



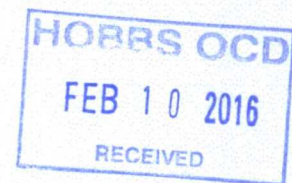
DEVON ENERGY

Lea County, NM (NAD-83)
Chincoteague 32 State Com
4H

OH
Prelim 3

Anticollision Report

05 February, 2016



LEAM
Drilling Systems LLC

REVISED

FEB 10 2016



LEAM Drilling Systems LLC

Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference	Prelim 3		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.00usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 9,999.98 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date 2/5/2016	
From (usft)	To (usft)	Survey (Wellbore)
0.00	15,153.79	Prelim 3 (OH)
		Tool Name
		LEAM MWD-ADJ
		Description
		MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Chincoteague 32 State Com						
2H - OH - OH	8,532.68	8,550.03	1,642.30	1,610.42	51.516	CC
2H - OH - OH	8,600.00	8,606.00	1,642.49	1,610.37	51.144	ES
2H - OH - OH	15,154.51	15,294.00	1,861.53	1,698.14	11.393	SF
3H - OH - Plan #1	4,566.57	4,566.87	50.75	30.50	2.506	CC
3H - OH - Plan #1	4,600.00	4,600.00	50.75	30.35	2.488	ES
3H - OH - Plan #1	4,700.00	4,699.49	51.55	30.72	2.475	SF
Cotton Draw 32 State						
1H (offset) - OH - OH	12,510.03	10,689.34	2,128.78	2,081.85	45.356	CC, ES
1H (offset) - OH - OH	14,200.00	10,677.04	2,718.01	2,643.02	36.245	SF
1H (offset) - ST - ST	8,462.19	10,436.86	1,991.90	1,933.32	34.004	CC, ES
1H (offset) - ST - ST	8,600.00	10,437.06	1,996.66	1,937.77	33.904	SF
3H (offset) - OH - OH	8,305.21	9,950.72	713.84	662.99	14.036	CC, ES, SF
4H - OH - OH	8,289.55	10,105.00	1,908.78	1,852.22	33.748	CC, ES
4H - OH - OH	8,400.00	10,105.00	1,911.97	1,855.16	33.656	SF
SWD 2 - OH - Plan #1	11,385.92	10,666.42	1,398.61	1,346.19	26.679	CC
SWD 2 - OH - Plan #1	11,400.00	10,666.48	1,398.68	1,346.11	26.606	ES
SWD 2 - OH - Plan #1	11,900.00	10,668.84	1,490.09	1,431.32	25.353	SF

Offset Design Chincoteague 32 State Com - 2H - OH - OH											
Survey Program: 232-MWD-ISCWSA, 4593-LEAM MWD+HDGM, 15294-Project											
Reference Offset Semi Major Axis											
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)
0.00	0.00	0.00	0.00	0.00	0.00	-90.57	-17.86	-1,800.28	1,800.38		
100.00	100.00	95.78	95.78	0.09	0.10	-90.56	-17.84	-1,800.55	1,800.67	1,800.48	0.18
200.00	200.00	186.21	186.21	0.31	0.19	-90.54	-17.03	-1,801.31	1,801.49	1,800.99	0.50
300.00	300.00	279.47	279.45	0.54	0.34	-90.51	-16.03	-1,802.55	1,802.81	1,801.93	0.88
400.00	400.00	376.43	376.39	0.76	0.56	-90.47	-14.75	-1,804.08	1,804.38	1,803.05	1.32
500.00	500.00	473.68	473.61	0.99	0.78	-90.42	-13.26	-1,805.74	1,806.06	1,804.31	1.77
600.00	600.00	576.22	576.13	1.21	1.00	-90.37	-11.88	-1,807.59	1,807.87	1,805.66	2.21
700.00	700.00	671.94	671.82	1.43	1.20	-90.33	-10.30	-1,809.19	1,809.54	1,806.91	2.62
800.00	800.00	762.81	762.66	1.66	1.38	-90.28	-8.90	-1,811.14	1,811.67	1,808.64	3.04
900.00	900.00	857.78	857.58	1.88	1.60	-90.23	-7.31	-1,813.57	1,814.22	1,810.75	3.47

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



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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Chincoteague 32 State Com - 2H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 232-MWD-ISCWSA, 4593-LEAM MWD+HDGM, 15294-Project													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
1,000.00	1,000.00	953.84	953.59	2.11	1.81	-90.17	-5.53	-1,816.23	1,816.99	1,813.08	3.91	464.893	
1,100.00	1,100.00	1,051.19	1,050.88	2.33	2.04	-90.11	-3.59	-1,819.12	1,819.95	1,815.80	4.35	417.938	
1,200.00	1,200.00	1,146.58	1,146.20	2.56	2.26	-90.05	-1.55	-1,822.11	1,823.09	1,818.30	4.80	380.178	
1,300.00	1,300.00	1,252.88	1,252.42	2.78	2.49	-89.97	0.82	-1,825.44	1,826.22	1,820.98	5.24	348.376	
1,400.00	1,400.00	1,359.41	1,358.99	3.01	2.70	-89.91	2.87	-1,828.38	1,828.97	1,823.30	5.67	322.482	
1,500.00	1,500.00	1,464.74	1,464.18	3.23	2.91	-89.86	4.93	-1,830.89	1,831.37	1,825.27	6.10	300.121	
1,600.00	1,600.00	1,567.72	1,567.12	3.46	3.11	-89.81	6.01	-1,833.16	1,833.58	1,827.05	6.53	280.689	
1,700.00	1,700.00	1,673.88	1,673.25	3.68	3.33	-89.76	7.54	-1,835.25	1,835.56	1,828.58	6.97	263.216	
1,800.00	1,800.00	1,777.50	1,776.85	3.91	3.55	-89.73	8.71	-1,836.92	1,837.17	1,829.78	7.41	247.904	
1,900.00	1,900.00	1,881.02	1,880.35	4.13	3.76	-89.70	9.48	-1,838.51	1,838.71	1,830.86	7.85	234.270	
2,000.00	2,000.00	1,984.78	1,984.11	4.36	3.98	-89.69	10.04	-1,839.81	1,839.97	1,831.88	8.29	222.007	
2,100.00	2,100.00	2,090.21	2,089.53	4.58	4.19	-89.68	10.39	-1,840.93	1,841.03	1,832.30	8.73	210.847	
2,200.00	2,200.00	2,191.50	2,190.81	4.81	4.41	-89.67	10.55	-1,841.77	1,841.86	1,832.69	9.17	200.918	
2,300.00	2,300.00	2,299.00	2,298.31	5.03	4.63	-89.67	10.83	-1,842.44	1,842.48	1,832.87	9.62	191.605	
2,400.00	2,400.00	2,395.00	2,394.31	5.26	4.83	-89.67	10.50	-1,842.86	1,842.93	1,832.89	10.04	183.547	
2,500.00	2,500.00	2,491.00	2,490.31	5.48	5.03	-89.66	10.25	-1,843.60	1,843.69	1,833.23	10.46	176.180	
2,600.00	2,600.00	2,605.77	2,605.07	5.71	5.26	-89.66	10.02	-1,844.05	1,844.07	1,833.15	10.93	168.745	
2,700.00	2,700.00	2,699.90	2,699.21	5.93	5.46	-89.66	10.03	-1,844.35	1,844.39	1,833.04	11.35	162.520	
2,800.00	2,800.00	2,815.91	2,815.22	6.15	5.70	-89.66	9.99	-1,844.17	1,844.22	1,832.41	11.82	156.087	
2,900.00	2,900.00	2,918.73	2,918.03	6.38	5.91	-89.66	9.93	-1,843.52	1,843.59	1,831.33	12.25	150.439	
3,000.00	3,000.00	3,017.24	3,016.54	6.60	6.11	-89.66	9.92	-1,842.91	1,842.97	1,830.28	12.68	145.290	
3,100.00	3,100.00	3,116.45	3,115.75	6.83	6.32	-89.66	9.96	-1,842.37	1,842.42	1,829.31	13.12	140.470	
3,200.00	3,200.00	3,214.73	3,214.03	7.05	6.52	-89.66	10.05	-1,841.87	1,841.92	1,828.37	13.55	135.977	
3,300.00	3,300.00	3,317.42	3,316.72	7.28	6.73	-89.66	10.12	-1,841.40	1,841.46	1,827.48	13.98	131.676	
3,400.00	3,400.00	3,424.09	3,423.39	7.50	6.95	-89.66	10.23	-1,840.58	1,840.70	1,826.26	14.43	127.533	
3,500.00	3,500.00	3,525.79	3,525.08	7.73	7.16	-89.67	10.55	-1,839.54	1,839.67	1,824.80	14.87	123.707	
3,600.00	3,600.00	3,626.30	3,625.58	7.95	7.37	-89.66	10.77	-1,838.48	1,838.61	1,823.31	15.31	120.121	
3,700.00	3,700.00	3,712.88	3,712.16	8.18	7.55	-89.66	10.88	-1,837.83	1,837.87	1,822.16	15.71	116.974	
3,800.00	3,800.00	3,829.09	3,828.36	8.40	7.79	-89.66	10.90	-1,837.11	1,837.28	1,821.10	16.18	113.556	
3,900.00	3,900.00	3,931.75	3,931.02	8.63	8.01	-89.67	10.68	-1,835.80	1,836.01	1,819.39	16.62	110.488	
4,000.00	4,000.00	4,045.00	4,044.25	8.85	8.24	-89.66	10.39	-1,833.86	1,834.28	1,817.20	17.08	107.370	
4,100.00	4,100.00	4,156.25	4,155.47	9.08	8.47	-89.66	10.06	-1,831.13	1,831.83	1,814.28	17.54	104.411	
4,200.00	4,200.00	4,257.14	4,256.32	9.30	8.68	-89.71	9.23	-1,828.31	1,829.03	1,811.05	17.98	101.711	
4,300.00	4,300.00	4,351.89	4,350.82	9.53	8.88	-89.75	7.99	-1,825.83	1,826.40	1,808.00	18.41	99.233	
4,400.00	4,400.00	4,447.79	4,446.89	9.75	9.07	-89.79	6.77	-1,823.62	1,824.09	1,805.27	18.83	96.678	
4,500.00	4,500.00	4,541.11	4,540.18	9.98	9.19	-89.82	5.81	-1,821.66	1,822.00	1,802.83	19.16	95.071	
4,600.00	4,600.00	4,634.44	4,633.48	10.20	9.24	-89.86	4.41	-1,819.46	1,820.08	1,800.84	19.44	93.519	
4,700.00	4,700.00	4,730.09	4,729.06	10.43	9.25	-90.00	0.13	-1,813.83	1,816.22	1,798.54	19.68	92.292	
4,800.00	4,800.00	4,829.79	4,828.25	10.65	9.27	-90.20	-6.31	-1,806.99	1,810.14	1,790.22	19.93	90.843	
4,900.00	4,900.00	5,060.15	5,057.99	10.87	9.31	-90.46	-14.43	-1,796.19	1,802.68	1,782.49	20.18	89.313	
5,000.00	5,000.00	5,175.28	5,172.38	11.10	9.35	-90.72	-22.36	-1,785.86	1,793.74	1,773.29	20.45	87.724	
5,100.00	5,100.00	5,274.70	5,271.12	11.32	9.39	-90.94	-29.27	-1,776.55	1,784.46	1,763.75	20.71	86.162	
5,200.00	5,200.00	5,389.97	5,385.86	11.55	9.43	-91.16	-35.70	-1,767.75	1,775.32	1,754.34	20.97	84.645	
5,300.00	5,300.00	5,482.52	5,477.75	11.77	9.48	-91.36	-41.67	-1,759.50	1,766.53	1,745.29	21.24	83.171	
5,400.00	5,400.00	5,557.38	5,552.05	12.00	9.53	-91.56	-47.85	-1,751.31	1,758.04	1,736.53	21.51	81.723	
5,500.00	5,500.00	5,644.00	5,638.25	12.22	9.59	-91.74	-52.90	-1,744.35	1,750.17	1,728.38	21.79	80.337	
5,600.00	5,600.00	5,741.21	5,735.02	12.45	9.66	-91.93	-58.80	-1,736.98	1,742.76	1,720.69	22.07	78.982	
5,700.00	5,700.00	5,839.16	5,832.33	12.67	9.75	-92.19	-65.96	-1,727.28	1,734.73	1,712.35	22.38	77.510	
5,800.00	5,800.00	5,939.98	5,932.53	12.90	9.84	-92.42	-72.76	-1,718.47	1,726.25	1,703.56	22.68	76.099	
5,900.00	5,900.00	6,054.98	6,046.98	13.12	9.93	-92.64	-78.88	-1,710.19	1,717.81	1,694.82	22.99	74.734	
6,000.00	6,000.00	6,141.81	6,133.37	13.35	10.01	-92.82	-84.02	-1,703.16	1,709.99	1,686.71	23.28	73.448	
6,100.00	6,100.00	6,231.06	6,222.24	13.57	10.10	-93.00	-89.00	-1,696.53	1,702.84	1,679.26	23.58	72.206	

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6,200.00	6,200.00	6,319.24	6,310.09	13.80	10.19	-93.17	-93.51	-1,590.57	1,596.36	1,572.47	23.89	71.017	
6,300.00	6,300.00	6,409.00	6,399.56	14.02	10.28	-93.33	-98.15	-1,585.00	1,590.45	1,566.26	24.20	69.866	
6,400.00	6,400.00	6,505.00	6,495.30	14.25	10.38	-93.50	-102.78	-1,579.60	1,585.11	1,560.60	24.51	68.741	
6,500.00	6,500.00	6,598.46	6,588.53	14.47	10.49	-93.66	-107.08	-1,574.70	1,580.15	1,555.32	24.83	67.657	
6,600.00	6,600.00	6,687.10	6,676.97	14.70	10.59	-93.81	-111.10	-1,570.38	1,575.56	1,550.41	25.15	66.621	
6,700.00	6,700.00	6,781.39	6,771.08	14.92	10.69	-93.95	-115.18	-1,566.26	1,571.51	1,546.03	25.48	65.608	
6,800.00	6,800.00	6,875.79	6,865.32	15.15	10.80	-94.10	-119.20	-1,562.45	1,567.78	1,541.97	25.81	64.624	
6,900.00	6,900.00	6,970.92	6,960.29	15.37	10.92	-94.25	-123.26	-1,558.90	1,564.36	1,538.22	26.14	63.666	
7,000.00	7,000.00	7,064.62	7,053.86	15.59	11.03	-94.39	-127.19	-1,555.71	1,561.28	1,534.80	26.48	62.742	
7,100.00	7,100.00	7,164.70	7,153.81	15.82	11.16	-94.54	-131.23	-1,552.53	1,558.42	1,531.60	26.82	61.833	
7,200.00	7,200.00	7,263.89	7,252.86	16.04	11.28	-94.69	-135.41	-1,549.35	1,555.55	1,528.39	27.17	60.944	
7,300.00	7,300.00	7,361.40	7,350.22	16.27	11.41	-94.85	-139.72	-1,546.29	1,552.80	1,525.29	27.51	60.072	
7,400.00	7,400.00	7,449.77	7,438.58	16.49	11.52	-94.98	-143.16	-1,543.92	1,550.47	1,522.62	27.85	59.259	
7,500.00	7,500.00	7,539.21	7,527.88	16.72	11.64	-95.07	-145.80	-1,542.21	1,548.82	1,520.63	28.19	58.488	
7,600.00	7,600.00	7,632.09	7,620.73	16.94	11.76	-95.15	-147.93	-1,541.00	1,547.72	1,519.18	28.53	57.747	
7,700.00	7,700.00	7,726.86	7,716.30	17.17	11.88	-95.21	-149.50	-1,540.16	1,546.99	1,518.11	28.88	57.030	
7,800.00	7,800.00	7,827.37	7,815.97	17.39	12.01	-95.27	-151.23	-1,539.44	1,546.43	1,517.20	29.23	56.320	
7,900.00	7,900.00	7,930.45	7,919.03	17.62	12.14	-95.34	-153.11	-1,538.54	1,545.73	1,516.14	29.59	55.619	
8,000.00	8,000.00	8,026.12	8,016.68	17.84	12.27	-95.40	-154.76	-1,537.66	1,545.00	1,515.05	29.94	54.937	
8,100.00	8,100.00	8,126.00	8,116.54	18.07	12.40	-95.46	-156.58	-1,536.82	1,544.33	1,514.02	30.30	54.263	
8,200.00	8,200.00	8,226.82	8,215.15	18.29	12.54	-95.53	-158.48	-1,536.02	1,543.70	1,513.04	30.66	53.604	
8,300.00	8,300.00	8,324.75	8,313.25	18.52	12.67	-95.61	-160.60	-1,535.32	1,543.20	1,512.17	31.03	52.958	
8,400.00	8,400.00	8,425.12	8,413.58	18.74	12.82	-95.70	-163.05	-1,534.80	1,542.73	1,511.34	31.40	52.322	
8,500.00	8,500.00	8,521.55	8,509.98	18.97	12.96	-95.78	-165.49	-1,533.98	1,542.34	1,510.58	31.76	51.706	
8,532.68	8,532.68	8,550.03	8,536.46	19.04	13.00	-95.81	-166.20	-1,533.87	1,542.30	1,510.42	31.88	51.516 CC	
8,600.00	8,600.00	8,606.00	8,594.41	19.19	13.08	-95.85	-167.51	-1,533.88	1,542.49	1,510.37	32.12	51.144 ES	
8,700.00	8,700.00	8,702.00	8,690.36	19.42	13.22	-95.93	-169.69	-1,534.41	1,543.27	1,510.78	32.49	50.585	
8,800.00	8,800.00	8,797.00	8,785.35	19.64	13.37	-96.00	-172.01	-1,535.30	1,544.45	1,511.60	32.86	50.050	
8,900.00	8,900.00	8,876.90	8,865.21	19.87	13.49	-96.08	-174.30	-1,536.59	1,546.35	1,513.14	33.21	49.580	
9,000.00	9,000.00	8,976.83	8,967.08	20.09	13.63	-96.15	-176.71	-1,538.92	1,548.88	1,515.30	33.58	49.096	
9,100.00	9,100.00	9,072.46	9,060.66	20.31	13.78	-96.17	-177.35	-1,541.22	1,551.40	1,517.45	33.95	48.649	
9,200.00	9,200.00	9,178.88	9,167.06	20.54	13.91	-96.18	-177.90	-1,543.94	1,553.99	1,519.66	34.32	48.188	
9,300.00	9,300.00	9,289.39	9,277.54	20.76	14.07	-96.21	-179.20	-1,546.01	1,555.97	1,521.26	34.71	47.707	
9,400.00	9,400.00	9,386.44	9,374.57	20.98	14.21	-96.25	-180.45	-1,547.61	1,557.76	1,522.57	35.08	47.262	
9,500.00	9,500.00	9,480.32	9,468.42	21.21	14.36	-96.30	-181.96	-1,549.42	1,559.86	1,524.40	35.46	46.814	
9,600.00	9,600.00	9,581.48	9,569.52	21.44	14.51	-96.35	-183.92	-1,551.48	1,562.08	1,526.24	35.84	46.375	
9,700.00	9,700.00	9,683.35	9,671.37	21.66	14.67	-96.42	-186.16	-1,553.41	1,564.21	1,527.99	36.22	45.941	
9,800.00	9,800.00	9,785.26	9,773.24	21.89	14.82	-96.49	-188.38	-1,555.24	1,566.25	1,529.54	36.61	45.514	
9,900.00	9,900.00	9,889.83	9,877.78	22.11	14.98	-96.55	-190.38	-1,556.94	1,568.08	1,531.08	37.00	45.085	
10,000.00	10,000.00	9,974.86	9,962.78	22.34	15.11	-96.60	-191.79	-1,558.27	1,569.88	1,532.52	37.35	44.703	
10,100.00	10,099.99	10,042.00	10,029.82	22.56	15.21	-96.66	-189.71	-1,561.14	1,573.71	1,536.03	37.68	44.418	
10,200.00	10,199.04	10,087.00	10,074.48	22.79	15.26	-95.16	-185.54	-1,564.68	1,581.46	1,543.51	37.95	44.307	
10,300.00	10,294.36	10,138.00	10,124.41	23.01	15.31	-94.16	-177.15	-1,570.47	1,589.66	1,555.45	38.21	44.328	
10,400.00	10,383.05	10,202.98	10,188.29	23.21	15.35	-92.98	-159.67	-1,579.61	1,709.11	1,570.84	38.48	44.420	
10,500.00	10,462.44	10,234.00	10,214.89	23.46	15.37	-91.28	-148.97	-1,585.02	1,728.51	1,589.78	38.75	44.609	
10,600.00	10,530.08	10,281.00	10,258.73	23.76	15.39	-89.47	-130.06	-1,595.01	1,751.67	1,712.59	38.98	44.819	
10,700.00	10,583.94	10,329.00	10,297.13	24.15	15.41	-87.49	-107.26	-1,707.21	1,778.13	1,738.65	39.48	45.035	
10,800.00	10,622.38	10,376.00	10,334.41	24.63	15.44	-85.37	-81.82	-1,720.29	1,806.62	1,766.86	39.95	45.219	
10,900.00	10,644.23	10,425.00	10,371.02	25.21	15.49	-83.23	-52.67	-1,734.79	1,836.43	1,795.93	40.50	45.345	
11,000.00	10,649.42	10,489.27	10,415.08	25.88	15.59	-82.30	-10.67	-1,755.35	1,867.42	1,826.20	41.22	45.303	
11,100.00	10,649.89	11,251.51	10,628.35	26.66	20.53	-89.10	687.51	-1,874.85	1,868.08	1,821.00	47.08	39.681	
11,200.00	10,650.37	11,369.40	10,626.18	27.53	21.74	-89.07	805.40	-1,874.80	1,867.27	1,818.08	49.18	37.967	

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

Company: DEVON ENERGY
 Project: Lea County, NM (NAD-83)
 Reference Site: Chincoteague 32 State Com
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
 TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 2.00 sigma
 Database: EDM 5000.1 Single User Db
 Offset TVD Reference: Offset Datum

