

Devon Energy

Anticollision Risk Report

Company: WESTERN DIVISION	Local Co-ordinate Reference: Well Thistle Unit 155H
Project: PBNM	TVD Reference: 1 @ 3676.70ft
Reference Site: Dzurisin	MD Reference: 1 @ 3676.70ft
Site Error: 0.00	North Reference: Grid
Reference Well: Thistle Unit 155H	Survey Calculation Method: Minimum Curvature
Well Error: 0.00	Output errors are at 2.00 sigma
Reference Wellbore Wellbore #1	Database: EDM r5000 US Production
Reference Design: Plan 1	Offset TVD Reference: Offset Datum

Reference Plan 1	
Filter type: NO GLOBAL FILTER: Using user defined selection & filtering criteria	
Interpolation Method: Stations Interval 100.00ft	Error Model: ISCWSA
Depth Range: Unlimited	Scan Method: Closest Approach 3D
Results Limited by: Maximum center-center distance of 10,000.00ft	Error Surface: Elliptical Conic
Warning Levels Evaluated at: 2.00 Sigma	Casing Method: Not applied

Risk Settings	
Vertical Depth for Analysis:	ft (Below TVD Reference Datum)
Level of Acceptable Risk (1 in):	
Minimum Separation:	0 ft

Survey Tool Program	Date 8/1/2016
From (ft)	To (ft)
0.00	17,104.52
Survey (Wellbore)	Tool Name
Plan 1 (Wellbore #1)	MWD
	Description
	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Dzurisin						
Thistle Unit 159H - Wellbore #1 - Plan 1	3,854.37	3,857.64	49.51	32.64	2.934 CC	
Thistle Unit 159H - Wellbore #1 - Plan 1	4,000.00	4,004.33	49.84	32.40	2.857 ES	
Thistle Unit 159H - Wellbore #1 - Plan 1	4,200.00	4,204.13	51.80	33.50	2.831 SF	

Offset Design												Offset Site Error: 0.00 ft	
Dzurisin - Thistle Unit 159H - Wellbore #1 - Plan 1												Offset Well Error: 0.00 ft	
Survey Program: 0-MWD													
Reference Measured Depth (ft)	Vertical Depth (ft)	Offset Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	Warning
				Reference (ft)	Offset (ft)		Between Centres (ft)	Between Ellipses (ft)					
0.00	0.00	0.30	0.30	0.00	0.00	89.39	49.85				0		
100.00	100.00	100.30	100.30	0.09	0.09	89.39	49.85	49.68	0.17	288.801	0		
200.00	200.00	200.30	200.30	0.31	0.31	89.39	49.85	49.23	0.62	80.130	0		
300.00	300.00	300.30	300.30	0.54	0.54	89.39	49.85	48.78	1.07	46.518	0		
400.00	400.00	400.30	400.30	0.76	0.76	89.39	49.85	48.33	1.52	32.772	0		
500.00	500.00	500.30	500.30	0.99	0.99	89.39	49.85	47.88	1.97	25.296	0		
600.00	600.00	600.30	600.30	1.21	1.21	89.39	49.85	47.43	2.42	20.598	0		
700.00	700.00	700.30	700.30	1.43	1.44	89.39	49.85	46.98	2.87	17.371	0		
800.00	800.00	800.30	800.30	1.66	1.66	89.39	49.85	46.53	3.32	15.019	0		
900.00	900.00	900.30	900.30	1.88	1.88	89.39	49.85	46.08	3.77	13.228	0		
1,000.00	1,000.00	1,000.30	1,000.30	2.11	2.11	89.39	49.85	45.63	4.22	11.818	0		
1,100.00	1,100.00	1,100.30	1,100.30	2.33	2.33	89.39	49.85	45.18	4.67	10.680	0		
1,200.00	1,200.00	1,200.30	1,200.30	2.56	2.56	89.39	49.85	44.74	5.12	9.742	0		
1,300.00	1,300.00	1,300.30	1,300.30	2.78	2.78	89.39	49.85	44.29	5.57	8.955	0		
1,400.00	1,400.00	1,400.30	1,400.30	3.01	3.01	89.39	49.85	43.84	6.02	8.286	0		
1,500.00	1,500.00	1,500.30	1,500.30	3.23	3.23	89.39	49.85	43.39	6.47	7.710	0		
1,600.00	1,600.00	1,600.30	1,600.30	3.46	3.46	89.39	49.85	42.94	6.92	7.209	0		
1,700.00	1,700.00	1,700.30	1,700.30	3.68	3.68	89.39	49.85	42.49	7.37	6.769	0		
1,800.00	1,800.00	1,800.30	1,800.30	3.91	3.91	89.39	49.85	42.04	7.81	6.379	0		
1,900.00	1,900.00	1,900.30	1,900.30	4.13	4.13	89.39	49.85	41.59	8.26	6.032	0		

