54.38	-128.55	1,701.20	-1,475.85	1,885.01	1,835.70	49.31	38.227	
12,100.00	10,065.89	13,779.53	11,229.56	41.57	55.29	-128.44	1,774.54	-1,480.30	1,888.51	1,837.45	51.06	36.986	
12,200.00	10,066.03	13,846.98	11,229.99	43.16	56.12	-128.36	1,841.86	-1,484.57	1,893.69	1,840.89	52.80	35.868	
12,300.00	10,066.18	13,964.25	11,232.44	44.76	57.60	-128.29	1,958.90	-1,491.42	1,899.41	1,844.84	54.57	34.804	
12,400.00	10,066.33	14,096.42	11,235.45	46.38	59.30	-128.27	2,090.95	-1,496.08	1,903.34	1,846.97	56.36	33.768	
12,500.00	10,066.48	14,198.67	11,238.41	48.01	60.61	-128.30	2,193.13	-1,498.22	1,906.60	1,848.46	58.14	32.796	
12,600.00	10,066.63	14,292.58	11,241.95	49.66	61.82	-128.36	2,286.96	-1,499.70	1,910.00	1,850.10	59.90	31.887	
12,700.00	10,066.77	14,378.92	11,244.94	51.32	62.95	-128.39	2,373.23	-1,501.82	1,913.90	1,852.21	61.69	31.024	
12,800.00	10,066.92	14,468.43	11,247.51	52.99	64.16	-128.38	2,462.63	-1,505.27	1,918.52	1,855.00	63.52	30.201	
12,900.00	10,067.07	14,577.57	11,248.97	54.67	65.69	-128.31	2,571.61	-1,510.97	1,923.29	1,857.85	65.44	29.388	
13,000.00	10,067.22	14,732.85	11,248.85	56.37	67.93	-128.18	2,726.75	-1,517.52	1,926.46	1,859.00	67.46	28.558	
13,100.00	10,067.37	14,851.85	11,247.39	58.07	69.63	-128.11	2,845.71	-1,519.80	1,926.96	1,857.55	69.41	27.761	
13,200.00	10,067.51	14,943.22	11,247.25	59.77	70.89	-128.08	2,937.07	-1,520.97	1,927.69	1,856.37	71.32	27.029	
13,300.00	10,067.66	15,028.04	11,248.10	61.49	72.07	-128.08	3,021.89	-1,521.86	1,928.97	1,855.76	73.21	26.347	
13,400.00	10,067.81	15,123.87	11,249.11	63.21	73.44	-128.07	3,117.69	-1,523.82	1,931.05	1,855.91	75.14	25.700	
13,500.00	10,067.96	15,244.31	11,248.70	64.94	75.22	-128.01	3,238.09	-1,526.64	1,932.51	1,855.38	77.13	25.057	
13,600.00	10,068.11	15,392.60	11,241.91	66.67	77.45	-127.76	3,386.13	-1,531.45	1,932.04	1,852.79	79.25	24.378	
13,700.00	10,068.25	15,502.86	11,234.46	68.41	79.12	-127.52	3,496.08	-1,534.73	1,930.08	1,848.68	81.40	23.712	

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 131H
 Well Error: 0.00 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Design #1

Local Co-ordinate Reference: Well Thistle Unit 131H
 TVD Reference: RKB @ 3674.80ft
 MD Reference: RKB @ 3674.80ft
 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

