

WESTERN DIVISION

PBNM

Dzurisin

Thistle Unit 144H

Wellbore #1

Plan: Plan 1

Standard Planning Report

01 August, 2016

HOBBS OCD
FEB 09 2017
RECEIVED

Devon Energy

Planning Report

Database: EDM r5000 US Production
Company: WESTERN DIVISION
Project: PBNM
Site: Dzurisin
Well: Thistle Unit 144H
Wellbore: Wellbore #1
Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 144H
TVD Reference: 1 @ 3673.20ft
MD Reference: 1 @ 3673.20ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project	PBNM		
Map System:	Flat Earth	System Datum:	Mean Sea Level
Geo Datum:	WGS 1984		
Map Zone:	No Conversions		

Site	Dzurisin				
Site Position:		Northing:	429,922.27 usft	Latitude:	0.000000
From:	Map	Easting:	725,391.41 usft	Longitude:	0.000000
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	

Well	Thistle Unit 144H					
Well Position	+N/-S	27,141.74 ft	Northing:	457,063.96 usft	Latitude:	0.000000
	+E/-W	51,524.61 ft	Easting:	776,915.92 usft	Longitude:	0.000000
Position Uncertainty	0.00 ft		Wellhead Elevation:	0.00 ft	Ground Level:	3,649.70 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	7/28/2016	0.00	0.00	0

Design	Plan 1				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	2.01	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,000.00	5.00	90.00	3,999.37	0.00	21.80	1.00	1.00	0.00	90.00	
7,000.00	5.00	90.00	6,987.95	0.00	283.27	0.00	0.00	0.00	0.00	
8,000.00	0.00	0.00	7,986.68	0.00	326.88	0.50	-0.50	0.00	180.00	
9,590.00	0.00	0.00	9,576.68	0.00	326.88	0.00	0.00	0.00	0.00	
10,338.67	89.84	359.61	10,054.15	476.12	323.60	12.00	12.00	0.00	359.61	Thistle Unit 144H BHL
10,385.10	89.84	359.61	10,054.27	522.55	323.28	0.01	0.01	0.00	-0.21	
17,598.34	89.84	359.61	10,073.83	7,735.59	273.68	0.00	0.00	0.00	0.00	
17,659.64	89.84	359.61	10,074.00	7,796.90	273.26	0.01	-0.01	0.01	139.24	Thistle Unit 144H BHL

Devon Energy

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Local Co-ordinate Reference: Well Thistle Unit 144H
 TVD Reference: 1 @ 3673.20ft
 MD Reference: 1 @ 3673.20ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	1.00	90.00	3,600.00	0.00	0.87	0.03	1.00	1.00	0.00
3,700.00	2.00	90.00	3,699.96	0.00	3.49	0.12	1.00	1.00	0.00
3,800.00	3.00	90.00	3,799.86	0.00	7.85	0.28	1.00	1.00	0.00
3,900.00	4.00	90.00	3,899.68	0.00	13.96	0.49	1.00	1.00	0.00
4,000.00	5.00	90.00	3,999.37	0.00	21.80	0.76	1.00	1.00	0.00
4,100.00	5.00	90.00	4,098.99	0.00	30.52	1.07	0.00	0.00	0.00
4,200.00	5.00	90.00	4,198.60	0.00	39.23	1.37	0.00	0.00	0.00
4,300.00	5.00	90.00	4,298.22	0.00	47.95	1.68	0.00	0.00	0.00
4,400.00	5.00	90.00	4,397.84	0.00	56.67	1.98	0.00	0.00	0.00
4,500.00	5.00	90.00	4,497.46	0.00	65.38	2.29	0.00	0.00	0.00
4,600.00	5.00	90.00	4,597.08	0.00	74.10	2.60	0.00	0.00	0.00
4,700.00	5.00	90.00	4,696.70	0.00	82.81	2.90	0.00	0.00	0.00
4,800.00	5.00	90.00	4,796.32	0.00	91.53	3.21	0.00	0.00	0.00
4,900.00	5.00	90.00	4,895.94	0.00	100.24	3.51	0.00	0.00	0.00
5,000.00	5.00	90.00	4,995.56	0.00	108.96	3.82	0.00	0.00	0.00
5,100.00	5.00	90.00	5,095.18	0.00	117.67	4.12	0.00	0.00	0.00
5,200.00	5.00	90.00	5,194.80	0.00	126.39	4.43	0.00	0.00	0.00
5,300.00	5.00	90.00	5,294.42	0.00	135.11	4.73	0.00	0.00	0.00

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Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,400.00	5.00	90.00	5,394.04	0.00	143.82	5.04	0.00	0.00	0.00
5,500.00	5.00	90.00	5,493.66	0.00	152.54	5.34	0.00	0.00	0.00
5,600.00	5.00	90.00	5,593.28	0.00	161.25	5.65	0.00	0.00	0.00
5,700.00	5.00	90.00	5,692.90	0.00	169.97	5.95	0.00	0.00	0.00
5,800.00	5.00	90.00	5,792.52	0.00	178.68	6.26	0.00	0.00	0.00
5,900.00	5.00	90.00	5,892.14	0.00	187.40	6.56	0.00	0.00	0.00
6,000.00	5.00	90.00	5,991.76	0.00	196.11	6.87	0.00	0.00	0.00
6,100.00	5.00	90.00	6,091.37	0.00	204.83	7.17	0.00	0.00	0.00
6,200.00	5.00	90.00	6,190.99	0.00	213.55	7.48	0.00	0.00	0.00
6,300.00	5.00	90.00	6,290.61	0.00	222.26	7.78	0.00	0.00	0.00
6,400.00	5.00	90.00	6,390.23	0.00	230.98	8.09	0.00	0.00	0.00
6,500.00	5.00	90.00	6,489.85	0.00	239.69	8.40	0.00	0.00	0.00
6,600.00	5.00	90.00	6,589.47	0.00	248.41	8.70	0.00	0.00	0.00
6,700.00	5.00	90.00	6,689.09	0.00	257.12	9.01	0.00	0.00	0.00
6,800.00	5.00	90.00	6,788.71	0.00	265.84	9.31	0.00	0.00	0.00
6,900.00	5.00	90.00	6,888.33	0.00	274.55	9.62	0.00	0.00	0.00
7,000.00	5.00	90.00	6,987.95	0.00	283.27	9.92	0.00	0.00	0.00
7,100.00	4.50	90.00	7,087.61	0.00	291.55	10.21	0.50	-0.50	0.00
7,200.00	4.00	90.00	7,187.33	0.00	298.96	10.47	0.50	-0.50	0.00
7,300.00	3.50	90.00	7,287.12	0.00	305.50	10.70	0.50	-0.50	0.00
7,400.00	3.00	90.00	7,386.96	0.00	311.17	10.90	0.50	-0.50	0.00
7,500.00	2.50	90.00	7,486.84	0.00	315.97	11.07	0.50	-0.50	0.00
7,600.00	2.00	90.00	7,586.76	0.00	319.89	11.20	0.50	-0.50	0.00
7,700.00	1.50	90.00	7,686.72	0.00	322.95	11.31	0.50	-0.50	0.00
7,800.00	1.00	90.00	7,786.69	0.00	325.13	11.39	0.50	-0.50	0.00
7,900.00	0.50	90.00	7,886.68	0.00	326.44	11.43	0.50	-0.50	0.00
8,000.00	0.00	0.00	7,986.68	0.00	326.88	11.45	0.50	-0.50	0.00
8,100.00	0.00	0.00	8,086.68	0.00	326.88	11.45	0.00	0.00	0.00
8,200.00	0.00	0.00	8,186.68	0.00	326.88	11.45	0.00	0.00	0.00
8,300.00	0.00	0.00	8,286.68	0.00	326.88	11.45	0.00	0.00	0.00
8,400.00	0.00	0.00	8,386.68	0.00	326.88	11.45	0.00	0.00	0.00
8,500.00	0.00	0.00	8,486.68	0.00	326.88	11.45	0.00	0.00	0.00
8,600.00	0.00	0.00	8,586.68	0.00	326.88	11.45	0.00	0.00	0.00
8,700.00	0.00	0.00	8,686.68	0.00	326.88	11.45	0.00	0.00	0.00
8,800.00	0.00	0.00	8,786.68	0.00	326.88	11.45	0.00	0.00	0.00
8,900.00	0.00	0.00	8,886.68	0.00	326.88	11.45	0.00	0.00	0.00
9,000.00	0.00	0.00	8,986.68	0.00	326.88	11.45	0.00	0.00	0.00
9,100.00	0.00	0.00	9,086.68	0.00	326.88	11.45	0.00	0.00	0.00
9,200.00	0.00	0.00	9,186.68	0.00	326.88	11.45	0.00	0.00	0.00
9,300.00	0.00	0.00	9,286.68	0.00	326.88	11.45	0.00	0.00	0.00
9,400.00	0.00	0.00	9,386.68	0.00	326.88	11.45	0.00	0.00	0.00
9,500.00	0.00	0.00	9,486.68	0.00	326.88	11.45	0.00	0.00	0.00
9,590.00	0.00	0.00	9,576.68	0.00	326.88	11.45	0.00	0.00	0.00
9,600.00	1.20	359.61	9,586.68	0.10	326.87	11.55	12.00	12.00	0.00
9,625.00	4.20	359.61	9,611.65	1.28	326.87	12.73	12.00	12.00	0.00
9,650.00	7.20	359.61	9,636.52	3.76	326.85	15.21	12.00	12.00	0.00
9,675.00	10.20	359.61	9,661.23	7.55	326.82	18.99	12.00	12.00	0.00
9,700.00	13.20	359.61	9,685.71	12.61	326.79	24.05	12.00	12.00	0.00
9,725.00	16.20	359.61	9,709.89	18.96	326.75	30.39	12.00	12.00	0.00
9,750.00	19.20	359.61	9,733.70	26.56	326.69	37.98	12.00	12.00	0.00
9,775.00	22.20	359.61	9,757.09	35.39	326.63	46.81	12.00	12.00	0.00
9,800.00	25.20	359.61	9,779.98	45.44	326.56	56.85	12.00	12.00	0.00
9,825.00	28.20	359.61	9,802.31	56.67	326.49	68.07	12.00	12.00	0.00
9,850.00	31.20	359.61	9,824.02	69.06	326.40	80.45	12.00	12.00	0.00

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Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,875.00	34.20	359.61	9,845.06	82.56	326.31	93.94	12.00	12.00	0.00
9,900.00	37.20	359.61	9,865.36	97.15	326.21	108.51	12.00	12.00	0.00
9,925.00	40.20	359.61	9,884.86	112.78	326.10	124.13	12.00	12.00	0.00
9,950.00	43.20	359.61	9,903.53	129.40	325.99	140.74	12.00	12.00	0.00
9,975.00	46.20	359.61	9,921.30	146.99	325.86	158.31	12.00	12.00	0.00
10,000.00	49.20	359.61	9,938.12	165.48	325.74	176.78	12.00	12.00	0.00
10,025.00	52.20	359.61	9,953.95	184.82	325.60	196.11	12.00	12.00	0.00
10,050.00	55.20	359.61	9,968.75	204.96	325.47	216.24	12.00	12.00	0.00
10,075.00	58.20	359.61	9,982.48	225.86	325.32	237.11	12.00	12.00	0.00
10,100.00	61.20	359.61	9,995.09	247.44	325.17	258.68	12.00	12.00	0.00
10,125.00	64.20	359.61	10,006.55	269.65	325.02	280.87	12.00	12.00	0.00
10,150.00	67.20	359.61	10,016.84	292.43	324.86	303.63	12.00	12.00	0.00
10,175.00	70.20	359.61	10,025.92	315.72	324.70	326.90	12.00	12.00	0.00
10,200.00	73.20	359.61	10,033.77	339.45	324.54	350.61	12.00	12.00	0.00
10,225.00	76.20	359.61	10,040.36	363.56	324.38	374.70	12.00	12.00	0.00
10,250.00	79.20	359.61	10,045.69	387.99	324.21	399.10	12.00	12.00	0.00
10,275.00	82.20	359.61	10,049.73	412.66	324.04	423.75	12.00	12.00	0.00
10,300.00	85.20	359.61	10,052.47	437.50	323.87	448.58	12.00	12.00	0.00
10,325.00	88.20	359.61	10,053.91	462.46	323.70	473.51	12.00	12.00	0.00
10,338.67	89.84	359.61	10,054.15	476.12	323.60	487.16	12.00	12.00	0.00
10,385.10	89.84	359.61	10,054.27	522.55	323.28	533.55	0.01	0.01	0.00
10,400.00	89.84	359.61	10,054.31	537.45	323.18	548.44	0.00	0.00	0.00
10,500.00	89.84	359.61	10,054.58	637.45	322.49	648.35	0.00	0.00	0.00
10,600.00	89.84	359.61	10,054.86	737.45	321.80	748.26	0.00	0.00	0.00
10,700.00	89.84	359.61	10,055.13	837.44	321.12	848.18	0.00	0.00	0.00
10,800.00	89.84	359.61	10,055.40	937.44	320.43	948.09	0.00	0.00	0.00
10,900.00	89.84	359.61	10,055.67	1,037.44	319.74	1,048.00	0.00	0.00	0.00
11,000.00	89.84	359.61	10,055.94	1,137.43	319.05	1,147.91	0.00	0.00	0.00
11,100.00	89.84	359.61	10,056.21	1,237.43	318.37	1,247.82	0.00	0.00	0.00
11,200.00	89.84	359.61	10,056.48	1,337.43	317.68	1,347.74	0.00	0.00	0.00
11,300.00	89.84	359.61	10,056.75	1,437.43	316.99	1,447.65	0.00	0.00	0.00
11,400.00	89.84	359.61	10,057.02	1,537.42	316.30	1,547.56	0.00	0.00	0.00
11,500.00	89.84	359.61	10,057.30	1,637.42	315.62	1,647.47	0.00	0.00	0.00
11,600.00	89.84	359.61	10,057.57	1,737.42	314.93	1,747.38	0.00	0.00	0.00
11,700.00	89.84	359.61	10,057.84	1,837.42	314.24	1,847.29	0.00	0.00	0.00
11,800.00	89.84	359.61	10,058.11	1,937.41	313.55	1,947.21	0.00	0.00	0.00
11,900.00	89.84	359.61	10,058.38	2,037.41	312.86	2,047.12	0.00	0.00	0.00
12,000.00	89.84	359.61	10,058.65	2,137.41	312.18	2,147.03	0.00	0.00	0.00
12,100.00	89.84	359.61	10,058.92	2,237.40	311.49	2,246.94	0.00	0.00	0.00
12,200.00	89.84	359.61	10,059.19	2,337.40	310.80	2,346.85	0.00	0.00	0.00
12,300.00	89.84	359.61	10,059.47	2,437.40	310.11	2,446.77	0.00	0.00	0.00
12,400.00	89.84	359.61	10,059.74	2,537.40	309.43	2,546.68	0.00	0.00	0.00
12,500.00	89.84	359.61	10,060.01	2,637.39	308.74	2,646.59	0.00	0.00	0.00
12,600.00	89.84	359.61	10,060.28	2,737.39	308.05	2,746.50	0.00	0.00	0.00
12,700.00	89.84	359.61	10,060.55	2,837.39	307.36	2,846.41	0.00	0.00	0.00
12,800.00	89.84	359.61	10,060.82	2,937.39	306.68	2,946.33	0.00	0.00	0.00
12,900.00	89.84	359.61	10,061.09	3,037.38	305.99	3,046.24	0.00	0.00	0.00
13,000.00	89.84	359.61	10,061.36	3,137.38	305.30	3,146.15	0.00	0.00	0.00
13,100.00	89.84	359.61	10,061.63	3,237.38	304.61	3,246.06	0.00	0.00	0.00
13,200.00	89.84	359.61	10,061.91	3,337.37	303.93	3,345.97	0.00	0.00	0.00
13,300.00	89.84	359.61	10,062.18	3,437.37	303.24	3,445.88	0.00	0.00	0.00
13,400.00	89.84	359.61	10,062.45	3,537.37	302.55	3,545.80	0.00	0.00	0.00
13,500.00	89.84	359.61	10,062.72	3,637.37	301.86	3,645.71	0.00	0.00	0.00
13,600.00	89.84	359.61	10,062.99	3,737.36	301.17	3,745.62	0.00	0.00	0.00