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

Devon Energy

Anticollision Risk Report

Company: WESTERN DIVISION
Project: PBNM
Reference Site: Dzurisin
Site Error: 0.00
Reference Well: Thistle Unit 155H
Well Error: 0.00
Reference Wellbore: Wellbore #1
Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 155H
TVD Reference: 1 @ 3676.70ft
MD Reference: 1 @ 3676.70ft
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 Dzurisin - Thistle Unit 159H - Wellbore #1 - Plan 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 (°)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risk Separation Factor	Probability of Collision	
2,000.00	2,000.00	2,000.30	2,000.30	4.36	4.36	89.39	49.85	41.14	8.71	5.721	0		
2,100.00	2,100.00	2,100.30	2,100.30	4.58	4.58	89.39	49.85	40.69	9.16	5.441	0		
2,200.00	2,200.00	2,200.30	2,200.30	4.81	4.81	89.39	49.85	40.24	9.61	5.186	0		
2,300.00	2,300.00	2,300.30	2,300.30	5.03	5.03	89.39	49.85	39.79	10.06	4.954	0		
2,400.00	2,400.00	2,400.30	2,400.30	5.26	5.26	89.39	49.85	39.34	10.51	4.743	0		
2,500.00	2,500.00	2,500.30	2,500.30	5.48	5.48	89.39	49.85	38.89	10.96	4.548	0		
2,600.00	2,600.00	2,600.30	2,600.30	5.71	5.71	89.39	49.85	38.44	11.41	4.369	0		
2,700.00	2,700.00	2,700.30	2,700.30	5.93	5.93	89.39	49.85	37.99	11.86	4.203	0		
2,800.00	2,800.00	2,800.30	2,800.30	6.15	6.16	89.39	49.85	37.54	12.31	4.050	0		
2,900.00	2,900.00	2,900.30	2,900.30	6.38	6.38	89.39	49.85	37.09	12.76	3.907	0		
3,000.00	3,000.00	3,000.30	3,000.30	6.60	6.60	89.39	49.85	36.64	13.21	3.774	0		
3,100.00	3,100.00	3,100.30	3,100.30	6.83	6.83	89.39	49.85	36.19	13.66	3.650	0		
3,200.00	3,200.00	3,200.30	3,200.30	7.05	7.05	89.39	49.85	35.74	14.11	3.534	0		
3,300.00	3,300.00	3,300.30	3,300.30	7.28	7.28	89.39	49.85	35.30	14.56	3.425	0		
3,400.00	3,400.00	3,400.30	3,400.30	7.50	7.50	89.39	49.85	34.85	15.01	3.322	0		
3,500.00	3,500.00	3,500.30	3,500.30	7.73	7.73	89.39	49.85	34.40	15.46	3.225	0		
3,600.00	3,600.00	3,601.17	3,601.16	7.94	7.94	159.92	49.80	33.92	15.88	3.136	0		
3,700.00	3,699.96	3,702.02	3,701.98	8.16	8.14	161.49	49.67	33.40	16.27	3.052	0		
3,800.00	3,799.86	3,802.84	3,802.70	8.37	8.34	164.13	49.54	32.88	16.66	2.973	0		
3,854.37	3,854.14	3,857.64	3,857.41	8.49	8.46	166.01	49.51	32.64	16.88	2.934	0		CC
3,900.00	3,899.68	3,903.63	3,903.30	8.59	8.55	167.83	49.54	32.49	17.05	2.905	0		
4,000.00	3,999.37	4,004.33	4,003.68	8.82	8.78	172.56	49.84	32.40	17.44	2.857	0		ES
4,100.00	4,098.99	4,104.23	4,103.20	9.06	9.01	177.62	50.63	32.76	17.86	2.834	0		
4,200.00	4,198.60	4,204.13	4,202.72	9.31	9.25	-177.51	51.80	33.50	18.30	2.831	0		SF
4,300.00	4,298.22	4,304.03	4,302.23	9.56	9.50	-172.89	53.32	34.58	18.74	2.845	0		
4,400.00	4,397.84	4,403.92	4,401.75	9.82	9.75	-168.55	55.18	35.97	19.21	2.873	0		
4,500.00	4,497.46	4,503.82	4,501.27	10.09	10.01	-164.51	57.33	37.64	19.69	2.911	0		
4,600.00	4,597.08	4,603.72	4,600.79	10.36	10.27	-160.78	59.74	39.55	20.19	2.959	0		
4,700.00	4,696.70	4,703.62	4,700.31	10.63	10.54	-157.35	62.39	41.68	20.70	3.013	0		
4,800.00	4,796.32	4,803.52	4,799.82	10.91	10.81	-154.21	65.24	44.01	21.23	3.073	0		
4,900.00	4,895.94	4,903.42	4,899.34	11.19	11.09	-151.34	68.27	46.50	21.77	3.136	0		
5,000.00	4,995.56	5,003.31	4,998.86	11.47	11.37	-148.73	71.46	49.13	22.33	3.201	0		
5,100.00	5,095.18	5,103.21	5,098.38	11.76	11.66	-146.33	74.78	51.89	22.89	3.267	0		
5,200.00	5,194.80	5,203.11	5,197.90	12.05	11.94	-144.15	78.22	54.76	23.46	3.334	0		
5,300.00	5,294.42	5,303.01	5,297.42	12.34	12.24	-142.15	81.77	57.72	24.04	3.401	0		
5,400.00	5,394.04	5,402.91	5,396.93	12.64	12.53	-140.32	85.40	60.77	24.63	3.467	0		
5,500.00	5,493.66	5,502.80	5,496.45	12.93	12.83	-138.65	89.12	63.90	25.22	3.533	0		
5,600.00	5,593.28	5,602.70	5,595.97	13.23	13.13	-137.10	92.91	67.08	25.82	3.598	0		
5,700.00	5,692.90	5,702.60	5,695.49	13.54	13.43	-135.68	96.76	70.33	26.43	3.661	0		
5,800.00	5,792.52	5,802.50	5,795.01	13.84	13.74	-134.37	100.66	73.62	27.04	3.723	0		
5,900.00	5,892.14	5,902.40	5,894.52	14.15	14.04	-133.16	104.61	76.96	27.65	3.783	0		
6,000.00	5,991.76	6,002.30	5,994.04	14.46	14.35	-132.03	108.61	80.34	28.27	3.842	0		
6,100.00	6,091.37	6,102.19	6,093.56	14.77	14.66	-130.99	112.65	83.76	28.89	3.899	0		
6,200.00	6,190.99	6,202.09	6,193.08	15.08	14.97	-130.01	116.72	87.20	29.51	3.955	0		
6,300.00	6,290.61	6,301.99	6,292.60	15.39	15.29	-129.11	120.82	90.68	30.14	4.008	0		
6,400.00	6,390.23	6,401.89	6,392.11	15.70	15.60	-128.26	124.95	94.18	30.77	4.061	0		
6,500.00	6,489.85	6,501.79	6,491.63	16.02	15.92	-127.47	129.10	97.70	31.40	4.111	0		
6,600.00	6,589.47	6,601.69	6,591.15	16.34	16.24	-126.73	133.28	101.25	32.03	4.160	0		
6,700.00	6,689.09	6,701.58	6,690.67	16.65	16.56	-126.03	137.48	104.81	32.67	4.208	0		
6,800.00	6,788.71	6,801.48	6,790.19	16.97	16.88	-125.37	141.70	108.39	33.31	4.254	0		
6,900.00	6,888.33	6,901.38	6,889.70	17.29	17.20	-124.76	145.93	111.99	33.95	4.299	0		
7,000.00	6,987.95	7,001.28	6,989.22	17.61	17.52	-124.17	150.19	115.60	34.59	4.342	0		
7,100.00	7,087.57	7,101.18	7,088.74	17.93	17.85	-123.62	154.45	119.22	35.23	4.384	0		
7,200.00	7,187.23	7,201.08	7,188.26	18.19	18.17	-122.98	158.49	122.67	35.83	4.424	0		