Norwalk - Thistle Unit 47H - ST01 - ST01													Offset Site Error: 0.00 ft	
Survey Program: 100-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		
13,800.00	10,068.40	15,600.04	11,228.29	70.16	80.57	-127.33	3,593.04	-1,537.14	1,928.01	1,844.49	83.51	23.086		
13,900.00	10,068.55	15,699.36	11,223.33	71.91	82.04	-127.18	3,692.23	-1,538.79	1,926.13	1,840.54	85.60	22.502		
14,000.00	10,068.70	15,776.89	11,220.06	73.66	83.20	-127.08	3,769.68	-1,539.86	1,924.58	1,836.90	87.68	21.950		
14,039.48	10,068.76	15,802.16	11,219.44	74.35	83.57	-127.06	3,794.94	-1,540.27	1,924.44	1,835.94	88.49	21.747		
14,100.00	10,068.84	15,830.03	11,219.04	75.41	83.99	-127.04	3,822.80	-1,540.77	1,924.83	1,835.11	89.72	21.454		
14,200.00	10,068.99	15,894.79	11,219.42	77.17	84.96	-127.02	3,887.53	-1,542.40	1,927.15	1,835.44	91.71	21.014		
14,300.00	10,069.14	15,959.95	11,221.45	78.94	85.95	-127.03	3,952.61	-1,544.79	1,931.71	1,838.05	93.66	20.626		
14,400.00	10,069.29	16,048.71	11,225.10	80.70	87.31	-127.04	4,041.21	-1,548.78	1,937.57	1,841.94	95.63	20.262		
14,500.00	10,069.44	16,162.35	11,229.17	82.47	89.10	-127.05	4,154.68	-1,553.56	1,942.88	1,845.21	97.67	19.892		
14,600.00	10,069.58	16,259.33	11,233.00	84.24	90.61	-127.07	4,251.51	-1,557.29	1,948.15	1,848.49	99.66	19.548		
14,700.00	10,069.73	16,358.35	11,237.52	86.02	92.16	-127.11	4,350.37	-1,560.75	1,953.52	1,851.88	101.64	19.221		
14,800.00	10,069.88	16,380.03	11,238.53	87.80	92.50	-127.12	4,372.01	-1,561.49	1,960.46	1,857.04	103.42	18.957		
14,900.00	10,070.03	16,380.03	11,238.53	89.57	92.50	-127.12	4,372.01	-1,561.49	1,972.33	1,867.41	104.92	18.799		
15,000.00	10,070.18	16,380.03	11,238.53	91.36	92.50	-127.12	4,372.01	-1,561.49	1,989.16	1,882.99	106.17	18.736 SF		
15,100.00	10,070.32	16,380.03	11,238.53	93.14	92.50	-127.12	4,372.01	-1,561.49	2,010.83	1,903.66	107.17	18.763		
15,200.00	10,070.47	16,380.03	11,238.53	94.92	92.50	-127.12	4,372.01	-1,561.49	2,037.18	1,929.26	107.93	18.876		
15,300.00	10,070.62	16,380.03	11,238.53	96.71	92.50	-127.12	4,372.01	-1,561.49	2,068.04	1,959.59	108.45	19.068		
15,400.00	10,070.77	16,380.03	11,238.53	98.50	92.50	-127.12	4,372.01	-1,561.49	2,103.21	1,994.44	108.77	19.337		
15,500.00	10,070.92	16,380.03	11,238.53	100.29	92.50	-127.12	4,372.01	-1,561.49	2,142.46	2,033.58	108.88	19.677		
15,600.00	10,071.06	16,380.03	11,238.53	102.08	92.50	-127.12	4,372.01	-1,561.49	2,185.60	2,076.78	108.82	20.085		
15,700.00	10,071.21	16,380.03	11,238.53	103.88	92.50	-127.12	4,372.01	-1,561.49	2,232.38	2,123.78	108.60	20.556		
15,800.00	10,071.36	16,380.03	11,238.53	105.67	92.50	-127.12	4,372.01	-1,561.49	2,282.58	2,174.34	108.25	21.087		
15,900.00	10,071.51	16,380.03	11,238.53	107.47	92.50	-127.12	4,372.01	-1,561.49	2,336.00	2,228.22	107.78	21.674		
16,000.00	10,071.66	16,380.03	11,238.53	109.26	92.50	-127.12	4,372.01	-1,561.49	2,392.40	2,285.18	107.21	22.315		
16,100.00	10,071.80	16,380.03	11,238.53	111.06	92.50	-127.12	4,372.01	-1,561.49	2,451.58	2,345.02	106.56	23.006		
16,200.00	10,071.95	16,380.03	11,238.53	112.86	92.50	-127.12	4,372.01	-1,561.49	2,513.35	2,407.50	105.85	23.745		
16,300.00	10,072.10	16,380.03	11,238.53	114.66	92.50	-127.12	4,372.01	-1,561.49	2,577.52	2,472.43	105.08	24.528		
16,400.00	10,072.25	16,380.03	11,238.53	116.46	92.50	-127.12	4,372.01	-1,561.49	2,643.91	2,539.63	104.28	25.354		
16,500.00	10,072.39	16,380.03	11,238.53	118.27	92.50	-127.12	4,372.01	-1,561.49	2,712.37	2,608.92	103.45	26.219		
16,600.00	10,072.54	16,380.03	11,238.53	120.07	92.50	-127.12	4,372.01	-1,561.49	2,782.74	2,680.14	102.60	27.123		
16,700.00	10,072.69	16,380.03	11,238.53	121.87	92.50	-127.12	4,372.01	-1,561.49	2,854.88	2,753.14	101.74	28.062		
16,800.00	10,072.84	16,380.03	11,238.53	123.68	92.50	-127.12	4,372.01	-1,561.49	2,928.65	2,827.78	100.87	29.034		
16,900.00	10,072.99	16,380.03	11,238.53	125.48	92.50	-127.12	4,372.01	-1,561.49	3,003.94	2,903.94	100.00	30.039		
17,000.00	10,073.13	16,380.03	11,238.53	127.29	92.50	-127.12	4,372.01	-1,561.49	3,080.64	2,981.50	99.14	31.074		
17,100.00	10,073.28	16,380.03	11,238.53	129.10	92.50	-127.12	4,372.01	-1,561.49	3,158.64	3,060.36	98.29	32.137		
17,200.00	10,073.43	16,380.03	11,238.53	130.91	92.50	-127.12	4,372.01	-1,561.49	3,237.86	3,140.41	97.45	33.228		
17,300.00	10,073.58	16,380.03	11,238.53	132.72	92.50	-127.12	4,372.01	-1,561.49	3,318.19	3,221.57	96.62	34.343		
17,400.00	10,073.73	16,380.03	11,238.53	134.53	92.50	-127.12	4,372.01	-1,561.49	3,399.57	3,303.76	95.81	35.484		
17,500.00	10,073.87	16,380.03	11,238.53	136.34	92.50	-127.12	4,372.01	-1,561.49	3,481.92	3,386.91	95.01	36.647		
17,585.48	10,074.00	16,380.03	11,238.53	137.88	92.50	-127.12	4,372.01	-1,561.49	3,553.03	3,458.68	94.35	37.658		