Devon Energy

Planning Report

Database: EDM r5000 US Production
Company: WESTERN DIVISION
Project: PBNM
Site: Dzurisin
Well: Thistle Unit 144H
Wellbore: Wellbore #1
Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 144H
TVD Reference: 1 @ 3673.20ft
MD Reference: 1 @ 3673.20ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,700.00	89.84	359.61	10,063.26	3,837.36	300.49	3,845.53	0.00	0.00	0.00
13,800.00	89.84	359.61	10,063.53	3,937.36	299.80	3,945.44	0.00	0.00	0.00
13,900.00	89.84	359.61	10,063.80	4,037.36	299.11	4,045.36	0.00	0.00	0.00
14,000.00	89.84	359.61	10,064.07	4,137.35	298.42	4,145.27	0.00	0.00	0.00
14,100.00	89.84	359.61	10,064.35	4,237.35	297.74	4,245.18	0.00	0.00	0.00
14,200.00	89.84	359.61	10,064.62	4,337.35	297.05	4,345.09	0.00	0.00	0.00
14,300.00	89.84	359.61	10,064.89	4,437.34	296.36	4,445.00	0.00	0.00	0.00
14,400.00	89.84	359.61	10,065.16	4,537.34	295.67	4,544.91	0.00	0.00	0.00
14,500.00	89.84	359.61	10,065.43	4,637.34	294.99	4,644.83	0.00	0.00	0.00
14,600.00	89.84	359.61	10,065.70	4,737.34	294.30	4,744.74	0.00	0.00	0.00
14,700.00	89.84	359.61	10,065.97	4,837.33	293.61	4,844.65	0.00	0.00	0.00
14,800.00	89.84	359.61	10,066.24	4,937.33	292.92	4,944.56	0.00	0.00	0.00
14,900.00	89.84	359.61	10,066.51	5,037.33	292.24	5,044.47	0.00	0.00	0.00
15,000.00	89.84	359.61	10,066.79	5,137.33	291.55	5,144.39	0.00	0.00	0.00
15,100.00	89.84	359.61	10,067.06	5,237.32	290.86	5,244.30	0.00	0.00	0.00
15,200.00	89.84	359.61	10,067.33	5,337.32	290.17	5,344.21	0.00	0.00	0.00
15,300.00	89.84	359.61	10,067.60	5,437.32	289.48	5,444.12	0.00	0.00	0.00
15,400.00	89.84	359.61	10,067.87	5,537.31	288.80	5,544.03	0.00	0.00	0.00
15,500.00	89.84	359.61	10,068.14	5,637.31	288.11	5,643.94	0.00	0.00	0.00
15,600.00	89.84	359.61	10,068.41	5,737.31	287.42	5,743.86	0.00	0.00	0.00
15,700.00	89.84	359.61	10,068.68	5,837.31	286.73	5,843.77	0.00	0.00	0.00
15,800.00	89.84	359.61	10,068.96	5,937.30	286.05	5,943.68	0.00	0.00	0.00
15,900.00	89.84	359.61	10,069.23	6,037.30	285.36	6,043.59	0.00	0.00	0.00
16,000.00	89.84	359.61	10,069.50	6,137.30	284.67	6,143.50	0.00	0.00	0.00
16,100.00	89.84	359.61	10,069.77	6,237.30	283.98	6,243.42	0.00	0.00	0.00
16,200.00	89.84	359.61	10,070.04	6,337.29	283.30	6,343.33	0.00	0.00	0.00
16,300.00	89.84	359.61	10,070.31	6,437.29	282.61	6,443.24	0.00	0.00	0.00
16,400.00	89.84	359.61	10,070.58	6,537.29	281.92	6,543.15	0.00	0.00	0.00
16,500.00	89.84	359.61	10,070.85	6,637.28	281.23	6,643.06	0.00	0.00	0.00
16,600.00	89.84	359.61	10,071.12	6,737.28	280.55	6,742.97	0.00	0.00	0.00
16,700.00	89.84	359.61	10,071.40	6,837.28	279.86	6,842.89	0.00	0.00	0.00
16,800.00	89.84	359.61	10,071.67	6,937.28	279.17	6,942.80	0.00	0.00	0.00
16,900.00	89.84	359.61	10,071.94	7,037.27	278.48	7,042.71	0.00	0.00	0.00
17,000.00	89.84	359.61	10,072.21	7,137.27	277.79	7,142.62	0.00	0.00	0.00
17,100.00	89.84	359.61	10,072.48	7,237.27	277.11	7,242.53	0.00	0.00	0.00
17,200.00	89.84	359.61	10,072.75	7,337.27	276.42	7,342.45	0.00	0.00	0.00
17,300.00	89.84	359.61	10,073.02	7,437.26	275.73	7,442.36	0.00	0.00	0.00
17,400.00	89.84	359.61	10,073.29	7,537.26	275.04	7,542.27	0.00	0.00	0.00
17,500.00	89.84	359.61	10,073.56	7,637.26	274.36	7,642.18	0.00	0.00	0.00
17,598.34	89.84	359.61	10,073.83	7,735.59	273.68	7,740.43	0.00	0.00	0.00
17,600.00	89.84	359.61	10,073.84	7,737.25	273.67	7,742.09	0.01	-0.01	0.01
17,659.64	89.84	359.61	10,074.00	7,796.90	273.26	7,801.68	0.01	-0.01	0.01

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Thistle Unit 144H BHL	0.00	0.00	10,074.00	7,796.90	273.26	464,860.84	777,189.18	0.000000	0.000000
- plan hits target center									
- Point									

Devon Energy

Planning Report

Database: EDM r5000 US Production
Company: WESTERN DIVISION
Project: PBNM
Site: Dzurisin
Well: Thistle Unit 144H
Wellbore: Wellbore #1
Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 144H
TVD Reference: 1 @ 3673.20ft
MD Reference: 1 @ 3673.20ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Devon Energy

Anticollision Risk Report

Company: WESTERN DIVISION
 Project: PBNM
 Reference Site: Dzurisin
 Site Error: 0.00
 Reference Well: Thistle Unit 144H
 Well Error: 0.00
 Reference Wellbore: Wellbore #1
 Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 144H
 TVD Reference: 1 @ 3673.20ft
 MD Reference: 1 @ 3673.20ft
 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	Plan 1
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	Stations Interval 100.00ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 10,000.00ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic
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)	Survey (Wellbore)	Tool Name	Description	
0.00	17,659.64	Plan 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	
	(ft)	(ft)	(ft)	(ft)		
Dzurisin						
Thistle Unit 145H - Wellbore #1 - Plan 1	3,511.25	3,512.95	50.02	34.51	3.225 CC	
Thistle Unit 145H - Wellbore #1 - Plan 1	3,700.00	3,703.12	50.44	34.15	3.097 ES	
Thistle Unit 145H - Wellbore #1 - Plan 1	3,900.00	3,904.53	52.15	35.06	3.052 SF	
Thistle Unit 156H - Wellbore #1 - Plan 1	3,466.33	3,467.33	150.06	134.76	9.804 CC	
Thistle Unit 156H - Wellbore #1 - Plan 1	3,500.00	3,500.00	150.07	134.61	9.709 ES	
Thistle Unit 156H - Wellbore #1 - Plan 1	17,659.64	17,065.30	983.93	554.53	2.291 SF	
Thistle Unit 1H - Wellbore #1 - Plan 1	3,466.40	3,467.20	100.03	84.73	6.535 CC	
Thistle Unit 1H - Wellbore #1 - Plan 1	3,500.00	3,500.00	100.04	84.58	6.472 ES	
Thistle Unit 1H - Wellbore #1 - Plan 1	17,659.64	17,720.49	889.85	416.19	1.879 SF	