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

Devon Energy

Anticollision Risk Report

Company: WESTERN DIVISION
Project: PBNM
Reference Site: Dzurisin
Site Error: 0.00
Reference Well: Thistle Unit 155H
Well Error: 0.00
Reference Wellbore: Wellbore #1
Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 155H
TVD Reference: 1 @ 3676.70ft
MD Reference: 1 @ 3676.70ft
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 Dzurisin - Thistle Unit 159H - Wellbore #1 - Plan 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 (°)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision	
7,300.00	7,286.95	7,300.98	7,287.79	18.39	18.50	-122.12	162.09	125.71	36.38	4.456	0		
7,400.00	7,386.74	7,400.88	7,387.31	18.59	18.82	-121.03	165.27	128.34	36.93	4.475	0		
7,500.00	7,486.57	7,500.77	7,486.81	18.79	19.15	-119.73	168.08	130.59	37.49	4.484	0		
7,600.00	7,586.46	7,600.64	7,586.30	18.98	19.48	-118.21	170.56	132.52	38.04	4.484	0		
7,700.00	7,686.38	7,700.47	7,685.76	19.17	19.81	-116.48	172.76	134.17	38.59	4.477	0		
7,800.00	7,786.33	7,800.28	7,785.18	19.35	20.14	-114.53	174.76	135.63	39.13	4.466	0		
7,900.00	7,886.31	7,900.04	7,884.56	19.53	20.47	-112.37	176.63	136.97	39.66	4.454	0		
8,000.00	7,986.30	7,999.75	7,983.89	19.70	20.80	-110.00	178.44	138.28	40.16	4.443	0		
8,100.00	8,086.30	8,099.40	8,083.16	19.86	21.13	-177.42	180.29	139.66	40.64	4.437	0		
8,200.00	8,186.30	8,199.02	8,182.41	20.04	21.46	-174.75	182.40	141.30	41.10	4.438	0		
8,300.00	8,286.30	8,298.64	8,281.65	20.24	21.79	-172.15	184.89	143.34	41.55	4.450	0		
8,400.00	8,386.30	8,398.26	8,380.89	20.44	22.12	-169.63	187.75	145.77	41.98	4.472	0		
8,500.00	8,486.30	8,497.88	8,480.13	20.63	22.46	-167.19	190.97	148.58	42.39	4.505	0		
8,600.00	8,586.30	8,598.20	8,580.11	20.83	22.72	-164.92	194.35	151.61	42.74	4.548	0		
8,700.00	8,686.30	8,698.69	8,680.31	21.03	22.93	-162.96	197.62	154.59	43.03	4.593	0		
8,800.00	8,786.30	8,799.29	8,780.70	21.23	23.12	-161.29	200.69	157.36	43.33	4.632	0		
8,900.00	8,886.30	8,900.00	8,881.25	21.43	23.31	-159.87	203.48	159.84	43.63	4.664	0		
9,000.00	8,986.30	9,000.81	8,981.94	21.63	23.50	-158.71	205.93	161.98	43.95	4.686	0		
9,100.00	9,086.30	9,101.69	9,082.75	21.83	23.69	-157.78	207.99	163.72	44.27	4.698	0		
9,178.50	9,164.80	9,180.93	9,161.94	21.99	23.83	-157.21	209.31	164.77	44.53	4.700	0		
9,200.00	9,186.29	9,202.63	9,183.63	22.03	23.86	-156.45	210.07	165.44	44.62	4.708	0		
9,225.00	9,211.23	9,227.80	9,208.80	22.09	23.91	-156.41	212.03	167.42	44.61	4.753	0		
9,250.00	9,236.03	9,252.84	9,233.83	22.15	23.95	-156.46	215.17	170.63	44.54	4.831	0		
9,275.00	9,260.65	9,277.68	9,258.67	22.21	23.99	-156.60	219.46	175.06	44.40	4.943	0		