Devon Energy

Anticollision Report

Company:	WESTERN DIVISION	Local Co-ordinate Reference:	Well Thistle Unit 131H
Project:	PBNM	TVD Reference:	RKB @ 3674.80ft
Reference Site:	Norwalk	MD Reference:	RKB @ 3674.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Thistle Unit 131H	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 48H - Wellbore #1 - Wellbore #1												Offset Well Error:	0.00 ft
Survey Program: 141-MWD, 5315-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
0.00	0.00	0.00	0.00	0.00	0.00	127.83	-295.51	380.50	481.87				
100.00	100.00	92.29	92.29	0.08	0.09	127.78	-295.04	380.66	481.62	481.50	0.12	3,995.272	
200.00	200.00	191.46	191.44	0.31	0.25	127.59	-293.56	381.31	481.22	480.83	0.39	1,221.967	
300.00	300.00	294.96	294.91	0.53	0.47	127.29	-291.37	382.67	480.99	480.28	0.71	677.866	
400.00	400.00	393.82	393.74	0.76	0.67	127.05	-289.17	383.03	479.94	478.93	1.01	474.289	
500.00	500.00	492.79	492.71	0.98	0.87	126.87	-287.66	383.60	479.48	478.17	1.31	364.944	
589.10	589.10	579.79	579.70	1.18	1.05	126.73	-286.64	384.09	479.25	477.67	1.58	302.497	
600.00	600.00	590.38	590.29	1.21	1.08	126.72	-286.52	384.18	479.26	477.64	1.62	296.309	
700.00	700.00	689.49	689.38	1.43	1.29	126.55	-285.54	385.14	479.44	477.52	1.93	248.960	
800.00	800.00	789.86	789.75	1.66	1.50	126.41	-284.70	386.00	479.64	477.41	2.23	214.705	
900.00	900.00	887.88	887.76	1.88	1.71	126.29	-284.16	386.92	480.06	477.52	2.54	189.003	
1,000.00	1,000.00	988.39	988.27	2.11	1.92	126.24	-284.08	387.64	480.59	477.74	2.85	168.603	
1,100.00	1,100.00	1,088.64	1,088.52	2.33	2.13	126.23	-284.33	388.04	481.06	477.90	3.16	152.254	
1,200.00	1,200.00	1,189.27	1,189.15	2.56	2.34	126.24	-284.59	388.30	481.42	477.96	3.47	138.866	
1,300.00	1,300.00	1,289.95	1,289.83	2.78	2.55	126.25	-284.81	388.45	481.67	477.90	3.77	127.600	
1,400.00	1,400.00	1,391.05	1,390.92	3.01	2.77	126.28	-285.04	388.34	481.72	477.63	4.08	117.930	
1,500.00	1,500.00	1,495.61	1,495.49	3.23	2.98	126.28	-284.80	388.04	481.36	476.97	4.40	109.472	
1,600.00	1,600.00	1,599.94	1,599.79	3.46	3.20	126.16	-283.04	387.24	479.74	475.03	4.71	101.842	
1,700.00	1,700.00	1,699.02	1,698.86	3.68	3.41	126.11	-281.54	385.99	477.83	472.81	5.02	95.205	
1,800.00	1,800.00	1,797.06	1,796.88	3.91	3.62	126.08	-280.45	384.94	476.31	470.99	5.32	89.494	
1,900.00	1,900.00	1,895.83	1,895.65	4.13	3.82	126.01	-279.36	384.30	475.13	469.51	5.63	84.464	
2,000.00	2,000.00	1,996.24	1,996.05	4.35	4.03	125.99	-278.56	383.55	474.06	468.12	5.93	79.884	
2,100.00	2,100.00	2,097.90	2,097.70	4.58	4.25	126.03	-278.06	382.26	472.75	466.50	6.25	75.676	
2,200.00	2,200.00	2,199.81	2,199.59	4.80	4.47	126.09	-277.42	380.58	471.04	464.48	6.56	71.825	
2,300.00	2,300.00	2,302.13	2,301.89	5.03	4.68	126.13	-276.40	378.56	468.87	462.00	6.87	68.263	
2,400.00	2,400.00	2,402.33	2,402.06	5.25	4.89	126.16	-275.11	376.50	466.44	459.26	7.17	65.019	
2,500.00	2,500.00	2,502.84	2,502.54	5.48	5.10	126.14	-273.50	374.54	463.92	456.44	7.48	62.029	
2,600.00	2,600.00	2,603.80	2,603.46	5.70	5.32	126.13	-271.85	372.44	461.28	453.49	7.79	59.222	
2,700.00	2,700.00	2,705.87	2,705.49	5.93	5.54	126.12	-269.99	369.95	458.23	450.13	8.10	56.561	
2,800.00	2,800.00	2,807.19	2,806.74	6.15	5.75	126.06	-267.57	367.46	454.84	446.43	8.41	54.073	
2,900.00	2,900.00	2,908.35	2,907.84	6.38	5.97	125.99	-264.89	364.78	451.14	442.42	8.72	51.724	
3,000.00	3,000.00	3,006.86	3,006.27	6.60	6.18	125.85	-261.83	362.39	447.35	438.33	9.03	49.550	
3,100.00	3,100.00	3,103.45	3,102.79	6.83	6.39	125.58	-258.41	361.15	444.24	434.91	9.33	47.613	
3,200.00	3,200.00	3,203.09	3,202.38	7.05	6.60	125.30	-255.15	360.33	441.68	432.04	9.64	45.834	
3,300.00	3,300.00	3,303.65	3,302.86	7.28	6.81	125.02	-251.74	359.31	438.89	428.95	9.95	44.125	
3,400.00	3,400.00	3,404.41	3,403.54	7.47	7.03	-55.47	-247.61	358.69	435.67	425.44	10.24	42.566	
3,500.00	3,499.98	3,502.04	3,501.05	7.64	7.24	-56.23	-242.78	358.66	431.77	421.27	10.50	41.117	
3,600.00	3,599.92	3,600.20	3,599.09	7.81	7.45	-57.20	-237.95	359.29	427.81	417.04	10.77	39.728	
3,700.00	3,699.82	3,699.02	3,697.80	7.99	7.66	-58.33	-233.26	360.08	423.49	412.45	11.04	38.362	
3,800.00	3,799.64	3,795.56	3,794.23	8.16	7.87	-59.60	-228.94	361.12	419.06	407.75	11.31	37.049	
3,900.00	3,899.38	3,893.84	3,892.43	8.34	8.08	-61.03	-225.07	362.51	414.77	403.18	11.59	35.792	
3,966.67	3,965.82	3,958.95	3,957.51	8.47	8.22	-61.97	-223.25	363.18	411.83	400.06	11.77	34.979	
4,000.00	3,999.03	3,991.48	3,990.04	8.53	8.29	-62.42	-222.61	363.45	410.41	398.55	11.87	34.584	
4,100.00	4,098.65	4,090.33	4,088.88	8.72	8.49	-63.69	-221.39	364.09	408.46	394.31	12.15	33.454	
4,200.00	4,198.27	4,190.70	4,189.24	8.92	8.71	-64.93	-220.57	364.48	402.67	390.23	12.44	32.373	
4,300.00	4,297.89	4,289.08	4,287.61	9.12	8.91	-66.20	-219.60	364.85	398.99	386.26	12.73	31.352	
4,398.42	4,395.93	4,376.04	4,374.55	9.32	9.09	-67.33	-219.36	366.67	397.36	384.37	12.99	30.590	
4,400.00	4,397.51	4,376.04	4,374.55	9.32	9.09	-67.33	-219.36	366.67	397.36	384.37	12.99	30.588	
4,500.00	4,497.12	4,459.29	4,457.66	9.53	9.26	-68.38	-220.55	371.10	399.55	386.32	13.23	30.193	
4,600.00	4,596.74	4,547.60	4,545.62	9.74	9.43	-69.45	-223.13	378.63	405.44	391.96	13.48	30.072	
4,700.00	4,696.36	4,650.30	4,647.78	9.96	9.64	-70.67	-226.37	388.61	412.73	398.94	13.79	29.926	
4,800.00	4,795.98	4,746.63	4,743.65	10.17	9.83	-71.83	-228.97	397.65	419.72	405.64	14.08	29.814	