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	
0.00	0.00	1.60	1.60	0.00	0.00	-90.33	50.02							
100.00	100.00	101.60	101.60	0.09	0.09	-90.33	50.02	49.85	0.18	284.951	0			
200.00	200.00	201.60	201.60	0.31	0.31	-90.33	50.02	49.40	0.63	80.024	0			
300.00	300.00	301.60	301.60	0.54	0.54	-90.33	50.02	48.95	1.07	46.548	0			
400.00	400.00	401.60	401.60	0.76	0.76	-90.33	50.02	48.50	1.52	32.819	0			
500.00	500.00	501.60	501.60	0.99	0.99	-90.33	50.02	48.05	1.97	25.344	0			
600.00	600.00	601.60	601.60	1.21	1.21	-90.33	50.02	47.60	2.42	20.642	0			
700.00	700.00	701.60	701.60	1.43	1.44	-90.33	50.02	47.15	2.87	17.412	0			
800.00	800.00	801.60	801.60	1.66	1.66	-90.33	50.02	46.70	3.32	15.056	0			
900.00	900.00	901.60	901.60	1.88	1.89	-90.33	50.02	46.25	3.77	13.262	0			
1,000.00	1,000.00	1,001.60	1,001.60	2.11	2.11	-90.33	50.02	45.80	4.22	11.850	0			
1,100.00	1,100.00	1,101.60	1,101.60	2.33	2.34	-90.33	50.02	45.35	4.67	10.709	0			
1,200.00	1,200.00	1,201.60	1,201.60	2.56	2.56	-90.33	50.02	44.90	5.12	9.769	0			
1,300.00	1,300.00	1,301.60	1,301.60	2.78	2.79	-90.33	50.02	44.45	5.57	8.981	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 144H
Well Error: 0.00
Reference Wellbore: Wellbore #1
Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 144H
TVD Reference: 1 @ 3673.20ft
MD Reference: 1 @ 3673.20ft
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 145H - 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	
1,400.00	1,400.00	1,401.60	1,401.60	3.01	3.01	-90.33	50.02	44.00	6.02	8.310	0		
1,500.00	1,500.00	1,501.60	1,501.60	3.23	3.24	-90.33	50.02	43.55	6.47	7.732	0		
1,600.00	1,600.00	1,601.60	1,601.60	3.46	3.46	-90.33	50.02	43.10	6.92	7.230	0		
1,700.00	1,700.00	1,701.60	1,701.60	3.68	3.69	-90.33	50.02	42.65	7.37	6.789	0		
1,800.00	1,800.00	1,801.60	1,801.60	3.91	3.91	-90.33	50.02	42.20	7.82	6.399	0		
1,900.00	1,900.00	1,901.60	1,901.60	4.13	4.14	-90.33	50.02	41.75	8.27	6.051	0		
2,000.00	2,000.00	2,001.60	2,001.60	4.36	4.36	-90.33	50.02	41.30	8.72	5.739	0		
2,100.00	2,100.00	2,101.60	2,101.60	4.58	4.58	-90.33	50.02	40.85	9.17	5.457	0		
2,200.00	2,200.00	2,201.60	2,201.60	4.81	4.81	-90.33	50.02	40.41	9.62	5.202	0		
2,300.00	2,300.00	2,301.60	2,301.60	5.03	5.03	-90.33	50.02	39.96	10.07	4.970	0		
2,400.00	2,400.00	2,401.60	2,401.60	5.26	5.26	-90.33	50.02	39.51	10.51	4.757	0		
2,500.00	2,500.00	2,501.60	2,501.60	5.48	5.48	-90.33	50.02	39.06	10.96	4.562	0		
2,600.00	2,600.00	2,601.60	2,601.60	5.71	5.71	-90.33	50.02	38.61	11.41	4.382	0		
2,700.00	2,700.00	2,701.60	2,701.60	5.93	5.93	-90.33	50.02	38.16	11.86	4.216	0		
2,800.00	2,800.00	2,801.60	2,801.60	6.15	6.16	-90.33	50.02	37.71	12.31	4.062	0		
2,900.00	2,900.00	2,901.60	2,901.60	6.38	6.38	-90.33	50.02	37.26	12.76	3.919	0		
3,000.00	3,000.00	3,001.60	3,001.60	6.60	6.61	-90.33	50.02	36.81	13.21	3.786	0		
3,100.00	3,100.00	3,101.60	3,101.60	6.83	6.83	-90.33	50.02	36.36	13.66	3.661	0		
3,200.00	3,200.00	3,201.60	3,201.60	7.05	7.06	-90.33	50.02	35.91	14.11	3.545	0		
3,300.00	3,300.00	3,301.60	3,301.60	7.28	7.28	-90.33	50.02	35.46	14.56	3.435	0		
3,400.00	3,400.00	3,401.60	3,401.60	7.50	7.51	-90.33	50.02	35.01	15.01	3.332	0		
3,500.00	3,500.00	3,501.61	3,501.61	7.73	7.73	-90.33	50.02	34.56	15.46	3.236	0		
3,511.25	3,511.25	3,512.95	3,512.95	7.75	7.76	179.68	50.02	34.51	15.51	3.225	0		CC
3,600.00	3,600.00	3,602.37	3,602.37	7.94	7.95	-179.81	50.11	34.22	15.89	3.154	0		
3,700.00	3,699.96	3,703.12	3,703.08	8.14	8.17	-178.28	50.44	34.15	16.29	3.097	0		ES
3,800.00	3,799.86	3,803.85	3,803.70	8.35	8.39	-175.80	51.08	34.40	16.69	3.061	0		
3,900.00	3,899.68	3,904.53	3,904.19	8.56	8.61	-172.45	52.15	35.06	17.09	3.052	0		SF
4,000.00	3,999.37	4,005.13	4,004.47	8.79	8.85	-168.37	53.77	36.29	17.49	3.075	0		
4,100.00	4,098.99	4,105.03	4,103.99	9.03	9.09	-164.24	55.94	38.02	17.92	3.122	0		
4,200.00	4,198.60	4,204.92	4,203.51	9.27	9.34	-160.43	58.37	40.01	18.36	3.179	0		
4,300.00	4,298.22	4,304.82	4,303.03	9.52	9.59	-156.95	61.04	42.22	18.82	3.244	0		
4,400.00	4,397.84	4,404.72	4,402.55	9.77	9.85	-153.76	63.92	44.63	19.29	3.314	0		
4,500.00	4,497.46	4,504.62	4,502.06	10.04	10.11	-150.86	66.98	47.20	19.77	3.387	0		
4,600.00	4,497.08	4,504.52	4,501.58	10.30	10.38	-148.21	70.19	49.92	20.27	3.463	0		
4,700.00	4,496.70	4,504.42	4,501.10	10.57	10.65	-145.80	73.54	52.76	20.78	3.539	0		
4,800.00	4,496.32	4,504.31	4,500.62	10.85	10.93	-143.61	77.01	55.71	21.30	3.615	0		
4,900.00	4,495.94	4,504.21	4,500.14	11.13	11.21	-141.61	80.58	58.75	21.83	3.691	0		
5,000.00	4,495.56	5,004.11	4,999.65	11.41	11.49	-139.78	84.25	61.87	22.38	3.765	0		
5,100.00	5,095.18	5,104.01	5,099.17	11.70	11.78	-138.10	87.99	65.06	22.93	3.838	0		
5,200.00	5,194.80	5,203.91	5,198.69	11.99	12.07	-136.56	91.80	68.31	23.49	3.908	0		
5,300.00	5,294.42	5,303.80	5,298.21	12.28	12.36	-135.14	95.67	71.62	24.05	3.977	0		
5,400.00	5,394.04	5,403.70	5,397.73	12.58	12.65	-133.84	99.60	74.97	24.63	4.044	0		
5,500.00	5,493.66	5,503.60	5,497.24	12.88	12.95	-132.63	103.57	78.36	25.21	4.109	0		
5,600.00	5,593.28	5,603.50	5,596.76	13.18	13.25	-131.52	107.58	81.79	25.79	4.171	0		
5,700.00	5,692.90	5,703.40	5,696.28	13.48	13.55	-130.48	111.64	85.25	26.38	4.231	0		
5,800.00	5,792.52	5,803.30	5,795.80	13.78	13.85	-129.52	115.72	88.74	26.98	4.289	0		
5,900.00	5,892.14	5,903.19	5,895.32	14.09	14.16	-128.62	119.84	92.26	27.58	4.345	0		
6,000.00	5,991.76	6,003.09	5,994.84	14.40	14.46	-127.79	123.98	95.80	28.18	4.399	0		
6,100.00	6,091.37	6,102.99	6,094.35	14.71	14.77	-127.00	128.15	99.36	28.79	4.451	0		
6,200.00	6,190.99	6,202.89	6,193.87	15.02	15.08	-126.27	132.35	102.94	29.40	4.501	0		
6,300.00	6,290.61	6,302.79	6,293.39	15.34	15.39	-125.58	136.56	106.54	30.02	4.549	0		
6,400.00	6,390.23	6,402.69	6,392.91	15.65	15.71	-124.93	140.79	110.15	30.64	4.596	0		
6,500.00	6,489.85	6,502.58	6,492.43	15.97	16.02	-124.33	145.04	113.78	31.26	4.640	0		
6,600.00	6,589.47	6,602.48	6,591.94	16.29	16.33	-123.75	149.30	117.42	31.88	4.683	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 144H
 Well Error: 0.00
 Reference Wellbore: Wellbore #1
 Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 144H
 TVD Reference: 1 @ 3673.20ft
 MD Reference: 1 @ 3673.20ft
 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 145H - 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	
6,700.00	6,689.09	6,702.38	6,691.46	16.61	16.65	-123.21	153.58	121.07	32.50	4.725	0		
6,800.00	6,788.71	6,802.28	6,790.98	16.93	16.97	-122.70	157.87	124.73	33.13	4.765	0		
6,900.00	6,888.33	6,902.18	6,890.50	17.25	17.28	-122.21	162.17	128.40	33.76	4.803	0		
7,000.00	6,987.95	7,002.07	6,990.02	17.57	17.60	-121.75	166.48	132.09	34.39	4.840	0		
7,100.00	7,087.61	7,101.98	7,089.54	17.84	17.92	-121.20	170.58	135.58	34.99	4.875	0		
7,200.00	7,187.33	7,201.88	7,189.06	18.04	18.24	-120.44	174.25	138.69	35.56	4.900	0		
7,300.00	7,287.12	7,301.78	7,288.58	18.24	18.56	-119.46	177.52	141.39	36.13	4.913	0		
7,400.00	7,386.96	7,401.67	7,388.09	18.43	18.89	-118.27	180.42	143.72	36.70	4.916	0		
7,500.00	7,486.84	7,501.54	7,487.58	18.63	19.21	-116.87	183.01	145.73	37.28	4.909	0		
7,600.00	7,586.76	7,601.51	7,587.20	18.81	19.47	-115.41	185.30	147.51	37.79	4.903	0		
7,700.00	7,686.72	7,701.53	7,686.95	19.00	19.67	-114.01	187.26	149.03	38.23	4.899	0		
7,800.00	7,786.69	7,801.61	7,786.82	19.18	19.87	-112.65	188.88	150.23	38.65	4.887	0		
7,900.00	7,886.68	7,901.73	7,886.78	19.36	20.06	-111.32	190.16	151.10	39.05	4.869	0		
8,000.00	7,986.68	8,001.91	7,986.84	19.52	20.26	-20.03	191.09	151.64	39.45	4.844	0		
8,100.00	8,086.68	8,102.14	8,087.00	19.70	20.44	-18.88	191.80	151.97	39.83	4.816	0		
8,200.00	8,186.68	8,202.43	8,187.24	19.90	20.62	-17.99	192.41	152.19	40.22	4.784	0		
8,300.00	8,286.68	8,302.77	8,287.55	20.09	20.80	-17.36	192.87	152.28	40.60	4.751	0		
8,400.00	8,386.68	8,403.13	8,387.91	20.29	20.97	-16.99	193.16	152.19	40.97	4.715	0		
8,500.00	8,486.68	8,503.50	8,488.28	20.49	21.13	-16.87	193.25	151.92	41.33	4.676	0		
8,600.00	8,586.68	8,603.50	8,588.28	20.69	21.31	-16.87	193.25	151.55	41.71	4.634	0		
8,700.00	8,686.68	8,703.50	8,688.28	20.88	21.50	-16.87	193.25	151.15	42.10	4.590	0		
8,800.00	8,786.68	8,803.50	8,788.28	21.08	21.70	-16.87	193.25	150.75	42.50	4.547	0		
8,900.00	8,886.68	8,903.50	8,888.28	21.28	21.89	-16.87	193.25	150.36	42.89	4.505	0		
9,000.00	8,986.68	9,003.50	8,988.28	21.48	22.09	-16.87	193.25	149.96	43.29	4.464	0		
9,100.00	9,086.68	9,103.50	9,088.28	21.68	22.28	-16.87	193.25	149.56	43.69	4.423	0		
9,200.00	9,186.68	9,203.50	9,188.28	21.88	22.48	-16.87	193.25	149.16	44.09	4.383	0		
9,300.00	9,286.68	9,281.32	9,265.97	22.08	22.65	-16.59	197.69	153.23	44.47	4.446	0		
9,400.00	9,386.68	9,350.00	9,333.36	22.29	22.86	-15.57	215.97	171.12	44.85	4.815	0		
9,500.00	9,486.68	9,415.04	9,394.84	22.49	23.11	-14.16	247.53	202.29	45.24	5.471	0		
9,590.00	9,576.68	9,467.40	9,441.90	22.67	23.35	-12.88	286.08	240.51	45.58	6.277	0		
9,600.00	9,586.68	9,475.00	9,448.51	22.89	23.38	-12.17	290.82	245.21	45.62	6.375	0		
9,625.00	9,611.65	9,486.63	9,458.51	22.74	23.45	-11.60	302.29	256.66	45.63	6.625	0		
9,650.00	9,636.52	9,500.00	9,469.82	22.79	23.52	-11.06	313.26	267.69	45.57	6.874	0		
9,675.00	9,661.23	9,513.98	9,481.44	22.84	23.60	-10.56	323.71	278.28	45.43	7.125	0		
9,700.00	9,685.71	9,525.00	9,490.43	22.89	23.66	-10.17	333.66	288.46	45.21	7.381	0		
9,725.00	9,709.89	9,541.21	9,503.38	22.94	23.76	-9.75	343.05	298.13	44.92	7.637	0		
9,750.00	9,733.70	9,550.00	9,510.26	22.99	23.82	-9.46	351.96	307.42	44.54	7.902	0		
9,775.00	9,757.09	9,568.34	9,524.29	23.05	23.94	-9.10	360.21	316.10	44.11	8.166	0		
9,800.00	9,779.98	9,581.88	9,534.34	23.10	24.04	-8.83	367.96	324.37	43.60	8.440	0		
9,825.00	9,802.31	9,600.00	9,547.40	23.15	24.18	-8.55	375.20	332.17	43.03	8.719	0		
9,850.00	9,824.02	9,608.89	9,553.62	23.20	24.25	-8.37	381.77	339.39	42.38	9.009	0		
9,875.00	9,845.06	9,625.00	9,564.60	23.26	24.38	-8.16	387.83	346.14	41.69	9.304	0		
9,900.00	9,865.36	9,635.84	9,571.77	23.32	24.47	-8.01	393.28	352.35	40.93	9.609	0		
9,925.00	9,884.86	9,650.00	9,580.84	23.38	24.60	-7.86	398.16	358.03	40.13	9.921	0		
9,950.00	9,903.53	9,662.75	9,588.73	23.45	24.72	-7.73	402.45	363.16	39.29	10.242	0		
9,975.00	9,921.30	9,675.00	9,596.06	23.52	24.84	-7.63	406.16	367.74	38.42	10.571	0		
10,000.00	9,938.12	9,689.62	9,604.47	23.61	24.99	-7.53	409.26	371.73	37.53	10.905	0		
10,025.00	9,953.95	9,700.00	9,610.21	23.70	25.10	-7.46	411.80	375.18	36.61	11.247	0		
10,050.00	9,968.75	9,716.47	9,618.95	23.80	25.28	-7.40	413.69	377.98	35.70	11.586	0		
10,075.00	9,982.48	9,725.00	9,623.28	23.92	25.37	-7.36	415.05	380.27	34.78	11.934	0		
10,100.00	9,995.09	9,743.31	9,632.12	24.06	25.59	-7.32	415.71	381.82	33.90	12.264	0		
10,125.00	10,006.55	9,756.72	9,638.21	24.22	25.76	-7.31	415.82	382.80	33.03	12.590	0		
10,150.00	10,016.84	9,775.00	9,645.96	24.40	25.99	-7.30	415.38	383.17	32.21	12.896	0		
10,175.00	10,025.92	9,783.56	9,649.37	24.61	26.11	-7.32	414.24	382.82	31.42	13.183	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 144H
 Well Error: 0.00
 Reference Wellbore: Wellbore #1
 Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 144H
 TVD Reference: 1 @ 3673.20ft
 MD Reference: 1 @ 3673.20ft
 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 145H - 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						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					
10,200.00	10,033.77	9,800.00	9,655.53	24.84	26.33	-7.35	412.56	381.85	30.72	13.431	0				
10,225.00	10,040.36	9,810.40	9,659.15	25.10	26.48	-7.40	410.25	380.17	30.08	13.640	0				
10,250.00	10,045.69	9,825.00	9,663.88	25.39	26.69	-7.46	407.36	377.82	29.54	13.792	0				
10,275.00	10,049.73	9,837.27	9,667.52	25.70	26.88	-7.53	403.87	374.78	29.09	13.882	0				
10,300.00	10,052.47	9,850.00	9,670.97	26.03	27.07	-7.63	399.79	371.03	28.76	13.900	0				
10,325.00	10,053.91	9,864.16	9,674.44	26.39	27.30	-7.74	395.12	366.57	28.55	13.838	0				
10,338.67	10,054.15	9,875.00	9,676.81	26.59	27.47	-7.82	392.35	363.85	28.50	13.768	0				
10,385.10	10,054.27	9,900.00	9,681.37	27.32	27.89	-7.89	383.72	355.08	28.64	13.398	0				
10,400.00	10,054.31	9,900.00	9,681.37	27.56	27.89	-7.89	381.50	352.83	28.67	13.307	0				
10,500.00	10,054.58	9,960.94	9,687.04	29.35	28.97	-7.94	372.89	343.86	29.03	12.845	0				
10,532.45	10,054.67	9,982.06	9,687.24	30.00	29.37	-7.92	372.59	343.43	29.16	12.778	0				
10,600.00	10,054.86	10,049.58	9,687.15	31.35	30.69	-7.84	372.79	343.30	29.49	12.642	0				
10,700.00	10,055.13	10,149.58	9,687.02	33.52	32.79	-7.72	373.09	343.04	30.05	12.418	0				
10,800.00	10,055.40	10,249.58	9,686.89	35.81	35.03	-7.60	373.39	342.72	30.67	12.174	0				
10,900.00	10,055.67	10,349.57	9,686.76	38.21	37.39	-7.48	373.69	342.33	31.36	11.914	0				
11,000.00	10,055.94	10,449.57	9,686.63	40.70	39.84	-7.37	374.00	341.88	32.12	11.644	0				
11,100.00	10,056.21	10,549.57	9,686.50	43.26	42.36	-7.25	374.30	341.37	32.93	11.368	0				
11,200.00	10,056.48	10,649.56	9,686.37	45.88	44.96	-7.13	374.61	340.82	33.78	11.088	0				
11,300.00	10,056.75	10,749.56	9,686.24	48.55	47.60	-7.01	374.92	340.23	34.69	10.808	0				
11,400.00	10,057.02	10,849.56	9,686.11	51.26	50.30	-6.90	375.23	339.60	35.63	10.531	0				
11,500.00	10,057.30	10,949.55	9,685.98	54.00	53.03	-6.78	375.54	338.93	36.61	10.257	0				
11,600.00	10,057.57	11,049.55	9,685.85	56.78	55.79	-6.67	375.85	338.23	37.62	9.990	0				
11,700.00	10,057.84	11,149.55	9,685.72	59.58	58.58	-6.55	376.17	337.50	38.67	9.729	0				
11,800.00	10,058.11	11,249.54	9,685.59	62.40	61.39	-6.43	376.49	336.75	39.73	9.476	0				
11,900.00	10,058.38	11,349.54	9,685.46	65.24	64.23	-6.32	376.80	335.98	40.82	9.230	0				
12,000.00	10,058.65	11,449.54	9,685.34	68.10	67.08	-6.20	377.12	335.19	41.93	8.993	0				
12,100.00	10,058.92	11,549.53	9,685.21	70.98	69.95	-6.09	377.45	334.38	43.06	8.765	0				
12,200.00	10,059.19	11,649.53	9,685.08	73.87	72.83	-5.97	377.77	333.56	44.21	8.545	0				
12,300.00	10,059.47	11,749.53	9,684.95	76.77	75.73	-5.86	378.09	332.72	45.37	8.334	0				
12,400.00	10,059.74	11,849.52	9,684.82	79.68	78.63	-5.74	378.42	331.88	46.54	8.131	0				
12,500.00	10,060.01	11,949.52	9,684.69	82.60	81.55	-5.63	378.75	331.02	47.73	7.936	0				
12,600.00	10,060.28	12,049.52	9,684.56	85.52	84.47	-5.51	379.08	330.15	48.92	7.749	0				
12,700.00	10,060.55	12,149.51	9,684.43	88.46	87.41	-5.40	379.41	329.28	50.13	7.569	0				
12,800.00	10,060.82	12,249.51	9,684.30	91.40	90.34	-5.29	379.74	328.40	51.34	7.397	0				
12,900.00	10,061.09	12,349.50	9,684.17	94.35	93.29	-5.17	380.07	327.51	52.56	7.231	0				
13,000.00	10,061.36	12,449.50	9,684.04	97.31	96.24	-5.06	380.41	326.62	53.79	7.073	0				
13,100.00	10,061.63	12,549.50	9,683.91	100.26	99.20	-4.95	380.74	325.72	55.02	6.920	0				
13,200.00	10,061.91	12,649.49	9,683.78	103.23	102.16	-4.83	381.08	324.82	56.26	6.774	0				
13,300.00	10,062.18	12,749.49	9,683.65	106.20	105.13	-4.72	381.42	323.92	57.50	6.633	0				
13,400.00	10,062.45	12,849.49	9,683.52	109.17	108.10	-4.61	381.76	323.01	58.75	6.498	0				
13,500.00	10,062.72	12,949.48	9,683.39	112.14	111.07	-4.50	382.10	322.10	60.00	6.368	0				
13,600.00	10,062.99	13,049.48	9,683.26	115.12	114.05	-4.38	382.45	321.19	61.26	6.243	0				
13,700.00	10,063.26	13,149.48	9,683.13	118.11	117.03	-4.27	382.79	320.27	62.52	6.123	0				
13,800.00	10,063.53	13,249.47	9,683.00	121.09	120.02	-4.16	383.14	319.36	63.78	6.007	0				
13,900.00	10,063.80	13,349.47	9,682.87	124.08	123.00	-4.05	383.49	318.44	65.05	5.895	0				
14,000.00	10,064.07	13,449.47	9,682.74	127.07	125.99	-3.94	383.84	317.52	66.32	5.788	0				
14,100.00	10,064.35	13,549.46	9,682.61	130.06	128.96	-3.83	384.19	316.59	67.59	5.684	0				
14,200.00	10,064.62	13,649.46	9,682.48	133.06	131.98	-3.71	384.54	315.67	68.87	5.584	0				
14,300.00	10,064.89	13,749.46	9,682.35	136.05	134.97	-3.60	384.90	314.75	70.15	5.487	0				
14,400.00	10,065.16	13,849.45	9,682.22	139.05	137.97	-3.49	385.25	313.82	71.43	5.393	0				
14,500.00	10,065.43	13,949.45	9,682.09	142.05	140.97	-3.38	385.61	312.89	72.72	5.303	0				
14,600.00	10,065.70	14,049.45	9,681.96	145.05	143.97	-3.27	385.97	311.96	74.00	5.215	0				
14,700.00	10,065.97	14,149.44	9,681.84	148.06	146.97	-3.16	386.33	311.03	75.29	5.131	0				
14,800.00	10,066.24	14,249.44	9,681.71	151.06	149.98	-3.05	386.69	310.10	76.59	5.049	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 144H
Well Error: 0.00
Reference Wellbore: Wellbore #1
Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 144H
TVD Reference: 1 @ 3673.20ft
MD Reference: 1 @ 3673.20ft
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							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	
14,900.00	10,066.51	14,349.44	9,681.58	154.07	152.98	-2.94	387.05	309.16	77.88	4.970	0		
15,000.00	10,066.79	14,449.43	9,681.45	157.07	155.99	-2.83	387.41	308.23	79.18	4.893	0		
15,100.00	10,067.06	14,549.43	9,681.32	160.08	159.00	-2.72	387.78	307.29	80.49	4.818	0		
15,200.00	10,067.33	14,649.43	9,681.19	163.09	162.01	-2.62	388.15	306.35	81.79	4.745	0		
15,300.00	10,067.60	14,749.42	9,681.06	166.10	165.02	-2.51	388.51	305.41	83.10	4.675	0		
15,400.00	10,067.87	14,849.42	9,680.93	169.12	168.03	-2.40	388.88	304.47	84.41	4.607	0		
15,500.00	10,068.14	14,949.42	9,680.80	172.13	171.04	-2.29	389.25	303.52	85.73	4.540	0		
15,600.00	10,068.41	15,049.41	9,680.67	175.14	174.06	-2.18	389.63	302.58	87.05	4.476	0		
15,700.00	10,068.68	15,149.41	9,680.54	178.16	177.07	-2.07	390.00	301.63	88.37	4.413	0		
15,800.00	10,068.96	15,249.41	9,680.41	181.17	180.09	-1.97	390.38	300.67	89.70	4.352	0		
15,900.00	10,069.23	15,349.40	9,680.28	184.19	183.10	-1.86	390.75	299.72	91.03	4.292	0		
16,000.00	10,069.50	15,449.40	9,680.15	187.21	186.12	-1.75	391.13	298.76	92.37	4.234	0		
16,100.00	10,069.77	15,549.40	9,680.02	190.22	189.14	-1.64	391.51	297.80	93.71	4.178	0		
16,200.00	10,070.04	15,649.39	9,679.89	193.24	192.16	-1.54	391.89	296.84	95.05	4.123	0		
16,300.00	10,070.31	15,749.39	9,679.76	196.26	195.17	-1.43	392.27	295.87	96.40	4.069	0		
16,400.00	10,070.58	15,849.39	9,679.63	199.28	198.19	-1.32	392.66	294.90	97.76	4.017	0		
16,500.00	10,070.85	15,949.38	9,679.50	202.30	201.21	-1.22	393.04	293.92	99.12	3.965	0		
16,600.00	10,071.12	16,049.38	9,679.37	205.32	204.24	-1.11	393.43	292.95	100.48	3.915	0		
16,700.00	10,071.40	16,149.38	9,679.24	208.34	207.26	-1.01	393.81	291.96	101.85	3.867	0		
16,800.00	10,071.67	16,249.37	9,679.11	211.37	210.28	-0.90	394.20	290.98	103.23	3.819	0		
16,900.00	10,071.94	16,349.37	9,678.98	214.39	213.30	-0.79	394.59	289.99	104.61	3.772	0		
17,000.00	10,072.21	16,449.37	9,678.85	217.41	216.32	-0.69	394.98	288.99	105.99	3.727	0		
17,100.00	10,072.48	16,549.36	9,678.72	220.44	219.35	-0.58	395.38	287.99	107.39	3.682	0		
17,200.00	10,072.75	16,649.36	9,678.59	223.46	222.37	-0.48	395.77	286.99	108.78	3.638	0		
17,300.00	10,073.02	16,749.36	9,678.47	226.48	225.39	-0.37	396.17	285.98	110.19	3.595	0		
17,400.00	10,073.29	16,849.35	9,678.34	229.51	228.42	-0.27	396.56	284.96	111.60	3.553	0		
17,500.00	10,073.56	16,949.35	9,678.21	232.53	231.44	-0.17	396.96	283.94	113.02	3.512	0		
17,598.34	10,073.83	17,047.68	9,678.08	235.51	234.42	-0.06	397.35	282.93	114.42	3.473	0		
17,600.00	10,073.84	17,049.35	9,678.08	235.55	234.47	-0.06	397.36	282.92	114.44	3.472	0		
17,659.64	10,074.00	17,109.02	9,678.00	236.40	235.88	0.00	397.60	282.30	115.30	3.448	0		