Offset Design Chincoteague 32 State Com - 2H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 232-MWD-iSCWSA, 4593-LEAM MWD+HDGM, 15294-Project													Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
11,300.00	10,850.84	11,509.75	10,821.90	28.50	23.28	-88.92	945.65	-1,872.21	1,864.40	1,812.70	51.70	36.063	
11,400.00	10,851.31	11,601.85	10,818.91	29.55	24.21	-88.81	1,037.67	-1,869.72	1,860.81	1,807.13	53.68	34.663	
11,500.00	10,851.78	11,698.72	10,817.74	30.67	25.04	-88.78	1,122.51	-1,868.21	1,858.08	1,802.44	55.64	33.393	
11,600.00	10,852.25	11,770.16	10,817.31	31.86	25.89	-88.74	1,205.94	-1,867.34	1,856.09	1,798.40	57.69	32.175	
11,700.00	10,852.72	11,847.83	10,817.90	33.10	26.73	-88.74	1,283.41	-1,867.44	1,855.23	1,795.45	59.78	31.035	
11,722.93	10,852.83	11,865.72	10,818.15	33.40	26.94	-88.75	1,301.50	-1,867.59	1,855.20	1,794.92	60.28	30.775	
11,800.00	10,853.19	11,929.00	10,819.14	34.40	27.66	-88.77	1,364.77	-1,868.52	1,855.54	1,793.53	62.01	29.923	
11,900.00	10,853.66	12,019.47	10,820.49	35.75	28.77	-88.80	1,455.21	-1,870.40	1,858.82	1,792.16	64.46	28.802	
12,000.00	10,854.13	12,137.67	10,821.94	37.13	30.26	-88.83	1,573.38	-1,872.30	1,857.20	1,789.85	67.35	27.577	
12,100.00	10,854.61	12,219.18	10,823.02	38.56	31.30	-88.85	1,654.87	-1,873.76	1,857.99	1,788.18	69.81	26.616	
12,200.00	10,855.08	12,311.00	10,823.39	40.01	32.52	-88.85	1,746.67	-1,875.84	1,859.30	1,786.81	72.49	25.650	
12,300.00	10,855.55	12,381.13	10,823.81	41.50	33.47	-88.84	1,816.76	-1,878.15	1,861.67	1,786.74	74.93	24.647	
12,400.00	10,856.02	12,466.94	10,824.77	43.01	34.85	-88.87	1,902.46	-1,882.39	1,865.58	1,787.96	77.62	24.038	
12,500.00	10,856.49	12,598.00	10,826.31	44.55	36.44	-88.90	2,033.38	-1,888.11	1,868.99	1,788.06	80.94	23.092	
12,600.00	10,856.96	12,694.00	10,828.07	46.11	37.72	-88.94	2,129.30	-1,891.46	1,871.48	1,787.70	83.78	22.338	
12,700.00	10,857.43	12,816.02	10,828.49	47.69	39.48	-88.94	2,251.26	-1,895.21	1,873.59	1,786.48	87.11	21.508	
12,800.00	10,857.90	12,926.00	10,830.31	49.28	41.00	-88.96	2,361.20	-1,897.49	1,874.85	1,784.42	90.23	20.775	
12,900.00	10,858.38	13,022.71	10,832.06	50.89	42.38	-89.02	2,457.88	-1,899.38	1,875.81	1,782.36	93.23	20.119	
13,000.00	10,858.85	13,115.93	10,832.52	52.52	43.76	-89.02	2,551.07	-1,901.48	1,876.88	1,780.65	96.23	19.505	
13,100.00	10,859.32	13,230.88	10,832.18	54.15	45.41	-88.99	2,665.98	-1,904.14	1,878.27	1,778.75	99.52	18.674	
13,200.00	10,859.79	13,341.75	10,832.78	55.80	46.98	-89.00	2,776.85	-1,905.40	1,878.40	1,775.67	102.74	18.284	
13,300.00	10,860.26	13,476.51	10,834.52	57.47	48.89	-89.03	2,911.59	-1,905.64	1,877.60	1,771.28	106.31	17.661	
13,400.00	10,860.73	13,593.75	10,835.84	59.14	50.59	-89.05	3,028.81	-1,904.38	1,875.96	1,765.88	109.88	17.100	
13,500.00	10,861.20	13,693.71	10,836.15	60.82	52.05	-89.05	3,128.75	-1,902.21	1,872.42	1,759.59	112.83	16.595	
13,600.00	10,861.67	13,770.73	10,838.00	62.51	53.14	-89.09	3,205.74	-1,901.46	1,870.41	1,754.79	115.61	16.176	
13,700.00	10,862.15	13,858.86	10,840.38	64.20	54.39	-89.15	3,293.84	-1,901.39	1,869.32	1,750.75	118.55	15.766	
13,800.00	10,862.62	13,957.11	10,842.34	65.91	55.86	-89.20	3,392.07	-1,901.58	1,868.50	1,746.77	121.73	15.349	
13,900.00	10,863.09	14,053.48	10,843.54	67.62	57.32	-89.22	3,488.43	-1,901.97	1,867.92	1,743.02	124.90	14.955	
14,000.00	10,863.56	14,156.34	10,844.47	69.33	58.86	-89.23	3,591.28	-1,902.26	1,867.21	1,739.05	128.17	14.569	
14,100.00	10,864.03	14,261.00	10,844.96	71.05	60.44	-89.23	3,695.94	-1,902.64	1,866.60	1,735.14	131.46	14.198	
14,200.00	10,864.50	14,374.02	10,843.72	72.78	62.17	-89.18	3,808.95	-1,902.05	1,865.10	1,730.18	134.92	13.824	
14,300.00	10,864.97	14,493.51	10,841.78	74.51	63.94	-89.10	3,928.41	-1,900.80	1,863.14	1,724.72	138.42	13.460	
14,400.00	10,865.44	14,577.82	10,841.07	76.25	65.14	-89.06	4,012.72	-1,899.55	1,860.73	1,719.37	141.36	13.163	
14,500.00	10,865.92	14,649.18	10,840.59	77.99	66.16	-89.04	4,084.05	-1,899.40	1,859.59	1,715.47	144.12	12.903	
14,517.84	10,866.00	14,661.29	10,840.81	78.30	66.33	-89.04	4,096.18	-1,899.50	1,859.56	1,714.96	144.60	12.860	
14,600.00	10,866.39	14,731.74	10,841.24	79.74	67.36	-89.05	4,186.62	-1,900.63	1,860.03	1,712.96	147.07	12.647	
14,700.00	10,866.86	14,835.05	10,841.51	81.49	68.91	-89.04	4,299.92	-1,901.97	1,860.34	1,709.97	150.37	12.372	
14,800.00	10,867.33	14,930.00	10,841.78	83.24	70.34	-89.03	4,364.86	-1,903.61	1,861.08	1,707.54	153.54	12.121	
14,900.00	10,867.80	15,043.29	10,841.83	84.99	72.07	-89.01	4,478.13	-1,905.15	1,861.48	1,704.45	157.03	11.854	
15,000.00	10,868.27	15,143.48	10,840.29	86.75	73.63	-88.96	4,578.31	-1,905.97	1,861.35	1,701.00	160.35	11.608	
15,000.48	10,868.27	15,143.93	10,840.28	86.76	73.63	-88.96	4,578.75	-1,905.98	1,861.35	1,700.99	160.36	11.607	
15,100.00	10,868.74	15,241.03	10,837.66	88.52	74.14	-88.86	4,675.82	-1,908.97	1,861.46	1,698.85	162.61	11.447	
15,154.51	10,869.00	15,294.00	10,836.18	89.30	74.14	-88.81	4,726.77	-1,907.53	1,861.53	1,696.14	163.39	11.393 SF	



LEAM Drilling Systems LLC

Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Chincoteague 32 State Com - 3H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD-ADJ													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.00	0.00	0.30	0.30	0.00	0.00	-90.80	-0.53	-50.75	50.75					
100.00	100.00	100.30	100.30	0.09	0.09	-90.80	-0.53	-50.75	50.75	50.58	0.17	294.013		
200.00	200.00	200.30	200.30	0.31	0.31	-90.80	-0.53	-50.75	50.75	50.13	0.62	81.576		
300.00	300.00	300.30	300.30	0.54	0.54	-90.80	-0.53	-50.75	50.75	49.68	1.07	47.358		
400.00	400.00	400.30	400.30	0.78	0.78	-90.80	-0.53	-50.75	50.75	49.23	1.52	33.363		
500.00	500.00	500.30	500.30	0.99	0.99	-90.80	-0.53	-50.75	50.75	48.78	1.97	25.753		
600.00	600.00	600.30	600.30	1.21	1.21	-90.80	-0.53	-50.75	50.75	48.33	2.42	20.970		
700.00	700.00	700.30	700.30	1.43	1.44	-90.80	-0.53	-50.75	50.75	47.88	2.87	17.885		
800.00	800.00	800.30	800.30	1.66	1.66	-90.80	-0.53	-50.75	50.75	47.43	3.32	15.290		
900.00	900.00	900.30	900.30	1.88	1.88	-90.80	-0.53	-50.75	50.75	46.98	3.77	13.466		
1,000.00	1,000.00	1,000.30	1,000.30	2.11	2.11	-90.80	-0.53	-50.75	50.75	46.53	4.22	12.031		
1,100.00	1,100.00	1,100.30	1,100.30	2.33	2.33	-90.80	-0.53	-50.75	50.75	46.08	4.67	10.873		
1,200.00	1,200.00	1,200.30	1,200.30	2.56	2.56	-90.80	-0.53	-50.75	50.75	45.64	5.12	9.918		
1,300.00	1,300.00	1,300.30	1,300.30	2.78	2.78	-90.80	-0.53	-50.75	50.75	45.19	5.57	9.117		
1,400.00	1,400.00	1,400.30	1,400.30	3.01	3.01	-90.80	-0.53	-50.75	50.75	44.74	6.02	8.436		
1,500.00	1,500.00	1,500.30	1,500.30	3.23	3.23	-90.80	-0.53	-50.75	50.75	44.29	6.47	7.849		
1,600.00	1,600.00	1,600.30	1,600.30	3.46	3.46	-90.80	-0.53	-50.75	50.75	43.84	6.92	7.339		
1,700.00	1,700.00	1,700.30	1,700.30	3.68	3.68	-90.80	-0.53	-50.75	50.75	43.39	7.37	6.891		
1,800.00	1,800.00	1,800.30	1,800.30	3.91	3.91	-90.80	-0.53	-50.75	50.75	42.94	7.81	6.495		
1,900.00	1,900.00	1,900.30	1,900.30	4.13	4.13	-90.80	-0.53	-50.75	50.75	42.49	8.26	6.141		
2,000.00	2,000.00	2,000.30	2,000.30	4.36	4.36	-90.80	-0.53	-50.75	50.75	42.04	8.71	5.824		
2,100.00	2,100.00	2,100.30	2,100.30	4.58	4.58	-90.80	-0.53	-50.75	50.75	41.59	9.16	5.539		
2,200.00	2,200.00	2,200.30	2,200.30	4.81	4.81	-90.80	-0.53	-50.75	50.75	41.14	9.61	5.280		
2,300.00	2,300.00	2,300.30	2,300.30	5.03	5.03	-90.80	-0.53	-50.75	50.75	40.69	10.06	5.044		
2,400.00	2,400.00	2,400.30	2,400.30	5.26	5.26	-90.80	-0.53	-50.75	50.75	40.24	10.51	4.828		
2,500.00	2,500.00	2,500.30	2,500.30	5.48	5.48	-90.80	-0.53	-50.75	50.75	39.79	10.96	4.630		
2,600.00	2,600.00	2,600.30	2,600.30	5.71	5.71	-90.80	-0.53	-50.75	50.75	39.34	11.41	4.448		
2,700.00	2,700.00	2,700.30	2,700.30	5.93	5.93	-90.80	-0.53	-50.75	50.75	38.89	11.86	4.279		
2,800.00	2,800.00	2,800.30	2,800.30	6.15	6.16	-90.80	-0.53	-50.75	50.75	38.44	12.31	4.123		
2,900.00	2,900.00	2,900.30	2,900.30	6.38	6.38	-90.80	-0.53	-50.75	50.75	37.99	12.76	3.978		
3,000.00	3,000.00	3,000.30	3,000.30	6.60	6.60	-90.80	-0.53	-50.75	50.75	37.54	13.21	3.842		
3,100.00	3,100.00	3,100.30	3,100.30	6.83	6.83	-90.80	-0.53	-50.75	50.75	37.09	13.66	3.716		
3,200.00	3,200.00	3,200.30	3,200.30	7.05	7.05	-90.80	-0.53	-50.75	50.75	36.64	14.11	3.597		
3,300.00	3,300.00	3,300.30	3,300.30	7.28	7.28	-90.80	-0.53	-50.75	50.75	36.20	14.56	3.486		
3,400.00	3,400.00	3,400.30	3,400.30	7.50	7.50	-90.80	-0.53	-50.75	50.75	35.75	15.01	3.382		
3,500.00	3,500.00	3,500.30	3,500.30	7.73	7.73	-90.80	-0.53	-50.75	50.75	35.30	15.46	3.284		
3,600.00	3,600.00	3,600.30	3,600.30	7.95	7.95	-90.80	-0.53	-50.75	50.75	34.85	15.91	3.191		
3,700.00	3,700.00	3,700.30	3,700.30	8.18	8.18	-90.80	-0.53	-50.75	50.75	34.40	16.36	3.103		
3,800.00	3,800.00	3,800.30	3,800.30	8.40	8.40	-90.80	-0.53	-50.75	50.75	33.95	16.81	3.020		
3,900.00	3,900.00	3,900.30	3,900.30	8.63	8.63	-90.80	-0.53	-50.75	50.75	33.50	17.25	2.941		
4,000.00	4,000.00	4,000.30	4,000.30	8.85	8.85	-90.80	-0.53	-50.75	50.75	33.05	17.70	2.867		
4,100.00	4,100.00	4,100.30	4,100.30	9.08	9.08	-90.80	-0.53	-50.75	50.75	32.60	18.15	2.796		
4,200.00	4,200.00	4,200.30	4,200.30	9.30	9.30	-90.80	-0.53	-50.75	50.75	32.15	18.60	2.728		
4,300.00	4,300.00	4,300.30	4,300.30	9.53	9.53	-90.80	-0.53	-50.75	50.75	31.70	19.05	2.664		
4,400.00	4,400.00	4,400.30	4,400.30	9.75	9.75	-90.80	-0.53	-50.75	50.75	31.25	19.50	2.602		
4,500.00	4,500.00	4,500.30	4,500.30	9.98	9.98	-90.80	-0.53	-50.75	50.75	30.80	19.95	2.544		
4,566.57	4,566.57	4,566.87	4,566.87	10.13	10.13	-90.80	-0.53	-50.75	50.75	30.50	20.25	2.506 CC		
4,600.00	4,600.00	4,600.00	4,600.00	10.20	10.20	-90.80	-0.53	-50.75	50.75	30.35	20.40	2.488 ES		
4,700.00	4,700.00	4,699.49	4,699.48	10.43	10.40	-91.00	-0.90	-51.53	51.55	30.72	20.83	2.475 SF		
4,800.00	4,800.00	4,798.82	4,798.58	10.65	10.59	-92.11	-1.98	-53.87	53.93	32.70	21.24	2.540		
4,900.00	4,900.00	4,897.83	4,897.50	10.87	10.77	-93.78	-3.80	-57.75	57.95	36.30	21.84	2.977		
5,000.00	5,000.00	4,998.46	4,998.15	11.10	10.96	-95.72	-6.32	-63.18	63.63	41.57	22.05	2.885		

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

Company: DEVON ENERGY
 Project: Lea County, NM (NAD-83)
 Reference Site: Chincoteague 32 State Com
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
 TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Single User Db
 Offset TVD Reference: Offset Datum

Offset Design Chincoteague 32 State Com - 3H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD-ADJ													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
5,100.00	5,100.00	5,095.06	5,094.45	11.32	11.15	-97.77	-9.58	-70.12	71.01	48.55	22.48	3.161		
5,200.00	5,200.00	5,193.37	5,192.31	11.55	11.35	-99.75	-13.50	-78.57	80.12	57.25	22.88	3.502		
5,300.00	5,300.00	5,291.32	5,289.85	11.77	11.55	-101.58	-18.13	-88.50	90.97	67.88	23.29	3.908		
5,400.00	5,400.00	5,388.87	5,388.38	12.00	11.76	-103.21	-23.45	-99.89	103.55	79.84	23.70	4.369		
5,500.00	5,500.00	5,487.70	5,484.25	12.22	11.97	-104.59	-29.25	-112.35	117.20	93.08	24.12	4.859		
5,600.00	5,600.00	5,586.73	5,582.32	12.45	12.20	-105.89	-35.08	-124.84	130.91	108.38	24.54	5.335		
5,700.00	5,700.00	5,685.76	5,680.38	12.67	12.42	-106.59	-40.90	-137.33	144.67	119.71	24.96	5.797		
5,800.00	5,800.00	5,784.78	5,778.44	12.90	12.65	-107.32	-46.73	-148.82	158.45	133.07	25.38	6.244		
5,900.00	5,900.00	5,883.81	5,878.50	13.12	12.89	-107.94	-52.55	-162.31	172.26	148.46	25.80	6.676		
6,000.00	6,000.00	5,982.84	5,974.57	13.35	13.13	-108.47	-58.38	-174.80	186.08	159.85	26.23	7.095		
6,100.00	6,100.00	6,081.86	6,072.63	13.57	13.38	-108.92	-64.20	-187.29	199.91	173.26	26.65	7.501		
6,200.00	6,200.00	6,180.89	6,170.89	13.80	13.63	-109.32	-70.02	-199.78	213.76	188.68	27.08	7.893		
6,300.00	6,300.00	6,279.92	6,268.76	14.02	13.88	-109.66	-75.85	-212.27	227.61	200.10	27.51	8.274		
6,400.00	6,400.00	6,378.94	6,368.82	14.25	14.14	-109.97	-81.67	-224.76	241.47	213.54	27.94	8.643		
6,500.00	6,500.00	6,477.97	6,464.88	14.47	14.40	-110.24	-87.50	-237.25	255.34	226.97	28.37	9.000		
6,600.00	6,600.00	6,577.00	6,562.95	14.70	14.66	-110.49	-93.32	-249.74	269.22	240.41	28.80	9.347		
6,700.00	6,700.00	6,676.02	6,661.01	14.92	14.93	-110.71	-99.15	-262.24	283.09	253.86	29.24	9.683		
6,800.00	6,800.00	6,775.05	6,759.07	15.15	15.20	-110.91	-104.97	-274.73	296.97	267.30	29.67	10.009		
6,900.00	6,900.00	6,875.31	6,861.40	15.37	15.47	-111.10	-110.82	-287.27	310.35	280.24	30.11	10.308		
7,000.00	7,000.00	6,953.42	6,965.79	15.59	15.73	-111.24	-116.00	-298.37	321.98	291.42	30.56	10.536		
7,100.00	7,100.00	7,088.95	7,070.80	15.82	15.97	-111.36	-120.38	-307.77	331.78	300.78	31.01	10.700		
7,200.00	7,200.00	7,194.82	7,178.34	16.04	16.22	-111.45	-123.95	-315.43	339.76	308.30	31.45	10.802		
7,300.00	7,300.00	7,300.97	7,282.29	16.27	16.45	-111.52	-126.71	-321.34	345.89	313.99	31.90	10.843		
7,400.00	7,400.00	7,407.33	7,388.55	16.49	16.68	-111.57	-128.64	-325.47	350.17	317.82	32.34	10.826		
7,500.00	7,500.00	7,513.82	7,495.01	16.72	16.89	-111.59	-129.73	-327.82	352.60	319.81	32.78	10.754		
7,600.00	7,600.00	7,619.12	7,600.30	16.94	17.09	-111.60	-130.00	-328.41	353.20	319.98	33.22	10.632		
7,700.00	7,700.00	7,719.12	7,700.30	17.17	17.29	-111.60	-130.00	-328.41	353.20	319.55	33.65	10.496		
7,800.00	7,800.00	7,819.12	7,800.30	17.39	17.50	-111.60	-130.00	-328.41	353.20	319.11	34.09	10.360		
7,900.00	7,900.00	7,919.12	7,900.30	17.62	17.71	-111.60	-130.00	-328.41	353.20	318.67	34.54	10.227		
8,000.00	8,000.00	8,019.12	8,000.30	17.84	17.92	-111.60	-130.00	-328.41	353.20	318.22	34.98	10.097		
8,100.00	8,100.00	8,119.12	8,100.30	18.07	18.13	-111.60	-130.00	-328.41	353.20	317.78	35.43	9.970		
8,200.00	8,200.00	8,219.12	8,200.30	18.29	18.34	-111.60	-130.00	-328.41	353.20	317.33	35.87	9.847		
8,300.00	8,300.00	8,319.12	8,300.30	18.52	18.55	-111.60	-130.00	-328.41	353.20	316.89	36.31	9.726		
8,400.00	8,400.00	8,419.12	8,400.30	18.74	18.77	-111.60	-130.00	-328.41	353.20	316.45	36.76	9.609		
8,500.00	8,500.00	8,519.12	8,500.30	18.97	18.98	-111.60	-130.00	-328.41	353.20	316.00	37.20	9.494		
8,600.00	8,600.00	8,619.12	8,600.30	19.19	19.19	-111.60	-130.00	-328.41	353.20	315.56	37.65	9.382		
8,700.00	8,700.00	8,719.12	8,700.30	19.42	19.40	-111.60	-130.00	-328.41	353.20	315.11	38.09	9.272		
8,800.00	8,800.00	8,819.12	8,800.30	19.64	19.62	-111.60	-130.00	-328.41	353.20	314.67	38.54	9.165		
8,900.00	8,900.00	8,919.12	8,900.30	19.87	19.83	-111.60	-130.00	-328.41	353.20	314.22	38.98	9.061		
9,000.00	9,000.00	9,019.12	9,000.30	20.09	20.04	-111.60	-130.00	-328.41	353.20	313.78	39.43	8.959		
9,100.00	9,100.00	9,119.12	9,100.30	20.31	20.26	-111.60	-130.00	-328.41	353.20	313.33	39.87	8.859		
9,200.00	9,200.00	9,219.12	9,200.30	20.54	20.47	-111.60	-130.00	-328.41	353.20	312.89	40.32	8.761		
9,300.00	9,300.00	9,319.12	9,300.30	20.76	20.69	-111.60	-130.00	-328.41	353.20	312.44	40.76	8.665		
9,400.00	9,400.00	9,419.12	9,400.30	20.99	20.90	-111.60	-130.00	-328.41	353.20	312.00	41.21	8.571		
9,500.00	9,500.00	9,519.12	9,500.30	21.21	21.12	-111.60	-130.00	-328.41	353.20	311.55	41.65	8.480		
9,600.00	9,600.00	9,619.12	9,600.30	21.44	21.33	-111.60	-130.00	-328.41	353.20	311.11	42.10	8.390		
9,700.00	9,700.00	9,719.12	9,700.30	21.68	21.55	-111.60	-130.00	-328.41	353.20	310.66	42.54	8.302		
9,800.00	9,800.00	9,819.12	9,800.30	21.89	21.76	-111.60	-130.00	-328.41	353.20	310.21	42.99	8.216		
9,848.44	9,848.44	9,867.56	9,848.74	22.00	21.88	-111.80	-130.00	-328.41	353.20	310.00	43.21	8.175		
9,900.00	9,900.00	9,913.32	9,894.48	22.11	21.96	-111.48	-129.42	-328.90	353.49	310.07	43.42	8.141		
10,000.00	10,000.00	10,000.00	9,980.38	22.34	22.17	-109.80	-120.99	-335.97	357.65	313.81	43.84	8.159		
10,100.00	10,089.99	10,073.59	10,051.31	22.56	22.35	-106.13	-106.11	-348.46	367.57	323.46	44.21	8.316		