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 131H
 Well Error: 0.00 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Design #1

Local Co-ordinate Reference: Well Thistle Unit 131H
 TVD Reference: RKB @ 3674.80ft
 MD Reference: RKB @ 3674.80ft
 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

Norwalk - Thistle Unit 48H - Wellbore #1 - Wellbore #1													Offset Site Error:	0.00 ft
Survey Program: 141-MWD, 5315-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)						
4,900.00	4,895.60	4,844.70	4,841.18	10.39	10.03	-72.89	-232.31	407.30	427.53	413.16	14.37	29.746		
5,000.00	4,995.22	4,944.59	4,940.52	10.62	10.24	-73.86	-236.31	417.04	435.56	420.88	14.68	29.677		
5,100.00	5,094.84	5,054.43	5,049.89	10.84	10.47	-74.96	-239.77	426.53	442.40	427.37	15.02	29.450		
5,200.00	5,194.46	5,159.78	5,154.95	11.07	10.67	-76.00	-242.50	433.79	447.55	432.22	15.33	29.194		
5,300.00	5,294.08	5,262.94	5,257.90	11.30	10.79	-76.98	-245.08	439.89	451.86	436.28	15.58	29.007		
5,400.00	5,393.70	5,367.71	5,362.49	11.53	10.85	-77.88	-248.00	445.08	455.42	439.63	15.79	28.838		
5,500.00	5,493.32	5,474.99	5,469.57	11.77	10.86	-78.43	-253.62	448.29	457.64	441.67	15.98	28.647		
5,600.00	5,592.94	5,586.24	5,580.43	12.00	10.87	-78.50	-262.79	448.69	457.91	441.74	16.16	28.335		
5,700.00	5,692.56	5,705.32	5,698.81	12.24	10.88	-78.18	-274.85	444.36	454.61	438.27	16.34	27.822		
5,800.00	5,792.18	5,807.46	5,800.20	12.48	10.90	-77.79	-285.56	438.28	449.16	432.63	16.53	27.171		
5,900.00	5,891.80	5,910.59	5,902.63	12.72	10.92	-77.47	-295.62	431.50	442.96	426.24	16.73	26.483		
6,000.00	5,991.42	6,010.60	6,001.98	12.97	10.95	-77.22	-304.72	424.73	436.44	419.51	16.93	25.780		
6,100.00	6,091.04	6,109.81	6,100.60	13.21	10.98	-77.03	-313.34	418.14	429.97	412.83	17.14	25.087		
6,200.00	6,190.66	6,209.05	6,199.33	13.46	11.02	-76.94	-321.18	411.92	423.68	406.32	17.35	24.413		
6,300.00	6,290.28	6,308.98	6,298.78	13.70	11.07	-76.90	-328.78	405.75	417.41	399.84	17.58	23.749		
6,400.00	6,389.89	6,408.01	6,397.32	13.95	11.12	-76.83	-336.46	399.61	411.16	393.36	17.80	23.094		
6,500.00	6,489.51	6,507.85	6,496.50	14.20	11.19	-76.52	-345.94	393.26	405.15	387.12	18.04	22.463		
6,600.00	6,589.13	6,608.20	6,596.12	14.45	11.26	-76.11	-356.00	386.54	398.97	380.69	18.27	21.832		
6,700.00	6,688.75	6,707.40	6,694.64	14.70	11.34	-75.74	-365.61	379.99	392.80	374.28	18.52	21.211		
6,800.00	6,788.37	6,805.88	6,792.50	14.95	11.42	-75.43	-374.73	373.85	386.90	368.13	18.77	20.616		
6,900.00	6,887.99	6,906.02	6,892.08	15.20	11.51	-75.18	-383.61	367.91	381.21	362.19	19.02	20.044		
7,000.00	6,987.61	7,005.79	6,991.30	15.46	11.61	-74.96	-392.19	361.95	375.41	356.13	19.28	19.475		
7,100.00	7,087.23	7,110.80	7,095.63	15.71	11.71	-74.62	-401.69	354.91	369.03	349.50	19.53	18.893		
7,200.00	7,186.85	7,212.35	7,196.37	15.97	11.83	-74.11	-411.61	346.77	361.60	341.81	19.80	18.266		
7,300.00	7,286.47	7,311.38	7,294.61	16.22	11.95	-73.61	-421.15	338.74	354.07	334.00	20.07	17.642		
7,400.00	7,386.09	7,410.51	7,392.99	16.48	12.07	-73.12	-430.52	330.90	346.71	326.36	20.34	17.043		
7,500.00	7,485.71	7,508.98	7,490.75	16.74	12.20	-72.67	-439.63	323.47	339.66	319.04	20.62	16.471		
7,600.00	7,585.33	7,608.02	7,589.10	16.99	12.33	-72.21	-448.78	316.29	332.91	312.01	20.90	15.929		
7,700.00	7,684.95	7,707.34	7,687.76	17.25	12.46	-71.76	-457.86	309.29	326.35	305.17	21.18	15.406		
7,800.00	7,784.57	7,806.49	7,786.33	17.51	12.60	-71.41	-466.34	302.64	319.94	298.47	21.47	14.901		
7,900.00	7,884.19	7,905.28	7,884.60	17.77	12.75	-71.14	-474.38	296.45	313.82	292.06	21.76	14.422		
7,966.67	7,950.60	7,971.63	7,950.60	17.94	12.84	-70.96	-479.82	292.45	309.91	287.96	21.95	14.118		
8,000.00	7,983.81	8,006.29	7,985.06	18.03	12.89	-70.80	-482.84	290.20	307.89	285.85	22.04	13.968		
8,100.00	8,083.52	8,108.71	8,086.68	18.25	13.05	-69.87	-492.79	282.36	301.39	279.08	22.30	13.513		
8,200.00	8,183.32	8,207.82	8,184.98	18.47	13.22	-68.63	-502.59	274.30	295.05	272.48	22.57	13.074		
8,300.00	8,283.19	8,307.04	8,283.47	18.69	13.38	-67.24	-511.97	266.82	289.72	266.89	22.83	12.692		
8,400.00	8,383.12	8,407.35	8,383.04	18.89	13.56	-65.56	-521.32	259.12	284.93	261.85	23.08	12.346		
8,500.00	8,483.09	8,505.93	8,480.65	19.10	13.74	-63.23	-532.22	250.69	280.93	257.61	23.32	12.046		
8,600.00	8,583.09	8,604.98	8,578.69	19.29	13.93	-60.53	-543.63	242.27	278.34	254.78	23.56	11.814		
8,633.34	8,616.42	8,638.00	8,611.38	19.35	13.99	120.42	-547.36	239.48	277.74	254.10	23.64	11.749		
8,700.00	8,683.09	8,703.71	8,676.45	19.48	14.13	122.28	-554.64	234.07	276.88	253.09	23.80	11.635		
8,800.00	8,783.09	8,802.55	8,774.45	19.67	14.33	124.96	-565.05	226.42	276.26	252.23	24.03	11.496		
8,845.63	8,828.72	8,847.76	8,819.32	19.76	14.42	126.11	-569.54	223.14	276.20	252.06	24.14	11.443 CC		
8,900.00	8,883.09	8,901.67	8,872.83	19.86	14.52	127.46	-574.80	219.31	276.28	252.02	24.26	11.387		
9,000.00	8,983.09	8,999.75	8,970.26	20.06	14.72	129.80	-584.08	212.85	277.06	252.56	24.49	11.311		
9,100.00	9,083.09	9,105.20	9,075.04	20.25	14.92	132.23	-593.20	205.37	277.37	252.65	24.73	11.217		
9,200.00	9,183.09	9,205.50	9,174.70	20.44	15.12	134.58	-601.14	197.24	276.92	251.96	24.96	11.095		
9,257.96	9,241.05	9,262.79	9,231.65	20.55	15.24	135.86	-605.42	192.77	276.82	251.72	25.09	11.031		
9,300.00	9,283.09	9,304.71	9,273.36	20.63	15.32	136.74	-608.39	189.72	276.86	251.66	25.19	10.990		
9,400.00	9,383.09	9,405.59	9,373.80	20.83	15.51	138.68	-614.74	182.83	276.92	251.49	25.43	10.890		
9,492.18	9,475.27	9,498.07	9,465.87	21.01	15.68	140.49	-620.32	176.12	276.81	251.17	25.64	10.796		
9,507.34	9,490.42	9,512.97	9,480.70	21.04	15.71	140.78	-621.22	175.04	276.82	251.14	25.68	10.781 ES, 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 131H
 Well Error: 0.00 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Design #1