Devon Energy

Anticollision Risk Report

Company: WESTERN DIVISION
Project: PBNM
Reference Site: Dzurisin
Site Error: 0.00
Reference Well: Thistle Unit 144H
Well Error: 0.00
Reference Wellbore: Wellbore #1
Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 144H
TVD Reference: 1 @ 3673.20ft
MD Reference: 1 @ 3673.20ft
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 156H - 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	
0.00	0.00	1.00	1.00	0.00	0.00	-90.38	150.06				0		
100.00	100.00	101.00	101.00	0.09	0.09	-90.38	150.06	149.89	0.17	861.474	0		
200.00	200.00	201.00	201.00	0.31	0.31	-90.38	150.06	149.44	0.62	240.592	0		
300.00	300.00	301.00	301.00	0.54	0.54	-90.38	150.06	148.99	1.07	139.821	0		
400.00	400.00	401.00	401.00	0.76	0.76	-90.38	150.06	148.54	1.52	98.545	0		
500.00	500.00	501.00	501.00	0.99	0.99	-90.38	150.06	148.09	1.97	76.085	0		
600.00	600.00	601.00	601.00	1.21	1.21	-90.38	150.06	147.64	2.42	61.962	0		
700.00	700.00	701.00	701.00	1.43	1.44	-90.38	150.06	147.19	2.87	52.262	0		
800.00	800.00	801.00	801.00	1.66	1.66	-90.38	150.06	146.74	3.32	45.187	0		
900.00	900.00	901.00	901.00	1.88	1.89	-90.38	150.06	146.29	3.77	39.800	0		
1,000.00	1,000.00	1,001.00	1,001.00	2.11	2.11	-90.38	150.06	145.84	4.22	35.560	0		
1,100.00	1,100.00	1,101.00	1,101.00	2.33	2.34	-90.38	150.06	145.39	4.67	32.137	0		
1,200.00	1,200.00	1,201.00	1,201.00	2.56	2.56	-90.38	150.06	144.94	5.12	29.315	0		
1,300.00	1,300.00	1,301.00	1,301.00	2.78	2.79	-90.38	150.06	144.49	5.57	26.948	0		
1,400.00	1,400.00	1,401.00	1,401.00	3.01	3.01	-90.38	150.06	144.05	6.02	24.935	0		
1,500.00	1,500.00	1,501.00	1,501.00	3.23	3.23	-90.38	150.06	143.60	6.47	23.202	0		
1,600.00	1,600.00	1,601.00	1,601.00	3.46	3.46	-90.38	150.06	143.15	6.92	21.694	0		
1,700.00	1,700.00	1,701.00	1,701.00	3.68	3.68	-90.38	150.06	142.70	7.37	20.371	0		
1,800.00	1,800.00	1,801.00	1,801.00	3.91	3.91	-90.38	150.06	142.25	7.82	19.199	0		
1,900.00	1,900.00	1,901.00	1,901.00	4.13	4.13	-90.38	150.06	141.80	8.27	18.155	0		
2,000.00	2,000.00	2,001.00	2,001.00	4.36	4.36	-90.38	150.06	141.35	8.72	17.218	0		
2,100.00	2,100.00	2,101.00	2,101.00	4.58	4.58	-90.38	150.06	140.90	9.16	16.374	0		
2,200.00	2,200.00	2,201.00	2,201.00	4.81	4.81	-90.38	150.06	140.45	9.61	15.608	0		
2,300.00	2,300.00	2,301.00	2,301.00	5.03	5.03	-90.38	150.06	140.00	10.06	14.911	0		
2,400.00	2,400.00	2,401.00	2,401.00	5.26	5.26	-90.38	150.06	139.55	10.51	14.274	0		
2,500.00	2,500.00	2,501.00	2,501.00	5.48	5.48	-90.38	150.06	139.10	10.96	13.688	0		
2,600.00	2,600.00	2,601.00	2,601.00	5.71	5.71	-90.38	150.06	138.65	11.41	13.149	0		
2,700.00	2,700.00	2,701.00	2,701.00	5.93	5.93	-90.38	150.06	138.20	11.86	12.651	0		
2,800.00	2,800.00	2,801.00	2,801.00	6.15	6.16	-90.38	150.06	137.75	12.31	12.189	0		
2,900.00	2,900.00	2,901.00	2,901.00	6.38	6.38	-90.38	150.06	137.30	12.76	11.759	0		
3,000.00	3,000.00	3,001.00	3,001.00	6.60	6.61	-90.38	150.06	136.85	13.21	11.359	0		
3,100.00	3,100.00	3,101.00	3,101.00	6.83	6.83	-90.38	150.06	136.40	13.66	10.985	0		
3,200.00	3,200.00	3,201.00	3,201.00	7.05	7.06	-90.38	150.06	135.95	14.11	10.635	0		
3,300.00	3,300.00	3,301.00	3,301.00	7.28	7.28	-90.38	150.06	135.50	14.56	10.307	0		
3,400.00	3,400.00	3,401.00	3,401.00	7.50	7.51	-90.38	150.06	135.05	15.01	9.998	0		
3,466.33	3,466.33	3,467.33	3,467.33	7.65	7.65	-90.38	150.06	134.76	15.31	9.804	0		CC
3,500.00	3,500.00	3,500.00	3,500.00	7.73	7.73	-90.38	150.07	134.61	15.46	9.709	0		ES
3,600.00	3,600.00	3,598.74	3,598.74	7.94	7.94	-179.79	151.69	135.81	15.88	9.553	0		
3,700.00	3,699.96	3,696.34	3,696.30	8.14	8.15	-179.75	156.53	140.26	16.27	9.619	0		
3,800.00	3,799.86	3,793.62	3,793.49	8.35	8.37	-179.03	164.62	147.95	16.67	9.877	0		
3,900.00	3,899.68	3,890.41	3,890.11	8.56	8.58	-178.14	175.94	158.89	17.05	10.316	0		
4,000.00	3,999.37	3,986.56	3,985.98	8.79	8.81	-177.15	190.52	173.08	17.44	10.925	0		
4,100.00	4,098.99	4,084.75	4,083.79	9.03	9.04	-176.18	206.94	189.09	17.85	11.594	0		
4,200.00	4,198.60	4,183.33	4,182.00	9.27	9.28	-175.34	223.43	205.17	18.26	12.234	0		
4,300.00	4,298.22	4,281.91	4,280.21	9.52	9.53	-174.62	239.96	221.28	18.68	12.846	0		
4,400.00	4,397.84	4,380.50	4,378.42	9.77	9.79	-173.99	256.52	237.42	19.10	13.431	0		
4,500.00	4,497.46	4,479.08	4,476.62	10.04	10.04	-173.44	273.10	253.58	19.52	13.991	0		
4,600.00	4,597.08	4,577.66	4,574.83	10.30	10.31	-172.95	289.71	269.77	19.94	14.526	0		
4,700.00	4,696.70	4,676.24	4,673.04	10.57	10.57	-172.51	306.34	285.97	20.37	15.039	0		
4,800.00	4,796.32	4,774.83	4,771.24	10.85	10.85	-172.12	322.98	302.19	20.80	15.529	0		
4,900.00	4,895.94	4,873.41	4,869.45	11.13	11.12	-171.76	339.64	318.41	21.23	15.999	0		
5,000.00	4,995.56	4,971.99	4,967.66	11.41	11.40	-171.44	356.31	334.65	21.66	16.450	0		
5,100.00	5,095.18	5,070.58	5,065.87	11.70	11.68	-171.15	372.98	350.89	22.09	16.882	0		
5,200.00	5,194.80	5,169.16	5,164.07	11.99	11.97	-170.89	389.67	367.14	22.53	17.297	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 144H
 Well Error: 0.00
 Reference Wellbore: Wellbore #1
 Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 144H
 TVD Reference: 1 @ 3673.20ft
 MD Reference: 1 @ 3673.20ft
 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 156H - 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						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				
5,300.00	5,294.42	5,267.74	5,262.28	12.28	12.25	-170.64	406.36	383.40	22.96	17.695	0			
5,400.00	5,394.04	5,366.32	5,360.49	12.58	12.54	-170.42	423.06	399.66	23.40	18.077	0			
5,500.00	5,493.66	5,464.91	5,458.70	12.88	12.83	-170.21	439.77	415.93	23.84	18.445	0			
5,600.00	5,593.28	5,563.49	5,556.90	13.18	13.13	-170.01	456.48	432.20	24.28	18.799	0			
5,700.00	5,692.90	5,662.07	5,655.11	13.48	13.42	-169.83	473.20	448.47	24.72	19.139	0			
5,800.00	5,792.52	5,760.65	5,753.32	13.78	13.72	-169.67	489.92	464.75	25.17	19.466	0			
5,900.00	5,892.14	5,859.24	5,851.53	14.09	14.02	-169.51	506.64	481.03	25.61	19.782	0			
6,000.00	5,991.76	5,957.82	5,949.73	14.40	14.33	-169.36	523.37	497.31	26.06	20.086	0			
6,100.00	6,091.37	6,056.40	6,047.94	14.71	14.63	-169.23	540.10	513.60	26.50	20.379	0			
6,200.00	6,190.99	6,154.98	6,146.15	15.02	14.93	-169.10	556.83	529.88	26.95	20.662	0			
6,300.00	6,290.61	6,253.57	6,244.36	15.34	15.24	-168.98	573.57	546.17	27.40	20.935	0			
6,400.00	6,390.23	6,352.15	6,342.56	15.65	15.55	-168.86	590.31	562.46	27.85	21.199	0			
6,500.00	6,489.85	6,450.73	6,440.77	15.97	15.86	-168.75	607.05	578.75	28.30	21.454	0			
6,600.00	6,589.47	6,549.31	6,538.98	16.29	16.17	-168.65	623.79	595.04	28.75	21.700	0			
6,700.00	6,689.09	6,647.90	6,637.19	16.61	16.48	-168.56	640.53	611.34	29.20	21.938	0			
6,800.00	6,788.71	6,746.48	6,735.39	16.93	16.79	-168.46	657.28	627.63	29.65	22.169	0			
6,900.00	6,888.33	6,845.06	6,833.60	17.25	17.10	-168.38	674.03	643.93	30.10	22.392	0			
7,000.00	6,987.95	6,943.64	6,931.81	17.57	17.42	-168.29	690.78	660.22	30.55	22.608	0			
7,100.00	7,087.61	7,042.30	7,030.08	17.84	17.73	-168.22	707.10	676.10	31.01	22.803	0			
7,200.00	7,187.33	7,141.08	7,128.49	18.04	18.05	-168.14	722.59	691.14	31.45	22.977	0			
7,300.00	7,287.12	7,239.99	7,227.03	18.24	18.37	-168.05	737.24	705.35	31.89	23.120	0			
7,400.00	7,386.96	7,339.02	7,325.68	18.43	18.69	-167.95	751.04	718.72	32.32	23.234	0			
7,500.00	7,486.84	7,438.17	7,424.45	18.63	19.00	-167.83	764.00	731.24	32.76	23.321	0			
7,600.00	7,586.76	7,537.41	7,523.32	18.81	19.33	-167.71	776.12	742.92	33.19	23.381	0			
7,700.00	7,686.72	7,636.76	7,622.28	19.00	19.65	-167.58	787.40	753.77	33.63	23.416	0			
7,800.00	7,786.69	7,736.19	7,721.33	19.18	19.97	-167.43	797.83	763.77	34.06	23.426	0			
7,900.00	7,886.68	7,835.70	7,820.47	19.36	20.29	-167.28	807.42	772.94	34.49	23.413	0			
8,000.00	7,986.68	7,935.28	7,919.67	19.52	20.62	-77.11	816.18	781.27	34.91	23.382	0			
8,100.00	8,086.68	8,037.48	8,021.49	19.70	20.93	-76.93	824.46	789.12	35.34	23.331	0			
8,200.00	8,186.68	8,144.58	8,128.25	19.90	21.18	-76.76	832.04	796.27	35.77	23.262	0			
8,300.00	8,286.68	8,251.83	8,235.23	20.09	21.40	-76.61	838.74	802.56	36.19	23.179	0			
8,400.00	8,386.68	8,359.20	8,342.41	20.29	21.61	-76.49	844.55	807.95	36.60	23.073	0			
8,500.00	8,486.68	8,466.69	8,449.76	20.49	21.81	-76.38	849.46	812.44	37.02	22.946	0			
8,600.00	8,586.68	8,574.28	8,557.25	20.69	22.01	-76.30	853.47	816.04	37.44	22.798	0			
8,700.00	8,686.68	8,681.94	8,664.86	20.88	22.20	-76.23	856.59	818.74	37.85	22.630	0			
8,800.00	8,786.68	8,789.65	8,772.54	21.08	22.39	-76.18	858.80	820.54	38.27	22.443	0			
8,900.00	8,886.68	8,897.41	8,880.28	21.28	22.57	-76.16	860.12	821.43	38.68	22.236	0			
9,000.00	8,986.68	9,004.81	8,987.68	21.48	22.74	-76.15	860.52	821.43	39.09	22.012	0			
9,100.00	9,086.68	9,104.81	9,087.68	21.68	22.92	-76.15	860.52	821.01	39.51	21.780	0			
9,200.00	9,186.68	9,204.81	9,187.68	21.88	23.11	-76.15	860.52	820.58	39.94	21.544	0			
9,300.00	9,286.68	9,275.00	9,257.72	22.08	23.27	-75.91	862.01	821.68	40.32	21.378	0			
9,400.00	9,386.68	9,342.23	9,323.61	22.29	23.48	-75.07	867.32	826.59	40.73	21.297	0			
9,500.00	9,486.68	9,400.00	9,378.28	22.49	23.70	-73.89	877.01	835.88	41.13	21.324	0			
9,590.00	9,576.68	9,450.00	9,423.50	22.67	23.94	-72.56	890.05	848.54	41.51	21.444	0			
9,600.00	9,586.68	9,458.98	9,431.38	22.69	23.99	-71.71	891.73	850.16	41.57	21.453	0			
9,625.00	9,611.65	9,475.00	9,445.22	22.74	24.08	-70.77	895.93	854.25	41.68	21.496	0			
9,650.00	9,636.52	9,485.37	9,454.03	22.79	24.14	-70.03	900.04	858.27	41.77	21.549	0			
9,675.00	9,661.23	9,500.00	9,466.25	22.84	24.22	-69.21	904.06	862.19	41.86	21.595	0			
9,700.00	9,685.71	9,511.69	9,475.83	22.89	24.30	-68.49	907.96	866.01	41.95	21.645	0			
9,725.00	9,709.89	9,525.00	9,486.55	22.94	24.38	-67.78	911.73	869.70	42.03	21.693	0			
9,750.00	9,733.70	9,537.94	9,496.75	22.99	24.47	-67.11	915.34	873.24	42.10	21.740	0			
