

Devon Energy
Eddy Courty, NM (NAD-83)
Emerald PWU 202
12H

ST01

Plan: Plan #1

Standard Planning Report

08 September, 2017

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Coordinate Reference:	Well 12H
Company:	Devon Energy	TVD Reference:	3313.8' GE + 23.5' KB @337.30usft
Project:	Eddy County, NM (NAD83)	MD Reference:	3313.8' GE + 23.5' KB @337.30usft
Site:	Emerald PWU 20-22	North Reference:	Grid
Well:	12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST01		
Design:	Plan #1		

Project:	Eddy County, NM (NAD-83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site:	Emerald PWU 20-22		
Site Position:		Northing:	596,335.26 usft
From:	Map	Easting:	611,703.17 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 38' 20.998 N
		Longitude:	104° 6' 17.060 W
		Grid Convergence:	0.12 °

Well:	12H		
Well Position	+N-S	0.00 usft	Northing: 596,335.26 usft
	+E-W	0.00 usft	Easting: 611,703.17 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 38' 20.998 N
		Longitude:	104° 6' 17.060 W
		Ground Level:	3,313.80 usft

Wellbore:	ST01		
Magnetics	Model Name	Sample Date	Declination (°)
	HDGM	9/8/2017	7.42
			Dip Angle (°) 60.50
			Field Strength (nT) 48,177

Design:	Plan #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 9,340.00
Vertical Section:	Depth From (TVD)	+N-S (usft)	+E-W (usft)
	0.00	0.00	0.00
			Direction (°) 88.40

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
9,340.00	83.97	85.66	8,951.69	424.44	441.84	0.00	0.00	0.00	0.00	
9,547.24	83.97	94.00	8,973.49	425.04	647.75	4.00	0.00	4.02	90.47	
9,708.82	89.65	90.91	8,982.48	418.15	808.85	4.00	3.51	-1.91	-28.65	
13,700.55	89.65	90.91	9,007.00	355.00	4,800.00	0.00	0.00	0.00	0.00	
13,746.28	89.75	90.00	9,007.24	354.64	4,845.72	2.00	0.22	-1.99	-83.76	
21,633.18	89.75	90.00	9,042.00	355.00	12,732.55	0.00	0.00	0.00	0.00	PBHL (Emerald 12H)

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Site:	Emerald PWU 20-22	North Reference:	Grid
Well:	12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST01		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL Emerald 12H)									
50.00	0.09	354.90	50.00	0.04	0.00	0.00	0.18	0.18	0.00
100.00	0.29	335.65	100.00	0.19	-0.06	-0.05	0.41	0.40	-38.50
150.00	0.57	324.69	150.00	0.51	-0.26	-0.24	0.58	0.56	-21.92
285.00	1.50	247.30	284.98	0.38	-2.27	-2.26	1.10	0.69	-57.33
338.00	1.50	253.60	337.96	-0.09	-3.58	-3.58	0.31	0.00	11.89
438.00	1.80	251.50	437.92	-0.95	-6.32	-6.35	0.31	0.30	-2.10
529.00	1.90	260.30	528.87	-1.66	-9.17	-9.21	0.33	0.11	9.67
620.00	1.90	257.60	619.82	-2.24	-12.13	-12.18	0.10	0.00	-2.97
711.00	1.80	254.60	710.77	-2.94	-14.98	-15.05	0.15	-0.11	-3.30
803.00	1.80	254.60	802.73	-3.71	-17.76	-17.86	0.00	0.00	0.00
894.00	1.70	267.10	893.69	-4.16	-20.49	-20.60	0.43	-0.11	13.74
985.00	1.50	262.90	984.65	-4.37	-23.02	-23.13	0.25	-0.22	-4.62
1,077.00	1.40	260.80	1,076.62	-4.70	-25.32	-25.45	0.12	-0.11	-2.28
1,169.00	1.40	253.10	1,168.60	-5.21	-27.51	-27.64	0.20	0.00	-8.37
1,261.00	1.50	257.80	1,260.57	-5.79	-29.76	-29.91	0.17	0.11	5.11
1,353.00	0.80	280.10	1,352.55	-5.93	-31.57	-31.72	0.89	-0.76	24.24
1,449.00	0.50	270.50	1,448.54	-5.81	-32.65	-32.80	0.33	-0.31	-10.00
1,544.00	0.90	277.10	1,543.53	-5.71	-33.80	-33.95	0.43	0.42	6.95
1,640.00	0.70	269.00	1,639.52	-5.63	-35.14	-35.28	0.24	-0.21	-8.44
1,736.00	0.90	276.60	1,735.51	-5.56	-36.47	-36.61	0.24	0.21	7.92
1,831.00	0.70	294.20	1,830.51	-5.23	-37.74	-37.88	0.33	-0.21	18.53
1,927.00	1.10	282.80	1,926.49	-4.79	-39.18	-39.30	0.45	0.42	-11.88
2,022.00	0.70	308.20	2,021.48	-4.23	-40.52	-40.62	0.58	-0.42	26.74
2,118.00	0.40	293.50	2,117.48	-3.73	-41.29	-41.38	0.34	-0.31	-15.31
2,214.00	0.40	295.90	2,213.48	-3.45	-41.90	-41.98	0.02	0.00	2.50
2,310.00	0.60	324.20	2,309.47	-2.90	-42.50	-42.56	0.33	0.21	29.48
2,405.00	0.70	289.40	2,404.47	-2.30	-43.33	-43.38	0.42	0.11	-36.63
2,501.00	1.10	317.20	2,500.45	-1.43	-44.51	-44.54	0.61	0.42	28.96
2,596.00	1.50	318.10	2,595.43	0.17	-45.96	-45.94	0.42	0.42	0.95
2,724.00	3.00	318.10	2,723.33	3.91	-49.32	-49.19	1.17	1.17	0.00
2,788.00	3.30	322.10	2,787.23	6.61	-51.57	-51.36	0.58	0.47	6.25
2,883.00	3.80	319.30	2,882.05	11.15	-55.30	-54.97	0.56	0.53	-2.95
2,979.00	4.60	321.30	2,977.79	16.57	-59.78	-59.30	0.85	0.83	2.08
3,074.00	5.10	319.80	3,072.45	22.76	-64.89	-64.23	0.54	0.53	-1.58
3,170.00	5.70	322.80	3,168.02	29.82	-70.53	-69.67	0.69	0.63	3.13
3,265.00	6.10	320.70	3,262.52	37.49	-76.58	-75.50	0.48	0.42	-2.21
3,361.00	6.20	320.40	3,357.97	45.43	-83.11	-81.81	0.11	0.10	-0.31
3,406.00	6.10	320.20	3,402.71	49.14	-86.19	-84.79	0.23	-0.22	-0.44
3,543.00	6.10	319.00	3,538.93	60.22	-95.63	-93.91	0.09	0.00	-0.88
3,639.00	5.40	325.60	3,634.45	67.80	-101.52	-99.59	1.00	-0.73	6.88
3,734.00	5.30	337.10	3,729.04	75.53	-105.76	-103.61	1.13	-0.11	12.11
3,830.00	5.20	335.80	3,824.64	83.58	-109.27	-106.89	0.16	-0.10	-1.35
3,925.00	4.80	342.70	3,919.28	91.30	-112.21	-109.62	0.76	-0.42	7.26
4,021.00	4.50	343.20	4,014.96	98.74	-114.49	-111.70	0.32	-0.31	0.52
4,116.00	4.60	345.70	4,109.66	106.00	-116.51	-113.51	0.23	0.11	2.63
4,212.00	5.20	348.30	4,205.31	113.99	-118.35	-115.12	0.67	0.63	2.71
4,307.00	6.20	345.00	4,299.84	123.16	-120.55	-117.07	1.11	1.05	-3.47
4,403.00	5.80	351.00	4,395.31	132.96	-122.65	-118.89	0.77	-0.42	6.25
4,498.00	5.80	339.50	4,489.83	142.20	-125.08	-121.07	1.22	0.00	-12.11
4,594.00	5.30	338.80	4,585.38	150.88	-128.38	-124.13	0.53	-0.52	-0.73
4,689.00	5.10	339.50	4,679.99	158.92	-131.45	-126.97	0.22	-0.21	0.74
4,785.00	5.40	339.70	4,775.59	167.16	-134.51	-129.80	0.31	0.31	0.21

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Planned Survey									
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4,881.00	4.90	339.00	4,871.20	175.22	-137.55	-132.61	0.52	-0.52	-0.73
4,976.00	4.70	342.50	4,965.86	182.72	-140.17	-135.02	0.37	-0.21	3.68
5,072.00	4.50	346.20	5,061.56	190.13	-142.25	-136.90	0.37	-0.21	3.85
5,168.00	4.80	338.80	5,157.24	197.53	-144.60	-139.04	0.70	0.31	-7.71
5,263.00	5.50	343.10	5,251.86	205.59	-147.36	-141.57	0.84	0.74	4.53
5,359.00	5.30	344.50	5,347.43	214.27	-149.88	-143.85	0.25	-0.21	1.46
5,454.00	4.80	353.20	5,442.06	222.44	-151.53	-145.27	0.96	-0.53	9.16
5,550.00	5.50	348.10	5,537.68	230.93	-152.95	-146.46	0.87	0.73	-5.31
5,645.00	5.80	340.20	5,632.22	239.90	-155.52	-148.77	0.88	0.32	-8.32
5,741.00	5.30	339.50	5,727.76	248.62	-158.71	-151.72	0.53	-0.52	-0.73
5,836.00	4.70	342.90	5,822.40	256.45	-161.39	-154.18	0.70	-0.63	3.58
5,932.00	4.60	342.00	5,918.09	263.87	-163.74	-156.32	0.13	-0.10	-0.94
6,027.00	5.50	336.50	6,012.72	271.67	-166.73	-159.10	1.07	0.95	-5.79
6,123.00	5.00	336.20	6,108.31	279.72	-170.26	-162.39	0.52	-0.52	-0.31
6,218.00	4.90	339.20	6,202.96	287.30	-173.37	-165.29	0.29	-0.11	3.16
6,314.00	6.00	339.70	6,298.53	295.84	-176.56	-168.25	1.15	1.15	0.52
6,410.00	5.50	340.90	6,394.04	304.89	-179.81	-171.24	0.54	-0.52	1.25
6,505.00	4.50	338.50	6,488.68	312.66	-182.67	-173.88	1.08	-1.05	-2.53
6,601.00	4.70	336.90	6,584.37	319.78	-185.59	-176.60	0.25	0.21	-1.67
6,696.00	5.70	340.80	6,678.98	327.82	-188.67	-179.46	1.12	1.05	4.11
6,792.00	6.10	342.30	6,774.47	337.18	-191.79	-182.31	0.45	0.42	1.56
6,887.00	5.30	339.40	6,869.00	346.09	-194.86	-185.14	0.89	-0.84	-3.05
6,983.00	4.90	336.40	6,964.62	354.00	-198.07	-188.12	0.50	-0.42	-3.13
7,079.00	5.50	337.10	7,060.22	362.00	-201.50	-191.33	0.63	0.63	0.73
7,174.00	6.10	336.40	7,154.74	370.81	-205.29	-194.87	0.64	0.63	-0.74
7,269.00	5.50	332.50	7,249.25	379.48	-209.41	-198.75	0.76	-0.63	-4.11
7,365.00	4.70	336.00	7,344.87	387.15	-213.14	-202.26	0.89	-0.83	3.65
7,461.00	3.70	326.40	7,440.61	393.33	-216.45	-205.40	1.27	-1.04	-10.00
7,556.00	3.30	341.60	7,535.44	398.47	-219.01	-207.82	1.06	-0.42	16.00
7,651.00	3.70	344.60	7,630.26	404.02	-220.69	-209.34	0.46	0.42	3.16
7,746.00	2.50	337.40	7,725.12	408.89	-222.30	-210.82	1.33	-1.26	-7.58
7,842.00	3.10	347.80	7,821.00	413.36	-223.65	-212.04	0.82	0.63	10.83
7,938.00	2.60	354.30	7,916.89	418.07	-224.42	-212.68	0.62	-0.52	6.77
8,033.00	2.20	356.40	8,011.80	422.03	-224.74	-212.89	0.43	-0.42	2.21
8,128.00	1.50	356.40	8,106.75	425.09	-224.94	-213.00	0.74	-0.74	0.00
8,224.00	0.80	5.90	8,202.73	427.01	-224.95	-212.96	0.75	-0.73	9.90
8,312.00	0.50	356.20	8,290.73	428.01	-224.91	-212.89	0.36	-0.34	-11.02
8,363.00	0.70	45.60	8,341.72	428.45	-224.70	-212.67	1.05	0.39	96.86
8,411.00	8.10	91.20	8,389.55	428.58	-221.11	-209.07	15.89	15.42	95.00
8,458.00	14.00	93.50	8,435.66	428.16	-212.11	-200.10	12.59	12.55	4.89
8,506.00	21.10	93.20	8,481.40	427.33	-197.67	-185.69	14.79	14.79	-0.63
8,553.00	25.80	91.20	8,524.51	426.64	-178.99	-167.03	10.14	10.00	-4.26
8,601.00	28.80	88.30	8,567.16	426.76	-156.98	-145.03	6.84	6.25	-6.04
8,649.00	32.70	88.30	8,608.40	427.49	-132.46	-120.49	8.13	8.13	0.00
8,697.00	37.70	90.30	8,647.61	427.80	-104.80	-92.84	10.69	10.42	4.17
8,743.00	42.10	91.43	8,682.89	427.34	-75.31	-63.37	9.69	9.57	2.46
8,791.00	44.30	91.64	8,717.88	426.46	-42.46	-30.56	4.59	4.58	0.44
8,839.00	47.06	92.74	8,751.41	425.14	-8.15	3.70	5.98	5.75	2.29
8,887.00	51.23	93.03	8,782.81	423.31	28.10	39.89	8.70	8.69	0.60
8,935.00	55.86	93.77	8,811.32	421.01	66.63	78.34	9.73	9.65	1.54
8,983.00	59.10	93.19	8,837.12	418.56	107.02	118.65	6.83	6.75	-1.21
9,031.00	62.94	93.13	8,860.37	416.25	148.94	160.48	8.00	8.00	-0.13
9,078.00	65.28	92.37	8,880.89	414.22	191.17	202.64	5.19	4.98	-1.62
9,126.00	68.83	89.99	8,899.61	413.32	235.35	246.78	8.69	7.40	-4.96

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9,174.00	71.19	88.26	8,916.02	414.02	280.45	291.88	5.97	4.92	-3.60
9,222.00	74.61	86.79	8,930.13	416.00	326.28	337.75	7.70	7.13	-3.06
9,270.00	78.61	85.53	8,941.24	419.13	372.86	384.39	8.72	8.33	-2.63
9,333.00	83.68	85.66	8,950.94	423.91	434.90	446.55	8.05	8.05	0.21
9,340.00	83.97	85.66	8,951.69	424.44	441.84	453.50	4.21	4.21	0.06
Start ULS 400 FO 9047									
9,400.00	83.96	88.08	8,958.00	427.70	501.42	513.14	4.00	-0.02	4.02
9,500.00	83.96	92.10	8,968.52	427.54	600.84	612.52	4.00	0.00	4.02
9,547.24	83.97	94.00	8,973.49	425.04	647.75	659.35	4.00	0.02	4.02
Start ULS 400 FO -2865									
9,600.00	85.82	92.99	8,978.18	421.84	700.20	711.69	4.00	3.51	-1.92
9,708.82	89.65	90.91	8,982.48	418.15	808.85	820.19	4.00	3.52	-1.91
Start 391.73 hold at 9708.82 MD									
9,800.00	89.65	90.91	8,983.04	416.71	900.01	911.28	0.00	0.00	0.00
9,900.00	89.65	90.91	8,983.66	415.13	1,000.00	1,011.18	0.00	0.00	0.00
10,000.00	89.65	90.91	8,984.27	413.55	1,099.98	1,111.08	0.00	0.00	0.00
10,100.00	89.65	90.91	8,984.88	411.96	1,199.97	1,210.99	0.00	0.00	0.00
10,200.00	89.65	90.91	8,985.50	410.38	1,299.96	1,310.89	0.00	0.00	0.00
10,300.00	89.65	90.91	8,986.11	408.80	1,399.94	1,410.79	0.00	0.00	0.00
10,400.00	89.65	90.91	8,986.73	407.22	1,499.93	1,510.69	0.00	0.00	0.00
10,500.00	89.65	90.91	8,987.34	405.63	1,599.91	1,610.60	0.00	0.00	0.00
10,600.00	89.65	90.91	8,987.96	404.05	1,699.90	1,710.50	0.00	0.00	0.00
10,700.00	89.65	90.91	8,988.57	402.47	1,799.88	1,810.40	0.00	0.00	0.00
10,800.00	89.65	90.91	8,989.18	400.89	1,899.87	1,910.30	0.00	0.00	0.00
10,900.00	89.65	90.91	8,989.80	399.31	1,999.86	2,010.21	0.00	0.00	0.00
11,000.00	89.65	90.91	8,990.41	397.72	2,099.84	2,110.11	0.00	0.00	0.00
11,100.00	89.65	90.91	8,991.03	396.14	2,199.83	2,210.01	0.00	0.00	0.00
11,200.00	89.65	90.91	8,991.64	394.56	2,299.81	2,309.92	0.00	0.00	0.00
11,300.00	89.65	90.91	8,992.26	392.98	2,399.80	2,409.82	0.00	0.00	0.00
11,400.00	89.65	90.91	8,992.87	391.40	2,499.78	2,509.72	0.00	0.00	0.00
11,500.00	89.65	90.91	8,993.48	389.81	2,599.77	2,609.62	0.00	0.00	0.00
11,600.00	89.65	90.91	8,994.10	388.23	2,699.75	2,709.53	0.00	0.00	0.00
11,700.00	89.65	90.91	8,994.71	386.65	2,799.74	2,809.43	0.00	0.00	0.00
11,800.00	89.65	90.91	8,995.33	385.07	2,899.73	2,909.33	0.00	0.00	0.00
11,900.00	89.65	90.91	8,995.94	383.49	2,999.71	3,009.23	0.00	0.00	0.00
12,000.00	89.65	90.91	8,996.56	381.90	3,099.70	3,109.14	0.00	0.00	0.00
12,100.00	89.65	90.91	8,997.17	380.32	3,199.68	3,209.04	0.00	0.00	0.00
12,200.00	89.65	90.91	8,997.78	378.74	3,299.67	3,308.94	0.00	0.00	0.00
12,300.00	89.65	90.91	8,998.40	377.16	3,399.65	3,408.84	0.00	0.00	0.00
12,400.00	89.65	90.91	8,999.01	375.58	3,499.64	3,508.75	0.00	0.00	0.00
12,500.00	89.65	90.91	8,999.63	373.99	3,599.62	3,608.65	0.00	0.00	0.00
12,600.00	89.65	90.91	9,000.24	372.41	3,699.61	3,708.55	0.00	0.00	0.00
12,700.00	89.65	90.91	9,000.85	370.83	3,799.60	3,808.46	0.00	0.00	0.00
12,800.00	89.65	90.91	9,001.47	369.25	3,899.58	3,908.36	0.00	0.00	0.00
12,900.00	89.65	90.91	9,002.08	367.67	3,999.57	4,008.26	0.00	0.00	0.00
13,000.00	89.65	90.91	9,002.70	366.08	4,099.55	4,108.16	0.00	0.00	0.00
13,100.00	89.65	90.91	9,003.31	364.50	4,199.54	4,208.07	0.00	0.00	0.00
13,200.00	89.65	90.91	9,003.93	362.92	4,299.52	4,307.97	0.00	0.00	0.00
13,300.00	89.65	90.91	9,004.54	361.34	4,399.51	4,407.87	0.00	0.00	0.00
13,400.00	89.65	90.91	9,005.15	359.75	4,499.50	4,507.77	0.00	0.00	0.00
13,500.00	89.65	90.91	9,005.77	358.17	4,599.48	4,607.68	0.00	0.00	0.00
13,600.00	89.65	90.91	9,006.38	356.59	4,699.47	4,707.58	0.00	0.00	0.00
13,700.55	89.65	90.91	9,007.00	355.00	4,800.00	4,808.03	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database: EDM 5000.1 Multi User Db
 Company: Devon Energy
 Project: Eddy County, NM (NAD83)
 Site: Emerald PWU 20-22
 Well: 12H
 Wellbore: ST01
 Design: Plan #1

Local Coordinate Reference: Well 12H
 TVD Reference: 3313.8' GE + 23.5' KB @337.30usft
 MD Reference: 3313.8' GE + 23.5' KB @337.30usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Start LLS 200 TO -8376									
13,746.28	89.75	90.00	9,007.24	354.64	4,845.72	4,853.73	2.00	0.22	-1.99
Start 886.90 hold at 13746.28 MD									
13,800.00	89.75	90.00	9,007.48	354.64	4,899.45	4,907.43	0.00	0.00	0.00
13,900.00	89.75	90.00	9,007.92	354.65	4,999.45	5,007.39	0.00	0.00	0.00
14,000.00	89.75	90.00	9,008.36	354.65	5,099.45	5,107.35	0.00	0.00	0.00
14,100.00	89.75	90.00	9,008.80	354.66	5,199.45	5,207.31	0.00	0.00	0.00
14,200.00	89.75	90.00	9,009.24	354.66	5,299.44	5,307.27	0.00	0.00	0.00
14,300.00	89.75	90.00	9,009.68	354.66	5,399.44	5,407.23	0.00	0.00	0.00
14,400.00	89.75	90.00	9,010.12	354.67	5,499.44	5,507.19	0.00	0.00	0.00
14,500.00	89.75	90.00	9,010.56	354.67	5,599.44	5,607.15	0.00	0.00	0.00
14,600.00	89.75	90.00	9,011.00	354.68	5,699.44	5,707.11	0.00	0.00	0.00
14,700.00	89.75	90.00	9,011.44	354.68	5,799.44	5,807.07	0.00	0.00	0.00
14,800.00	89.75	90.00	9,011.89	354.69	5,899.44	5,907.03	0.00	0.00	0.00
14,900.00	89.75	90.00	9,012.33	354.69	5,999.44	6,006.99	0.00	0.00	0.00
15,000.00	89.75	90.00	9,012.77	354.70	6,099.44	6,106.95	0.00	0.00	0.00
15,100.00	89.75	90.00	9,013.21	354.70	6,199.44	6,206.91	0.00	0.00	0.00
15,200.00	89.75	90.00	9,013.65	354.71	6,299.44	6,306.87	0.00	0.00	0.00
15,300.00	89.75	90.00	9,014.09	354.71	6,399.43	6,406.83	0.00	0.00	0.00
15,400.00	89.75	90.00	9,014.53	354.71	6,499.43	6,506.79	0.00	0.00	0.00
15,500.00	89.75	90.00	9,014.97	354.72	6,599.43	6,606.75	0.00	0.00	0.00
15,600.00	89.75	90.00	9,015.41	354.72	6,699.43	6,706.72	0.00	0.00	0.00
15,700.00	89.75	90.00	9,015.85	354.73	6,799.43	6,806.68	0.00	0.00	0.00
15,800.00	89.75	90.00	9,016.29	354.73	6,899.43	6,906.64	0.00	0.00	0.00
15,900.00	89.75	90.00	9,016.73	354.74	6,999.43	7,006.60	0.00	0.00	0.00
16,000.00	89.75	90.00	9,017.17	354.74	7,099.43	7,106.56	0.00	0.00	0.00
16,100.00	89.75	90.00	9,017.61	354.75	7,199.43	7,206.52	0.00	0.00	0.00
16,200.00	89.75	90.00	9,018.06	354.75	7,299.43	7,306.48	0.00	0.00	0.00
16,300.00	89.75	90.00	9,018.50	354.76	7,399.42	7,406.44	0.00	0.00	0.00
16,400.00	89.75	90.00	9,018.94	354.76	7,499.42	7,506.40	0.00	0.00	0.00
16,500.00	89.75	90.00	9,019.38	354.77	7,599.42	7,606.36	0.00	0.00	0.00
16,600.00	89.75	90.00	9,019.82	354.77	7,699.42	7,706.32	0.00	0.00	0.00
16,700.00	89.75	90.00	9,020.26	354.77	7,799.42	7,806.28	0.00	0.00	0.00
16,800.00	89.75	90.00	9,020.70	354.78	7,899.42	7,906.24	0.00	0.00	0.00
16,900.00	89.75	90.00	9,021.14	354.78	7,999.42	8,006.20	0.00	0.00	0.00
17,000.00	89.75	90.00	9,021.58	354.79	8,099.42	8,106.16	0.00	0.00	0.00
17,100.00	89.75	90.00	9,022.02	354.79	8,199.42	8,206.12	0.00	0.00	0.00
17,200.00	89.75	90.00	9,022.46	354.80	8,299.42	8,306.08	0.00	0.00	0.00
17,300.00	89.75	90.00	9,022.90	354.80	8,399.41	8,406.04	0.00	0.00	0.00
17,400.00	89.75	90.00	9,023.34	354.81	8,499.41	8,506.00	0.00	0.00	0.00
17,500.00	89.75	90.00	9,023.78	354.81	8,599.41	8,605.96	0.00	0.00	0.00
17,600.00	89.75	90.00	9,024.23	354.82	8,699.41	8,705.92	0.00	0.00	0.00
17,700.00	89.75	90.00	9,024.67	354.82	8,799.41	8,805.88	0.00	0.00	0.00
17,800.00	89.75	90.00	9,025.11	354.82	8,899.41	8,905.84	0.00	0.00	0.00
17,900.00	89.75	90.00	9,025.55	354.83	8,999.41	9,005.80	0.00	0.00	0.00
18,000.00	89.75	90.00	9,025.99	354.83	9,099.41	9,105.76	0.00	0.00	0.00
18,100.00	89.75	90.00	9,026.43	354.84	9,199.41	9,205.72	0.00	0.00	0.00
18,200.00	89.75	90.00	9,026.87	354.84	9,299.41	9,305.68	0.00	0.00	0.00
18,300.00	89.75	90.00	9,027.31	354.85	9,399.41	9,405.64	0.00	0.00	0.00
18,400.00	89.75	90.00	9,027.75	354.85	9,499.40	9,505.60	0.00	0.00	0.00
18,500.00	89.75	90.00	9,028.19	354.86	9,599.40	9,605.56	0.00	0.00	0.00
18,600.00	89.75	90.00	9,028.63	354.86	9,699.40	9,705.52	0.00	0.00	0.00
18,700.00	89.75	90.00	9,029.07	354.87	9,799.40	9,805.48	0.00	0.00	0.00
18,800.00	89.75	90.00	9,029.51	354.87	9,899.40	9,905.45	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Coordinate Reference:	Well 12H
Company:	Devon Energy	TVD Reference:	3313.8' GE + 23.5' KB @337.30usft
Project:	Eddy County, NM (NAD83)	MD Reference:	3313.8' GE + 23.5' KB @337.30usft
Site:	Emerald PWU 20-22	North Reference:	Grid
Well:	12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST01		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
18,900.00	89.75	90.00	9,029.95	354.88	9,999.40	10,005.41	0.00	0.00	0.00
19,000.00	89.75	90.00	9,030.40	354.88	10,099.40	10,105.37	0.00	0.00	0.00
19,100.00	89.75	90.00	9,030.84	354.88	10,199.40	10,205.33	0.00	0.00	0.00
19,200.00	89.75	90.00	9,031.28	354.89	10,299.40	10,305.29	0.00	0.00	0.00
19,300.00	89.75	90.00	9,031.72	354.89	10,399.40	10,405.25	0.00	0.00	0.00
19,400.00	89.75	90.00	9,032.16	354.90	10,499.39	10,505.21	0.00	0.00	0.00
19,500.00	89.75	90.00	9,032.60	354.90	10,599.39	10,605.17	0.00	0.00	0.00
19,600.00	89.75	90.00	9,033.04	354.91	10,699.39	10,705.13	0.00	0.00	0.00
19,700.00	89.75	90.00	9,033.48	354.91	10,799.39	10,805.09	0.00	0.00	0.00
19,800.00	89.75	90.00	9,033.92	354.92	10,899.39	10,905.05	0.00	0.00	0.00
19,900.00	89.75	90.00	9,034.36	354.92	10,999.39	11,005.01	0.00	0.00	0.00
20,000.00	89.75	90.00	9,034.80	354.93	11,099.39	11,104.97	0.00	0.00	0.00
20,100.00	89.75	90.00	9,035.24	354.93	11,199.39	11,204.93	0.00	0.00	0.00
20,200.00	89.75	90.00	9,035.68	354.93	11,299.39	11,304.89	0.00	0.00	0.00
20,300.00	89.75	90.00	9,036.12	354.94	11,399.39	11,404.85	0.00	0.00	0.00
20,400.00	89.75	90.00	9,036.57	354.94	11,499.38	11,504.81	0.00	0.00	0.00
20,500.00	89.75	90.00	9,037.01	354.95	11,599.38	11,604.77	0.00	0.00	0.00
20,600.00	89.75	90.00	9,037.45	354.95	11,699.38	11,704.73	0.00	0.00	0.00
20,700.00	89.75	90.00	9,037.89	354.96	11,799.38	11,804.69	0.00	0.00	0.00
20,800.00	89.75	90.00	9,038.33	354.96	11,899.38	11,904.65	0.00	0.00	0.00
20,900.00	89.75	90.00	9,038.77	354.97	11,999.38	12,004.61	0.00	0.00	0.00
21,000.00	89.75	90.00	9,039.21	354.97	12,099.38	12,104.57	0.00	0.00	0.00
21,100.00	89.75	90.00	9,039.65	354.98	12,199.38	12,204.53	0.00	0.00	0.00
21,200.00	89.75	90.00	9,040.09	354.98	12,299.38	12,304.49	0.00	0.00	0.00
21,300.00	89.75	90.00	9,040.53	354.98	12,399.38	12,404.45	0.00	0.00	0.00
21,400.00	89.75	90.00	9,040.97	354.99	12,499.38	12,504.41	0.00	0.00	0.00
21,500.00	89.75	90.00	9,041.41	354.99	12,599.37	12,604.37	0.00	0.00	0.00
21,600.00	89.75	90.00	9,041.85	355.00	12,699.37	12,704.33	0.00	0.00	0.00
21,633.18	89.75	90.00	9,042.00	355.00	12,732.55	12,737.50	0.00	0.00	0.00

TD at 2633.18 -PBHL (Emerald 12H ST01)

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N-S (usft)	+E-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL (Emerald 12H)	0.00	0.00	0.00	0.00	0.00	596,335.26	611,703.17	32° 38' 20.998 N	104° 6' 17.060 W
- plan hits target center									
- Point									
PBHL (Emerald 12H ST01)	0.00	0.01	9,042.00	355.00	12,732.55	596,690.26	624,435.72	32° 38' 24.215 N	104° 3' 48.141 W
- plan hits target center									
- Point									

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Coordinate Reference:	Well 12H
Company:	Devon Energy	TVD Reference:	3313.8' GE + 23.5' KB @337.30usft
Project:	Eddy County, NM (NAD83)	MD Reference:	3313.8' GE + 23.5' KB @337.30usft
Site:	Emerald PWU 20-22	North Reference:	Grid
Well:	12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST01		
Design:	Plan #1		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
9,340.00	8,951.69	424.44	441.84	Start DLS4.00 TFO 90.47
9,547.24	8,973.49	425.04	647.75	Start DLS4.00 TFO -28.65
9,708.82	8,982.48	418.15	808.85	Start 399173 hold at 9708.82 MD
13,700.55	9,007.00	355.00	4,800.00	Start DLS2.00 TFO -83.76
13,746.28	9,007.24	354.64	4,845.72	Start 788690 hold at 13746.28 MD
21,633.18	9,042.00	355.00	12,732.55	TD at 21633.18

Devon Energy
Eddy County, NM (NAD-83)
Emerald PWU 20-22
12H

ST01
Plan #1

Anticollision Report

08 September, 2017

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	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	9/8/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
50.00	150.00	Survey #1 (OH)	VES GyroFlex V2	
285.00	9,340.00	Survey #2 (OH)	LEAM MWD+HDGM	MWD+HDGM
9,340.00	21,632.27	Plan #1 (ST01)	LEAM MWD+HDGM	MWD+HDGM

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						
AGATE PWU 21						
4H - OH - OH	18,855.25	12,258.00	1,211.46	1,007.41	5.937	CC, ES
4H - OH - OH	18,900.00	12,258.00	1,212.29	1,007.60	5.923	SF
Agate PWU 21-22						
62H - OH - OH	21,633.18	16,906.00	543.20	129.72	1.314	Level 3, CC, ES, SF
Diamond PWU 22						
8H - OH - OH	21,633.18	10,042.20	1,980.55	1,853.69	15.612	CC, ES, SF
8H - Pilot - Pilot	18,393.75	7,700.00	1,458.36	1,339.89	12.310	CC
8H - Pilot - Pilot	18,400.00	7,700.00	1,458.37	1,339.83	12.302	ES
8H - Pilot - Pilot	18,500.00	7,700.00	1,462.22	1,342.74	12.238	SF
Diamond PWU Offsets						
D-PWU-22 4H - OH - OH	21,633.18	11,072.90	1,107.64	977.96	8.541	CC, ES, SF
Emerald PWU 20-21						
Emerald 20 8H (offset) - OH - OH	6,792.00	11,684.00	268.78	229.22	6.794	SF
Emerald 20 8H (offset) - OH - OH	6,862.97	11,684.00	259.22	223.54	7.266	CC, ES
PWU #24 (offset) - OH - OH	14,591.67	8,991.49	363.52	205.57	2.302	CC
PWU #24 (offset) - OH - OH	14,600.00	8,991.68	363.61	205.47	2.299	ES, SF
PWU #5 (offset) - OH - OH	10,503.66	8,975.70	272.89	217.32	4.911	CC, ES, SF
PWU #6 (offset) - OH - OH	17,279.22	9,015.68	425.06	202.54	1.910	CC, ES
PWU #6 (offset) - OH - OH	17,300.00	9,016.44	425.57	202.74	1.910	SF
Emerald PWU 20-22						
12H - OH - OH	9,708.82	9,706.32	40.06	36.67	11.843	CC
12H - OH - OH	20,800.00	20,805.49	65.13	-318.05	0.170	Level 1, SF
12H - OH - OH	21,633.18	21,639.54	71.23	-338.03	0.174	Level 1, ES

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

AGATE PWU 21 - 4H - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100-NS-GYRO-M5-72AS-MWD-ISCWSA-12268-Project													Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
0.00	0.00	0.00	0.00	0.00	0.00	80.90	854.91	5,339.25	5,407.28					
50.00	50.00	25.90	25.90	0.02	0.03	86.00	854.95	5,339.26	5,407.28	5,407.22	0.06	N/A		
100.00	100.00	64.34	64.34	0.09	0.09	105.25	855.18	5,339.32	5,407.43	5,407.26	0.18	N/A		
150.00	150.00	100.00	100.00	0.13	0.13	116.21	855.58	5,339.42	5,407.81	5,407.55	0.26	N/A		
285.00	284.98	220.86	220.84	0.24	0.45	-166.41	857.55	5,339.96	5,410.78	5,410.07	0.71	7,625.100		
338.00	337.96	263.11	263.07	0.33	0.57	-172.72	858.46	5,340.23	5,412.66	5,411.75	0.91	5,960.643		
438.00	437.92	441.24	441.15	0.52	1.02	-170.67	862.79	5,340.05	5,415.74	5,414.20	1.53	3,528.174		
529.00	528.87	500.00	499.90	0.71	1.17	-179.49	863.74	5,339.82	5,418.55	5,416.68	1.87	2,890.502		
620.00	619.82	572.26	572.15	0.90	1.36	-176.80	864.82	5,339.89	5,421.88	5,419.63	2.25	2,410.321		
711.00	710.77	646.17	646.05	1.08	1.55	-173.81	866.08	5,340.26	5,425.51	5,422.88	2.62	2,069.384		
803.00	802.73	700.00	699.88	1.28	1.69	-173.82	866.86	5,340.66	5,429.37	5,426.42	2.95	1,838.696		
894.00	893.69	773.97	773.83	1.47	1.86	173.66	867.83	5,341.60	5,433.52	5,430.20	3.32	1,638.201		
985.00	984.65	833.30	833.14	1.66	1.99	177.86	868.53	5,342.83	5,438.06	5,434.43	3.63	1,498.169		
1,077.00	1,076.62	900.00	899.82	1.85	2.13	179.96	869.01	5,344.61	5,442.92	5,438.96	3.95	1,376.800		
1,169.00	1,168.60	1,043.65	1,043.42	2.05	2.46	-172.35	870.70	5,347.93	5,447.42	5,442.95	4.47	1,217.329		
1,261.00	1,260.57	1,178.04	1,177.79	2.24	2.81	-177.07	872.79	5,349.81	5,451.25	5,446.24	5.01	1,087.066		
1,353.00	1,352.55	1,260.02	1,259.75	2.43	3.02	160.61	874.11	5,350.61	5,454.19	5,448.77	5.42	1,006.643		
1,449.00	1,448.54	1,348.80	1,348.51	2.63	3.25	170.21	875.25	5,351.81	5,456.71	5,450.87	5.84	933.731		
1,544.00	1,543.53	1,447.29	1,446.99	2.83	3.50	163.60	876.11	5,353.14	5,459.23	5,452.94	6.29	867.931		
1,640.00	1,639.52	1,550.40	1,550.08	3.03	3.76	171.69	877.32	5,354.46	5,461.93	5,455.18	6.76	808.483		
1,736.00	1,735.51	1,662.32	1,661.98	3.23	4.06	164.08	879.12	5,355.50	5,464.37	5,457.12	7.25	753.574		
1,831.00	1,830.51	1,799.88	1,799.53	3.43	4.41	146.47	881.02	5,356.20	5,466.29	5,458.48	7.81	700.240		
1,927.00	1,926.49	1,904.22	1,903.86	3.63	4.67	157.86	881.88	5,356.27	5,467.82	5,459.55	8.27	661.382		
2,022.00	2,021.48	2,000.00	1,999.64	3.83	4.89	132.46	882.77	5,356.03	5,468.97	5,460.28	8.69	629.633		
2,118.00	2,117.48	2,081.57	2,081.21	4.03	5.09	147.16	883.71	5,355.90	5,469.70	5,460.62	9.08	602.304		
2,214.00	2,213.48	2,180.50	2,180.13	4.23	5.34	144.75	884.78	5,356.15	5,470.66	5,461.13	9.54	573.658		
2,310.00	2,309.47	2,299.27	2,298.89	4.43	5.64	116.45	885.83	5,356.11	5,471.27	5,461.24	10.03	545.386		
2,405.00	2,404.47	2,397.23	2,396.85	4.63	5.84	151.25	886.39	5,355.88	5,471.87	5,461.45	10.43	524.667		
2,501.00	2,500.45	2,500.00	2,499.62	4.83	6.00	123.46	886.59	5,355.58	5,472.64	5,461.85	10.79	507.086		
2,596.00	2,595.43	2,577.71	2,577.33	5.03	6.09	122.57	886.65	5,355.43	5,473.66	5,462.57	11.09	493.737		
2,724.00	2,723.33	2,706.75	2,706.36	5.31	6.31	122.59	886.76	5,355.51	5,476.46	5,464.88	11.58	473.000		
2,788.00	2,787.23	2,764.91	2,764.52	5.45	6.46	118.61	886.95	5,355.52	5,478.29	5,466.42	11.86	461.736		
2,883.00	2,882.05	2,882.05	2,881.66	5.66	6.67	121.46	887.19	5,355.49	5,481.27	5,468.99	12.28	446.357		
2,979.00	2,977.79	2,965.52	2,965.13	5.87	6.79	119.49	887.20	5,355.27	5,484.60	5,471.99	12.61	434.862		
3,074.00	3,072.45	3,051.89	3,051.51	6.09	6.98	121.03	887.64	5,355.26	5,488.72	5,475.71	13.01	421.945		
3,170.00	3,168.02	3,158.44	3,158.06	6.31	7.20	118.10	887.96	5,355.23	5,493.20	5,479.76	13.45	408.558		
3,265.00	3,262.52	3,249.79	3,249.41	6.54	7.35	120.26	887.99	5,355.07	5,497.83	5,484.02	13.81	397.971		
3,361.00	3,357.97	3,338.41	3,338.02	6.77	7.53	120.64	888.23	5,355.09	5,503.12	5,488.90	14.22	387.003		
3,406.00	3,402.71	3,387.60	3,387.22	6.88	7.66	120.89	888.51	5,355.06	5,505.61	5,491.16	14.45	381.077		
3,543.00	3,538.93	3,500.00	3,499.61	7.19	7.94	122.18	889.23	5,355.07	5,513.42	5,498.38	15.04	366.564		
3,639.00	3,634.45	3,582.34	3,581.95	7.42	8.16	115.70	889.77	5,355.37	5,518.58	5,503.11	15.47	356.775		
3,734.00	3,729.04	3,651.25	3,650.86	7.63	8.33	104.30	890.43	5,355.88	5,522.44	5,506.59	15.85	348.326		
3,830.00	3,824.64	3,746.24	3,745.83	7.85	8.57	105.67	891.86	5,356.92	5,525.98	5,509.66	16.31	338.735		
3,925.00	3,919.28	3,860.60	3,860.16	8.07	8.87	98.88	894.23	5,357.53	5,528.53	5,511.70	16.83	328.551		
4,021.00	4,014.96	3,970.65	3,970.19	8.28	9.16	98.46	896.58	5,357.98	5,530.40	5,513.07	17.33	319.077		
4,116.00	4,109.66	4,157.92	4,157.42	8.50	9.59	96.08	899.79	5,356.70	5,530.85	5,512.86	17.99	307.522		
4,212.00	4,205.31	4,253.69	4,253.17	8.72	9.79	93.56	901.22	5,355.32	5,530.36	5,511.95	18.41	300.434		
4,307.00	4,299.84	4,368.76	4,368.22	8.95	10.03	96.95	902.87	5,353.66	5,530.11	5,511.24	18.87	293.081		
4,403.00	4,395.31	4,440.39	4,439.83	9.18	10.18	91.04	903.88	5,352.42	5,529.41	5,510.16	19.25	287.226		
4,433.99	4,426.14	4,456.80	4,456.23	9.25	10.21	94.78	904.17	5,352.22	5,529.27	5,509.91	19.36	285.589		
4,498.00	4,489.83	4,500.00	4,499.42	9.40	10.31	102.53	905.06	5,351.88	5,529.89	5,510.29	19.61	282.018		
4,594.00	4,585.38	4,616.74	4,616.15	9.63	10.56	103.34	906.55	5,350.95	5,531.40	5,511.31	20.09	275.394		