9,300.00	9,284.99	9,302.26	9,283.25	22.28	24.04	-156.82	224.92	180.72	44.20	5.089	0		
9,325.00	9,309.01	9,326.51	9,307.49	22.36	24.08	-157.09	231.53	187.61	43.92	5.271	0		
9,350.00	9,332.64	9,350.37	9,331.35	22.44	24.12	-157.41	239.30	195.72	43.59	5.490	0		
9,375.00	9,355.80	9,373.76	9,354.74	22.52	24.16	-157.76	248.22	205.04	43.18	5.748	0		
9,400.00	9,378.44	9,396.63	9,377.61	22.61	24.19	-158.11	258.28	215.57	42.71	6.047	0		
9,425.00	9,400.50	9,418.92	9,399.89	22.71	24.23	-158.46	269.47	227.30	42.18	6.389	0		
9,450.00	9,421.90	9,440.56	9,421.53	22.81	24.26	-158.79	281.77	240.19	41.58	6.776	0		
9,475.00	9,442.61	9,461.49	9,442.46	22.93	24.30	-159.08	295.16	254.23	40.93	7.211	0		
9,500.00	9,462.55	9,481.66	9,462.64	23.05	24.33	-159.32	309.61	269.38	40.23	7.696	0		
9,525.00	9,481.68	9,501.00	9,481.98	23.18	24.36	-159.49	325.08	285.59	39.49	8.232	0		
9,550.00	9,499.94	9,519.26	9,500.24	23.33	24.39	-159.57	341.56	302.84	38.72	8.822	0		
9,575.00	9,517.27	9,536.60	9,517.57	23.49	24.42	-159.54	358.99	321.06	37.93	9.465	0		
9,600.00	9,533.65	9,552.98	9,533.95	23.66	24.45	-159.40	377.33	340.20	37.13	10.162	0		
9,625.00	9,549.01	9,568.34	9,549.31	23.86	24.48	-159.12	396.54	360.19	36.35	10.909	0		
9,650.00	9,563.32	9,627.49	9,608.36	24.07	24.58	-161.39	416.14	380.75	35.39	11.759	0		
9,675.00	9,576.54	9,770.56	9,746.12	24.30	24.77	-165.74	433.07	398.70	34.37	12.601	0		
9,700.00	9,588.62	10,004.46	9,929.82	24.55	25.03	-168.66	443.14	409.45	33.69	13.155	0		
9,725.00	9,599.55	10,284.87	10,031.75	24.83	26.24	-168.54	441.18	407.68	33.50	13.170	0		
9,750.00	9,609.29	10,343.50	10,033.48	25.13	26.85	-168.25	431.76	398.92	32.84	13.149	0		
9,775.00	9,617.80	10,367.01	10,033.52	25.44	27.10	-168.27	423.40	391.32	32.08	13.198	0		
9,800.00	9,625.08	10,390.93	10,033.57	25.78	27.37	-168.29	416.25	384.86	31.40	13.258	0		
9,825.00	9,631.09	10,415.21	10,033.62	26.15	27.69	-168.31	410.35	379.55	30.80	13.321	0		
9,850.00	9,635.83	10,439.76	10,033.67	26.53	28.05	-168.33	405.70	375.39	30.31	13.384	0		
9,875.00	9,639.27	10,464.52	10,033.71	26.93	28.44	-168.36	402.32	372.40	29.92	13.445	0		
9,900.00	9,641.42	10,489.43	10,033.76	27.34	28.83	-168.39	400.21	370.57	29.65	13.500	0		
9,925.00	9,642.25	10,514.41	10,033.81	27.77	29.26	-168.42	399.39	369.89	29.49	13.543	0		
9,928.65	9,642.27	10,518.06	10,033.82	27.84	29.32	-168.43	399.37	369.89	29.48	13.548	0		
9,928.84	9,642.27	10,518.25	10,033.82	27.84	29.33	-168.43	399.37	369.89	29.48	13.548	0		
9,949.41	9,642.25	10,538.82	10,033.86	28.21	29.69	-168.46	399.38	369.78	29.60	13.495	0		
10,000.00	9,642.21	10,589.41	10,033.96	29.15	30.63	-168.55	399.40	369.51	29.89	13.362	0		