9,775.00	9,757.09	9,550.00	9,506.06	23.05	24.55	-66.50	918.78	876.62	42.17	21.790	0			
9,800.00	9,779.98	9,564.15	9,516.73	23.10	24.66	-65.90	922.04	879.80	42.24	21.830	0			
9,825.00	9,802.31	9,575.00	9,524.72	23.15	24.74	-65.40	925.09	882.81	42.28	21.878	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 144H
 Well Error: 0.00
 Reference Wellbore: Wellbore #1
 Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 144H
 TVD Reference: 1 @ 3673.20ft
 MD Reference: 1 @ 3673.20ft
 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 156H - 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	
9,850.00	9,824.02	9,590.32	9,535.72	23.20	24.86	-64.87	927.92	885.56	42.36	21.908	0		
9,875.00	9,845.06	9,600.00	9,542.49	23.26	24.94	-64.46	930.53	888.14	42.39	21.950	0		
9,900.00	9,865.36	9,616.46	9,553.68	23.32	25.08	-64.02	932.89	890.41	42.48	21.962	0		
9,925.00	9,884.86	9,625.00	9,559.31	23.38	25.16	-63.70	935.02	892.50	42.52	21.991	0		
9,950.00	9,903.53	9,642.58	9,570.55	23.45	25.33	-63.36	936.85	894.22	42.63	21.976	0		
9,975.00	9,921.30	9,650.00	9,575.15	23.52	25.40	-63.13	938.47	895.79	42.69	21.985	0		
10,000.00	9,938.12	9,668.67	9,586.30	23.61	25.59	-62.88	939.76	896.91	42.85	21.932	0		
10,025.00	9,953.95	9,681.72	9,593.74	23.70	25.73	-62.72	940.80	897.80	42.99	21.883	0		
10,050.00	9,968.75	9,700.00	9,603.67	23.80	25.93	-62.59	941.58	898.37	43.21	21.790	0		
10,075.00	9,982.48	9,707.80	9,607.73	23.92	26.02	-62.53	942.02	898.65	43.37	21.720	0		
10,100.00	9,995.09	9,725.00	9,616.28	24.06	26.22	-62.52	942.23	898.57	43.66	21.581	0		
10,125.00	10,006.55	9,733.88	9,620.49	24.22	26.33	-62.54	942.11	898.20	43.90	21.459	0		
10,150.00	10,016.84	9,750.00	9,627.75	24.40	26.54	-62.63	941.73	897.46	44.27	21.272	0		
10,175.00	10,025.92	9,759.97	9,631.99	24.61	26.67	-62.74	941.05	896.43	44.61	21.093	0		
10,200.00	10,033.77	9,775.00	9,638.03	24.84	26.87	-62.93	940.10	895.03	45.07	20.859	0		
10,225.00	10,040.36	9,786.06	9,642.20	25.10	27.03	-63.14	938.86	893.34	45.52	20.625	0		
10,250.00	10,045.69	9,800.00	9,647.11	25.39	27.23	-63.41	937.36	891.30	46.06	20.350	0		
10,275.00	10,049.73	9,812.17	9,651.09	25.70	27.41	-63.72	935.60	888.97	46.63	20.064	0		
10,300.00	10,052.47	9,825.00	9,654.96	26.03	27.60	-64.08	933.58	886.32	47.25	19.756	0		
10,325.00	10,053.91	9,838.31	9,658.63	26.39	27.81	-64.49	931.31	883.37	47.94	19.428	0		
10,338.67	10,054.15	9,850.00	9,661.56	26.59	28.00	-64.79	929.99	881.57	48.41	19.209	0		
10,385.10	10,054.27	9,875.00	9,666.88	27.32	28.41	-65.09	925.87	876.27	49.59	18.670	0		
10,400.00	10,054.31	9,875.00	9,666.88	27.56	28.41	-65.09	924.76	874.94	49.82	18.561	0		
10,500.00	10,054.58	9,932.81	9,674.26	29.35	29.43	-65.51	920.28	867.67	52.62	17.491	0		
10,541.70	10,054.70	9,955.98	9,675.26	30.18	29.85	-65.57	919.86	866.04	53.82	17.091	0		
10,600.00	10,054.86	10,006.00	9,675.23	31.35	30.81	-65.57	920.30	864.47	55.83	16.484	0		
10,700.00	10,055.13	10,106.00	9,674.94	33.52	32.86	-65.56	921.20	861.41	59.79	15.407	0		
10,800.00	10,055.40	10,205.99	9,674.66	35.81	35.07	-65.54	922.10	858.12	63.99	14.411	0		
10,900.00	10,055.67	10,305.99	9,674.37	38.21	37.39	-65.53	923.00	854.63	68.38	13.499	0		
11,000.00	10,055.94	10,405.98	9,674.08	40.70	39.81	-65.52	923.90	850.98	72.93	12.669	0		
11,100.00	10,056.21	10,505.98	9,673.80	43.26	42.32	-65.51	924.80	847.20	77.61	11.916	0		
11,200.00	10,056.48	10,605.97	9,673.51	45.88	44.89	-65.49	925.70	843.31	82.40	11.235	0		
11,300.00	10,056.75	10,705.97	9,673.22	48.55	47.52	-65.48	926.60	839.33	87.28	10.617	0		
11,400.00	10,057.02	10,805.97	9,672.94	51.26	50.20	-65.47	927.50	835.27	92.23	10.056	0		
11,500.00	10,057.30	10,905.96	9,672.65	54.00	52.92	-65.46	928.40	831.15	97.25	9.547	0		
11,600.00	10,057.57	11,005.96	9,672.37	56.78	55.67	-65.44	929.30	826.98	102.32	9.082	0		
11,700.00	10,057.84	11,105.95	9,672.08	59.58	58.45	-65.43	930.20	822.76	107.44	8.658	0		
11,800.00	10,058.11	11,205.95	9,671.79	62.40	61.25	-65.42	931.10	818.50	112.61	8.269	0		
11,900.00	10,058.38	11,305.94	9,671.51	65.24	64.08	-65.41	932.00	814.20	117.80	7.912	0		
12,000.00	10,058.65	11,405.94	9,671.22	68.10	66.92	-65.39	932.90	809.88	123.03	7.583	0		
12,100.00	10,058.92	11,505.94	9,670.93	70.98	69.79	-65.38	933.80	805.53	128.28	7.280	0		
12,200.00	10,059.19	11,605.93	9,670.65	73.87	72.66	-65.37	934.71	801.15	133.55	6.999	0		
12,300.00	10,059.47	11,705.93	9,670.36	76.77	75.55	-65.36	935.61	796.76	138.85	6.738	0		
12,400.00	10,059.74	11,805.92	9,670.08	79.68	78.45	-65.35	936.51	792.34	144.16	6.496	0		
12,500.00	10,060.01	11,905.92	9,669.79	82.60	81.36	-65.33	937.41	787.92	149.49	6.271	0		
12,600.00	10,060.28	12,005.91	9,669.50	85.52	84.28	-65.32	938.31	783.47	154.83	6.060	0		
12,700.00	10,060.55	12,105.91	9,669.22	88.46	87.21	-65.31	939.21	779.02	160.19	5.863	0		
12,800.00	10,060.82	12,205.91	9,668.93	91.40	90.15	-65.30	940.11	774.55	165.56	5.678	0		
12,900.00	10,061.09	12,305.90	9,668.64	94.35	93.09	-65.28	941.01	770.07	170.94	5.505	0		
13,000.00	10,061.36	12,405.90	9,668.36	97.31	96.04	-65.27	941.91	765.59	176.32	5.342	0		
13,100.00	10,061.63	12,505.89	9,668.07	100.26	98.99	-65.26	942.81	761.09	181.72	5.188	0		
13,200.00	10,061.91	12,605.89	9,667.79	103.23	101.95	-65.25	943.71	756.59	187.12	5.043	0		
13,300.00	10,062.18	12,705.88	9,667.50	106.20	104.92	-65.24	944.61	752.08	192.53	4.906	0		
13,400.00	10,062.45	12,805.88	9,667.21	109.17	107.88	-65.22	945.51	747.57	197.95	4.777	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 144H
 Well Error: 0.00
 Reference Wellbore: Wellbore #1
 Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 144H
 TVD Reference: 1 @ 3673.20ft
 MD Reference: 1 @ 3673.20ft
 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 156H - 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	
13,500.00	10,062.72	12,905.88	9,666.93	112.14	110.86	-65.21	946.41	743.05	203.37	4.654	0		
13,600.00	10,062.99	13,005.87	9,666.64	115.12	113.83	-65.20	947.32	738.52	208.79	4.537	0		
13,700.00	10,063.26	13,105.87	9,666.36	118.11	116.81	-65.19	948.22	733.99	214.23	4.426	0		
13,800.00	10,063.53	13,205.86	9,666.07	121.09	119.79	-65.18	949.12	729.46	219.66	4.321	0		
13,900.00	10,063.80	13,305.86	9,665.78	124.08	122.78	-65.16	950.02	724.92	225.10	4.220	0		
14,000.00	10,064.07	13,405.85	9,665.50	127.07	125.77	-65.15	950.92	720.38	230.54	4.125	0		
14,100.00	10,064.35	13,505.85	9,665.21	130.06	128.76	-65.14	951.82	715.83	235.99	4.033	0		
14,200.00	10,064.62	13,605.85	9,664.92	133.06	131.75	-65.13	952.72	711.29	241.44	3.946	0		
14,300.00	10,064.89	13,705.84	9,664.64	136.05	134.74	-65.12	953.62	706.74	246.89	3.863	0		
14,400.00	10,065.16	13,805.84	9,664.35	139.05	137.74	-65.11	954.52	702.18	252.34	3.783	0		
14,500.00	10,065.43	13,905.83	9,664.07	142.05	140.74	-65.09	955.43	697.63	257.80	3.706	0		
14,600.00	10,065.70	14,005.83	9,663.78	145.05	143.74	-65.08	956.33	693.07	263.25	3.633	0		
14,700.00	10,065.97	14,105.82	9,663.49	148.06	146.74	-65.07	957.23	688.51	268.71	3.562	0		
14,800.00	10,066.24	14,205.82	9,663.21	151.06	149.74	-65.06	958.13	683.96	274.17	3.495	0		
14,900.00	10,066.51	14,305.82	9,662.92	154.07	152.75	-65.05	959.03	679.39	279.64	3.430	0		
15,000.00	10,066.79	14,405.81	9,662.63	157.07	155.75	-65.04	959.93	674.83	285.10	3.367	0		
15,100.00	10,067.06	14,505.81	9,662.35	160.08	158.76	-65.02	960.83	670.27	290.57	3.307	0		
15,200.00	10,067.33	14,605.80	9,662.06	163.09	161.77	-65.01	961.74	665.70	296.03	3.249	0		
15,300.00	10,067.60	14,705.80	9,661.78	166.10	164.78	-65.00	962.64	661.14	301.50	3.193	0		
15,400.00	10,067.87	14,805.80	9,661.49	169.12	167.79	-64.99	963.54	656.57	306.97	3.139	0		
15,500.00	10,068.14	14,905.79	9,661.20	172.13	170.80	-64.98	964.44	652.00	312.44	3.087	0		
15,600.00	10,068.41	15,005.79	9,660.92	175.14	173.81	-64.97	965.34	647.44	317.91	3.037	0		
15,700.00	10,068.68	15,105.78	9,660.63	178.16	176.83	-64.95	966.25	642.87	323.38	2.988	0		
15,800.00	10,068.96	15,205.78	9,660.35	181.17	179.84	-64.94	967.15	638.30	328.85	2.941	0		
15,900.00	10,069.23	15,305.77	9,660.06	184.19	182.86	-64.93	968.05	633.73	334.32	2.896	0		
16,000.00	10,069.50	15,405.77	9,659.77	187.21	185.87	-64.92	968.95	629.16	339.79	2.852	0		
16,100.00	10,069.77	15,505.77	9,659.49	190.22	188.89	-64.91	969.85	624.59	345.26	2.809	0		
16,200.00	10,070.04	15,605.76	9,659.20	193.24	191.91	-64.90	970.75	620.02	350.74	2.768	0		
16,300.00	10,070.31	15,705.76	9,658.91	196.26	194.92	-64.89	971.66	615.45	356.21	2.728	0		
16,400.00	10,070.58	15,805.75	9,658.63	199.28	197.94	-64.87	972.56	610.88	361.68	2.689	0		
16,500.00	10,070.85	15,905.75	9,658.34	202.30	200.96	-64.86	973.46	606.30	367.16	2.651	0		
16,600.00	10,071.12	16,005.74	9,658.06	205.32	203.98	-64.85	974.36	601.73	372.63	2.615	0		
16,700.00	10,071.40	16,105.74	9,657.77	208.34	207.00	-64.84	975.27	597.16	378.10	2.579	0		
16,800.00	10,071.67	16,205.74	9,657.48	211.37	210.03	-64.83	976.17	592.59	383.58	2.545	0		
16,900.00	10,071.94	16,305.73	9,657.20	214.39	213.05	-64.82	977.07	588.02	389.05	2.511	0		
17,000.00	10,072.21	16,405.73	9,656.91	217.41	216.07	-64.81	977.97	583.45	394.52	2.479	0		
17,100.00	10,072.48	16,505.72	9,656.62	220.44	219.09	-64.80	978.87	578.88	400.00	2.447	0		
17,200.00	10,072.75	16,605.72	9,656.34	223.46	222.12	-64.78	979.78	574.31	405.47	2.416	0		
17,300.00	10,073.02	16,705.71	9,656.05	226.48	225.14	-64.77	980.68	569.74	410.94	2.386	0		
17,400.00	10,073.29	16,805.71	9,655.77	229.51	228.16	-64.76	981.58	565.17	416.42	2.357	0		
17,500.00	10,073.56	16,905.71	9,655.48	232.53	231.19	-64.75	982.48	560.60	421.89	2.329	0		
17,598.34	10,073.83	17,004.04	9,655.20	235.51	234.16	-64.74	983.37	556.10	427.27	2.302	0		
17,600.00	10,073.84	17,005.70	9,655.19	235.55	234.21	-64.74	983.39	556.04	427.35	2.301	0		
17,659.64	10,074.00	17,065.30	9,655.02	236.40	235.62	-64.73	983.93	554.53	429.40	2.291	0		SF