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: Eddy County, NM (NAD-83)
 Reference Site: Emerald PWU 20-22
 Site Error: 0.00 usft
 Reference Well: 12H
 Well Error: 0.00 usft
 Reference Wellbore: ST01
 Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H
 TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
 MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Multi User Db
 Offset TVD Reference: Offset Datum

AGATE PWU 21 - 4H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100-NS-GYRO-MB-7249-MWD-ISO-WSA-12268-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 +H-E (usft)	+H-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
4,689.00	4,679.99	4,684.36	4,683.76	9.85	10.70	102.69	907.34	5,350.43	5,532.77	5,512.32	20.45	270.529	
4,785.00	4,775.59	5,000.00	4,999.24	10.08	11.24	102.75	910.14	5,341.71	5,531.59	5,510.39	21.20	260.926	
4,881.00	4,871.20	5,066.49	5,065.66	10.31	11.35	103.48	911.02	5,338.80	5,529.57	5,508.03	21.55	256.608	
4,976.00	4,965.86	5,138.00	5,137.10	10.54	11.49	100.03	912.60	5,336.05	5,527.82	5,505.91	21.91	252.315	
5,072.00	5,061.56	5,200.00	5,199.05	10.76	11.61	96.38	913.95	5,333.78	5,525.81	5,503.55	22.26	248.241	
5,168.00	5,157.24	5,278.49	5,277.48	10.98	11.78	103.80	915.59	5,331.30	5,524.46	5,501.81	22.65	243.892	
5,263.00	5,251.86	5,345.72	5,344.67	11.21	11.93	99.56	916.95	5,329.63	5,524.07	5,501.05	23.03	239.893	
5,359.00	5,347.43	5,420.76	5,419.69	11.45	12.09	98.23	918.23	5,328.14	5,523.78	5,500.35	23.43	235.795	
5,454.00	5,442.06	5,510.58	5,509.49	11.67	12.29	89.62	919.47	5,326.60	5,522.93	5,499.08	23.85	231.558	
5,550.00	5,537.68	5,700.08	5,698.89	11.90	12.71	94.85	922.85	5,321.85	5,521.21	5,496.72	24.49	225.440	
5,645.00	5,632.22	5,814.10	5,812.79	12.13	12.96	102.79	925.99	5,317.51	5,519.38	5,494.40	24.97	220.997	
5,741.00	5,727.76	5,900.00	5,898.59	12.37	13.15	103.54	928.32	5,314.25	5,518.18	5,492.78	25.40	217.247	
5,836.00	5,822.40	6,300.00	6,297.78	12.60	13.91	100.42	931.95	5,291.11	5,516.14	5,489.83	26.31	209.644	
5,932.00	5,918.09	6,359.27	6,356.81	12.82	13.99	101.37	930.40	5,286.10	5,509.27	5,482.64	26.63	206.911	
6,027.00	6,012.72	6,400.00	6,397.41	13.05	14.04	106.93	929.40	5,282.96	5,503.87	5,476.95	26.92	204.439	
6,123.00	6,108.31	6,457.19	6,454.44	13.29	14.11	107.27	927.83	5,279.05	5,499.67	5,472.44	27.23	201.977	
6,218.00	6,202.96	6,500.00	6,497.16	13.52	14.16	104.33	926.41	5,276.55	5,496.04	5,468.52	27.52	199.733	
6,314.00	6,298.53	6,551.83	6,548.88	13.75	14.20	103.93	924.43	5,274.00	5,493.17	5,465.36	27.80	197.571	
6,410.00	6,394.04	6,600.00	6,596.98	13.99	14.24	102.80	922.39	5,272.10	5,491.14	5,463.05	28.09	195.495	
6,505.00	6,488.68	6,646.15	6,643.06	14.22	14.27	105.23	920.41	5,270.68	5,489.76	5,461.41	28.35	193.645	
6,599.38	6,582.75	6,700.00	6,696.85	14.45	14.31	106.87	918.25	5,269.50	5,489.33	5,460.72	28.61	191.879	
6,601.00	6,584.37	6,700.00	6,696.85	14.45	14.31	106.89	918.25	5,269.50	5,489.33	5,460.72	28.61	191.853	
6,696.00	6,678.98	6,741.97	6,738.79	14.68	14.32	103.06	916.60	5,268.95	5,489.81	5,460.95	28.86	190.214	
6,792.00	6,774.47	6,800.00	6,796.77	14.93	14.35	101.65	914.22	5,268.68	5,491.01	5,461.88	29.12	188.534	
6,887.00	6,869.00	6,900.00	6,896.68	15.16	14.39	104.69	910.14	5,268.42	5,492.50	5,463.10	29.40	186.830	
6,983.00	6,964.62	6,972.51	6,969.13	15.40	14.42	107.78	907.06	5,268.24	5,494.25	5,464.59	29.66	185.249	
7,079.00	7,060.22	7,048.77	7,045.30	15.63	14.45	107.17	903.40	5,268.49	5,496.71	5,466.79	29.92	183.701	
7,174.00	7,154.74	7,129.58	7,126.00	15.87	14.49	107.98	899.18	5,268.97	5,499.71	5,469.52	30.19	182.159	
7,269.00	7,249.25	7,208.49	7,204.78	16.11	14.53	112.01	894.73	5,269.70	5,503.36	5,472.90	30.46	180.669	
7,365.00	7,344.87	7,281.00	7,277.15	16.35	14.54	108.66	890.34	5,270.23	5,506.65	5,475.91	30.74	179.138	
7,461.00	7,440.61	7,281.00	7,277.15	16.57	14.54	118.29	890.34	5,270.23	5,511.11	5,480.10	31.01	177.707	
7,556.00	7,535.44	7,312.00	7,308.08	16.79	14.54	103.15	888.56	5,271.27	5,516.15	5,484.90	31.26	176.482	
7,651.00	7,630.26	7,312.00	7,308.08	17.01	14.54	100.14	888.56	5,271.27	5,521.77	5,490.26	31.51	175.249	
7,746.00	7,725.12	7,312.00	7,308.08	17.22	14.54	107.42	888.56	5,271.27	5,529.01	5,497.27	31.75	174.153	
7,842.00	7,821.00	7,312.00	7,308.08	17.43	14.54	96.97	888.56	5,271.27	5,537.75	5,505.77	31.98	173.167	
7,938.00	7,916.89	7,312.00	7,308.08	17.64	14.54	90.53	888.56	5,271.27	5,547.52	5,515.32	32.20	172.269	
8,033.00	8,011.80	7,344.00	7,339.81	17.84	14.55	88.51	886.90	5,274.95	5,558.12	5,525.71	32.41	171.476	
8,128.00	8,106.75	7,344.00	7,339.81	18.04	14.55	88.60	886.90	5,274.95	5,570.05	5,537.44	32.61	170.796	
8,224.00	8,202.73	7,344.00	7,339.81	18.24	14.55	79.20	886.90	5,274.95	5,583.65	5,550.85	32.80	170.238	
8,312.00	8,290.73	7,344.00	7,339.81	18.41	14.55	88.95	886.90	5,274.95	5,597.55	5,564.59	32.96	169.832	
8,363.00	8,341.72	7,344.00	7,339.81	18.51	14.55	39.56	886.90	5,274.95	5,606.05	5,573.00	33.05	169.633	
8,411.00	8,389.55	7,344.00	7,339.81	18.60	14.55	-5.87	886.90	5,274.95	5,611.12	5,578.00	33.12	169.405	
8,458.00	8,435.66	7,344.00	7,339.81	18.67	14.55	-8.13	886.90	5,274.95	5,611.04	5,577.85	33.19	169.078	
8,506.00	8,481.40	7,344.00	7,339.81	18.72	14.55	-7.94	886.90	5,274.95	5,605.99	5,572.75	33.24	168.642	
8,553.00	8,524.51	7,344.00	7,339.81	18.76	14.55	-6.06	886.90	5,274.95	5,596.65	5,563.36	33.29	168.119	
8,601.00	8,567.16	7,376.00	7,371.00	18.81	14.55	-3.18	885.30	5,281.85	5,584.20	5,550.84	33.35	167.421	
8,649.00	8,608.40	7,376.00	7,371.00	18.85	14.55	-3.25	885.30	5,281.85	5,569.15	5,535.75	33.40	166.751	
8,697.00	8,647.61	7,376.00	7,371.00	18.88	14.55	-5.51	885.30	5,281.85	5,561.01	5,517.58	33.43	166.024	
8,743.00	8,682.89	7,376.00	7,371.00	18.92	14.55	-6.98	885.30	5,281.85	5,530.59	5,497.13	33.46	165.280	
8,791.00	8,717.88	7,376.00	7,371.00	18.94	14.55	-7.36	885.30	5,281.85	5,507.20	5,473.72	33.48	164.485	
8,839.00	8,751.41	7,376.00	7,371.00	18.97	14.55	-8.84	885.30	5,281.85	5,482.40	5,448.90	33.49	163.678	
8,887.00	8,782.81	7,376.00	7,371.00	19.01	14.55	-9.62	885.30	5,281.85	5,455.53	5,422.02	33.51	162.825	

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design AGATE PWU 21 - 4H - OH - OH											Offset Site Error:	0.00 usft
Survey Program: 100-NS-GYRO-MS, T249-MWD-ISCWSA, 12258-Project											Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,935.00	8,811.32	7,376.00	7,371.00	19.08	14.55	-11.17	885.30	5,281.85	5,426.04	5,392.53	33.51	161.912
8,983.00	8,837.12	7,376.00	7,371.00	19.25	14.55	-10.99	885.30	5,281.85	5,394.32	5,360.80	33.51	160.954
9,031.00	8,860.37	7,376.00	7,371.00	19.57	14.55	-11.65	885.30	5,281.85	5,360.66	5,327.15	33.51	159.950
9,078.00	8,880.89	7,376.00	7,371.00	19.95	14.55	-11.09	885.30	5,281.85	5,326.14	5,292.63	33.51	158.926
9,126.00	8,899.61	7,376.00	7,371.00	20.41	14.55	-8.29	885.30	5,281.85	5,289.33	5,255.81	33.51	157.824
9,174.00	8,916.02	7,376.00	7,371.00	20.94	14.55	-5.95	885.30	5,281.85	5,251.01	5,217.49	33.52	156.663
9,222.00	8,930.13	7,376.00	7,371.00	21.53	14.55	-3.89	885.30	5,281.85	5,211.36	5,177.84	33.52	155.456
9,270.00	8,941.24	7,391.12	7,385.48	22.17	14.56	-1.87	884.44	5,286.14	5,169.79	5,136.25	33.55	154.107
9,333.00	8,950.94	7,392.95	7,387.22	23.10	14.56	-2.54	884.33	5,286.70	5,113.35	5,079.80	33.55	152.390
9,340.00	8,951.69	7,408.00	7,401.39	23.21	14.56	-2.56	883.33	5,291.64	5,107.28	5,073.70	33.58	152.111
9,400.00	8,958.00	7,408.00	7,401.39	23.88	14.56	-8.23	883.33	5,291.64	5,052.37	5,016.45	35.92	140.673
9,500.00	8,968.52	7,408.00	7,401.39	24.42	14.56	-17.14	883.33	5,291.64	4,961.50	4,925.61	35.88	138.262
9,547.24	8,973.49	7,408.00	7,401.39	24.76	14.56	-21.04	883.33	5,291.64	4,918.97	4,883.10	35.87	137.149
9,600.00	8,978.18	7,408.00	7,401.39	25.20	14.56	-20.34	883.33	5,291.64	4,871.29	4,835.44	35.85	135.881
9,708.82	8,982.48	7,408.00	7,401.39	26.30	14.56	-18.61	883.33	5,291.64	4,770.79	4,734.95	35.84	133.132
9,800.00	8,983.04	7,408.00	7,401.39	27.43	14.56	-18.61	883.33	5,291.64	4,685.56	4,649.73	35.83	130.763
9,900.00	8,983.66	7,408.00	7,401.39	28.84	14.56	-18.61	883.33	5,291.64	4,592.35	4,556.52	35.83	128.161
10,000.00	8,984.27	7,408.00	7,401.39	30.42	14.56	-18.61	883.33	5,291.64	4,499.43	4,463.59	35.84	125.542
10,100.00	8,984.88	7,408.00	7,401.39	32.14	14.56	-18.61	883.33	5,291.64	4,406.82	4,370.96	35.86	122.903
10,200.00	8,985.50	7,408.00	7,401.39	33.97	14.56	-18.61	883.33	5,291.64	4,314.54	4,278.66	35.88	120.244
10,300.00	8,986.11	7,408.00	7,401.39	35.91	14.56	-18.61	883.33	5,291.64	4,222.61	4,186.70	35.92	117.564
10,400.00	8,986.73	7,439.00	7,429.92	37.94	14.57	-18.84	880.71	5,303.47	4,130.90	4,094.88	36.02	114.684
10,500.00	8,987.34	7,439.00	7,429.92	40.04	14.57	-18.84	880.71	5,303.47	4,039.45	4,003.36	36.08	111.952
10,600.00	8,987.96	7,439.00	7,429.92	42.19	14.57	-18.84	880.71	5,303.47	3,948.41	3,912.25	36.16	109.196
10,700.00	8,988.57	7,439.00	7,429.92	44.41	14.57	-18.84	880.71	5,303.47	3,857.81	3,821.56	36.25	106.417
10,800.00	8,989.18	7,439.00	7,429.92	46.66	14.57	-18.84	880.71	5,303.47	3,767.69	3,731.33	36.36	103.613
10,900.00	8,989.80	7,439.00	7,429.92	48.96	14.57	-18.84	880.71	5,303.47	3,678.08	3,641.59	36.49	100.785
11,000.00	8,990.41	7,439.00	7,429.92	51.29	14.57	-18.84	880.71	5,303.47	3,589.02	3,552.37	36.65	97.933
11,100.00	8,991.03	7,471.00	7,458.37	53.64	14.59	-19.07	877.64	5,317.78	3,500.40	3,463.51	36.89	94.898
11,200.00	8,991.64	7,471.00	7,458.37	56.03	14.59	-19.07	877.64	5,317.78	3,412.14	3,375.05	37.09	91.995
11,300.00	8,992.26	7,471.00	7,458.37	58.43	14.59	-19.07	877.64	5,317.78	3,324.54	3,287.21	37.32	89.071
11,400.00	8,992.87	7,471.00	7,458.37	60.86	14.59	-19.07	877.64	5,317.78	3,237.66	3,200.07	37.59	86.127
11,500.00	8,993.48	7,471.00	7,458.37	63.30	14.59	-19.07	877.64	5,317.78	3,151.56	3,113.67	37.89	83.167
11,600.00	8,994.10	7,487.59	7,472.72	65.76	14.60	-19.19	876.12	5,325.96	3,065.99	3,027.72	38.26	80.126
11,700.00	8,994.71	7,503.00	7,485.80	68.23	14.62	-19.30	874.72	5,333.99	2,981.37	2,942.69	38.67	77.093
11,800.00	8,995.33	7,503.00	7,485.80	70.71	14.62	-19.30	874.72	5,333.99	2,897.44	2,858.34	39.10	74.101
11,900.00	8,995.94	7,503.00	7,485.80	73.21	14.62	-19.30	874.72	5,333.99	2,814.56	2,774.98	39.58	71.111
12,000.00	8,996.56	7,519.78	7,499.76	75.71	14.63	-19.42	873.26	5,343.19	2,732.50	2,692.36	40.14	68.082
12,100.00	8,997.17	7,535.00	7,512.16	78.22	14.65	-19.53	872.01	5,351.92	2,651.60	2,610.86	40.74	65.080
12,200.00	8,997.78	7,535.00	7,512.16	80.75	14.65	-19.53	872.01	5,351.92	2,571.77	2,530.37	41.39	62.130
12,300.00	8,998.40	7,548.95	7,523.30	83.27	14.68	-19.63	870.92	5,360.25	2,493.16	2,451.03	42.13	59.184
12,400.00	8,999.01	7,567.00	7,537.39	85.81	14.71	-19.77	869.63	5,371.45	2,415.93	2,373.00	42.93	56.276
12,500.00	8,999.63	7,567.00	7,537.39	88.35	14.71	-19.77	869.63	5,371.45	2,340.04	2,296.25	43.79	53.441
12,600.00	9,000.24	7,583.53	7,549.96	90.90	14.75	-19.90	868.52	5,382.14	2,265.69	2,220.95	44.74	50.642
12,700.00	9,000.85	7,599.00	7,561.40	93.45	14.78	-20.01	867.55	5,392.49	2,193.03	2,147.27	45.77	47.916
12,800.00	9,001.47	7,611.35	7,570.34	96.01	14.82	-20.11	866.81	5,400.98	2,122.15	2,075.27	46.88	45.269
12,900.00	9,002.08	7,630.00	7,583.52	98.57	14.87	-20.25	865.77	5,414.14	2,053.16	2,005.08	48.08	42.701
13,000.00	9,002.70	7,647.65	7,595.66	101.14	14.94	-20.38	864.87	5,426.91	1,986.15	1,936.78	49.38	40.226
13,100.00	9,003.31	7,662.00	7,605.34	103.71	14.99	-20.49	864.22	5,437.49	1,921.26	1,870.51	50.75	37.854
13,200.00	9,003.93	7,694.00	7,626.25	106.28	15.13	-20.75	863.12	5,461.68	1,858.53	1,806.26	52.27	35.557
13,300.00	9,004.54	7,726.00	7,646.25	108.86	15.29	-21.02	862.43	5,486.65	1,798.31	1,744.42	53.90	33.367
13,400.00	9,005.15	7,745.66	7,658.13	111.44	15.41	-21.19	862.12	5,502.31	1,740.36	1,684.76	55.59	31.305

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: Eddy County, NM (NAD-83)
 Reference Site: Emerald PWU 20-22
 Site Error: 0.00 usft
 Reference Well: 12H
 Well Error: 0.00 usft
 Reference Wellbore: ST01
 Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H
 TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
 MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Multi User Db
 Offset TVD Reference: Offset Datum

Offset Design AGATE PWU 21 - 4H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100-NS-GYRO-MB-7249-MWD-ISCWSA-12258-Project													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-U- (usft)	Offset Wellbore Centre -E-W- (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,500.00	9,005.77	7,806.23	7,693.92	114.02	15.80	-21.72	861.60	5,551.18	1,684.52	1,626.96	57.56	29.266	
13,600.00	9,006.38	7,853.00	7,721.50	116.61	16.15	-22.16	861.55	5,588.95	1,629.56	1,569.93	59.63	27.326	
13,700.55	9,007.00	7,885.00	7,739.62	119.21	16.42	-22.47	861.71	5,615.32	1,576.92	1,515.14	61.79	25.522	
13,746.28	9,007.24	7,885.00	7,739.62	120.39	16.42	-22.00	861.71	5,615.32	1,554.09	1,491.40	62.69	24.789	
13,800.00	9,007.48	7,917.00	7,756.45	121.78	16.73	-22.28	861.97	5,642.53	1,527.77	1,463.83	63.95	23.892	
13,900.00	9,007.92	7,937.08	7,766.29	124.37	16.94	-22.45	862.14	5,660.03	1,481.67	1,415.57	66.10	22.416	
14,000.00	9,008.36	7,970.58	7,781.58	126.96	17.32	-22.71	862.25	5,689.83	1,439.26	1,370.87	68.39	21.045	
14,100.00	9,008.80	8,014.71	7,799.97	129.55	17.85	-23.00	861.96	5,729.94	1,400.33	1,329.52	70.81	19.777	
14,200.00	9,009.24	8,061.00	7,818.00	132.15	18.46	-23.29	861.36	5,772.57	1,364.21	1,290.92	73.30	18.612	
14,300.00	9,009.68	8,109.93	7,835.34	134.75	19.16	-23.59	861.11	5,818.32	1,331.54	1,255.65	75.89	17.546	
14,400.00	9,010.12	8,157.00	7,850.21	137.34	19.89	-23.83	860.57	5,862.97	1,302.28	1,223.81	78.47	16.595	
14,500.00	9,010.56	8,189.00	7,858.56	139.94	20.41	-23.96	859.96	5,893.85	1,277.42	1,196.55	80.88	15.794	
14,600.00	9,011.00	8,220.00	7,865.04	142.55	20.94	-24.05	859.19	5,924.15	1,257.44	1,174.28	83.16	15.120	
14,700.00	9,011.44	8,252.00	7,870.06	145.15	21.51	-24.10	858.23	5,955.74	1,242.50	1,157.19	85.30	14.566	
14,800.00	9,011.89	8,284.00	7,873.50	147.75	22.09	-24.13	857.49	5,987.54	1,232.74	1,145.45	87.28	14.123	
14,900.00	9,012.33	8,357.95	7,877.68	150.36	23.49	-24.17	856.83	6,061.36	1,227.47	1,137.89	89.58	13.702	
15,000.00	9,012.77	8,457.91	7,883.18	152.96	25.47	-24.26	856.50	6,161.17	1,222.71	1,130.47	92.24	13.255	
15,100.00	9,013.21	8,530.85	7,886.89	155.57	26.97	-24.36	857.32	6,234.02	1,219.00	1,124.28	94.71	12.870	
15,191.08	9,013.61	8,592.25	7,888.59	157.94	28.26	-24.44	858.63	6,295.37	1,217.88	1,121.00	96.88	12.571	
15,200.00	9,013.65	8,598.18	7,888.68	158.18	28.38	-24.45	858.78	6,301.30	1,217.89	1,120.80	97.09	12.544	
15,300.00	9,014.09	8,666.00	7,888.68	160.79	29.83	-24.53	860.84	6,369.09	1,219.51	1,120.09	99.42	12.267	
15,400.00	9,014.53	8,780.02	7,888.57	163.40	32.32	-24.71	865.27	6,483.02	1,221.59	1,118.93	102.66	11.899	
15,500.00	9,014.97	8,861.10	7,888.16	166.01	34.13	-24.84	868.60	6,564.03	1,224.15	1,118.81	105.34	11.621	
15,600.00	9,015.41	8,975.19	7,886.75	168.62	36.72	-24.94	872.00	6,678.06	1,226.94	1,118.44	108.50	11.309	
15,700.00	9,015.85	9,103.25	7,886.84	171.23	39.67	-25.03	874.27	6,806.09	1,228.04	1,116.24	111.80	10.984	
15,800.00	9,016.29	9,203.78	7,888.47	173.84	42.01	-25.10	875.41	6,906.60	1,227.46	1,112.74	114.71	10.700	
15,816.13	9,016.36	9,217.61	7,888.60	174.27	42.33	-25.11	875.54	6,920.43	1,227.44	1,112.30	115.14	10.660	
15,900.00	9,016.73	9,303.52	7,889.16	176.46	44.36	-25.13	876.13	7,006.34	1,227.52	1,109.99	117.53	10.445	
16,000.00	9,017.17	9,411.47	7,890.49	179.07	46.91	-25.17	876.64	7,114.28	1,227.01	1,106.54	120.47	10.185	
16,100.00	9,017.61	9,516.05	7,892.70	181.69	49.40	-25.26	877.87	7,218.83	1,225.99	1,102.47	123.52	9.925	
16,200.00	9,018.06	9,629.34	7,896.21	184.30	52.11	-25.39	879.56	7,332.05	1,224.22	1,097.39	126.83	9.652	
16,300.00	9,018.50	9,718.00	7,899.28	186.92	54.23	-25.52	881.37	7,420.64	1,222.38	1,092.50	129.87	9.412	
16,375.24	9,018.83	9,776.89	7,900.61	188.89	55.65	-25.60	882.64	7,479.50	1,221.84	1,089.84	132.00	9.256	
16,400.00	9,018.94	9,795.98	7,900.81	189.54	56.11	-25.61	882.99	7,498.59	1,221.90	1,089.23	132.67	9.210	
16,500.00	9,019.38	9,879.63	7,900.67	192.16	58.13	-25.66	884.25	7,582.23	1,223.09	1,087.72	135.37	9.035	
16,600.00	9,019.82	9,968.67	7,899.26	194.77	60.29	-25.66	885.24	7,671.24	1,225.39	1,087.38	138.01	8.879	
16,700.00	9,020.26	10,078.52	7,897.34	197.39	62.96	-25.68	886.75	7,781.07	1,227.98	1,086.98	141.01	8.709	
16,800.00	9,020.70	10,194.67	7,897.72	200.01	65.78	-25.80	889.69	7,897.18	1,229.17	1,084.72	144.46	8.509	
16,900.00	9,021.14	10,316.60	7,900.10	202.63	68.76	-25.95	892.48	8,019.05	1,228.80	1,080.70	148.09	8.297	
17,000.00	9,021.58	10,432.33	7,904.15	205.25	71.59	-26.13	894.95	8,134.68	1,226.99	1,075.26	151.73	8.087	
17,100.00	9,022.02	10,534.79	7,908.50	207.87	74.10	-26.26	896.27	8,237.05	1,224.14	1,069.04	155.10	7.893	
17,200.00	9,022.46	10,637.54	7,912.14	210.49	76.62	-26.35	896.80	8,339.72	1,221.59	1,063.27	158.32	7.716	
17,300.00	9,022.90	10,734.12	7,915.67	213.12	79.00	-26.40	896.50	8,436.24	1,218.58	1,057.23	161.35	7.552	
17,400.00	9,023.34	10,817.95	7,917.44	215.74	81.06	-26.39	895.47	8,520.04	1,216.54	1,052.54	164.00	7.418	
17,500.00	9,023.78	10,906.52	7,917.52	218.36	83.25	-26.30	893.61	8,608.59	1,215.90	1,049.51	166.39	7.307	
17,600.00	9,024.23	11,012.72	7,916.96	220.98	85.87	-26.14	890.35	8,714.74	1,215.42	1,046.74	168.68	7.206	
17,700.00	9,024.67	11,107.91	7,916.47	223.61	88.23	-25.96	886.39	8,809.84	1,214.46	1,043.76	170.69	7.115	
17,733.42	9,024.81	11,135.70	7,916.21	224.48	88.92	-25.91	885.46	8,837.62	1,214.38	1,043.00	171.38	7.086	
17,800.00	9,025.11	11,189.01	7,915.50	226.23	90.23	-25.83	884.12	8,890.91	1,214.72	1,041.96	172.77	7.031	
17,900.00	9,025.55	11,271.51	7,913.70	228.85	92.27	-25.76	883.39	8,973.39	1,216.66	1,041.64	175.02	6.952	
18,000.00	9,025.99	11,371.31	7,911.07	231.48	94.74	-25.69	883.18	9,073.15	1,219.35	1,041.82	177.53	6.869	
18,100.00	9,026.43	11,483.40	7,909.65	234.10	97.51	-25.70	884.35	9,185.21	1,221.33	1,040.76	180.57	6.764	

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design AGATE PWU 21 - 4H - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100-NS-GYRO-MS, 7249-MWD-ISCWSA, 12258-Project													Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre -N-U-4 (usft)	Offset Wellbore Centre -E-W (usft)	Between Centres (usft)	Between Ellipse (usft)	Minimum Separation (usft)	Separation Factor	Warning	
18,200.00	9,026.87	11,589.19	7,909.99	236.73	100.13	-25.82	887.22	9,290.97	1,222.61	1,038.60	184.01	6.644		
18,300.00	9,027.31	11,690.84	7,910.64	239.35	102.64	-25.93	889.93	9,392.58	1,223.59	1,036.18	187.41	6.529		
18,400.00	9,027.75	11,814.50	7,912.04	241.98	105.71	-26.06	892.41	9,516.21	1,223.92	1,032.82	191.09	6.405		
18,500.00	9,028.19	11,933.62	7,915.73	244.60	108.66	-26.18	893.82	9,635.25	1,222.02	1,027.31	194.71	6.276		
18,600.00	9,028.63	12,036.95	7,919.39	247.23	111.23	-26.26	894.08	9,738.52	1,219.35	1,021.38	197.97	6.159		
18,700.00	9,029.07	12,143.45	7,923.08	249.85	113.87	-26.29	893.35	9,844.95	1,216.33	1,015.28	201.06	6.050		
18,800.00	9,029.51	12,248.03	7,926.89	252.48	115.01	-26.28	891.50	9,949.45	1,212.68	1,009.67	203.00	5.974		
18,855.25	9,029.76	12,258.00	7,927.25	253.93	115.01	-26.28	891.31	9,959.41	1,211.46	1,007.41	204.05	5.937 CC, ES		
18,900.00	9,029.95	12,258.00	7,927.25	255.11	115.01	-26.28	891.31	9,959.41	1,212.29	1,007.60	204.69	5.923 SF		
19,000.00	9,030.40	12,258.00	7,927.25	257.73	115.01	-26.28	891.31	9,959.41	1,220.08	1,014.91	205.17	5.947		
19,100.00	9,030.84	12,258.00	7,927.25	260.36	115.01	-26.28	891.31	9,959.41	1,235.94	1,031.56	204.38	6.047		
19,200.00	9,031.28	12,258.00	7,927.25	262.99	115.01	-26.28	891.31	9,959.41	1,259.56	1,057.14	202.42	6.223		
19,300.00	9,031.72	12,258.00	7,927.25	265.61	115.01	-26.28	891.31	9,959.41	1,290.52	1,091.06	199.46	6.470		
19,400.00	9,032.16	12,258.00	7,927.25	268.24	115.01	-26.28	891.31	9,959.41	1,328.30	1,132.61	195.69	6.788		
19,500.00	9,032.60	12,258.00	7,927.25	270.87	115.01	-26.28	891.31	9,959.41	1,372.35	1,181.03	191.32	7.173		
19,600.00	9,033.04	12,258.00	7,927.25	273.50	115.01	-26.28	891.31	9,959.41	1,422.07	1,235.54	186.54	7.624		
19,700.00	9,033.48	12,258.00	7,927.25	276.12	115.01	-26.28	891.31	9,959.41	1,476.90	1,295.40	181.50	8.137		
19,800.00	9,033.92	12,258.00	7,927.25	278.75	115.01	-26.28	891.31	9,959.41	1,536.29	1,359.93	176.36	8.711		
19,900.00	9,034.36	12,258.00	7,927.25	281.38	115.01	-26.28	891.31	9,959.41	1,599.73	1,428.51	171.22	9.343		
20,000.00	9,034.80	12,258.00	7,927.25	284.01	115.01	-26.28	891.31	9,959.41	1,666.76	1,500.60	166.17	10.031		
20,100.00	9,035.24	12,258.00	7,927.25	286.64	115.01	-26.28	891.31	9,959.41	1,736.96	1,575.71	161.25	10.772		
20,200.00	9,035.68	12,258.00	7,927.25	289.27	115.01	-26.28	891.31	9,959.41	1,809.97	1,653.45	156.53	11.563		
20,300.00	9,036.12	12,258.00	7,927.25	291.90	115.01	-26.28	891.31	9,959.41	1,885.46	1,733.45	152.01	12.404		
20,400.00	9,036.57	12,258.00	7,927.25	294.53	115.01	-26.28	891.31	9,959.41	1,963.13	1,815.42	147.71	13.290		
20,500.00	9,037.01	12,258.00	7,927.25	297.15	115.01	-26.28	891.31	9,959.41	2,042.75	1,899.11	143.65	14.221		
20,600.00	9,037.45	12,258.00	7,927.25	299.78	115.01	-26.28	891.31	9,959.41	2,124.10	1,984.29	139.81	15.193		
20,700.00	9,037.89	12,258.00	7,927.25	302.41	115.01	-26.28	891.31	9,959.41	2,206.98	2,070.78	136.20	16.204		
20,800.00	9,038.33	12,258.00	7,927.25	305.04	115.01	-26.28	891.31	9,959.41	2,291.22	2,158.42	132.80	17.253		
20,900.00	9,038.77	12,258.00	7,927.25	307.67	115.01	-26.28	891.31	9,959.41	2,376.69	2,247.08	129.61	18.337		
21,000.00	9,039.21	12,258.00	7,927.25	310.30	115.01	-26.28	891.31	9,959.41	2,463.25	2,336.63	126.62	19.454		
21,100.00	9,039.65	12,258.00	7,927.25	312.93	115.01	-26.28	891.31	9,959.41	2,550.79	2,426.99	123.81	20.603		
21,200.00	9,040.09	12,258.00	7,927.25	315.56	115.01	-26.28	891.31	9,959.41	2,639.22	2,518.05	121.17	21.781		
21,300.00	9,040.53	12,258.00	7,927.25	318.19	115.01	-26.28	891.31	9,959.41	2,728.45	2,609.76	118.70	22.987		
21,400.00	9,040.97	12,258.00	7,927.25	320.83	115.01	-26.28	891.31	9,959.41	2,818.40	2,702.03	116.37	24.219		
21,500.00	9,041.41	12,258.00	7,927.25	323.46	115.01	-26.28	891.31	9,959.41	2,909.01	2,794.82	114.19	25.474		
21,600.00	9,041.85	12,258.00	7,927.25	326.09	115.01	-26.28	891.31	9,959.41	3,000.22	2,888.07	112.15	26.753		
21,633.18	9,042.00	12,258.00	7,927.25	326.62	115.01	-26.28	891.31	9,959.41	3,030.60	2,919.21	111.39	27.208		

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Emerald PWU 20-22
Site Error: 0.00 usft
Reference Well: 12H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Agate PWU 21-22 - 62H - OH - OH													Offset Site Error:
Survey Program: 140-VE8 GyroFlex V2.243-LEAM MWD+HDGM, 8331-MWD+IFR1+MS, 19475-Project													0.00 usft
Reference													Offset Well Error:
Offset													0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Between Centres +E/-W (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.00	0.00	11.41	11.41	0.00	0.01	73.03	1,366.23	4,478.07	4,681.85				
50.00	50.00	61.46	61.46	0.02	0.05	78.13	1,366.36	4,478.03	4,681.84	4,681.77	0.07	N/A	
67.47	67.47	78.95	78.95	0.05	0.06	90.36	1,366.45	4,478.00	4,681.84	4,681.73	0.10	N/A	
100.00	100.00	111.51	111.51	0.09	0.08	97.38	1,366.66	4,477.94	4,681.85	4,681.68	0.17	N/A	
150.00	150.00	160.99	160.99	0.13	0.12	108.34	1,367.11	4,477.80	4,681.94	4,681.70	0.24	N/A	
285.00	284.98	279.30	279.29	0.24	0.25	-174.28	1,368.20	4,477.57	4,684.04	4,683.55	0.49	9,569.792	
338.00	337.96	317.12	317.10	0.33	0.31	179.41	1,368.67	4,477.64	4,685.71	4,685.06	0.65	7,256.464	
438.00	437.92	422.53	422.51	0.52	0.51	-178.50	1,370.35	4,477.92	4,689.31	4,688.28	1.03	4,550.347	
529.00	528.87	508.34	508.31	0.71	0.69	172.67	1,371.89	4,477.98	4,692.78	4,691.39	1.39	3,366.970	
620.00	619.82	584.17	584.11	0.90	0.85	175.36	1,373.40	4,478.18	4,696.53	4,694.79	1.74	2,696.849	
711.00	710.77	653.97	653.90	1.08	1.00	178.35	1,374.91	4,478.59	4,700.56	4,698.49	2.07	2,265.630	
803.00	802.73	726.66	726.56	1.28	1.16	178.34	1,376.44	4,479.42	4,705.02	4,702.59	2.42	1,941.106	
894.00	893.69	815.58	815.46	1.47	1.35	165.81	1,378.40	4,480.56	4,709.45	4,706.65	2.80	1,680.966	
985.00	984.65	897.67	897.52	1.66	1.52	170.01	1,379.88	4,481.81	4,713.74	4,710.59	3.16	1,493.749	
1,077.00	1,076.62	981.00	980.83	1.85	1.70	172.11	1,380.93	4,483.46	4,718.11	4,714.59	3.52	1,341.624	
1,169.00	1,168.60	1,055.45	1,055.26	2.05	1.86	179.81	1,381.84	4,485.15	4,722.66	4,718.79	3.87	1,220.711	
1,261.00	1,260.57	1,180.03	1,179.80	2.24	2.11	175.10	1,383.56	4,487.65	4,727.13	4,722.81	4.32	1,095.152	
1,353.00	1,352.55	1,277.82	1,277.57	2.43	2.32	152.79	1,384.93	4,489.16	4,730.64	4,725.94	4.70	1,005.613	
1,449.00	1,448.54	1,373.44	1,373.17	2.63	2.52	162.39	1,386.45	4,490.46	4,733.34	4,728.23	5.10	927.577	
1,544.00	1,543.53	1,455.62	1,455.33	2.83	2.69	155.78	1,387.62	4,491.84	4,736.32	4,730.85	5.47	865.299	
1,640.00	1,639.52	1,567.19	1,566.87	3.03	2.93	163.87	1,389.49	4,493.48	4,739.39	4,733.49	5.91	802.199	
1,736.00	1,735.51	1,667.34	1,667.00	3.23	3.13	156.26	1,391.15	4,494.79	4,742.31	4,736.00	6.32	750.911	
1,831.00	1,830.51	1,802.39	1,802.03	3.43	3.41	138.66	1,392.60	4,496.35	4,744.84	4,738.05	6.79	698.714	
1,927.00	1,926.49	1,901.92	1,901.56	3.63	3.62	150.06	1,393.14	4,496.90	4,746.74	4,739.54	7.20	659.389	
2,022.00	2,021.48	1,992.24	1,991.87	3.83	3.81	124.67	1,393.71	4,497.50	4,748.64	4,741.05	7.59	625.803	
2,118.00	2,117.48	2,086.72	2,086.35	4.03	4.01	139.38	1,394.45	4,498.15	4,750.08	4,742.09	7.99	594.592	
2,214.00	2,213.48	2,196.77	2,196.39	4.23	4.24	136.98	1,394.93	4,498.91	4,751.34	4,742.92	8.42	564.265	
2,310.00	2,309.47	2,299.45	2,299.07	4.43	4.45	108.69	1,394.75	4,499.52	4,752.24	4,743.41	8.83	537.979	
2,405.00	2,404.47	2,428.04	2,427.66	4.63	4.72	143.51	1,394.35	4,499.61	4,752.80	4,743.50	9.30	511.206	
2,501.00	2,500.45	2,511.59	2,511.21	4.83	4.89	115.72	1,394.25	4,499.56	4,753.58	4,743.90	9.67	491.494	
2,596.00	2,595.43	2,609.98	2,609.60	5.03	5.09	114.84	1,394.35	4,499.56	4,754.53	4,744.45	10.08	471.789	
2,724.00	2,723.33	2,741.88	2,741.50	5.31	5.37	114.88	1,393.79	4,499.31	4,756.24	4,745.61	10.63	447.598	
2,788.00	2,787.23	2,796.90	2,796.51	5.45	5.48	110.92	1,393.44	4,499.42	4,757.61	4,746.73	10.88	437.303	
2,883.00	2,882.05	2,904.85	2,904.46	5.66	5.71	113.79	1,392.73	4,499.43	4,759.67	4,748.35	11.31	420.783	
2,979.00	2,977.79	2,991.04	2,990.65	5.87	5.89	111.85	1,392.16	4,499.53	4,762.31	4,750.61	11.70	406.922	
3,074.00	3,072.45	3,093.79	3,093.40	6.09	6.10	113.43	1,391.49	4,499.53	4,765.23	4,753.10	12.13	392.821	
3,170.00	3,168.02	3,177.98	3,177.59	6.31	6.28	110.51	1,391.42	4,499.50	4,768.56	4,756.03	12.53	380.715	
3,265.00	3,262.52	3,276.30	3,275.91	6.54	6.48	112.71	1,391.27	4,499.57	4,772.20	4,759.25	12.95	368.479	
3,361.00	3,357.97	3,377.33	3,376.94	6.77	6.69	113.12	1,391.26	4,499.37	4,776.03	4,762.64	13.39	356.745	
3,406.00	3,402.71	3,412.68	3,412.29	6.88	6.77	113.36	1,391.45	4,499.30	4,777.92	4,764.35	13.56	352.234	
3,543.00	3,538.93	3,541.00	3,540.60	7.19	7.03	114.69	1,392.79	4,499.04	4,784.02	4,769.87	14.14	338.245	
3,639.00	3,634.45	3,619.19	3,618.78	7.42	7.20	108.21	1,394.06	4,498.90	4,787.86	4,773.33	14.53	329.584	
3,734.00	3,729.04	3,699.78	3,699.35	7.63	7.37	96.82	1,396.05	4,498.95	4,790.49	4,775.57	14.91	321.228	
3,830.00	3,824.64	3,818.73	3,818.24	7.85	7.62	98.21	1,399.59	4,498.82	4,792.36	4,776.97	15.39	311.472	
3,925.00	3,919.28	3,974.56	3,974.06	8.07	7.95	91.48	1,400.97	4,497.98	4,792.80	4,776.88	15.93	300.897	
4,021.00	4,014.96	4,120.33	4,119.81	8.28	8.25	91.13	1,399.80	4,496.13	4,791.59	4,775.14	16.45	291.312	
4,116.00	4,109.66	4,232.94	4,232.39	8.50	8.49	88.74	1,399.19	4,493.69	4,789.44	4,772.53	16.90	283.379	
4,212.00	4,205.31	4,311.54	4,310.97	8.72	8.65	86.24	1,399.11	4,491.96	4,787.00	4,769.71	17.29	276.834	
4,307.00	4,299.84	4,393.68	4,393.09	8.95	8.82	89.64	1,399.45	4,490.30	4,784.93	4,767.23	17.69	270.414	
4,403.00	4,395.31	4,483.18	4,482.57	9.18	9.01	83.75	1,400.43	4,488.51	4,782.78	4,764.66	18.12	264.005	
4,498.00	4,489.83	4,560.12	4,559.48	9.40	9.17	95.27	1,401.79	4,487.00	4,781.34	4,762.83	18.51	258.353	
4,578.26	4,569.71	4,627.86	4,627.20	9.59	9.32	95.90	1,403.31	4,485.84	4,781.24	4,762.40	18.84	253.746	