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

Devon Energy

Anticollision Risk Report

Company: WESTERN DIVISION
Project: PBNM
Reference Site: Dzurisin
Site Error: 0.00
Reference Well: Thistle Unit 155H
Well Error: 0.00
Reference Wellbore: Wellbore #1
Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 155H
TVD Reference: 1 @ 3676.70ft
MD Reference: 1 @ 3676.70ft
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	
Survey Program: 0-MWD													Offset Well Error: 0.00 ft	
Reference		Offset		Semi Major Axis			Distance				Risked Separation Factor	Probability of Collision	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
10,100.00	9,642.14	10,689.40	10,034.16	31.17	32.64	-168.71	399.45	368.90	30.55	13.076	0			
10,200.00	9,642.07	10,789.40	10,034.36	33.34	34.81	-168.87	399.50	368.21	31.29	12.768	0			
10,300.00	9,641.99	10,889.39	10,034.55	35.65	37.12	-169.04	399.55	367.45	32.10	12.447	0			
10,400.00	9,641.92	10,989.38	10,034.75	38.06	39.53	-169.20	399.60	366.63	32.98	12.117	0			
10,500.00	9,641.85	11,089.38	10,034.95	40.56	42.02	-169.37	399.66	365.75	33.91	11.785	0			
10,600.00	9,641.77	11,189.37	10,035.15	43.13	44.59	-169.53	399.72	364.83	34.90	11.455	0			
10,700.00	9,641.70	11,289.36	10,035.34	45.76	47.21	-169.70	399.79	363.87	35.92	11.129	0			
10,800.00	9,641.63	11,389.36	10,035.54	48.44	49.88	-169.86	399.86	362.87	36.99	10.811	0			
10,900.00	9,641.55	11,489.35	10,035.74	51.16	52.59	-170.03	399.93	361.85	38.08	10.502	0			
11,000.00	9,641.48	11,589.34	10,035.94	53.91	55.34	-170.19	400.01	360.80	39.21	10.203	0			
11,100.00	9,641.41	11,689.34	10,036.14	56.70	58.11	-170.35	400.08	359.73	40.35	9.915	0			
11,200.00	9,641.33	11,789.33	10,036.33	59.50	60.91	-170.52	400.17	358.65	41.52	9.638	0			
11,300.00	9,641.26	11,889.32	10,036.53	62.33	63.73	-170.68	400.25	357.55	42.70	9.374	0			
11,400.00	9,641.19	11,989.32	10,036.73	65.18	66.57	-170.85	400.34	356.44	43.90	9.120	0			
11,500.00	9,641.11	12,089.31	10,036.93	68.05	69.43	-171.01	400.43	355.33	45.10	8.878	0			
11,600.00	9,641.04	12,189.30	10,037.12	70.93	72.31	-171.17	400.53	354.21	46.32	8.647	0			
11,700.00	9,640.97	12,289.30	10,037.32	73.82	75.19	-171.34	400.62	353.08	47.54	8.427	0			
11,800.00	9,640.89	12,389.29	10,037.52	76.73	78.09	-171.50	400.72	351.96	48.77	8.217	0			
11,900.00	9,640.82	12,489.28	10,037.72	79.64	81.00	-171.67	400.83	350.83	50.00	8.017	0			
12,000.00	9,640.75	12,589.28	10,037.91	82.57	83.92	-171.83	400.94	349.70	51.24	7.825	0			
12,100.00	9,640.67	12,689.27	10,038.11	85.50	86.84	-171.99	401.05	348.58	52.47	7.643	0			
12,200.00	9,640.60	12,789.26	10,038.31	88.44	89.77	-172.16	401.16	347.45	53.71	7.469	0			
12,300.00	9,640.53	12,889.26	10,038.51	91.38	92.71	-172.32	401.28	346.33	54.95	7.303	0			
12,400.00	9,640.45	12,989.25	10,038.70	94.34	95.66	-172.48	401.40	345.21	56.19	7.144	0			