Local Co-ordinate Reference:
 TVD Reference: RKB @ 3674.80ft
 MD Reference: RKB @ 3674.80ft
 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

Offset Design Norwalk - Thistle Unit 48H - Wellbore #1 - Wellbore #1													Offset Site Error: 0.00 ft
Survey Program: 141-MWD, 5315-MWD													Offset Well Error: 0.00 ft
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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,550.00	9,533.05	9,554.79	9,522.34	21.11	15.79	141.76	-623.74	172.09	278.18	252.42	25.77	10.796	
9,600.00	9,582.68	9,603.37	9,570.72	21.18	15.88	143.04	-626.62	168.87	283.21	257.36	25.85	10.954	
9,650.00	9,631.62	9,651.12	9,618.32	21.23	15.97	144.45	-629.31	166.04	292.05	266.13	25.92	11.265	
9,700.00	9,679.48	9,697.66	9,664.71	21.25	16.05	145.91	-631.86	163.49	304.82	278.84	25.98	11.733	
9,750.00	9,725.90	9,742.48	9,709.39	21.27	16.13	147.35	-634.40	161.02	321.60	295.57	26.02	12.358	
9,800.00	9,770.53	9,783.29	9,750.07	21.26	16.21	148.56	-636.87	158.75	342.49	316.44	26.06	13.144	
9,850.00	9,813.02	9,820.50	9,787.12	21.25	16.28	149.50	-639.53	156.61	367.69	341.61	26.08	14.096	
9,900.00	9,853.06	9,854.97	9,821.41	21.24	16.34	150.12	-642.35	154.57	397.02	370.91	26.11	15.207	
9,950.00	9,890.35	9,889.09	9,855.35	21.22	16.41	150.54	-645.29	152.53	430.03	403.89	26.14	16.453	
10,000.00	9,924.58	9,919.93	9,886.02	21.21	16.47	150.44	-647.94	150.72	466.32	440.16	26.16	17.824	
10,050.00	9,955.52	9,944.00	9,909.96	21.21	16.52	149.40	-650.01	149.32	505.57	479.39	26.18	19.311	
10,100.00	9,982.91	9,967.50	9,933.32	21.23	16.57	147.76	-652.12	147.91	547.48	521.28	26.20	20.894	
10,150.00	10,006.56	9,984.20	9,949.91	21.26	16.61	144.50	-653.72	146.85	591.70	565.48	26.21	22.572	
10,200.00	10,026.27	9,997.00	9,962.61	21.32	16.64	139.10	-655.01	146.02	637.77	611.55	26.22	24.322	
10,250.00	10,041.91	10,005.92	9,971.47	21.41	16.66	130.07	-655.94	145.41	685.26	659.04	26.23	26.129	
10,300.00	10,053.36	10,011.07	9,976.57	21.52	16.67	114.89	-656.49	145.06	733.72	707.50	26.23	27.977	
10,350.00	10,060.52	10,012.53	9,978.03	21.67	16.67	91.50	-656.65	144.96	782.73	756.50	26.22	29.849	
10,400.00	10,063.34	10,010.45	9,975.96	21.84	16.67	65.00	-656.42	145.11	831.86	805.65	26.22	31.729	
10,406.49	10,063.38	10,009.93	9,975.44	21.87	16.66	61.91	-656.37	145.14	838.23	812.01	26.22	31.973	
10,500.00	10,063.52	10,002.18	9,967.76	22.29	16.65	59.69	-655.55	145.67	930.07	903.86	26.21	35.485	
10,600.00	10,063.67	9,994.28	9,959.92	22.88	16.63	57.53	-654.73	146.20	1,028.53	1,002.33	26.21	39.245	
10,700.00	10,063.82	9,986.76	9,952.46	23.60	16.61	55.58	-653.98	146.69	1,127.20	1,100.99	26.21	43.008	
10,800.00	10,063.96	12,382.33	11,231.90	24.43	24.01	179.51	583.31	9.01	1,177.64	1,152.20	25.43	46.301	
10,900.00	10,064.11	12,470.02	11,230.33	25.37	25.06	179.75	670.84	3.92	1,175.69	1,149.86	25.84	45.502	
10,953.77	10,064.19	12,510.30	11,230.16	25.92	25.54	179.86	711.05	1.59	1,175.38	1,149.35	26.03	45.152	