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: Eddy County, NM (NAD-83)
Reference Sits: Emerald PWU 20-22
Site Error: 0.00 usft
Reference Well: 12H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #1

Local Co-ordinates Reference: Well 12H
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Agate PWU 21-22 - 62H - OH - OH														Offset Site Error:	0.00 usft
Survey Program: 140-VE6 Gyriflex V2.343-LEAM MWD+HGM, 8331-MWD+FR1+MS, 19478-Project														Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-M (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning			
4,594.00	4,585.38	4,641.98	4,641.31	9.63	9.35	96.03	1,403.66	4,485.60	4,781.24	4,762.33	18.91	252.839			
4,689.00	4,679.99	4,733.01	4,732.30	9.85	9.54	95.40	1,405.99	4,484.16	4,781.28	4,761.96	19.33	247.399			
4,749.72	4,740.46	4,793.51	4,792.79	10.00	9.67	95.33	1,406.75	4,483.41	4,781.27	4,761.67	19.60	243.965			
4,785.00	4,775.59	4,824.59	4,823.86	10.08	9.73	95.29	1,406.97	4,483.09	4,781.29	4,761.54	19.75	242.131			
4,881.00	4,871.20	4,901.95	4,901.22	10.31	9.89	96.06	1,407.32	4,482.48	4,781.53	4,761.40	20.14	237.470			
4,976.00	4,965.86	4,974.00	4,973.27	10.54	10.04	92.65	1,407.04	4,482.53	4,782.08	4,761.58	20.51	233.205			
5,072.00	5,061.56	5,053.23	5,052.50	10.76	10.20	89.05	1,406.37	4,483.02	4,782.55	4,761.65	20.89	228.890			
5,168.00	5,157.24	5,211.57	5,210.82	10.98	10.53	96.61	1,404.01	4,483.37	4,782.83	4,761.38	21.45	222.981			
5,263.00	5,251.86	5,314.07	5,313.27	11.21	10.74	92.47	1,400.83	4,482.98	4,782.39	4,760.50	21.89	218.476			
5,359.00	5,347.43	5,399.79	5,398.95	11.45	10.92	91.20	1,398.71	4,482.75	4,781.82	4,759.52	22.30	214.422			
5,454.00	5,442.06	5,489.67	5,488.82	11.67	11.11	82.64	1,397.03	4,482.41	4,780.62	4,757.90	22.72	210.451			
5,550.00	5,537.68	5,602.84	5,601.98	11.90	11.35	87.86	1,395.95	4,481.81	4,779.24	4,756.05	23.18	206.135			
5,645.00	5,632.22	5,705.70	5,704.83	12.13	11.56	95.85	1,394.95	4,480.63	4,778.26	4,754.62	23.63	202.189			
5,704.43	5,691.36	5,754.07	5,753.20	12.28	11.66	96.33	1,394.23	4,480.21	4,778.17	4,754.29	23.88	200.110			
5,741.00	5,727.76	5,781.32	5,780.44	12.37	11.72	96.65	1,393.77	4,480.06	4,778.21	4,754.19	24.02	198.900			
5,836.00	5,822.40	5,849.70	5,848.81	12.60	11.86	93.35	1,392.41	4,479.96	4,778.37	4,753.98	24.39	195.907			
5,932.00	5,918.09	5,912.24	5,911.33	12.82	11.99	94.33	1,391.02	4,480.32	4,778.92	4,754.18	24.75	193.116			
6,027.00	6,012.72	5,970.64	5,969.70	13.05	12.11	99.87	1,389.54	4,481.13	4,780.71	4,755.61	25.09	190.515			
6,123.00	6,108.31	6,024.00	6,023.02	13.29	12.22	100.27	1,387.81	4,482.37	4,783.73	4,758.30	25.43	188.093			
6,218.00	6,202.96	6,096.53	6,095.45	13.52	12.37	97.40	1,384.59	4,484.75	4,787.09	4,761.28	25.81	185.492			
6,314.00	6,298.53	6,168.40	6,167.13	13.75	12.52	96.99	1,380.34	4,487.77	4,790.88	4,764.69	26.19	182.942			
6,410.00	6,394.04	6,263.24	6,261.65	13.99	12.72	96.02	1,374.13	4,492.24	4,795.00	4,768.37	26.62	180.109			
6,505.00	6,488.68	6,351.72	6,349.89	14.22	12.91	98.61	1,368.79	4,496.07	4,798.81	4,771.77	27.03	177.505			
6,601.00	6,584.37	6,406.00	6,403.99	14.45	13.02	100.30	1,365.35	4,498.73	4,803.42	4,776.05	27.37	175.517			
6,696.00	6,678.98	6,479.54	6,477.16	14.68	13.18	96.52	1,359.38	4,503.09	4,808.55	4,780.80	27.75	173.290			
6,792.00	6,774.47	6,652.71	6,649.23	14.93	13.55	95.43	1,343.34	4,513.61	4,813.71	4,785.34	28.37	169.664			
6,887.00	6,869.00	6,769.66	6,765.83	15.16	13.80	98.58	1,335.80	4,518.33	4,817.30	4,788.45	28.86	166.929			
6,983.00	6,964.62	6,845.86	6,841.77	15.40	13.96	101.74	1,330.28	4,521.38	4,821.23	4,791.98	29.25	164.832			
7,079.00	7,060.22	6,909.72	6,905.44	15.63	14.10	101.13	1,326.19	4,524.21	4,825.93	4,796.32	29.61	162.964			
7,174.00	7,154.74	6,980.00	6,975.47	15.87	14.25	101.94	1,321.60	4,527.95	4,831.55	4,801.56	30.00	161.068			
7,269.00	7,249.25	7,031.82	7,027.11	16.11	14.37	105.97	1,318.55	4,530.99	4,838.17	4,807.83	30.33	159.499			
7,365.00	7,344.87	7,110.69	7,105.77	16.35	14.54	102.66	1,315.18	4,535.73	4,845.18	4,814.45	30.73	157.670			
7,461.00	7,440.61	7,267.00	7,261.49	16.57	14.88	112.58	1,305.38	4,545.01	4,851.77	4,820.46	31.31	154.982			
7,556.00	7,535.44	7,333.04	7,327.35	16.79	15.02	97.51	1,301.87	4,548.36	4,857.17	4,825.52	31.65	153.445			
7,651.00	7,630.26	7,362.00	7,356.24	17.01	15.09	94.53	1,300.65	4,549.99	4,862.59	4,830.68	31.91	152.376			
7,746.00	7,725.12	7,420.40	7,414.46	17.22	15.22	101.88	1,298.11	4,553.90	4,868.93	4,836.70	32.24	151.035			
7,842.00	7,821.00	7,840.00	7,832.05	17.43	16.15	92.12	1,266.56	4,575.26	4,874.17	4,840.74	33.43	145.799			
7,938.00	7,916.89	7,904.31	7,896.23	17.64	16.29	85.71	1,262.48	4,576.02	4,874.24	4,840.46	33.78	144.290			
8,033.00	8,011.80	8,053.56	8,045.33	17.84	16.61	83.76	1,256.38	4,577.56	4,874.29	4,839.98	34.31	142.073			
8,128.00	8,106.75	8,127.00	8,118.75	18.04	16.77	83.80	1,254.60	4,577.76	4,873.81	4,839.15	34.66	140.601			
8,186.61	8,165.35	8,170.61	8,162.35	18.16	16.86	79.50	1,253.72	4,578.02	4,873.75	4,838.88	34.88	139.745			
8,224.00	8,202.73	8,203.93	8,195.67	18.24	16.93	74.34	1,253.15	4,578.23	4,873.75	4,838.72	35.02	139.158			
8,312.00	8,290.73	8,298.97	8,290.69	18.41	17.13	84.07	1,251.28	4,578.92	4,873.88	4,838.48	35.40	137.699			
8,363.00	8,341.72	8,331.00	8,322.70	18.51	17.16	34.69	1,250.41	4,579.05	4,873.66	4,838.13	35.53	137.172			
8,411.00	8,389.55	8,331.00	8,322.70	18.60	17.16	-11.00	1,250.41	4,579.05	4,870.63	4,835.01	35.62	136.756			
8,458.00	8,435.66	8,331.00	8,322.70	18.67	17.16	-13.54	1,250.41	4,579.05	4,862.80	4,827.11	35.69	136.255			
8,506.00	8,481.40	8,331.00	8,322.70	18.72	17.16	-13.69	1,250.41	4,579.05	4,850.10	4,814.35	35.75	135.662			
8,553.00	8,524.51	8,356.83	8,348.53	18.76	17.16	-11.98	1,250.01	4,579.58	4,832.91	4,797.10	35.81	134.958			
8,601.00	8,567.16	8,379.00	8,370.66	18.81	17.16	-9.08	1,250.17	4,580.83	4,813.33	4,777.46	35.86	134.208			
8,649.00	8,608.40	8,379.00	8,370.66	18.85	17.16	-9.41	1,250.17	4,580.83	4,791.03	4,755.12	35.91	133.422			
8,697.00	8,647.61	8,379.00	8,370.66	18.88	17.16	-12.31	1,250.17	4,580.83	4,765.98	4,730.04	35.94	132.593			
8,743.00	8,682.89	8,379.00	8,370.66	18.92	17.16	-14.40	1,250.17	4,580.83	4,739.35	4,703.38	35.97	131.762			

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: Eddy County, NM (NAD-83)
Reference Site: Emerald PWU 20-22
Site Error: 0.00 usft
Reference Well: 12H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Agate PWU 21-22 - 62H - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 140- VES GyoFlex V2, 245-LEAM MWD+HGM, 8331-MWD+IFR+MS, 19476-Project													Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
8,791.00	8,717.88	8,379.00	8,370.66	18.94	17.16	-15.10	1,250.17	4,580.83	4,709.77	4,673.79	35.98	130.884		
8,839.00	8,751.41	8,379.00	8,370.66	18.97	17.16	-17.14	1,250.17	4,580.83	4,679.02	4,643.03	35.99	129.996		
8,887.00	8,782.81	8,379.00	8,370.66	19.01	17.16	-18.70	1,250.17	4,580.83	4,646.55	4,610.55	36.00	129.072		
8,935.00	8,811.32	8,379.00	8,370.66	19.08	17.16	-21.38	1,250.17	4,580.83	4,611.93	4,575.93	36.00	128.101		
8,983.00	8,837.12	8,379.00	8,370.66	19.25	17.16	-21.93	1,250.17	4,580.83	4,575.47	4,539.47	36.00	127.091		
9,031.00	8,860.37	8,379.00	8,370.66	19.57	17.16	-23.78	1,250.17	4,580.83	4,537.42	4,501.42	36.00	126.042		
9,078.00	8,880.89	8,379.00	8,370.66	19.95	17.16	-23.91	1,250.17	4,580.83	4,498.89	4,462.90	36.00	124.979		
9,126.00	8,899.61	8,402.48	8,394.03	20.41	17.16	-22.18	1,250.83	4,582.99	4,457.65	4,421.63	36.02	123.770		
9,174.00	8,916.02	8,404.92	8,396.45	20.94	17.16	-20.41	1,250.92	4,583.27	4,415.49	4,379.47	36.02	122.577		
9,222.00	8,930.13	8,427.00	8,418.30	21.53	17.17	-19.91	1,252.01	4,586.19	4,372.59	4,336.54	36.04	121.310		
9,270.00	8,941.24	8,427.00	8,418.30	22.17	17.17	-20.17	1,252.01	4,586.19	4,327.97	4,291.92	36.05	120.048		
9,333.00	8,950.94	8,427.00	8,418.30	23.10	17.17	-27.02	1,252.01	4,586.19	4,267.89	4,231.83	36.06	118.361		
9,340.00	8,951.69	8,427.00	8,418.30	23.21	17.17	-27.53	1,252.01	4,586.19	4,261.14	4,225.07	36.06	118.163		
9,400.00	8,958.00	8,427.00	8,418.30	23.88	17.17	-35.01	1,252.01	4,586.19	4,203.40	4,165.19	38.21	110.006		
9,500.00	8,968.52	8,427.00	8,418.30	24.42	17.17	-44.87	1,252.01	4,586.19	4,108.30	4,070.11	38.20	107.559		
9,547.24	8,973.49	8,427.00	8,418.30	24.76	17.17	-48.58	1,252.01	4,586.19	4,064.01	4,025.82	38.19	106.417		
9,600.00	8,978.18	8,427.00	8,418.30	25.20	17.17	-50.53	1,252.01	4,586.19	4,014.53	3,976.34	38.19	105.114		
9,708.82	8,982.48	8,427.00	8,418.30	26.30	17.17	-56.18	1,252.01	4,586.19	3,910.87	3,872.64	38.23	102.306		
9,800.00	8,983.04	8,427.00	8,418.30	27.43	17.17	-56.18	1,252.01	4,586.19	3,823.29	3,785.01	38.28	99.880		
9,900.00	8,983.66	8,427.00	8,418.30	28.84	17.17	-56.18	1,252.01	4,586.19	3,727.44	3,689.08	38.36	97.177		
10,000.00	8,984.27	8,427.00	8,418.30	30.42	17.17	-56.18	1,252.01	4,586.19	3,631.80	3,593.34	38.46	94.419		
10,100.00	8,984.88	8,427.00	8,418.30	32.14	17.17	-56.18	1,252.01	4,586.19	3,536.41	3,497.81	38.61	91.605		
10,200.00	8,985.50	8,427.00	8,418.30	33.97	17.17	-56.18	1,252.01	4,586.19	3,441.28	3,402.50	38.78	88.731		
10,300.00	8,986.11	8,427.00	8,418.30	35.91	17.17	-56.18	1,252.01	4,586.19	3,346.44	3,307.44	39.00	85.798		
10,400.00	8,986.73	8,427.00	8,418.30	37.94	17.17	-56.18	1,252.01	4,586.19	3,251.90	3,212.63	39.27	82.804		
10,500.00	8,987.34	8,427.00	8,418.30	40.04	17.17	-56.18	1,252.01	4,586.19	3,157.71	3,118.11	39.59	79.751		
10,600.00	8,987.96	8,427.00	8,418.30	42.19	17.17	-56.18	1,252.01	4,586.19	3,063.87	3,023.90	39.98	76.641		
10,700.00	8,988.57	8,427.00	8,418.30	44.41	17.17	-56.18	1,252.01	4,586.19	2,970.45	2,930.02	40.43	73.477		
10,800.00	8,989.18	8,427.00	8,418.30	46.66	17.17	-56.18	1,252.01	4,586.19	2,877.46	2,836.51	40.95	70.265		
10,900.00	8,989.80	8,448.94	8,439.88	48.96	17.17	-57.18	1,253.46	4,589.90	2,784.42	2,742.82	41.60	66.932		
11,000.00	8,990.41	8,452.10	8,442.98	51.29	17.17	-57.33	1,253.70	4,590.50	2,692.28	2,649.97	42.31	63.629		
11,100.00	8,991.03	8,455.45	8,446.25	53.64	17.17	-57.49	1,253.95	4,591.16	2,600.70	2,557.57	43.13	60.302		
11,200.00	8,991.64	8,476.00	8,466.23	56.03	17.18	-58.46	1,255.70	4,595.61	2,510.07	2,465.97	44.10	56.919		
11,300.00	8,992.26	8,476.00	8,466.23	58.43	17.18	-58.46	1,255.70	4,595.61	2,419.65	2,374.50	45.15	53.589		
11,400.00	8,992.87	8,476.00	8,466.23	60.86	17.18	-58.46	1,255.70	4,595.61	2,330.02	2,283.68	46.34	50.277		
11,500.00	8,993.48	8,476.00	8,466.23	63.30	17.18	-58.46	1,255.70	4,595.61	2,241.27	2,193.58	47.69	46.999		
11,600.00	8,994.10	8,476.00	8,466.23	65.76	17.18	-58.46	1,255.70	4,595.61	2,153.51	2,104.31	49.20	43.772		
11,700.00	8,994.71	8,476.00	8,466.23	68.23	17.18	-58.46	1,255.70	4,595.61	2,066.85	2,015.96	50.89	40.615		
11,800.00	8,995.33	8,476.00	8,466.23	70.71	17.18	-58.46	1,255.70	4,595.61	1,981.46	1,928.68	52.78	37.543		
11,900.00	8,995.94	8,476.00	8,466.23	73.21	17.18	-58.46	1,255.70	4,595.61	1,897.49	1,842.61	54.88	34.574		
12,000.00	8,996.56	8,496.59	8,486.04	75.71	17.18	-59.44	1,257.73	4,600.82	1,814.62	1,757.29	57.33	31.652		
12,100.00	8,997.17	8,502.91	8,492.08	78.22	17.19	-59.75	1,258.41	4,602.57	1,733.75	1,673.78	59.97	28.910		
12,200.00	8,997.78	8,522.00	8,510.16	80.75	17.19	-60.67	1,260.60	4,608.29	1,655.05	1,592.08	62.97	26.283		
12,300.00	8,998.40	8,522.00	8,510.16	83.27	17.19	-60.67	1,260.60	4,608.29	1,578.26	1,512.11	66.16	23.857		
12,400.00	8,999.01	8,522.00	8,510.16	85.81	17.19	-60.67	1,260.60	4,608.29	1,504.20	1,434.56	69.64	21.599		
12,500.00	8,999.63	8,522.00	8,510.16	88.35	17.19	-60.67	1,260.60	4,608.29	1,433.30	1,359.86	73.44	19.516		
12,600.00	9,000.24	8,546.83	8,533.35	90.90	17.20	-61.89	1,263.79	4,616.58	1,365.34	1,287.52	77.82	17.546		
12,700.00	9,000.85	8,570.00	8,554.64	93.45	17.21	-63.03	1,267.11	4,625.08	1,301.59	1,219.06	82.53	15.771		
12,800.00	9,001.47	8,570.00	8,554.64	96.01	17.21	-63.03	1,267.11	4,625.08	1,241.96	1,154.67	87.29	14.228		
12,900.00	9,002.08	8,588.68	8,571.56	98.57	17.22	-63.96	1,269.96	4,632.45	1,187.42	1,094.88	92.54	12.831		
13,000.00	9,002.70	8,618.00	8,597.68	101.14	17.23	-65.41	1,274.64	4,644.93	1,138.56	1,040.41	98.15	11.600		
13,100.00	9,003.31	8,618.00	8,597.68	103.71	17.23	-65.41	1,274.64	4,644.93	1,095.74	992.35	103.39	10.598		

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

LEAM Drilling Systems LLC

Anticollision Report

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 Project: Eddy County, NM (NAD-83)
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 Reference Well: 12H
 Well Error: 0.00 usft
 Reference Wellbore: ST01
 Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H
 TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
 MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Multi User Db
 Offset TVD Reference: Offset Datum

Offset Design Agate PWU 21-22 - 62H - OH - OH												Offset Site Error:	0.00 usft
Survey Program: 140- VES GyoFlex V2, 243-LEAM MWD+HGM, 8331-MWD+IFR1+MS, 10476-Project												Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis (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	Warning
13,200.00	9,003.93	8,654.68	8,629.48	106.28	17.25	-67.21	1,280.62	4,662.19	1,059.52	950.32	109.21	9.702	
13,300.00	9,004.54	8,666.00	8,639.08	108.86	17.25	-67.76	1,282.46	4,667.90	1,030.79	916.45	114.33	9.016	
13,400.00	9,005.15	8,714.00	8,678.17	111.44	17.28	-70.03	1,291.12	4,694.34	1,009.91	890.08	119.83	8.428	
13,500.00	9,005.77	8,727.19	8,688.38	114.02	17.29	-70.64	1,293.77	4,702.25	996.99	872.93	124.06	8.036	
13,600.00	9,006.38	8,762.00	8,714.13	116.61	17.32	-72.18	1,300.91	4,724.55	992.26	864.16	128.10	7.746	
13,614.52	9,006.47	8,771.23	8,720.67	116.98	17.32	-72.57	1,302.83	4,730.78	992.18	863.45	128.73	7.707	
13,700.55	9,007.00	8,817.06	8,751.44	119.21	17.36	-74.43	1,312.34	4,763.36	994.54	862.56	131.98	7.535	
13,746.28	9,007.24	8,844.10	8,767.93	120.39	17.38	-75.43	1,317.86	4,784.06	997.22	863.65	133.58	7.466	
13,800.00	9,007.48	8,882.24	8,788.82	121.78	17.41	-76.69	1,325.44	4,815.04	1,001.25	865.81	135.44	7.392	
13,900.00	9,007.92	8,978.51	8,830.20	124.37	17.49	-79.18	1,342.25	4,900.11	1,010.44	871.34	139.10	7.264	
14,000.00	9,008.36	9,147.11	8,857.62	126.96	17.86	-80.85	1,360.78	5,064.54	1,019.71	876.54	143.17	7.122	
14,100.00	9,008.80	9,276.24	8,864.25	129.55	18.29	-81.22	1,364.61	5,193.45	1,021.94	875.58	146.35	6.983	
14,200.00	9,009.24	9,410.50	8,874.28	132.15	18.85	-81.75	1,364.61	5,327.33	1,020.88	871.30	149.58	6.825	
14,300.00	9,009.68	9,517.83	8,882.65	134.75	19.37	-82.17	1,362.45	5,434.30	1,017.85	865.07	152.77	6.662	
14,400.00	9,010.12	9,623.26	8,890.12	137.34	19.93	-82.54	1,359.43	5,539.42	1,014.10	858.10	156.00	6.501	
14,500.00	9,010.56	9,716.43	8,895.34	139.94	20.47	-82.79	1,356.68	5,632.40	1,010.52	851.28	159.24	6.346	
14,600.00	9,011.00	9,806.23	8,898.58	142.55	21.03	-82.94	1,354.61	5,722.12	1,007.82	845.35	162.47	6.203	
14,700.00	9,011.44	9,897.69	8,898.66	145.15	21.63	-82.91	1,352.92	5,813.56	1,006.03	840.35	165.68	6.072	
14,800.00	9,011.89	9,986.00	8,896.79	147.75	22.24	-82.77	1,351.96	5,901.84	1,005.27	836.41	168.85	5.954	
14,900.00	9,012.33	10,099.47	8,893.91	150.36	23.06	-82.57	1,350.46	6,015.27	1,004.32	832.16	172.16	5.834	
15,000.00	9,012.77	10,201.98	8,891.19	152.96	23.83	-82.37	1,348.37	6,117.72	1,002.69	827.24	175.45	5.715	
15,100.00	9,013.21	10,319.95	8,888.59	155.57	24.76	-82.17	1,345.25	6,235.61	1,000.50	821.70	178.80	5.596	
15,200.00	9,013.65	10,422.58	8,887.39	158.18	25.59	-82.04	1,340.45	6,338.12	996.06	813.91	182.15	5.468	
15,300.00	9,014.09	10,509.90	8,887.29	160.79	26.32	-81.99	1,337.75	6,425.40	993.05	807.52	185.52	5.353	
15,400.00	9,014.53	10,603.51	8,887.82	163.40	27.12	-81.98	1,335.63	6,518.99	990.78	801.85	188.93	5.244	
15,500.00	9,014.97	10,701.64	8,888.90	166.01	27.98	-82.01	1,334.08	6,617.09	989.12	796.72	192.39	5.141	
15,600.00	9,015.41	10,795.94	8,890.57	168.62	28.82	-82.07	1,332.62	6,711.38	987.42	791.55	195.87	5.041	
15,700.00	9,015.85	10,887.59	8,892.44	171.23	29.64	-82.15	1,332.37	6,803.01	986.90	787.56	199.33	4.951	
15,800.00	9,016.29	10,984.98	8,894.52	173.84	30.54	-82.24	1,332.30	6,900.37	986.59	783.73	202.86	4.863	
15,804.90	9,016.31	10,989.49	8,894.64	173.97	30.58	-82.25	1,332.31	6,904.87	986.59	783.56	203.03	4.859	
15,900.00	9,016.73	11,090.21	8,898.28	176.46	31.52	-82.44	1,332.82	7,005.54	986.68	780.18	206.50	4.778	
15,996.14	9,017.16	11,180.82	8,901.64	178.97	32.37	-82.60	1,332.46	7,096.07	985.92	776.00	209.92	4.697	
16,000.00	9,017.17	11,183.82	8,901.73	179.07	32.40	-82.61	1,332.47	7,099.07	985.92	775.87	210.05	4.694	
16,100.00	9,017.61	11,293.56	8,903.92	181.69	33.44	-82.71	1,333.13	7,208.78	986.39	772.68	213.71	4.615	
16,200.00	9,018.06	11,390.14	8,902.67	184.30	34.37	-82.61	1,331.80	7,305.34	985.26	768.05	217.20	4.536	
16,300.00	9,018.50	11,515.92	8,895.04	186.92	35.59	-82.17	1,328.85	7,430.90	983.76	763.05	220.71	4.457	
16,400.00	9,018.94	11,651.97	8,885.20	189.54	36.92	-81.44	1,320.92	7,566.28	979.29	755.41	223.88	4.374	
16,500.00	9,019.38	11,792.77	8,874.46	192.16	38.31	-80.64	1,305.96	7,705.85	969.81	743.20	226.61	4.280	
16,600.00	9,019.82	11,879.21	8,870.17	194.77	39.17	-80.27	1,296.33	7,791.64	959.67	729.52	230.15	4.170	
16,700.00	9,020.26	11,973.32	8,868.77	197.39	40.11	-80.07	1,286.89	7,885.25	950.13	716.46	233.67	4.066	
16,800.00	9,020.70	12,060.83	8,870.69	200.01	41.00	-80.08	1,279.47	7,972.42	941.50	704.12	237.39	3.966	
16,900.00	9,021.14	12,119.08	8,872.98	202.63	41.59	-80.17	1,276.56	8,030.54	936.00	694.81	241.19	3.881	
16,987.88	9,021.53	12,176.56	8,875.85	204.94	42.17	-80.33	1,276.19	8,087.95	934.70	690.43	244.27	3.826	
17,000.00	9,021.58	12,185.00	8,876.39	205.25	42.26	-80.36	1,276.30	8,096.37	934.72	690.03	244.69	3.820	
17,100.00	9,022.02	12,284.95	8,884.76	207.87	43.28	-80.86	1,278.46	8,195.95	935.56	686.97	248.59	3.763	
17,200.00	9,022.46	12,393.45	8,892.59	210.49	44.39	-81.31	1,279.61	8,304.14	935.55	683.01	252.54	3.704	
17,300.00	9,022.90	12,504.11	8,897.28	213.12	45.53	-81.56	1,279.03	8,414.70	934.45	678.07	256.38	3.645	
17,400.00	9,023.34	12,644.72	8,908.22	215.74	46.99	-82.16	1,275.07	8,554.79	930.57	670.25	260.32	3.575	
17,500.00	9,023.78	12,732.04	8,915.27	218.36	47.90	-82.53	1,270.96	8,641.73	924.93	660.73	264.20	3.501	
17,600.00	9,024.23	12,815.66	8,921.16	220.98	48.77	-82.86	1,269.00	8,725.11	921.68	653.68	268.00	3.439	
17,700.00	9,024.67	12,928.24	8,929.04	223.61	49.95	-83.29	1,266.06	8,837.38	918.29	646.42	271.86	3.378	
17,800.00	9,025.11	13,054.13	8,935.43	226.23	51.27	-83.61	1,260.03	8,962.95	913.04	637.53	275.51	3.314	

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Agate PWU 21-22 - 62H - OH - OH												Offset Site Error:	0.00 usft
Survey Program: 140-VES GyroFlex V2.343-LEAM MWD+HGM, 5331-MWD+FR1+MS, 19478-Project												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distances		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)	Separation (usft)	Factor	
17,900.00	9,025.55	13,155.13	8,939.77	228.85	52.34	-83.81	1,252.97	9,063.61	905.66	626.42	279.24	3.243	
18,000.00	9,025.99	13,232.05	8,942.65	231.48	53.15	-83.94	1,248.57	9,140.35	899.67	616.55	283.12	3.178	
18,100.00	9,026.43	13,321.74	8,944.88	234.10	54.10	-84.04	1,245.79	9,229.96	896.31	609.46	286.85	3.125	
18,200.00	9,026.87	13,428.74	8,948.83	236.73	55.24	-84.23	1,241.94	9,336.82	892.38	601.78	290.59	3.071	
18,300.00	9,027.31	13,546.95	8,952.43	239.35	56.50	-84.39	1,236.43	9,454.85	887.53	593.30	294.22	3.017	
18,400.00	9,027.75	13,672.97	8,952.53	241.98	57.85	-84.30	1,226.60	9,580.47	879.78	582.30	297.48	2.957	
18,500.00	9,028.19	13,779.84	8,949.77	244.60	58.99	-84.02	1,215.52	9,686.72	869.73	568.85	300.87	2.891	
18,600.00	9,028.63	13,868.87	8,948.35	247.23	59.94	-83.84	1,207.22	9,775.35	860.64	555.95	304.68	2.825	
18,700.00	9,029.07	13,983.89	8,948.84	249.85	61.17	-83.75	1,195.90	9,889.81	850.83	542.87	307.96	2.763	
18,800.00	9,029.51	14,088.05	8,948.40	252.48	62.29	-83.61	1,184.28	9,993.32	839.82	528.40	311.43	2.697	
18,900.00	9,029.95	14,179.15	8,948.55	255.11	63.27	-83.51	1,174.28	10,083.86	828.96	513.68	315.28	2.629	
19,000.00	9,030.40	14,288.13	8,949.92	257.73	64.44	-83.49	1,163.53	10,192.30	819.14	500.48	318.66	2.571	
19,100.00	9,030.84	14,405.20	8,949.44	260.36	65.70	-83.30	1,148.38	10,308.38	806.30	484.72	321.58	2.507	
19,200.00	9,031.28	14,496.43	8,949.64	262.99	66.68	-83.18	1,136.30	10,398.81	793.18	467.69	325.49	2.437	
19,300.00	9,031.72	14,594.64	8,950.38	265.61	67.74	-83.09	1,124.19	10,496.27	780.90	451.75	329.15	2.372	
19,400.00	9,032.16	14,682.92	8,950.96	268.24	68.70	-83.01	1,113.71	10,583.92	769.10	435.92	333.18	2.308	
19,500.00	9,032.60	14,763.38	8,950.84	270.87	69.57	-82.91	1,105.69	10,663.97	759.30	421.96	337.34	2.251	
19,600.00	9,033.04	14,861.96	8,950.63	273.50	70.64	-82.78	1,097.97	10,762.25	751.60	410.62	340.98	2.204	
19,700.00	9,033.48	14,961.67	8,949.96	276.12	71.73	-82.61	1,089.07	10,861.56	742.87	398.32	344.55	2.156	
19,800.00	9,033.92	15,060.63	8,950.85	278.75	72.80	-82.57	1,081.08	10,960.19	734.80	386.58	348.22	2.110	
19,900.00	9,034.36	15,193.11	8,951.77	281.38	74.24	-82.45	1,067.46	11,091.95	724.65	374.01	350.64	2.067	
20,000.00	9,034.80	15,282.00	8,952.32	284.01	75.21	-82.35	1,056.96	11,180.21	712.88	358.18	354.71	2.010	
20,100.00	9,035.24	15,360.51	8,952.58	286.64	76.07	-82.27	1,049.40	11,258.36	703.28	344.23	359.06	1.959	
20,200.00	9,035.68	15,487.62	8,953.04	289.27	77.46	-82.11	1,036.48	11,384.79	693.29	331.71	361.57	1.917	
20,300.00	9,036.12	15,583.49	8,953.43	291.90	78.50	-81.97	1,024.76	11,479.94	681.18	315.87	365.31	1.865	
20,400.00	9,036.57	15,672.24	8,954.85	294.53	79.47	-81.95	1,015.09	11,568.15	670.22	300.79	369.44	1.814	
20,500.00	9,037.01	15,766.84	8,957.06	297.15	80.51	-81.99	1,006.00	11,662.28	660.43	287.08	373.34	1.769	
20,600.00	9,037.45	15,870.23	8,958.57	299.78	81.64	-81.96	996.03	11,765.18	650.73	273.89	376.85	1.727	
20,700.00	9,037.89	15,975.06	8,958.49	302.41	82.79	-81.77	984.60	11,869.38	640.00	259.86	380.14	1.684	
20,800.00	9,038.33	16,069.33	8,956.85	305.04	83.82	-81.45	974.49	11,963.09	629.68	245.87	383.81	1.641	
20,900.00	9,038.77	16,169.27	8,955.59	307.67	84.92	-81.15	963.84	12,062.46	619.40	232.18	387.22	1.600	
21,000.00	9,039.21	16,265.01	8,955.46	310.30	85.97	-80.96	954.49	12,157.74	609.82	218.91	390.91	1.560	
21,100.00	9,039.65	16,372.94	8,955.49	312.93	87.15	-80.75	943.32	12,265.09	599.66	205.68	393.99	1.522	
21,200.00	9,040.09	16,473.15	8,956.64	315.56	88.25	-80.64	931.93	12,364.83	588.33	190.81	397.51	1.480 Level 3	
21,300.00	9,040.53	16,565.26	8,958.87	318.19	89.27	-80.66	922.58	12,456.25	577.98	176.37	401.60	1.439 Level 3	
21,400.00	9,040.97	16,662.90	8,962.62	320.83	90.34	-80.85	913.82	12,553.42	568.57	163.02	405.55	1.402 Level 3	
21,500.00	9,041.41	16,772.43	8,966.92	323.46	91.55	-81.07	903.28	12,662.36	558.54	149.67	408.86	1.366 Level 3	
21,600.00	9,041.85	16,871.89	8,970.46	326.09	92.64	-81.21	891.99	12,761.11	546.83	134.17	412.66	1.325 Level 3	
21,633.18	9,042.00	16,906.00	8,971.31	326.62	93.02	-81.22	888.31	12,795.01	543.20	129.72	413.48	1.314 Level 3, CC, ES, SF	

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Diamond PWU 22 - 8H - OH - OH											Offset Site Error:	0.00 usft
Survey Program: 100-VES GyroFlex V2.0416-LEAM MWD-ADJ. 12528-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 (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.00	0.00	26.64	26.64	0.00	0.02	85.20	799.56	9,526.93	9,560.43			
50.00	50.00	73.06	73.06	0.02	0.05	90.30	799.64	9,526.94	9,560.45			
100.00	100.00	119.24	119.24	0.09	0.09	109.55	799.79	9,526.97	9,560.53	9,560.34	0.18	N/A
150.00	150.00	165.08	165.08	0.13	0.16	120.51	799.94	9,527.01	9,560.76	9,560.47	0.29	N/A
285.00	284.98	288.85	288.85	0.24	0.35	-162.09	800.33	9,527.23	9,563.05	9,562.46	0.59	N/A
338.00	337.96	332.44	332.43	0.33	0.39	-168.40	800.46	9,527.35	9,564.55	9,563.84	0.71	N/A
438.00	437.92	411.85	411.84	0.52	0.45	-166.30	800.71	9,527.70	9,567.82	9,566.86	0.96	9,935.699
529.00	528.87	500.00	499.99	0.71	0.52	-175.11	801.00	9,528.29	9,571.34	9,570.12	1.22	7,866.385
620.00	619.82	551.72	551.71	0.90	0.55	-172.41	801.15	9,528.75	9,575.13	9,573.69	1.43	6,678.351
711.00	710.77	618.03	618.02	1.08	0.59	-169.41	801.29	9,529.49	9,579.06	9,577.41	1.65	5,788.519
803.00	802.73	700.00	699.98	1.28	0.64	-169.41	801.37	9,530.66	9,583.20	9,581.31	1.90	5,054.642
894.00	893.69	757.07	757.04	1.47	0.67	178.08	801.44	9,531.60	9,587.43	9,585.31	2.12	4,527.467
985.00	984.65	830.72	830.68	1.66	0.71	-177.72	801.69	9,532.92	9,591.62	9,589.28	2.34	4,096.702
1,077.00	1,076.62	900.00	899.95	1.85	0.75	-175.62	802.07	9,534.27	9,595.78	9,593.21	2.57	3,737.906
1,169.00	1,168.60	956.25	956.18	2.05	0.78	-167.92	802.49	9,535.53	9,600.12	9,597.33	2.79	3,441.756
1,261.00	1,260.57	1,008.82	1,008.73	2.24	0.80	-172.62	802.99	9,536.92	9,604.91	9,601.90	3.01	3,191.127
1,353.00	1,352.55	1,100.00	1,099.86	2.43	0.85	165.06	804.10	9,539.83	9,609.73	9,606.49	3.24	2,962.194
1,449.00	1,448.54	1,141.05	1,140.87	2.63	0.87	174.66	804.66	9,541.25	9,614.02	9,610.56	3.46	2,776.271
1,544.00	1,543.53	1,278.39	1,278.13	2.83	0.94	168.05	806.52	9,545.61	9,618.28	9,614.56	3.72	2,582.194
1,640.00	1,639.52	1,589.41	1,589.06	3.03	1.07	176.13	810.67	9,551.45	9,621.61	9,617.55	4.05	2,373.821
1,736.00	1,735.51	1,790.12	1,789.76	3.23	1.14	168.52	812.40	9,551.63	9,622.96	9,618.65	4.31	2,231.062
1,831.00	1,830.51	1,916.00	1,915.64	3.43	1.18	150.92	813.10	9,551.01	9,623.78	9,619.24	4.54	2,120.506
1,927.00	1,926.49	2,017.98	2,017.62	3.63	1.20	162.32	813.63	9,550.33	9,624.57	9,619.82	4.76	2,023.277
2,022.00	2,021.48	2,118.76	2,118.39	3.83	1.23	136.92	814.22	9,549.60	9,625.22	9,620.25	4.97	1,935.290
2,118.00	2,117.48	2,219.98	2,219.61	4.03	1.25	151.62	814.95	9,548.79	9,625.24	9,620.05	5.19	1,853.220
2,214.00	2,213.48	2,324.92	2,324.54	4.23	1.28	149.22	815.88	9,547.87	9,625.06	9,619.65	5.41	1,777.658
2,310.00	2,309.47	2,443.94	2,443.55	4.43	1.31	120.92	816.58	9,546.65	9,624.67	9,619.03	5.64	1,707.647
2,405.00	2,404.47	2,551.39	2,551.00	4.63	1.33	155.72	816.76	9,545.35	9,624.33	9,618.48	5.85	1,644.330
2,501.00	2,500.45	2,650.51	2,650.11	4.83	1.35	127.93	817.01	9,544.10	9,624.24	9,618.17	6.07	1,585.372
2,521.01	2,520.46	2,671.16	2,670.76	4.87	1.35	127.69	817.09	9,543.83	9,624.23	9,618.11	6.12	1,573.530
2,596.00	2,595.43	2,737.34	2,736.93	5.03	1.37	127.03	817.35	9,542.98	9,624.37	9,618.08	6.29	1,531.072
2,724.00	2,723.33	2,838.84	2,838.42	5.31	1.39	127.03	817.66	9,541.90	9,626.07	9,619.49	6.58	1,463.689
2,788.00	2,787.23	2,900.00	2,899.58	5.45	1.41	123.05	817.79	9,541.39	9,627.56	9,620.84	6.73	1,431.529
2,883.00	2,882.05	2,992.61	2,992.19	5.66	1.42	125.86	817.89	9,540.65	9,630.15	9,623.20	6.95	1,385.983
2,979.00	2,977.79	3,101.08	3,100.65	5.87	1.45	123.88	817.88	9,539.66	9,633.29	9,626.11	7.18	1,341.854
3,074.00	3,072.45	3,196.93	3,196.50	6.09	1.47	125.40	817.84	9,538.72	9,636.93	9,629.53	7.41	1,300.776
3,170.00	3,168.02	3,293.73	3,293.29	6.31	1.49	122.43	817.86	9,537.75	9,641.02	9,633.38	7.64	1,261.175
3,265.00	3,262.52	3,379.21	3,378.77	6.54	1.51	124.55	817.93	9,536.92	9,645.52	9,637.64	7.88	1,224.197
3,361.00	3,357.97	3,464.84	3,464.39	6.77	1.53	124.89	818.05	9,536.17	9,650.58	9,642.46	8.12	1,188.738
3,406.00	3,402.71	3,505.58	3,505.14	6.88	1.54	125.12	818.12	9,535.85	9,653.00	9,644.77	8.23	1,173.209
3,543.00	3,538.93	3,642.78	3,642.33	7.19	1.57	126.38	818.31	9,534.78	9,660.48	9,651.92	8.56	1,128.255
3,639.00	3,634.45	3,741.36	3,740.91	7.42	1.60	119.87	818.39	9,534.00	9,665.02	9,656.23	8.80	1,098.368
3,734.00	3,729.04	3,842.48	3,842.02	7.63	1.62	108.46	818.59	9,533.13	9,667.85	9,658.82	9.04	1,070.015
3,830.00	3,824.64	3,934.60	3,934.13	7.85	1.65	109.80	818.92	9,532.29	9,669.89	9,660.62	9.27	1,042.760
3,925.00	3,919.28	4,012.93	4,012.47	8.07	1.67	102.97	819.30	9,531.67	9,671.54	9,662.03	9.50	1,017.560
4,021.00	4,014.96	4,100.00	4,099.53	8.28	1.70	102.51	819.84	9,531.13	9,672.70	9,662.96	9.74	993.191
4,116.00	4,109.66	4,202.81	4,202.34	8.50	1.73	100.06	820.68	9,530.48	9,673.64	9,663.66	9.98	969.650
4,212.00	4,205.31	4,313.35	4,312.86	8.72	1.76	97.52	821.86	9,529.55	9,674.15	9,663.93	10.22	946.264
4,307.00	4,299.84	4,396.74	4,396.24	8.95	1.79	100.83	823.06	9,528.83	9,674.97	9,664.50	10.47	924.237
4,403.00	4,395.31	4,481.02	4,480.51	9.18	1.82	94.91	824.63	9,528.18	9,675.74	9,665.03	10.71	903.034
4,498.00	4,489.83	4,579.23	4,578.70	9.40	1.85	106.40	826.75	9,527.45	9,676.96	9,666.00	10.96	883.019
4,594.00	4,585.38	4,682.89	4,682.33	9.63	1.88	107.15	828.97	9,526.60	9,679.01	9,667.80	11.21	863.782