12,500.00	9,640.38	13,089.24	10,038.90	97.29	98.61	-172.65	401.53	344.10	57.43	6.992	0			
12,600.00	9,640.31	13,189.24	10,039.10	100.25	101.57	-172.81	401.65	342.99	58.66	6.847	0			
12,700.00	9,640.23	13,289.23	10,039.30	103.22	104.53	-172.97	401.78	341.89	59.90	6.708	0			
12,800.00	9,640.16	13,389.22	10,039.49	106.19	107.50	-173.13	401.92	340.79	61.13	6.575	0			
12,900.00	9,640.09	13,489.22	10,039.69	109.17	110.47	-173.30	402.06	339.69	62.36	6.447	0			
13,000.00	9,640.01	13,589.21	10,039.89	112.15	113.44	-173.46	402.20	338.60	63.60	6.324	0			
13,100.00	9,639.94	13,689.20	10,040.09	115.13	116.42	-173.62	402.34	337.51	64.82	6.207	0			
13,200.00	9,639.87	13,789.20	10,040.29	118.11	119.40	-173.78	402.49	336.43	66.05	6.093	0			
13,300.00	9,639.79	13,889.19	10,040.48	121.10	122.38	-173.95	402.64	335.36	67.28	5.985	0			
13,400.00	9,639.72	13,989.19	10,040.68	124.09	125.37	-174.11	402.79	334.29	68.50	5.880	0			
13,500.00	9,639.65	14,089.18	10,040.88	127.08	128.36	-174.27	402.95	333.22	69.73	5.779	0			
13,600.00	9,639.57	14,189.17	10,041.08	130.07	131.35	-174.43	403.11	332.16	70.95	5.682	0			
13,700.00	9,639.50	14,289.17	10,041.27	133.07	134.34	-174.59	403.27	331.10	72.17	5.588	0			
13,800.00	9,639.43	14,389.16	10,041.47	136.07	137.34	-174.75	403.44	330.05	73.39	5.497	0			
13,900.00	9,639.35	14,489.15	10,041.67	139.07	140.33	-174.92	403.60	329.00	74.61	5.410	0			
14,000.00	9,639.28	14,589.15	10,041.87	142.07	143.33	-175.08	403.78	327.95	75.83	5.325	0			
14,100.00	9,639.20	14,689.14	10,042.06	145.07	146.33	-175.24	403.95	326.90	77.05	5.243	0			
14,200.00	9,639.13	14,789.13	10,042.26	148.08	149.34	-175.40	404.13	325.86	78.27	5.163	0			
14,300.00	9,639.06	14,889.13	10,042.46	151.09	152.34	-175.56	404.31	324.82	79.49	5.086	0			
14,400.00	9,638.98	14,989.12	10,042.66	154.09	155.34	-175.72	404.50	323.79	80.71	5.012	0			
14,500.00	9,638.91	15,089.11	10,042.85	157.10	158.35	-175.88	404.69	322.75	81.94	4.939	0			
14,600.00	9,638.84	15,189.11	10,043.05	160.11	161.36	-176.04	404.88	321.71	83.17	4.868	0			
14,700.00	9,638.76	15,289.10	10,043.25	163.12	164.37	-176.20	405.07	320.68	84.40	4.800	0			
14,800.00	9,638.69	15,389.09	10,043.45	166.14	167.38	-176.36	405.27	319.64	85.63	4.733	0			
14,900.00	9,638.62	15,489.09	10,043.64	169.15	170.39	-176.52	405.47	318.61	86.86	4.668	0			
15,000.00	9,638.54	15,589.08	10,043.84	172.16	173.40	-176.68	405.68	317.57	88.10	4.605	0			
15,100.00	9,638.47	15,689.07	10,044.04	175.18	176.41	-176.84	405.89	316.54	89.35	4.543	0			
15,200.00	9,638.40	15,789.07	10,044.24	178.19	179.42	-177.00	406.10	315.50	90.60	4.482	0			
15,300.00	9,638.32	15,889.06	10,044.44	181.21	182.44	-177.16	406.31	314.46	91.85	4.424	0			
15,400.00	9,638.25	15,989.05	10,044.63	184.23	185.45	-177.32	406.53	313.41	93.11	4.366	0			