11,000.00	10,064.26	12,556.62	11,230.37	26.40	26.11	179.99	757.29	-1.05	1,175.51	1,149.24	26.26	44.759	
11,100.00	10,064.41	12,676.09	11,229.14	27.52	27.67	-179.72	876.61	-7.07	1,174.29	1,147.38	26.90	43.649	
11,200.00	10,064.56	12,758.56	11,228.15	28.71	28.78	-179.55	958.99	-10.67	1,173.03	1,145.68	27.36	42.879	
11,205.96	10,064.56	12,762.65	11,228.15	28.78	28.84	-179.54	963.07	-10.85	1,173.03	1,145.65	27.38	42.842	
11,300.00	10,064.70	12,840.18	11,229.19	29.96	29.89	-179.38	1,040.52	-14.31	1,174.10	1,146.27	27.83	42.194	
11,400.00	10,064.85	12,954.18	11,229.84	31.27	31.52	-179.14	1,154.40	-19.42	1,174.53	1,146.00	28.53	41.175	
11,500.00	10,065.00	13,041.78	11,230.40	32.63	32.79	-178.92	1,241.88	-23.99	1,175.13	1,146.05	29.08	40.415	
11,600.00	10,065.15	13,132.50	11,232.26	34.04	34.14	-178.67	1,332.42	-29.31	1,177.12	1,147.46	29.67	39.676	
11,700.00	10,065.29	13,251.98	11,233.95	35.49	35.98	-178.35	1,451.70	-35.94	1,178.57	1,148.08	30.49	38.659	
11,800.00	10,065.44	13,358.93	11,233.92	36.96	37.64	-178.11	1,558.53	-41.00	1,178.51	1,147.27	31.24	37.726	
11,818.79	10,065.47	13,377.72	11,233.89	37.25	37.94	-178.07	1,577.31	-41.84	1,178.49	1,147.12	31.37	37.564	
11,900.00	10,065.59	13,436.94	11,234.36	38.48	38.83	-177.95	1,636.47	-44.46	1,179.14	1,147.34	31.80	37.082	
12,000.00	10,065.74	13,546.64	11,236.64	40.01	40.53	-177.74	1,746.05	-48.89	1,181.28	1,148.67	32.61	36.223	
12,100.00	10,065.89	13,680.98	11,235.66	41.57	42.69	-177.57	1,880.34	-52.44	1,180.43	1,146.80	33.63	35.100	
12,200.00	10,066.03	13,771.90	11,234.08	43.16	44.12	-177.50	1,971.23	-54.02	1,178.63	1,144.30	34.33	34.328	
12,239.47	10,066.09	13,799.30	11,233.91	43.79	44.55	-177.47	1,998.62	-54.62	1,178.36	1,143.81	34.55	34.105	
12,300.00	10,066.18	13,850.00	11,234.31	44.76	45.34	-177.40	2,049.29	-56.17	1,178.78	1,143.83	34.95	33.727	
12,400.00	10,066.33	13,922.46	11,235.99	46.38	46.50	-177.26	2,121.67	-59.21	1,180.99	1,145.46	35.53	33.239	
12,500.00	10,066.48	14,009.78	11,239.08	48.01	47.90	-177.06	2,208.82	-63.66	1,184.62	1,148.38	36.24	32.686	
12,600.00	10,066.63	14,127.66	11,242.83	49.66	49.82	-176.77	2,326.47	-69.97	1,187.94	1,150.70	37.23	31.904	
12,700.00	10,066.77	14,242.24	11,244.89	51.32	51.71	-176.45	2,440.83	-76.81	1,189.94	1,151.72	38.22	31.137	
12,800.00	10,066.92	14,373.55	11,244.81	52.99	53.92	-176.07	2,571.89	-84.79	1,190.16	1,150.81	39.35	30.243	
12,900.00	10,067.07	14,512.00	11,240.53	54.67	56.29	-175.75	2,710.11	-91.31	1,187.23	1,146.69	40.54	29.284	
13,000.00	10,067.22	14,593.25	11,237.43	56.37	57.63	-175.61	2,791.26	-94.00	1,183.53	1,142.25	41.28	28.668	
13,100.00	10,067.37	14,693.46	11,234.62	58.07	59.27	-175.49	2,891.39	-96.42	1,180.77	1,138.59	42.18	27.993	
13,200.00	10,067.51	14,764.53	11,233.33	59.77	60.44	-175.42	2,962.44	-97.73	1,178.98	1,136.13	42.84	27.518	
13,300.00	10,067.66	14,885.59	11,232.70	61.49	62.44	-175.33	3,083.48	-99.79	1,178.62	1,134.69	43.93	26.832	