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Diamond PWU 22 - 8H - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100-VES GypFlex V2. 8416-LEAM MWD-ADJ. 12626-Project													Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
4,689.00	4,679.99	4,763.70	4,763.11	9.85	1.91	106.49	830.73	9,525.95	9,680.89	9,669.45	11.44	846.137		
4,785.00	4,775.59	4,840.95	4,840.34	10.08	1.93	106.31	832.53	9,525.46	9,682.93	9,671.24	11.68	828.820		
4,881.00	4,871.20	4,925.73	4,925.10	10.31	1.96	107.05	834.63	9,525.08	9,685.13	9,673.21	11.93	812.146		
4,976.00	4,966.86	5,033.75	5,033.08	10.54	1.99	103.60	837.17	9,524.55	9,686.93	9,674.76	12.17	796.223		
5,072.00	5,061.56	5,131.41	5,130.72	10.76	2.02	99.95	839.28	9,523.97	9,688.08	9,675.68	12.41	780.847		
5,168.00	5,157.24	5,211.32	5,210.61	10.98	2.05	107.35	841.09	9,523.58	9,689.61	9,676.97	12.65	766.251		
5,263.00	5,251.86	5,300.00	5,299.26	11.21	2.08	103.08	843.25	9,523.30	9,691.68	9,678.79	12.89	751.980		
5,359.00	5,347.43	5,391.04	5,390.27	11.45	2.11	101.72	845.61	9,523.04	9,693.52	9,680.38	13.13	738.007		
5,454.00	5,442.06	5,493.55	5,492.74	11.67	2.14	93.10	848.39	9,522.67	9,694.45	9,681.07	13.38	724.666		
5,550.00	5,537.68	5,598.16	5,597.30	11.90	2.17	98.21	851.56	9,522.18	9,695.07	9,681.44	13.63	711.504		
5,645.00	5,632.22	5,701.76	5,700.83	12.13	2.21	106.11	855.29	9,521.56	9,696.71	9,682.83	13.88	698.815		
5,741.00	5,727.76	5,806.63	5,805.63	12.37	2.24	106.85	859.23	9,520.83	9,698.91	9,684.78	14.13	686.583		
5,836.00	5,822.40	5,900.00	5,898.93	12.60	2.27	103.50	862.54	9,520.11	9,700.57	9,686.20	14.37	675.151		
5,932.00	5,918.09	5,995.41	5,994.28	12.82	2.31	104.42	865.96	9,519.38	9,701.94	9,687.33	14.61	664.057		
6,027.00	6,012.72	6,081.26	6,080.06	13.05	2.33	109.91	869.26	9,518.79	9,704.02	9,689.17	14.85	653.396		
6,123.00	6,108.31	6,100.00	6,098.79	13.29	2.34	110.22	870.00	9,518.67	9,706.97	9,691.88	15.08	643.507		
6,218.00	6,202.96	6,187.55	6,186.27	13.52	2.37	107.26	873.33	9,518.51	9,709.68	9,694.36	15.32	633.637		
6,314.00	6,298.53	6,236.85	6,235.55	13.75	2.38	106.74	875.03	9,518.76	9,713.04	9,697.47	15.56	624.064		
6,410.00	6,394.04	6,300.00	6,298.66	13.99	2.40	105.59	877.04	9,519.43	9,716.89	9,701.08	15.81	614.620		
6,505.00	6,488.68	6,397.82	6,396.43	14.22	2.41	108.05	879.81	9,520.63	9,720.61	9,704.57	16.04	605.893		
6,601.00	6,584.37	6,416.00	6,414.60	14.45	2.41	109.64	880.29	9,520.83	9,724.61	9,708.35	16.27	597.839		
6,696.00	6,678.98	6,416.00	6,414.60	14.68	2.41	105.70	880.29	9,520.83	9,729.62	9,713.12	16.49	590.005		
6,792.00	6,774.47	6,416.00	6,414.60	14.93	2.41	104.18	880.29	9,520.83	9,735.54	9,718.82	16.72	582.121		
6,887.00	6,869.00	6,416.00	6,414.60	15.16	2.41	107.13	880.29	9,520.83	9,742.35	9,725.40	16.95	574.680		
6,983.00	6,964.62	6,448.30	6,446.88	15.40	2.42	110.17	880.58	9,521.91	9,749.55	9,732.37	17.19	567.305		
7,079.00	7,060.22	6,479.00	6,477.47	15.63	2.43	109.44	879.84	9,524.32	9,758.77	9,741.35	17.42	560.245		
7,174.00	7,154.74	6,479.00	6,477.47	15.87	2.43	110.08	879.84	9,524.32	9,768.46	9,750.81	17.65	553.551		
7,269.00	7,249.25	6,479.00	6,477.47	16.11	2.43	114.05	879.84	9,524.32	9,779.40	9,761.52	17.87	547.149		
7,365.00	7,344.87	6,479.00	6,477.47	16.35	2.43	110.63	879.84	9,524.32	9,791.00	9,772.91	18.09	541.093		
7,461.00	7,440.61	6,479.00	6,477.47	16.57	2.43	120.36	879.84	9,524.32	9,803.21	9,784.91	18.31	535.463		
7,556.00	7,535.44	6,479.00	6,477.47	16.79	2.43	105.19	879.84	9,524.32	9,815.55	9,797.04	18.51	530.207		
7,651.00	7,630.26	6,479.00	6,477.47	17.01	2.43	102.14	879.84	9,524.32	9,827.89	9,809.17	18.72	525.032		
7,746.00	7,725.12	6,494.97	6,493.33	17.22	2.44	109.52	879.35	9,526.15	9,840.85	9,821.93	18.93	519.914		
7,842.00	7,821.00	6,511.00	6,509.19	17.43	2.45	99.03	879.16	9,528.45	9,854.82	9,835.69	19.13	515.060		
7,938.00	7,916.89	6,511.00	6,509.19	17.64	2.45	92.61	879.16	9,528.45	9,868.85	9,849.52	19.33	510.459		
8,033.00	8,011.80	6,511.00	6,509.19	17.84	2.45	90.57	879.16	9,528.45	9,883.26	9,863.73	19.53	506.137		
8,128.00	8,106.75	6,511.00	6,509.19	18.04	2.45	90.68	879.16	9,528.45	9,898.46	9,878.75	19.72	502.071		
8,224.00	8,202.73	6,511.00	6,509.19	18.24	2.45	81.31	879.16	9,528.45	9,914.60	9,894.70	19.90	498.240		
8,312.00	8,290.73	6,511.00	6,509.19	18.41	2.45	91.06	879.16	9,528.45	9,930.18	9,910.12	20.06	494.931		
8,363.00	8,341.72	6,542.00	6,539.66	18.51	2.48	41.67	878.72	9,534.13	9,939.28	9,919.10	20.17	492.654		
8,411.00	8,389.55	6,542.00	6,539.66	18.60	2.48	-3.78	878.72	9,534.13	9,944.67	9,924.41	20.26	490.940		
8,458.00	8,435.66	6,542.00	6,539.66	18.67	2.48	-6.04	878.72	9,534.13	9,944.68	9,924.35	20.33	489.179		
8,506.00	8,481.40	6,542.00	6,539.66	18.72	2.48	-5.82	878.72	9,534.13	9,939.54	9,919.14	20.40	487.294		
8,553.00	8,524.51	6,542.00	6,539.66	18.76	2.48	-3.90	878.72	9,534.13	9,929.93	9,909.47	20.46	485.338		
8,601.00	8,567.16	6,542.00	6,539.66	18.81	2.48	-0.99	878.72	9,534.13	9,917.15	9,896.63	20.52	483.256		
8,649.00	8,608.40	6,542.00	6,539.66	18.85	2.48	-1.01	878.72	9,534.13	9,901.81	9,881.22	20.58	481.084		
8,697.00	8,647.61	6,542.00	6,539.66	18.88	2.48	-3.21	878.72	9,534.13	9,883.20	9,862.56	20.64	478.882		
8,743.00	8,682.89	6,542.00	6,539.66	18.92	2.48	-4.61	878.72	9,534.13	9,862.17	9,841.48	20.68	476.795		
8,791.00	8,717.88	6,542.00	6,539.66	18.94	2.48	-4.95	878.72	9,534.13	9,838.00	9,817.27	20.72	474.701		
8,839.00	8,751.41	6,542.00	6,539.66	18.97	2.48	-6.39	878.72	9,534.13	9,812.26	9,791.50	20.76	472.657		
8,887.00	8,782.81	6,542.00	6,539.66	19.01	2.48	-7.09	878.72	9,534.13	9,784.34	9,763.55	20.79	470.573		
8,935.00	8,811.32	6,542.00	6,539.66	19.08	2.48	-8.54	878.72	9,534.13	9,753.70	9,732.88	20.82	468.448		

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: Eddy County, NM (NAD-83)
Reference Site: Emerald PWU 20-22
Site Error: 0.00 usft
Reference Well: 12H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Diamond PWU 22 - 8H - OH - OH											Offset Site Error: 0.00 usft		
Survey Program: 100-VE8 GyroFlex V2.0416-LEAM MWD-ADJ. 12528-Project											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 +/- W (usft)	Between Centres (usft)	Between Ellipse (usft)	Minimum Separation (usft)	Separation Factor		
8,983.00	8,837.12	6,574.00	6,570.73	19.25	2.53	-8.24	877.96	9,541.72	9,720.70	9,699.83	20.87	465.803	
9,031.00	8,860.37	6,574.00	6,570.73	19.57	2.53	-8.76	877.96	9,541.72	9,685.67	9,664.78	20.89	463.667	
9,078.00	8,880.89	6,574.00	6,570.73	19.95	2.53	-8.03	877.96	9,541.72	9,649.77	9,628.87	20.91	461.546	
9,126.00	8,899.61	6,574.00	6,570.73	20.41	2.53	-4.76	877.96	9,541.72	9,611.58	9,590.66	20.93	459.271	
9,174.00	8,916.02	6,574.00	6,570.73	20.94	2.53	-2.00	877.96	9,541.72	9,571.95	9,551.00	20.95	456.861	
9,222.00	8,930.13	6,574.00	6,570.73	21.53	2.53	0.66	877.96	9,541.72	9,531.05	9,510.07	20.98	454.366	
9,270.00	8,941.24	6,574.00	6,570.73	22.17	2.53	3.53	877.96	9,541.72	9,488.67	9,467.67	21.00	451.773	
9,333.00	8,950.94	6,574.00	6,570.73	23.10	2.53	3.98	877.96	9,541.72	9,430.97	9,409.94	21.03	448.389	
9,340.00	8,951.69	6,574.00	6,570.73	23.21	2.53	4.02	877.96	9,541.72	9,424.43	9,403.39	21.04	447.932	
9,400.00	8,958.00	6,574.00	6,570.73	23.88	2.53	-2.50	877.96	9,541.72	9,368.39	9,345.01	23.38	400.688	
9,500.00	8,968.52	6,574.00	6,570.73	24.42	2.53	-13.06	877.96	9,541.72	9,275.24	9,251.85	23.39	396.508	
9,547.24	8,973.49	6,574.00	6,570.73	24.76	2.53	-17.76	877.96	9,541.72	9,231.46	9,208.07	23.39	394.628	
9,600.00	8,978.18	6,574.00	6,570.73	25.20	2.53	-16.61	877.96	9,541.72	9,182.34	9,158.95	23.40	392.468	
9,708.82	8,982.48	6,574.00	6,570.73	26.30	2.53	-13.48	877.96	9,541.72	9,079.12	9,055.70	23.42	387.698	
9,800.00	8,983.04	6,574.00	6,570.73	27.43	2.53	-13.48	877.96	9,541.72	8,991.69	8,968.24	23.44	383.555	
9,900.00	8,983.66	6,574.00	6,570.73	28.84	2.53	-13.48	877.96	9,541.72	8,895.89	8,872.41	23.47	379.005	
10,000.00	8,984.27	6,574.00	6,570.73	30.42	2.53	-13.48	877.96	9,541.72	8,800.18	8,776.67	23.51	374.393	
10,100.00	8,984.88	6,574.00	6,570.73	32.14	2.53	-13.48	877.96	9,541.72	8,704.57	8,681.03	23.54	369.721	
10,200.00	8,985.50	6,574.00	6,570.73	33.97	2.53	-13.48	877.96	9,541.72	8,609.06	8,585.47	23.59	364.987	
10,300.00	8,986.11	6,574.00	6,570.73	35.91	2.53	-13.48	877.96	9,541.72	8,513.65	8,490.01	23.64	360.192	
10,400.00	8,986.73	6,574.00	6,570.73	37.94	2.53	-13.48	877.96	9,541.72	8,418.35	8,394.66	23.69	355.335	
10,500.00	8,987.34	6,589.25	6,585.37	40.04	2.58	-13.55	877.63	9,545.99	8,322.93	8,299.16	23.76	350.222	
10,600.00	8,987.96	6,605.00	6,600.35	42.19	2.62	-13.63	877.29	9,550.84	8,227.99	8,204.14	23.84	345.080	
10,700.00	8,988.57	6,605.00	6,600.35	44.41	2.62	-13.63	877.29	9,550.84	8,132.91	8,109.00	23.92	340.054	
10,800.00	8,989.18	6,605.00	6,600.35	46.66	2.62	-13.63	877.29	9,550.84	8,037.96	8,013.96	24.00	334.970	
10,900.00	8,989.80	6,605.00	6,600.35	48.96	2.62	-13.63	877.29	9,550.84	7,943.13	7,919.04	24.08	329.827	
11,000.00	8,990.41	6,605.00	6,600.35	51.29	2.62	-13.63	877.29	9,550.84	7,848.42	7,824.25	24.18	324.627	
11,100.00	8,991.03	6,605.00	6,600.35	53.64	2.62	-13.63	877.29	9,550.84	7,753.86	7,729.58	24.28	319.370	
11,200.00	8,991.64	6,605.00	6,600.35	56.03	2.62	-13.63	877.29	9,550.84	7,659.42	7,635.04	24.39	314.058	
11,300.00	8,992.26	6,605.00	6,600.35	58.43	2.62	-13.63	877.29	9,550.84	7,565.14	7,540.63	24.51	308.692	
11,400.00	8,992.87	6,605.00	6,600.35	60.86	2.62	-13.63	877.29	9,550.84	7,471.00	7,446.36	24.63	303.273	
11,500.00	8,993.48	6,605.00	6,600.35	63.30	2.62	-13.63	877.29	9,550.84	7,377.01	7,352.24	24.77	297.804	
11,600.00	8,994.10	6,605.00	6,600.35	65.76	2.62	-13.63	877.29	9,550.84	7,283.19	7,258.27	24.92	292.286	
11,700.00	8,994.71	6,605.00	6,600.35	68.23	2.62	-13.63	877.29	9,550.84	7,189.53	7,164.45	25.07	286.723	
11,800.00	8,995.33	6,605.00	6,600.35	70.71	2.62	-13.63	877.29	9,550.84	7,096.04	7,070.80	25.24	281.115	
11,900.00	8,995.94	6,605.00	6,600.35	73.21	2.62	-13.63	877.29	9,550.84	7,002.74	6,977.31	25.42	275.466	
12,000.00	8,996.56	6,605.00	6,600.35	75.71	2.62	-13.63	877.29	9,550.84	6,909.62	6,884.00	25.61	269.780	
12,100.00	8,997.17	6,637.00	6,630.27	78.22	2.77	-13.77	876.49	9,562.15	6,816.60	6,790.77	25.83	263.901	
12,200.00	8,997.78	6,637.00	6,630.27	80.75	2.77	-13.77	876.49	9,562.15	6,723.71	6,697.66	26.04	258.174	
12,300.00	8,998.40	6,637.00	6,630.27	83.27	2.77	-13.77	876.49	9,562.15	6,631.02	6,604.75	26.27	252.418	
12,400.00	8,999.01	6,637.00	6,630.27	85.81	2.77	-13.77	876.49	9,562.15	6,538.55	6,512.04	26.51	246.639	
12,500.00	8,999.63	6,637.00	6,630.27	88.35	2.77	-13.77	876.49	9,562.15	6,446.30	6,419.54	26.77	240.841	
12,600.00	9,000.24	6,637.00	6,630.27	90.90	2.77	-13.77	876.49	9,562.15	6,354.29	6,327.26	27.04	235.027	
12,700.00	9,000.85	6,637.00	6,630.27	93.45	2.77	-13.77	876.49	9,562.15	6,262.53	6,235.20	27.32	229.202	
12,800.00	9,001.47	6,637.00	6,630.27	96.01	2.77	-13.77	876.49	9,562.15	6,171.02	6,143.39	27.63	223.372	
12,900.00	9,002.08	6,637.00	6,630.27	98.57	2.77	-13.77	876.49	9,562.15	6,079.77	6,051.83	27.95	217.541	
13,000.00	9,002.70	6,637.00	6,630.27	101.14	2.77	-13.77	876.49	9,562.15	5,988.81	5,960.52	28.29	211.715	
13,100.00	9,003.31	6,653.22	6,645.15	103.71	2.88	-13.84	875.94	9,568.59	5,897.91	5,869.27	28.64	205.909	
13,200.00	9,003.93	6,668.00	6,658.54	106.28	2.99	-13.91	875.28	9,574.79	5,807.52	5,778.50	29.01	200.160	
13,300.00	9,004.54	6,668.00	6,658.54	108.86	2.99	-13.91	875.28	9,574.79	5,717.24	5,687.83	29.41	194.402	
13,400.00	9,005.15	6,668.00	6,658.54	111.44	2.99	-13.91	875.28	9,574.79	5,627.30	5,597.47	29.83	188.669	
13,500.00	9,005.77	6,668.00	6,658.54	114.02	2.99	-13.91	875.28	9,574.79	5,537.70	5,507.44	30.27	182.968	

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Diamond PWU 22 - 8H - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100-VES GYROPLAN V2.6416-LEAM MWD-ADJ. 12628-Project													Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre (usft)	Between Centres (usft)	Between Ellipse (usft)	Minimum Separation (usft)	Separation Factor	Warning		
13,600.00	9,006.38	6,681.37	6,670.55	116.61	3.11	-13.96	874.56	9,580.61	5,448.38	5,417.66	30.72	177.332		
13,700.55	9,007.00	6,700.00	6,687.18	119.21	3.28	-14.03	873.36	9,588.94	5,358.93	5,327.74	31.19	171.789		
13,746.28	9,007.24	6,700.00	6,687.18	120.39	3.28	-12.34	873.36	9,588.94	5,318.25	5,286.84	31.42	169.276		
13,800.00	9,007.48	6,700.00	6,687.18	121.78	3.28	-12.34	873.36	9,588.94	5,270.50	5,238.82	31.68	166.376		
13,900.00	9,007.92	6,700.00	6,687.18	124.37	3.28	-12.34	873.36	9,588.94	5,181.93	5,149.74	32.18	161.022		
14,000.00	9,008.36	6,731.00	6,714.50	126.96	3.61	-12.42	870.63	9,603.32	5,093.66	5,060.99	32.68	155.884		
14,100.00	9,008.80	6,731.00	6,714.50	129.55	3.61	-12.42	870.63	9,603.32	5,005.66	4,972.44	33.22	150.662		
14,200.00	9,009.24	6,731.00	6,714.50	132.15	3.61	-12.42	870.63	9,603.32	4,918.13	4,884.32	33.80	145.504		
14,300.00	9,009.68	6,731.00	6,714.50	134.75	3.61	-12.42	870.63	9,603.32	4,831.07	4,796.66	34.41	140.415		
14,400.00	9,010.12	6,766.00	6,744.66	137.34	4.06	-12.47	866.39	9,620.57	4,744.34	4,709.36	34.98	135.623		
14,500.00	9,010.56	6,766.00	6,744.66	139.94	4.06	-12.47	866.39	9,620.57	4,657.95	4,622.32	35.64	130.700		
14,600.00	9,011.00	6,766.00	6,744.66	142.55	4.06	-12.47	866.39	9,620.57	4,572.13	4,535.80	36.33	125.856		
14,700.00	9,011.44	6,766.00	6,744.66	145.15	4.06	-12.47	866.39	9,620.57	4,486.89	4,449.83	37.05	121.098		
14,800.00	9,011.89	6,797.00	6,770.61	147.75	4.53	-12.50	861.73	9,636.86	4,402.07	4,364.33	37.74	116.655		
14,900.00	9,012.33	6,797.00	6,770.61	150.36	4.53	-12.50	861.73	9,636.86	4,317.72	4,279.20	38.52	112.087		
15,000.00	9,012.77	6,797.00	6,770.61	152.96	4.53	-12.50	861.73	9,636.86	4,234.06	4,194.71	39.34	107.614		
15,100.00	9,013.21	6,828.00	6,795.89	155.57	5.05	-12.50	856.30	9,653.95	4,150.89	4,110.77	40.12	103.474		
15,200.00	9,013.65	6,828.00	6,795.89	158.18	5.05	-12.50	856.30	9,653.95	4,068.29	4,027.28	41.01	99.207		
15,300.00	9,014.09	6,828.00	6,795.89	160.79	5.05	-12.50	856.30	9,653.95	3,986.48	3,944.54	41.94	95.043		
15,400.00	9,014.53	6,844.15	6,808.74	163.40	5.35	-12.50	853.22	9,663.23	3,905.26	3,862.39	42.86	91.106		
15,500.00	9,014.97	6,858.00	6,819.51	166.01	5.61	-12.49	850.43	9,671.49	3,824.93	3,781.11	43.83	87.277		
15,600.00	9,015.41	6,858.00	6,819.51	168.62	5.61	-12.49	850.43	9,671.49	3,745.35	3,700.47	44.89	83.442		
15,700.00	9,015.85	6,858.00	6,819.51	171.23	5.61	-12.49	850.43	9,671.49	3,666.77	3,620.78	46.00	79.719		
15,800.00	9,016.29	6,874.67	6,832.14	173.84	5.96	-12.47	846.94	9,681.80	3,588.95	3,541.88	47.07	76.244		
15,900.00	9,016.73	6,889.00	6,842.69	176.46	6.26	-12.45	843.87	9,690.99	3,512.24	3,464.04	48.20	72.874		
16,000.00	9,017.17	6,889.00	6,842.69	179.07	6.26	-12.45	843.87	9,690.99	3,436.49	3,387.04	49.45	69.499		
16,100.00	9,017.61	6,889.00	6,842.69	181.69	6.26	-12.45	843.87	9,690.99	3,362.01	3,311.25	50.75	66.244		
16,200.00	9,018.06	6,920.00	6,864.51	184.30	6.98	-12.40	837.05	9,711.92	3,288.61	3,236.70	51.91	63.356		
16,300.00	9,018.50	6,920.00	6,864.51	186.92	6.98	-12.40	837.05	9,711.92	3,216.26	3,162.96	53.31	60.334		
16,400.00	9,018.94	6,920.00	6,864.51	189.54	6.98	-12.40	837.05	9,711.92	3,145.44	3,090.67	54.77	57.435		
16,500.00	9,019.38	6,934.98	6,874.51	192.16	7.36	-12.37	833.65	9,722.55	3,075.94	3,019.78	56.16	54.768		
16,600.00	9,019.82	6,949.00	6,883.48	194.77	7.72	-12.34	830.35	9,732.80	3,008.02	2,950.42	57.60	52.218		
16,700.00	9,020.26	6,949.00	6,883.48	197.39	7.72	-12.34	830.35	9,732.80	2,941.67	2,882.46	59.22	49.677		
16,800.00	9,020.70	6,980.00	6,902.41	200.01	8.54	-12.26	823.14	9,756.26	2,876.94	2,816.34	60.80	47.477		
16,900.00	9,021.14	6,980.00	6,902.41	202.63	8.54	-12.26	823.14	9,756.26	2,813.77	2,751.47	62.30	45.166		
17,000.00	9,021.58	7,010.00	6,919.62	205.25	9.38	-12.18	816.45	9,779.90	2,752.62	2,688.85	63.77	43.167		
17,100.00	9,022.02	7,010.00	6,919.62	207.87	9.38	-12.18	816.45	9,779.90	2,693.08	2,627.53	65.55	41.084		
17,200.00	9,022.46	7,028.34	6,929.52	210.49	9.92	-12.13	812.37	9,794.78	2,635.69	2,568.49	67.20	39.224		
17,300.00	9,022.90	7,041.00	6,936.11	213.12	10.30	-12.09	809.50	9,805.21	2,580.37	2,511.45	68.92	37.441		
17,400.00	9,023.34	7,071.00	6,950.86	215.74	11.21	-12.00	802.72	9,830.44	2,527.29	2,456.81	70.48	35.856		
17,500.00	9,023.78	7,071.00	6,950.86	218.36	11.21	-12.00	802.72	9,830.44	2,476.46	2,404.08	72.38	34.215		
17,600.00	9,024.23	7,102.00	6,964.64	220.98	12.19	-11.89	795.63	9,857.28	2,428.15	2,354.20	73.94	32.838		
17,700.00	9,024.67	7,102.00	6,964.64	223.61	12.19	-11.89	795.63	9,857.28	2,382.47	2,306.62	75.85	31.411		
17,800.00	9,025.11	7,133.00	6,976.50	226.23	13.19	-11.76	788.17	9,884.92	2,339.70	2,262.33	77.37	30.239		
17,900.00	9,025.55	7,133.00	6,976.50	228.85	13.19	-11.76	788.17	9,884.92	2,299.77	2,220.52	79.25	29.021		
18,000.00	9,025.99	7,163.00	6,986.22	231.48	14.18	-11.61	780.61	9,912.28	2,262.87	2,182.17	80.70	28.041		
18,100.00	9,026.43	7,181.61	6,991.57	234.10	14.80	-11.51	775.78	9,929.44	2,229.00	2,146.75	82.25	27.102		
18,200.00	9,026.87	7,205.33	6,997.66	236.73	15.59	-11.38	769.47	9,951.47	2,198.20	2,114.55	83.65	26.277		
18,300.00	9,027.31	7,224.00	7,001.96	239.35	16.22	-11.26	764.46	9,968.94	2,170.55	2,085.50	85.05	25.520		
18,400.00	9,027.75	7,255.00	7,008.19	241.98	17.28	-11.07	756.15	9,998.14	2,145.96	2,059.75	86.21	24.892		
18,500.00	9,028.19	7,296.24	7,015.08	244.60	18.69	-10.81	744.99	10,037.24	2,124.36	2,037.22	87.14	24.377		
18,600.00	9,028.63	7,336.12	7,020.63	247.23	20.06	-10.54	734.18	10,075.22	2,105.54	2,017.52	88.01	23.923		

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Diamond PWU 22 - 8H - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100- VES GyoFlex V2.6416-LEAM MWD-ADJ. 12528-Project													Offset Well Error:	0.00 usft
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)	Offset Wellbore Centre +E-W (usft)	Between Centres (usft)	Between Ellipse (usft)	Minimum Separation (usft)	Separation Factor	Warning	
18,700.00	9,029.07	7,378.00	7,025.43	249.85	21.52	-10.28	723.57	10,115.45	2,089.56	2,000.74	88.82	23.527		
18,800.00	9,029.51	7,423.64	7,029.83	252.48	23.11	-10.02	713.60	10,159.76	2,076.25	1,986.66	89.60	23.173		
18,900.00	9,029.95	7,470.00	7,033.69	255.11	24.73	-9.81	705.23	10,205.19	2,065.33	1,974.92	90.41	22.844		
19,000.00	9,030.40	7,531.80	7,037.74	257.73	26.89	-9.56	695.34	10,266.07	2,056.59	1,965.42	91.16	22.560		
19,100.00	9,030.84	7,604.53	7,041.03	260.36	29.44	-9.25	683.75	10,337.79	2,049.80	1,957.97	91.83	22.321		
19,200.00	9,031.28	7,721.51	7,045.89	262.99	33.52	-8.72	663.91	10,452.97	2,043.44	1,951.14	92.29	22.141		
19,300.00	9,031.72	7,824.89	7,051.08	265.61	37.16	-8.22	645.20	10,554.50	2,036.12	1,943.37	92.75	21.953		
19,400.00	9,032.16	7,912.46	7,055.35	268.24	40.30	-7.82	630.25	10,640.68	2,029.24	1,935.92	93.32	21.745		
19,500.00	9,032.60	7,995.30	7,058.94	270.87	43.30	-7.45	616.72	10,722.33	2,023.14	1,929.21	93.93	21.538		
19,600.00	9,033.04	8,096.67	7,062.88	273.50	46.96	-7.01	600.79	10,822.37	2,017.67	1,923.12	94.55	21.339		
19,700.00	9,033.48	8,217.64	7,068.73	276.12	51.30	-6.54	583.38	10,941.93	2,011.56	1,916.29	95.27	21.115		
19,800.00	9,033.92	8,310.00	7,074.13	278.75	54.63	-6.25	572.89	11,033.53	2,004.89	1,908.73	96.16	20.850		
19,900.00	9,034.36	8,388.57	7,078.53	281.38	57.46	-6.10	567.04	11,111.75	1,998.99	1,901.80	97.19	20.567		
20,000.00	9,034.80	8,463.35	7,082.05	284.01	60.15	-6.05	564.94	11,186.41	1,994.45	1,896.06	98.40	20.270		
20,100.00	9,035.24	8,531.72	7,084.70	286.64	62.59	-6.09	566.01	11,254.71	1,991.23	1,891.53	99.71	19.971		
20,200.00	9,035.68	8,594.00	7,086.11	289.27	64.81	-6.16	568.52	11,316.93	1,989.85	1,888.84	101.01	19.699		
20,208.83	9,035.72	8,594.00	7,086.11	289.50	64.81	-6.16	568.52	11,316.93	1,989.83	1,888.78	101.05	19.691		
20,300.00	9,036.12	8,653.52	7,086.35	291.90	66.92	-6.25	571.63	11,376.36	1,990.44	1,888.14	102.30	19.458		
20,400.00	9,036.57	8,741.81	7,085.15	294.53	70.07	-6.38	576.24	11,464.53	1,992.75	1,888.75	104.00	19.161		
20,500.00	9,037.01	8,879.30	7,084.64	297.15	75.01	-6.54	582.14	11,601.88	1,994.05	1,887.63	106.41	18.738		
20,600.00	9,037.45	9,027.07	7,086.67	299.78	80.33	-6.78	590.20	11,749.42	1,994.03	1,884.89	109.14	18.270		
20,700.00	9,037.89	9,112.81	7,089.98	302.41	83.41	-6.95	596.05	11,834.89	1,991.57	1,880.52	111.05	17.934		
20,747.40	9,038.10	9,137.57	7,090.43	303.66	84.31	-6.99	597.24	11,859.61	1,991.20	1,879.56	111.64	17.835		
20,800.00	9,038.33	9,160.00	7,090.56	305.04	85.12	-7.01	598.07	11,882.03	1,991.44	1,879.26	112.18	17.752		
20,900.00	9,038.77	9,255.00	7,089.98	307.67	88.56	-7.09	601.05	11,976.98	1,992.86	1,878.91	113.96	17.488		
21,000.00	9,039.21	9,353.87	7,088.96	310.30	92.16	-7.18	604.16	12,075.79	1,994.72	1,878.92	115.80	17.225		
21,100.00	9,039.65	9,490.45	7,089.17	312.93	97.13	-7.27	607.62	12,212.33	1,995.29	1,877.10	118.19	16.882		
21,200.00	9,040.09	9,659.56	7,093.16	315.56	103.31	-7.32	608.98	12,381.37	1,993.58	1,872.78	120.80	16.503		
21,300.00	9,040.53	9,762.46	7,097.80	318.19	107.08	-7.32	608.31	12,484.16	1,989.44	1,866.97	122.47	16.244		
21,400.00	9,040.97	9,846.29	7,100.67	320.83	110.15	-7.29	607.00	12,567.93	1,986.25	1,862.40	123.85	16.037		
21,500.00	9,041.41	9,944.12	7,104.21	323.46	113.74	-7.25	605.29	12,665.68	1,982.88	1,857.53	125.36	15.818		
21,600.00	9,041.85	10,009.00	7,105.63	326.09	116.13	-7.23	604.16	12,730.54	1,980.91	1,854.42	126.49	15.661		
21,633.18	9,042.00	10,042.20	7,106.06	326.62	117.34	-7.21	603.63	12,763.73	1,980.55	1,853.69	126.86	15.612 CC, ES, SF		

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Diamond PWU 22 - 8H - Pilot - Pilot													Offset Site Error:
Survey Program: 100-VE8 GynFlex V2													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Between		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)	Centres (usft)	Ellipse (usft)			
0.00	0.00	26.64	26.64	0.00	0.02	85.20	799.56	9,526.93	9,560.43				
50.00	50.00	73.06	73.06	0.02	0.05	90.30	799.64	9,526.94	9,560.45				
100.00	100.00	119.24	119.24	0.09	0.09	109.55	799.79	9,526.97	9,560.53	9,560.34	0.18	N/A	
150.00	150.00	165.08	165.08	0.13	0.16	120.51	799.94	9,527.01	9,560.76	9,560.47	0.29	N/A	
285.00	284.98	288.85	288.85	0.24	0.35	-162.09	800.33	9,527.23	9,563.05	9,562.46	0.59	N/A	
338.00	337.96	332.44	332.43	0.33	0.39	-168.40	800.46	9,527.35	9,564.55	9,563.84	0.71	N/A	
438.00	437.92	411.85	411.84	0.52	0.45	-166.30	800.71	9,527.70	9,567.82	9,566.86	0.96	9,935.699	
529.00	528.87	500.00	499.99	0.71	0.52	-175.11	801.00	9,528.29	9,571.34	9,570.12	1.22	7,866.385	
620.00	619.82	551.72	551.71	0.90	0.55	-172.41	801.15	9,528.75	9,575.13	9,573.69	1.43	6,878.351	
711.00	710.77	618.03	618.02	1.08	0.59	-169.41	801.29	9,529.49	9,579.06	9,577.41	1.65	5,788.519	
803.00	802.73	700.00	699.98	1.28	0.64	-169.41	801.37	9,530.66	9,583.20	9,581.31	1.90	5,054.642	
894.00	893.69	757.07	757.04	1.47	0.67	178.08	801.44	9,531.60	9,587.43	9,585.31	2.12	4,527.467	
985.00	984.65	830.72	830.68	1.66	0.71	-177.72	801.69	9,532.92	9,591.62	9,589.28	2.34	4,096.702	
1,077.00	1,076.62	900.00	899.95	1.85	0.75	-175.62	802.07	9,534.27	9,595.78	9,593.21	2.57	3,737.906	
1,168.00	1,168.60	956.25	956.18	2.05	0.78	-167.92	802.49	9,535.53	9,600.12	9,597.33	2.79	3,441.756	
1,261.00	1,260.57	1,008.82	1,008.73	2.24	0.80	-172.62	802.99	9,536.92	9,604.91	9,601.90	3.01	3,191.127	
1,353.00	1,352.55	1,100.00	1,099.86	2.43	0.85	165.06	804.10	9,539.83	9,609.73	9,606.49	3.24	2,962.194	
1,449.00	1,448.54	1,141.05	1,140.87	2.63	0.87	174.66	804.66	9,541.25	9,614.02	9,610.56	3.46	2,776.271	
1,544.00	1,543.53	1,278.39	1,278.13	2.83	0.94	168.05	806.52	9,545.61	9,618.28	9,614.56	3.72	2,582.194	
1,640.00	1,639.52	1,589.41	1,589.06	3.03	1.07	176.13	810.67	9,551.45	9,621.61	9,617.55	4.05	2,373.821	
1,736.00	1,735.51	1,790.12	1,789.76	3.23	1.14	168.52	812.40	9,551.63	9,622.96	9,618.65	4.31	2,231.062	
1,831.00	1,830.51	1,916.00	1,915.64	3.43	1.18	150.92	813.10	9,551.01	9,623.78	9,619.24	4.54	2,120.506	
1,927.00	1,926.49	2,017.98	2,017.62	3.63	1.20	162.32	813.63	9,550.33	9,624.57	9,619.82	4.76	2,023.277	
2,022.00	2,021.48	2,118.76	2,118.39	3.83	1.23	136.92	814.22	9,549.60	9,625.22	9,620.25	4.97	1,935.290	
2,118.00	2,117.48	2,219.98	2,219.61	4.03	1.25	151.62	814.95	9,548.79	9,625.24	9,620.05	5.19	1,853.220	
2,214.00	2,213.48	2,324.92	2,324.54	4.23	1.28	149.22	815.88	9,547.87	9,625.06	9,619.65	5.41	1,777.658	
2,310.00	2,309.47	2,443.94	2,443.55	4.43	1.31	120.92	816.58	9,546.65	9,624.67	9,619.03	5.64	1,707.647	
2,405.00	2,404.47	2,551.39	2,551.00	4.63	1.33	155.72	816.76	9,545.35	9,624.33	9,618.48	5.85	1,644.330	
2,501.00	2,500.45	2,650.51	2,650.11	4.83	1.35	127.93	817.01	9,544.10	9,624.24	9,618.17	6.07	1,585.372	
2,521.01	2,520.46	2,671.16	2,670.76	4.87	1.35	127.69	817.09	9,543.83	9,624.23	9,618.11	6.12	1,573.530	
2,596.00	2,595.43	2,737.34	2,736.93	5.03	1.37	127.03	817.35	9,542.98	9,624.37	9,618.08	6.29	1,531.072	
2,724.00	2,723.33	2,838.84	2,838.42	5.31	1.39	127.03	817.66	9,541.90	9,626.07	9,619.49	6.58	1,463.689	
2,788.00	2,787.23	2,900.00	2,899.58	5.45	1.41	123.05	817.79	9,541.39	9,627.56	9,620.84	6.73	1,431.529	
2,883.00	2,882.05	2,992.61	2,992.19	5.66	1.42	125.86	817.89	9,540.65	9,630.15	9,623.20	6.95	1,385.983	
2,979.00	2,977.79	3,101.08	3,100.65	5.87	1.45	123.88	817.88	9,539.66	9,633.29	9,626.11	7.18	1,341.854	
3,074.00	3,072.45	3,196.93	3,196.50	6.09	1.47	125.40	817.84	9,538.72	9,638.93	9,629.53	7.41	1,300.776	
3,170.00	3,168.02	3,293.73	3,293.29	6.31	1.49	122.43	817.86	9,537.75	9,641.02	9,633.38	7.64	1,261.175	
3,265.00	3,262.52	3,379.21	3,378.77	6.54	1.51	124.55	817.93	9,536.92	9,645.52	9,637.64	7.88	1,224.197	
3,361.00	3,357.97	3,464.84	3,464.39	6.77	1.53	124.89	818.05	9,536.17	9,650.58	9,642.46	8.12	1,188.738	
3,406.00	3,402.71	3,505.58	3,505.14	6.88	1.54	125.12	818.12	9,535.85	9,653.00	9,644.77	8.23	1,173.209	
3,543.00	3,538.93	3,642.78	3,642.33	7.19	1.57	126.38	818.31	9,534.78	9,660.48	9,651.92	8.56	1,128.255	
3,639.00	3,634.45	3,741.36	3,740.91	7.42	1.60	119.87	818.39	9,534.00	9,665.02	9,656.23	8.80	1,098.368	
3,734.00	3,729.04	3,842.48	3,842.02	7.63	1.62	108.46	818.59	9,533.13	9,667.85	9,658.82	9.04	1,070.015	
3,830.00	3,824.64	3,934.60	3,934.13	7.85	1.65	109.80	818.92	9,532.29	9,669.89	9,660.62	9.27	1,042.760	
3,925.00	3,919.28	4,012.93	4,012.47	8.07	1.67	102.97	819.30	9,531.67	9,671.54	9,662.03	9.50	1,017.560	
4,021.00	4,014.96	4,100.00	4,099.53	8.28	1.70	102.51	819.84	9,531.13	9,672.70	9,662.96	9.74	993.191	
4,116.00	4,109.66	4,202.81	4,202.34	8.50	1.73	100.06	820.68	9,530.48	9,673.64	9,663.66	9.98	969.650	
4,212.00	4,205.31	4,313.35	4,312.86	8.72	1.76	97.52	821.86	9,529.55	9,674.15	9,663.93	10.22	946.264	
4,307.00	4,299.84	4,396.74	4,396.24	8.95	1.79	100.83	823.06	9,528.83	9,674.97	9,664.50	10.47	924.237	
4,403.00	4,395.31	4,481.02	4,480.51	9.18	1.82	94.91	824.63	9,528.18	9,675.74	9,665.03	10.71	903.034	
4,498.00	4,489.83	4,579.23	4,578.70	9.40	1.85	106.40	826.75	9,527.45	9,676.96	9,666.00	10.96	883.019	
4,594.00	4,585.38	4,682.89	4,682.33	9.63	1.88	107.15	828.97	9,526.60	9,679.01	9,667.80	11.21	863.782	