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

Devon Energy

Anticollision Risk Report

Company: WESTERN DIVISION	Local Co-ordinate Reference: Well Thistle Unit 155H
Project: PBNM	TVD Reference: 1 @ 3676.70ft
Reference Site: Dzurisin	MD Reference: 1 @ 3676.70ft
Site Error: 0.00	North Reference: Grid
Reference Well: Thistle Unit 155H	Survey Calculation Method: Minimum Curvature
Well Error: 0.00	Output errors are at 2.00 sigma
Reference Wellbore Wellbore #1	Database: EDM r5000 US Production
Reference Design: Plan 1	Offset TVD Reference: Offset Datum

Offset Design													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 (°)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Risked Separation Factor	Probability of Collision		
15,500.00	9,638.18	16,089.05	10,044.83	187.25	188.47	-177.48	406.75	312.37	94.38	4.310	0			
15,600.00	9,638.10	16,189.04	10,045.03	190.26	191.49	-177.64	406.97	311.32	95.65	4.255	0			
15,700.00	9,638.03	16,289.03	10,045.23	193.28	194.50	-177.80	407.20	310.26	96.93	4.201	0			
15,800.00	9,637.96	16,389.03	10,045.42	196.30	197.52	-177.95	407.43	309.20	98.22	4.148	0			
15,900.00	9,637.88	16,489.02	10,045.62	199.32	200.54	-178.11	407.66	308.14	99.52	4.096	0			
16,000.00	9,637.81	16,589.01	10,045.82	202.35	203.56	-178.27	407.89	307.07	100.82	4.046	0			
16,100.00	9,637.74	16,689.01	10,046.02	205.37	206.58	-178.43	408.13	305.99	102.14	3.996	0			
16,200.00	9,637.66	16,789.00	10,046.21	208.39	209.60	-178.59	408.38	304.91	103.46	3.947	0			
16,300.00	9,637.59	16,888.99	10,046.41	211.41	212.62	-178.74	408.62	303.82	104.80	3.899	0			
16,400.00	9,637.52	16,988.99	10,046.61	214.44	215.64	-178.90	408.87	302.73	106.14	3.852	0			
16,500.00	9,637.44	17,088.98	10,046.81	217.46	218.67	-179.06	409.12	301.62	107.50	3.806	0			
16,600.00	9,637.37	17,188.97	10,047.00	220.48	221.69	-179.21	409.37	300.51	108.87	3.760	0			
16,700.00	9,637.30	17,288.97	10,047.20	223.51	224.71	-179.37	409.63	299.38	110.25	3.716	0			
16,800.00	9,637.22	17,388.96	10,047.40	226.53	227.74	-179.53	409.89	298.25	111.64	3.672	0			
16,900.00	9,637.15	17,488.95	10,047.60	229.56	230.76	-179.68	410.15	297.11	113.05	3.628	0			
17,000.00	9,637.08	17,588.95	10,047.79	232.58	233.78	-179.84	410.42	295.96	114.46	3.586	0			
17,065.60	9,637.03	17,654.54	10,047.92	234.57	235.76	-179.94	410.60	295.19	115.40	3.558	0			
17,104.52	9,637.00	17,693.48	10,048.00	235.48	236.88	180.00	410.70	294.74	115.96	3.542	0			

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

Devon Energy
Anticollision Risk Report

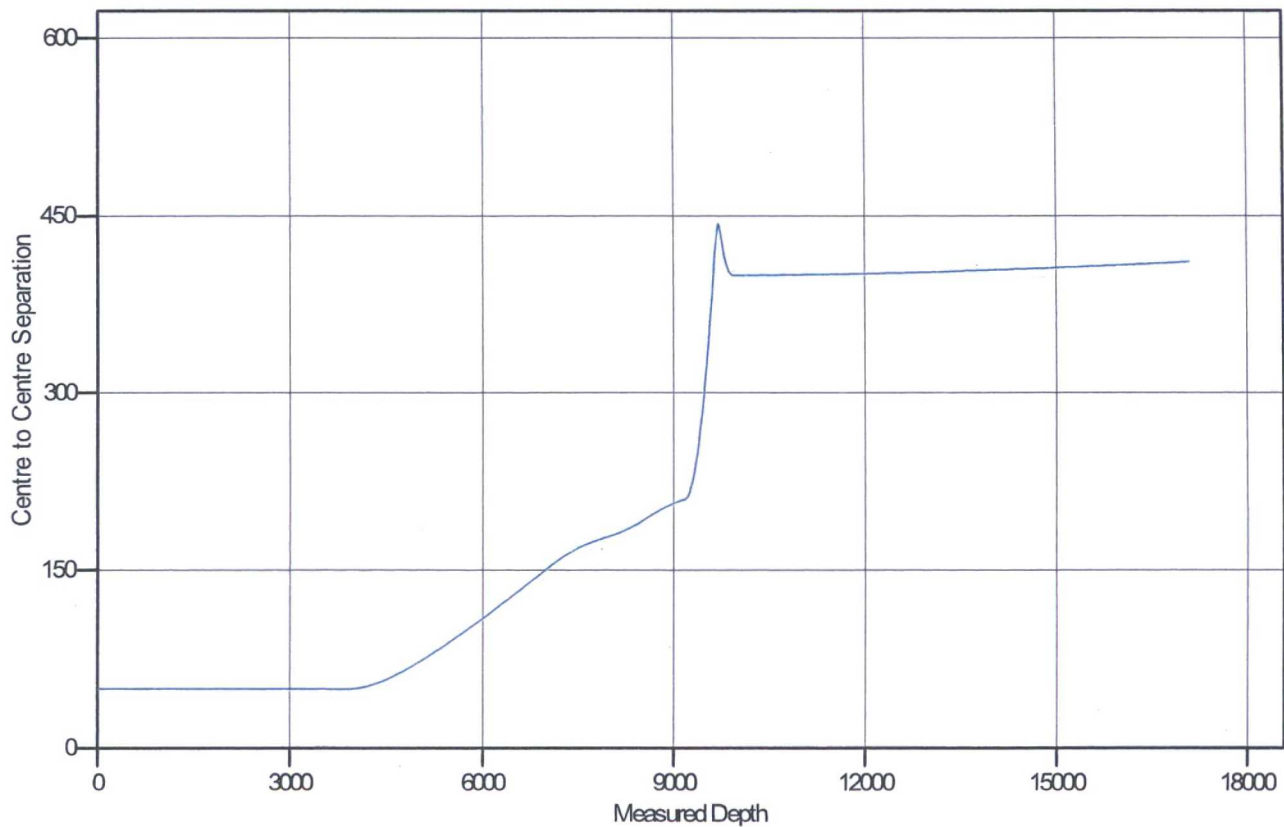
Company: WESTERN DIVISION
Project: PBNM
Reference Site: Dzurisin
Site Error: 0.00
Reference Well: Thistle Unit 155H
Well Error: 0.00
Reference Wellbore: Wellbore #1
Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 155H
TVD Reference: 1 @ 3676.70ft
MD Reference: 1 @ 3676.70ft
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 1 @ 3676.70ft
Offset Depths are relative to Offset Datum
Central Meridian is