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



LEAM Drilling Systems LLC

Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Chincoteague 32 State Com - 3H - OH - Plan #1													Offset Site Error: 0.00 usft
Survey Program: D-LEAM MWD-ADJ													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
10,200.00	10,199.04	10,150.00	10,121.89	22.79	22.55	-101.41	-83.43	-367.49	387.73	343.18	44.55	8.703	
10,300.00	10,294.36	10,217.93	10,180.47	23.01	22.78	-98.72	-57.40	-389.33	417.80	372.70	44.90	9.301	
10,400.00	10,383.08	10,284.88	10,233.91	23.21	22.98	-91.99	-26.82	-414.99	455.24	409.96	45.28	10.054	
10,500.00	10,462.44	10,350.00	10,281.37	23.46	23.23	-87.36	7.53	-443.81	496.75	453.09	45.66	10.923	
10,600.00	10,530.08	10,400.00	10,314.08	23.76	23.46	-82.67	36.48	-468.11	546.53	500.59	45.94	11.896	
10,700.00	10,583.94	10,464.99	10,351.44	24.15	23.81	-78.52	77.18	-502.26	596.95	550.78	46.17	12.829	
10,800.00	10,622.38	10,605.23	10,414.97	24.63	24.71	-76.92	179.09	-574.05	645.54	598.68	46.85	13.778	
10,900.00	10,644.23	10,832.04	10,473.54	25.21	26.37	-76.48	383.21	-549.38	676.42	627.83	48.58	13.923	
11,000.00	10,649.42	11,003.17	10,480.54	25.88	27.64	-75.72	552.75	-669.29	688.08	635.60	50.47	13.593	
11,100.00	10,649.89	11,114.16	10,481.33	26.66	28.52	-75.84	663.55	-675.49	690.45	638.30	52.15	13.239	
11,200.00	10,650.37	11,214.07	10,482.03	27.53	29.42	-75.94	783.33	-680.59	694.40	640.48	53.93	12.877	
11,300.00	10,650.84	11,313.99	10,482.73	28.50	30.39	-76.05	883.11	-685.70	698.35	642.48	55.87	12.499	
11,400.00	10,651.31	11,413.90	10,483.43	29.55	31.45	-76.15	962.90	-690.80	702.31	644.33	57.98	12.113	
11,500.00	10,651.78	11,513.81	10,484.13	30.67	32.57	-76.24	1,062.88	-695.91	706.27	646.04	60.23	11.726	
11,600.00	10,652.25	11,613.73	10,484.83	31.86	33.75	-76.34	1,182.46	-701.01	710.22	647.82	62.81	11.344	
11,700.00	10,652.72	11,713.64	10,485.54	33.10	34.99	-76.44	1,282.24	-706.12	714.19	649.09	65.09	10.971	
11,800.00	10,653.19	11,813.56	10,486.24	34.40	36.28	-76.53	1,362.02	-711.23	718.15	650.46	67.89	10.610	
11,900.00	10,653.66	11,913.47	10,486.94	35.75	37.62	-76.63	1,461.80	-716.33	722.11	651.75	70.37	10.262	
12,000.00	10,654.13	12,013.39	10,487.64	37.13	39.00	-76.72	1,561.58	-721.44	726.08	652.95	73.13	9.929	
12,100.00	10,654.61	12,113.30	10,488.34	38.56	40.42	-76.81	1,661.37	-726.54	730.05	654.09	75.96	9.611	
12,200.00	10,655.08	12,213.22	10,489.04	40.01	41.86	-76.90	1,761.15	-731.65	734.02	655.16	78.86	9.308	
12,300.00	10,655.55	12,313.13	10,489.75	41.50	43.34	-76.99	1,860.93	-736.75	737.99	656.18	81.82	9.020	
12,400.00	10,656.02	12,413.04	10,490.45	43.01	44.85	-77.08	1,960.71	-741.86	741.97	657.14	84.83	8.747	
12,500.00	10,656.49	12,512.96	10,491.15	44.55	46.38	-77.17	2,060.49	-746.96	745.94	658.06	87.88	8.488	
12,600.00	10,656.96	12,612.87	10,491.85	46.11	47.93	-77.26	2,160.27	-752.07	749.92	658.94	90.98	8.243	
12,700.00	10,657.43	12,712.79	10,492.55	47.69	49.50	-77.34	2,260.05	-757.17	753.90	659.78	94.12	8.010	
12,800.00	10,657.90	12,812.70	10,493.25	49.28	51.09	-77.43	2,359.84	-762.28	757.88	660.59	97.29	7.790	
12,900.00	10,658.38	12,912.62	10,493.95	50.89	52.70	-77.51	2,459.62	-767.38	761.87	661.37	100.49	7.581	
13,000.00	10,658.85	13,012.53	10,494.66	52.52	54.32	-77.60	2,559.40	-772.49	765.85	662.13	103.72	7.384	
13,100.00	10,659.32	13,112.44	10,495.36	54.15	55.96	-77.68	2,659.18	-777.59	769.84	662.86	106.98	7.196	
13,200.00	10,659.79	13,212.36	10,496.06	55.80	57.61	-77.76	2,758.96	-782.70	773.82	663.58	110.26	7.018	
13,300.00	10,660.26	13,312.27	10,496.76	57.47	59.27	-77.84	2,858.74	-787.80	777.81	664.25	113.57	6.849	
13,400.00	10,660.73	13,412.19	10,497.46	59.14	60.94	-77.92	2,958.52	-792.91	781.80	664.91	116.89	6.688	
13,500.00	10,661.20	13,512.10	10,498.17	60.82	62.62	-78.00	3,058.31	-798.01	785.80	665.58	120.24	6.535	
13,600.00	10,661.67	13,612.02	10,498.87	62.51	64.31	-78.08	3,158.09	-803.12	789.79	666.19	123.60	6.390	
13,700.00	10,662.15	13,711.93	10,499.57	64.20	66.00	-78.16	3,257.87	-808.22	793.79	666.81	126.97	6.252	
13,800.00	10,662.62	13,811.85	10,500.27	65.91	67.71	-78.24	3,357.65	-813.33	797.78	667.42	130.37	6.120	
13,900.00	10,663.09	13,911.76	10,500.97	67.62	69.42	-78.31	3,457.43	-818.43	801.78	668.01	133.77	5.994	
14,000.00	10,663.56	14,011.67	10,501.67	69.33	71.14	-78.39	3,557.21	-823.54	805.78	668.59	137.19	5.873	
14,100.00	10,664.03	14,111.59	10,502.37	71.05	72.87	-78.46	3,656.99	-828.64	809.78	669.16	140.62	5.759	
14,200.00	10,664.50	14,211.50	10,503.06	72.78	74.60	-78.54	3,756.77	-833.75	813.78	669.72	144.06	5.649	
14,300.00	10,664.97	14,311.42	10,503.78	74.51	76.33	-78.61	3,856.56	-838.86	817.79	670.27	147.52	5.544	
14,400.00	10,665.44	14,411.33	10,504.48	76.25	78.08	-78.68	3,956.34	-843.96	821.79	670.82	150.98	5.443	
14,500.00	10,665.92	14,511.25	10,505.18	77.99	79.82	-78.76	4,056.12	-849.07	825.80	671.35	154.45	5.347	
14,600.00	10,666.39	14,611.16	10,505.88	79.74	81.57	-78.83	4,155.90	-854.17	829.81	671.88	157.93	5.254	
14,700.00	10,666.86	14,711.07	10,506.58	81.49	83.33	-78.90	4,255.68	-859.28	833.82	672.40	161.42	5.168	
14,800.00	10,667.33	14,810.99	10,507.29	83.24	85.08	-78.97	4,355.46	-864.38	837.83	672.91	164.91	5.080	
14,900.00	10,667.80	14,910.90	10,507.99	84.99	86.85	-79.04	4,455.24	-869.49	841.84	673.42	168.42	4.999	
15,000.00	10,668.27	15,010.82	10,508.69	86.75	88.61	-79.11	4,555.03	-874.59	845.85	673.92	171.93	4.920	
15,100.00	10,668.74	15,110.73	10,509.39	88.52	90.38	-79.17	4,654.81	-879.70	849.86	674.42	175.44	4.844	
15,154.51	10,669.00	15,165.20	10,509.77	89.30	91.34	-79.21	4,709.20	-882.48	852.05	674.87	177.19	4.809	

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



LEAM Drilling Systems LLC

Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 1H (offset) - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 119- VES GyroFlex V2													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	16.95	16.95	0.00	0.01	42.08	2,129.49	1,922.89	2,869.18					
100.00	100.00	113.83	113.83	0.09	0.08	42.08	2,129.55	1,922.92	2,869.26	2,869.09	0.17	N/A		
200.00	200.00	211.32	211.32	0.31	0.19	42.08	2,129.73	1,922.96	2,869.43	2,868.93	0.50	5,756.362		
300.00	300.00	309.02	309.02	0.54	0.26	42.08	2,129.94	1,923.11	2,869.68	2,868.89	0.80	3,608.435		
400.00	400.00	408.73	408.73	0.76	0.32	42.08	2,130.07	1,923.41	2,869.95	2,868.90	1.08	2,658.883		
500.00	500.00	503.59	503.59	0.99	0.37	42.09	2,130.04	1,924.01	2,870.38	2,869.03	1.35	2,123.334		
600.00	600.00	607.96	607.95	1.21	0.41	42.11	2,129.82	1,925.15	2,870.82	2,869.19	1.62	1,771.667		
700.00	700.00	725.38	725.35	1.43	0.48	42.15	2,128.35	1,926.87	2,870.89	2,869.00	1.89	1,522.702		
800.00	800.00	825.20	825.15	1.66	0.50	42.19	2,128.80	1,927.91	2,870.42	2,868.28	2.14	1,341.341		
838.02	838.02	855.58	855.52	1.74	0.51	42.21	2,126.12	1,928.38	2,870.37	2,868.14	2.23	1,284.608		
900.00	900.00	905.26	905.19	1.88	0.53	42.23	2,125.46	1,929.27	2,870.51	2,868.12	2.39	1,201.893		
1,000.00	1,000.00	985.38	985.29	2.11	0.56	42.26	2,124.78	1,930.92	2,871.28	2,868.64	2.64	1,067.859		
1,100.00	1,100.00	1,064.12	1,064.01	2.33	0.59	42.29	2,124.74	1,932.72	2,872.76	2,869.87	2.89	993.854		
1,200.00	1,200.00	1,149.49	1,149.35	2.56	0.62	42.31	2,125.42	1,934.84	2,874.87	2,871.72	3.15	914.035		
1,300.00	1,300.00	1,258.29	1,258.12	2.78	0.66	42.31	2,127.34	1,936.21	2,877.15	2,873.75	3.41	844.096		
1,400.00	1,400.00	1,394.16	1,393.97	3.01	0.69	42.26	2,130.16	1,935.74	2,878.40	2,874.72	3.67	783.534		
1,500.00	1,500.00	1,502.46	1,502.24	3.23	0.71	42.22	2,132.00	1,934.78	2,879.06	2,875.14	3.93	733.275		
1,600.00	1,600.00	1,606.80	1,606.57	3.46	0.72	42.19	2,133.50	1,933.80	2,879.50	2,875.32	4.18	689.539		
1,700.00	1,700.00	1,709.58	1,709.33	3.68	0.74	42.16	2,134.89	1,932.77	2,879.83	2,875.41	4.42	650.997		
1,800.00	1,800.00	1,818.76	1,818.50	3.91	0.76	42.12	2,136.12	1,931.65	2,879.97	2,875.30	4.67	616.623		
1,900.00	1,900.00	1,924.52	1,924.25	4.13	0.78	42.10	2,136.81	1,930.67	2,879.84	2,874.93	4.91	586.169		
2,000.00	2,000.00	2,029.95	2,029.88	4.36	0.80	42.08	2,137.13	1,929.79	2,879.50	2,874.35	5.15	558.925		
2,100.00	2,100.00	2,134.94	2,134.87	4.58	0.81	42.07	2,137.15	1,929.00	2,879.02	2,873.63	5.39	534.364		
2,200.00	2,200.00	2,242.78	2,242.51	4.81	0.82	42.06	2,138.71	1,928.27	2,878.26	2,872.64	5.62	511.935		
2,300.00	2,300.00	2,341.49	2,341.21	5.03	0.83	42.07	2,135.89	1,927.86	2,877.37	2,871.51	5.86	491.285		
2,400.00	2,400.00	2,434.68	2,434.38	5.26	0.84	42.08	2,135.08	1,927.77	2,876.66	2,870.57	6.09	472.156		
2,500.00	2,500.00	2,529.52	2,529.23	5.48	0.85	42.09	2,134.30	1,927.96	2,876.18	2,869.85	6.33	454.349		
2,600.00	2,600.00	2,625.04	2,624.74	5.71	0.86	42.11	2,133.42	1,928.44	2,875.84	2,869.27	6.57	437.758		
2,689.73	2,689.73	2,707.53	2,707.23	5.91	0.88	42.13	2,132.62	1,929.15	2,875.71	2,868.92	6.78	423.873		
2,700.00	2,700.00	2,716.72	2,716.42	5.93	0.88	42.14	2,132.53	1,929.26	2,875.71	2,868.90	6.81	422.342		
2,800.00	2,800.00	2,803.42	2,803.10	6.15	0.90	42.17	2,131.81	1,930.58	2,875.95	2,868.90	7.05	408.025		
2,900.00	2,900.00	2,890.75	2,890.41	6.38	0.91	42.21	2,130.79	1,932.50	2,876.72	2,869.43	7.29	394.680		
3,000.00	3,000.00	2,986.86	2,986.49	6.60	0.93	42.25	2,129.91	1,934.90	2,877.73	2,870.20	7.53	382.122		
3,100.00	3,100.00	3,082.61	3,082.20	6.83	0.96	42.30	2,129.05	1,937.49	2,878.88	2,871.11	7.77	370.366		
3,200.00	3,200.00	3,176.11	3,177.65	7.05	0.98	42.36	2,128.17	1,940.30	2,880.19	2,872.17	8.02	359.340		
3,300.00	3,300.00	3,271.90	3,271.39	7.28	1.00	42.41	2,127.27	1,943.33	2,881.66	2,873.40	8.26	348.970		
3,400.00	3,400.00	3,363.10	3,362.51	7.50	1.02	42.48	2,126.21	1,946.87	2,883.42	2,874.92	8.50	339.261		
3,500.00	3,500.00	3,451.78	3,451.09	7.73	1.05	42.55	2,124.97	1,950.93	2,885.48	2,876.74	8.74	330.125		
3,600.00	3,600.00	3,533.76	3,532.97	7.95	1.07	42.62	2,124.18	1,954.95	2,888.10	2,879.12	8.98	321.567		
3,700.00	3,700.00	3,616.97	3,616.07	8.18	1.09	42.69	2,123.98	1,959.12	2,891.32	2,882.09	9.22	313.483		
3,800.00	3,800.00	3,698.45	3,697.46	8.40	1.11	42.73	2,124.57	1,962.69	2,895.31	2,885.85	9.46	305.933		
3,900.00	3,900.00	3,786.55	3,785.45	8.63	1.13	42.76	2,126.38	1,966.38	2,900.22	2,890.51	9.71	298.785		
4,000.00	4,000.00	3,840.65	3,839.44	8.85	1.15	42.77	2,129.20	1,969.45	2,905.84	2,895.90	9.95	292.095		
4,100.00	4,100.00	3,900.62	3,899.27	9.08	1.16	42.76	2,132.40	1,971.85	2,912.54	2,902.35	10.19	285.843		
4,200.00	4,200.00	3,995.17	3,993.51	9.30	1.18	42.72	2,139.17	1,975.18	2,920.20	2,909.76	10.44	279.764		
4,300.00	4,300.00	4,086.11	4,084.16	9.53	1.20	42.67	2,145.26	1,977.39	2,928.55	2,917.86	10.68	274.187		
4,400.00	4,400.00	4,150.31	4,147.96	9.75	1.22	42.60	2,153.00	1,980.06	2,937.46	2,926.53	10.93	268.814		
4,500.00	4,500.00	4,243.65	4,240.81	9.98	1.24	42.53	2,162.08	1,983.05	2,946.81	2,935.63	11.18	263.649		
4,600.00	4,600.00	4,343.06	4,339.69	10.20	1.26	42.44	2,171.81	1,986.25	2,956.20	2,944.77	11.43	258.666		
4,700.00	4,700.00	4,447.42	4,443.54	10.43	1.29	42.39	2,181.01	1,990.63	2,966.54	2,953.86	11.68	253.843		
4,800.00	4,800.00	4,550.82	4,546.22	10.65	1.35	42.52	2,187.43	2,005.87	2,972.82	2,960.66	11.96	248.517		
4,900.00	4,900.00	4,625.52	4,620.37	10.87	1.40	42.74	2,185.52	2,019.53	2,977.32	2,965.09	12.23	243.495		

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

Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 1H (offset) - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 119- VES GyroFlex V2													Offset Well Error: 0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	5,000.00	4,975.05	4,989.49	11.10	1.44	42.94	2,180.81	2,029.62	2,979.52	2,987.04	12.48	238.734	
5,100.00	5,100.00	5,082.33	5,076.46	11.32	1.47	43.09	2,176.64	2,036.43	2,981.02	2,988.30	12.72	234.289	
5,200.00	5,200.00	5,167.90	5,161.79	11.55	1.49	43.22	2,173.18	2,041.90	2,982.48	2,989.52	12.96	230.065	
5,300.00	5,300.00	5,224.32	5,218.05	11.77	1.51	43.29	2,171.36	2,045.74	2,984.92	2,971.72	13.20	226.147	
5,400.00	5,400.00	5,318.87	5,312.34	12.00	1.53	43.41	2,169.40	2,052.51	2,988.34	2,974.89	13.45	222.263	
5,500.00	5,500.00	5,392.96	5,386.22	12.22	1.56	43.50	2,168.57	2,057.94	2,992.50	2,978.81	13.69	218.621	
5,600.00	5,600.00	5,482.82	5,475.84	12.45	1.59	43.60	2,168.00	2,064.48	2,997.06	2,983.13	13.94	215.063	
5,700.00	5,700.00	5,599.69	5,592.43	12.67	1.63	43.71	2,167.71	2,072.49	3,001.63	2,987.44	14.19	211.524	
5,800.00	5,800.00	5,719.00	5,711.55	12.90	1.66	43.81	2,167.47	2,079.23	3,005.38	2,990.94	14.45	208.056	
5,900.00	5,900.00	5,813.59	5,806.01	13.12	1.70	43.88	2,167.34	2,084.29	3,009.00	2,994.30	14.69	204.782	
6,000.00	6,000.00	5,905.46	5,897.74	13.35	1.73	43.95	2,167.33	2,089.34	3,012.81	2,997.87	14.94	201.828	
6,100.00	6,100.00	5,990.73	5,982.89	13.57	1.75	44.00	2,168.14	2,093.71	3,017.05	3,001.88	15.19	198.810	
6,200.00	6,200.00	6,093.86	6,085.90	13.80	1.79	44.03	2,170.96	2,098.07	3,021.54	3,006.09	15.45	195.616	
6,300.00	6,300.00	6,238.21	6,230.16	14.02	1.83	44.03	2,174.01	2,101.88	3,025.20	3,009.49	15.71	192.517	
6,400.00	6,400.00	6,343.82	6,335.72	14.25	1.85	44.02	2,176.42	2,103.44	3,027.87	3,011.90	15.97	189.603	
6,500.00	6,500.00	6,439.96	6,431.83	14.47	1.88	44.01	2,178.70	2,104.91	3,030.63	3,014.41	16.22	186.816	
6,600.00	6,600.00	6,585.96	6,577.82	14.70	1.91	44.00	2,181.48	2,106.53	3,032.81	3,016.32	16.49	183.927	
6,700.00	6,700.00	6,705.03	6,696.86	14.92	1.94	43.99	2,182.47	2,106.92	3,033.80	3,016.85	16.75	181.151	
6,800.00	6,800.00	6,804.64	6,796.46	15.15	1.95	43.98	2,183.25	2,107.11	3,034.29	3,017.29	17.00	178.521	
6,900.00	6,900.00	6,926.22	6,918.04	15.37	1.97	43.98	2,183.35	2,107.21	3,034.36	3,017.13	17.24	176.038	
6,958.79	6,958.79	6,979.45	6,971.28	15.50	1.97	43.99	2,183.13	2,107.18	3,034.18	3,016.82	17.37	174.899	
7,000.00	7,000.00	7,020.77	7,012.59	15.59	1.97	43.98	2,183.46	2,107.10	3,034.37	3,016.90	17.47	173.713	
7,100.00	7,100.00	7,123.59	7,115.40	15.82	1.98	43.96	2,184.70	2,108.46	3,034.81	3,017.10	17.71	171.396	
7,200.00	7,200.00	7,262.16	7,253.95	16.04	1.96	43.92	2,185.49	2,104.57	3,034.29	3,016.35	17.93	169.226	
7,300.00	7,300.00	7,383.60	7,375.38	16.27	1.95	43.91	2,184.45	2,102.75	3,032.61	3,014.47	18.14	167.159	
7,400.00	7,400.00	7,484.15	7,485.89	16.49	1.94	43.92	2,182.26	2,101.71	3,030.63	3,012.18	18.35	165.122	
7,500.00	7,500.00	7,598.88	7,590.59	16.72	1.93	43.95	2,179.53	2,100.98	3,028.17	3,009.61	18.57	163.093	
7,600.00	7,600.00	7,692.78	7,684.46	16.94	1.93	43.98	2,177.00	2,100.48	3,025.86	3,007.08	18.78	161.093	
7,700.00	7,700.00	7,785.80	7,777.45	17.17	1.93	44.00	2,174.73	2,100.01	3,023.75	3,004.75	19.00	159.146	
7,800.00	7,800.00	7,871.72	7,863.35	17.39	1.93	44.02	2,172.97	2,099.61	3,021.97	3,002.75	19.22	157.252	
7,900.00	7,900.00	7,966.27	7,957.88	17.62	1.92	44.03	2,171.54	2,099.21	3,020.58	3,001.15	19.43	155.425	
8,000.00	8,000.00	8,059.84	8,051.24	17.84	1.92	44.04	2,170.23	2,099.04	3,019.44	2,999.79	19.65	153.835	
8,100.00	8,100.00	8,155.37	8,146.98	18.07	1.93	44.07	2,168.61	2,099.36	3,018.46	2,998.58	19.88	151.861	
8,200.00	8,200.00	8,255.39	8,246.96	18.29	1.94	44.10	2,166.70	2,100.03	3,017.55	2,997.45	20.10	150.112	
8,300.00	8,300.00	8,357.84	8,349.38	18.52	1.96	44.14	2,164.50	2,100.76	3,016.50	2,996.18	20.33	148.396	
8,400.00	8,400.00	8,448.24	8,439.76	18.74	1.97	44.18	2,162.60	2,101.56	3,015.81	2,995.05	20.55	146.717	
8,500.00	8,500.00	8,539.03	8,530.53	18.97	1.99	44.22	2,160.89	2,102.56	3,015.02	2,994.24	20.78	145.074	
8,600.00	8,600.00	8,631.19	8,622.67	19.19	2.01	44.25	2,159.56	2,103.53	3,014.72	2,993.71	21.01	143.467	
8,700.00	8,700.00	8,726.90	8,718.38	19.42	2.03	44.27	2,158.74	2,104.24	3,014.63	2,993.38	21.25	141.898	
8,800.00	8,800.00	8,830.85	8,822.32	19.64	2.05	44.29	2,157.96	2,104.90	3,014.54	2,993.06	21.48	140.361	
8,900.00	8,900.00	8,935.79	8,927.25	19.87	2.07	44.31	2,156.88	2,105.64	3,014.29	2,992.58	21.71	138.859	
9,000.00	9,000.00	9,039.54	9,030.99	20.09	2.09	44.34	2,155.58	2,106.40	3,013.91	2,991.97	21.94	137.390	
9,100.00	9,100.00	9,142.94	9,134.38	20.31	2.11	44.37	2,154.10	2,107.16	3,013.40	2,991.23	22.17	135.951	
9,200.00	9,200.00	9,245.35	9,236.77	20.54	2.13	44.40	2,152.55	2,107.86	3,012.80	2,990.40	22.39	134.541	
9,300.00	9,300.00	9,346.48	9,337.89	20.76	2.15	44.43	2,151.00	2,108.48	3,012.13	2,989.51	22.62	133.161	
9,400.00	9,400.00	9,446.16	9,437.57	20.99	2.17	44.45	2,149.59	2,108.96	3,011.45	2,988.61	22.85	131.812	
9,500.00	9,500.00	9,551.38	9,542.77	21.21	2.18	44.48	2,148.16	2,109.33	3,010.73	2,987.66	23.07	130.491	
9,600.00	9,600.00	9,650.50	9,641.88	21.44	2.20	44.50	2,146.43	2,109.56	3,009.75	2,986.45	23.30	129.192	
9,700.00	9,700.00	9,754.81	9,746.17	21.66	2.21	44.53	2,144.56	2,109.85	3,008.53	2,985.01	23.52	127.911	
9,800.00	9,800.00	9,858.91	9,850.25	21.89	2.23	44.56	2,142.56	2,109.66	3,007.17	2,983.42	23.74	126.650	
9,900.00	9,900.00	9,970.09	9,961.41	22.11	2.24	44.58	2,140.58	2,109.59	3,005.73	2,981.76	23.97	125.409	
10,000.00	10,000.00	10,071.90	10,063.20	22.34	2.25	44.61	2,138.59	2,109.46	3,004.24	2,980.05	24.19	124.188	