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Diamond PWU 22 - 8H - Pilot - Pilot													Offset Site Error:
Survey Program: 100-VES GYROPLAN V2													0.00 usft
Reference													Offset Well Error:
Offset													0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre (usft)	Between Centres (usft)	Between Ellipse (usft)	Minimum Separation (usft)	Separation Factor	Warning	
4,689.00	4,679.99	4,763.70	4,763.11	9.85	1.91	106.49	830.73	9,525.95	9,680.89	9,669.45	11.44	846.137	
4,785.00	4,775.59	4,840.95	4,840.34	10.08	1.93	106.31	832.53	9,525.46	9,682.93	9,671.24	11.68	828.820	
4,881.00	4,871.20	4,925.73	4,925.10	10.31	1.96	107.05	834.63	9,525.08	9,685.13	9,673.21	11.93	812.146	
4,976.00	4,965.86	5,033.75	5,033.08	10.54	1.99	103.60	837.17	9,524.55	9,686.93	9,674.76	12.17	796.223	
5,072.00	5,061.56	5,131.41	5,130.72	10.76	2.02	99.95	839.28	9,523.97	9,688.08	9,675.68	12.41	780.847	
5,168.00	5,157.24	5,211.32	5,210.61	10.98	2.05	107.35	841.09	9,523.58	9,689.61	9,676.97	12.65	766.251	
5,263.00	5,251.86	5,300.00	5,299.26	11.21	2.08	103.08	843.25	9,523.30	9,691.68	9,678.79	12.89	751.980	
5,359.00	5,347.43	5,391.04	5,390.27	11.45	2.11	101.72	845.61	9,523.04	9,693.52	9,680.38	13.13	738.007	
5,454.00	5,442.06	5,493.55	5,492.74	11.67	2.14	93.10	848.39	9,522.67	9,694.45	9,681.07	13.38	724.666	
5,550.00	5,537.68	5,598.16	5,597.30	11.90	2.17	98.21	851.56	9,522.18	9,695.07	9,681.44	13.63	711.504	
5,645.00	5,632.22	5,701.76	5,700.83	12.13	2.21	106.11	855.29	9,521.56	9,696.71	9,682.83	13.88	698.815	
5,741.00	5,727.76	5,806.63	5,805.63	12.37	2.24	106.85	859.23	9,520.83	9,698.91	9,684.78	14.13	686.583	
5,836.00	5,822.40	5,900.00	5,898.93	12.60	2.27	103.50	862.54	9,520.11	9,700.57	9,686.20	14.37	675.151	
5,932.00	5,918.09	5,995.41	5,994.28	12.82	2.31	104.42	865.96	9,519.38	9,701.94	9,687.33	14.61	664.057	
6,027.00	6,012.72	6,081.26	6,080.06	13.05	2.33	109.91	869.26	9,518.79	9,704.02	9,689.17	14.85	653.396	
6,123.00	6,108.31	6,100.00	6,098.79	13.29	2.34	110.22	870.00	9,518.67	9,706.97	9,691.88	15.08	643.507	
6,218.00	6,202.96	6,187.55	6,186.27	13.52	2.37	107.26	873.33	9,518.51	9,709.68	9,694.36	15.32	633.637	
6,314.00	6,298.53	6,236.85	6,235.55	13.75	2.38	106.74	875.03	9,518.76	9,713.04	9,697.47	15.56	624.064	
6,410.00	6,394.04	6,300.00	6,298.66	13.99	2.40	105.59	877.04	9,519.43	9,716.89	9,701.08	15.81	614.620	
6,506.00	6,488.68	6,441.01	6,439.61	14.22	2.44	108.06	880.67	9,520.88	9,720.46	9,704.41	16.06	605.384	
6,601.00	6,584.37	6,949.65	6,948.10	14.45	2.59	109.84	887.88	9,514.60	9,722.59	9,706.20	16.39	593.348	
6,696.00	6,678.98	7,018.86	7,017.28	14.68	2.60	105.99	888.03	9,512.29	9,722.05	9,705.43	16.63	584.681	
6,792.00	6,774.47	7,100.00	7,098.38	14.93	2.62	104.55	888.18	9,509.82	9,721.73	9,704.84	16.88	575.841	
6,824.59	6,806.88	7,100.00	7,098.38	15.01	2.62	105.45	888.18	9,509.82	9,721.67	9,704.70	16.96	573.186	
6,887.00	6,869.00	7,100.00	7,098.38	15.16	2.62	107.44	888.18	9,509.82	9,721.89	9,704.78	17.11	568.166	
6,983.00	6,964.62	7,193.39	7,191.74	15.40	2.63	110.47	888.18	9,507.52	9,722.30	9,704.94	17.36	560.009	
7,079.00	7,060.22	7,244.46	7,242.80	15.63	2.64	109.80	888.05	9,506.60	9,723.56	9,705.96	17.60	552.423	
7,174.00	7,154.74	7,300.00	7,298.33	15.87	2.65	110.51	887.81	9,505.87	9,725.59	9,707.75	17.85	544.921	
7,269.00	7,249.25	7,500.00	7,498.29	16.11	2.68	114.53	886.28	9,502.21	9,727.33	9,709.20	18.13	536.519	
7,365.00	7,344.87	7,564.44	7,562.72	16.35	2.69	111.08	885.83	9,500.74	9,728.51	9,710.14	18.37	529.537	
7,461.00	7,440.61	7,610.49	7,608.76	16.57	2.70	120.69	885.72	9,499.97	9,729.89	9,711.29	18.60	523.092	
7,556.00	7,535.44	7,700.00	7,698.26	16.79	2.72	105.55	886.05	9,499.11	9,731.27	9,712.44	18.83	516.725	
7,651.00	7,630.26	7,700.00	7,698.26	17.01	2.72	102.55	886.05	9,499.11	9,731.83	9,712.78	19.05	510.947	
7,746.00	7,725.12	7,700.00	7,698.26	17.22	2.72	109.76	886.05	9,499.11	9,733.27	9,714.01	19.26	505.356	
7,842.00	7,821.00	7,700.00	7,698.26	17.43	2.72	99.36	886.05	9,499.11	9,735.43	9,715.95	19.48	499.844	
7,938.00	7,916.89	7,700.00	7,698.26	17.64	2.72	92.88	886.05	9,499.11	9,737.93	9,718.23	19.70	494.358	
8,033.00	8,011.80	7,700.00	7,698.26	17.84	2.72	90.79	886.05	9,499.11	9,740.94	9,721.02	19.92	489.097	
8,128.00	8,106.75	7,700.00	7,698.26	18.04	2.72	90.82	886.05	9,499.11	9,744.78	9,724.65	20.13	484.034	
8,224.00	8,202.73	7,700.00	7,698.26	18.24	2.72	81.35	886.05	9,499.11	9,749.48	9,729.13	20.35	479.139	
8,312.00	8,290.73	7,700.00	7,698.26	18.41	2.72	91.07	886.05	9,499.11	9,754.60	9,734.06	20.54	474.814	
8,363.00	8,341.72	7,700.00	7,698.26	18.51	2.72	41.68	886.05	9,499.11	9,757.75	9,737.10	20.66	472.349	
8,411.00	8,389.55	7,700.00	7,698.26	18.60	2.72	-3.89	886.05	9,499.11	9,757.58	9,736.82	20.76	469.997	
8,458.00	8,435.66	7,700.00	7,698.26	18.67	2.72	-6.26	886.05	9,499.11	9,752.15	9,731.30	20.86	467.582	
8,506.00	8,481.40	7,700.00	7,698.26	18.72	2.72	-6.13	886.05	9,499.11	9,741.52	9,720.57	20.95	465.051	
8,553.00	8,524.51	7,700.00	7,698.26	18.76	2.72	-4.17	886.05	9,499.11	9,726.65	9,705.62	21.03	462.490	
8,601.00	8,567.16	7,700.00	7,698.26	18.81	2.72	-1.11	886.05	9,499.11	9,708.59	9,687.48	21.11	459.829	
8,649.00	8,608.40	7,700.00	7,698.26	18.85	2.72	-1.15	886.05	9,499.11	9,688.08	9,666.88	21.19	457.101	
8,697.00	8,647.61	7,700.00	7,698.26	18.88	2.72	-3.55	886.05	9,499.11	9,664.46	9,643.19	21.27	454.360	
8,743.00	8,682.89	7,700.00	7,698.26	18.92	2.72	-5.13	886.05	9,499.11	9,638.82	9,617.48	21.34	451.784	
8,791.00	8,717.88	7,700.00	7,698.26	18.94	2.72	-5.54	886.05	9,499.11	9,609.99	9,588.59	21.39	449.206	
8,839.00	8,751.41	7,700.00	7,698.26	18.97	2.72	-7.20	886.05	9,499.11	9,579.71	9,558.27	21.45	446.697	
8,887.00	8,782.81	7,700.00	7,698.26	19.01	2.72	-8.09	886.05	9,499.11	9,547.44	9,525.94	21.49	444.181	

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Diamond PWU 22 - 6H - Pilot - Pilot													Offset Site Error:	0.00 usft
Survey Program: 100-YES GyroFlex V2													Offset Well Error:	0.00 usft
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	Warning	
8,935.00	8,811.32	7,700.00	7,698.26	19.08	2.72	-9.90	886.05	9,499.11	9,512.71	9,491.17	21.54	441.667		
8,983.00	8,837.12	7,700.00	7,698.26	19.25	2.72	-9.67	886.05	9,499.11	9,475.92	9,454.35	21.58	439.196		
9,031.00	8,860.37	7,700.00	7,698.26	19.57	2.72	-10.48	886.05	9,499.11	9,437.40	9,415.79	21.61	436.742		
9,078.00	8,880.89	7,700.00	7,698.26	19.95	2.72	-9.75	886.05	9,499.11	9,398.28	9,376.65	21.64	434.345		
9,126.00	8,898.61	7,700.00	7,698.26	20.41	2.72	-5.99	886.05	9,499.11	9,357.01	9,335.35	21.67	431.827		
9,174.00	8,916.02	7,700.00	7,698.26	20.94	2.72	-2.64	886.05	9,499.11	9,314.52	9,292.81	21.70	429.217		
9,222.00	8,930.13	7,700.00	7,698.26	21.53	2.72	0.70	886.05	9,499.11	9,270.97	9,249.24	21.73	426.562		
9,270.00	8,941.24	7,700.00	7,698.26	22.17	2.72	4.61	886.05	9,499.11	9,226.25	9,204.48	21.77	423.862		
9,333.00	8,950.94	7,700.00	7,698.26	23.10	2.72	5.66	886.05	9,499.11	9,165.99	9,144.19	21.80	420.398		
9,340.00	8,951.69	7,700.00	7,698.26	23.21	2.72	5.76	886.05	9,499.11	9,159.21	9,137.40	21.81	419.964		
9,400.00	8,958.00	7,700.00	7,698.26	23.88	2.72	-4.01	886.05	9,499.11	9,101.03	9,076.97	24.05	378.346		
9,500.00	8,968.52	7,700.00	7,698.26	24.42	2.72	-19.41	886.05	9,499.11	9,004.27	8,980.18	24.09	373.780		
9,547.24	8,973.49	7,700.00	7,698.26	24.76	2.72	-25.88	886.05	9,499.11	8,958.76	8,934.66	24.10	371.724		
9,600.00	8,978.18	7,700.00	7,698.26	25.20	2.72	-25.38	886.05	9,499.11	8,907.80	8,883.68	24.11	369.398		
9,708.82	8,982.48	7,700.00	7,698.26	26.30	2.72	-23.90	886.05	9,499.11	8,801.33	8,777.18	24.15	364.404		
9,800.00	8,983.04	7,700.00	7,698.26	27.43	2.72	-23.90	886.05	9,499.11	8,711.49	8,687.30	24.19	360.140		
9,900.00	8,983.66	7,700.00	7,698.26	28.84	2.72	-23.90	886.05	9,499.11	8,612.99	8,588.76	24.23	355.459		
10,000.00	8,984.27	7,700.00	7,698.26	30.42	2.72	-23.90	886.05	9,499.11	8,514.52	8,490.25	24.28	350.740		
10,100.00	8,984.88	7,700.00	7,698.26	32.14	2.72	-23.90	886.05	9,499.11	8,416.09	8,391.77	24.33	345.983		
10,200.00	8,985.50	7,700.00	7,698.26	33.97	2.72	-23.90	886.05	9,499.11	8,317.70	8,293.32	24.38	341.190		
10,300.00	8,986.11	7,700.00	7,698.26	35.91	2.72	-23.90	886.05	9,499.11	8,219.35	8,194.91	24.44	336.359		
10,400.00	8,986.73	7,700.00	7,698.26	37.94	2.72	-23.90	886.05	9,499.11	8,121.03	8,096.54	24.50	331.492		
10,500.00	8,987.34	7,700.00	7,698.26	40.04	2.72	-23.90	886.05	9,499.11	8,022.76	7,998.20	24.57	326.589		
10,600.00	8,987.96	7,700.00	7,698.26	42.19	2.72	-23.90	886.05	9,499.11	7,924.53	7,899.90	24.64	321.650		
10,700.00	8,988.57	7,700.00	7,698.26	44.41	2.72	-23.90	886.05	9,499.11	7,826.35	7,801.64	24.71	316.676		
10,800.00	8,989.18	7,700.00	7,698.26	46.66	2.72	-23.90	886.05	9,499.11	7,728.21	7,703.42	24.80	311.666		
10,900.00	8,989.80	7,700.00	7,698.26	48.96	2.72	-23.90	886.05	9,499.11	7,630.13	7,605.24	24.88	306.622		
11,000.00	8,990.41	7,700.00	7,698.26	51.29	2.72	-23.90	886.05	9,499.11	7,532.09	7,507.11	24.98	301.545		
11,100.00	8,991.03	7,700.00	7,698.26	53.64	2.72	-23.90	886.05	9,499.11	7,434.10	7,409.02	25.08	296.434		
11,200.00	8,991.64	7,700.00	7,698.26	56.03	2.72	-23.90	886.05	9,499.11	7,336.17	7,310.99	25.19	291.291		
11,300.00	8,992.26	7,700.00	7,698.26	58.43	2.72	-23.90	886.05	9,499.11	7,238.30	7,213.00	25.30	286.116		
11,400.00	8,992.87	7,700.00	7,698.26	60.86	2.72	-23.90	886.05	9,499.11	7,140.48	7,115.06	25.42	280.910		
11,500.00	8,993.48	7,700.00	7,698.26	63.30	2.72	-23.90	886.05	9,499.11	7,042.73	7,017.18	25.55	275.675		
11,600.00	8,994.10	7,700.00	7,698.26	65.76	2.72	-23.90	886.05	9,499.11	6,945.03	6,919.35	25.68	270.410		
11,700.00	8,994.71	7,700.00	7,698.26	68.23	2.72	-23.90	886.05	9,499.11	6,847.41	6,821.58	25.83	265.118		
11,800.00	8,995.33	7,700.00	7,698.26	70.71	2.72	-23.90	886.05	9,499.11	6,749.86	6,723.88	25.98	259.800		
11,900.00	8,995.94	7,700.00	7,698.26	73.21	2.72	-23.90	886.05	9,499.11	6,652.37	6,626.23	26.14	254.456		
12,000.00	8,996.56	7,700.00	7,698.26	75.71	2.72	-23.90	886.05	9,499.11	6,554.97	6,528.65	26.32	249.089		
12,100.00	8,997.17	7,700.00	7,698.26	78.22	2.72	-23.90	886.05	9,499.11	6,457.64	6,431.14	26.50	243.699		
12,200.00	8,997.78	7,700.00	7,698.26	80.75	2.72	-23.90	886.05	9,499.11	6,360.40	6,333.71	26.69	238.289		
12,300.00	8,998.40	7,700.00	7,698.26	83.27	2.72	-23.90	886.05	9,499.11	6,263.24	6,236.34	26.90	232.861		
12,400.00	8,999.01	7,700.00	7,698.26	85.81	2.72	-23.90	886.05	9,499.11	6,166.18	6,139.06	27.11	227.416		
12,500.00	8,999.63	7,700.00	7,698.26	88.35	2.72	-23.90	886.05	9,499.11	6,069.20	6,041.86	27.34	221.958		
12,600.00	9,000.24	7,700.00	7,698.26	90.90	2.72	-23.90	886.05	9,499.11	5,972.33	5,944.75	27.59	216.487		
12,700.00	9,000.85	7,700.00	7,698.26	93.45	2.72	-23.90	886.05	9,499.11	5,875.57	5,847.72	27.85	211.007		
12,800.00	9,001.47	7,700.00	7,698.26	96.01	2.72	-23.90	886.05	9,499.11	5,778.91	5,750.79	28.12	205.520		
12,900.00	9,002.08	7,700.00	7,698.26	98.57	2.72	-23.90	886.05	9,499.11	5,682.37	5,653.96	28.41	200.030		
13,000.00	9,002.70	7,700.00	7,698.26	101.14	2.72	-23.90	886.05	9,499.11	5,585.95	5,557.24	28.71	194.539		
13,100.00	9,003.31	7,700.00	7,698.26	103.71	2.72	-23.90	886.05	9,499.11	5,489.66	5,460.62	29.04	189.051		
13,200.00	9,003.93	7,700.00	7,698.26	106.28	2.72	-23.90	886.05	9,499.11	5,393.51	5,364.13	29.38	183.568		
13,300.00	9,004.54	7,700.00	7,698.26	108.86	2.72	-23.90	886.05	9,499.11	5,297.49	5,267.75	29.75	178.096		
13,400.00	9,005.15	7,700.00	7,698.26	111.44	2.72	-23.90	886.05	9,499.11	5,201.63	5,171.50	30.13	172.638		

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: Eddy County, NM (NAD-83)
 Reference Site: Emerald PWU 20-22
 Site Error: 0.00 usft
 Reference Well: 12H
 Well Error: 0.00 usft
 Reference Wellbore: ST01
 Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H
 TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
 MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Multi User Db
 Offset TVD Reference: Offset Datum

Offset Design Diamond PWU 22 - 8H - Pilot - Pilot													Offset Site Error: 0.00 usft
Survey Program: 100-VES GYROFLEX V2													Offset Well Error: 0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Footcandle (")	Offset Wellbore Centre (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
13,500.00	9,005.77	7,700.00	7,698.26	114.02	2.72	-23.90	886.05	9,499.11	5,105.93	5,075.39	30.54	167.197	
13,600.00	9,006.38	7,700.00	7,698.26	116.61	2.72	-23.90	886.05	9,499.11	5,010.39	4,979.42	30.97	161.778	
13,700.55	9,007.00	7,700.00	7,698.26	119.21	2.72	-23.90	886.05	9,499.11	4,914.51	4,883.08	31.43	156.356	
13,746.28	9,007.24	7,700.00	7,698.26	120.39	2.72	-21.36	886.05	9,499.11	4,870.91	4,839.27	31.64	153.937	
13,800.00	9,007.48	7,700.00	7,698.26	121.78	2.72	-21.36	886.05	9,499.11	4,819.68	4,787.79	31.89	151.149	
13,900.00	9,007.92	7,700.00	7,698.26	124.37	2.72	-21.36	886.05	9,499.11	4,724.47	4,692.10	32.36	145.988	
14,000.00	9,008.36	7,700.00	7,698.26	126.96	2.72	-21.36	886.05	9,499.11	4,629.45	4,596.59	32.86	140.866	
14,100.00	9,008.80	7,700.00	7,698.26	129.55	2.72	-21.36	886.05	9,499.11	4,534.65	4,501.26	33.40	135.788	
14,200.00	9,009.24	7,700.00	7,698.26	132.15	2.72	-21.36	886.05	9,499.11	4,440.08	4,406.13	33.96	130.757	
14,300.00	9,009.68	7,700.00	7,698.26	134.75	2.72	-21.36	886.05	9,499.11	4,345.75	4,311.20	34.55	125.777	
14,400.00	9,010.12	7,700.00	7,698.26	137.34	2.72	-21.36	886.05	9,499.11	4,251.69	4,216.51	35.18	120.853	
14,500.00	9,010.56	7,700.00	7,698.26	139.94	2.72	-21.36	886.05	9,499.11	4,157.89	4,122.05	35.85	115.989	
14,600.00	9,011.00	7,700.00	7,698.26	142.55	2.72	-21.36	886.05	9,499.11	4,064.40	4,027.84	36.55	111.189	
14,700.00	9,011.44	7,700.00	7,698.26	145.15	2.72	-21.36	886.05	9,499.11	3,971.22	3,933.92	37.30	106.458	
14,800.00	9,011.89	7,700.00	7,698.26	147.75	2.72	-21.36	886.05	9,499.11	3,878.38	3,840.28	38.10	101.801	
14,900.00	9,012.33	7,700.00	7,698.26	150.36	2.72	-21.36	886.05	9,499.11	3,785.91	3,746.97	38.94	97.222	
15,000.00	9,012.77	7,700.00	7,698.26	152.96	2.72	-21.36	886.05	9,499.11	3,693.82	3,653.99	39.84	92.726	
15,100.00	9,013.21	7,700.00	7,698.26	155.57	2.72	-21.36	886.05	9,499.11	3,602.16	3,561.38	40.79	88.317	
15,200.00	9,013.65	7,700.00	7,698.26	158.18	2.72	-21.36	886.05	9,499.11	3,510.96	3,469.16	41.80	84.000	
15,300.00	9,014.09	7,700.00	7,698.26	160.79	2.72	-21.36	886.05	9,499.11	3,420.25	3,377.38	42.87	79.780	
15,400.00	9,014.53	7,700.00	7,698.26	163.40	2.72	-21.36	886.05	9,499.11	3,330.07	3,286.05	44.01	75.661	
15,500.00	9,014.97	7,700.00	7,698.26	166.01	2.72	-21.36	886.05	9,499.11	3,240.46	3,195.23	45.23	71.647	
15,600.00	9,015.41	7,700.00	7,698.26	168.62	2.72	-21.36	886.05	9,499.11	3,151.48	3,104.96	46.52	67.743	
15,700.00	9,015.85	7,700.00	7,698.26	171.23	2.72	-21.36	886.05	9,499.11	3,063.18	3,015.28	47.90	63.953	
15,800.00	9,016.29	7,700.00	7,698.26	173.84	2.72	-21.36	886.05	9,499.11	2,975.62	2,926.26	49.36	60.281	
15,900.00	9,016.73	7,700.00	7,698.26	176.46	2.72	-21.36	886.05	9,499.11	2,888.87	2,837.95	50.92	56.730	
16,000.00	9,017.17	7,700.00	7,698.26	179.07	2.72	-21.36	886.05	9,499.11	2,803.00	2,750.42	52.59	53.304	
16,100.00	9,017.61	7,700.00	7,698.26	181.69	2.72	-21.36	886.05	9,499.11	2,718.10	2,663.75	54.36	50.006	
16,200.00	9,018.06	7,700.00	7,698.26	184.30	2.72	-21.36	886.05	9,499.11	2,634.26	2,578.02	56.24	46.840	
16,300.00	9,018.50	7,700.00	7,698.26	186.92	2.72	-21.36	886.05	9,499.11	2,551.59	2,493.34	58.25	43.807	
16,400.00	9,018.94	7,700.00	7,698.26	189.54	2.72	-21.36	886.05	9,499.11	2,470.19	2,409.81	60.38	40.911	
16,500.00	9,019.38	7,700.00	7,698.26	192.16	2.72	-21.36	886.05	9,499.11	2,390.21	2,327.56	62.65	38.153	
16,600.00	9,019.82	7,700.00	7,698.26	194.77	2.72	-21.36	886.05	9,499.11	2,311.78	2,246.73	65.06	35.535	
16,700.00	9,020.26	7,700.00	7,698.26	197.39	2.72	-21.36	886.05	9,499.11	2,235.08	2,167.47	67.61	33.059	
16,800.00	9,020.70	7,700.00	7,698.26	200.01	2.72	-21.36	886.05	9,499.11	2,160.29	2,089.98	70.31	30.724	
16,900.00	9,021.14	7,700.00	7,698.26	202.63	2.72	-21.36	886.05	9,499.11	2,087.60	2,014.44	73.16	28.533	
17,000.00	9,021.58	7,700.00	7,698.26	205.25	2.72	-21.36	886.05	9,499.11	2,017.26	1,941.10	76.16	26.486	
17,100.00	9,022.02	7,700.00	7,698.26	207.87	2.72	-21.36	886.05	9,499.11	1,949.51	1,870.20	79.31	24.581	
17,200.00	9,022.46	7,700.00	7,698.26	210.49	2.72	-21.36	886.05	9,499.11	1,884.63	1,802.05	82.59	22.820	
17,300.00	9,022.90	7,700.00	7,698.26	213.12	2.72	-21.36	886.05	9,499.11	1,822.93	1,736.95	85.98	21.201	
17,400.00	9,023.34	7,700.00	7,698.26	215.74	2.72	-21.36	886.05	9,499.11	1,764.75	1,675.28	89.47	19.724	
17,500.00	9,023.78	7,700.00	7,698.26	218.36	2.72	-21.36	886.05	9,499.11	1,710.44	1,617.41	93.03	18.386	
17,600.00	9,024.23	7,700.00	7,698.26	220.98	2.72	-21.36	886.05	9,499.11	1,660.37	1,563.77	96.61	17.187	
17,700.00	9,024.67	7,700.00	7,698.26	223.61	2.72	-21.36	886.05	9,499.11	1,614.96	1,514.80	100.16	16.124	
17,800.00	9,025.11	7,700.00	7,698.26	226.23	2.72	-21.36	886.05	9,499.11	1,574.59	1,470.98	103.62	15.196	
17,900.00	9,025.55	7,700.00	7,698.26	228.85	2.72	-21.36	886.05	9,499.11	1,539.67	1,432.75	106.92	14.400	
18,000.00	9,025.99	7,700.00	7,698.26	231.48	2.72	-21.36	886.05	9,499.11	1,510.58	1,400.58	109.99	13.733	
18,100.00	9,026.43	7,700.00	7,698.26	234.10	2.72	-21.36	886.05	9,499.11	1,487.65	1,374.89	112.76	13.193	
18,200.00	9,026.87	7,700.00	7,698.26	236.73	2.72	-21.36	886.05	9,499.11	1,471.17	1,356.03	115.14	12.777	
18,300.00	9,027.31	7,700.00	7,698.26	239.35	2.72	-21.36	886.05	9,499.11	1,461.37	1,344.28	117.09	12.481	
18,393.75	9,027.72	7,700.00	7,698.26	241.81	2.72	-21.36	886.05	9,499.11	1,458.36	1,339.89	118.47	12.310 CC	
18,400.00	9,027.75	7,700.00	7,698.26	241.98	2.72	-21.36	886.05	9,499.11	1,458.37	1,339.83	118.54	12.302 ES	

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Diamond PWU 22 - 8H - Pilot - Pilot													Offset Site Error:
Survey Program: 100-VES GyroFlex V2													Offset Well Error:
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 Ellipse (usft)	Minimum Separation (usft)	Separation Factor	Warning
18,500.00	9,028.19	7,700.00	7,698.26	244.60	2.72	-21.36	886.05	9,499.11	1,462.22	1,342.74	119.48	12.238 SF	
18,600.00	9,028.63	7,700.00	7,698.26	247.23	2.72	-21.36	886.05	9,499.11	1,472.87	1,352.97	119.90	12.284	
18,700.00	9,029.07	7,700.00	7,698.26	249.85	2.72	-21.36	886.05	9,499.11	1,490.17	1,370.35	119.82	12.437	
18,800.00	9,029.51	7,700.00	7,698.26	252.48	2.72	-21.36	886.05	9,499.11	1,513.88	1,394.62	119.26	12.694	
18,900.00	9,029.95	7,700.00	7,698.26	255.11	2.72	-21.36	886.05	9,499.11	1,543.73	1,425.44	118.29	13.050	
19,000.00	9,030.40	7,700.00	7,698.26	257.73	2.72	-21.36	886.05	9,499.11	1,579.35	1,462.38	116.97	13.503	
19,100.00	9,030.84	7,700.00	7,698.26	260.36	2.72	-21.36	886.05	9,499.11	1,620.37	1,505.02	115.35	14.048	
19,200.00	9,031.28	7,700.00	7,698.26	262.99	2.72	-21.36	886.05	9,499.11	1,666.39	1,552.89	113.50	14.682	
19,300.00	9,031.72	7,700.00	7,698.26	265.61	2.72	-21.36	886.05	9,499.11	1,717.00	1,605.52	111.48	15.401	
19,400.00	9,032.16	7,700.00	7,698.26	268.24	2.72	-21.36	886.05	9,499.11	1,771.82	1,662.46	109.36	16.202	
19,500.00	9,032.60	7,700.00	7,698.26	270.87	2.72	-21.36	886.05	9,499.11	1,830.46	1,723.30	107.16	17.082	
19,600.00	9,033.04	7,700.00	7,698.26	273.50	2.72	-21.36	886.05	9,499.11	1,892.58	1,787.64	104.94	18.036	
19,700.00	9,033.48	7,700.00	7,698.26	276.12	2.72	-21.36	886.05	9,499.11	1,957.83	1,855.12	102.72	19.061	
19,800.00	9,033.92	7,700.00	7,698.26	278.75	2.72	-21.36	886.05	9,499.11	2,025.92	1,925.40	100.52	20.154	
19,900.00	9,034.36	7,700.00	7,698.26	281.38	2.72	-21.36	886.05	9,499.11	2,096.57	1,998.19	98.38	21.312	
20,000.00	9,034.80	7,700.00	7,698.26	284.01	2.72	-21.36	886.05	9,499.11	2,169.53	2,073.23	96.29	22.530	
20,100.00	9,035.24	7,700.00	7,698.26	286.64	2.72	-21.36	886.05	9,499.11	2,244.57	2,150.29	94.28	23.808	
20,200.00	9,035.68	7,700.00	7,698.26	289.27	2.72	-21.36	886.05	9,499.11	2,321.50	2,229.15	92.34	25.140	
20,300.00	9,036.12	7,700.00	7,698.26	291.90	2.72	-21.36	886.05	9,499.11	2,400.13	2,309.64	90.49	26.525	
20,400.00	9,036.57	7,700.00	7,698.26	294.53	2.72	-21.36	886.05	9,499.11	2,480.29	2,391.58	88.71	27.958	
20,500.00	9,037.01	7,700.00	7,698.26	297.15	2.72	-21.36	886.05	9,499.11	2,561.86	2,474.83	87.02	29.439	
20,600.00	9,037.45	7,700.00	7,698.26	299.78	2.72	-21.36	886.05	9,499.11	2,644.68	2,559.27	85.41	30.963	
20,700.00	9,037.89	7,700.00	7,698.26	302.41	2.72	-21.36	886.05	9,499.11	2,728.66	2,644.78	83.89	32.528	
20,800.00	9,038.33	7,700.00	7,698.26	305.04	2.72	-21.36	886.05	9,499.11	2,813.69	2,731.26	82.43	34.133	
20,900.00	9,038.77	7,700.00	7,698.26	307.67	2.72	-21.36	886.05	9,499.11	2,899.67	2,818.62	81.06	35.773	
21,000.00	9,039.21	7,700.00	7,698.26	310.30	2.72	-21.36	886.05	9,499.11	2,986.53	2,906.78	79.75	37.447	
21,100.00	9,039.65	7,700.00	7,698.26	312.93	2.72	-21.36	886.05	9,499.11	3,074.18	2,995.67	78.52	39.153	
21,200.00	9,040.09	7,700.00	7,698.26	315.56	2.72	-21.36	886.05	9,499.11	3,162.57	3,085.23	77.35	40.889	
21,300.00	9,040.53	7,700.00	7,698.26	318.19	2.72	-21.36	886.05	9,499.11	3,251.63	3,175.40	76.24	42.652	
21,400.00	9,040.97	7,700.00	7,698.26	320.83	2.72	-21.36	886.05	9,499.11	3,341.31	3,266.12	75.19	44.441	
21,500.00	9,041.41	7,700.00	7,698.26	323.46	2.72	-21.36	886.05	9,499.11	3,431.56	3,357.37	74.19	46.253	
21,600.00	9,041.85	7,700.00	7,698.26	326.09	2.72	-21.36	886.05	9,499.11	3,522.34	3,449.09	73.25	48.088	
21,633.18	9,042.00	7,700.00	7,698.26	326.62	2.72	-21.36	886.05	9,499.11	3,552.56	3,479.73	72.84	48.774	

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Emerald PWU 20-22
Site Error: 0.00 usft
Reference Well: 12H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design													Offset Site Error:
Diamond PWU Offsets - D-PWU-22 4H - OH - OH													0.00 usft
Survey Program: 100-MWD													Offset Well Error:
Reference													0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Semi Major Axis (usft)	Highside Toolface (°)	Offset Wellbore Centre (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	49.82	49.82	0.00	0.04	86.21		624.41	9,427.52	9,448.19			
50.00	50.00	115.93	115.93	0.02	0.11	91.31		624.70	9,427.28	9,448.02	0.14	N/A	
100.00	100.00	157.69	157.68	0.09	0.20	110.56		624.83	9,427.13	9,447.90	0.29	N/A	
112.54	112.53	168.15	168.15	0.10	0.22	114.90		624.84	9,427.10	9,447.90	0.32	N/A	
150.00	150.00	200.00	200.00	0.13	0.29	121.52		624.84	9,427.03	9,447.96	0.41	N/A	
285.00	284.98	395.77	395.76	0.24	0.71	-161.09		624.80	9,425.79	9,449.06	0.94	N/A	
338.00	337.96	448.74	448.73	0.33	0.82	-167.39		624.99	9,425.33	9,449.94	1.14	8,270.273	
438.00	437.92	500.00	499.99	0.52	0.93	-165.29		625.43	9,424.87	9,452.02	1.45	6,536.671	
529.00	528.87	562.37	562.35	0.71	1.06	-174.10		625.99	9,424.56	9,454.58	1.76	5,360.023	
620.00	619.82	608.54	608.52	0.90	1.15	-171.40		626.23	9,424.66	9,457.78	2.04	4,626.361	
711.00	710.77	719.76	719.74	1.08	1.39	-168.41		626.72	9,425.00	9,460.98	2.46	3,852.987	
803.00	802.73	800.00	799.98	1.28	1.56	-168.42		627.40	9,425.09	9,463.98	2.82	3,354.710	
894.00	893.69	868.26	868.23	1.47	1.70	-179.07		628.11	9,425.28	9,467.07	3.15	3,001.944	
985.00	984.65	900.00	899.97	1.66	1.77	-176.73		628.41	9,425.48	9,470.37	3.40	2,781.497	
1,077.00	1,076.62	973.40	973.37	1.85	1.92	-174.63		629.11	9,426.26	9,473.76	3.74	2,531.523	
1,169.00	1,168.60	1,042.52	1,042.47	2.05	2.06	-166.93		629.78	9,427.32	9,477.42	4.08	2,324.332	
1,261.00	1,260.57	1,120.43	1,120.37	2.24	2.22	-171.64		630.51	9,428.59	9,481.27	4.43	2,139.217	
1,353.00	1,352.55	1,180.79	1,180.71	2.43	2.35	-166.04		631.11	9,429.74	9,484.90	4.75	1,997.645	
1,449.00	1,448.54	1,273.02	1,272.92	2.63	2.54	-175.64		632.11	9,431.71	9,488.08	5.14	1,845.359	
1,544.00	1,543.53	1,376.98	1,376.85	2.83	2.76	-169.03		633.32	9,433.85	9,491.24	5.56	1,707.108	
1,640.00	1,639.52	1,589.71	1,589.55	3.03	3.21	-177.13		635.35	9,436.78	9,493.93	6.20	1,530.568	
1,736.00	1,735.51	1,767.28	1,767.11	3.23	3.58	-169.52		636.43	9,437.34	9,495.54	6.78	1,401.119	
1,831.00	1,830.51	1,869.68	1,869.51	3.43	3.80	-151.92		636.85	9,437.23	9,496.71	7.19	1,320.830	
1,927.00	1,926.49	1,947.56	1,947.39	3.63	3.96	-163.32		637.34	9,437.18	9,498.09	7.55	1,257.385	
2,022.00	2,021.48	2,018.38	2,018.21	3.83	4.11	-137.92		637.86	9,437.31	9,499.62	7.90	1,202.365	
2,118.00	2,117.48	2,100.00	2,099.82	4.03	4.28	-152.62		638.63	9,437.64	9,500.80	8.27	1,148.396	
2,214.00	2,213.48	2,300.00	2,299.82	4.23	4.70	-150.22		639.09	9,437.54	9,501.35	8.89	1,068.429	
2,310.00	2,309.47	2,366.12	2,365.94	4.43	4.84	-121.93		639.18	9,437.23	9,501.48	9.23	1,029.208	
2,405.00	2,404.47	2,451.89	2,451.71	4.63	5.02	-156.73		639.38	9,437.09	9,502.13	9.61	988.787	
2,501.00	2,500.45	2,573.50	2,573.32	4.83	5.28	-128.93		640.52	9,436.65	9,502.96	10.07	943.870	
2,596.00	2,595.43	2,649.92	2,649.73	5.03	5.44	-128.02		641.36	9,436.28	9,503.92	10.43	911.206	
2,724.00	2,723.33	2,818.12	2,817.91	5.31	5.79	-128.02		643.60	9,435.56	9,506.64	11.06	859.852	
2,788.00	2,787.23	2,861.15	2,860.94	5.45	5.88	-124.02		643.93	9,435.30	9,508.35	11.28	842.748	
2,883.00	2,882.05	2,927.48	2,927.27	5.66	6.02	-126.83		644.10	9,435.09	9,511.49	11.62	818.251	
2,979.00	2,977.79	3,000.00	2,999.79	5.87	6.16	-124.83		644.11	9,435.08	9,515.58	11.98	794.139	
3,074.00	3,072.45	3,098.34	3,098.13	6.09	6.37	-126.35		644.46	9,435.14	9,520.35	12.40	767.871	
3,170.00	3,168.02	3,210.71	3,210.50	6.31	6.61	-123.37		645.11	9,435.05	9,525.48	12.85	741.310	
3,265.00	3,262.52	3,313.61	3,313.40	6.54	6.82	-125.50		645.77	9,434.82	9,530.85	13.28	717.593	
3,361.00	3,357.97	3,400.00	3,399.78	6.77	7.01	-125.83		646.55	9,434.64	9,536.72	13.69	696.849	
3,406.00	3,402.71	3,432.81	3,432.59	6.88	7.07	-126.05		646.87	9,434.61	9,539.54	13.85	688.546	
3,543.00	3,538.93	3,553.12	3,552.90	7.19	7.33	-127.31		647.79	9,434.72	9,548.46	14.41	662.732	
3,639.00	3,634.45	3,637.90	3,637.68	7.42	7.50	-120.79		648.23	9,434.86	9,554.07	14.80	645.548	
3,734.00	3,729.04	3,724.39	3,724.16	7.63	7.68	-109.36		649.03	9,435.17	9,558.21	15.19	629.050	
3,830.00	3,824.64	3,865.83	3,865.59	7.85	7.98	-110.73		650.47	9,435.14	9,561.23	15.71	608.703	
3,925.00	3,919.28	3,965.66	3,965.42	8.07	8.19	-103.90		651.66	9,434.93	9,563.59	16.13	592.770	
4,021.00	4,014.96	4,058.47	4,058.21	8.28	8.39	-103.44		653.15	9,434.70	9,565.28	16.55	578.065	
4,116.00	4,109.66	4,100.00	4,099.73	8.50	8.48	-100.96		653.97	9,434.60	9,566.91	16.86	567.562	
4,212.00	4,205.31	4,168.26	4,167.97	8.72	8.63	-98.38		655.69	9,434.71	9,568.65	17.23	555.304	
4,307.00	4,299.84	4,300.00	4,299.65	8.95	8.91	-101.70		659.59	9,435.43	9,571.07	17.73	539.823	
4,403.00	4,395.31	4,373.05	4,372.67	9.18	9.06	-95.77		661.67	9,435.60	9,573.01	18.12	528.325	
4,498.00	4,489.83	4,428.02	4,427.61	9.40	9.18	-107.24		663.52	9,435.90	9,575.63	18.47	518.443	
4,594.00	4,585.38	4,500.00	4,499.55	9.63	9.33	-107.99		665.69	9,436.75	9,579.68	18.85	508.101	