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 131H
Project:	PBNM	TVD Reference:	RKB @ 3674.80ft
Reference Site:	Norwalk	MD Reference:	RKB @ 3674.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Thistle Unit 131H	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 48H - Wellbore #1 - Wellbore #1														Offset Well Error:	0.00 ft
Survey Program: 141-MWD, 5315-MWD															
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			
13,400.00	10,067.81	14,984.00	11,229.72	63.21	64.09	-175.23	3,181.82	-101.71	1,175.62	1,130.78	44.83	26.224			
13,474.06	10,067.92	15,032.27	11,228.79	64.49	64.89	-175.15	3,230.06	-103.26	1,174.48	1,129.17	45.30	25.925			
13,500.00	10,067.96	15,045.74	11,228.85	64.94	65.12	-175.12	3,243.52	-103.80	1,174.64	1,129.20	45.44	25.852			
13,600.00	10,068.11	15,078.00	11,229.55	66.67	65.65	-175.06	3,275.73	-105.31	1,178.15	1,132.43	45.72	25.768			
13,700.00	10,068.25	15,145.36	11,233.84	68.41	66.77	-174.90	3,342.84	-108.95	1,185.34	1,139.00	46.33	25.582			
13,800.00	10,068.40	15,241.66	11,244.06	70.16	68.39	-174.68	3,438.44	-114.48	1,196.24	1,148.97	47.27	25.305			
13,900.00	10,068.55	15,450.39	11,253.54	71.91	72.00	-174.35	3,646.70	-122.66	1,200.29	1,150.93	49.36	24.318			
14,000.00	10,068.70	15,593.51	11,252.17	73.66	74.48	-174.20	3,789.77	-125.75	1,199.41	1,148.72	50.69	23.661			
14,100.00	10,068.84	15,716.33	11,247.23	75.41	76.59	-174.09	3,912.48	-127.76	1,195.35	1,143.51	51.84	23.059			
14,200.00	10,068.99	15,823.03	11,241.85	77.17	78.40	-173.95	4,019.01	-130.04	1,190.40	1,137.52	52.88	22.513			
14,300.00	10,069.14	15,903.13	11,238.12	78.94	79.75	-173.83	4,098.99	-132.21	1,185.92	1,132.19	53.73	22.072			
14,400.00	10,069.29	16,033.47	11,231.92	80.70	81.97	-173.57	4,229.09	-137.07	1,181.54	1,126.56	54.99	21.488			
14,500.00	10,069.44	16,116.00	11,227.10	82.47	83.37	-173.39	4,311.41	-140.39	1,176.06	1,120.16	55.90	21.039			
14,600.00	10,069.58	16,196.07	11,223.67	84.24	84.70	-173.21	4,391.33	-143.83	1,172.16	1,115.37	56.80	20.638			
14,671.23	10,069.69	16,233.00	11,222.60	85.51	85.31	-173.12	4,428.21	-145.56	1,170.75	1,113.49	57.25	20.449			
14,700.00	10,069.73	16,233.00	11,222.60	86.02	85.31	-173.12	4,428.21	-145.56	1,171.10	1,113.82	57.28	20.447			
14,800.00	10,069.88	16,233.00	11,222.60	87.80	85.31	-173.12	4,428.21	-145.56	1,177.81	1,120.64	57.17	20.602			
14,900.00	10,070.03	16,233.00	11,222.60	89.57	85.31	-173.12	4,428.21	-145.56	1,192.89	1,136.11	56.78	21.011			
15,000.00	10,070.18	16,233.00	11,222.60	91.36	85.31	-173.12	4,428.21	-145.56	1,216.03	1,159.91	56.13	21.865			
15,100.00	10,070.32	16,233.00	11,222.60	93.14	85.31	-173.12	4,428.21	-145.56	1,246.79	1,191.52	55.27	22.558			
15,200.00	10,070.47	16,233.00	11,222.60	94.92	85.31	-173.12	4,428.21	-145.56	1,284.62	1,230.36	54.26	23.676			
15,300.00	10,070.62	16,233.00	11,222.60	96.71	85.31	-173.12	4,428.21	-145.56	1,328.91	1,275.77	53.14	25.009			
15,400.00	10,070.77	16,233.00	11,222.60	98.50	85.31	-173.12	4,428.21	-145.56	1,379.04	1,327.08	51.96	26.543			
15,500.00	10,070.92	16,233.00	11,222.60	100.29	85.31	-173.12	4,428.21	-145.56	1,434.40	1,383.65	50.75	28.261			
15,600.00	10,071.06	16,233.00	11,222.60	102.08	85.31	-173.12	4,428.21	-145.56	1,494.41	1,444.85	49.56	30.151			
15,700.00	10,071.21	16,233.00	11,222.60	103.88	85.31	-173.12	4,428.21	-145.56	1,558.53	1,510.12	48.41	32.196			
15,800.00	10,071.36	16,233.00	11,222.60	105.67	85.31	-173.12	4,428.21	-145.56	1,626.28	1,578.97	47.30	34.382			
15,900.00	10,071.51	16,233.00	11,222.60	107.47	85.31	-173.12	4,428.21	-145.56	1,697.21	1,650.96	46.25	36.694			
16,000.00	10,071.66	16,233.00	11,222.60	109.26	85.31	-173.12	4,428.21	-145.56	1,770.95	1,725.68	45.27	39.118			
16,100.00	10,071.80	16,233.00	11,222.60	111.06	85.31	-173.12	4,428.21	-145.56	1,847.17	1,802.81	44.36	41.643			
16,200.00	10,071.95	16,233.00	11,222.60	112.86	85.31	-173.12	4,428.21	-145.56	1,925.56	1,882.05	43.51	44.255			
16,300.00	10,072.10	16,233.00	11,222.60	114.66	85.31	-173.12	4,428.21	-145.56	2,005.88	1,963.15	42.73	46.944			
16,400.00	10,072.25	16,233.00	11,222.60	116.46	85.31	-173.12	4,428.21	-145.56	2,087.89	2,045.88	42.01	49.699			
16,500.00	10,072.39	16,233.00	11,222.60	118.27	85.31	-173.12	4,428.21	-145.56	2,171.42	2,130.07	41.35	52.512			
16,600.00	10,072.54	16,233.00	11,222.60	120.07	85.31	-173.12	4,428.21	-145.56	2,256.28	2,215.53	40.75	55.374			
16,700.00	10,072.69	16,233.00	11,222.60	121.87	85.31	-173.12	4,428.21	-145.56	2,342.34	2,302.15	40.19	58.278			
16,800.00	10,072.84	16,233.00	11,222.60	123.68	85.31	-173.12	4,428.21	-145.56	2,429.47	2,389.78	39.69	61.217			
16,900.00	10,072.99	16,233.00	11,222.60	125.48	85.31	-173.12	4,428.21	-145.56	2,517.55	2,478.33	39.22	64.185			
17,000.00	10,073.13	16,233.00	11,222.60	127.29	85.31	-173.12	4,428.21	-145.56	2,606.50	2,567.70	38.80	67.178			
17,100.00	10,073.28	16,233.00	11,222.60	129.10	85.31	-173.12	4,428.21	-145.56	2,696.22	2,657.80	38.41	70.190			
17,200.00	10,073.43	16,233.00	11,222.60	130.91	85.31	-173.12	4,428.21	-145.56	2,786.63	2,748.57	38.06	73.217			
17,300.00	10,073.58	16,233.00	11,222.60	132.72	85.31	-173.12	4,428.21	-145.56	2,877.69	2,839.95	37.74	76.256			
17,400.00	10,073.73	16,233.00	11,222.60	134.53	85.31	-173.12	4,428.21	-145.56	2,969.32	2,931.87	37.44	79.304			
17,500.00	10,073.87	16,233.00	11,222.60	136.34	85.31	-173.12	4,428.21	-145.56	3,061.47	3,024.30	37.17	82.357			
17,585.48	10,074.00	16,233.00	11,222.60	137.88	85.31	-173.12	4,428.21	-145.56	3,140.62	3,103.66	36.96	84.970			