CC - Min centre to center distance or covergent 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 144H
 Well Error: 0.00
 Reference Wellbore: Wellbore #1
 Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 144H
 TVD Reference: 1 @ 3673.20ft
 MD Reference: 1 @ 3673.20ft
 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 1H - 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							
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	Warning
0.00	0.00	0.80	0.80	0.00	0.00	-90.37	100.03				0		
100.00	100.00	100.80	100.80	0.09	0.09	-90.37	100.03	99.86	0.17	575.744	0		
200.00	200.00	200.80	200.80	0.31	0.31	-90.37	100.03	99.41	0.62	160.494	0		
300.00	300.00	300.80	300.80	0.54	0.54	-90.37	100.03	98.96	1.07	93.243	0		
400.00	400.00	400.80	400.80	0.76	0.76	-90.37	100.03	98.51	1.52	65.710	0		
500.00	500.00	500.80	500.80	0.99	0.99	-90.37	100.03	98.06	1.97	50.730	0		
600.00	600.00	600.80	600.80	1.21	1.21	-90.37	100.03	97.61	2.42	41.312	0		
700.00	700.00	700.80	700.80	1.43	1.44	-90.37	100.03	97.16	2.87	34.843	0		
800.00	800.00	800.80	800.80	1.66	1.66	-90.37	100.03	96.71	3.32	30.126	0		
900.00	900.00	900.80	900.80	1.88	1.89	-90.37	100.03	96.26	3.77	26.534	0		
1,000.00	1,000.00	1,000.80	1,000.80	2.11	2.11	-90.37	100.03	95.81	4.22	23.707	0		
1,100.00	1,100.00	1,100.80	1,100.80	2.33	2.34	-90.37	100.03	95.36	4.67	21.424	0		
1,200.00	1,200.00	1,200.80	1,200.80	2.56	2.56	-90.37	100.03	94.91	5.12	19.543	0		
1,300.00	1,300.00	1,300.80	1,300.80	2.78	2.78	-90.37	100.03	94.46	5.57	17.965	0		
1,400.00	1,400.00	1,400.80	1,400.80	3.01	3.01	-90.37	100.03	94.01	6.02	16.623	0		
1,500.00	1,500.00	1,500.80	1,500.80	3.23	3.23	-90.37	100.03	93.57	6.47	15.468	0		
1,600.00	1,600.00	1,600.80	1,600.80	3.46	3.46	-90.37	100.03	93.12	6.92	14.462	0		
1,700.00	1,700.00	1,700.80	1,700.80	3.68	3.68	-90.37	100.03	92.67	7.37	13.580	0		
1,800.00	1,800.00	1,800.80	1,800.80	3.91	3.91	-90.37	100.03	92.22	7.82	12.799	0		
1,900.00	1,900.00	1,900.80	1,900.80	4.13	4.13	-90.37	100.03	91.77	8.27	12.103	0		
2,000.00	2,000.00	2,000.80	2,000.80	4.36	4.36	-90.37	100.03	91.32	8.71	11.478	0		
2,100.00	2,100.00	2,100.80	2,100.80	4.58	4.58	-90.37	100.03	90.87	9.16	10.915	0		
2,200.00	2,200.00	2,200.80	2,200.80	4.81	4.81	-90.37	100.03	90.42	9.61	10.405	0		
2,300.00	2,300.00	2,300.80	2,300.80	5.03	5.03	-90.37	100.03	89.97	10.06	9.940	0		
2,400.00	2,400.00	2,400.80	2,400.80	5.26	5.26	-90.37	100.03	89.52	10.51	9.515	0		
2,500.00	2,500.00	2,500.80	2,500.80	5.48	5.48	-90.37	100.03	89.07	10.96	9.125	0		
2,600.00	2,600.00	2,600.80	2,600.80	5.71	5.71	-90.37	100.03	88.62	11.41	8.766	0		
2,700.00	2,700.00	2,700.80	2,700.80	5.93	5.93	-90.37	100.03	88.17	11.86	8.433	0		
2,800.00	2,800.00	2,800.80	2,800.80	6.15	6.16	-90.37	100.03	87.72	12.31	8.125	0		
2,900.00	2,900.00	2,900.80	2,900.80	6.38	6.38	-90.37	100.03	87.27	12.76	7.839	0		
3,000.00	3,000.00	3,000.80	3,000.80	6.60	6.61	-90.37	100.03	86.82	13.21	7.572	0		
3,100.00	3,100.00	3,100.80	3,100.80	6.83	6.83	-90.37	100.03	86.37	13.66	7.323	0		
3,200.00	3,200.00	3,200.80	3,200.80	7.05	7.06	-90.37	100.03	85.92	14.11	7.090	0		
3,300.00	3,300.00	3,300.80	3,300.80	7.28	7.28	-90.37	100.03	85.47	14.56	6.871	0		
3,400.00	3,400.00	3,400.80	3,400.80	7.50	7.51	-90.37	100.03	85.02	15.01	6.665	0		
3,466.40	3,466.40	3,467.20	3,467.20	7.65	7.65	-90.37	100.03	84.73	15.31	6.535	0		CC
3,500.00	3,500.00	3,500.80	3,500.80	7.73	7.73	-90.37	100.04	84.58	15.46	6.472	0		ES
3,600.00	3,600.00	3,599.06	3,599.06	7.94	7.94	179.55	101.76	85.89	15.87	6.412	0		
3,700.00	3,699.96	3,697.17	3,697.13	8.14	8.13	179.33	106.93	90.68	16.25	6.581	0		
3,800.00	3,799.86	3,794.92	3,794.79	8.35	8.33	179.02	115.52	98.90	16.63	6.948	0		
3,900.00	3,899.68	3,892.16	3,891.85	8.56	8.53	178.65	127.53	110.53	17.00	7.501	0		
4,000.00	3,999.37	3,988.71	3,988.12	8.79	8.74	178.26	142.92	125.55	17.37	8.227	0		
4,100.00	4,098.99	4,086.92	4,085.96	9.03	8.97	177.91	160.18	142.42	17.77	9.016	0		
4,200.00	4,198.60	4,185.41	4,184.07	9.27	9.20	177.63	177.46	159.30	18.17	9.769	0		
4,300.00	4,298.22	4,283.91	4,282.19	9.52	9.45	177.39	194.74	176.18	18.57	10.488	0		
4,400.00	4,397.84	4,382.40	4,380.31	9.77	9.69	177.19	212.03	193.06	18.97	11.175	0		
4,500.00	4,497.46	4,480.89	4,478.43	10.04	9.95	177.03	229.32	209.94	19.38	11.833	0		
4,600.00	4,497.08	4,479.38	4,476.54	10.30	10.21	176.88	246.61	226.82	19.79	12.461	0		
4,700.00	4,496.70	4,477.88	4,474.66	10.57	10.47	176.76	263.90	243.70	20.20	13.063	0		
4,800.00	4,496.32	4,477.37	4,472.78	10.85	10.74	176.65	281.19	260.57	20.62	13.638	0		
4,900.00	4,495.94	4,474.86	4,470.90	11.13	11.01	176.55	298.48	277.45	21.03	14.190	0		
5,000.00	4,495.56	4,473.35	4,469.01	11.41	11.29	176.47	315.78	294.32	21.45	14.719	0		
5,100.00	5,095.18	5,071.85	5,067.13	11.70	11.57	176.39	333.07	311.20	21.87	15.227	0		
5,200.00	5,194.80	5,170.34	5,165.25	11.99	11.85	176.32	350.36	328.07	22.30	15.714	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 144H
Well Error: 0.00
Reference Wellbore: Wellbore #1
Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 144H
TVD Reference: 1 @ 3673.20ft
MD Reference: 1 @ 3673.20ft
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 1H - 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	
5,300.00	5,294.42	5,268.83	5,263.37	12.28	12.14	176.26	367.66	344.94	22.72	16.182	0		
5,400.00	5,394.04	5,367.32	5,361.48	12.58	12.43	176.20	384.95	361.81	23.15	16.631	0		
5,500.00	5,493.66	5,465.81	5,459.60	12.88	12.72	176.15	402.25	378.68	23.57	17.064	0		
5,600.00	5,593.28	5,564.31	5,557.72	13.18	13.01	176.10	419.55	395.54	24.00	17.479	0		
5,700.00	5,692.90	5,662.80	5,655.84	13.48	13.31	176.05	436.84	412.41	24.43	17.880	0		
5,800.00	5,792.52	5,761.29	5,753.95	13.78	13.61	176.01	454.14	429.27	24.86	18.265	0		
5,900.00	5,892.14	5,859.78	5,852.07	14.09	13.91	175.98	471.43	446.14	25.30	18.636	0		
6,000.00	5,991.76	5,958.28	5,950.19	14.40	14.22	175.94	488.73	463.00	25.73	18.994	0		
6,100.00	6,091.37	6,056.77	6,048.31	14.71	14.52	175.91	506.03	479.86	26.17	19.340	0		
6,200.00	6,190.99	6,155.26	6,146.43	15.02	14.83	175.88	523.33	496.72	26.60	19.673	0		
6,300.00	6,290.61	6,253.75	6,244.54	15.34	15.14	175.85	540.62	513.58	27.04	19.995	0		
6,400.00	6,390.23	6,352.25	6,342.66	15.65	15.45	175.82	557.92	530.44	27.48	20.306	0		
6,500.00	6,489.85	6,450.74	6,440.78	15.97	15.76	175.80	575.22	547.30	27.92	20.606	0		
6,600.00	6,589.47	6,549.23	6,538.90	16.29	16.07	175.77	592.52	564.16	28.36	20.896	0		
6,700.00	6,689.09	6,647.72	6,637.01	16.61	16.39	175.75	609.81	581.02	28.80	21.177	0		
6,800.00	6,788.71	6,746.21	6,735.13	16.93	16.70	175.73	627.11	597.87	29.24	21.449	0		
6,900.00	6,888.33	6,844.71	6,833.25	17.25	17.02	175.71	644.41	614.73	29.68	21.712	0		
7,000.00	6,987.95	6,943.20	6,931.37	17.57	17.34	175.69	661.71	631.58	30.12	21.967	0		
7,100.00	7,087.61	7,041.77	7,029.56	17.84	17.65	175.68	678.58	648.01	30.57	22.201	0		
7,200.00	7,187.33	7,140.47	7,127.89	18.04	17.97	175.66	694.59	663.59	30.99	22.412	0		
7,300.00	7,287.12	7,239.32	7,226.36	18.24	18.30	175.63	709.74	678.32	31.42	22.590	0		
7,400.00	7,386.96	7,338.29	7,324.95	18.43	18.62	175.60	724.03	692.19	31.84	22.737	0		
7,500.00	7,486.84	7,437.38	7,423.67	18.63	18.94	175.57	737.46	705.19	32.27	22.855	0		
7,600.00	7,586.76	7,536.59	7,522.50	18.81	19.27	175.53	750.03	717.34	32.69	22.943	0		
7,700.00	7,686.72	7,635.90	7,621.43	19.00	19.60	175.49	761.73	728.62	33.11	23.004	0		
7,800.00	7,786.69	7,735.31	7,720.46	19.18	19.92	175.45	772.57	739.04	33.53	23.039	0		
7,900.00	7,886.68	7,834.81	7,819.58	19.36	20.25	175.40	782.55	748.59	33.95	23.048	0		
8,000.00	7,986.68	7,934.39	7,918.78	19.52	20.58	-94.65	791.66	757.29	34.37	23.031	0		
8,100.00	8,086.68	8,036.55	8,020.56	19.70	20.90	-94.71	800.28	765.48	34.80	22.996	0		
8,200.00	8,186.68	8,143.72	8,127.40	19.90	21.15	-94.77	808.18	772.95	35.23	22.938	0		
8,300.00	8,286.68	8,251.05	8,234.46	20.09	21.36	-94.82	815.15	779.49	35.66	22.861	0		
8,400.00	8,386.68	8,358.51	8,341.72	20.29	21.57	-94.86	821.19	785.11	36.08	22.760	0		
8,500.00	8,486.68	8,466.08	8,449.15	20.49	21.78	-94.89	826.30	789.79	36.50	22.636	0		
8,600.00	8,586.68	8,573.74	8,556.72	20.69	21.98	-94.92	830.47	793.54	36.93	22.488	0		
8,700.00	8,686.68	8,681.48	8,664.40	20.88	22.18	-94.94	833.70	796.35	37.35	22.320	0		
8,800.00	8,786.68	8,789.28	8,772.17	21.08	22.36	-94.96	836.00	798.23	37.78	22.130	0		
8,900.00	8,886.68	8,897.11	8,879.99	21.28	22.55	-94.96	837.37	799.17	38.20	21.919	0		
9,000.00	8,986.68	9,004.61	8,987.48	21.48	22.72	-94.97	837.79	799.17	38.63	21.690	0		
9,100.00	9,086.68	9,104.61	9,087.48	21.68	22.90	-94.97	837.79	798.75	39.05	21.456	0		
9,200.00	9,186.68	9,204.61	9,187.48	21.88	23.08	-94.97	837.79	798.32	39.48	21.223	0		
9,300.00	9,286.68	9,304.61	9,287.48	22.08	23.27	-94.97	837.79	797.89	39.91	20.994	0		
9,400.00	9,386.68	9,404.61	9,387.48	22.29	23.46	-94.97	837.79	797.46	40.34	20.770	0		
9,500.00	9,486.68	9,504.61	9,487.48	22.49	23.65	-94.97	837.79	797.03	40.77	20.550	0		
9,590.00	9,576.68	9,595.28	9,578.16	22.67	23.82	-94.97	837.79	796.63	41.16	20.356	0		
9,600.00	9,586.68	9,606.74	9,589.61	22.69	23.84	-94.56	837.78	796.58	41.20	20.334	0		
9,625.00	9,611.65	9,635.37	9,618.18	22.74	23.89	-94.53	837.76	796.45	41.31	20.279	0		
9,650.00	9,636.52	9,663.96	9,646.54	22.79	23.94	-94.48	837.73	796.32	41.42	20.228	0		
9,675.00	9,661.23	9,692.50	9,674.59	22.84	23.99	-94.42	837.70	796.18	41.52	20.178	0		
9,700.00	9,685.71	9,720.96	9,702.20	22.89	24.03	-94.35	837.66	796.05	41.61	20.130	0		
9,725.00	9,709.89	9,749.34	9,729.28	22.94	24.07	-94.26	837.63	795.92	41.71	20.083	0		
9,750.00	9,733.70	9,777.63	9,755.71	22.99	24.11	-94.16	837.59	795.78	41.81	20.035	0		
9,775.00	9,757.09	9,805.80	9,781.41	23.05	24.15	-94.05	837.55	795.64	41.91	19.986	0		
9,800.00	9,779.98	9,833.86	9,806.27	23.10	24.18	-93.92	837.51	795.50	42.02	19.933	0		