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.00 usft
Diamond PWU Offsets - D-PWU-22 4H - OH - OH														Offset Well Error:	0.00 usft
Survey Program: 100-LWD															
Reference															
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Semi Major Axis (usft)	Highside Toolface (°)	Offset Wellbore Centre (usft)	Between Centres (usft)	Between Ellipse (usft)	Minimum Separation (usft)	Separation Factor	Warning		
4,689.00	4,679.99	4,527.39	4,526.93	9.85	9.39	107.31		666.46	9,437.20	9,583.86	9,564.72	19.15	500.522		
4,785.00	4,775.59	4,600.00	4,599.49	10.08	9.55	107.12		668.73	9,438.67	9,588.54	9,569.01	19.53	490.876		
4,881.00	4,871.20	4,665.45	4,664.88	10.31	9.69	107.86		670.80	9,440.18	9,593.47	9,573.56	19.91	481.958		
4,976.00	4,965.86	4,670.85	4,670.19	10.54	10.12	104.45		675.85	9,443.34	9,597.02	9,576.49	20.53	467.484		
5,072.00	5,061.56	4,983.45	4,982.76	10.76	10.36	100.80		678.18	9,444.70	9,599.99	9,579.01	20.98	457.487		
5,168.00	5,157.24	5,200.00	5,199.27	10.98	10.82	108.25		682.21	9,445.74	9,602.59	9,580.94	21.65	443.511		
5,263.00	5,251.86	5,250.18	5,249.43	11.21	10.93	103.97		683.72	9,445.69	9,605.02	9,583.03	21.99	436.886		
5,359.00	5,347.43	5,300.00	5,299.22	11.45	11.03	102.59		685.43	9,445.93	9,607.70	9,585.36	22.33	430.211		
5,454.00	5,442.06	5,371.55	5,370.72	11.67	11.18	93.96		687.76	9,446.53	9,609.87	9,587.15	22.72	423.017		
5,550.00	5,537.68	5,453.85	5,452.99	11.90	11.36	99.06		690.12	9,447.35	9,611.97	9,588.84	23.13	415.611		
5,645.00	5,632.22	5,529.20	5,528.27	12.13	11.52	106.94		693.09	9,448.17	9,615.32	9,591.79	23.53	408.671		
5,741.00	5,727.76	5,600.00	5,598.99	12.37	11.68	107.68		696.33	9,449.12	9,619.58	9,595.65	23.92	402.085		
5,836.00	5,822.40	5,658.81	5,657.72	12.60	11.81	104.32		699.17	9,450.08	9,623.65	9,599.36	24.29	396.186		
5,932.00	5,918.09	5,763.49	5,762.27	12.82	12.04	105.25		704.05	9,452.07	9,627.69	9,602.95	24.74	389.183		
6,027.00	6,012.72	5,856.05	5,854.74	13.05	12.24	110.71		707.94	9,453.61	9,632.08	9,606.91	25.16	382.759		
6,123.00	6,108.31	6,017.91	6,016.44	13.29	12.59	111.08		714.76	9,456.13	9,636.99	9,611.27	25.72	374.740		
6,218.00	6,202.96	6,122.87	6,121.29	13.52	12.82	108.12		719.23	9,457.22	9,640.93	9,614.76	26.17	368.453		
6,314.00	6,298.53	6,300.00	6,298.20	13.75	13.21	107.62		727.94	9,458.25	9,644.55	9,617.77	26.78	360.205		
6,410.00	6,394.04	6,378.98	6,377.10	13.99	13.38	106.47		731.66	9,458.35	9,647.72	9,620.54	27.18	354.920		
6,505.00	6,488.68	6,454.16	6,452.19	14.22	13.54	108.91		735.22	9,458.65	9,650.81	9,623.24	27.57	350.016		
6,601.00	6,584.37	6,629.41	6,627.31	14.45	13.92	110.54		742.03	9,459.09	9,653.92	9,625.74	28.18	342.623		
6,696.00	6,678.98	6,927.10	6,924.85	14.68	14.55	106.74		749.71	9,454.97	9,655.26	9,626.22	29.04	332.525		
6,792.00	6,774.47	7,000.00	6,997.73	14.93	14.70	105.28		750.79	9,453.38	9,655.95	9,626.52	29.43	328.111		
6,887.00	6,869.00	7,122.63	7,120.31	15.16	14.95	108.23		752.60	9,450.59	9,656.54	9,626.62	29.92	322.743		
6,983.00	6,964.62	7,185.00	7,182.67	15.40	15.08	111.25		753.23	9,449.22	9,657.36	9,627.08	30.28	318.923		
7,079.00	7,060.22	7,254.00	7,251.65	15.63	15.23	110.57		753.70	9,447.92	9,658.71	9,628.05	30.66	315.069		
7,174.00	7,154.74	7,286.00	7,283.65	15.87	15.29	111.28		753.79	9,447.39	9,660.77	9,629.81	30.96	312.063		
7,269.00	7,249.25	7,318.00	7,315.65	16.11	15.36	115.20		753.66	9,447.14	9,663.87	9,632.61	31.26	309.178		
7,365.00	7,344.87	7,318.00	7,315.65	16.35	15.36	111.73		753.66	9,447.14	9,667.41	9,635.91	31.51	306.844		
7,461.00	7,440.61	7,318.00	7,315.65	16.57	15.36	121.36		753.66	9,447.14	9,671.56	9,639.77	31.79	304.204		
7,556.00	7,535.44	7,350.00	7,347.63	16.79	15.42	106.20		753.13	9,447.74	9,675.72	9,643.61	32.11	301.303		
7,651.00	7,630.26	7,350.00	7,347.63	17.01	15.42	103.19		753.13	9,447.74	9,679.80	9,647.41	32.39	298.860		
7,746.00	7,725.12	7,350.00	7,347.63	17.22	15.42	110.44		753.13	9,447.74	9,684.77	9,652.11	32.66	296.546		
7,842.00	7,821.00	7,350.00	7,347.63	17.43	15.42	100.01		753.13	9,447.74	9,690.47	9,657.55	32.93	294.316		
7,938.00	7,916.89	7,381.00	7,378.56	17.64	15.48	93.57		752.03	9,449.48	9,696.37	9,663.13	33.24	291.749		
8,033.00	8,011.80	7,381.00	7,378.56	17.84	15.48	91.49		752.03	9,449.48	9,702.59	9,669.10	33.49	289.699		
8,128.00	8,106.75	7,381.00	7,378.56	18.04	15.48	91.55		752.03	9,449.48	9,709.64	9,675.90	33.74	287.769		
8,224.00	8,202.73	7,381.00	7,378.56	18.24	15.48	82.11		752.03	9,449.48	9,717.56	9,683.57	33.98	285.945		
8,312.00	8,290.73	7,413.00	7,410.37	18.41	15.55	91.85		750.16	9,452.41	9,725.45	9,691.20	34.25	283.968		
8,363.00	8,341.72	7,413.00	7,410.37	18.51	15.55	42.45		750.16	9,452.41	9,730.13	9,695.76	34.37	283.079		
8,411.00	8,389.55	7,413.00	7,410.37	18.60	15.55	-3.09		750.16	9,452.41	9,731.40	9,696.92	34.48	282.204		
8,458.00	8,435.66	7,413.00	7,410.37	18.67	15.55	-5.43		750.16	9,452.41	9,727.37	9,692.79	34.59	281.253		
8,506.00	8,481.40	7,413.00	7,410.37	18.72	15.55	-5.25		750.16	9,452.41	9,718.13	9,683.45	34.68	280.203		
8,553.00	8,524.51	7,413.00	7,410.37	18.76	15.55	-3.28		750.16	9,452.41	9,704.59	9,669.82	34.77	279.097		
8,601.00	8,567.16	7,413.00	7,410.37	18.81	15.55	-0.24		750.16	9,452.41	9,687.89	9,653.03	34.86	277.922		
8,649.00	8,608.40	7,413.00	7,410.37	18.85	15.55	-0.25		750.16	9,452.41	9,668.69	9,633.75	34.94	276.699		
8,697.00	8,647.61	7,429.15	7,426.36	18.88	15.58	-2.55		749.06	9,454.34	9,646.13	9,611.08	35.05	275.228		
8,743.00	8,682.89	7,445.00	7,442.02	18.92	15.61	-4.04		748.13	9,456.62	9,621.71	9,586.57	35.14	273.807		
8,791.00	8,717.88	7,445.00	7,442.02	18.94	15.61	-4.41		748.13	9,456.62	9,593.91	9,558.71	35.20	272.547		
8,839.00	8,751.41	7,445.00	7,442.02	18.97	15.61	-5.97		748.13	9,456.62	9,564.62	9,529.37	35.25	271.299		
8,887.00	8,782.81	7,445.00	7,442.02	19.01	15.61	-6.75		748.13	9,456.62	9,533.28	9,497.97	35.30	270.028		
8,935.00	8,811.32	7,445.00	7,442.02	19.08	15.61	-8.38		748.13	9,456.62	9,499.41	9,464.06	35.35	268.730		

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: Eddy County, NM (NAD-83)
Reference Site: Emerald PWU 20-22
Site Error: 0.00 usft
Reference Well: 12H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design													Offset Site Error:
Survey Program: 100-MWD													0.00 usft
Reference													Offset Well Error:
Diamond PWU Offsets - D-PWU-22 4H - OH - OH													0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-E (usft)	+S-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,983.00	8,837.12	7,445.00	7,442.02	19.25	15.61	-8.05	748.13	9,456.62	9,463.42	9,428.04	35.39	267.425	
9,031.00	8,860.37	7,445.00	7,442.02	19.57	15.61	-8.66	748.13	9,456.62	9,425.64	9,390.22	35.42	266.108	
9,078.00	8,880.89	7,445.00	7,442.02	19.95	15.61	-7.85	748.13	9,456.62	9,387.20	9,351.75	35.45	264.804	
9,126.00	8,899.61	7,445.00	7,442.02	20.41	15.61	-4.04	748.13	9,456.62	9,346.59	9,311.11	35.48	263.431	
9,174.00	8,916.02	7,445.00	7,442.02	20.94	15.61	-0.72	748.13	9,456.62	9,304.72	9,269.20	35.51	262.009	
9,222.00	8,930.13	7,445.00	7,442.02	21.53	15.61	2.65	748.13	9,456.62	9,261.76	9,226.21	35.55	260.554	
9,270.00	8,941.24	7,445.00	7,442.02	22.17	15.61	6.58	748.13	9,456.62	9,217.57	9,181.99	35.58	259.063	
9,333.00	8,950.94	7,445.00	7,442.02	23.10	15.61	8.11	748.13	9,456.62	9,157.88	9,122.27	35.62	257.110	
9,340.00	8,951.69	7,445.00	7,442.02	23.21	15.61	8.24	748.13	9,456.62	9,151.16	9,115.53	35.63	256.871	
9,400.00	8,958.00	7,445.00	7,442.02	23.88	15.61	-0.46	748.13	9,456.62	9,093.43	9,055.53	37.90	239.923	
9,500.00	8,968.52	7,460.69	7,457.48	24.42	15.64	-14.65	747.27	9,459.20	8,997.20	8,959.24	37.96	237.014	
9,547.24	8,973.49	7,461.87	7,458.64	24.76	15.65	-20.85	747.21	9,459.40	8,951.97	8,913.99	37.97	235.749	
9,600.00	8,978.18	7,477.00	7,473.49	25.20	15.68	-19.80	746.40	9,462.17	8,901.39	8,863.38	38.01	234.187	
9,708.82	8,982.48	7,477.00	7,473.49	26.30	15.68	-16.28	746.40	9,462.17	8,795.36	8,757.31	38.05	231.173	
9,800.00	8,983.04	7,477.00	7,473.49	27.43	15.68	-16.28	746.40	9,462.17	8,705.83	8,667.75	38.08	228.607	
9,900.00	8,983.66	7,477.00	7,473.49	28.84	15.68	-16.28	746.40	9,462.17	8,607.69	8,569.57	38.12	225.795	
10,000.00	8,984.27	7,477.00	7,473.49	30.42	15.68	-16.28	746.40	9,462.17	8,509.59	8,471.42	38.16	222.972	
10,100.00	8,984.88	7,477.00	7,473.49	32.14	15.68	-16.28	746.40	9,462.17	8,411.53	8,373.32	38.21	220.139	
10,200.00	8,985.50	7,477.00	7,473.49	33.97	15.68	-16.28	746.40	9,462.17	8,313.52	8,275.26	38.26	217.294	
10,300.00	8,986.11	7,477.00	7,473.49	35.91	15.68	-16.28	746.40	9,462.17	8,215.55	8,177.24	38.31	214.439	
10,400.00	8,986.73	7,477.00	7,473.49	37.94	15.68	-16.28	746.40	9,462.17	8,117.64	8,079.27	38.37	211.574	
10,500.00	8,987.34	7,477.00	7,473.49	40.04	15.68	-16.28	746.40	9,462.17	8,019.78	7,981.35	38.43	208.698	
10,600.00	8,987.96	7,477.00	7,473.49	42.19	15.68	-16.28	746.40	9,462.17	7,921.97	7,883.47	38.49	205.811	
10,700.00	8,988.57	7,477.00	7,473.49	44.41	15.68	-16.28	746.40	9,462.17	7,824.21	7,785.65	38.56	202.915	
10,800.00	8,989.18	7,477.00	7,473.49	46.66	15.68	-16.28	746.40	9,462.17	7,726.52	7,687.89	38.63	200.008	
10,900.00	8,989.80	7,477.00	7,473.49	48.96	15.68	-16.28	746.40	9,462.17	7,628.88	7,590.17	38.71	197.092	
11,000.00	8,990.41	7,477.00	7,473.49	51.29	15.68	-16.28	746.40	9,462.17	7,531.30	7,492.52	38.79	194.166	
11,100.00	8,991.03	7,477.00	7,473.49	53.64	15.68	-16.28	746.40	9,462.17	7,433.79	7,394.92	38.87	191.230	
11,200.00	8,991.64	7,477.00	7,473.49	56.03	15.68	-16.28	746.40	9,462.17	7,336.35	7,297.39	38.96	188.284	
11,300.00	8,992.26	7,492.32	7,488.47	58.43	15.71	-16.40	745.55	9,465.28	7,238.78	7,199.70	39.08	185.212	
11,400.00	8,992.87	7,494.16	7,490.26	60.86	15.71	-16.41	745.45	9,465.67	7,141.43	7,102.24	39.19	182.237	
11,500.00	8,993.48	7,509.00	7,504.68	63.30	15.74	-16.53	744.59	9,469.07	7,044.29	7,004.97	39.32	179.169	
11,600.00	8,994.10	7,509.00	7,504.68	65.76	15.74	-16.53	744.59	9,469.07	6,947.04	6,907.61	39.43	176.192	
11,700.00	8,994.71	7,509.00	7,504.68	68.23	15.74	-16.53	744.59	9,469.07	6,849.86	6,810.32	39.55	173.207	
11,800.00	8,995.33	7,509.00	7,504.68	70.71	15.74	-16.53	744.59	9,469.07	6,752.78	6,713.10	39.67	170.213	
11,900.00	8,995.94	7,509.00	7,504.68	73.21	15.74	-16.53	744.59	9,469.07	6,655.77	6,615.97	39.80	167.211	
12,000.00	8,996.56	7,509.00	7,504.68	75.71	15.74	-16.53	744.59	9,469.07	6,558.86	6,518.91	39.94	164.202	
12,100.00	8,997.17	7,509.00	7,504.68	78.22	15.74	-16.53	744.59	9,469.07	6,462.04	6,421.95	40.09	161.185	
12,200.00	8,997.78	7,509.00	7,504.68	80.75	15.74	-16.53	744.59	9,469.07	6,365.32	6,325.07	40.25	158.160	
12,300.00	8,998.40	7,509.00	7,504.68	83.27	15.74	-16.53	744.59	9,469.07	6,268.70	6,228.29	40.41	155.129	
12,400.00	8,999.01	7,509.00	7,504.68	85.81	15.74	-16.53	744.59	9,469.07	6,172.19	6,131.61	40.58	152.091	
12,500.00	8,999.63	7,509.00	7,504.68	88.35	15.74	-16.53	744.59	9,469.07	6,075.79	6,035.03	40.76	149.047	
12,600.00	9,000.24	7,523.43	7,518.63	90.90	15.77	-16.64	743.66	9,472.65	5,979.37	5,938.40	40.97	145.945	
12,700.00	9,000.85	7,526.72	7,521.80	93.45	15.78	-16.66	743.63	9,473.50	5,883.15	5,841.97	41.17	142.883	
12,800.00	9,001.47	7,541.00	7,535.51	96.01	15.81	-16.77	742.36	9,477.35	5,787.11	5,745.71	41.40	139.792	
12,900.00	9,002.08	7,541.00	7,535.51	98.57	15.81	-16.77	742.36	9,477.35	5,691.07	5,649.45	41.62	136.734	
13,000.00	9,002.70	7,541.00	7,535.51	101.14	15.81	-16.77	742.36	9,477.35	5,595.17	5,553.31	41.86	133.673	
13,100.00	9,003.31	7,541.00	7,535.51	103.71	15.81	-16.77	742.36	9,477.35	5,499.41	5,457.31	42.11	130.609	
13,200.00	9,003.93	7,541.00	7,535.51	106.28	15.81	-16.77	742.36	9,477.35	5,403.81	5,361.44	42.37	127.542	
13,300.00	9,004.54	7,541.00	7,535.51	108.86	15.81	-16.77	742.36	9,477.35	5,308.37	5,265.72	42.65	124.474	
13,400.00	9,005.15	7,541.00	7,535.51	111.44	15.81	-16.77	742.36	9,477.35	5,213.10	5,170.16	42.94	121.404	
13,500.00	9,005.77	7,557.05	7,550.82	114.02	15.84	-16.88	740.99	9,481.95	5,117.84	5,074.59	43.25	118.335	

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: Eddy County, NM (NAD-83)
Reference Site: Emerald PWU 20-22
Site Error: 0.00 usft
Reference Well: 12H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Diamond PWU Offsets - D-PWU-22 4H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100-MWD													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 (usft)	Between Centres (usft)	Between Ellipse (usft)	Minimum Separation (usft)	Separation Factor	Warning	
13,600.00	9,006.38	7,572.00	7,564.99	116.61	15.88	-16.99	739.56	9,486.51	5,022.90	4,979.33	43.57	115.284	
13,700.55	9,007.00	7,572.00	7,564.99	119.21	15.88	-16.99	739.56	9,486.51	4,927.49	4,883.58	43.91	112.207	
13,746.28	9,007.24	7,572.00	7,564.99	120.39	15.88	-14.45	739.56	9,486.51	4,884.13	4,840.06	44.07	110.823	
13,800.00	9,007.48	7,572.00	7,564.99	121.78	15.88	-14.45	739.56	9,486.51	4,833.18	4,788.93	44.25	109.215	
13,900.00	9,007.92	7,572.00	7,564.99	124.37	15.88	-14.45	739.56	9,486.51	4,738.51	4,693.91	44.61	106.228	
14,000.00	9,008.36	7,572.00	7,564.99	126.96	15.88	-14.45	739.56	9,486.51	4,644.07	4,599.09	44.98	103.249	
14,100.00	9,008.80	7,572.00	7,564.99	129.55	15.88	-14.45	739.56	9,486.51	4,549.87	4,504.50	45.37	100.278	
14,200.00	9,009.24	7,572.00	7,564.99	132.15	15.88	-14.45	739.56	9,486.51	4,455.92	4,410.13	45.79	97.317	
14,300.00	9,009.68	7,587.83	7,579.86	134.75	15.91	-14.53	738.07	9,491.70	4,361.96	4,315.76	46.20	94.413	
14,400.00	9,010.12	7,604.00	7,594.92	137.34	15.95	-14.63	736.76	9,497.47	4,268.59	4,221.96	46.63	91.535	
14,500.00	9,010.56	7,604.00	7,594.92	139.94	15.95	-14.63	736.76	9,497.47	4,175.23	4,128.11	47.12	88.616	
14,600.00	9,011.00	7,604.00	7,594.92	142.55	15.95	-14.63	736.76	9,497.47	4,082.18	4,034.55	47.63	85.712	
14,700.00	9,011.44	7,604.00	7,594.92	145.15	15.95	-14.63	736.76	9,497.47	3,989.47	3,941.30	48.17	82.824	
14,800.00	9,011.89	7,604.00	7,594.92	147.75	15.95	-14.63	736.76	9,497.47	3,897.12	3,848.38	48.74	79.956	
14,900.00	9,012.33	7,621.88	7,611.37	150.36	15.99	-14.72	735.05	9,504.24	3,804.99	3,755.70	49.29	77.195	
15,000.00	9,012.77	7,636.00	7,624.22	152.96	16.02	-14.78	733.17	9,509.78	3,713.21	3,663.34	49.87	74.458	
15,100.00	9,013.21	7,636.00	7,624.22	155.57	16.02	-14.78	733.17	9,509.78	3,621.76	3,571.21	50.54	71.657	
15,200.00	9,013.65	7,636.00	7,624.22	158.18	16.02	-14.78	733.17	9,509.78	3,530.76	3,479.51	51.26	68.883	
15,300.00	9,014.09	7,668.00	7,652.89	160.79	16.09	-14.87	728.12	9,523.07	3,440.04	3,388.21	51.83	66.375	
15,400.00	9,014.53	7,668.00	7,652.89	163.40	16.09	-14.87	728.12	9,523.07	3,349.69	3,297.06	52.62	63.657	
15,500.00	9,014.97	7,668.00	7,652.89	166.01	16.09	-14.87	728.12	9,523.07	3,259.89	3,206.43	53.46	60.973	
15,600.00	9,015.41	7,682.74	7,665.88	168.62	16.13	-14.91	725.60	9,529.57	3,170.53	3,116.28	54.25	58.444	
15,700.00	9,015.85	7,700.00	7,680.87	171.23	16.17	-14.94	722.43	9,537.51	3,081.79	3,026.74	55.05	55.983	
15,800.00	9,016.29	7,700.00	7,680.87	173.84	16.17	-14.94	722.43	9,537.51	2,993.49	2,937.44	56.05	53.408	
15,900.00	9,016.73	7,700.00	7,680.87	176.46	16.17	-14.94	722.43	9,537.51	2,905.96	2,848.84	57.12	50.879	
16,000.00	9,017.17	7,732.00	7,707.93	179.07	16.25	-14.96	715.80	9,553.23	2,819.03	2,761.14	57.89	48.694	
16,100.00	9,017.61	7,732.00	7,707.93	181.69	16.25	-14.96	715.80	9,553.23	2,732.65	2,673.56	59.08	46.251	
16,200.00	9,018.06	7,732.00	7,707.93	184.30	16.25	-14.96	715.80	9,553.23	2,647.22	2,586.87	60.35	43.862	
16,300.00	9,018.50	7,763.00	7,733.24	186.92	16.34	-14.94	708.60	9,569.62	2,562.55	2,501.29	61.26	41.830	
16,400.00	9,018.94	7,763.00	7,733.24	189.54	16.34	-14.94	708.60	9,569.62	2,478.67	2,415.99	62.68	39.544	
16,500.00	9,019.38	7,778.15	7,745.30	192.16	16.39	-14.92	704.91	9,578.02	2,395.81	2,331.87	63.95	37.466	
16,600.00	9,019.82	7,795.00	7,758.44	194.77	16.44	-14.89	700.69	9,587.68	2,314.01	2,248.76	65.25	35.466	
16,700.00	9,020.26	7,795.00	7,758.44	197.39	16.44	-14.89	700.69	9,587.68	2,233.41	2,166.47	66.94	33.364	
16,800.00	9,020.70	7,827.00	7,782.56	200.01	16.56	-14.80	692.17	9,606.90	2,153.90	2,085.82	68.08	31.637	
16,900.00	9,021.14	7,827.00	7,782.56	202.63	16.56	-14.80	692.17	9,606.90	2,075.79	2,005.82	69.97	29.667	
17,000.00	9,021.58	7,844.68	7,795.31	205.25	16.64	-14.74	687.20	9,618.09	1,999.21	1,927.65	71.56	27.938	
17,100.00	9,022.02	7,858.00	7,804.60	207.87	16.69	-14.68	683.42	9,626.86	1,924.42	1,851.09	73.33	26.243	
17,200.00	9,022.46	7,858.00	7,804.60	210.49	16.69	-14.68	683.42	9,626.86	1,851.76	1,776.21	75.55	24.511	
17,300.00	9,022.90	7,890.00	7,825.58	213.12	16.85	-14.51	674.14	9,649.16	1,780.98	1,703.99	76.99	23.132	
17,400.00	9,023.34	7,890.00	7,825.58	215.74	16.85	-14.51	674.14	9,649.16	1,712.61	1,633.20	79.41	21.567	
17,500.00	9,023.78	7,907.40	7,836.09	218.36	16.95	-14.41	669.03	9,662.04	1,646.93	1,565.53	81.40	20.232	
17,600.00	9,024.23	7,922.00	7,844.37	220.98	17.03	-14.31	664.74	9,673.28	1,584.27	1,500.74	83.53	18.966	
17,700.00	9,024.67	7,939.86	7,853.91	223.61	17.15	-14.18	659.50	9,687.44	1,524.77	1,439.17	85.61	17.812	
17,800.00	9,025.11	7,954.00	7,861.08	226.23	17.25	-14.08	655.37	9,698.90	1,468.64	1,380.81	87.82	16.723	
17,900.00	9,025.55	7,986.00	7,876.03	228.85	17.49	-13.82	645.87	9,725.54	1,415.94	1,326.52	89.42	15.835	
18,000.00	9,025.99	8,018.00	7,889.43	231.48	17.76	-13.51	636.05	9,752.89	1,366.97	1,276.04	90.93	15.034	
18,100.00	9,026.43	8,018.00	7,889.43	234.10	17.76	-13.51	636.05	9,752.89	1,322.48	1,228.97	93.50	14.144	
18,200.00	9,026.87	8,069.04	7,907.80	236.73	18.27	-12.98	620.49	9,797.88	1,281.02	1,186.86	94.16	13.604	
18,300.00	9,027.31	8,114.00	7,920.67	239.35	18.73	-12.50	607.46	9,838.93	1,245.20	1,150.26	94.94	13.116	
18,400.00	9,027.75	8,114.00	7,920.67	241.98	18.73	-12.50	607.46	9,838.93	1,213.93	1,116.86	97.07	12.506	
18,500.00	9,028.19	8,151.00	7,928.40	244.60	19.18	-12.06	596.60	9,873.43	1,188.08	1,090.38	97.70	12.161	
18,600.00	9,028.63	8,183.00	7,932.53	247.23	19.58	-11.62	586.70	9,903.57	1,168.38	1,070.21	98.18	11.901	

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Diamond PWU Offsets - D-PWU-22 4H - OH - OH													Offset Site Error:
Survey Program: 100-MWD													0.00 usft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		Warning		Offset Well Error:	
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	Warning
18,700.00	9,029.07	8,215.00	7,934.88	249.85	20.01	-11.15	576.80	9,933.91	1,154.44	1,056.04	98.40	11.732	
18,800.00	9,029.51	8,279.00	7,937.55	252.48	20.94	-10.31	559.21	9,995.37	1,145.14	1,047.45	97.68	11.723	
18,900.00	9,029.95	8,357.59	7,940.66	255.11	22.19	-9.56	543.58	10,072.31	1,138.12	1,040.84	97.28	11.699	
19,000.00	9,030.40	8,427.43	7,942.16	257.73	23.39	-9.01	532.35	10,141.22	1,133.69	1,036.38	97.31	11.651	
19,100.00	9,030.84	8,526.50	7,943.12	260.36	25.18	-8.34	518.80	10,239.36	1,131.07	1,033.76	97.31	11.623	
19,200.00	9,031.28	8,629.52	7,945.15	262.99	27.17	-7.62	504.26	10,341.33	1,127.56	1,030.24	97.32	11.586	
19,300.00	9,031.72	8,719.65	7,946.56	265.61	28.98	-7.01	492.19	10,430.63	1,124.71	1,027.19	97.52	11.533	
19,400.00	9,032.16	8,815.35	7,947.48	268.24	30.97	-6.42	480.33	10,525.59	1,122.71	1,024.88	97.83	11.476	
19,500.00	9,032.60	8,907.15	7,948.31	270.87	32.93	-5.91	470.26	10,616.83	1,121.07	1,022.75	98.33	11.402	
19,579.38	9,032.95	8,974.28	7,948.41	272.95	34.38	-5.59	464.15	10,683.68	1,120.59	1,021.74	98.85	11.337	
19,600.00	9,033.04	8,991.00	7,948.32	273.50	34.75	-5.53	462.82	10,700.34	1,120.62	1,021.62	99.00	11.320	
19,700.00	9,033.48	9,082.59	7,947.20	276.12	36.77	-5.22	456.99	10,791.74	1,121.66	1,021.76	99.90	11.228	
19,800.00	9,033.92	9,193.62	7,946.68	278.75	39.24	-5.05	453.74	10,902.71	1,122.31	1,021.07	101.24	11.086	
19,900.00	9,034.36	9,313.28	7,948.01	281.38	41.94	-5.09	454.35	11,022.36	1,121.70	1,018.69	103.01	10.889	
20,000.00	9,034.80	9,400.23	7,949.64	284.01	43.92	-5.16	455.69	11,109.28	1,120.45	1,015.90	104.55	10.716	
20,100.00	9,035.24	9,505.78	7,950.75	286.64	46.34	-5.31	458.49	11,214.79	1,120.09	1,013.68	106.42	10.525	
20,164.37	9,035.53	9,559.81	7,951.51	288.33	47.58	-5.38	459.94	11,268.80	1,119.67	1,012.21	107.46	10.419	
20,200.00	9,035.68	9,586.79	7,951.58	289.27	48.21	-5.41	460.58	11,295.77	1,119.80	1,011.81	107.99	10.370	
20,300.00	9,036.12	9,687.71	7,951.05	291.90	50.56	-5.51	462.56	11,396.67	1,120.96	1,011.21	109.75	10.214	
20,400.00	9,036.57	9,807.00	7,952.12	294.53	53.36	-5.63	464.80	11,515.93	1,120.67	1,008.93	111.73	10.030	
20,478.45	9,036.91	9,873.83	7,953.00	296.59	54.94	-5.70	466.25	11,582.74	1,120.17	1,007.15	113.02	9.911	
20,500.00	9,037.01	9,891.49	7,953.09	297.15	55.36	-5.72	466.68	11,600.39	1,120.21	1,008.84	113.37	9.881	
20,600.00	9,037.45	10,003.66	7,953.95	299.78	58.02	-5.86	469.41	11,712.53	1,120.14	1,004.77	115.37	9.709	
20,686.01	9,037.83	10,081.44	7,954.69	302.05	59.87	-5.92	470.51	11,790.29	1,119.82	1,003.04	116.78	9.589	
20,700.00	9,037.89	10,094.11	7,954.75	302.41	60.18	-5.93	470.58	11,802.96	1,119.83	1,002.83	117.00	9.571	
20,800.00	9,038.33	10,197.81	7,955.20	305.04	62.67	-5.92	470.41	11,906.66	1,119.82	1,001.21	118.60	9.442	
20,900.00	9,038.77	10,309.03	7,956.46	307.67	65.35	-5.86	469.25	12,017.87	1,119.02	998.86	120.16	9.313	
21,000.00	9,039.21	10,411.45	7,958.15	310.30	67.83	-5.80	467.90	12,120.26	1,117.67	996.05	121.62	9.190	
21,100.00	9,039.65	10,514.91	7,960.07	312.93	70.34	-5.75	466.75	12,223.70	1,116.16	993.05	123.11	9.066	
21,200.00	9,040.09	10,609.99	7,962.12	315.56	72.65	-5.69	465.54	12,318.74	1,114.33	989.80	124.53	8.948	
21,300.00	9,040.53	10,699.69	7,962.77	318.19	74.84	-5.59	463.43	12,408.42	1,113.79	988.01	125.78	8.855	
21,400.00	9,040.97	10,816.85	7,964.11	320.83	77.70	-5.37	459.20	12,525.49	1,112.76	985.78	126.98	8.763	
21,500.00	9,041.41	10,912.95	7,966.25	323.46	80.06	-5.17	455.13	12,621.48	1,110.61	982.55	128.05	8.673	
21,600.00	9,041.85	11,036.57	7,968.67	326.09	83.09	-4.97	451.03	12,744.99	1,108.99	979.70	129.29	8.577	
21,633.18	9,042.00	11,072.90	7,970.28	326.62	83.98	-4.96	450.74	12,781.30	1,107.64	977.96	129.69	8.541 CC, ES, SF	

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Emerald PWU 20-21 - Emerald 20 8H (offset) - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100-ISCWSA-GYRO-3, 3428-MWD-ISCWSA													Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Semi Major Axis (usft)	Highside Toolface (°)	Offset Wellbore Centre (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	88.24		156.02	5,081.22	5,083.67				
50.00	50.00	38.10	36.10	0.02	0.03	93.34		156.02	5,081.18	5,083.59	5,083.53	0.06	N/A	
100.00	100.00	104.11	104.11	0.09	0.10	112.59		156.02	5,080.93	5,083.46	5,083.27	0.19	N/A	
150.00	150.00	170.45	170.44	0.13	0.21	123.56		155.88	5,080.47	5,083.29	5,082.95	0.34	N/A	
188.37	188.37	220.21	220.21	0.16	0.30	163.27		155.60	5,079.99	5,083.23	5,082.76	0.47	N/A	
285.00	284.98	330.65	330.63	0.24	0.49	-159.04		154.56	5,078.60	5,083.68	5,082.95	0.73	6,920.549	
338.00	337.96	379.75	379.72	0.33	0.58	-165.34		153.97	5,077.97	5,084.30	5,083.40	0.90	5,622.726	
438.00	437.92	485.42	485.38	0.52	0.76	-163.23		152.70	5,076.62	5,085.76	5,084.48	1.28	3,972.292	
529.00	528.87	584.63	584.57	0.71	0.94	-172.03		151.65	5,075.19	5,087.28	5,085.64	1.64	3,094.435	
620.00	619.82	650.86	650.79	0.90	1.05	-169.32		150.98	5,074.29	5,089.02	5,087.07	1.94	2,618.976	
711.00	710.77	713.16	713.09	1.08	1.16	-166.32		150.52	5,073.83	5,091.19	5,088.95	2.23	2,280.557	
803.00	802.73	785.68	785.61	1.28	1.29	-166.33		150.17	5,073.61	5,093.70	5,091.15	2.55	1,996.835	
894.00	893.69	869.32	869.25	1.47	1.44	-178.83		149.93	5,073.59	5,096.41	5,093.53	2.89	1,765.529	
985.00	984.65	944.07	944.00	1.66	1.57	-174.63		149.83	5,073.69	5,099.07	5,095.87	3.20	1,593.180	
1,077.00	1,076.62	1,014.21	1,014.13	1.85	1.69	-172.53		150.05	5,074.08	5,101.90	5,098.39	3.51	1,453.159	
1,169.00	1,168.60	1,089.29	1,089.21	2.05	1.82	-164.84		150.30	5,074.77	5,104.96	5,101.12	3.83	1,331.207	
1,261.00	1,260.57	1,167.31	1,167.23	2.24	1.95	-169.55		150.57	5,075.73	5,108.36	5,104.20	4.16	1,226.756	
1,353.00	1,352.55	1,261.81	1,261.71	2.43	2.12	-168.14		151.18	5,077.04	5,111.47	5,106.95	4.52	1,131.525	
1,449.00	1,448.54	1,390.31	1,390.21	2.63	2.34	-177.73		151.75	5,078.36	5,113.58	5,108.62	4.94	1,035.265	
1,544.00	1,543.53	1,481.93	1,481.82	2.83	2.50	-171.13		152.29	5,078.97	5,115.36	5,110.06	5.30	965.624	
1,640.00	1,639.52	1,577.60	1,577.49	3.03	2.67	-179.22		152.92	5,079.68	5,117.42	5,111.76	5.67	903.307	
1,736.00	1,735.51	1,676.15	1,676.03	3.23	2.84	-171.62		153.73	5,080.38	5,119.46	5,113.42	6.04	847.893	
1,831.00	1,830.51	1,684.00	6,828.90	3.43	123.69	91.02		356.29	64.74	5,035.93	4,996.39	39.54	127.375	
1,927.00	1,926.49	1,684.00	6,828.90	3.63	123.69	107.17		356.29	64.74	4,940.21	4,900.70	39.51	125.032	
2,022.00	2,021.48	1,684.00	6,828.90	3.83	123.69	76.88		356.29	64.74	4,845.49	4,806.00	39.49	122.698	
2,118.00	2,117.48	1,684.00	6,828.90	4.03	123.69	87.96		356.29	64.74	4,749.77	4,710.29	39.48	120.320	
2,214.00	2,213.48	1,684.00	6,828.90	4.23	123.69	85.55		356.29	64.74	4,654.07	4,614.60	39.47	117.922	
2,310.00	2,309.47	1,684.00	6,828.90	4.43	123.69	58.65		356.29	64.74	4,558.36	4,518.90	39.46	115.508	
2,405.00	2,404.47	1,684.00	6,828.90	4.63	123.69	95.67		356.29	64.74	4,463.67	4,424.21	39.47	113.104	
2,501.00	2,500.45	1,684.00	6,828.90	4.83	123.69	72.06		356.29	64.74	4,367.99	4,328.51	39.47	110.659	
2,596.00	2,595.43	1,684.00	6,828.90	5.03	123.69	76.04		356.29	64.74	4,273.27	4,233.79	39.48	108.234	
2,724.00	2,723.33	1,684.00	6,828.90	5.31	123.69	95.40		356.29	64.74	4,145.65	4,106.16	39.49	104.971	
2,788.00	2,787.23	1,684.00	6,828.90	5.45	123.69	95.56		356.29	64.74	4,081.84	4,042.34	39.50	103.344	
2,883.00	2,882.05	1,684.00	6,828.90	5.66	123.69	104.23		356.29	64.74	3,987.13	3,947.63	39.50	100.929	
2,979.00	2,977.79	1,684.00	6,828.90	5.87	123.69	111.84		356.29	64.74	3,891.47	3,851.95	39.51	98.490	
3,074.00	3,072.45	1,684.00	6,828.90	6.09	123.69	117.79		356.29	64.74	3,796.85	3,757.33	39.52	96.080	
3,170.00	3,168.02	1,684.00	6,828.90	6.31	123.69	121.71		356.29	64.74	3,701.28	3,661.76	39.52	93.647	
3,265.00	3,262.52	1,684.00	6,828.90	6.54	123.69	125.88		356.29	64.74	3,606.78	3,567.25	39.53	91.241	
3,361.00	3,357.97	1,684.00	6,828.90	6.77	123.69	126.74		356.29	64.74	3,511.34	3,471.80	39.54	88.800	
3,406.00	3,402.71	1,684.00	6,828.90	6.88	123.69	126.11		356.29	64.74	3,466.62	3,427.07	39.55	87.651	
3,543.00	3,538.93	1,684.00	6,828.90	7.19	123.69	126.65		356.29	64.74	3,330.53	3,290.94	39.59	84.130	
3,639.00	3,634.45	1,684.00	6,828.90	7.42	123.69	117.97		356.29	64.74	3,235.13	3,195.50	39.63	81.640	
3,734.00	3,729.04	1,684.00	6,828.90	7.63	123.69	110.02		356.29	64.74	3,140.58	3,100.91	39.67	79.167	
3,830.00	3,824.64	1,684.00	6,828.90	7.85	123.69	109.86		356.29	64.74	3,044.99	3,005.28	39.72	76.669	
3,925.00	3,919.28	1,684.00	6,828.90	8.07	123.69	100.47		356.29	64.74	2,950.38	2,910.61	39.77	74.185	
4,021.00	4,014.96	1,684.00	6,828.90	8.28	123.69	96.60		356.29	64.74	2,854.74	2,814.90	39.84	71.662	
4,116.00	4,109.66	1,684.00	6,828.90	8.50	123.69	95.49		356.29	64.74	2,760.09	2,720.18	39.91	69.159	
4,212.00	4,205.31	1,684.00	6,828.90	8.72	123.69	100.08		356.29	64.74	2,664.45	2,624.47	39.98	66.642	
4,307.00	4,299.84	1,684.00	6,828.90	8.95	123.69	112.57		356.29	64.74	2,569.87	2,529.83	40.04	64.179	
4,403.00	4,395.31	1,684.00	6,828.90	9.18	123.69	104.77		356.29	64.74	2,474.32	2,434.22	40.10	61.701	
4,498.00	4,489.83	1,684.00	6,828.90	9.40	123.69	112.63		356.29	64.74	2,379.83	2,339.66	40.17	59.240	
4,594.00	4,585.38	1,684.00	6,828.90	9.63	123.69	109.14		356.29	64.74	2,284.48	2,244.22	40.26	56.744	