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



LEAM Drilling Systems LLC

Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 1H (offset) - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 119- VES GyroFlex V2													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
10,100.00	10,099.99	10,174.58	10,165.86	22.59	2.27	45.25	2,136.50	2,109.28	3,002.33	2,977.88	24.45	122.804	
10,200.00	10,199.04	10,273.97	10,265.22	22.79	2.28	46.22	2,134.40	2,108.09	2,991.70	2,965.52	26.18	114.280	
10,300.00	10,294.36	10,366.58	10,357.82	23.01	2.29	48.33	2,132.50	2,108.91	2,989.34	2,941.09	28.25	105.103	
10,400.00	10,383.06	10,451.83	10,442.85	23.21	2.30	51.86	2,130.84	2,108.75	2,936.22	2,906.30	29.92	98.148	
10,500.00	10,462.44	10,526.40	10,517.81	23.46	2.31	56.26	2,129.55	2,108.58	2,893.75	2,862.78	30.97	93.445	
10,600.00	10,530.08	10,599.84	10,580.84	23.76	2.32	62.16	2,128.61	2,108.38	2,843.89	2,812.40	31.29	90.864	
10,700.00	10,583.94	10,640.15	10,631.35	24.15	2.33	69.21	2,127.95	2,108.19	2,788.05	2,757.27	30.78	90.571	
10,800.00	10,622.38	10,678.07	10,669.26	24.63	2.33	77.01	2,127.50	2,108.08	2,729.05	2,699.56	29.49	92.527	
10,900.00	10,644.23	10,696.00	10,687.20	25.21	2.33	84.94	2,127.26	2,108.02	2,668.96	2,641.01	27.94	95.508	
11,000.00	10,649.42	10,699.88	10,691.08	25.68	2.33	90.46	2,127.22	2,108.01	2,609.94	2,581.81	28.14	92.754	
11,100.00	10,649.89	10,699.20	10,690.39	26.66	2.33	90.44	2,127.23	2,108.01	2,553.39	2,524.48	28.91	88.316	
11,200.00	10,650.37	10,698.51	10,689.70	27.53	2.33	90.42	2,127.23	2,108.01	2,499.56	2,469.78	29.79	83.919	
11,300.00	10,650.84	10,697.82	10,689.01	28.50	2.33	90.40	2,127.24	2,108.02	2,448.84	2,417.89	30.75	79.831	
11,400.00	10,651.31	10,697.13	10,688.32	29.55	2.33	90.38	2,127.25	2,108.02	2,400.80	2,369.00	31.80	75.506	
11,500.00	10,651.78	10,696.44	10,687.83	30.67	2.33	90.37	2,127.26	2,108.02	2,356.23	2,323.32	32.92	71.583	
11,600.00	10,652.25	10,695.74	10,688.94	31.86	2.33	90.35	2,127.27	2,108.02	2,315.13	2,281.03	34.10	67.889	
11,700.00	10,652.72	10,695.05	10,688.24	33.10	2.33	90.33	2,127.28	2,108.02	2,277.68	2,242.34	35.35	64.440	
11,800.00	10,653.19	10,694.35	10,687.54	34.40	2.33	90.31	2,127.28	2,108.03	2,244.07	2,207.43	36.64	61.242	
11,900.00	10,653.66	10,693.65	10,686.84	35.75	2.33	90.29	2,127.29	2,108.03	2,214.46	2,176.48	37.99	58.297	
12,000.00	10,654.13	10,692.95	10,686.14	37.13	2.33	90.27	2,127.30	2,108.03	2,189.03	2,149.66	39.37	55.600	
12,100.00	10,654.61	10,692.25	10,685.44	38.56	2.33	90.25	2,127.31	2,108.03	2,167.91	2,127.12	40.79	53.145	
12,200.00	10,655.08	10,691.54	10,684.73	40.01	2.33	90.23	2,127.32	2,108.03	2,151.24	2,108.99	42.25	50.920	
12,300.00	10,655.55	10,690.83	10,684.03	41.50	2.33	90.22	2,127.33	2,108.04	2,139.12	2,095.39	43.73	48.914	
12,400.00	10,656.02	10,690.12	10,683.32	43.01	2.33	90.20	2,127.33	2,108.04	2,131.63	2,086.38	45.24	47.114	
12,500.00	10,656.49	10,689.41	10,682.61	44.55	2.33	90.18	2,127.34	2,108.04	2,128.81	2,082.03	46.78	45.508	
12,610.03	10,656.54	10,689.34	10,682.54	44.71	2.33	90.17	2,127.34	2,108.04	2,128.78	2,081.85	46.93	45.356 CC, ES	
12,800.00	10,656.96	10,688.70	10,679.90	46.11	2.33	90.16	2,127.35	2,108.04	2,130.88	2,082.35	48.34	44.081	
12,700.00	10,657.43	10,687.99	10,679.18	47.69	2.33	90.14	2,127.36	2,108.04	2,137.24	2,087.33	49.91	42.821	
12,800.00	10,657.90	10,687.27	10,678.46	49.28	2.33	90.12	2,127.37	2,108.05	2,148.44	2,096.94	51.50	41.713	
12,900.00	10,658.38	10,686.55	10,677.75	50.89	2.33	90.10	2,127.38	2,108.05	2,164.21	2,111.09	53.11	40.746	
13,000.00	10,658.85	10,685.83	10,677.03	52.52	2.33	90.08	2,127.39	2,108.05	2,184.44	2,129.70	54.74	39.907	
13,100.00	10,659.32	10,685.11	10,676.30	54.15	2.33	90.06	2,127.39	2,108.05	2,209.02	2,152.84	56.37	39.184	
13,200.00	10,659.79	10,684.38	10,675.58	55.80	2.33	90.04	2,127.40	2,108.06	2,237.80	2,179.78	58.02	38.587	
13,300.00	10,660.26	10,683.66	10,674.85	57.47	2.33	90.02	2,127.41	2,108.06	2,270.62	2,210.94	59.68	38.044	
13,400.00	10,660.73	10,682.93	10,674.12	59.14	2.33	90.00	2,127.42	2,108.06	2,307.32	2,245.97	61.35	37.607	
13,500.00	10,661.20	10,682.20	10,673.39	60.82	2.33	89.98	2,127.43	2,108.06	2,347.70	2,284.67	63.03	37.246	
13,600.00	10,661.67	10,681.47	10,672.66	62.51	2.33	89.96	2,127.44	2,108.06	2,391.59	2,326.87	64.72	36.953	
13,700.00	10,662.15	10,680.73	10,671.93	64.20	2.33	89.94	2,127.45	2,108.07	2,438.78	2,372.37	66.42	36.720	
13,800.00	10,662.62	10,680.00	10,671.19	65.91	2.33	89.92	2,127.46	2,108.07	2,489.11	2,420.99	68.12	36.541	
13,900.00	10,663.09	10,679.26	10,670.46	67.62	2.33	89.90	2,127.47	2,108.07	2,542.37	2,472.54	69.83	36.410	
14,000.00	10,663.56	10,678.52	10,669.72	69.33	2.33	89.88	2,127.47	2,108.07	2,598.38	2,526.84	71.54	36.320	
14,100.00	10,664.03	10,677.78	10,669.07	71.05	2.33	89.86	2,127.48	2,108.07	2,656.99	2,583.72	73.28	36.266	
14,200.00	10,664.50	10,677.04	10,668.23	72.78	2.33	89.84	2,127.49	2,108.08	2,718.01	2,643.02	74.99	36.245 SF	
14,300.00	10,664.97	10,676.29	10,667.48	74.51	2.33	89.82	2,127.50	2,108.08	2,781.28	2,704.58	76.72	36.252	
14,400.00	10,665.44	10,675.54	10,666.74	76.25	2.33	89.80	2,127.51	2,108.08	2,846.67	2,768.21	78.46	36.283	
14,500.00	10,665.92	10,674.79	10,665.99	77.99	2.33	89.78	2,127.52	2,108.08	2,914.01	2,833.82	80.20	36.338	
14,600.00	10,666.39	10,674.04	10,665.23	79.74	2.33	89.76	2,127.53	2,108.09	2,983.19	2,901.25	81.94	36.407	
14,700.00	10,666.86	10,673.28	10,664.48	81.49	2.33	89.74	2,127.54	2,108.09	3,054.08	2,970.39	83.69	36.494	
14,800.00	10,667.33	10,672.53	10,663.72	83.24	2.33	89.72	2,127.55	2,108.09	3,128.56	3,041.12	85.44	36.594	
14,900.00	10,667.80	10,671.77	10,662.97	84.99	2.33	89.70	2,127.56	2,108.09	3,200.52	3,113.33	87.19	36.706	
15,000.00	10,668.27	10,671.01	10,662.21	86.75	2.33	89.68	2,127.57	2,108.10	3,275.87	3,186.92	88.95	36.827	
15,100.00	10,668.74	10,670.25	10,661.44	88.52	2.33	89.66	2,127.57	2,108.10	3,352.51	3,261.79	90.71	36.957	

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



LEAM Drilling Systems LLC

Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 1H (offset) - OH - OH												Offset Site Error:	0.00 usft
Survey Program: 119- VES GyroFlex V2												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
15,154.51	10,669.00	10,669.83	10,661.03	89.30	2.33	89.65	2,127.58	2,106.10	3,394.79	3,303.29	91.50	37.102	

Company: DEVON ENERGY
 Project: Lea County, NM (NAD-83)
 Reference Site: Chincoteague 32 State Com
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 Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
 TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 2.00 sigma
 Database: EDM 5000.1 Single User Db
 Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 1H (offset) - ST - ST														Offset Site Error: 0.00 usft
Survey Program: 119-VES GyroFlex V2, 7922-MWD-ISCWSA														Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Distance		Warning								
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	16.95	16.95	0.00	0.01	42.08	2,129.49	1,922.89	2,869.18					
100.00	100.00	113.83	113.83	0.09	0.08	42.08	2,129.55	1,922.92	2,869.26	2,869.09	0.17	N/A		
200.00	200.00	211.32	211.32	0.31	0.19	42.08	2,129.73	1,922.98	2,869.43	2,868.93	0.50	5,756.362		
300.00	300.00	309.02	309.02	0.54	0.26	42.08	2,129.94	1,923.11	2,869.68	2,868.89	0.80	3,608.435		
400.00	400.00	408.73	408.73	0.78	0.32	42.08	2,130.07	1,923.41	2,869.98	2,868.90	1.08	2,858.883		
500.00	500.00	503.59	503.59	0.99	0.37	42.09	2,130.04	1,924.01	2,870.38	2,869.03	1.35	2,123.334		
600.00	600.00	607.96	607.96	1.21	0.41	42.11	2,129.82	1,925.15	2,870.82	2,869.19	1.62	1,771.667		
700.00	700.00	725.38	725.35	1.43	0.46	42.15	2,128.35	1,926.67	2,870.89	2,869.00	1.89	1,522.702		
800.00	800.00	825.20	825.15	1.66	0.50	42.19	2,126.80	1,927.91	2,870.42	2,868.28	2.14	1,341.341		
838.02	838.02	855.58	855.52	1.74	0.51	42.21	2,126.12	1,928.38	2,870.37	2,868.14	2.23	1,284.608		
900.00	900.00	905.26	905.19	1.88	0.53	42.23	2,125.46	1,929.27	2,870.51	2,868.12	2.39	1,201.893		
1,000.00	1,000.00	985.38	985.29	2.11	0.56	42.26	2,124.79	1,930.92	2,871.28	2,868.64	2.84	1,087.859		
1,100.00	1,100.00	1,084.12	1,084.01	2.33	0.59	42.29	2,124.74	1,932.72	2,872.76	2,869.87	2.89	993.854		
1,200.00	1,200.00	1,149.49	1,149.35	2.58	0.62	42.31	2,125.42	1,934.64	2,874.87	2,871.72	3.15	914.035		
1,300.00	1,300.00	1,258.29	1,258.12	2.78	0.66	42.31	2,127.34	1,936.21	2,877.15	2,873.75	3.41	844.096		
1,400.00	1,400.00	1,394.16	1,393.97	3.01	0.69	42.28	2,130.15	1,938.74	2,878.40	2,874.72	3.67	783.534		
1,500.00	1,500.00	1,502.46	1,502.24	3.23	0.71	42.22	2,132.00	1,934.78	2,879.06	2,875.14	3.93	733.275		
1,600.00	1,600.00	1,606.80	1,606.57	3.46	0.72	42.19	2,133.50	1,933.80	2,879.50	2,875.32	4.18	689.539		
1,700.00	1,700.00	1,709.58	1,709.33	3.68	0.74	42.16	2,134.89	1,932.77	2,879.83	2,875.41	4.42	650.997		
1,800.00	1,800.00	1,818.78	1,818.50	3.91	0.76	42.12	2,136.12	1,931.65	2,879.97	2,875.30	4.67	616.623		
1,900.00	1,900.00	1,924.52	1,924.25	4.13	0.78	42.10	2,136.81	1,930.67	2,879.84	2,874.93	4.91	586.169		
2,000.00	2,000.00	2,029.95	2,029.85	4.36	0.80	42.08	2,137.13	1,929.79	2,879.50	2,874.35	5.15	558.925		
2,100.00	2,100.00	2,134.94	2,134.87	4.58	0.81	42.07	2,137.15	1,929.00	2,879.02	2,873.63	5.39	534.364		
2,200.00	2,200.00	2,242.78	2,242.51	4.81	0.82	42.06	2,136.71	1,928.27	2,878.26	2,872.64	5.62	511.935		
2,300.00	2,300.00	2,341.49	2,341.21	5.03	0.83	42.07	2,135.89	1,927.86	2,877.37	2,871.51	5.86	491.285		
2,400.00	2,400.00	2,434.96	2,434.38	5.26	0.84	42.08	2,135.08	1,927.77	2,876.86	2,870.57	6.09	472.156		
2,500.00	2,500.00	2,529.52	2,529.23	5.48	0.85	42.09	2,134.30	1,927.96	2,876.18	2,869.55	6.33	454.349		
2,600.00	2,600.00	2,625.04	2,624.74	5.71	0.86	42.11	2,133.42	1,928.44	2,875.84	2,869.27	6.57	437.758		
2,689.73	2,689.73	2,707.53	2,707.23	5.91	0.88	42.13	2,132.62	1,929.15	2,875.71	2,868.92	6.78	423.673		
2,700.00	2,700.00	2,716.72	2,716.42	5.93	0.88	42.14	2,132.53	1,929.26	2,875.71	2,868.90	6.81	422.342		
2,800.00	2,800.00	2,803.42	2,803.10	6.15	0.90	42.17	2,131.81	1,930.58	2,875.95	2,868.90	7.05	408.025		
2,900.00	2,900.00	2,890.75	2,890.41	6.38	0.91	42.21	2,130.79	1,932.50	2,876.72	2,869.43	7.29	394.680		
3,000.00	3,000.00	2,986.86	2,986.49	6.60	0.93	42.25	2,129.91	1,934.90	2,877.73	2,870.20	7.53	382.122		
3,100.00	3,100.00	3,082.81	3,082.20	6.83	0.96	42.30	2,129.05	1,937.49	2,878.88	2,871.11	7.77	370.368		
3,200.00	3,200.00	3,178.11	3,177.85	7.05	0.98	42.36	2,128.17	1,940.30	2,880.19	2,872.17	8.02	359.340		
3,300.00	3,300.00	3,271.80	3,271.39	7.28	1.00	42.41	2,127.27	1,943.33	2,881.66	2,873.40	8.26	348.970		
3,400.00	3,400.00	3,363.10	3,362.51	7.50	1.02	42.48	2,126.21	1,946.87	2,883.42	2,874.92	8.50	339.261		
3,500.00	3,500.00	3,451.78	3,451.09	7.73	1.05	42.55	2,124.97	1,950.93	2,885.48	2,876.74	8.74	330.125		
3,600.00	3,600.00	3,533.76	3,532.97	7.95	1.07	42.62	2,124.18	1,954.95	2,888.10	2,879.12	8.98	321.567		
3,700.00	3,700.00	3,618.97	3,618.07	8.18	1.09	42.69	2,123.98	1,958.12	2,891.32	2,882.09	9.22	313.483		
3,800.00	3,800.00	3,688.45	3,687.46	8.40	1.11	42.73	2,124.57	1,962.69	2,895.31	2,885.85	9.46	305.933		
3,900.00	3,900.00	3,768.55	3,765.45	8.63	1.13	42.76	2,126.38	1,966.38	2,900.22	2,890.51	9.71	298.785		
4,000.00	4,000.00	3,840.85	3,839.44	8.85	1.15	42.77	2,129.20	1,969.45	2,905.84	2,895.90	9.95	292.095		
4,100.00	4,100.00	3,900.62	3,899.27	9.08	1.16	42.76	2,132.40	1,971.85	2,912.54	2,902.35	10.19	285.843		
4,200.00	4,200.00	3,965.17	3,963.51	9.30	1.18	42.72	2,139.17	1,975.18	2,920.20	2,909.76	10.44	279.764		
4,300.00	4,300.00	4,066.11	4,064.16	9.53	1.20	42.67	2,145.26	1,977.39	2,928.55	2,917.86	10.68	274.187		
4,400.00	4,400.00	4,150.31	4,147.96	9.75	1.22	42.60	2,153.00	1,980.06	2,937.46	2,926.53	10.93	268.814		
4,500.00	4,500.00	4,243.85	4,240.81	9.98	1.24	42.53	2,162.08	1,983.05	2,946.81	2,935.63	11.18	263.649		
4,600.00	4,600.00	4,343.06	4,339.69	10.20	1.26	42.44	2,171.81	1,986.25	2,956.20	2,944.77	11.43	258.886		
4,700.00	4,700.00	4,447.42	4,443.54	10.43	1.29	42.39	2,181.01	1,990.63	2,965.54	2,953.86	11.68	253.843		
4,800.00	4,800.00	4,550.82	4,546.22	10.65	1.35	42.52	2,187.43	2,005.87	2,972.82	2,960.86	11.96	248.517		
4,900.00	4,900.00	4,625.52	4,620.37	10.87	1.40	42.74	2,185.52	2,019.53	2,977.32	2,965.09	12.23	243.495		

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

Company: DEVON ENERGY
 Project: Lea County, NM (NAD-83)
 Reference Site: Chincoaleague 32 State Com
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
 TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 2.00 sigma
 Database: EDM 5000.1 Single User Db
 Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 1H (offset) - ST - ST														Offset Site Error: 0.00 usft
Survey Program: 119- VES GyroFlex V2, 7922-MWD-ISCWSA														Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance		Minimum Separation		Separation Factor		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
5,000.00	5,000.00	4,975.05	4,969.49	11.10	1.44	42.94	2,180.51	2,029.52	2,979.52	2,967.04	12.48	238.734		
5,100.00	5,100.00	5,082.33	5,076.46	11.32	1.47	43.09	2,176.54	2,036.43	2,981.02	2,968.30	12.72	234.289		
5,200.00	5,200.00	5,167.90	5,161.79	11.55	1.49	43.22	2,173.18	2,041.90	2,982.48	2,969.52	12.96	230.065		
5,300.00	5,300.00	5,224.32	5,218.05	11.77	1.51	43.29	2,171.38	2,045.74	2,984.82	2,971.72	13.20	226.147		
5,400.00	5,400.00	5,318.87	5,312.34	12.00	1.53	43.41	2,169.40	2,052.51	2,988.34	2,974.89	13.45	222.263		
5,500.00	5,500.00	5,392.98	5,386.22	12.22	1.56	43.50	2,168.57	2,057.94	2,992.50	2,978.81	13.69	218.621		
5,600.00	5,600.00	5,482.82	5,475.84	12.45	1.59	43.60	2,168.00	2,064.48	2,997.05	2,983.13	13.94	215.063		
5,700.00	5,700.00	5,569.69	5,562.43	12.67	1.63	43.71	2,167.71	2,072.49	3,001.83	2,987.44	14.19	211.524		
5,800.00	5,800.00	5,719.00	5,711.55	12.90	1.66	43.81	2,167.47	2,079.23	3,005.38	2,990.94	14.45	208.056		
5,900.00	5,900.00	5,813.59	5,806.01	13.12	1.70	43.88	2,167.34	2,084.29	3,009.00	2,994.30	14.69	204.782		
6,000.00	6,000.00	5,905.46	5,897.74	13.35	1.73	43.95	2,167.33	2,089.34	3,012.81	2,997.87	14.94	201.628		
6,100.00	6,100.00	5,990.73	5,982.89	13.57	1.75	44.00	2,168.14	2,093.71	3,017.05	3,001.86	15.19	198.510		
6,200.00	6,200.00	6,043.39	6,035.68	13.80	1.77	44.01	-56.07	1,991.11	3,014.15	2,980.72	53.44	56.405		
6,300.00	6,300.00	10,433.55	8,479.68	14.02	1.77	91.82	-56.23	1,991.10	2,939.84	2,886.18	53.65	54.782		
6,400.00	6,400.00	10,433.72	8,479.68	14.25	1.78	91.82	-56.39	1,991.10	2,867.10	2,813.21	53.89	53.201		
6,500.00	6,500.00	10,433.88	8,479.68	14.47	1.78	91.83	-56.55	1,991.09	2,796.04	2,741.92	54.12	51.664		
6,600.00	6,600.00	10,434.04	8,479.68	14.70	1.78	91.83	-56.71	1,991.09	2,726.79	2,672.44	54.35	50.174		
6,700.00	6,700.00	10,434.20	8,479.68	14.92	1.78	91.84	-56.87	1,991.09	2,659.50	2,604.93	54.57	48.732		
6,800.00	6,800.00	10,434.36	8,479.68	15.15	1.79	91.84	-57.03	1,991.08	2,594.32	2,539.52	54.80	47.340		
6,900.00	6,900.00	10,434.51	8,479.68	15.37	1.79	91.85	-57.19	1,991.08	2,531.42	2,476.39	55.03	46.002		
7,000.00	7,000.00	10,434.67	8,479.68	15.59	1.79	91.85	-57.35	1,991.07	2,470.96	2,415.70	55.26	44.718		
7,100.00	7,100.00	10,434.83	8,479.68	15.82	1.80	91.85	-57.50	1,991.07	2,413.13	2,357.65	55.48	43.493		
7,200.00	7,200.00	10,434.98	8,479.68	16.04	1.80	91.86	-57.66	1,991.06	2,356.13	2,302.42	55.71	42.328		
7,300.00	7,300.00	10,435.13	8,479.68	16.27	1.80	91.86	-57.81	1,991.06	2,306.15	2,250.21	55.94	41.227		
7,400.00	7,400.00	10,435.29	8,479.68	16.49	1.80	91.87	-57.96	1,991.05	2,257.41	2,201.24	56.17	40.192		
7,500.00	7,500.00	10,435.44	8,479.68	16.72	1.81	91.87	-58.12	1,991.05	2,212.11	2,155.72	56.39	39.227		
7,600.00	7,600.00	10,435.59	8,479.68	16.94	1.81	91.88	-58.27	1,991.04	2,170.49	2,113.87	56.62	38.335		
7,700.00	7,700.00	10,435.74	8,479.68	17.17	1.81	91.88	-58.42	1,991.04	2,132.74	2,075.89	56.85	37.517		
7,800.00	7,800.00	10,435.89	8,479.68	17.39	1.81	91.88	-58.57	1,991.03	2,099.08	2,042.01	57.07	36.776		
7,900.00	7,900.00	10,436.04	8,479.68	17.62	1.82	91.89	-58.72	1,991.03	2,069.71	2,012.41	57.30	36.120		
8,000.00	8,000.00	10,436.19	8,479.68	17.84	1.82	91.89	-58.86	1,991.03	2,044.81	1,987.29	57.53	35.544		
8,100.00	8,100.00	10,436.34	8,479.68	18.07	1.82	91.70	-59.01	1,991.02	2,024.56	1,966.50	57.76	35.054		
8,200.00	8,200.00	10,436.48	8,479.68	18.29	1.82	91.70	-59.16	1,991.02	2,009.08	1,951.09	57.98	34.650		
8,300.00	8,300.00	10,436.63	8,479.68	18.52	1.83	91.71	-59.30	1,991.01	1,988.49	1,940.28	58.21	34.333		
8,400.00	8,400.00	10,436.77	8,479.68	18.74	1.83	91.71	-59.45	1,991.01	1,962.87	1,934.43	58.44	34.103		
8,482.19	8,482.19	10,436.86	8,479.68	18.88	1.83	91.71	-59.54	1,991.01	1,991.00	1,933.32	58.58	34.004 CC, ES		
8,500.00	8,500.00	10,436.92	8,479.68	18.97	1.83	91.71	-59.59	1,991.00	1,982.25	1,933.59	58.66	33.980		
8,600.00	8,600.00	10,437.06	8,479.68	19.19	1.83	91.72	-59.74	1,991.00	1,966.86	1,937.77	58.89	33.904 SF		
8,700.00	8,700.00	10,437.20	8,479.68	19.42	1.84	91.72	-59.88	1,991.00	2,006.04	1,946.92	59.12	33.933		
8,800.00	8,800.00	10,437.34	8,479.68	19.64	1.84	91.73	-60.02	1,990.99	2,020.34	1,960.99	59.35	34.044		
8,900.00	8,900.00	10,437.48	8,479.68	19.87	1.84	91.73	-60.16	1,990.99	2,039.44	1,979.87	59.57	34.235		
9,000.00	9,000.00	10,437.63	8,479.68	20.09	1.84	91.73	-60.30	1,990.98	2,063.22	2,003.42	59.80	34.503		
9,100.00	9,100.00	10,437.76	8,479.68	20.31	1.85	91.74	-60.44	1,990.98	2,081.52	2,031.49	60.03	34.843		
9,200.00	9,200.00	10,437.90	8,479.68	20.54	1.85	91.74	-60.58	1,990.97	2,124.15	2,063.90	60.25	35.254		
9,300.00	9,300.00	10,438.04	8,479.68	20.76	1.85	91.75	-60.72	1,990.97	2,160.92	2,100.44	60.48	35.729		
9,400.00	9,400.00	10,438.18	8,479.68	20.99	1.85	91.75	-60.85	1,990.97	2,201.82	2,140.92	60.71	36.266		
9,500.00	9,500.00	10,438.32	8,479.68	21.21	1.85	91.75	-60.99	1,990.96	2,246.04	2,185.11	60.93	36.860		
9,600.00	9,600.00	10,438.45	8,479.68	21.44	1.86	91.76	-61.13	1,990.96	2,293.96	2,232.60	61.16	37.507		
9,700.00	9,700.00	10,438.59	8,479.68	21.66	1.86	91.76	-61.26	1,990.95	2,345.17	2,283.78	61.39	38.202		
9,800.00	9,800.00	10,438.72	8,479.68	21.89	1.86	91.77	-61.40	1,990.95	2,399.46	2,337.84	61.62	38.943		
9,900.00	9,900.00	10,438.85	8,479.68	22.11	1.86	91.77	-61.53	1,990.95	2,456.51	2,394.77	61.84	39.724		
10,000.00	10,000.00	10,438.99	8,479.68	22.34	1.87	91.77	-61.66	1,990.94	2,516.45	2,454.38	62.07	40.543		