9,825.00	9,802.31	9,861.79	9,830.22	23.15	24.22	-93.78	837.48	795.34	42.14	19.875	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 144H
Well Error: 0.00
Reference Wellbore: Wellbore #1
Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 144H
TVD Reference: 1 @ 3673.20ft
MD Reference: 1 @ 3673.20ft
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	
Dzurisin - Thistle Unit 1H - Wellbore #1 - Plan 1														
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		
9,850.00	9,824.02	9,889.58	9,853.18	23.20	24.25	-93.64	837.45	795.17	42.27	19.810	0			
9,875.00	9,845.06	9,917.23	9,875.08	23.26	24.29	-93.48	837.42	794.99	42.43	19.737	0			
9,900.00	9,865.36	9,944.71	9,895.85	23.32	24.33	-93.31	837.40	794.79	42.61	19.654	0			
9,925.00	9,884.86	9,972.04	9,915.44	23.38	24.37	-93.13	837.38	794.58	42.81	19.562	0			
9,950.00	9,903.53	9,999.21	9,933.80	23.45	24.41	-92.94	837.38	794.34	43.04	19.456	0			
9,952.21	9,905.13	10,001.60	9,935.36	23.46	24.41	-92.93	837.38	794.32	43.06	19.445	0			
9,975.00	9,921.30	10,026.20	9,950.88	23.52	24.46	-92.75	837.38	794.08	43.31	19.336	0			
10,000.00	9,938.12	10,053.01	9,966.66	23.61	24.51	-92.55	837.40	793.79	43.61	19.203	0			
10,025.00	9,953.95	10,079.65	9,981.10	23.70	24.58	-92.34	837.42	793.48	43.95	19.055	0			
10,050.00	9,968.75	10,106.11	9,994.19	23.80	24.65	-92.13	837.46	793.13	44.33	18.893	0			
10,075.00	9,982.48	10,132.39	10,005.91	23.92	24.74	-91.91	837.51	792.77	44.75	18.716	0			
10,100.00	9,995.09	10,158.49	10,016.25	24.06	24.85	-91.68	837.58	792.37	45.21	18.526	0			
10,125.00	10,006.55	10,184.41	10,025.21	24.22	24.98	-91.45	837.66	791.94	45.72	18.323	0			
10,150.00	10,016.84	10,210.14	10,032.79	24.40	25.13	-91.22	837.75	791.49	46.26	18.109	0			
10,175.00	10,025.92	10,235.70	10,038.99	24.61	25.32	-90.99	837.86	791.01	46.85	17.884	0			
10,200.00	10,033.77	10,261.08	10,043.83	24.84	25.53	-90.75	837.98	790.51	47.48	17.651	0			
10,225.00	10,040.36	10,286.29	10,047.32	25.10	25.78	-90.52	838.12	789.98	48.14	17.410	0			
10,250.00	10,045.69	10,311.32	10,049.48	25.39	26.05	-90.28	838.27	789.43	48.84	17.164	0			
10,275.00	10,049.73	10,336.19	10,050.33	25.70	26.35	-90.04	838.44	788.87	49.57	16.914	0			
10,300.00	10,052.47	10,361.04	10,050.38	26.03	26.62	-89.84	838.62	788.39	50.23	16.695	0			
10,325.00	10,053.91	10,385.99	10,050.43	26.39	26.91	-89.72	838.80	787.90	50.90	16.479	0			
10,338.67	10,054.15	10,399.66	10,050.46	26.59	27.07	-89.69	838.89	787.62	51.28	16.359	0			
10,385.10	10,054.27	10,446.09	10,050.55	27.32	27.77	-89.69	839.22	786.33	52.88	15.869	0			
10,400.00	10,054.31	10,460.99	10,050.58	27.56	28.01	-89.69	839.32	785.91	53.41	15.715	0			
10,500.00	10,054.58	10,560.99	10,050.78	29.35	29.77	-89.69	840.02	782.82	57.19	14.688	0			
10,600.00	10,054.86	10,660.99	10,050.98	31.35	31.74	-89.68	840.71	779.37	61.35	13.705	0			
10,700.00	10,055.13	10,760.98	10,051.18	33.52	33.89	-89.68	841.41	775.61	65.80	12.787	0			
10,800.00	10,055.40	10,860.98	10,051.38	35.81	36.17	-89.67	842.10	771.61	70.50	11.945	0			
10,900.00	10,055.67	10,960.98	10,051.57	38.21	38.56	-89.67	842.80	767.41	75.39	11.179	0			
11,000.00	10,055.94	11,060.98	10,051.77	40.70	41.04	-89.66	843.50	763.05	80.45	10.485	0			
11,100.00	10,056.21	11,160.97	10,051.97	43.26	43.60	-89.66	844.19	758.55	85.64	9.857	0			
11,200.00	10,056.48	11,260.97	10,052.17	45.88	46.21	-89.65	844.89	753.95	90.94	9.290	0			
11,300.00	10,056.75	11,360.97	10,052.37	48.55	48.87	-89.65	845.58	749.25	96.33	8.778	0			
11,400.00	10,057.02	11,460.97	10,052.57	51.26	51.58	-89.65	846.28	744.48	101.80	8.313	0			
11,500.00	10,057.30	11,560.96	10,052.76	54.00	54.32	-89.64	846.98	739.64	107.34	7.891	0			
11,600.00	10,057.57	11,660.96	10,052.96	56.78	57.09	-89.64	847.67	734.74	112.93	7.506	0			
11,700.00	10,057.84	11,760.96	10,053.16	59.58	59.89	-89.63	848.37	729.80	118.57	7.155	0			
11,800.00	10,058.11	11,860.96	10,053.36	62.40	62.71	-89.63	849.06	724.81	124.25	6.833	0			
11,900.00	10,058.38	11,960.95	10,053.56	65.24	65.55	-89.62	849.76	719.79	129.97	6.538	0			
12,000.00	10,058.65	12,060.95	10,053.76	68.10	68.40	-89.62	850.46	714.74	135.72	6.266	0			
12,100.00	10,058.92	12,160.95	10,053.96	70.98	71.28	-89.61	851.15	709.66	141.50	6.015	0			
12,200.00	10,059.19	12,260.95	10,054.15	73.87	74.16	-89.61	851.85	704.55	147.30	5.783	0			
12,300.00	10,059.47	12,360.94	10,054.35	76.77	77.06	-89.60	852.54	699.42	153.12	5.568	0			
12,400.00	10,059.74	12,460.94	10,054.55	79.68	79.97	-89.60	853.24	694.28	158.96	5.368	0			
12,500.00	10,060.01	12,560.94	10,054.75	82.60	82.88	-89.59	853.94	689.12	164.82	5.181	0			
12,600.00	10,060.28	12,660.94	10,054.95	85.52	85.81	-89.59	854.63	683.94	170.69	5.007	0			
12,700.00	10,060.55	12,760.93	10,055.15	88.46	88.74	-89.59	855.33	678.75	176.58	4.844	0			
12,800.00	10,060.82	12,860.93	10,055.34	91.40	91.68	-89.58	856.02	673.54	182.48	4.691	0			
12,900.00	10,061.09	12,960.93	10,055.54	94.35	94.63	-89.58	856.72	668.33	188.39	4.547	0			
13,000.00	10,061.36	13,060.93	10,055.74	97.31	97.58	-89.57	857.42	663.10	194.32	4.412	0			
13,100.00	10,061.63	13,160.93	10,055.94	100.26	100.54	-89.57	858.11	657.86	200.25	4.285	0			
13,200.00	10,061.91	13,260.92	10,056.14	103.23	103.50	-89.56	858.81	652.62	206.19	4.165	0			
13,300.00	10,062.18	13,360.92	10,056.34	106.20	106.47	-89.56	859.50	647.37	212.14	4.052	0			
13,400.00	10,062.45	13,460.92	10,056.53	109.17	109.44	-89.55	860.20	642.11	218.09	3.944	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 144H
Well Error: 0.00
Reference Wellbore: Wellbore #1
Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 144H
TVD Reference: 1 @ 3673.20ft
MD Reference: 1 @ 3673.20ft
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 1H - 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	
13,500.00	10,062.72	13,560.92	10,056.73	112.14	112.42	-89.55	860.90	636.84	224.05	3.842	0		
13,600.00	10,062.99	13,660.91	10,056.93	115.12	115.39	-89.54	861.59	631.57	230.02	3.746	0		
13,700.00	10,063.26	13,760.91	10,057.13	118.11	118.37	-89.54	862.29	626.29	235.99	3.654	0		
13,800.00	10,063.53	13,860.91	10,057.33	121.09	121.36	-89.54	862.98	621.01	241.97	3.566	0		
13,900.00	10,063.80	13,960.91	10,057.53	124.08	124.34	-89.53	863.68	615.72	247.96	3.483	0		
14,000.00	10,064.07	14,060.90	10,057.73	127.07	127.33	-89.53	864.38	610.43	253.95	3.404	0		
14,100.00	10,064.35	14,160.90	10,057.92	130.06	130.33	-89.52	865.07	605.13	259.94	3.328	0		
14,200.00	10,064.62	14,260.90	10,058.12	133.06	133.32	-89.52	865.77	599.83	265.93	3.256	0		
14,300.00	10,064.89	14,360.90	10,058.32	136.05	136.31	-89.51	866.46	594.53	271.93	3.186	0		
14,400.00	10,065.16	14,460.89	10,058.52	139.05	139.31	-89.51	867.16	589.22	277.94	3.120	0		
14,500.00	10,065.43	14,560.89	10,058.72	142.05	142.31	-89.51	867.86	583.91	283.94	3.056	0		
14,600.00	10,065.70	14,660.89	10,058.92	145.05	145.31	-89.50	868.55	578.60	289.95	2.995	0		
14,700.00	10,065.97	14,760.89	10,059.11	148.06	148.32	-89.50	869.25	573.28	295.97	2.937	0		
14,800.00	10,066.24	14,860.88	10,059.31	151.06	151.32	-89.49	869.94	567.96	301.98	2.881	0		
14,900.00	10,066.51	14,960.88	10,059.51	154.07	154.33	-89.49	870.64	562.64	308.00	2.827	0		
15,000.00	10,066.79	15,060.88	10,059.71	157.07	157.33	-89.48	871.34	557.32	314.02	2.775	0		
15,100.00	10,067.06	15,160.88	10,059.91	160.08	160.34	-89.48	872.03	551.99	320.04	2.725	0		
15,200.00	10,067.33	15,260.87	10,060.11	163.09	163.35	-89.47	872.73	546.66	326.07	2.677	0		
15,300.00	10,067.60	15,360.87	10,060.31	166.10	166.36	-89.47	873.42	541.33	332.09	2.630	0		
15,400.00	10,067.87	15,460.87	10,060.50	169.12	169.37	-89.47	874.12	536.00	338.12	2.585	0		
15,500.00	10,068.14	15,560.87	10,060.70	172.13	172.38	-89.46	874.82	530.67	344.15	2.542	0		
15,600.00	10,068.41	15,660.86	10,060.90	175.14	175.40	-89.46	875.51	525.33	350.18	2.500	0		
15,700.00	10,068.68	15,760.86	10,061.10	178.16	178.41	-89.45	876.21	519.99	356.22	2.460	0		
15,800.00	10,068.96	15,860.86	10,061.30	181.17	181.43	-89.45	876.91	514.66	362.25	2.421	0		
15,900.00	10,069.23	15,960.86	10,061.50	184.19	184.44	-89.44	877.60	509.32	368.29	2.383	0		
16,000.00	10,069.50	16,060.85	10,061.69	187.21	187.46	-89.44	878.30	503.97	374.32	2.346	0		
16,100.00	10,069.77	16,160.85	10,061.89	190.22	190.48	-89.44	878.99	498.63	380.36	2.311	0		
16,200.00	10,070.04	16,260.85	10,062.09	193.24	193.49	-89.43	879.69	493.29	386.40	2.277	0		
16,300.00	10,070.31	16,360.85	10,062.29	196.26	196.51	-89.43	880.39	487.94	392.44	2.243	0		
16,400.00	10,070.58	16,460.84	10,062.49	199.28	199.53	-89.42	881.08	482.60	398.49	2.211	0		
16,500.00	10,070.85	16,560.84	10,062.69	202.30	202.55	-89.42	881.78	477.25	404.53	2.180	0		
16,600.00	10,071.12	16,660.84	10,062.88	205.32	205.57	-89.41	882.47	471.90	410.57	2.149	0		
16,700.00	10,071.40	16,760.84	10,063.08	208.34	208.59	-89.41	883.17	466.55	416.62	2.120	0		
16,800.00	10,071.67	16,860.83	10,063.28	211.37	211.62	-89.41	883.87	461.20	422.67	2.091	0		
16,900.00	10,071.94	16,960.83	10,063.48	214.39	214.64	-89.40	884.56	455.85	428.71	2.063	0		
17,000.00	10,072.21	17,060.83	10,063.68	217.41	217.66	-89.40	885.26	450.50	434.76	2.036	0		
17,100.00	10,072.48	17,160.83	10,063.88	220.44	220.68	-89.39	885.96	445.15	440.81	2.010	0		
17,200.00	10,072.75	17,260.82	10,064.08	223.46	223.71	-89.39	886.65	439.79	446.86	1.984	0		
17,300.00	10,073.02	17,360.82	10,064.27	226.48	226.73	-89.38	887.35	434.44	452.91	1.959	0		
17,400.00	10,073.29	17,460.82	10,064.47	229.51	229.75	-89.38	888.04	429.08	458.96	1.935	0		
17,500.00	10,073.56	17,560.82	10,064.67	232.53	232.78	-89.38	888.74	423.73	465.01	1.911	0		
17,598.34	10,073.83	17,659.15	10,064.87	235.51	235.75	-89.37	889.42	418.46	470.97	1.889	0		
17,600.00	10,073.84	17,660.82	10,064.87	235.55	235.80	-89.37	889.44	418.38	471.05	1.888	0		
17,659.64	10,074.00	17,720.49	10,064.99	236.40	237.57	-89.37	889.85	416.19	473.67	1.879	0		SF