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

Devon Energy
Anticollision Report

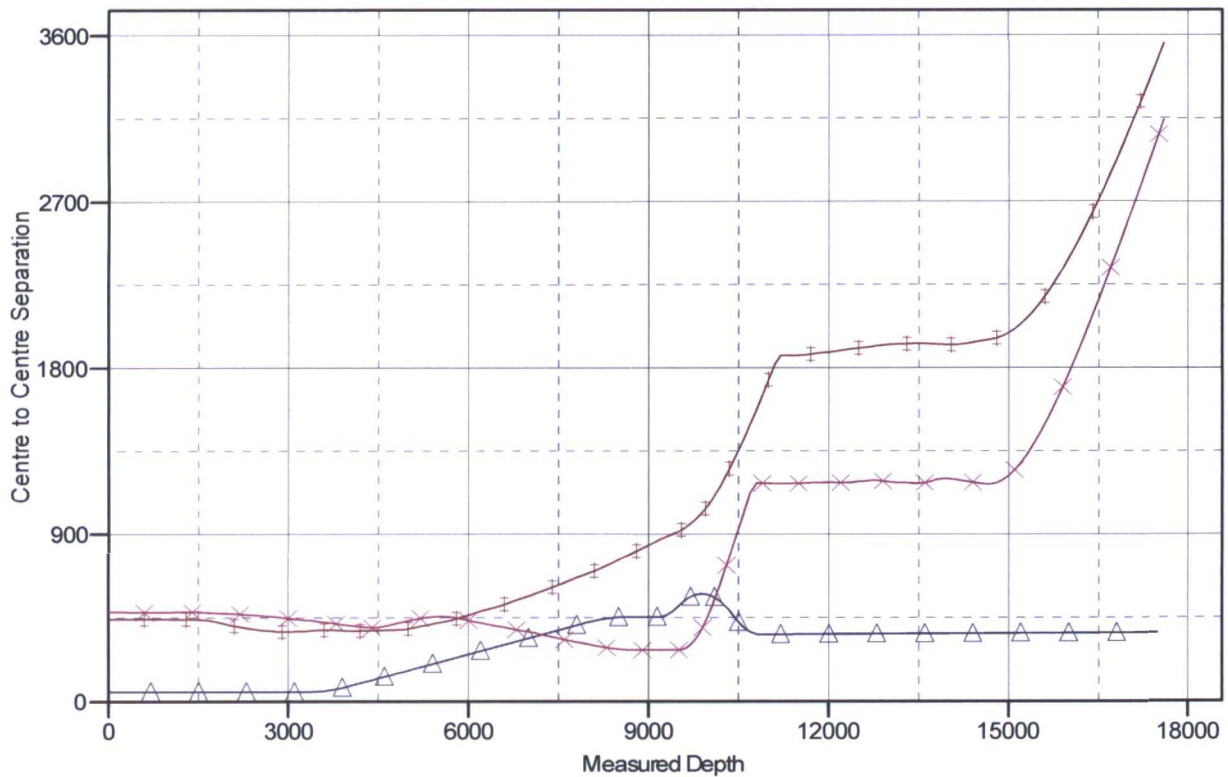
Company: WESTERN DIVISION
Project: PBNM
Reference Site: Norwalk
Site Error: 0.00 ft
Reference Well: Thistle Unit 131H
Well Error: 0.00 ft
Reference Wellbore: Wellbore #1
Reference Design: Design #1

Local Co-ordinate Reference: Well Thistle Unit 131H
TVD Reference: RKB @ 3674.80ft
MD Reference: RKB @ 3674.80ft
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 @ 3674.80ft
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Thistle Unit 131H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.41°

Ladder Plot



LEGEND

▲ Thistle Unit 118H, Wellbore #1, Design #1 V0 ■ Thistle Unit 47H, ST01, ST01 V0 x Thistle Unit 48H, Wellbore #1, Wellbore #1 V0

Devon Energy

Anticollision Report

Company: WESTERN DIVISION
 Project: PBNM
 Reference Site: Norwalk
 Site Error: 0.00 ft
 Reference Well: Thistle Unit 131H
 Well Error: 0.00 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Design #1

Local Co-ordinate Reference: Well Thistle Unit 131H
 TVD Reference: RKB @ 3674.80ft
 MD Reference: RKB @ 3674.80ft
 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 @ 3674.80ft
 Offset Depths are relative to Offset Datum
 Central Meridian is -104.333334

Coordinates are relative to: Thistle Unit 131H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.41°