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Emerald PWU 20-21 - Emerald 20 8H (offset) - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100-ISCWSA-GYRO-3, 8428-MWD-ISCWSA													Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Semi Major Axis (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,689.00	4,679.99	11,684.00	6,828.90	9.85	123.69	107.02		356.29	64.74	2,190.16	2,149.80	40.36	54.263	
4,785.00	4,775.59	11,684.00	6,828.90	10.08	123.69	109.15		356.29	64.74	2,094.90	2,054.43	40.47	51.764	
4,881.00	4,871.20	11,684.00	6,828.90	10.31	123.69	106.06		356.29	64.74	1,999.71	1,959.13	40.59	49.268	
4,976.00	4,965.86	11,684.00	6,828.90	10.54	123.69	101.64		356.29	64.74	1,905.55	1,864.83	40.72	46.796	
5,072.00	5,061.56	11,684.00	6,828.90	10.76	123.69	96.84		356.29	64.74	1,810.41	1,769.54	40.87	44.302	
5,168.00	5,157.24	11,684.00	6,828.90	10.98	123.69	105.45		356.29	64.74	1,715.40	1,674.37	41.03	41.810	
5,263.00	5,251.86	11,684.00	6,828.90	11.21	123.69	106.11		356.29	64.74	1,621.55	1,580.32	41.23	39.328	
5,359.00	5,347.43	11,684.00	6,828.90	11.45	123.69	103.74		356.29	64.74	1,526.81	1,485.38	41.43	36.853	
5,454.00	5,442.06	11,684.00	6,828.90	11.67	123.69	92.75		356.29	64.74	1,433.08	1,391.43	41.66	34.404	
5,550.00	5,537.68	11,684.00	6,828.90	11.90	123.69	101.50		356.29	64.74	1,338.51	1,296.62	41.89	31.956	
5,645.00	5,632.22	11,684.00	6,828.90	12.13	123.69	109.76		356.29	64.74	1,245.35	1,203.25	42.11	29.576	
5,741.00	5,727.76	11,684.00	6,828.90	12.37	123.69	108.24		356.29	64.74	1,151.66	1,109.29	42.37	27.180	
5,836.00	5,822.40	11,684.00	6,828.90	12.60	123.69	102.75		356.29	64.74	1,059.24	1,016.54	42.70	24.805	
5,932.00	5,918.09	11,684.00	6,828.90	12.82	123.69	103.21		356.29	64.74	966.27	923.17	43.10	22.417	
6,027.00	6,012.72	11,684.00	6,828.90	13.05	123.69	111.14		356.29	64.74	875.10	831.59	43.51	20.111	
6,123.00	6,108.31	11,684.00	6,828.90	13.29	123.69	110.00		356.29	64.74	784.06	740.09	43.96	17.834	
6,218.00	6,202.96	11,684.00	6,828.90	13.52	123.69	106.98		356.29	64.74	695.14	650.65	44.49	15.625	
6,314.00	6,298.53	11,684.00	6,828.90	13.75	123.69	108.92		356.29	64.74	607.17	562.21	44.96	13.504	
6,410.00	6,394.04	11,684.00	6,828.90	13.99	123.69	106.88		356.29	64.74	522.05	476.72	45.33	11.517	
6,505.00	6,488.68	11,684.00	6,828.90	14.22	123.69	107.68		356.29	64.74	442.05	396.37	45.68	9.677	
6,601.00	6,584.37	11,684.00	6,828.90	14.45	123.69	109.45		356.29	64.74	368.56	322.90	45.66	8.072	
6,696.00	6,678.98	11,684.00	6,828.90	14.68	123.69	106.44		356.29	64.74	308.38	264.29	44.09	6.994	
6,792.00	6,774.47	11,684.00	6,828.90	14.93	123.69	105.15		356.29	64.74	268.78	229.22	39.56	6.794 SF	
6,862.97	6,845.08	11,684.00	6,828.90	15.10	123.69	107.14		356.29	64.74	259.22	223.54	35.68	7.266 CC, ES	
6,887.00	6,869.00	11,684.00	6,828.90	15.16	123.69	107.96		356.29	64.74	260.34	225.26	35.07	7.422	
6,983.00	6,964.62	11,684.00	6,828.90	15.40	123.69	111.07		356.29	64.74	285.77	248.32	37.45	7.630	
7,079.00	7,060.22	11,684.00	6,828.90	15.63	123.69	110.00		356.29	64.74	337.80	296.66	41.14	8.211	
7,174.00	7,154.74	11,684.00	6,828.90	15.87	123.69	110.14		356.29	64.74	405.63	362.42	43.21	9.386	
7,269.00	7,249.25	11,684.00	6,828.90	16.11	123.69	115.01		356.29	64.74	482.90	438.60	44.30	10.900	
7,365.00	7,344.87	11,684.00	6,828.90	16.35	123.69	112.59		356.29	64.74	566.30	521.38	44.92	12.607	
7,461.00	7,440.61	11,684.00	6,828.90	16.57	123.69	124.72		356.29	64.74	653.02	607.71	45.31	14.412	
7,556.00	7,535.44	11,684.00	6,828.90	16.79	123.69	109.39		356.29	64.74	740.84	695.24	45.59	16.250	
7,651.00	7,630.26	11,684.00	6,828.90	17.01	123.69	105.21		356.29	64.74	829.95	784.14	45.81	18.118	
7,746.00	7,725.12	11,684.00	6,828.90	17.22	123.69	116.24		356.29	64.74	920.22	874.21	46.00	20.003	
7,842.00	7,821.00	11,684.00	6,828.90	17.43	123.69	103.38		356.29	64.74	1,012.24	966.05	46.19	21.914	
7,938.00	7,916.89	11,684.00	6,828.90	17.64	123.69	98.45		356.29	64.74	1,104.79	1,058.42	46.37	23.825	
8,033.00	8,011.80	11,684.00	6,828.90	17.84	123.69	97.84		356.29	64.74	1,196.81	1,150.25	46.55	25.708	
8,128.00	8,106.75	11,684.00	6,828.90	18.04	123.69	100.73		356.29	64.74	1,289.21	1,242.46	46.74	27.580	
8,224.00	8,202.73	11,684.00	6,828.90	18.24	123.69	94.20		356.29	64.74	1,382.87	1,335.92	46.95	29.456	
8,312.00	8,290.73	11,684.00	6,828.90	18.41	123.69	105.38		356.29	64.74	1,468.96	1,421.82	47.14	31.161	
8,363.00	8,341.72	11,684.00	6,828.90	18.51	123.69	55.52		356.29	64.74	1,518.91	1,471.65	47.25	32.143	
8,411.00	8,389.55	11,684.00	6,828.90	18.60	123.69	7.54		356.29	64.74	1,565.18	1,517.83	47.35	33.055	
8,458.00	8,435.66	11,684.00	6,828.90	18.67	123.69	4.78		356.29	64.74	1,608.89	1,561.46	47.44	33.918	
8,506.00	8,481.40	11,684.00	6,828.90	18.72	123.69	3.86		356.29	64.74	1,651.53	1,604.02	47.51	34.760	
8,553.00	8,524.51	11,684.00	6,828.90	18.76	123.69	3.93		356.29	64.74	1,691.24	1,643.66	47.58	35.547	
8,601.00	8,567.16	11,684.00	6,828.90	18.81	123.69	4.32		356.29	64.74	1,730.47	1,682.83	47.64	36.324	
8,649.00	8,608.40	11,684.00	6,828.90	18.85	123.69	3.96		356.29	64.74	1,768.47	1,720.78	47.69	37.082	
8,697.00	8,647.61	11,684.00	6,828.90	18.88	123.69	3.28		356.29	64.74	1,804.62	1,756.89	47.73	37.806	
8,743.00	8,682.89	11,684.00	6,828.90	18.92	123.69	2.90		356.29	64.74	1,837.22	1,789.45	47.77	38.460	
8,791.00	8,717.88	11,684.00	6,828.90	18.94	123.69	2.78		356.29	64.74	1,869.88	1,822.07	47.81	39.108	
8,839.00	8,751.41	11,684.00	6,828.90	18.97	123.69	2.59		356.29	64.74	1,901.66	1,853.80	47.86	39.733	
8,887.00	8,782.61	11,684.00	6,828.90	19.01	123.69	2.43		356.29	64.74	1,931.92	1,884.01	47.90	40.328	

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error: 0.00 usft	
Survey Program: 100-ISCWSA-GYRO-S 8428-MWD-ISCWSA													Offset Well Error: 0.00 usft	
Reference														
Offset														
Semi Major Axis														
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +/- S (usft)	Offset Wellbore Centre +/- W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
8,935.00	8,811.32	11,667.09	6,829.04	19.08	123.27	2.25	355.84	81.65	1,959.92	1,912.07	47.85	40.963		
8,983.00	8,837.12	11,626.42	6,829.39	19.25	122.25	2.10	354.75	122.29	1,985.32	1,937.66	47.65	41.662		
9,031.00	8,860.37	11,582.36	6,829.78	19.57	121.15	1.96	353.61	166.34	2,008.15	1,960.70	47.44	42.328		
9,078.00	8,880.89	11,527.72	6,830.43	19.95	119.79	1.87	352.38	220.96	2,028.12	1,980.95	47.17	42.992		
9,126.00	8,899.61	11,464.83	6,831.66	20.41	118.22	1.85	351.13	283.83	2,045.97	1,999.12	46.86	43.665		
9,174.00	8,916.02	11,386.12	6,834.20	20.94	116.25	1.94	349.54	362.48	2,060.95	2,014.52	46.44	44.383		
9,222.00	8,930.13	11,324.07	6,836.97	21.53	114.70	2.08	348.18	424.45	2,073.10	2,026.99	46.11	44.961		
9,270.00	8,941.24	11,263.89	6,840.06	22.17	113.20	2.25	346.79	484.54	2,081.94	2,036.15	45.79	45.467		
9,333.00	8,950.94	11,191.00	6,844.27	23.10	111.38	2.41	345.18	557.29	2,088.25	2,042.83	45.42	45.979		
9,340.00	8,951.69	11,182.33	6,844.79	23.21	111.17	2.43	345.01	565.94	2,088.60	2,043.23	45.37	46.033		
9,400.00	8,958.00	11,130.38	6,847.82	23.88	109.87	2.40	344.10	617.80	2,091.59	2,046.72	44.87	46.616		
9,500.00	8,968.52	11,030.14	6,853.33	24.42	107.38	2.20	342.93	717.87	2,096.67	2,052.47	44.20	47.439		
9,547.24	8,973.49	10,984.33	6,855.93	24.76	106.24	2.03	342.45	763.62	2,098.89	2,054.97	43.92	47.790		
9,600.00	8,978.18	10,940.61	6,858.26	25.20	105.15	2.02	342.22	807.27	2,100.66	2,057.01	43.66	48.118		
9,708.82	8,982.48	10,834.94	6,863.42	26.30	102.52	2.02	342.40	912.82	2,099.51	2,056.44	43.07	48.743		
9,800.00	8,983.04	10,768.66	6,866.46	27.43	100.87	2.00	342.50	979.02	2,095.89	2,053.17	42.71	49.067		
9,900.00	8,983.66	10,694.81	6,868.57	28.84	99.04	1.97	342.49	1,052.84	2,093.52	2,051.15	42.36	49.419		
10,000.00	8,984.27	10,588.21	6,871.67	30.42	96.38	1.93	342.13	1,159.40	2,091.17	2,049.27	41.90	49.909		
10,100.00	8,984.88	10,491.84	6,874.13	32.14	93.98	1.91	341.38	1,255.73	2,089.19	2,047.67	41.52	50.315		
10,200.00	8,985.50	10,370.66	6,878.09	33.97	90.97	1.88	340.63	1,376.84	2,086.50	2,045.44	41.06	50.820		
10,300.00	8,986.11	10,285.13	6,881.15	35.91	88.84	1.86	340.21	1,462.31	2,083.52	2,042.72	40.81	51.059		
10,400.00	8,986.73	10,198.16	6,883.33	37.94	86.68	1.83	339.92	1,549.26	2,081.57	2,040.99	40.58	51.294		
10,500.00	8,987.34	10,104.27	6,885.53	40.04	84.35	1.80	339.61	1,643.12	2,079.81	2,039.46	40.35	51.547		
10,600.00	8,987.96	9,998.88	6,887.60	42.19	81.73	1.77	338.96	1,748.49	2,078.44	2,038.36	40.08	51.862		
10,700.00	8,988.57	9,849.73	6,892.93	44.41	78.04	1.72	338.63	1,897.54	2,075.42	2,035.84	39.58	52.434		
10,800.00	8,989.18	9,741.23	6,897.92	46.66	75.35	1.66	339.32	2,005.92	2,071.40	2,032.06	39.33	52.661		
10,900.00	8,989.80	9,618.09	6,905.45	48.96	72.31	1.57	340.67	2,128.82	2,065.72	2,026.69	39.02	52.939		
11,000.00	8,990.41	9,549.33	6,909.40	51.29	70.62	1.53	341.31	2,197.46	2,060.60	2,021.56	39.04	52.780		
11,100.00	8,991.03	9,487.00	6,911.59	53.64	69.08	1.50	341.36	2,259.76	2,057.54	2,018.42	39.12	52.599		
11,200.00	8,991.64	9,418.28	6,912.88	56.03	67.38	1.49	340.77	2,328.46	2,056.16	2,016.99	39.17	52.494		
11,300.00	8,992.26	9,294.47	6,915.03	58.43	64.32	1.49	338.89	2,452.23	2,055.10	2,016.21	38.89	52.845		
11,400.00	8,992.87	9,174.39	6,918.64	60.86	61.36	1.48	337.35	2,572.25	2,052.72	2,014.08	38.64	53.121		
11,500.00	8,993.48	9,060.67	6,923.32	63.30	58.57	1.44	336.87	2,685.87	2,049.16	2,010.72	38.45	53.300		
11,600.00	8,994.10	8,985.20	6,926.25	65.76	56.72	1.42	336.60	2,761.28	2,045.92	2,007.42	38.51	53.130		
11,700.00	8,994.71	8,920.00	6,927.52	68.23	55.12	1.43	335.28	2,826.46	2,044.51	2,005.87	38.65	52.904		
11,754.19	8,995.05	8,878.66	6,927.85	69.57	54.10	1.44	334.08	2,867.78	2,044.40	2,005.71	38.68	52.848		
11,800.00	8,995.33	8,835.06	6,928.15	70.71	53.03	1.46	332.92	2,911.36	2,044.37	2,005.71	38.66	52.881		
11,900.00	8,995.94	8,751.45	6,928.38	73.21	50.98	1.48	330.64	2,994.94	2,044.75	2,006.06	38.69	52.846		
12,000.00	8,996.56	8,648.71	6,928.15	75.71	48.47	1.51	327.93	3,097.64	2,045.61	2,007.01	38.60	52.989		
12,100.00	8,997.17	8,528.73	6,928.67	78.22	45.55	1.51	326.14	3,217.60	2,045.80	2,007.39	38.41	53.267		
12,200.00	8,997.78	8,418.22	6,929.92	80.75	42.87	1.49	325.20	3,328.11	2,045.27	2,006.99	38.28	53.432		
12,300.00	8,998.40	8,297.45	6,932.14	83.27	39.97	1.44	324.87	3,448.85	2,044.01	2,005.93	38.08	53.673		
12,400.00	8,999.01	8,195.25	6,934.83	85.81	37.52	1.38	325.73	3,551.02	2,041.93	2,003.91	38.02	53.704		
12,500.00	8,999.63	8,118.42	6,936.43	88.35	35.69	1.31	326.82	3,627.82	2,040.44	2,002.29	38.15	53.489		
12,547.27	8,999.92	8,085.72	6,936.75	89.56	34.92	1.28	327.33	3,660.51	2,040.23	2,002.00	38.23	53.362		
12,600.00	9,000.24	8,050.51	6,936.83	90.90	34.09	1.25	327.93	3,695.72	2,040.40	2,002.06	38.34	53.218		
12,700.00	9,000.85	7,974.00	6,935.85	93.45	32.29	1.16	329.95	3,772.19	2,042.10	2,003.62	38.48	53.072		
12,800.00	9,001.47	7,879.00	6,934.28	96.01	30.09	1.04	332.79	3,867.14	2,044.27	2,005.78	38.49	53.114		
12,900.00	9,002.08	7,785.00	6,932.73	98.57	27.94	0.96	334.10	3,961.11	2,046.49	2,007.97	38.51	53.139		
13,000.00	9,002.70	7,629.64	6,931.98	101.14	24.45	0.90	333.52	4,116.46	2,047.55	2,009.45	38.10	53.739		
13,100.00	9,003.31	7,526.87	6,933.07	103.71	22.21	0.85	333.76	4,219.23	2,047.06	2,008.98	38.08	53.754		
13,133.47	9,003.52	7,501.00	6,933.31	104.57	21.65	0.84	333.89	4,245.10	2,046.97	2,008.83	38.14	53.672		

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Emerald PWU 20-21 - Emerald 20 8H (offset) - OH - OH													Offset Site Error: 0.00 usft	
Survey Program: 100-ISCWSA-GYRO-3 6428-MWD-ISCWSA													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 Ellipse (usft)				
13,200.00	9,003.93	7,456.87	6,933.38	106.28	20.74	0.81	334.07	4,289.22	2,047.27	2,008.96	38.31	53.442		
13,300.00	9,004.54	7,391.88	6,932.42	108.86	19.40	0.78	334.06	4,354.21	2,049.30	2,010.72	38.58	53.117		
13,400.00	9,005.15	7,312.00	6,930.37	111.44	17.83	0.77	333.06	4,434.05	2,052.50	2,013.74	38.76	52.950		
13,500.00	9,005.77	7,249.00	6,927.64	114.02	16.65	0.81	330.85	4,496.95	2,057.36	2,018.28	39.09	52.636		
13,600.00	9,006.38	7,217.00	6,925.39	116.61	16.08	0.85	328.75	4,528.80	2,064.74	2,025.10	39.65	52.076		
13,700.55	9,007.00	7,169.41	6,920.98	119.21	15.26	0.95	324.36	4,575.98	2,074.87	2,034.74	40.13	51.699		
13,746.28	9,007.24	7,154.00	6,919.26	120.39	15.00	0.88	322.90	4,591.22	2,080.35	2,039.94	40.40	51.489		
13,800.00	9,007.48	7,139.09	6,917.36	121.78	14.76	0.92	321.47	4,605.94	2,087.62	2,046.87	40.75	51.232		
13,900.00	9,007.92	7,123.00	6,914.95	124.37	14.51	0.96	319.89	4,621.77	2,103.94	2,062.48	41.46	50.742		
14,000.00	9,008.36	7,091.00	6,908.81	126.96	14.03	1.04	316.97	4,653.03	2,123.84	2,081.75	42.09	50.460		
14,100.00	9,008.80	7,091.00	6,908.81	129.55	14.03	1.04	316.97	4,653.03	2,147.51	2,104.64	42.87	50.096		
14,200.00	9,009.24	7,060.00	6,900.78	132.15	13.60	1.10	314.60	4,682.88	2,174.59	2,131.11	43.48	50.015		
14,300.00	9,009.68	7,046.79	6,896.73	134.75	13.43	1.12	313.70	4,695.42	2,205.25	2,161.11	44.14	49.961		
14,400.00	9,010.12	7,028.00	6,890.47	137.34	13.19	1.15	312.47	4,713.09	2,239.19	2,194.44	44.75	50.040		
14,500.00	9,010.56	7,028.00	6,890.47	139.94	13.19	1.15	312.47	4,713.09	2,276.64	2,231.28	45.36	50.188		
14,600.00	9,011.00	6,994.13	6,877.63	142.55	12.82	1.21	310.08	4,744.34	2,316.42	2,270.54	45.88	50.492		
14,700.00	9,011.44	6,964.00	6,864.48	145.15	12.49	1.27	307.58	4,771.32	2,359.74	2,313.35	46.38	50.875		
14,800.00	9,011.89	6,964.00	6,864.48	147.75	12.49	1.27	307.58	4,771.32	2,405.38	2,358.51	46.87	51.321		
14,900.00	9,012.33	6,964.00	6,864.48	150.36	12.49	1.27	307.58	4,771.32	2,454.25	2,406.95	47.30	51.884		
15,000.00	9,012.77	6,933.00	6,849.08	152.96	12.22	1.35	304.51	4,798.04	2,505.31	2,457.58	47.72	52.495		
15,100.00	9,013.21	6,933.00	6,849.08	155.57	12.22	1.35	304.51	4,798.04	2,559.05	2,510.97	48.08	53.228		
15,200.00	9,013.65	6,915.64	6,839.59	158.18	12.08	1.39	302.56	4,812.44	2,615.11	2,566.67	48.44	53.992		
15,300.00	9,014.09	6,901.00	6,831.15	160.79	11.97	1.43	300.84	4,824.28	2,673.43	2,624.68	48.75	54.845		
15,400.00	9,014.53	6,901.00	6,831.15	163.40	11.97	1.43	300.84	4,824.28	2,733.89	2,684.90	48.99	55.803		
15,500.00	9,014.97	6,870.00	6,811.99	166.01	11.77	1.53	296.78	4,848.30	2,796.41	2,747.09	49.32	56.698		
15,600.00	9,015.41	6,870.00	6,811.99	168.62	11.77	1.53	296.78	4,848.30	2,860.43	2,810.92	49.52	57.769		
15,700.00	9,015.85	6,870.00	6,811.99	171.23	11.77	1.53	296.78	4,848.30	2,926.47	2,876.79	49.68	58.903		
15,800.00	9,016.29	6,852.26	6,800.31	173.84	11.68	1.58	294.31	4,861.42	2,994.02	2,944.11	49.91	59.987		
15,900.00	9,016.73	6,838.00	6,790.56	176.46	11.60	1.63	292.38	4,871.65	3,063.18	3,013.07	50.11	61.131		
16,000.00	9,017.17	6,838.00	6,790.56	179.07	11.60	1.63	292.38	4,871.65	3,133.78	3,083.56	50.22	62.402		
16,100.00	9,017.61	6,822.74	6,779.81	181.69	11.54	1.67	290.36	4,882.29	3,205.68	3,155.28	50.40	63.607		
16,200.00	9,018.06	6,807.00	6,768.39	184.30	11.47	1.71	288.36	4,892.93	3,278.94	3,228.37	50.57	64.840		
16,300.00	9,018.50	6,807.00	6,768.39	186.92	11.47	1.71	288.36	4,892.93	3,353.31	3,302.67	50.64	66.216		
16,400.00	9,018.94	6,807.00	6,768.39	189.54	11.47	1.71	288.36	4,892.93	3,428.98	3,378.28	50.70	67.628		
16,500.00	9,019.38	6,775.00	6,744.19	192.16	11.37	1.79	284.49	4,913.50	3,505.60	3,454.65	50.95	68.802		
16,600.00	9,019.82	6,775.00	6,744.19	194.77	11.37	1.79	284.49	4,913.50	3,583.07	3,532.07	51.00	70.258		
16,700.00	9,020.26	6,775.00	6,744.19	197.39	11.37	1.79	284.49	4,913.50	3,661.63	3,610.59	51.04	71.743		
16,800.00	9,020.70	6,775.00	6,744.19	200.01	11.37	1.79	284.49	4,913.50	3,741.22	3,690.15	51.07	73.254		
16,900.00	9,021.14	6,744.00	6,719.59	202.63	11.29	1.87	280.68	4,931.96	3,821.56	3,770.25	51.31	74.486		
17,000.00	9,021.58	6,744.00	6,719.59	205.25	11.29	1.87	280.68	4,931.96	3,902.54	3,851.20	51.33	76.026		
17,100.00	9,022.02	6,744.00	6,719.59	207.87	11.29	1.87	280.68	4,931.96	3,984.38	3,933.02	51.35	77.586		
17,200.00	9,022.46	6,744.00	6,719.59	210.49	11.29	1.87	280.68	4,931.96	4,067.03	4,015.66	51.37	79.165		
17,300.00	9,022.90	6,728.10	6,706.58	213.12	11.27	1.91	278.63	4,940.88	4,150.22	4,098.72	51.50	80.583		
17,400.00	9,023.34	6,712.00	6,693.18	215.74	11.25	1.95	276.54	4,949.55	4,234.18	4,182.55	51.63	82.009		
17,500.00	9,023.78	6,712.00	6,693.18	218.36	11.25	1.95	276.54	4,949.55	4,318.60	4,266.95	51.65	83.618		
17,600.00	9,024.23	6,712.00	6,693.18	220.98	11.25	1.95	276.54	4,949.55	4,403.67	4,352.01	51.66	85.241		
17,700.00	9,024.67	6,712.00	6,693.18	223.61	11.25	1.95	276.54	4,949.55	4,489.35	4,437.68	51.68	86.876		
17,800.00	9,025.11	6,697.23	6,680.68	226.23	11.23	1.99	274.63	4,957.19	4,575.39	4,523.60	51.79	88.337		
17,900.00	9,025.55	6,681.00	6,666.70	228.85	11.21	2.03	272.59	4,965.18	4,662.15	4,610.22	51.92	89.787		
18,000.00	9,025.99	6,681.00	6,666.70	231.48	11.21	2.03	272.59	4,965.18	4,749.16	4,697.22	51.94	91.437		
18,100.00	9,026.43	6,681.00	6,666.70	234.10	11.21	2.03	272.59	4,965.18	4,836.68	4,784.72	51.95	93.095		
18,200.00	9,026.87	6,681.00	6,666.70	236.73	11.21	2.03	272.59	4,965.18	4,924.67	4,872.70	51.97	94.759		

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Emerald PWU 20-21 - Emerald 20 8H (offset) - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100-ISCWSA-GYRO-3, 6428-MWD-ISCWSA													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 +H/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
18,300.00	9,027.31	6,681.00	6,666.70	239.35	11.21	2.03	272.59	4,965.18	5,013.11	4,961.12	51.99	96.430		
18,400.00	9,027.75	6,681.00	6,666.70	241.98	11.21	2.03	272.59	4,965.18	5,101.97	5,049.97	52.01	98.105		
18,500.00	9,028.19	6,664.94	6,652.63	244.60	11.20	2.06	270.62	4,972.65	5,190.97	5,138.83	52.14	99.561		
18,600.00	9,028.63	6,649.00	6,638.42	247.23	11.19	2.10	268.74	4,979.63	5,280.63	5,228.35	52.27	101.023		
18,700.00	9,029.07	6,649.00	6,638.42	249.85	11.19	2.10	268.74	4,979.63	5,370.39	5,318.09	52.29	102.698		
18,800.00	9,029.51	6,649.00	6,638.42	252.48	11.19	2.10	268.74	4,979.63	5,460.50	5,408.19	52.32	104.376		
18,900.00	9,029.95	6,649.00	6,638.42	255.11	11.19	2.10	268.74	4,979.63	5,550.96	5,498.62	52.34	106.055		
19,000.00	9,030.40	6,649.00	6,638.42	257.73	11.19	2.10	268.74	4,979.63	5,641.73	5,589.37	52.37	107.736		
19,100.00	9,030.84	6,649.00	6,638.42	260.36	11.19	2.10	268.74	4,979.63	5,732.82	5,680.42	52.39	109.418		
19,200.00	9,031.28	6,649.00	6,638.42	262.99	11.19	2.10	268.74	4,979.63	5,824.19	5,771.77	52.42	111.100		
19,300.00	9,031.72	6,649.00	6,638.42	265.61	11.19	2.10	268.74	4,979.63	5,915.85	5,863.39	52.45	112.782		
19,400.00	9,032.16	6,632.72	6,623.69	268.24	11.18	2.13	266.90	4,986.30	6,007.50	5,954.90	52.60	114.213		
19,500.00	9,032.60	6,618.00	6,610.19	270.87	11.17	2.15	265.31	4,991.95	6,099.69	6,046.96	52.73	115.669		
19,600.00	9,033.04	6,618.00	6,610.19	273.50	11.17	2.15	265.31	4,991.95	6,191.92	6,139.15	52.77	117.340		
19,700.00	9,033.48	6,618.00	6,610.19	276.12	11.17	2.15	265.31	4,991.95	6,284.38	6,231.58	52.81	119.008		
19,800.00	9,033.92	6,618.00	6,610.19	278.75	11.17	2.15	265.31	4,991.95	6,377.07	6,324.23	52.85	120.675		
19,900.00	9,034.36	6,618.00	6,610.19	281.38	11.17	2.15	265.31	4,991.95	6,469.98	6,417.09	52.89	122.339		
20,000.00	9,034.80	6,618.00	6,610.19	284.01	11.17	2.15	265.31	4,991.95	6,563.10	6,510.17	52.93	124.001		
20,100.00	9,035.24	6,618.00	6,610.19	286.64	11.17	2.15	265.31	4,991.95	6,656.41	6,603.44	52.97	125.660		
20,200.00	9,035.68	6,618.00	6,610.19	289.27	11.17	2.15	265.31	4,991.95	6,749.92	6,696.90	53.02	127.315		
20,300.00	9,036.12	6,618.00	6,610.19	291.90	11.17	2.15	265.31	4,991.95	6,843.61	6,790.55	53.06	128.967		
20,400.00	9,036.57	6,602.95	6,596.23	294.53	11.17	2.18	263.77	4,997.35	6,937.28	6,884.07	53.21	130.368		
20,500.00	9,037.01	6,586.00	6,580.34	297.15	11.16	2.20	262.13	5,003.03	7,031.41	6,978.04	53.37	131.738		
20,600.00	9,037.45	6,586.00	6,580.34	299.78	11.16	2.20	262.13	5,003.03	7,125.46	7,072.03	53.43	133.371		
20,700.00	9,037.89	6,586.00	6,580.34	302.41	11.16	2.20	262.13	5,003.03	7,219.67	7,166.19	53.48	135.001		
20,800.00	9,038.33	6,586.00	6,580.34	305.04	11.16	2.20	262.13	5,003.03	7,314.03	7,260.49	53.53	136.625		
20,900.00	9,038.77	6,586.00	6,580.34	307.67	11.16	2.20	262.13	5,003.03	7,408.53	7,354.94	53.59	138.245		
21,000.00	9,039.21	6,586.00	6,580.34	310.30	11.16	2.20	262.13	5,003.03	7,503.18	7,449.54	53.65	139.861		
21,100.00	9,039.65	6,586.00	6,580.34	312.93	11.16	2.20	262.13	5,003.03	7,597.97	7,544.27	53.71	141.471		
21,200.00	9,040.09	6,586.00	6,580.34	315.56	11.16	2.20	262.13	5,003.03	7,692.89	7,639.12	53.77	143.076		
21,300.00	9,040.53	6,586.00	6,580.34	318.19	11.16	2.20	262.13	5,003.03	7,787.94	7,734.11	53.83	144.675		
21,400.00	9,040.97	6,586.00	6,580.34	320.83	11.16	2.20	262.13	5,003.03	7,883.11	7,829.21	53.89	146.269		
21,500.00	9,041.41	6,586.00	6,580.34	323.46	11.16	2.20	262.13	5,003.03	7,978.40	7,924.44	53.96	147.858		
21,600.00	9,041.85	6,586.00	6,580.34	326.09	11.16	2.20	262.13	5,003.03	8,073.80	8,019.77	54.03	149.440		
21,633.18	9,042.00	6,586.00	6,580.34	326.62	11.16	2.20	262.13	5,003.03	8,105.47	8,051.52	53.95	150.245		

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Emerald PWU 20-21 - PWU #24 (offset) - OH - OH													Offset Site Error:
Survey Program: 100-ISCWSA-GYRO-3													0.00 usft
Reference		Offset		Semi Major Axis			Distances						Offset Well Error:
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	0.00	0.00	0.00	0.00	83.27	680.07	5,766.62	5,806.63				
50.00	50.00	75.83	75.83	0.02	0.08	88.38	679.67	5,766.34	5,806.47	5,806.36	0.11	N/A	
100.00	100.00	178.55	178.53	0.09	0.24	107.65	678.26	5,765.13	5,805.83	5,805.48	0.35	N/A	
150.00	150.00	237.04	237.01	0.13	0.34	118.62	677.40	5,764.12	5,805.03	5,804.55	0.48	N/A	
243.30	243.29	329.34	329.28	0.21	0.50	-173.06	676.03	5,762.54	5,804.38	5,803.68	0.71	8,197.950	
285.00	284.98	373.63	373.56	0.24	0.57	-163.98	675.38	5,761.76	5,804.51	5,803.69	0.81	7,131.664	
338.00	337.96	426.36	426.28	0.33	0.66	-170.28	674.60	5,760.82	5,804.83	5,803.84	0.99	5,867.078	
438.00	437.92	523.41	523.30	0.52	0.84	-168.17	673.13	5,759.16	5,805.78	5,804.43	1.35	4,302.091	
529.00	528.87	619.72	619.58	0.71	1.01	-176.96	671.61	5,757.45	5,806.91	5,805.20	1.71	3,399.718	
620.00	619.82	700.00	699.84	0.90	1.15	-174.25	670.42	5,756.05	5,808.18	5,806.15	2.03	2,857.547	
711.00	710.77	782.78	782.60	1.08	1.29	-171.25	669.29	5,754.72	5,809.51	5,807.15	2.36	2,463.701	
803.00	802.73	850.25	850.07	1.28	1.41	-171.24	668.46	5,753.82	5,811.03	5,808.36	2.67	2,178.695	
894.00	893.69	918.33	918.13	1.47	1.53	-176.26	667.74	5,753.24	5,812.89	5,809.91	2.98	1,953.039	
985.00	984.65	1,003.97	1,003.77	1.66	1.68	-179.53	666.96	5,752.66	5,814.72	5,811.41	3.31	1,756.567	
1,077.00	1,076.62	1,100.00	1,099.80	1.85	1.85	-177.42	666.28	5,751.98	5,816.32	5,812.66	3.67	1,586.236	
1,169.00	1,168.60	1,188.52	1,188.31	2.05	2.00	-169.72	665.93	5,751.32	5,817.83	5,813.81	4.02	1,449.014	
1,261.00	1,260.57	1,275.47	1,275.26	2.24	2.15	-174.43	665.92	5,750.71	5,819.49	5,815.13	4.36	1,334.563	
1,353.00	1,352.55	1,366.90	1,366.69	2.43	2.31	-163.27	666.20	5,750.08	5,820.71	5,816.00	4.71	1,235.779	
1,449.00	1,448.54	1,463.02	1,462.80	2.63	2.48	-172.87	666.72	5,749.39	5,821.15	5,816.07	5.08	1,146.417	
1,544.00	1,543.53	1,560.35	1,560.12	2.83	2.65	-166.26	667.48	5,748.66	5,821.85	5,816.21	5.45	1,068.893	
1,640.00	1,639.52	1,659.16	1,658.93	3.03	2.82	-174.35	668.36	5,747.84	5,822.28	5,816.46	5.82	1,000.336	
1,736.00	1,735.51	1,755.97	1,755.74	3.23	2.99	-166.74	669.28	5,747.01	5,822.88	5,816.69	6.19	940.616	
1,831.00	1,830.51	1,850.34	1,850.09	3.43	3.16	-149.14	670.25	5,746.18	5,823.40	5,816.84	6.55	888.633	
1,927.00	1,926.49	1,938.20	1,937.94	3.63	3.31	-160.53	671.27	5,745.44	5,824.09	5,817.19	6.91	843.151	
2,022.00	2,021.48	2,026.74	2,026.48	3.83	3.47	-135.13	672.31	5,744.89	5,824.91	5,817.65	7.26	802.194	
2,118.00	2,117.48	2,134.46	2,134.19	4.03	3.66	-149.82	673.67	5,744.02	5,824.98	5,817.32	7.65	761.280	
2,173.23	2,172.71	2,184.13	2,183.85	4.15	3.74	-148.44	674.34	5,743.62	5,824.95	5,817.10	7.85	741.617	
2,214.00	2,213.48	2,223.14	2,222.86	4.23	3.81	-147.41	674.88	5,743.33	5,824.96	5,816.95	8.01	727.368	
2,310.00	2,309.47	2,321.96	2,321.66	4.43	3.99	-119.11	676.20	5,742.61	5,824.94	5,816.56	8.38	694.899	
2,337.22	2,336.69	2,353.05	2,352.75	4.49	4.04	-130.03	676.62	5,742.36	5,824.92	5,816.43	8.49	685.782	
2,405.00	2,404.47	2,422.42	2,422.11	4.63	4.16	-153.90	677.61	5,741.73	5,825.03	5,816.27	8.76	665.186	
2,501.00	2,500.45	2,503.96	2,503.64	4.83	4.31	-126.09	678.80	5,741.12	5,825.55	5,816.45	9.10	640.126	
2,596.00	2,595.43	2,607.65	2,607.32	5.03	4.49	-125.19	680.37	5,740.38	5,826.30	5,816.81	9.48	614.391	
2,724.00	2,723.33	2,741.22	2,740.86	5.31	4.72	-125.19	682.52	5,739.18	5,828.28	5,818.29	9.99	583.404	
2,788.00	2,787.23	2,800.00	2,799.63	5.45	4.83	-121.21	683.43	5,738.69	5,829.79	5,819.56	10.23	569.813	
2,883.00	2,882.05	2,885.31	2,884.93	5.66	4.98	-124.02	684.65	5,738.09	5,832.47	5,821.89	10.59	550.950	
2,979.00	2,977.79	2,979.07	2,978.68	5.87	5.14	-122.05	685.88	5,737.55	5,835.89	5,824.93	10.96	532.430	
3,074.00	3,072.45	3,076.66	3,076.27	6.09	5.31	-123.58	687.08	5,736.98	5,839.85	5,828.50	11.34	514.839	
3,170.00	3,168.02	3,167.34	3,166.93	6.31	5.47	-120.63	688.18	5,736.45	5,844.22	5,832.50	11.72	498.733	
3,265.00	3,262.52	3,266.13	3,265.72	6.54	5.64	-122.78	689.39	5,735.93	5,849.01	5,836.91	12.11	483.057	
3,361.00	3,357.97	3,360.61	3,360.19	6.77	5.81	-123.14	690.64	5,735.34	5,854.17	5,841.67	12.50	468.488	
3,406.00	3,402.71	3,400.00	3,399.57	6.88	5.88	-123.37	691.20	5,735.11	5,856.64	5,843.97	12.67	462.387	
3,543.00	3,538.93	3,532.21	3,531.76	7.19	6.11	-124.66	693.29	5,734.51	5,864.43	5,851.22	13.20	444.169	
3,639.00	3,634.45	3,638.26	3,637.79	7.42	6.30	-118.18	695.32	5,733.87	5,869.10	5,855.49	13.61	431.368	
3,734.00	3,729.04	3,734.71	3,734.22	7.63	6.47	-106.78	697.27	5,733.20	5,872.04	5,858.05	13.99	419.758	
3,830.00	3,824.64	3,827.11	3,826.59	7.85	6.63	-108.13	699.46	5,732.52	5,874.21	5,859.84	14.37	408.776	
3,925.00	3,919.28	3,915.72	3,915.17	8.07	6.79	-101.31	701.88	5,731.96	5,876.01	5,861.27	14.74	398.598	
4,021.00	4,014.96	4,033.79	4,033.19	8.28	7.00	-100.88	705.21	5,730.96	5,876.98	5,861.81	15.17	387.461	
4,116.00	4,109.66	4,142.42	4,141.77	8.50	7.19	-98.43	708.24	5,729.77	5,877.48	5,861.91	15.58	377.317	
4,212.00	4,205.31	4,252.62	4,251.91	8.72	7.39	-95.91	711.14	5,728.25	5,877.43	5,861.44	16.00	367.413	
4,247.52	4,240.67	4,290.36	4,289.64	8.81	7.46	-97.30	712.10	5,727.70	5,877.39	5,861.24	16.15	363.944	
4,307.00	4,299.84	4,345.10	4,344.36	8.95	7.55	-99.25	713.47	5,726.89	5,877.55	5,861.17	16.39	358.630	