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



LEAM Drilling Systems LLC

Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 1H (offset) - ST - ST													Offset Site Error: 0.00 usft
Survey Program: 119- VES GyroFlex V2, 7922-MWD-ISCWSA													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance				Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
10,100.00	10,099.99	10,438.83	8,479.89	22.56	38.86	90.39	-61.31	1,990.95	2,578.79	2,516.42	82.37	41.348	
10,200.00	10,199.04	10,426.03	8,479.87	22.79	38.65	81.65	-48.71	1,991.33	2,643.19	2,580.98	82.24	42.471	
10,300.00	10,294.36	10,396.81	8,479.81	23.01	38.14	72.87	-19.30	1,992.19	2,707.69	2,646.62	81.07	44.340	
10,400.00	10,383.06	10,351.36	8,479.47	23.21	37.37	64.32	25.93	1,993.49	2,789.84	2,710.87	58.97	46.967	
10,500.00	10,462.44	10,278.18	8,479.89	23.46	36.13	57.02	99.06	1,996.00	2,827.12	2,771.04	56.08	50.410	
10,600.00	10,530.06	10,201.95	8,481.38	23.76	34.81	51.44	175.20	1,999.32	2,877.06	2,823.78	53.29	53.992	
10,700.00	10,583.94	10,117.75	8,482.88	24.15	33.34	47.37	259.33	2,002.72	2,917.95	2,867.21	50.74	57.509	
10,800.00	10,622.38	10,029.11	8,483.92	24.63	31.79	44.66	347.90	2,006.14	2,948.07	2,899.43	48.64	60.814	
10,900.00	10,644.23	9,973.00	8,484.40	25.21	30.81	43.19	403.96	2,008.21	2,966.79	2,919.23	47.58	62.380	
11,000.00	10,649.42	9,902.49	8,484.38	25.88	29.64	42.74	474.40	2,011.38	2,974.49	2,927.59	46.90	63.428	
11,100.00	10,649.89	9,808.91	8,483.56	26.66	28.09	42.81	567.82	2,016.73	2,980.01	2,933.75	46.28	64.419	
11,200.00	10,650.37	9,711.32	8,482.96	27.53	26.39	42.89	665.26	2,022.21	2,985.29	2,939.69	45.80	65.466	
11,300.00	10,650.84	9,604.86	8,481.82	28.50	24.60	42.96	771.56	2,027.78	2,990.85	2,945.73	44.92	66.571	
11,400.00	10,651.31	9,487.42	8,481.30	29.55	22.31	43.05	906.84	2,034.33	2,995.19	2,951.25	43.94	68.169	
11,500.00	10,651.78	9,359.18	8,481.40	30.67	20.44	43.12	1,017.00	2,038.65	2,998.86	2,955.53	43.32	69.219	
11,600.00	10,652.25	9,275.45	8,481.13	31.86	19.07	43.17	1,100.87	2,041.84	3,002.72	2,959.60	43.12	69.832	
11,700.00	10,652.72	9,174.65	8,481.85	33.10	17.47	43.27	1,201.28	2,047.71	3,007.22	2,964.40	42.81	70.242	
11,800.00	10,653.19	9,060.77	8,485.58	34.40	15.52	43.44	1,314.79	2,056.15	3,010.92	2,968.59	42.34	71.120	
11,900.00	10,653.88	8,904.47	8,487.01	35.75	14.52	43.52	1,370.92	2,060.22	3,015.20	2,972.62	42.58	70.811	
12,000.00	10,654.13	8,970.00	8,487.10	37.13	13.91	43.56	1,405.30	2,062.82	3,021.38	2,978.24	43.13	70.046	
12,100.00	10,654.81	8,886.22	8,484.94	38.56	12.51	43.61	1,466.85	2,068.38	3,029.01	2,985.87	43.13	70.224	
12,200.00	10,655.08	8,813.00	8,481.66	40.01	11.24	43.63	1,561.89	2,072.50	3,037.05	2,993.82	43.24	70.240	
12,300.00	10,655.55	8,771.00	8,477.83	41.50	10.51	43.61	1,603.87	2,074.11	3,046.97	3,003.21	43.76	69.832	
12,400.00	10,656.02	8,757.08	8,475.87	43.01	10.27	43.59	1,617.45	2,074.38	3,050.08	3,014.40	44.67	68.485	
12,500.00	10,656.49	8,739.00	8,472.71	44.55	9.95	43.55	1,635.25	2,074.56	3,073.73	3,028.19	45.54	67.502	
12,600.00	10,656.96	8,708.00	8,465.89	46.11	9.42	43.46	1,665.49	2,074.57	3,090.85	3,044.81	46.23	66.854	
12,700.00	10,657.43	8,694.98	8,462.53	47.69	9.20	43.42	1,678.06	2,074.54	3,110.42	3,063.22	47.20	65.898	
12,800.00	10,657.90	8,677.00	8,457.37	49.28	8.89	43.36	1,696.29	2,074.56	3,132.58	3,084.47	48.11	65.115	
12,900.00	10,658.38	8,677.00	8,457.37	50.89	8.89	43.36	1,695.29	2,074.56	3,157.45	3,108.16	49.29	64.085	
13,000.00	10,658.85	8,645.00	8,446.96	52.52	8.37	43.23	1,725.54	2,075.23	3,184.56	3,134.54	50.03	63.659	
13,100.00	10,659.32	8,645.00	8,446.96	54.15	8.37	43.23	1,725.54	2,075.23	3,214.32	3,163.09	51.22	62.761	
13,200.00	10,659.79	8,614.00	8,435.60	55.80	7.86	43.11	1,754.34	2,076.73	3,246.30	3,194.30	52.00	62.423	
13,300.00	10,660.26	8,614.00	8,435.60	57.47	7.86	43.11	1,754.34	2,076.73	3,280.72	3,227.50	53.22	61.845	
13,400.00	10,660.73	8,583.00	8,422.99	59.14	7.37	42.98	1,782.58	2,078.76	3,317.18	3,263.16	54.02	61.404	
13,500.00	10,661.20	8,583.00	8,422.99	60.82	7.37	42.98	1,782.58	2,078.76	3,355.99	3,300.74	55.25	60.740	
13,600.00	10,661.67	8,551.00	8,408.54	62.51	6.87	42.83	1,811.03	2,081.08	3,396.65	3,340.60	56.05	60.598	
13,700.00	10,662.15	8,535.41	8,400.97	64.20	6.64	42.75	1,824.62	2,082.18	3,439.41	3,382.32	57.06	60.251	
13,800.00	10,662.62	8,520.00	8,393.21	65.91	6.41	42.67	1,837.88	2,083.24	3,484.04	3,425.92	58.12	59.948	
13,900.00	10,663.09	8,488.00	8,375.81	67.62	5.95	42.48	1,864.68	2,084.93	3,530.65	3,471.71	58.93	59.908	
14,000.00	10,663.56	8,488.00	8,375.81	69.33	5.95	42.48	1,864.68	2,084.93	3,578.84	3,518.06	60.19	59.463	
14,100.00	10,664.03	8,472.19	8,368.53	71.05	5.73	42.37	1,877.47	2,085.48	3,628.95	3,567.72	61.23	59.271	
14,200.00	10,664.50	8,457.00	8,357.24	72.78	5.53	42.26	1,889.48	2,085.91	3,680.81	3,618.54	62.27	59.106	
14,300.00	10,664.97	8,457.00	8,357.24	74.51	5.53	42.26	1,889.48	2,085.91	3,734.44	3,670.91	63.54	58.777	
14,400.00	10,665.44	8,426.00	8,337.07	76.25	5.13	42.03	1,913.00	2,086.60	3,789.78	3,725.41	64.37	58.875	
14,500.00	10,665.92	8,426.00	8,337.07	77.99	5.13	42.03	1,913.00	2,086.60	3,846.49	3,780.65	65.63	58.604	
14,600.00	10,666.39	8,426.00	8,337.07	79.74	5.13	42.03	1,913.00	2,086.60	3,904.93	3,838.03	66.90	58.368	
14,700.00	10,666.86	8,394.00	8,314.92	81.49	4.74	41.77	1,936.09	2,087.19	3,964.71	3,896.99	67.72	58.545	
14,800.00	10,667.33	8,394.00	8,314.92	83.24	4.74	41.77	1,936.09	2,087.19	4,025.84	3,958.85	68.99	58.354	
14,900.00	10,667.80	8,363.00	8,292.74	84.99	4.38	41.51	1,957.74	2,087.79	4,088.22	4,018.39	69.83	58.541	
15,000.00	10,668.27	8,363.00	8,292.74	86.75	4.38	41.51	1,957.74	2,087.79	4,151.83	4,080.73	71.10	58.390	
15,100.00	10,668.74	8,346.24	8,280.50	88.52	4.20	41.37	1,969.17	2,088.24	4,216.63	4,144.48	72.16	58.438	
15,154.51	10,669.00	8,332.00	8,269.93	89.30	4.05	41.25	1,978.70	2,088.77	4,262.54	4,180.04	72.60	58.657	

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



LEAM Drilling Systems LLC
Anticollision Report



Company:	DEVON ENERGY	Local Co-ordinate Reference:	Well 4H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3470.9' GE + 23.5' RKB @ 3494.40usft
Reference Site:	Chincoteague 32 State Com	MD Reference:	3470.9' GE + 23.5' RKB @ 3494.40usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	4H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.1 Single User Db
Reference Design:	Prelim 3	Offset TVD Reference:	Offset Datum

Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 3H (offset) - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 135- VES GyroFlex V2, 7720-MWD-ISCWSA													Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Distance		Warning								
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	4.68	4.68	0.00	0.00	-18.82	2,102.53	-716.49	2,221.26					
100.00	100.00	134.73	134.73	0.09	0.11	-18.82	2,101.58	-716.34	2,220.53	2,220.34	0.20	N/A		
200.00	200.00	239.42	239.40	0.31	0.21	-18.81	2,100.28	-715.35	2,219.04	2,218.52	0.52	4,264.868		
300.00	300.00	366.55	366.50	0.54	0.29	-18.78	2,098.07	-713.53	2,216.98	2,216.15	0.83	2,673.280		
400.00	400.00	491.88	491.75	0.76	0.37	-18.75	2,094.20	-710.98	2,213.96	2,212.23	1.12	1,967.457		
500.00	500.00	591.35	591.13	0.99	0.42	-18.72	2,090.77	-708.64	2,209.33	2,207.93	1.40	1,578.271		
600.00	600.00	688.31	687.99	1.21	0.48	-18.68	2,087.77	-705.74	2,205.44	2,203.77	1.67	1,320.954		
700.00	700.00	791.06	790.84	1.43	0.51	-18.62	2,084.69	-702.43	2,201.57	2,199.63	1.94	1,135.048		
800.00	800.00	885.62	885.12	1.66	0.55	-18.57	2,081.66	-699.44	2,197.73	2,195.52	2.20	996.998		
900.00	900.00	986.00	985.40	1.88	0.80	-18.51	2,079.01	-696.21	2,194.01	2,191.54	2.47	888.272		
1,000.00	1,000.00	1,081.99	1,081.00	2.11	0.84	-18.46	2,075.40	-693.04	2,190.38	2,187.84	2.73	801.853		
1,100.00	1,100.00	1,187.47	1,186.89	2.33	0.88	-18.39	2,073.49	-689.42	2,186.66	2,183.69	3.00	729.485		
1,200.00	1,200.00	1,285.78	1,284.90	2.56	0.72	-18.33	2,070.75	-686.03	2,182.95	2,179.69	3.26	669.770		
1,300.00	1,300.00	1,387.65	1,386.85	2.78	0.76	-18.26	2,067.91	-682.18	2,179.11	2,175.59	3.52	618.852		
1,400.00	1,400.00	1,478.67	1,477.58	3.01	0.80	-18.20	2,065.52	-678.99	2,175.52	2,171.74	3.78	575.767		
1,500.00	1,500.00	1,573.73	1,572.56	3.23	0.83	-18.14	2,063.30	-675.80	2,172.25	2,168.21	4.04	538.182		
1,600.00	1,600.00	1,673.90	1,672.65	3.46	0.87	-18.07	2,061.09	-672.37	2,169.09	2,164.80	4.30	505.028		
1,700.00	1,700.00	1,776.45	1,775.11	3.68	0.91	-17.99	2,058.78	-668.88	2,165.83	2,161.28	4.55	475.585		
1,800.00	1,800.00	1,875.83	1,874.40	3.91	0.95	-17.92	2,056.48	-665.12	2,162.53	2,157.72	4.81	449.433		
1,900.00	1,900.00	1,969.18	1,967.67	4.13	0.99	-17.86	2,054.44	-661.81	2,159.35	2,154.29	5.07	426.211		
2,000.00	2,000.00	2,064.42	2,062.82	4.36	1.02	-17.78	2,052.86	-658.17	2,156.80	2,151.28	5.32	405.392		
2,100.00	2,100.00	2,175.59	2,173.86	4.58	1.06	-17.66	2,051.09	-652.89	2,153.84	2,148.06	5.58	386.186		
2,200.00	2,200.00	2,290.22	2,288.32	4.81	1.11	-17.54	2,048.54	-647.28	2,150.04	2,144.20	5.84	368.422		
2,300.00	2,300.00	2,392.94	2,390.86	5.03	1.14	-17.42	2,045.88	-641.88	2,145.99	2,139.90	6.09	352.285		
2,400.00	2,400.00	2,494.86	2,492.57	5.25	1.18	-17.28	2,043.41	-635.78	2,141.88	2,135.53	6.35	337.513		
2,500.00	2,500.00	2,587.85	2,585.33	5.48	1.22	-17.14	2,041.42	-629.67	2,137.89	2,131.29	6.60	324.087		
2,600.00	2,600.00	2,697.84	2,694.88	5.71	1.26	-16.97	2,039.08	-622.27	2,133.87	2,127.01	6.85	311.437		
2,700.00	2,700.00	2,813.44	2,810.37	5.93	1.30	-16.81	2,035.86	-615.04	2,129.22	2,122.11	7.11	299.440		
2,800.00	2,800.00	2,916.59	2,915.27	6.15	1.34	-16.68	2,031.78	-608.78	2,123.95	2,116.58	7.37	288.277		
2,900.00	2,900.00	3,023.83	3,020.23	6.38	1.38	-16.54	2,028.02	-602.12	2,118.73	2,111.11	7.62	277.881		
3,000.00	3,000.00	3,130.88	3,126.96	6.60	1.42	-16.39	2,023.64	-595.18	2,112.95	2,105.07	7.88	268.058		
3,100.00	3,100.00	3,233.33	3,229.10	6.83	1.46	-16.24	2,019.35	-588.39	2,107.07	2,098.93	8.14	258.888		
3,200.00	3,200.00	3,356.28	3,351.84	7.05	1.51	-16.07	2,013.50	-580.21	2,100.88	2,092.25	8.40	249.991		
3,300.00	3,300.00	3,473.78	3,468.59	7.28	1.56	-15.89	2,006.85	-571.33	2,093.10	2,084.44	8.67	241.520		
3,400.00	3,400.00	3,580.06	3,574.81	7.50	1.60	-15.69	2,000.58	-562.07	2,085.08	2,076.16	8.93	233.592		
3,500.00	3,500.00	3,683.36	3,677.01	7.73	1.64	-15.50	1,994.19	-553.09	2,076.72	2,067.53	9.18	226.107		
3,600.00	3,600.00	3,784.26	3,777.30	7.95	1.68	-15.30	1,988.05	-543.82	2,068.39	2,058.95	9.44	219.054		
3,700.00	3,700.00	3,883.45	3,875.88	8.18	1.72	-15.10	1,981.88	-534.72	2,059.97	2,050.27	9.70	212.377		
3,800.00	3,800.00	3,977.49	3,969.33	8.40	1.76	-14.90	1,976.25	-525.89	2,051.73	2,041.77	9.95	206.107		
3,900.00	3,900.00	4,064.90	4,056.26	8.63	1.79	-14.73	1,971.24	-516.15	2,043.91	2,033.70	10.21	200.240		
4,000.00	4,000.00	4,154.16	4,145.14	8.85	1.83	-14.59	1,966.33	-511.74	2,036.75	2,026.29	10.46	194.708		
4,100.00	4,100.00	4,251.17	4,241.78	9.08	1.87	-14.44	1,961.27	-504.86	2,028.92	2,019.20	10.72	189.431		
4,200.00	4,200.00	4,354.51	4,344.85	9.30	1.91	-14.24	1,956.09	-496.57	2,023.06	2,012.09	10.97	184.372		
4,300.00	4,300.00	4,443.88	4,433.46	9.53	1.95	-14.10	1,951.46	-490.00	2,016.22	2,005.00	11.23	179.616		
4,400.00	4,400.00	4,528.52	4,518.05	9.75	1.98	-13.98	1,947.52	-484.70	2,010.20	1,998.72	11.48	175.184		
4,500.00	4,500.00	4,618.92	4,608.23	9.98	2.01	-13.87	1,943.66	-479.95	2,004.77	1,993.05	11.73	170.931		
4,600.00	4,600.00	4,722.43	4,711.55	10.20	2.05	-13.77	1,939.32	-475.17	1,999.80	1,987.82	11.99	166.832		
4,700.00	4,700.00	4,823.55	4,812.46	10.43	2.09	-13.68	1,934.58	-470.96	1,994.03	1,981.79	12.24	162.868		
4,800.00	4,800.00	4,910.67	4,899.44	10.65	2.12	-13.62	1,930.89	-467.72	1,988.85	1,976.35	12.50	159.156		
4,900.00	4,900.00	5,009.49	4,998.12	10.87	2.16	-13.55	1,926.84	-464.34	1,984.25	1,971.50	12.75	155.595		
5,000.00	5,000.00	5,103.79	5,092.29	11.10	2.19	-13.49	1,922.88	-461.44	1,979.45	1,968.44	13.01	152.172		
5,100.00	5,100.00	5,194.13	5,182.53	11.32	2.23	-13.43	1,919.75	-458.38	1,975.30	1,962.04	13.26	148.958		