Coordinates are relative to: Thistle Unit 155H
Coordinate System is Flat Earth, No Conversions
Grid Convergence at Surface is: 0.00°

Ladder Plot



LEGEND

— Thistle Unit 159H, Wellbore #1, Plan 1 V0

Devon Energy
Anticollision Risk Report

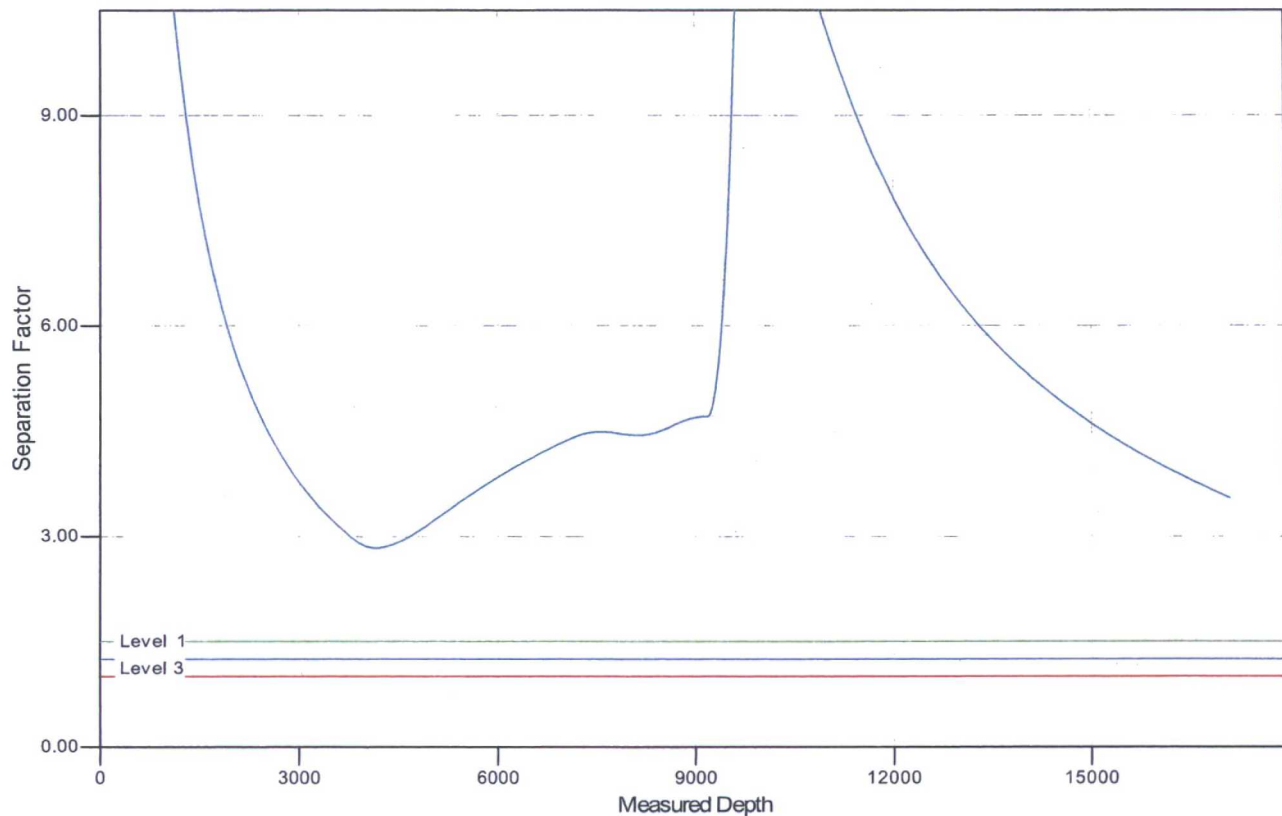
Company: WESTERN DIVISION
Project: PBNM
Reference Site: Dzurisin
Site Error: 0.00
Reference Well: Thistle Unit 155H
Well Error: 0.00
Reference Wellbore: Wellbore #1
Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 155H
TVD Reference: 1 @ 3676.70ft
MD Reference: 1 @ 3676.70ft
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 1 @ 3676.70ft
Offset Depths are relative to Offset Datum
Central Meridian is

Coordinates are relative to: Thistle Unit 155H
Coordinate System is Flat Earth, No Conversions
Grid Convergence at Surface is: 0.00°

Separation Factor Plot



LEGEND

 Thistle Unit 159H, Wellbore #1, Plan 1 V0