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

Devon Energy
Anticollision Risk Report

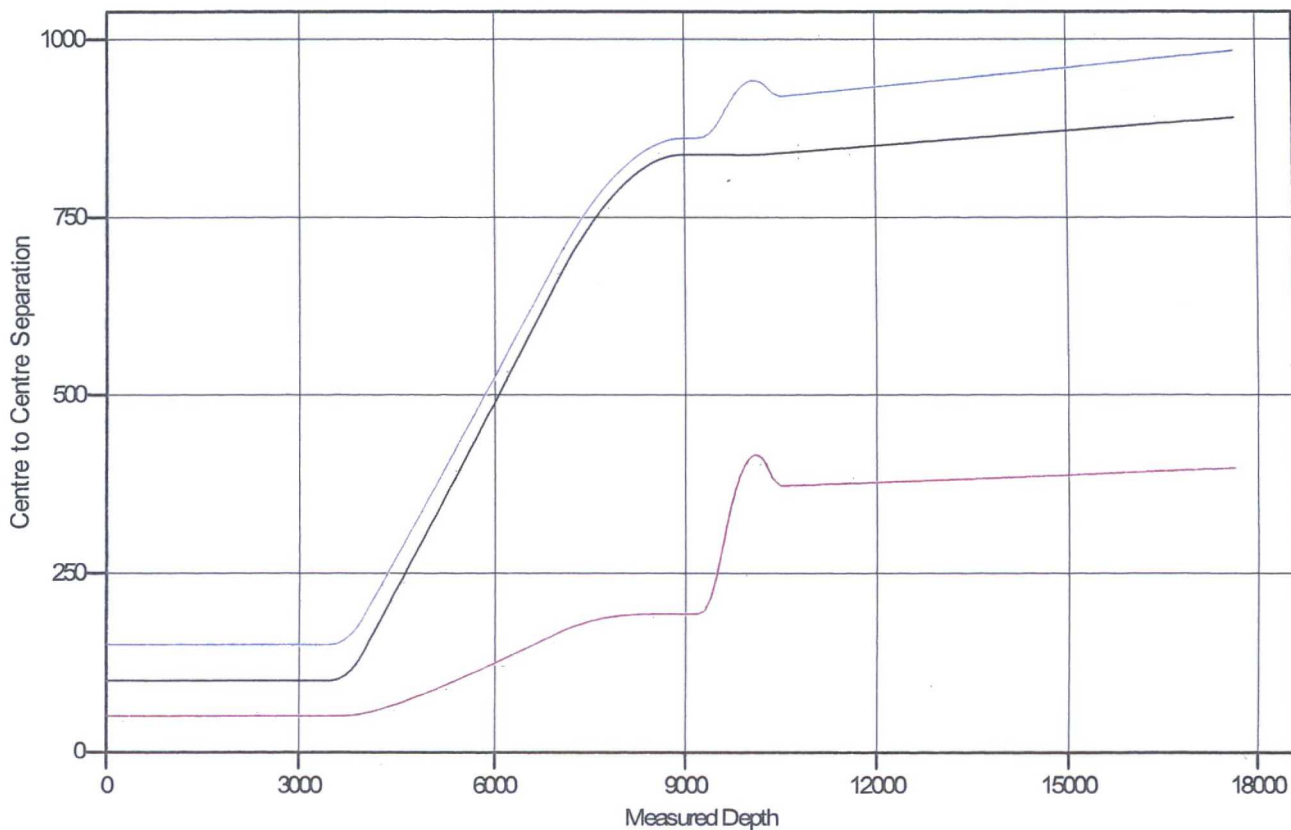
Company: WESTERN DIVISION
Project: PBNM
Reference Site: Dzurisin
Site Error: 0.00
Reference Well: Thistle Unit 144H
Well Error: 0.00
Reference Wellbore: Wellbore #1
Reference Design: Plan 1

Local Co-ordinate Reference: Well Thistle Unit 144H
TVD Reference: 1 @ 3673.20ft
MD Reference: 1 @ 3673.20ft
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 @ 3673.20ft
Offset Depths are relative to Offset Datum
Central Meridian is

Coordinates are relative to: Thistle Unit 144H
Coordinate System is Flat Earth, No Conversions
Grid Convergence at Surface is: 0.00°

Ladder Plot



LEGEND

Thistle Unit 1H, Wellbore #1, Plan 1 V0 Thistle Unit 156H, Wellbore #1, Plan 1 V0 Thistle Unit 145H, Wellbore #1, Plan 1 V0

Devon Energy
Anticollision Risk Report

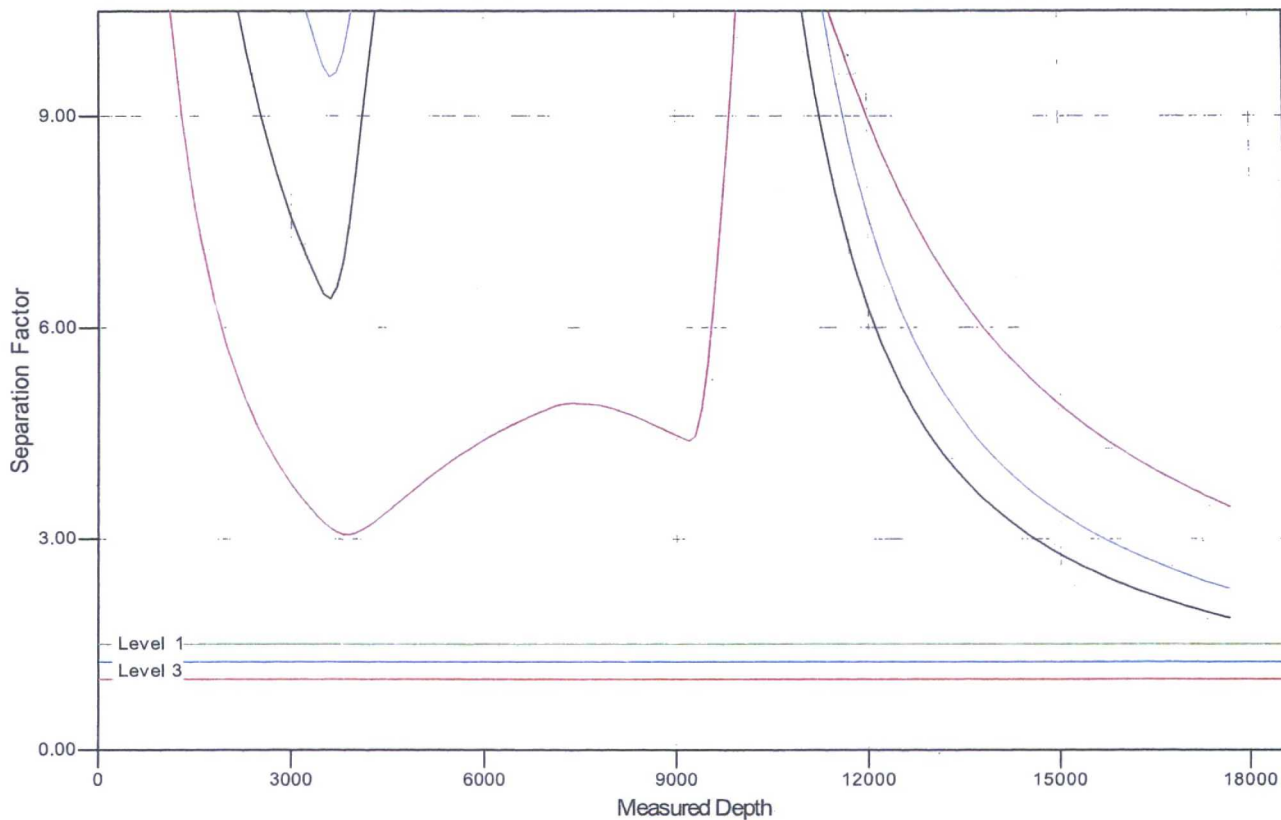
Company: WESTERN DIVISION
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM r5000 US Production
Offset TVD Reference: Offset Datum

Reference Depths are relative to 1 @ 3673.20ft
Offset Depths are relative to Offset Datum
Central Meridian is

Coordinates are relative to: Thistle Unit 144H
Coordinate System is Flat Earth, No Conversions
Grid Convergence at Surface is: 0.00°

Separation Factor Plot



LEGEND

Thistle Unit 1H, Wellbore #1, Plan 1 V0 Thistle Unit 156H, Wellbore #1, Plan 1 V0 Thistle Unit 145H, Wellbore #1, Plan 1 V0