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



LEAM Drilling Systems LLC

Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 3H (offset) - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 135- VES GyroFlex V2, 7720-MWD-ISCWSA													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,200.00	5,200.00	5,285.16	5,273.46	11.55	2.26	-13.36	1,916.93	-455.12	1,971.45	1,957.94	13.51	145.904	
5,300.00	5,300.00	5,379.22	5,367.41	11.77	2.30	-13.26	1,914.67	-451.34	1,968.18	1,954.42	13.76	143.010	
5,400.00	5,400.00	5,475.68	5,463.79	12.00	2.33	-13.19	1,912.23	-447.99	1,964.93	1,950.92	14.01	140.215	
5,500.00	5,500.00	5,573.98	5,561.41	12.22	2.37	-13.11	1,910.07	-444.83	1,962.03	1,947.77	14.27	137.537	
5,600.00	5,600.00	5,670.58	5,658.54	12.45	2.40	-13.04	1,907.78	-441.90	1,959.06	1,944.55	14.52	134.951	
5,700.00	5,700.00	5,765.77	5,753.86	12.67	2.44	-12.96	1,905.94	-438.76	1,956.43	1,941.66	14.77	132.492	
5,800.00	5,800.00	5,866.82	5,854.64	12.90	2.48	-12.88	1,904.06	-435.39	1,953.87	1,938.85	15.02	130.113	
5,900.00	5,900.00	5,969.44	5,957.18	13.12	2.51	-12.80	1,901.99	-432.12	1,951.19	1,935.92	15.27	127.794	
6,000.00	6,000.00	6,066.84	6,054.31	13.35	2.55	-12.72	1,900.00	-428.94	1,948.48	1,932.96	15.52	125.561	
6,100.00	6,100.00	6,165.90	6,153.51	13.57	2.59	-12.65	1,898.07	-425.95	1,945.92	1,930.15	15.77	123.402	
6,200.00	6,200.00	6,262.33	6,249.88	13.80	2.62	-12.58	1,896.21	-423.29	1,943.43	1,927.41	16.02	121.316	
6,300.00	6,300.00	6,367.76	6,355.26	14.02	2.66	-12.52	1,894.11	-420.85	1,940.95	1,924.68	16.27	119.273	
6,400.00	6,400.00	6,461.98	6,449.43	14.25	2.69	-12.47	1,892.17	-418.40	1,938.42	1,921.90	16.52	117.307	
6,500.00	6,500.00	6,565.85	6,553.25	14.47	2.73	-12.42	1,890.06	-416.11	1,935.96	1,919.18	16.78	115.381	
6,600.00	6,600.00	10,005.56	8,306.87	14.70	33.55	-93.46	-43.25	-714.78	1,847.68	1,800.20	47.48	38.918	
6,700.00	6,700.00	10,002.52	8,306.98	14.92	33.50	-93.22	-40.22	-714.72	1,755.92	1,708.24	47.68	36.826	
6,800.00	6,800.00	9,999.46	8,307.08	15.15	33.45	-92.98	-37.16	-714.65	1,665.10	1,617.22	47.89	34.773	
6,900.00	6,900.00	9,996.38	8,307.19	15.37	33.40	-92.73	-34.08	-714.59	1,575.39	1,527.30	48.09	32.760	
7,000.00	7,000.00	9,993.27	8,307.30	15.59	33.35	-92.48	-30.98	-714.53	1,486.99	1,438.70	48.29	30.792	
7,100.00	7,100.00	9,990.15	8,307.41	15.82	33.30	-92.23	-27.86	-714.46	1,400.14	1,351.64	48.49	28.873	
7,200.00	7,200.00	9,987.00	8,307.52	16.04	33.25	-91.98	-24.72	-714.40	1,315.15	1,266.45	48.69	27.009	
7,300.00	7,300.00	9,983.84	8,307.63	16.27	33.20	-91.73	-21.55	-714.34	1,232.40	1,183.51	48.89	25.206	
7,400.00	7,400.00	9,980.65	8,307.74	16.49	33.15	-91.47	-18.36	-714.28	1,152.39	1,103.30	49.09	23.474	
7,500.00	7,500.00	9,977.43	8,307.85	16.72	33.09	-91.22	-15.15	-714.22	1,075.71	1,026.42	49.29	21.824	
7,600.00	7,600.00	9,974.20	8,307.97	16.94	33.04	-90.96	-11.92	-714.16	1,003.14	953.66	49.49	20.270	
7,700.00	7,700.00	9,970.94	8,308.08	17.17	32.99	-90.70	-8.67	-714.10	935.63	885.95	49.69	18.831	
7,800.00	7,800.00	9,967.66	8,308.20	17.39	32.94	-90.43	-5.39	-714.04	874.36	824.48	49.88	17.529	
7,900.00	7,900.00	9,964.36	8,308.32	17.62	32.88	-90.17	-2.09	-713.98	820.71	770.84	50.08	16.389	
8,000.00	8,000.00	9,961.03	8,308.44	17.84	32.83	-89.90	1.24	-713.92	776.28	726.01	50.27	15.442	
8,100.00	8,100.00	9,957.68	8,308.56	18.07	32.77	-89.63	4.59	-713.87	742.72	692.26	50.46	14.718	
8,200.00	8,200.00	9,954.30	8,308.68	18.29	32.72	-89.36	7.96	-713.81	721.55	670.89	50.66	14.244	
8,300.00	8,300.00	9,950.90	8,308.81	18.52	32.66	-89.09	11.36	-713.75	713.86	663.02	50.85	14.040	
8,305.21	8,305.21	9,950.72	8,308.81	18.53	32.66	-89.07	11.53	-713.75	713.84	662.99	50.86	14.036 CC, ES, SF	
8,400.00	8,400.00	9,946.00	8,308.99	18.74	32.58	-88.70	16.26	-713.68	720.10	669.08	51.02	14.114	
8,500.00	8,500.00	9,943.70	8,309.07	18.97	32.55	-88.51	18.66	-713.64	739.91	688.69	51.22	14.445	
8,600.00	8,600.00	9,939.63	8,309.22	19.19	32.48	-88.18	22.62	-713.57	772.24	720.84	51.40	15.023	
8,700.00	8,700.00	9,935.53	8,309.37	19.42	32.41	-87.86	26.72	-713.51	815.61	764.03	51.58	15.812	
8,800.00	8,800.00	9,931.40	8,309.53	19.64	32.34	-87.52	30.85	-713.43	868.36	816.80	51.76	16.776	
8,900.00	8,900.00	9,927.22	8,309.68	19.87	32.28	-87.19	35.02	-713.36	928.90	876.96	51.94	17.885	
9,000.00	9,000.00	9,923.02	8,309.84	20.09	32.21	-86.85	39.22	-713.28	995.80	943.68	52.12	19.107	
9,100.00	9,100.00	9,918.77	8,310.00	20.31	32.14	-86.51	43.46	-713.21	1,067.87	1,015.57	52.31	20.416	
9,200.00	9,200.00	9,914.49	8,310.16	20.54	32.07	-86.17	47.74	-713.12	1,144.14	1,091.84	52.50	21.795	
9,300.00	9,300.00	9,910.17	8,310.33	20.76	32.00	-85.82	52.06	-713.04	1,223.82	1,171.13	52.68	23.229	
9,400.00	9,400.00	9,905.81	8,310.49	20.99	31.92	-85.48	56.41	-712.95	1,306.28	1,253.41	52.87	24.707	
9,500.00	9,500.00	9,901.41	8,310.66	21.21	31.85	-85.12	60.81	-712.86	1,391.03	1,337.98	53.06	26.219	
9,600.00	9,600.00	9,896.97	8,310.83	21.44	31.78	-84.77	65.24	-712.78	1,477.68	1,424.44	53.24	27.756	
9,700.00	9,700.00	9,892.49	8,311.00	21.66	31.70	-84.41	69.72	-712.67	1,565.91	1,512.49	53.42	29.313	
9,800.00	9,800.00	9,887.97	8,311.18	21.89	31.63	-84.05	74.23	-712.57	1,655.47	1,601.87	53.60	30.886	
9,900.00	9,900.00	9,883.41	8,311.36	22.11	31.56	-83.69	78.79	-712.46	1,746.15	1,692.37	53.78	32.470	
10,000.00	10,000.00	9,878.81	8,311.54	22.34	31.48	-83.32	83.38	-712.35	1,837.79	1,783.84	53.95	34.062	
10,100.00	10,099.99	9,873.59	8,311.74	22.56	31.39	-82.94	88.60	-712.23	1,930.22	1,875.84	54.38	35.494	
10,200.00	10,199.04	9,853.75	8,312.53	22.79	31.07	-84.63	108.42	-711.72	2,021.86	1,969.08	52.79	38.302	

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



LEAM Drilling Systems LLC

Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 3H (offset) - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 135- VES GyroFlex V2, 7720-MWD-ISCWSA													Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Distance		Warning							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
10,300.00	10,294.36	9,816.32	8,313.97	23.01	30.45	-39.82	145.80	-710.43	2,109.71	2,080.82	48.89	43.150	
10,400.00	10,383.06	9,782.57	8,315.75	23.21	29.57	-30.29	199.43	-707.43	2,190.91	2,145.93	44.99	48.701	
10,500.00	10,462.44	9,864.89	8,318.78	23.46	27.95	-24.03	296.88	-698.81	2,262.44	2,221.36	41.08	55.072	
10,600.00	10,530.08	9,958.17	8,320.83	23.76	26.84	-20.46	382.89	-690.86	2,321.95	2,283.75	38.20	60.781	
10,700.00	10,583.94	9,513.39	8,322.27	24.15	25.43	-18.02	446.87	-679.33	2,368.20	2,332.72	35.49	66.730	
10,800.00	10,622.38	9,428.85	8,324.09	24.83	24.04	-16.52	530.85	-668.15	2,399.40	2,368.19	33.22	72.235	
10,900.00	10,644.23	9,330.35	8,325.22	25.21	22.45	-15.59	628.07	-653.88	2,415.06	2,383.77	31.32	77.105	
11,000.00	10,649.42	9,224.85	8,327.36	25.88	20.88	-15.19	732.49	-638.77	2,414.08	2,383.98	30.10	80.193	
11,100.00	10,649.89	9,137.10	8,329.11	26.66	19.16	-14.81	819.46	-627.29	2,408.91	2,379.33	29.58	81.441	
11,200.00	10,650.37	9,065.72	8,330.14	27.53	17.91	-14.89	890.24	-618.11	2,404.46	2,375.21	29.25	82.217	
11,300.00	10,650.84	9,002.00	8,329.81	28.50	16.82	-14.48	953.39	-609.59	2,401.88	2,372.68	29.02	82.765	
11,400.00	10,651.31	8,922.52	8,328.47	28.55	15.53	-14.20	1,032.15	-598.96	2,400.16	2,371.45	28.70	83.826	
11,500.00	10,651.78	8,835.41	8,326.87	30.67	14.12	-13.82	1,118.59	-588.31	2,399.17	2,370.80	28.37	84.570	
11,570.51	10,652.11	8,781.24	8,325.81	31.51	13.24	-13.77	1,172.44	-582.55	2,398.88	2,370.65	28.23	84.977	
11,600.00	10,652.25	8,760.27	8,325.30	31.86	12.90	-13.71	1,193.29	-580.43	2,398.94	2,370.75	28.19	85.106	
11,700.00	10,652.72	8,695.00	8,323.33	33.10	11.84	-13.54	1,258.21	-573.93	2,399.86	2,371.74	28.12	85.339	
11,800.00	10,653.19	8,664.00	8,321.86	34.40	11.31	-13.43	1,288.95	-570.29	2,402.96	2,374.61	28.35	84.758	
11,900.00	10,653.88	8,633.00	8,318.59	35.75	10.79	-13.32	1,319.53	-568.31	2,409.36	2,380.78	28.60	84.231	
12,000.00	10,654.13	8,633.00	8,318.59	37.13	10.79	-13.32	1,319.53	-568.31	2,419.00	2,389.87	29.13	83.048	
12,100.00	10,654.61	8,602.00	8,313.93	38.58	10.28	-13.19	1,349.91	-562.30	2,431.77	2,402.35	29.42	82.644	
12,200.00	10,655.08	8,570.00	8,307.88	40.01	9.77	-13.06	1,381.06	-558.44	2,447.82	2,418.18	29.74	82.315	
12,300.00	10,655.55	8,570.00	8,307.88	41.50	9.77	-13.06	1,381.06	-558.44	2,467.10	2,436.78	30.32	81.377	
12,400.00	10,656.02	8,539.00	8,300.35	43.01	9.29	-12.94	1,411.00	-555.20	2,489.15	2,458.48	30.68	81.139	
12,500.00	10,656.49	8,507.00	8,291.84	44.55	8.79	-12.82	1,441.64	-552.21	2,514.18	2,483.13	31.05	80.968	
12,600.00	10,656.96	8,476.00	8,282.07	46.11	8.31	-12.68	1,470.93	-548.82	2,541.99	2,510.53	31.46	80.812	
12,700.00	10,657.43	8,476.00	8,282.07	47.69	8.31	-12.68	1,470.93	-548.82	2,572.55	2,540.46	32.09	80.176	
12,800.00	10,657.90	8,444.00	8,270.39	49.28	7.84	-12.52	1,500.43	-544.72	2,606.15	2,573.63	32.52	80.150	
12,900.00	10,658.38	8,444.00	8,270.39	50.88	7.84	-12.52	1,500.43	-544.72	2,642.43	2,609.26	33.17	79.671	
13,000.00	10,658.85	8,428.96	8,264.14	52.52	7.82	-12.44	1,513.96	-542.70	2,681.85	2,647.92	33.73	79.504	
13,100.00	10,659.32	8,413.00	8,256.98	54.15	7.39	-12.35	1,528.05	-540.49	2,723.80	2,689.31	34.29	79.419	
13,200.00	10,659.79	8,413.00	8,256.98	55.80	7.39	-12.35	1,528.05	-540.49	2,768.20	2,735.23	34.97	79.160	
13,300.00	10,660.26	8,381.00	8,241.35	57.47	6.95	-12.16	1,555.56	-535.75	2,814.98	2,779.52	35.44	79.437	
13,400.00	10,660.73	8,363.96	8,232.52	59.14	6.73	-12.05	1,589.87	-533.00	2,864.00	2,827.99	36.01	79.542	
13,500.00	10,661.20	8,338.52	8,218.94	60.82	6.41	-11.88	1,590.91	-528.51	2,914.96	2,878.44	36.52	79.819	
13,600.00	10,661.67	8,318.00	8,207.67	62.51	6.15	-11.72	1,607.50	-524.17	2,967.73	2,930.66	37.08	80.042	
13,700.00	10,662.15	8,287.00	8,189.98	64.20	5.76	-11.47	1,631.79	-516.58	3,022.41	2,984.84	37.57	80.437	
13,800.00	10,662.62	8,257.00	8,169.98	65.91	5.76	-11.47	1,631.79	-516.58	3,078.84	3,040.56	38.28	80.432	
13,900.00	10,663.09	8,270.83	8,160.21	67.62	5.57	-11.32	1,644.22	-512.33	3,137.16	3,098.27	38.89	80.672	
14,000.00	10,663.56	8,255.00	8,170.52	69.33	5.38	-11.19	1,655.81	-508.30	3,197.33	3,157.83	39.50	80.937	
14,100.00	10,664.03	8,255.00	8,170.52	71.05	5.38	-11.19	1,655.81	-508.30	3,259.21	3,218.99	40.22	81.038	
14,200.00	10,664.50	8,240.48	8,161.20	72.78	5.22	-11.06	1,686.29	-504.54	3,322.70	3,281.85	40.85	81.335	
14,300.00	10,664.97	8,224.00	8,150.24	74.51	5.04	-10.92	1,677.81	-500.24	3,387.86	3,346.38	41.48	81.683	
14,400.00	10,665.44	8,224.00	8,150.24	76.25	5.04	-10.82	1,677.81	-500.24	3,454.38	3,412.18	42.20	81.861	
14,500.00	10,665.92	8,224.00	8,150.24	77.99	5.04	-10.92	1,677.81	-500.24	3,522.49	3,479.56	42.92	82.083	
14,600.00	10,666.39	8,192.00	8,127.89	79.74	4.72	-10.64	1,699.12	-491.84	3,591.88	3,548.43	43.46	82.652	
14,700.00	10,666.86	8,192.00	8,127.89	81.49	4.72	-10.64	1,699.12	-491.84	3,662.32	3,618.14	44.19	82.883	
14,800.00	10,667.33	8,192.00	8,127.89	83.24	4.72	-10.64	1,699.12	-491.84	3,734.11	3,689.19	44.92	83.132	
14,900.00	10,667.80	8,192.00	8,127.89	84.99	4.72	-10.64	1,699.12	-491.84	3,807.16	3,761.51	45.65	83.395	
15,000.00	10,668.27	8,161.00	8,105.17	86.75	4.44	-10.36	1,718.42	-483.37	3,881.05	3,834.86	46.19	84.029	
15,100.00	10,668.74	8,161.00	8,105.17	88.52	4.44	-10.36	1,718.42	-483.37	3,955.96	3,909.04	46.92	84.309	
15,194.51	10,669.00	8,161.00	8,105.17	89.30	4.44	-10.36	1,718.42	-483.37	3,997.27	3,950.12	47.15	84.784	

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



LEAM Drilling Systems LLC

Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 4H - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100-MWD-ISCWSA, 4680-MWD-ISCWSA													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	2.30	2.30	0.00	0.00	-33.10	2,096.11	-1,366.29	2,502.08					
100.00	100.00	112.31	112.31	0.09	0.11	-33.11	2,095.71	-1,366.49	2,501.88	2,501.69	0.20	N/A		
200.00	200.00	222.57	222.56	0.31	0.35	-33.12	2,094.69	-1,366.75	2,501.23	2,500.57	0.88	3,773.584		
300.00	300.00	321.14	321.13	0.54	0.55	-33.13	2,093.80	-1,366.60	2,500.39	2,499.30	1.09	2,293.635		
400.00	400.00	409.00	408.99	0.76	0.73	-33.13	2,093.39	-1,366.41	2,499.88	2,498.39	1.49	1,877.997		
472.32	472.32	474.43	474.42	0.92	0.86	-33.14	2,093.24	-1,366.47	2,499.78	2,497.99	1.79	1,399.701		
500.00	500.00	500.00	499.99	0.99	0.92	-33.14	2,093.18	-1,366.58	2,499.79	2,497.89	1.90	1,315.432		
600.00	600.00	604.47	604.46	1.21	1.13	-33.14	2,093.10	-1,366.71	2,499.79	2,497.45	2.34	1,066.844		
677.38	677.38	679.54	679.52	1.38	1.29	-33.14	2,093.18	-1,366.51	2,499.75	2,497.08	2.68	934.113		
700.00	700.00	700.00	699.99	1.43	1.34	-33.14	2,093.23	-1,366.45	2,499.76	2,496.99	2.77	902.403		
800.00	800.00	795.47	795.46	1.66	1.54	-33.13	2,093.40	-1,366.44	2,499.90	2,496.71	3.19	782.482		
900.00	900.00	898.00	897.98	1.88	1.75	-33.13	2,093.84	-1,366.48	2,500.13	2,496.49	3.63	687.914		
1,000.00	1,000.00	1,004.74	1,004.73	2.11	1.97	-33.12	2,093.85	-1,366.20	2,500.15	2,496.07	4.08	612.408		
1,083.74	1,083.74	1,085.85	1,085.84	2.25	2.10	-33.12	2,093.87	-1,366.13	2,500.11	2,495.76	4.35	574.398		
1,100.00	1,100.00	1,100.00	1,099.99	2.33	2.17	-33.12	2,093.86	-1,366.15	2,500.13	2,495.62	4.50	554.972		
1,200.00	1,200.00	1,195.50	1,195.49	2.56	2.37	-33.12	2,093.99	-1,366.24	2,500.29	2,495.38	4.93	507.182		
1,300.00	1,300.00	1,304.04	1,304.02	2.78	2.60	-33.12	2,094.09	-1,366.28	2,500.38	2,495.00	5.38	464.597		
1,330.64	1,330.64	1,332.97	1,332.95	2.85	2.66	-33.12	2,094.06	-1,366.30	2,500.37	2,494.86	5.51	453.687		
1,400.00	1,400.00	1,400.00	1,399.98	3.01	2.80	-33.13	2,094.04	-1,366.42	2,500.42	2,494.61	5.81	430.593		
1,500.00	1,500.00	1,500.00	1,499.98	3.23	3.01	-33.13	2,094.05	-1,366.49	2,500.47	2,494.23	6.24	400.503		
1,600.00	1,600.00	1,593.95	1,593.94	3.46	3.21	-33.13	2,094.15	-1,366.58	2,500.62	2,493.95	6.66	375.269		
1,700.00	1,700.00	1,700.00	1,699.98	3.68	3.43	-33.13	2,094.20	-1,366.62	2,500.67	2,493.58	7.11	351.895		
1,746.98	1,746.98	1,747.40	1,747.39	3.79	3.53	-33.13	2,094.18	-1,366.56	2,500.62	2,493.31	7.32	341.840		
1,800.00	1,800.00	1,792.49	1,792.48	3.91	3.62	-33.13	2,094.24	-1,366.67	2,500.74	2,493.21	7.53	332.159		
1,900.00	1,900.00	1,901.73	1,901.71	4.13	3.85	-33.13	2,094.48	-1,366.77	2,500.98	2,493.00	7.98	313.306		
2,000.00	2,000.00	2,007.49	2,007.47	4.36	4.07	-33.12	2,094.46	-1,366.55	2,500.85	2,492.42	8.43	296.719		
2,029.15	2,029.15	2,032.69	2,032.67	4.42	4.12	-33.12	2,094.43	-1,366.53	2,500.81	2,492.26	8.55	292.608		
2,100.00	2,100.00	2,100.00	2,099.98	4.58	4.27	-33.12	2,094.52	-1,366.58	2,500.91	2,492.07	8.85	282.694		
2,200.00	2,200.00	2,200.00	2,199.98	4.81	4.48	-33.12	2,094.75	-1,366.59	2,501.11	2,491.83	9.28	269.485		
2,300.00	2,300.00	2,293.39	2,293.37	5.03	4.67	-33.12	2,095.00	-1,366.51	2,501.29	2,491.59	9.70	257.823		
2,400.00	2,400.00	2,399.89	2,399.87	5.26	4.89	-33.11	2,095.37	-1,366.41	2,501.53	2,491.38	10.15	246.466		
2,500.00	2,500.00	2,492.41	2,492.39	5.48	5.09	-33.10	2,095.68	-1,366.34	2,501.77	2,491.20	10.57	236.731		
2,600.00	2,600.00	2,598.95	2,598.93	5.71	5.31	-33.10	2,096.07	-1,366.29	2,502.05	2,491.04	11.02	227.130		
2,700.00	2,700.00	2,699.73	2,699.71	5.93	5.52	-33.09	2,096.31	-1,366.12	2,502.16	2,490.71	11.45	218.502		
2,800.00	2,800.00	2,799.27	2,799.25	6.15	5.73	-33.09	2,096.55	-1,365.95	2,502.27	2,490.38	11.88	210.545		
2,900.00	2,900.00	2,897.37	2,897.35	6.38	5.94	-33.08	2,096.77	-1,365.89	2,502.42	2,490.10	12.31	203.202		
3,000.00	3,000.00	2,897.45	2,897.43	6.60	6.15	-33.08	2,097.00	-1,365.87	2,502.61	2,489.86	12.75	196.293		
3,100.00	3,100.00	3,103.25	3,103.23	6.83	6.37	-33.08	2,097.06	-1,365.93	2,502.68	2,489.48	13.20	189.659		
3,189.31	3,189.31	3,195.58	3,195.55	7.03	6.56	-33.08	2,096.82	-1,366.11	2,502.59	2,489.00	13.59	184.153		
3,200.00	3,200.00	3,200.00	3,199.98	7.05	6.57	-33.09	2,096.81	-1,366.12	2,502.58	2,488.95	13.62	183.702		
3,300.00	3,300.00	3,293.08	3,293.05	7.28	6.76	-33.09	2,096.81	-1,366.28	2,502.68	2,488.64	14.04	178.216		
3,400.00	3,400.00	3,409.03	3,409.01	7.50	7.01	-33.08	2,096.95	-1,366.14	2,502.71	2,488.20	14.51	172.469		
3,463.21	3,463.21	3,465.33	3,465.31	7.65	7.13	-33.08	2,096.92	-1,366.05	2,502.63	2,487.85	14.77	169.429		
3,500.00	3,500.00	3,500.00	3,499.98	7.73	7.20	-33.08	2,096.91	-1,366.11	2,502.66	2,487.73	14.93	167.669		
3,600.00	3,600.00	3,609.61	3,609.58	7.95	7.43	-33.08	2,096.80	-1,366.03	2,502.53	2,487.15	15.38	162.708		
3,639.21	3,639.21	3,642.77	3,642.74	8.04	7.50	-33.08	2,096.79	-1,365.95	2,502.46	2,486.93	15.54	161.053		
3,700.00	3,700.00	3,700.00	3,699.98	8.18	7.62	-33.08	2,096.87	-1,365.98	2,502.55	2,486.76	15.79	158.443		
3,800.00	3,800.00	3,800.00	3,799.98	8.40	7.83	-33.09	2,096.83	-1,366.19	2,502.63	2,486.40	16.23	154.213		
3,900.00	3,900.00	3,891.72	3,891.70	8.63	8.02	-33.09	2,096.82	-1,366.38	2,502.75	2,486.11	16.65	150.358		
4,000.00	4,000.00	3,997.57	3,997.54	8.85	8.24	-33.09	2,097.18	-1,366.47	2,503.09	2,486.00	17.09	146.446		
4,100.00	4,100.00	4,106.79	4,106.76	9.08	8.47	-33.08	2,097.33	-1,366.20	2,503.06	2,485.52	17.55	142.651		
4,167.33	4,167.33	4,169.46	4,169.43	9.23	8.60	-33.08	2,097.34	-1,366.08	2,503.00	2,485.17	17.83	140.388		

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



LEAM Drilling Systems LLC
Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 4H - OH - OH												Offset Site Error: 0.00 usft	
Survey Program: 100-MWD-ISCWSA, 4680-MWD-ISCWSA												Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)		Separation Factor
4,200.00	4,200.00	4,200.00	4,199.97	9.30	8.87	-33.08	2,097.35	-1,366.09	2,503.02	2,485.05	17.97	139.316	
4,300.00	4,300.00	4,300.00	4,299.97	9.53	8.87	-33.08	2,097.41	-1,366.14	2,503.09	2,484.69	18.40	138.033	
4,400.00	4,400.00	4,395.72	4,395.70	9.75	9.08	-33.07	2,097.88	-1,366.15	2,503.33	2,484.50	18.83	132.968	
4,500.00	4,500.00	4,499.52	4,499.49	9.98	9.29	-33.07	2,097.95	-1,366.06	2,503.51	2,484.24	19.27	129.922	
4,600.00	4,600.00	4,598.09	4,598.06	10.20	9.50	-33.06	2,098.12	-1,365.88	2,503.55	2,483.85	19.70	127.078	
4,700.00	4,700.00	4,680.00	4,679.97	10.43	9.67	-33.06	2,098.27	-1,366.76	2,504.25	2,484.15	20.10	124.808	
4,800.00	4,800.00	4,738.42	4,738.35	10.65	9.73	-33.11	2,098.42	-1,368.58	2,506.08	2,485.70	20.38	122.950	
4,900.00	4,900.00	4,804.33	4,804.17	10.87	9.77	-33.18	2,098.65	-1,372.12	2,509.31	2,488.66	20.65	121.523	
5,000.00	5,000.00	4,871.00	4,870.63	11.10	9.78	-33.27	2,098.86	-1,377.35	2,513.88	2,493.00	20.88	120.408	
5,100.00	5,100.00	4,936.48	4,935.75	11.32	9.79	-33.40	2,098.96	-1,384.20	2,519.79	2,498.68	21.11	119.352	
5,200.00	5,200.00	5,011.28	5,009.86	11.55	9.81	-33.59	2,098.83	-1,394.13	2,528.98	2,505.63	21.35	118.343	
5,300.00	5,300.00	5,092.20	5,089.80	11.77	9.83	-33.84	2,098.05	-1,406.79	2,534.95	2,513.34	21.61	117.330	
5,400.00	5,400.00	5,172.82	5,169.20	12.00	9.87	-34.12	2,097.13	-1,420.74	2,543.75	2,521.88	21.87	116.319	
5,500.00	5,500.00	5,265.24	5,260.10	12.22	9.93	-34.44	2,096.09	-1,437.39	2,553.09	2,530.94	22.15	115.264	
5,600.00	5,600.00	5,365.28	5,358.47	12.45	10.00	-34.79	2,094.94	-1,455.58	2,562.59	2,540.14	22.44	114.172	
5,700.00	5,700.00	5,467.80	5,459.31	12.67	10.09	-35.15	2,093.77	-1,474.02	2,572.08	2,549.33	22.74	113.084	
5,800.00	5,800.00	5,560.50	5,550.52	12.90	10.17	-35.48	2,092.67	-1,490.50	2,581.50	2,558.46	23.04	112.028	
5,900.00	5,900.00	5,631.00	5,619.92	13.12	10.24	-35.69	2,092.66	-1,502.96	2,591.87	2,568.54	23.33	111.100	
6,000.00	6,000.00	5,718.52	5,706.05	13.35	10.34	-35.96	2,093.43	-1,518.48	2,603.05	2,579.41	23.64	110.125	
6,100.00	6,100.00	5,819.48	5,805.38	13.57	10.47	-36.26	2,094.39	-1,536.47	2,614.43	2,590.46	23.97	109.089	
6,200.00	6,200.00	5,913.85	5,898.22	13.80	10.60	-36.55	2,095.22	-1,553.39	2,625.89	2,601.59	24.30	108.070	
6,300.00	6,300.00	6,012.76	5,995.51	14.02	10.75	-36.85	2,096.12	-1,571.18	2,637.49	2,612.85	24.64	107.043	
6,400.00	6,400.00	6,118.94	6,100.03	14.25	10.91	-37.17	2,097.18	-1,589.90	2,649.00	2,624.01	24.99	106.004	
6,500.00	6,500.00	10,059.11	8,290.92	14.47	38.13	-87.53	82.32	-1,907.17	2,616.09	2,584.12	51.97	50.340	
6,600.00	6,600.00	10,059.54	8,290.92	14.70	38.14	-87.54	81.89	-1,907.19	2,548.76	2,496.56	52.20	48.828	
6,700.00	6,700.00	10,060.03	8,290.92	14.92	38.15	-87.56	81.40	-1,907.21	2,483.63	2,431.20	52.43	47.370	
6,800.00	6,800.00	10,060.59	8,290.92	15.15	38.16	-87.57	80.84	-1,907.23	2,420.88	2,368.22	52.66	45.970	
6,900.00	6,900.00	10,061.23	8,290.93	15.37	38.17	-87.59	80.20	-1,907.25	2,360.70	2,307.80	52.89	44.630	
7,000.00	7,000.00	10,061.96	8,290.93	15.59	38.18	-87.61	79.47	-1,907.28	2,303.28	2,250.16	53.13	43.353	
7,100.00	7,100.00	10,062.82	8,290.93	15.82	38.19	-87.64	78.62	-1,907.31	2,248.86	2,195.49	53.36	42.142	
7,200.00	7,200.00	10,063.83	8,290.94	16.04	38.21	-87.67	77.60	-1,907.35	2,197.83	2,144.03	53.60	40.999	
7,300.00	7,300.00	10,065.05	8,290.95	16.27	38.23	-87.71	76.39	-1,907.40	2,149.84	2,096.00	53.84	39.929	
7,400.00	7,400.00	10,066.53	8,290.96	16.49	38.25	-87.75	74.90	-1,907.45	2,105.72	2,051.83	54.09	38.933	
7,500.00	7,600.00	10,068.39	8,290.98	16.72	38.28	-87.81	73.04	-1,907.51	2,065.49	2,011.16	54.33	38.015	
7,600.00	7,600.00	10,070.79	8,291.00	16.94	38.32	-87.88	70.65	-1,907.60	2,029.41	1,974.82	54.59	37.177	
7,700.00	7,700.00	10,073.98	8,291.03	17.17	38.37	-87.97	67.45	-1,907.70	1,997.66	1,942.82	54.85	36.419	
7,800.00	7,800.00	10,078.47	8,291.09	17.39	38.44	-88.11	62.97	-1,907.84	1,970.51	1,915.38	55.13	35.741	
7,900.00	7,800.00	10,085.21	8,291.20	17.62	38.55	-88.31	56.23	-1,908.02	1,948.10	1,892.66	55.44	35.138	
8,000.00	8,000.00	10,096.49	8,291.43	17.84	38.72	-88.65	44.96	-1,908.28	1,930.61	1,874.81	55.81	34.595	
8,100.00	8,100.00	10,105.00	8,291.65	18.07	38.86	-88.91	36.45	-1,908.43	1,918.17	1,862.03	56.13	34.171	
8,200.00	8,200.00	10,105.00	8,291.65	18.29	38.86	-88.91	36.45	-1,908.43	1,910.88	1,854.52	56.36	33.905	
8,289.55	8,289.55	10,105.00	8,291.65	18.49	38.86	-88.91	36.45	-1,908.43	1,908.78	1,852.22	56.56	33.748 CC, ES	
8,300.00	8,300.00	10,105.00	8,291.65	18.52	38.86	-88.91	36.45	-1,908.43	1,908.61	1,852.22	56.58	33.734	
8,400.00	8,400.00	10,105.00	8,291.65	18.74	38.86	-88.91	36.45	-1,908.43	1,911.97	1,855.16	56.81	33.656 SF	
8,500.00	8,500.00	10,105.00	8,291.65	18.97	38.86	-88.91	36.45	-1,908.43	1,920.35	1,863.31	57.03	33.670	
8,600.00	8,600.00	10,105.00	8,291.65	19.19	38.86	-88.91	36.45	-1,908.43	1,933.86	1,876.60	57.26	33.774	
8,700.00	8,700.00	10,105.00	8,291.65	19.42	38.86	-88.91	36.45	-1,908.43	1,952.41	1,894.93	57.48	33.965	
8,800.00	8,800.00	10,105.00	8,291.65	19.64	38.86	-88.91	36.45	-1,908.43	1,975.85	1,918.15	57.71	34.239	
8,900.00	8,900.00	10,105.00	8,291.65	19.87	38.86	-88.91	36.45	-1,908.43	2,004.02	1,946.09	57.93	34.592	
9,000.00	9,000.00	10,105.00	8,291.65	20.09	38.86	-88.91	36.45	-1,908.43	2,036.71	1,978.55	58.16	35.021	
9,100.00	9,100.00	10,105.00	8,291.65	20.31	38.86	-88.91	36.45	-1,908.43	2,073.71	2,015.33	58.38	35.520	
9,200.00	9,200.00	10,105.00	8,291.65	20.54	38.86	-88.91	36.45	-1,908.43	2,114.80	2,056.19	58.61	36.084	

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

Company: DEVON ENERGY
 Project: Lea County, NM (NAD-83)
 Reference Site: Chincoteague 32 State Com
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
 TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 2.00 sigma
 Database: EDM 5000.1 Single User Db
 Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 4H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100-MWD-ISCWSA, 4580-MWD-ISCWSA													Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Distance		Warning							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
9,300.00	9,300.00	10,105.00	8,291.65	20.76	38.86	-88.91	36.45	-1,908.43	2,159.73	2,100.90	58.83	36.710	
9,400.00	9,400.00	10,105.00	8,291.65	20.99	38.86	-88.91	36.45	-1,908.43	2,208.29	2,149.23	59.06	37.393	
9,500.00	9,500.00	10,105.00	8,291.65	21.21	38.86	-88.91	36.45	-1,908.43	2,260.23	2,200.95	59.28	38.127	
9,600.00	9,600.00	10,105.00	8,291.65	21.44	38.86	-88.91	36.45	-1,908.43	2,315.32	2,255.82	59.51	38.909	
9,700.00	9,700.00	10,105.00	8,291.65	21.66	38.86	-88.91	36.45	-1,908.43	2,373.35	2,313.62	59.73	39.734	
9,800.00	9,800.00	10,105.00	8,291.65	21.89	38.86	-88.91	36.45	-1,908.43	2,434.11	2,374.16	59.96	40.599	
9,900.00	9,900.00	10,105.00	8,291.65	22.11	38.86	-88.91	36.45	-1,908.43	2,497.40	2,437.22	60.18	41.499	
10,000.00	10,000.00	10,105.00	8,291.65	22.34	38.86	-88.91	36.45	-1,908.43	2,563.02	2,502.62	60.41	42.431	
10,100.00	10,099.99	10,105.00	8,291.65	22.56	38.86	-88.12	36.45	-1,908.43	2,630.80	2,569.97	60.83	43.247	
10,200.00	10,199.04	9,977.29	8,292.02	22.79	38.83	-73.19	163.99	-1,902.55	2,699.38	2,639.80	59.58	45.310	
10,300.00	10,294.36	9,956.00	8,292.40	23.01	36.48	-64.37	185.25	-1,901.30	2,765.83	2,706.48	59.35	46.802	
10,400.00	10,383.06	9,915.00	8,292.99	23.21	35.82	-56.58	226.18	-1,899.07	2,828.28	2,770.24	58.04	48.733	
10,500.00	10,482.44	9,884.85	8,293.25	23.46	35.33	-50.62	256.29	-1,897.54	2,884.61	2,828.45	56.16	51.365	
10,600.00	10,530.08	9,838.74	8,293.24	23.76	34.58	-45.91	302.34	-1,895.27	2,933.07	2,879.49	53.58	54.745	
10,700.00	10,583.94	9,782.97	8,292.83	24.15	33.70	-42.47	358.05	-1,892.85	2,972.04	2,921.30	50.74	58.572	
10,800.00	10,622.38	9,706.95	8,291.04	24.63	32.53	-40.08	433.98	-1,889.28	3,000.11	2,952.27	47.84	62.713	
10,900.00	10,644.23	9,653.30	8,290.39	25.21	28.82	-38.29	687.02	-1,872.35	3,012.33	2,968.96	43.36	69.469	
11,000.00	10,649.42	9,605.75	8,291.27	25.88	28.13	-38.26	734.44	-1,869.03	3,010.19	2,967.76	42.43	70.944	
11,100.00	10,649.89	9,544.00	8,290.51	26.66	27.23	-38.18	796.07	-1,865.26	3,006.71	2,964.47	42.23	71.192	
11,200.00	10,650.37	9,505.09	8,289.44	27.53	26.71	-38.13	834.91	-1,863.16	3,004.62	2,962.24	42.38	70.893	
11,300.00	10,650.84	9,414.22	8,289.05	28.50	24.08	-37.93	1,025.48	-1,852.92	3,000.90	2,959.89	41.01	73.178	
11,400.00	10,651.31	9,059.00	8,289.17	29.55	23.30	-37.87	1,080.61	-1,849.86	2,997.11	2,956.02	41.06	72.953	
11,500.00	10,651.78	8,996.93	8,288.67	30.67	22.52	-37.81	1,142.61	-1,847.00	2,994.69	2,953.50	41.19	72.698	
11,600.00	10,652.25	8,915.71	8,287.55	31.86	21.49	-37.74	1,223.78	-1,844.23	2,993.42	2,952.25	41.17	72.702	
11,700.00	10,652.72	8,835.04	8,288.30	33.10	20.47	-37.67	1,304.39	-1,841.54	2,992.43	2,951.24	41.19	72.645	
11,737.74	10,652.90	8,811.87	8,285.70	33.59	20.18	-37.65	1,327.54	-1,840.76	2,992.34	2,951.06	41.28	72.494	
11,800.00	10,653.19	8,774.00	8,284.42	34.40	19.69	-37.60	1,365.37	-1,839.48	2,992.59	2,951.17	41.42	72.250	
11,900.00	10,653.98	8,709.88	8,281.38	35.75	18.92	-37.52	1,429.38	-1,837.25	2,994.00	2,952.33	41.67	71.846	
12,000.00	10,654.13	8,647.00	8,277.38	37.13	18.19	-37.43	1,492.09	-1,834.91	2,996.81	2,954.83	41.97	71.396	
12,100.00	10,654.81	8,616.00	8,274.92	38.56	17.85	-37.37	1,522.96	-1,833.63	3,000.77	2,958.16	42.61	70.426	
12,200.00	10,655.08	8,584.00	8,271.48	40.01	17.52	-37.30	1,554.74	-1,832.23	3,007.15	2,963.88	43.26	69.512	
12,300.00	10,655.55	8,568.00	8,269.32	41.50	17.35	-37.27	1,570.58	-1,831.52	3,016.15	2,972.06	44.08	68.419	
12,400.00	10,656.02	8,538.00	8,264.13	43.01	17.05	-37.18	1,600.09	-1,830.17	3,027.85	2,982.86	44.79	67.591	
12,500.00	10,656.49	8,538.00	8,264.13	44.55	17.05	-37.18	1,600.09	-1,830.17	3,042.15	2,996.34	45.80	66.419	
12,600.00	10,656.96	8,507.00	8,256.71	46.11	16.76	-37.06	1,630.15	-1,828.62	3,059.03	3,012.50	46.53	65.745	
12,700.00	10,657.43	8,507.00	8,256.71	47.69	16.76	-37.06	1,630.15	-1,828.62	3,078.90	3,031.34	47.57	64.726	
12,800.00	10,657.90	8,475.00	8,248.76	49.28	16.48	-36.92	1,660.50	-1,826.92	3,101.27	3,052.96	48.30	64.205	
12,900.00	10,658.38	8,475.00	8,248.76	50.89	16.48	-36.92	1,660.50	-1,826.92	3,126.30	3,076.94	49.37	63.330	
13,000.00	10,658.85	8,444.00	8,235.12	52.52	16.22	-36.75	1,689.18	-1,825.20	3,153.89	3,103.76	50.12	62.923	
13,100.00	10,659.32	8,444.00	8,235.12	54.15	16.22	-36.75	1,689.18	-1,825.20	3,183.90	3,132.89	51.20	62.180	
13,200.00	10,659.79	8,412.00	8,221.38	55.80	15.97	-36.56	1,718.01	-1,823.31	3,216.28	3,164.32	51.96	61.898	
13,300.00	10,660.26	8,412.00	8,221.38	57.47	15.97	-36.56	1,718.01	-1,823.31	3,250.88	3,197.93	53.06	61.272	
13,400.00	10,660.73	8,380.00	8,206.11	59.14	15.74	-36.36	1,746.05	-1,821.23	3,287.83	3,234.01	53.82	61.091	
13,500.00	10,661.20	8,380.00	8,206.11	60.82	15.74	-36.36	1,746.05	-1,821.23	3,326.98	3,272.03	54.93	60.570	
13,600.00	10,661.67	8,348.00	8,189.45	62.51	15.53	-36.13	1,773.28	-1,818.99	3,368.00	3,312.31	55.69	60.477	
13,700.00	10,662.15	8,333.29	8,181.38	64.20	15.43	-36.02	1,785.53	-1,817.04	3,411.16	3,354.51	56.65	60.219	
13,800.00	10,662.62	8,317.00	8,172.19	65.91	15.34	-35.90	1,798.93	-1,816.74	3,458.22	3,398.63	57.58	60.021	
13,900.00	10,663.09	8,285.00	8,153.45	67.62	15.15	-35.65	1,824.73	-1,814.15	3,503.06	3,444.71	58.34	60.042	
14,000.00	10,663.56	8,288.14	8,143.22	69.33	15.06	-35.52	1,838.05	-1,812.62	3,551.57	3,492.29	59.28	59.916	
14,100.00	10,664.03	8,253.00	8,133.85	71.05	14.98	-35.39	1,849.85	-1,811.14	3,601.75	3,541.53	60.22	59.805	
14,200.00	10,664.50	8,222.00	8,113.97	72.78	14.82	-35.13	1,873.41	-1,807.88	3,653.85	3,592.67	60.99	59.909	
14,300.00	10,664.97	8,222.00	8,113.97	74.51	14.82	-35.13	1,873.41	-1,807.88	3,707.12	3,645.00	62.12	59.681	

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



LEAM Drilling Systems LLC

Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - 4H - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100-MWD-ISCWSA, 4680-MWD-ISCWSA													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,400.00	10,665.44	8,205.12	8,102.74	76.25	14.75	-34.98	1,885.88	-1,806.09	3,762.26	3,699.21	63.05	59.675		
14,500.00	10,665.92	8,190.00	8,092.44	77.99	14.88	-34.85	1,896.85	-1,804.56	3,819.00	3,755.00	63.99	59.677		
14,600.00	10,666.39	8,190.00	8,092.44	79.74	14.88	-34.85	1,896.85	-1,804.56	3,877.32	3,812.19	65.13	59.533		
14,700.00	10,666.86	8,159.00	8,070.74	81.49	14.56	-34.57	1,918.80	-1,801.73	3,936.99	3,871.10	65.89	59.752		
14,800.00	10,667.33	8,159.00	8,070.74	83.24	14.56	-34.57	1,918.80	-1,801.73	3,996.05	3,931.02	67.02	59.651		
14,900.00	10,667.80	8,145.17	8,060.81	84.99	14.51	-34.45	1,928.36	-1,800.64	4,060.49	3,992.50	67.99	59.718		
15,000.00	10,668.27	8,127.00	8,047.49	86.75	14.45	-34.29	1,940.66	-1,799.39	4,124.31	4,055.40	68.91	59.850		
15,100.00	10,668.74	8,127.00	8,047.49	88.52	14.45	-34.29	1,940.66	-1,799.39	4,189.28	4,119.24	70.05	59.805		
15,154.51	10,669.00	8,127.00	8,047.49	89.30	14.45	-34.29	1,940.66	-1,799.39	4,225.26	4,154.77	70.51	59.927		



LEAM Drilling Systems LLC

Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - SWD 2 - OH - Plan #1													Offset Site Error: 0.00 usft
Survey Program: 0-LEAM MWD-ADJ													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
0.00	0.00	8.30	8.30	0.00	0.01	57.96	996.18	1,591.81	1,877.83				
100.00	100.00	108.30	108.30	0.09	0.10	57.96	996.18	1,591.81	1,877.83	1,877.84	0.19	9,940.006	
200.00	200.00	208.30	208.30	0.31	0.33	57.96	996.18	1,591.81	1,877.83	1,877.19	0.64	2,941.236	
300.00	300.00	308.30	308.30	0.54	0.55	57.96	996.18	1,591.81	1,877.83	1,876.74	1.09	1,725.975	
400.00	400.00	408.30	408.30	0.76	0.78	57.96	996.18	1,591.81	1,877.83	1,876.29	1.54	1,221.341	
500.00	500.00	508.30	508.30	0.99	1.00	57.96	996.18	1,591.81	1,877.83	1,875.84	1.99	945.035	
600.00	600.00	608.30	608.30	1.21	1.23	57.96	996.18	1,591.81	1,877.83	1,875.39	2.44	770.883	
700.00	700.00	708.30	708.30	1.43	1.45	57.96	996.18	1,591.81	1,877.83	1,874.94	2.89	650.843	
800.00	800.00	808.30	808.30	1.66	1.68	57.96	996.18	1,591.81	1,877.83	1,874.49	3.34	562.958	
900.00	900.00	908.30	908.30	1.88	1.90	57.96	996.18	1,591.81	1,877.83	1,874.04	3.79	496.101	
1,000.00	1,000.00	1,008.30	1,008.30	2.11	2.13	57.96	996.18	1,591.81	1,877.83	1,873.59	4.23	443.438	
1,100.00	1,100.00	1,108.30	1,108.30	2.33	2.35	57.96	996.18	1,591.81	1,877.83	1,873.14	4.68	400.882	
1,200.00	1,200.00	1,208.30	1,208.30	2.56	2.58	57.96	996.18	1,591.81	1,877.83	1,872.69	5.13	365.779	
1,300.00	1,300.00	1,308.30	1,308.30	2.78	2.80	57.96	996.18	1,591.81	1,877.83	1,872.24	5.58	336.329	
1,400.00	1,400.00	1,408.30	1,408.30	3.01	3.02	57.96	996.18	1,591.81	1,877.83	1,871.79	6.03	311.268	
1,500.00	1,500.00	1,508.30	1,508.30	3.23	3.25	57.96	996.18	1,591.81	1,877.83	1,871.34	6.48	289.882	
1,600.00	1,600.00	1,608.30	1,608.30	3.46	3.47	57.96	996.18	1,591.81	1,877.83	1,870.89	6.93	270.897	
1,700.00	1,700.00	1,708.30	1,708.30	3.68	3.70	57.96	996.18	1,591.81	1,877.83	1,870.45	7.38	254.399	
1,800.00	1,800.00	1,808.30	1,808.30	3.91	3.92	57.96	996.18	1,591.81	1,877.83	1,870.00	7.83	239.795	
1,900.00	1,900.00	1,908.30	1,908.30	4.13	4.15	57.96	996.18	1,591.81	1,877.83	1,869.55	8.28	226.777	
2,000.00	2,000.00	2,008.30	2,008.30	4.36	4.37	57.96	996.18	1,591.81	1,877.83	1,869.10	8.73	215.100	
2,100.00	2,100.00	2,108.30	2,108.30	4.58	4.60	57.96	996.18	1,591.81	1,877.83	1,868.65	9.18	204.566	
2,200.00	2,200.00	2,208.30	2,208.30	4.81	4.82	57.96	996.18	1,591.81	1,877.83	1,868.20	9.63	195.016	
2,300.00	2,300.00	2,308.30	2,308.30	5.03	5.05	57.96	996.18	1,591.81	1,877.83	1,867.75	10.08	186.318	
2,400.00	2,400.00	2,408.30	2,408.30	5.26	5.27	57.96	996.18	1,591.81	1,877.83	1,867.30	10.53	178.362	
2,500.00	2,500.00	2,508.30	2,508.30	5.48	5.50	57.96	996.18	1,591.81	1,877.83	1,866.85	10.98	171.059	
2,600.00	2,600.00	2,608.30	2,608.30	5.71	5.72	57.96	996.18	1,591.81	1,877.83	1,866.40	11.43	164.329	
2,700.00	2,700.00	2,708.30	2,708.30	5.93	5.95	57.96	996.18	1,591.81	1,877.83	1,865.95	11.88	158.109	
2,800.00	2,800.00	2,808.30	2,808.30	6.15	6.17	57.96	996.18	1,591.81	1,877.83	1,865.50	12.33	152.343	
2,900.00	2,900.00	2,908.30	2,908.30	6.38	6.40	57.96	996.18	1,591.81	1,877.83	1,865.05	12.78	146.983	
3,000.00	3,000.00	3,008.30	3,008.30	6.60	6.62	57.96	996.18	1,591.81	1,877.83	1,864.60	13.23	141.987	
3,100.00	3,100.00	3,108.30	3,108.30	6.83	6.85	57.96	996.18	1,591.81	1,877.83	1,864.15	13.67	137.319	
3,200.00	3,200.00	3,208.30	3,208.30	7.05	7.07	57.96	996.18	1,591.81	1,877.83	1,863.70	14.12	132.949	
3,300.00	3,300.00	3,308.30	3,308.30	7.28	7.30	57.96	996.18	1,591.81	1,877.83	1,863.25	14.57	128.848	
3,400.00	3,400.00	3,408.30	3,408.30	7.50	7.52	57.96	996.18	1,591.81	1,877.83	1,862.80	15.02	124.993	
3,500.00	3,500.00	3,508.30	3,508.30	7.73	7.74	57.96	996.18	1,591.81	1,877.83	1,862.35	15.47	121.361	
3,600.00	3,600.00	3,608.30	3,608.30	7.95	7.97	57.96	996.18	1,591.81	1,877.83	1,861.90	15.92	117.935	
3,700.00	3,700.00	3,708.30	3,708.30	8.18	8.19	57.96	996.18	1,591.81	1,877.83	1,861.45	16.37	114.697	
3,800.00	3,800.00	3,808.30	3,808.30	8.40	8.42	57.96	996.18	1,591.81	1,877.83	1,861.01	16.82	111.632	
3,900.00	3,900.00	3,908.30	3,908.30	8.63	8.64	57.96	996.18	1,591.81	1,877.83	1,860.56	17.27	108.726	
4,000.00	4,000.00	4,008.30	4,008.30	8.85	8.87	57.96	996.18	1,591.81	1,877.83	1,860.11	17.72	105.968	
4,100.00	4,100.00	4,108.30	4,108.30	9.08	9.09	57.96	996.18	1,591.81	1,877.83	1,859.66	18.17	103.347	
4,200.00	4,200.00	4,208.30	4,208.30	9.30	9.32	57.96	996.18	1,591.81	1,877.83	1,859.21	18.62	100.851	
4,300.00	4,300.00	4,308.30	4,308.30	9.53	9.54	57.96	996.18	1,591.81	1,877.83	1,858.76	19.07	98.474	
4,400.00	4,400.00	4,408.30	4,408.30	9.75	9.77	57.96	996.18	1,591.81	1,877.83	1,858.31	19.52	96.206	
4,500.00	4,500.00	4,508.30	4,508.30	9.98	9.99	57.96	996.18	1,591.81	1,877.83	1,857.86	19.97	94.040	
4,600.00	4,600.00	4,611.49	4,611.49	10.20	10.22	57.96	996.18	1,591.80	1,877.82	1,857.40	20.42	91.945	
4,700.00	4,700.00	4,749.93	4,749.91	10.43	10.51	57.93	996.18	1,589.85	1,876.63	1,855.69	20.93	89.851	
4,800.00	4,800.00	4,888.18	4,888.07	10.65	10.78	57.84	996.18	1,584.56	1,873.39	1,851.96	21.43	87.416	
4,900.00	4,900.00	5,024.43	5,024.04	10.87	11.06	57.70	996.18	1,676.10	1,868.12	1,846.19	21.93	85.193	
5,000.00	5,000.00	5,124.16	5,123.51	11.10	11.27	57.58	996.18	1,568.79	1,861.92	1,839.57	22.35	83.294	
5,100.00	5,100.00	5,223.89	5,222.97	11.32	11.47	57.46	996.18	1,561.49	1,855.74	1,832.96	22.78	81.461	

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



LEAM Drilling Systems LLC

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Local Co-ordinate Reference: Well 4H
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Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - SWD 2 - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD-ADJ												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)		Separation Factor
5,200.00	5,200.00	5,323.82	5,322.43	11.55	11.89	57.34	998.18	1,554.19	1,849.57	1,826.36	23.21	79.692	
5,300.00	5,300.00	5,423.38	5,421.90	11.77	11.90	57.22	998.18	1,546.88	1,843.40	1,819.76	23.84	77.982	
5,400.00	5,400.00	5,523.09	5,521.36	12.00	12.11	57.10	998.18	1,539.58	1,837.24	1,813.17	24.07	76.331	
5,500.00	5,500.00	5,622.82	5,620.82	12.22	12.33	56.97	998.18	1,532.27	1,831.09	1,808.59	24.50	74.734	
5,600.00	5,600.00	5,722.55	5,720.29	12.45	12.55	56.85	998.18	1,524.97	1,824.95	1,800.02	24.93	73.189	
5,700.00	5,700.00	5,822.28	5,819.75	12.67	12.78	56.72	998.18	1,517.67	1,818.82	1,793.45	25.37	71.695	
5,800.00	5,800.00	5,922.01	5,919.21	12.90	12.99	56.59	998.18	1,510.36	1,812.70	1,786.89	25.80	70.248	
5,900.00	5,900.00	6,021.74	6,018.58	13.12	13.21	56.46	998.18	1,503.06	1,806.58	1,780.34	26.24	68.847	
6,000.00	6,000.00	6,121.48	6,118.14	13.35	13.43	56.34	998.18	1,495.75	1,800.48	1,773.80	26.68	67.490	
6,100.00	6,100.00	6,221.21	6,217.60	13.57	13.68	56.21	998.18	1,488.45	1,794.38	1,767.26	27.12	66.174	
6,200.00	6,200.00	6,320.94	6,317.07	13.80	13.88	56.08	998.18	1,481.14	1,788.29	1,760.74	27.55	64.899	
6,300.00	6,300.00	6,420.67	6,416.53	14.02	14.11	55.94	998.18	1,473.84	1,782.22	1,754.22	27.99	63.662	
6,400.00	6,400.00	6,520.40	6,516.00	14.25	14.34	55.81	998.18	1,466.54	1,776.15	1,747.71	28.44	62.462	
6,500.00	6,500.00	6,620.13	6,615.46	14.47	14.57	55.68	998.18	1,459.23	1,770.09	1,741.21	28.88	61.298	
6,600.00	6,600.00	6,719.86	6,714.92	14.70	14.80	55.55	998.18	1,451.93	1,764.04	1,734.72	29.32	60.167	
6,700.00	6,700.00	6,819.60	6,814.39	14.92	15.03	55.41	998.18	1,444.62	1,758.00	1,728.24	29.76	59.068	
6,800.00	6,800.00	6,919.33	6,913.85	15.15	15.26	55.27	998.18	1,437.32	1,751.97	1,721.77	30.21	58.001	
6,900.00	6,900.00	7,019.06	7,013.31	15.37	15.50	55.14	998.18	1,430.02	1,745.85	1,715.30	30.65	56.964	
7,000.00	7,000.00	7,118.79	7,112.78	15.59	15.73	55.00	998.18	1,422.71	1,739.94	1,708.85	31.10	55.955	
7,100.00	7,100.00	7,218.52	7,205.82	15.82	15.94	54.87	998.18	1,416.00	1,734.05	1,702.53	31.52	55.016	
7,200.00	7,200.00	7,300.00	7,293.56	16.04	16.12	54.76	998.18	1,410.29	1,728.75	1,696.83	31.92	54.162	
7,300.00	7,300.00	7,389.78	7,383.20	16.27	16.30	54.67	998.18	1,405.16	1,724.08	1,691.76	32.32	53.342	
7,400.00	7,400.00	7,478.76	7,472.06	16.49	16.48	54.58	998.18	1,400.77	1,720.06	1,687.34	32.72	52.565	
7,500.00	7,500.00	7,567.76	7,561.02	16.72	16.65	54.51	998.18	1,397.07	1,716.67	1,683.55	33.12	51.827	
7,600.00	7,600.00	7,656.88	7,650.05	16.94	16.83	54.45	998.18	1,394.08	1,713.92	1,680.39	33.52	51.125	
7,700.00	7,700.00	7,746.01	7,739.15	17.17	17.01	54.41	998.18	1,391.73	1,711.80	1,677.87	33.92	50.459	
7,800.00	7,800.00	7,835.17	7,828.30	17.39	17.18	54.37	998.18	1,390.11	1,710.31	1,675.99	34.32	49.828	
7,900.00	7,900.00	7,924.35	7,917.47	17.62	17.35	54.36	998.18	1,389.17	1,709.46	1,674.74	34.72	49.232	
8,000.00	8,000.00	8,015.18	8,008.30	17.84	17.52	54.35	998.18	1,388.92	1,709.23	1,674.11	35.12	48.666	
8,100.00	8,100.00	8,115.18	8,108.30	18.07	17.73	54.35	998.18	1,388.92	1,709.23	1,673.88	35.55	48.079	
8,200.00	8,200.00	8,215.18	8,208.30	18.29	17.94	54.35	998.18	1,388.92	1,709.23	1,673.24	36.00	47.485	
8,300.00	8,300.00	8,315.18	8,308.30	18.52	18.16	54.35	998.18	1,388.92	1,709.23	1,672.79	36.44	46.906	
8,400.00	8,400.00	8,415.18	8,408.30	18.74	18.38	54.35	998.18	1,388.92	1,709.23	1,672.35	36.88	46.341	
8,500.00	8,500.00	8,515.18	8,508.30	18.97	18.60	54.35	998.18	1,388.92	1,709.23	1,671.90	37.33	45.789	
8,600.00	8,600.00	8,615.18	8,608.30	19.19	18.81	54.35	998.18	1,388.92	1,709.23	1,671.46	37.77	45.249	
8,700.00	8,700.00	8,715.18	8,708.30	19.42	19.03	54.35	998.18	1,388.92	1,709.23	1,671.01	38.22	44.723	
8,800.00	8,800.00	8,815.18	8,808.30	19.64	19.25	54.35	998.18	1,388.92	1,709.23	1,670.57	38.66	44.208	
8,900.00	8,900.00	8,915.18	8,908.30	19.87	19.47	54.35	998.18	1,388.92	1,709.23	1,670.12	39.11	43.705	
9,000.00	9,000.00	9,015.18	9,008.30	20.09	19.69	54.35	998.18	1,388.92	1,709.23	1,669.68	39.55	43.213	
9,100.00	9,100.00	9,115.18	9,108.30	20.31	19.91	54.35	998.18	1,388.92	1,709.23	1,669.23	40.00	42.732	
9,200.00	9,200.00	9,215.18	9,208.30	20.54	20.13	54.35	998.18	1,388.92	1,709.23	1,668.79	40.44	42.261	
9,300.00	9,300.00	9,315.18	9,308.30	20.76	20.34	54.35	998.18	1,388.92	1,709.23	1,668.34	40.89	41.801	
9,400.00	9,400.00	9,415.18	9,408.30	20.99	20.56	54.35	998.18	1,388.92	1,709.23	1,667.90	41.34	41.350	
9,500.00	9,500.00	9,515.18	9,508.30	21.21	20.78	54.35	998.18	1,388.92	1,709.23	1,667.45	41.78	40.909	
9,600.00	9,600.00	9,615.18	9,608.30	21.44	21.00	54.35	998.18	1,388.92	1,709.23	1,667.00	42.23	40.477	
9,700.00	9,700.00	9,715.18	9,708.30	21.66	21.22	54.35	998.18	1,388.92	1,709.23	1,666.56	42.67	40.054	
9,800.00	9,800.00	9,815.18	9,808.30	21.89	21.44	54.35	998.18	1,388.92	1,709.23	1,666.11	43.12	39.640	
9,900.00	9,900.00	9,915.18	9,908.30	22.11	21.66	54.35	998.18	1,388.92	1,709.23	1,665.67	43.56	39.234	
10,000.00	10,000.00	10,015.18	10,008.30	22.34	21.88	54.35	998.18	1,388.92	1,709.23	1,665.22	44.01	38.837	
10,100.00	10,099.99	10,115.17	10,108.29	22.56	22.10	54.95	998.18	1,388.92	1,708.95	1,664.50	44.45	38.449	
10,200.00	10,199.04	10,214.22	10,207.34	22.79	22.32	55.90	998.18	1,388.92	1,701.63	1,656.97	44.85	38.106	
10,300.00	10,294.36	10,309.54	10,302.66	23.01	22.53	58.15	998.18	1,388.92	1,684.83	1,640.17	44.68	37.728	

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



LEAM Drilling Systems LLC

Anticollision Report



Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Cotton Draw 32 State - SWD 2 - OH - Plan #1													Offset Site Error: 0.00 usft
Survey Program: 0-LEAM MWD-ADJ													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
10,400.00	10,383.06	10,398.24	10,391.36	23.21	22.72	81.85	996.18	1,388.92	1,659.87	1,615.00	44.67	37.156	
10,500.00	10,482.44	10,477.81	10,470.74	23.46	22.90	66.25	996.18	1,388.92	1,627.83	1,582.91	44.92	36.237	
10,600.00	10,530.08	10,545.26	10,538.38	23.76	23.05	71.66	996.18	1,388.92	1,591.49	1,545.96	45.53	34.953	
10,700.00	10,583.94	10,599.12	10,592.24	24.15	23.16	77.38	996.18	1,388.92	1,553.12	1,508.71	46.41	33.465	
10,800.00	10,622.38	10,637.56	10,630.88	24.63	23.25	82.80	996.18	1,388.92	1,515.31	1,467.97	47.34	32.008	
10,900.00	10,644.23	10,659.40	10,652.53	25.21	23.30	87.36	996.18	1,388.92	1,480.54	1,432.37	48.17	30.733	
11,000.00	10,649.42	10,664.80	10,657.72	25.88	23.31	89.93	996.18	1,388.92	1,450.88	1,401.97	48.90	29.669	
11,100.00	10,649.89	10,665.07	10,658.19	26.86	23.31	89.94	996.18	1,388.92	1,427.54	1,377.86	49.68	28.736	
11,200.00	10,650.37	10,665.54	10,658.87	27.53	23.31	89.96	996.18	1,388.92	1,410.91	1,360.36	50.55	27.909	
11,300.00	10,650.84	10,666.01	10,659.14	28.50	23.31	89.98	996.18	1,388.92	1,401.25	1,349.72	51.52	27.197	
11,385.92	10,651.24	10,666.42	10,659.34	29.40	23.31	90.00	996.18	1,388.92	1,388.81	1,346.19	52.42	26.679 CC	
11,400.00	10,651.31	10,666.48	10,659.81	29.55	23.31	90.00	996.18	1,388.92	1,388.88	1,346.11	52.57	26.606 ES	
11,500.00	10,651.78	10,666.95	10,660.08	30.67	23.31	90.02	996.18	1,388.92	1,403.25	1,349.58	53.89	26.135	
11,600.00	10,652.25	10,667.43	10,660.55	31.86	23.32	90.04	996.18	1,388.92	1,414.90	1,360.02	54.88	25.781	
11,700.00	10,652.72	10,667.90	10,661.02	33.10	23.32	90.06	996.18	1,388.92	1,433.44	1,377.31	56.13	25.538	
11,800.00	10,653.19	10,668.37	10,661.49	34.40	23.32	90.08	996.18	1,388.92	1,458.82	1,401.19	57.43	25.399	
11,900.00	10,653.66	10,668.84	10,661.96	35.75	23.32	90.10	996.18	1,388.92	1,490.09	1,431.32	58.77	25.353 SF	
12,000.00	10,654.13	10,669.31	10,662.43	37.13	23.32	90.12	996.18	1,388.92	1,527.48	1,467.32	60.16	25.389	
12,100.00	10,654.61	10,669.78	10,662.91	38.58	23.32	90.14	996.18	1,388.92	1,570.35	1,508.76	61.59	25.498	
12,200.00	10,655.08	10,670.25	10,663.38	40.01	23.32	90.16	996.18	1,388.92	1,618.27	1,555.23	63.04	25.669	
12,300.00	10,655.55	10,670.72	10,663.85	41.50	23.32	90.18	996.18	1,388.92	1,670.82	1,606.28	64.53	25.891	
12,400.00	10,656.02	10,671.20	10,664.32	43.01	23.32	90.20	996.18	1,388.92	1,727.55	1,661.51	66.05	26.157	
12,500.00	10,656.49	10,671.67	10,664.79	44.55	23.32	90.22	996.18	1,388.92	1,788.08	1,720.50	67.58	26.458	
12,600.00	10,656.96	10,672.14	10,665.26	46.11	23.33	90.23	996.18	1,388.92	1,852.04	1,782.90	69.14	26.786	
12,700.00	10,657.43	10,672.61	10,665.73	47.69	23.33	90.25	996.18	1,388.92	1,919.08	1,848.36	70.72	27.136	
12,800.00	10,657.90	10,673.08	10,666.20	49.28	23.33	90.27	996.18	1,388.92	1,988.89	1,916.57	72.32	27.503	
12,900.00	10,658.38	10,673.55	10,666.68	50.89	23.33	90.29	996.18	1,388.92	2,061.19	1,987.28	73.93	27.881	
13,000.00	10,658.85	10,674.02	10,667.15	52.52	23.33	90.31	996.18	1,388.92	2,138.72	2,060.16	75.55	28.267	
13,100.00	10,659.32	10,674.49	10,667.62	54.15	23.33	90.33	996.18	1,388.92	2,212.26	2,135.07	77.19	28.659	
13,200.00	10,659.79	10,674.96	10,668.09	55.80	23.33	90.35	996.18	1,388.92	2,290.61	2,211.77	78.84	29.052	
13,300.00	10,660.26	10,675.44	10,668.56	57.47	23.33	90.37	996.18	1,388.92	2,370.59	2,290.09	80.51	29.446	
13,400.00	10,660.73	10,675.91	10,669.03	59.14	23.33	90.39	996.18	1,388.92	2,452.04	2,369.87	82.18	29.838	
13,500.00	10,661.20	10,676.38	10,669.50	60.82	23.33	90.41	996.18	1,388.92	2,534.82	2,450.96	83.86	30.227	
13,600.00	10,661.67	10,676.85	10,669.97	62.51	23.34	90.43	996.18	1,388.92	2,618.80	2,533.25	85.55	30.611	
13,700.00	10,662.15	10,677.32	10,670.45	64.20	23.34	90.45	996.18	1,388.92	2,703.87	2,616.63	87.25	30.991	
13,800.00	10,662.62	10,677.79	10,670.92	65.91	23.34	90.47	996.18	1,388.92	2,789.94	2,700.98	88.95	31.365	
13,900.00	10,663.09	10,678.26	10,671.39	67.62	23.34	90.49	996.18	1,388.92	2,876.90	2,786.24	90.66	31.732	
14,000.00	10,663.56	10,678.73	10,671.86	69.33	23.34	90.50	996.18	1,388.92	2,964.88	2,872.30	92.38	32.092	
14,100.00	10,664.03	10,679.21	10,672.33	71.05	23.34	90.52	996.18	1,388.92	3,053.22	2,959.12	94.10	32.445	
14,200.00	10,664.50	10,679.68	10,672.80	72.78	23.34	90.54	996.18	1,388.92	3,142.44	3,046.61	95.83	32.791	
14,300.00	10,664.97	10,680.15	10,673.27	74.51	23.34	90.56	996.18	1,388.92	3,232.30	3,134.74	97.56	33.130	
14,400.00	10,665.44	10,680.62	10,673.74	76.25	23.34	90.58	996.18	1,388.92	3,322.73	3,223.43	99.30	33.461	
14,500.00	10,665.92	10,681.09	10,674.22	77.99	23.35	90.60	996.18	1,388.92	3,413.70	3,312.66	101.04	33.784	
14,600.00	10,666.39	10,681.56	10,674.69	79.74	23.35	90.62	996.18	1,388.92	3,505.16	3,402.37	102.79	34.100	
14,700.00	10,666.86	10,682.03	10,675.16	81.49	23.35	90.64	996.18	1,388.92	3,597.08	3,492.54	104.54	34.409	
14,800.00	10,667.33	10,682.50	10,675.63	83.24	23.35	90.66	996.18	1,388.92	3,689.41	3,583.12	106.29	34.710	
14,900.00	10,667.80	10,682.98	10,676.10	84.99	23.35	90.68	996.18	1,388.92	3,782.14	3,674.09	108.05	35.004	
15,000.00	10,668.27	10,683.45	10,676.57	86.75	23.35	90.70	996.18	1,388.92	3,875.22	3,765.42	109.81	35.291	
15,100.00	10,668.74	10,683.92	10,677.04	88.52	23.35	90.72	996.18	1,388.92	3,968.65	3,857.08	111.57	35.571	
15,154.51	10,669.00	10,684.18	10,677.30	89.30	23.35	90.73	996.18	1,388.92	4,019.71	3,907.35	112.38	35.778	

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



LEAM Drilling Systems LLC

Anticollision Report



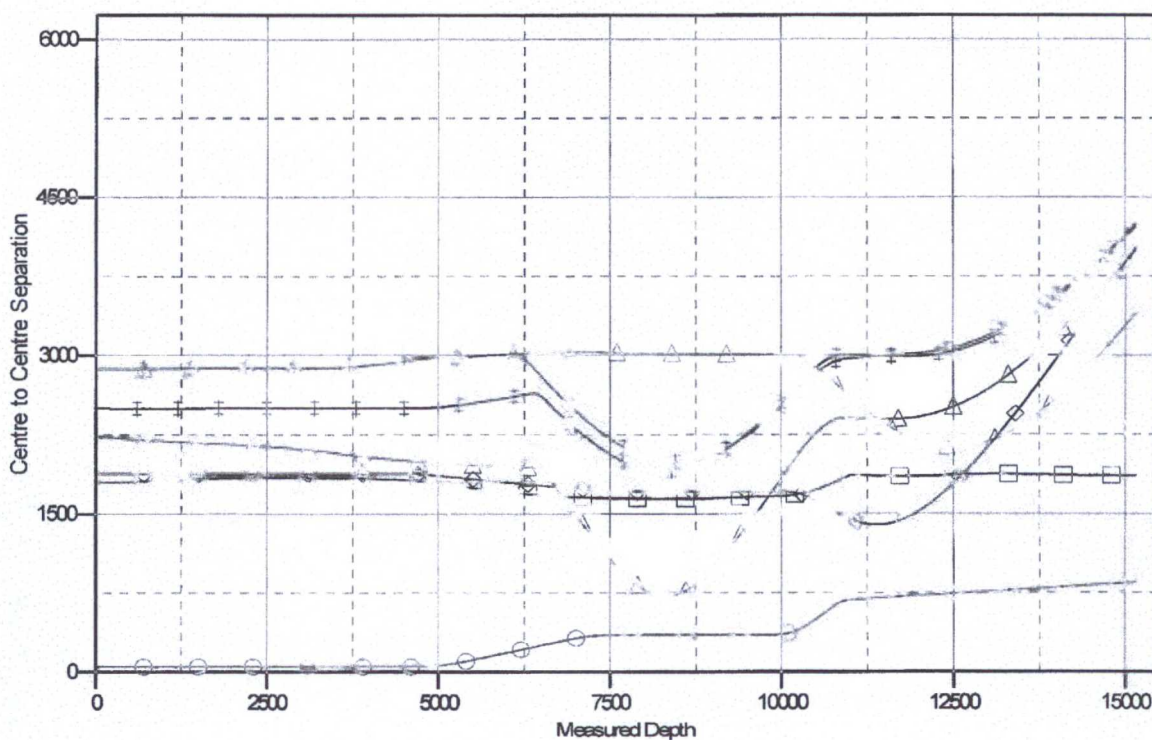
Company: DEVON ENERGY
Project: Lea County, NM (NAD-83)
Reference Site: Chincoteague 32 State Com
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Prelim 3

Local Co-ordinate Reference: Well 4H
TVD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
MD Reference: 3470.9' GE + 23.5' RKB @ 3494.40usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to 3470.9' GE + 23.5' RKB @ 3494.40us
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: 4H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.34°

Ladder Plot



LEGEND

- 1H(offset), OH, OH V0
- 4H, OH, OH V0
- 2H, OH, OH V0
- 1H(offset), ST, ST V0
- SWD2, OH, Plan #1 V0
- 3H(offset), OH, OH V0
- 3H, OH, Plan #1 V0



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