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Emerald PWU 20-21 - PWU #24 (offset) - OH - OH														Offset Site Error:	0.00 usft
Survey Program: 100-ISCWSA-GYRO-3														Offset Well Error:	0.00 usft
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	Warning		
4,403.00	4,395.31	4,439.06	4,438.29	9.18	7.72	93.36	715.65	5,725.64	5,877.62	5,860.83	16.79	350.163			
4,431.65	4,423.82	4,471.41	4,470.63	9.25	7.78	96.83	716.42	5,725.18	5,877.54	5,860.63	16.91	347.563			
4,498.00	4,489.83	4,538.38	4,537.56	9.40	7.90	104.87	718.04	5,724.20	5,877.98	5,860.80	17.19	342.008			
4,594.00	4,585.38	4,636.51	4,635.66	9.63	8.07	105.64	720.20	5,722.81	5,879.29	5,861.70	17.59	334.299			
4,689.00	4,679.99	4,740.29	4,739.41	9.85	8.26	105.01	722.45	5,721.16	5,880.26	5,862.26	17.99	326.828			
4,785.00	4,775.59	4,841.38	4,840.46	10.08	8.43	104.88	724.62	5,719.53	5,881.18	5,862.78	18.40	319.656			
4,881.00	4,871.20	4,959.83	4,958.85	10.31	8.64	105.65	727.17	5,717.26	5,881.81	5,862.98	18.84	312.273			
4,976.00	4,965.86	5,061.33	5,060.31	10.54	8.82	102.22	729.46	5,715.02	5,881.84	5,862.61	19.24	305.770			
5,072.00	5,061.56	5,165.11	5,164.04	10.76	9.01	98.59	731.53	5,712.69	5,881.27	5,861.63	19.64	299.409			
5,143.13	5,132.45	5,228.47	5,227.37	10.93	9.12	104.18	732.72	5,711.22	5,880.88	5,860.96	19.92	295.208			
5,168.00	5,157.24	5,245.93	5,244.82	10.98	9.15	106.01	733.03	5,710.85	5,880.93	5,860.92	20.01	293.899			
5,263.00	5,251.86	5,300.00	5,298.88	11.21	9.25	101.76	733.91	5,709.85	5,881.41	5,861.08	20.33	289.266			
5,359.00	5,347.43	5,374.48	5,373.35	11.45	9.38	100.42	734.90	5,708.88	5,882.06	5,861.37	20.69	284.246			
5,454.00	5,442.06	5,453.13	5,451.99	11.67	9.51	91.82	735.65	5,708.31	5,882.37	5,861.31	21.06	279.367			
5,483.89	5,471.84	5,481.50	5,480.36	11.74	9.56	93.57	735.89	5,708.13	5,882.32	5,861.14	21.18	277.766			
5,550.00	5,537.68	5,547.50	5,546.35	11.90	9.68	96.97	736.38	5,707.74	5,882.53	5,861.08	21.45	274.232			
5,645.00	5,632.22	5,639.72	5,638.57	12.13	9.84	104.91	737.03	5,707.17	5,883.80	5,861.96	21.84	269.363			
5,741.00	5,727.76	5,743.91	5,742.76	12.37	10.02	105.70	737.55	5,706.61	5,885.80	5,863.54	22.26	264.445			
5,836.00	5,822.40	5,865.02	5,863.87	12.60	10.23	102.42	737.99	5,705.45	5,886.93	5,864.24	22.69	259.403			
5,932.00	5,918.09	5,974.28	5,973.11	12.82	10.42	103.39	738.45	5,704.08	5,887.50	5,864.39	23.11	254.756			
6,027.00	6,012.72	6,085.51	6,084.33	13.05	10.62	108.95	739.20	5,702.38	5,888.47	5,864.94	23.53	250.236			
6,123.00	6,108.31	6,182.53	6,181.32	13.29	10.79	109.32	740.48	5,700.68	5,889.77	5,865.84	23.93	246.094			
6,218.00	6,202.96	6,282.48	6,281.23	13.52	10.97	106.39	742.80	5,698.82	5,890.70	5,866.37	24.34	242.051			
6,314.00	6,298.53	6,399.37	6,398.05	13.75	11.17	105.95	746.02	5,696.35	5,891.43	5,866.65	24.78	237.764			
6,410.00	6,394.04	6,505.08	6,503.71	13.99	11.36	104.84	748.10	5,693.88	5,891.90	5,866.69	25.20	233.793			
6,505.00	6,488.68	6,595.52	6,594.12	14.22	11.52	107.29	749.15	5,691.79	5,892.06	5,866.47	25.59	230.274			
6,601.00	6,584.37	6,679.61	6,678.19	14.45	11.67	108.94	749.66	5,689.98	5,892.45	5,866.49	25.96	226.979			
6,696.00	6,678.98	6,767.82	6,766.38	14.68	11.82	105.12	749.97	5,688.26	5,893.11	5,866.77	26.34	223.702			
6,792.00	6,774.47	6,863.78	6,862.33	14.93	11.99	103.72	750.08	5,686.45	5,893.77	5,867.03	26.75	220.331			
6,887.00	6,869.00	6,958.68	6,957.21	15.16	12.15	106.70	750.11	5,684.64	5,894.43	5,867.28	27.15	217.115			
6,983.00	6,964.62	7,073.61	7,072.11	15.40	12.35	109.78	749.91	5,682.36	5,895.19	5,867.61	27.58	213.756			
7,079.00	7,060.22	7,180.82	7,179.29	15.63	12.54	109.18	749.31	5,679.87	5,895.83	5,867.83	28.00	210.584			
7,174.00	7,154.74	7,271.81	7,270.26	15.87	12.70	109.96	748.27	5,677.74	5,896.77	5,868.38	28.39	207.691			
7,269.00	7,249.25	7,348.83	7,347.24	16.11	12.84	113.93	746.97	5,676.09	5,898.22	5,869.46	28.76	205.075			
7,365.00	7,344.87	7,417.96	7,416.34	16.35	12.96	110.53	745.47	5,674.89	5,899.69	5,870.58	29.11	202.651			
7,461.00	7,440.61	7,479.43	7,477.80	16.57	13.07	120.17	743.91	5,674.18	5,901.36	5,871.92	29.44	200.437			
7,556.00	7,535.44	7,538.94	7,537.28	16.79	13.17	105.05	742.28	5,673.83	5,902.92	5,873.16	29.76	198.348			
7,651.00	7,630.26	7,600.00	7,598.32	17.01	13.28	102.10	740.68	5,673.86	5,904.16	5,874.07	30.08	196.267			
7,746.00	7,725.12	7,687.24	7,685.53	17.22	13.43	109.38	738.58	5,674.18	5,905.71	5,875.27	30.45	193.966			
7,842.00	7,821.00	7,798.23	7,796.49	17.43	13.63	99.05	736.08	5,674.51	5,906.98	5,876.12	30.85	191.446			
7,938.00	7,916.89	7,888.69	7,886.93	17.64	13.79	92.63	734.03	5,674.67	5,907.55	5,876.32	31.23	189.188			
8,033.00	8,011.80	7,988.97	7,987.18	17.84	13.97	90.59	731.80	5,674.87	5,907.74	5,876.13	31.61	186.903			
8,128.00	8,106.75	8,093.78	8,091.96	18.04	14.15	90.65	729.39	5,674.93	5,907.71	5,875.72	31.99	184.645			
8,169.64	8,148.38	8,122.22	8,120.39	18.13	14.20	87.91	728.72	5,674.94	5,907.68	5,875.55	32.13	183.868			
8,224.00	8,202.73	8,155.76	8,153.93	18.24	14.26	81.18	727.93	5,675.07	5,907.74	5,875.44	32.30	182.904			
8,312.00	8,290.73	8,200.00	8,198.15	18.41	14.34	90.89	726.90	5,675.41	5,908.29	5,875.74	32.55	181.505			
8,363.00	8,341.72	8,242.43	8,240.57	18.51	14.41	41.51	725.98	5,675.93	5,908.63	5,875.91	32.73	180.544			
8,411.00	8,389.55	8,272.62	8,270.75	18.60	14.47	-4.11	725.40	5,676.40	5,905.74	5,872.87	32.87	179.669			
8,458.00	8,435.66	8,300.00	8,298.12	18.67	14.52	-6.55	724.93	5,676.90	5,897.59	5,864.59	33.00	178.709			
8,506.00	8,481.40	8,335.62	8,333.73	18.72	14.58	-6.48	724.36	5,677.64	5,884.13	5,850.99	33.14	177.550			
8,553.00	8,524.51	8,367.35	8,365.45	18.76	14.63	-4.51	723.88	5,678.37	5,866.46	5,833.20	33.27	176.350			
8,601.00	8,567.16	8,400.00	8,398.09	18.81	14.69	-1.36	723.40	5,679.18	5,845.51	5,812.12	33.39	175.065			

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: Eddy County, NM (NAD-83)
Reference Site: Emerald PWU 20-22
Site Error: 0.00 usft
Reference Well: 12H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Emerald PWU 20-21 - PWU #24 (offset) - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100-ISCWSA-GYRO-3													Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Semi Major Axis (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
8,649.00	8,608.40	8,450.65	8,448.72	18.85	14.78	-1.41		722.72	5,680.45	5,821.99	5,788.44	33.55	173.552	
8,697.00	8,647.61	8,500.62	8,498.67	18.88	14.86	-3.99		722.11	5,681.61	5,795.24	5,761.55	33.70	171.991	
8,743.00	8,682.89	8,540.78	8,538.82	18.92	14.93	-5.75		721.65	5,682.48	5,766.57	5,732.75	33.82	170.529	
8,791.00	8,717.88	8,580.65	8,578.67	18.94	15.00	-6.27		721.22	5,683.33	5,734.54	5,700.61	33.93	169.018	
8,839.00	8,751.41	8,619.56	8,617.57	18.97	15.07	-8.19		720.82	5,684.12	5,701.01	5,666.98	34.03	167.512	
8,887.00	8,782.81	8,656.68	8,654.68	19.01	15.13	-9.37		720.48	5,684.84	5,665.50	5,631.37	34.13	165.990	
8,935.00	8,811.32	8,690.45	8,688.45	19.08	15.19	-11.73		720.20	5,685.47	5,627.67	5,593.45	34.22	164.461	
8,983.00	8,837.12	8,717.54	8,715.54	19.25	15.24	-11.76		719.99	5,685.95	5,587.93	5,553.64	34.29	162.970	
9,031.00	8,860.37	8,740.63	8,738.62	19.57	15.28	-13.13		719.83	5,686.37	5,546.61	5,512.27	34.35	161.492	
9,078.00	8,880.89	8,761.10	8,759.09	19.95	15.32	-12.61		719.68	5,686.74	5,504.93	5,470.53	34.40	160.043	
9,126.00	8,899.61	8,779.87	8,777.85	20.41	15.35	-8.43		719.55	5,687.08	5,461.21	5,426.76	34.45	158.547	
9,174.00	8,916.02	8,796.45	8,794.42	20.94	15.38	-4.39		719.44	5,687.39	5,416.45	5,381.95	34.49	157.029	
9,222.00	8,930.13	8,810.71	8,808.69	21.53	15.40	-0.10		719.34	5,687.66	5,370.85	5,336.31	34.54	155.506	
9,270.00	8,941.24	8,822.11	8,820.08	22.17	15.42	5.73		719.26	5,687.87	5,324.37	5,289.80	34.58	153.980	
9,333.00	8,950.94	8,832.42	8,830.39	23.10	15.44	8.68		719.20	5,688.06	5,262.35	5,227.73	34.62	152.007	
9,340.00	8,951.69	8,833.26	8,831.23	23.21	15.44	9.01		719.19	5,688.08	5,255.40	5,220.78	34.62	151.783	
9,400.00	8,958.00	8,840.33	8,838.30	23.88	15.45	-10.35		719.14	5,688.21	5,195.87	5,159.15	36.71	141.523	
9,500.00	8,968.52	8,852.17	8,850.14	24.42	15.47	-37.25		719.06	5,688.44	5,096.82	5,060.06	36.76	138.651	
9,547.24	8,973.49	8,857.78	8,855.75	24.76	15.48	-46.14		719.03	5,688.54	5,050.24	5,013.46	36.78	137.326	
9,600.00	8,978.18	8,863.24	8,861.20	25.20	15.49	-50.74		718.99	5,688.65	4,998.16	4,961.37	36.79	135.846	
9,708.82	8,982.48	8,869.36	8,867.33	26.30	15.50	-72.17		718.95	5,688.77	4,890.04	4,853.21	36.83	132.768	
9,800.00	8,983.04	8,871.58	8,869.55	27.43	15.51	-72.47		718.93	5,688.81	4,799.17	4,762.30	36.86	130.182	
9,900.00	8,983.66	8,874.02	8,871.98	28.84	15.51	-72.81		718.92	5,688.86	4,699.51	4,662.61	36.90	127.345	
10,000.00	8,984.27	8,876.46	8,874.43	30.42	15.52	-73.15		718.90	5,688.90	4,599.88	4,562.93	36.95	124.502	
10,100.00	8,984.88	8,878.91	8,876.87	32.14	15.52	-73.48		718.88	5,688.95	4,500.25	4,463.26	36.99	121.653	
10,200.00	8,985.50	8,881.36	8,879.32	33.97	15.52	-73.83		718.87	5,689.00	4,400.65	4,363.60	37.04	118.797	
10,300.00	8,986.11	8,883.82	8,881.78	35.91	15.53	-74.17		718.85	5,689.04	4,301.05	4,263.96	37.10	115.936	
10,400.00	8,986.73	8,886.28	8,884.24	37.94	15.53	-74.51		718.84	5,689.09	4,201.48	4,164.32	37.16	113.067	
10,500.00	8,987.34	8,888.74	8,886.70	40.04	15.54	-74.86		718.82	5,689.14	4,101.93	4,064.70	37.23	110.192	
10,600.00	8,987.96	8,891.21	8,889.17	42.19	15.54	-75.21		718.80	5,689.19	4,002.39	3,965.10	37.30	107.310	
10,700.00	8,988.57	8,893.69	8,891.65	44.41	15.54	-75.56		718.79	5,689.24	3,902.88	3,865.51	37.38	104.420	
10,800.00	8,989.18	8,896.16	8,894.12	46.66	15.55	-75.91		718.77	5,689.28	3,803.40	3,765.93	37.46	101.522	
10,900.00	8,989.80	8,900.00	8,897.96	48.96	15.56	-76.46		718.74	5,689.36	3,703.94	3,666.37	37.56	98.610	
11,000.00	8,990.41	8,901.22	8,899.18	51.29	15.56	-76.64		718.74	5,689.38	3,604.50	3,566.84	37.66	95.700	
11,100.00	8,991.03	8,903.89	8,901.85	53.64	15.56	-77.02		718.72	5,689.43	3,505.10	3,467.32	37.78	92.774	
11,200.00	8,991.64	8,906.55	8,904.51	56.03	15.57	-77.40		718.70	5,689.49	3,405.73	3,367.82	37.91	89.838	
11,300.00	8,992.26	8,909.21	8,907.17	58.43	15.57	-77.79		718.68	5,689.54	3,306.40	3,268.34	38.05	86.891	
11,400.00	8,992.87	8,911.86	8,909.82	60.86	15.58	-78.17		718.66	5,689.59	3,207.10	3,168.89	38.21	83.933	
11,500.00	8,993.48	8,914.51	8,912.46	63.30	15.58	-78.55		718.65	5,689.64	3,107.85	3,069.46	38.39	80.962	
11,600.00	8,994.10	8,917.14	8,915.10	65.76	15.59	-78.94		718.63	5,689.69	3,008.65	2,970.06	38.58	77.979	
11,700.00	8,994.71	8,919.77	8,917.73	68.23	15.59	-79.32		718.61	5,689.74	2,909.50	2,870.69	38.80	74.982	
11,800.00	8,995.33	8,922.40	8,920.35	70.71	15.59	-79.71		718.60	5,689.79	2,810.40	2,771.35	39.05	71.971	
11,900.00	8,995.94	8,925.01	8,922.97	73.21	15.60	-80.09		718.58	5,689.84	2,711.37	2,672.05	39.33	68.946	
12,000.00	8,996.56	8,927.62	8,925.58	75.71	15.60	-80.48		718.56	5,689.89	2,612.41	2,572.77	39.64	65.905	
12,100.00	8,997.17	8,930.23	8,928.18	78.22	15.61	-80.86		718.55	5,689.94	2,513.53	2,473.54	39.99	62.849	
12,200.00	8,997.78	8,932.83	8,930.78	80.75	15.61	-81.24		718.53	5,689.99	2,414.75	2,374.35	40.40	59.777	
12,300.00	8,998.40	8,935.42	8,933.37	83.27	15.62	-81.63		718.52	5,690.04	2,316.06	2,275.20	40.85	56.691	
12,400.00	8,999.01	8,938.00	8,935.95	85.81	15.62	-82.01		718.50	5,690.09	2,217.48	2,176.11	41.38	53.591	
12,500.00	8,999.63	8,940.58	8,938.53	88.35	15.63	-82.40		718.48	5,690.14	2,119.04	2,077.06	41.98	50.479	
12,600.00	9,000.24	8,943.15	8,941.10	90.90	15.63	-82.78		718.47	5,690.19	2,020.75	1,978.08	42.67	47.358	
12,700.00	9,000.85	8,945.72	8,943.66	93.45	15.63	-83.16		718.45	5,690.24	1,922.63	1,879.16	43.47	44.230	
12,800.00	9,001.47	8,948.27	8,946.22	96.01	15.64	-83.54		718.44	5,690.28	1,824.71	1,780.31	44.39	41.102	

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: Eddy County, NM (NAD-83)
Reference Site: Emerald PWU 20-22
Site Error: 0.00 usft
Reference Well: 12H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Emerald PWU 20-21 - PWU #24 (offset) - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100-ISCWSA-GYRO-3													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 +H-E (usft)	+G-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
12,900.00	9,002.08	8,950.83	8,948.77	98.57	15.64	-83.93	718.42	5,690.33	1,727.02	1,681.55	45.47	37.980	
13,000.00	9,002.70	8,953.37	8,951.32	101.14	15.65	-84.31	718.41	5,690.38	1,629.61	1,582.88	46.73	34.871	
13,100.00	9,003.31	8,955.91	8,953.86	103.71	15.65	-84.69	718.39	5,690.43	1,532.54	1,484.32	48.21	31.788	
13,200.00	9,003.93	8,958.45	8,956.39	106.28	15.66	-85.07	718.38	5,690.48	1,435.85	1,385.90	49.96	28.742	
13,300.00	9,004.54	8,960.97	8,958.92	108.86	15.66	-85.45	718.36	5,690.52	1,339.65	1,287.63	52.03	25.749	
13,400.00	9,005.15	8,963.49	8,961.44	111.44	15.67	-85.83	718.35	5,690.57	1,244.05	1,189.55	54.50	22.829	
13,500.00	9,005.77	8,966.01	8,963.95	114.02	15.67	-86.21	718.33	5,690.62	1,149.19	1,091.73	57.46	20.001	
13,600.00	9,006.38	8,968.52	8,966.46	116.61	15.67	-86.59	718.32	5,690.66	1,055.27	994.23	61.03	17.290	
13,700.55	9,007.00	8,971.03	8,968.98	119.21	15.68	-86.97	718.30	5,690.71	962.06	896.65	65.41	14.708	
13,746.28	9,007.24	8,972.13	8,970.08	120.39	15.68	-87.26	718.30	5,690.73	920.04	852.36	67.67	13.595	
13,800.00	9,007.48	8,973.37	8,971.32	121.78	15.68	-87.46	718.29	5,690.75	870.96	800.39	70.57	12.342	
13,900.00	9,007.92	8,975.68	8,973.63	124.37	15.69	-87.82	718.28	5,690.80	781.22	704.29	76.93	10.155	
14,000.00	9,008.36	8,977.98	8,975.93	126.96	15.69	-88.18	718.26	5,690.84	694.29	609.44	84.85	8.183	
14,100.00	9,008.80	8,980.28	8,978.22	129.55	15.69	-88.54	718.25	5,690.88	611.36	516.63	94.73	6.454	
14,200.00	9,009.24	8,982.57	8,980.51	132.15	15.70	-88.90	718.24	5,690.93	534.30	427.35	106.95	4.996	
14,300.00	9,009.68	8,984.86	8,982.80	134.75	15.70	-89.26	718.23	5,690.97	466.02	344.48	121.54	3.834	
14,400.00	9,010.12	8,987.14	8,985.08	137.34	15.71	-89.62	718.21	5,691.01	410.93	273.51	137.42	2.990	
14,500.00	9,010.56	8,989.41	8,987.35	139.94	15.71	-89.98	718.20	5,691.05	374.89	223.57	151.32	2.477	
14,591.67	9,010.97	8,991.49	8,989.43	142.33	15.71	-90.31	718.19	5,691.09	363.52	205.57	157.95	2.302 CC	
14,600.00	9,011.00	8,991.68	8,989.62	142.55	15.71	-90.34	718.19	5,691.09	363.61	205.47	158.14	2.299 ES, SF	
14,700.00	9,011.44	8,993.94	8,991.88	145.15	15.72	-90.70	718.18	5,691.13	379.31	224.23	155.07	2.446	
14,800.00	9,011.89	8,996.20	8,994.14	147.75	15.72	-91.05	718.16	5,691.18	418.95	274.22	144.73	2.895	
14,900.00	9,012.33	8,998.45	8,996.39	150.36	15.73	-91.41	718.15	5,691.22	476.61	344.75	131.86	3.615	
15,000.00	9,012.77	9,000.71	8,998.65	152.96	15.73	-91.76	718.14	5,691.26	546.62	427.04	119.57	4.571	
15,100.00	9,013.21	9,002.98	9,000.92	155.57	15.73	-92.12	718.13	5,691.30	624.83	515.83	109.00	5.732	
15,200.00	9,013.65	9,005.25	9,003.18	158.18	15.74	-92.48	718.12	5,691.34	708.53	608.27	100.26	7.067	
15,300.00	9,014.09	9,007.51	9,005.45	160.79	15.74	-92.83	718.11	5,691.38	796.00	702.89	93.11	8.549	
15,400.00	9,014.53	9,009.78	9,007.72	163.40	15.75	-93.19	718.09	5,691.42	886.12	798.85	87.27	10.154	
15,500.00	9,014.97	9,012.05	9,009.99	166.01	15.75	-93.55	718.08	5,691.47	978.15	895.69	82.46	11.863	
15,600.00	9,015.41	9,014.32	9,012.25	168.62	15.75	-93.90	718.07	5,691.51	1,071.61	993.15	78.46	13.658	
15,700.00	9,015.85	9,016.59	9,014.52	171.23	15.76	-94.26	718.06	5,691.55	1,166.15	1,091.03	75.12	15.524	
15,800.00	9,016.29	9,018.85	9,016.79	173.84	15.76	-94.61	718.05	5,691.59	1,261.53	1,189.23	72.30	17.449	
15,900.00	9,016.73	9,021.12	9,019.06	176.46	15.77	-94.97	718.03	5,691.63	1,357.57	1,287.67	69.90	19.422	
16,000.00	9,017.17	9,023.39	9,021.32	179.07	15.77	-95.32	718.02	5,691.67	1,454.14	1,386.29	67.84	21.435	
16,100.00	9,017.61	9,025.66	9,023.59	181.69	15.77	-95.68	718.01	5,691.71	1,551.14	1,485.07	66.07	23.479	
16,200.00	9,018.06	9,027.93	9,025.86	184.30	15.78	-96.03	718.00	5,691.76	1,648.49	1,583.97	64.53	25.548	
16,300.00	9,018.50	9,030.19	9,028.13	186.92	15.78	-96.39	717.99	5,691.80	1,746.15	1,682.96	63.18	27.637	
16,400.00	9,018.94	9,032.46	9,030.40	189.54	15.78	-96.74	717.97	5,691.84	1,844.05	1,782.04	62.00	29.741	
16,500.00	9,019.38	9,034.73	9,032.66	192.16	15.79	-97.09	717.96	5,691.88	1,942.16	1,881.19	60.97	31.856	
16,600.00	9,019.82	9,037.00	9,034.93	194.77	15.79	-97.44	717.95	5,691.92	2,040.45	1,980.40	60.05	33.978	
16,700.00	9,020.26	9,039.27	9,037.20	197.39	15.80	-97.79	717.94	5,691.96	2,138.90	2,079.66	59.24	36.106	
16,800.00	9,020.70	9,041.54	9,039.47	200.01	15.80	-98.15	717.93	5,692.00	2,237.49	2,178.97	58.52	38.235	
16,900.00	9,021.14	9,043.80	9,041.73	202.63	15.80	-98.50	717.91	5,692.05	2,336.19	2,278.31	57.88	40.365	
17,000.00	9,021.58	9,046.07	9,044.00	205.25	15.81	-98.85	717.90	5,692.09	2,434.99	2,377.69	57.30	42.494	
17,100.00	9,022.02	9,048.34	9,046.27	207.87	15.81	-99.20	717.89	5,692.13	2,533.89	2,477.10	56.79	44.619	
17,200.00	9,022.46	9,050.61	9,048.54	210.49	15.82	-99.54	717.88	5,692.17	2,632.87	2,576.54	56.33	46.740	
17,300.00	9,022.90	9,052.88	9,050.80	213.12	15.82	-99.89	717.87	5,692.21	2,731.92	2,676.01	55.92	48.856	
17,400.00	9,023.34	9,055.14	9,053.07	215.74	15.82	-100.24	717.85	5,692.25	2,831.04	2,775.49	55.55	50.966	
17,500.00	9,023.78	9,057.41	9,055.34	218.36	15.83	-100.59	717.84	5,692.29	2,930.21	2,875.00	55.22	53.068	
17,600.00	9,024.23	9,059.68	9,057.61	220.98	15.83	-100.93	717.83	5,692.34	3,029.44	2,974.52	54.92	55.163	
17,700.00	9,024.67	9,061.95	9,059.87	223.61	15.84	-101.28	717.82	5,692.38	3,128.72	3,074.07	54.65	57.249	
17,800.00	9,025.11	9,064.22	9,062.14	226.23	15.84	-101.62	717.81	5,692.42	3,228.04	3,173.62	54.41	59.326	

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Emerald PWU 20-21 - PWU #24 (offset) - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100-ISCWSA-GYRO-3													Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre N-U (usft)	Offset Wellbore Centre E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
17,900.00	9,025.55	9,066.48	9,064.41	228.85	15.84	-101.96	717.79	5,692.46	3,327.39	3,273.19	54.20	61.393		
18,000.00	9,025.99	9,068.75	9,066.68	231.48	15.85	-102.31	717.78	5,692.50	3,426.79	3,372.78	54.01	63.451		
18,100.00	9,026.43	9,071.02	9,068.95	234.10	15.85	-102.65	717.77	5,692.54	3,526.21	3,472.38	53.84	65.499		
18,200.00	9,026.87	9,073.29	9,071.21	236.73	15.86	-102.99	717.76	5,692.58	3,625.67	3,571.98	53.68	67.536		
18,300.00	9,027.31	9,075.56	9,073.48	239.35	15.86	-103.33	717.75	5,692.63	3,725.15	3,671.60	53.55	69.563		
18,400.00	9,027.75	9,077.82	9,075.75	241.98	15.86	-103.67	717.73	5,692.67	3,824.66	3,771.23	53.43	71.579		
18,500.00	9,028.19	9,080.09	9,078.02	244.60	15.87	-104.00	717.72	5,692.71	3,924.19	3,870.87	53.33	73.584		
18,600.00	9,028.63	9,082.36	9,080.28	247.23	15.87	-104.34	717.71	5,692.75	4,023.75	3,970.51	53.24	75.578		
18,700.00	9,029.07	9,084.63	9,082.55	249.85	15.88	-104.68	717.70	5,692.79	4,123.33	4,070.16	53.16	77.560		
18,800.00	9,029.51	9,086.90	9,084.82	252.48	15.88	-105.01	717.69	5,692.83	4,222.92	4,169.82	53.10	79.532		
18,900.00	9,029.95	9,089.17	9,087.09	255.11	15.88	-105.35	717.67	5,692.87	4,322.53	4,269.49	53.04	81.492		
19,000.00	9,030.40	9,091.43	9,089.35	257.73	15.89	-105.68	717.66	5,692.92	4,422.16	4,369.16	53.00	83.441		
19,100.00	9,030.84	9,093.70	9,091.62	260.36	15.89	-106.01	717.65	5,692.96	4,521.80	4,468.84	52.96	85.378		
19,200.00	9,031.28	9,095.97	9,093.89	262.99	15.89	-106.34	717.64	5,693.00	4,621.46	4,568.52	52.94	87.303		
19,300.00	9,031.72	9,098.24	9,096.16	265.61	15.90	-106.67	717.63	5,693.04	4,721.13	4,668.21	52.92	89.217		
19,400.00	9,032.16	9,100.51	9,098.43	268.24	15.90	-107.00	717.61	5,693.08	4,820.82	4,767.91	52.91	91.120		
19,500.00	9,032.60	9,102.77	9,100.69	270.87	15.91	-107.33	717.60	5,693.12	4,920.51	4,867.61	52.90	93.011		
19,600.00	9,033.04	9,105.04	9,102.96	273.50	15.91	-107.65	717.59	5,693.17	5,020.22	4,967.31	52.91	94.891		
19,700.00	9,033.48	9,107.31	9,105.23	276.12	15.91	-107.98	717.58	5,693.21	5,119.93	5,067.02	52.91	96.759		
19,800.00	9,033.92	9,109.58	9,107.50	278.75	15.92	-108.30	717.57	5,693.25	5,219.66	5,166.73	52.93	98.615		
19,900.00	9,034.36	9,111.85	9,109.76	281.38	15.92	-108.62	717.55	5,693.29	5,319.40	5,266.45	52.95	100.460		
20,000.00	9,034.80	9,114.11	9,112.03	284.01	15.93	-108.94	717.54	5,693.33	5,419.14	5,366.17	52.98	102.294		
20,100.00	9,035.24	9,116.38	9,114.30	286.64	15.93	-109.27	717.53	5,693.37	5,518.89	5,465.89	53.01	104.116		
20,200.00	9,035.68	9,118.65	9,116.57	289.27	15.93	-109.58	717.52	5,693.41	5,618.66	5,565.61	53.04	105.927		
20,300.00	9,036.12	9,120.92	9,118.83	291.90	15.94	-109.90	717.51	5,693.46	5,718.42	5,665.34	53.08	107.726		
20,400.00	9,036.57	9,123.19	9,121.10	294.53	15.94	-110.22	717.49	5,693.50	5,818.20	5,765.07	53.13	109.514		
20,500.00	9,037.01	9,125.45	9,123.37	297.15	15.95	-110.53	717.48	5,693.54	5,917.98	5,864.81	53.18	111.291		
20,600.00	9,037.45	9,127.72	9,125.64	299.78	15.95	-110.85	717.47	5,693.58	6,017.77	5,964.54	53.23	113.057		
20,700.00	9,037.89	9,129.99	9,127.91	302.41	15.95	-111.16	717.46	5,693.62	6,117.57	6,064.28	53.28	114.812		
20,800.00	9,038.33	9,132.26	9,130.17	305.04	15.96	-111.47	717.45	5,693.66	6,217.37	6,164.02	53.34	116.555		
20,900.00	9,038.77	9,134.53	9,132.44	307.67	15.96	-111.78	717.43	5,693.70	6,317.17	6,263.77	53.41	118.288		
21,000.00	9,039.21	9,136.80	9,134.71	310.30	15.97	-112.09	717.42	5,693.75	6,416.98	6,363.51	53.47	120.009		
21,100.00	9,039.65	9,139.06	9,136.98	312.93	15.97	-112.40	717.41	5,693.79	6,516.80	6,463.26	53.54	121.720		
21,200.00	9,040.09	9,141.33	9,139.24	315.56	15.97	-112.70	717.40	5,693.83	6,616.62	6,563.01	53.61	123.420		
21,300.00	9,040.53	9,143.60	9,141.51	318.19	15.98	-113.01	717.39	5,693.87	6,716.45	6,662.76	53.68	125.109		
21,400.00	9,040.97	9,145.87	9,143.78	320.83	15.98	-113.31	717.37	5,693.91	6,816.28	6,762.51	53.76	126.787		
21,500.00	9,041.41	9,148.14	9,146.05	323.46	15.99	-113.61	717.36	5,693.95	6,916.11	6,862.27	53.84	128.454		
21,600.00	9,041.85	9,150.40	9,148.31	326.09	15.99	-113.92	717.35	5,693.99	7,015.95	6,962.03	53.92	130.111		
21,633.18	9,042.00	9,151.16	9,149.07	326.62	15.99	-114.02	717.35	5,694.01	7,049.07	6,995.09	53.99	130.572		

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Emerald PWU 20-21 - PWU #5 (offset) - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100-ISCWS4-GYRO-3													Offset Well Error: 0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +W-0 (usft)	Offset Wellbore Centre +W-1 (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	69.19	671.00	1,765.05	1,888.44				
50.00	50.00	27.01	27.01	0.02	0.02	74.29	671.00	1,765.05	1,888.28	1,888.23	0.05	N/A	
100.00	100.00	77.97	77.97	0.09	0.07	93.54	671.00	1,765.02	1,888.25	1,888.09	0.16	N/A	
113.91	113.90	92.14	92.14	0.10	0.08	98.26	671.00	1,765.00	1,888.24	1,888.06	0.18	N/A	
150.00	150.00	128.01	128.01	0.13	0.14	104.51	671.00	1,764.97	1,888.27	1,888.01	0.26	7,196.632	
285.00	284.98	262.18	262.18	0.24	0.37	-178.08	671.07	1,764.88	1,890.15	1,889.53	0.61	3,082.652	
338.00	337.96	314.81	314.81	0.33	0.46	175.61	671.14	1,764.83	1,891.51	1,890.72	0.79	2,391.130	
438.00	437.92	412.29	412.29	0.52	0.63	177.72	671.26	1,764.85	1,894.44	1,893.29	1.15	1,647.656	
529.00	528.87	504.04	504.04	0.71	0.79	168.92	671.44	1,764.87	1,897.43	1,895.94	1.50	1,267.304	
620.00	619.82	592.86	592.86	0.90	0.95	171.63	671.68	1,764.89	1,900.52	1,898.68	1.84	1,034.981	
711.00	710.77	676.60	676.60	1.08	1.10	174.63	671.93	1,765.12	1,903.76	1,901.60	2.16	879.701	
803.00	802.73	763.56	763.55	1.28	1.25	174.64	672.22	1,765.68	1,907.30	1,904.79	2.51	760.516	
894.00	893.69	851.04	851.03	1.47	1.40	162.15	672.56	1,766.40	1,910.84	1,907.99	2.85	670.289	
985.00	984.65	941.35	941.34	1.66	1.56	166.37	673.06	1,767.23	1,914.24	1,911.05	3.19	599.613	
1,077.00	1,076.62	1,034.91	1,034.89	1.85	1.72	168.48	673.51	1,768.04	1,917.41	1,913.87	3.54	541.036	
1,169.00	1,168.60	1,127.04	1,127.01	2.05	1.88	176.19	674.01	1,768.79	1,920.51	1,916.61	3.90	492.646	
1,261.00	1,260.57	1,222.13	1,222.10	2.24	2.05	171.48	674.67	1,769.46	1,923.66	1,919.40	4.26	451.793	
1,353.00	1,352.55	1,323.47	1,323.44	2.43	2.23	149.18	675.36	1,769.71	1,925.83	1,921.20	4.62	416.469	
1,449.00	1,448.54	1,419.11	1,419.08	2.63	2.40	158.78	675.95	1,769.81	1,927.10	1,922.10	4.99	386.126	
1,544.00	1,543.53	1,516.73	1,516.70	2.83	2.57	152.18	676.52	1,769.85	1,928.38	1,923.02	5.36	359.772	
1,640.00	1,639.52	1,617.00	1,616.96	3.03	2.74	160.28	677.02	1,769.74	1,929.66	1,923.93	5.74	336.409	
1,736.00	1,735.51	1,719.31	1,719.28	3.23	2.92	152.68	677.48	1,769.33	1,930.67	1,924.56	6.12	315.720	
1,831.00	1,830.51	1,817.68	1,817.64	3.43	3.09	135.09	677.78	1,768.70	1,931.28	1,924.80	6.48	297.851	
1,927.00	1,926.49	1,911.68	1,911.64	3.63	3.26	146.49	678.21	1,768.04	1,931.99	1,925.15	6.85	282.104	
2,022.00	2,021.48	2,007.59	2,007.55	3.83	3.42	121.11	678.67	1,767.39	1,932.61	1,925.39	7.21	267.872	
2,118.00	2,117.48	2,104.31	2,104.26	4.03	3.59	135.81	679.13	1,766.68	1,932.65	1,925.07	7.58	254.806	
2,156.87	2,156.35	2,142.41	2,142.36	4.11	3.66	134.83	679.36	1,766.38	1,932.65	1,924.92	7.73	249.928	
2,214.00	2,213.48	2,198.40	2,198.35	4.23	3.76	133.40	679.74	1,765.96	1,932.66	1,924.71	7.95	243.093	
2,310.00	2,309.47	2,295.38	2,295.32	4.43	3.93	105.10	680.38	1,765.25	1,932.58	1,924.26	8.32	232.267	
2,335.92	2,335.39	2,320.71	2,320.65	4.49	3.97	115.51	680.52	1,765.06	1,932.56	1,924.14	8.42	229.552	
2,405.00	2,404.47	2,387.71	2,387.65	4.63	4.09	139.90	680.97	1,764.61	1,932.76	1,924.08	8.68	222.668	
2,501.00	2,500.45	2,486.91	2,486.84	4.83	4.26	112.11	681.65	1,763.92	1,933.16	1,924.11	9.05	213.508	
2,596.00	2,595.43	2,583.45	2,583.37	5.03	4.43	111.24	682.27	1,763.10	1,933.42	1,924.00	9.42	205.168	
2,724.00	2,723.33	2,707.75	2,707.67	5.31	4.65	111.33	683.18	1,762.09	1,934.60	1,924.69	9.91	195.131	
2,788.00	2,787.23	2,772.82	2,772.74	5.45	4.76	107.41	683.60	1,761.63	1,935.48	1,925.32	10.17	190.374	
2,883.00	2,882.05	2,870.79	2,870.70	5.66	4.94	110.35	684.18	1,760.86	1,936.89	1,926.34	10.55	183.671	
2,979.00	2,977.79	2,967.31	2,967.21	5.87	5.10	108.51	684.83	1,759.93	1,938.58	1,927.65	10.93	177.416	
3,074.00	3,072.45	3,060.49	3,060.39	6.09	5.27	110.19	685.46	1,759.06	1,940.64	1,929.34	11.30	171.684	
3,170.00	3,168.02	3,155.43	3,155.32	6.31	5.43	107.40	686.22	1,758.22	1,943.02	1,931.33	11.69	166.220	
3,265.00	3,262.52	3,251.67	3,251.56	6.54	5.60	109.73	687.06	1,757.33	1,945.59	1,933.51	12.08	161.076	
3,361.00	3,357.97	3,345.71	3,345.59	6.77	5.77	110.28	687.77	1,756.42	1,948.49	1,936.02	12.47	156.259	
3,406.00	3,402.71	3,387.82	3,387.70	6.88	5.84	110.59	688.17	1,756.06	1,949.95	1,937.30	12.65	154.191	
3,543.00	3,538.93	3,524.26	3,524.13	7.19	6.08	112.13	689.54	1,755.00	1,954.72	1,941.52	13.20	148.131	
3,639.00	3,634.45	3,625.19	3,625.05	7.42	6.26	105.82	690.48	1,754.11	1,957.37	1,943.78	13.59	144.009	
3,734.00	3,729.04	3,736.11	3,735.94	7.63	6.45	94.62	691.48	1,752.49	1,957.90	1,943.90	14.00	139.829	
3,830.00	3,824.64	3,847.93	3,847.74	7.85	6.65	96.17	692.33	1,749.81	1,956.76	1,942.35	14.42	135.723	
3,925.00	3,919.28	3,953.30	3,953.05	8.07	6.83	89.51	692.89	1,746.70	1,954.68	1,939.86	14.82	131.921	
4,021.00	4,014.96	4,048.44	4,048.14	8.28	7.00	89.18	693.46	1,743.47	1,951.65	1,936.45	15.20	128.395	
4,116.00	4,109.66	4,130.17	4,129.82	8.50	7.14	86.83	694.59	1,740.85	1,948.89	1,933.32	15.56	125.238	
4,212.00	4,205.31	4,208.57	4,208.17	8.72	7.28	84.38	696.47	1,738.80	1,946.52	1,930.60	15.92	122.232	
4,307.00	4,299.84	4,290.24	4,289.78	8.95	7.42	87.83	699.14	1,737.09	1,944.93	1,928.63	16.30	119.330	
4,403.00	4,395.31	4,379.18	4,378.64	9.18	7.58	82.02	702.66	1,735.54	1,943.57	1,926.88	16.69	116.465	

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: Eddy County, NM (NAD-83)
Reference Site: Emerald PWU 20-22
Site Error: 0.00 usft
Reference Well: 12H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Emerald PWU 20-21 - PWU #5 (offset) - OH - OH													Offset Site Error:
Survey Program: 100-ISCWSA-GYRO-3													Offset Well Error:
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
4,498.00	4,489.83	4,501.18	4,500.48	9.40	7.79	93.65	707.94	1,732.78	1,942.39	1,925.25	17.13	113.371	
4,594.00	4,585.38	4,610.65	4,609.82	9.63	7.99	94.50	712.04	1,729.02	1,940.92	1,923.36	17.56	110.559	
4,689.00	4,679.99	4,691.63	4,690.72	9.85	8.13	93.93	714.30	1,726.55	1,939.53	1,921.61	17.92	108.216	
4,785.00	4,775.59	4,782.23	4,781.28	10.08	8.29	93.90	716.38	1,724.42	1,938.58	1,920.27	18.31	105.862	
4,881.00	4,871.20	4,877.56	4,876.57	10.31	8.46	94.77	718.42	1,722.35	1,937.81	1,919.10	18.71	103.572	
4,976.00	4,965.86	4,970.50	4,969.46	10.54	8.62	91.45	720.23	1,720.41	1,936.85	1,917.76	19.10	101.427	
5,072.00	5,061.56	5,062.31	5,061.23	10.76	8.78	87.91	722.08	1,718.63	1,935.55	1,916.07	19.48	99.349	
5,163.26	5,152.52	5,144.44	5,143.35	10.97	8.93	95.09	723.36	1,717.39	1,934.83	1,914.99	19.84	97.516	
5,168.00	5,157.24	5,148.52	5,147.43	10.98	8.93	95.44	723.41	1,717.34	1,934.83	1,914.97	19.86	97.426	
5,263.00	5,251.86	5,237.23	5,236.13	11.21	9.09	91.36	724.58	1,716.61	1,934.89	1,914.65	20.24	95.581	
5,359.00	5,347.43	5,341.26	5,340.14	11.45	9.27	90.20	725.96	1,715.60	1,934.46	1,913.80	20.66	93.638	
5,454.00	5,442.06	5,456.65	5,455.50	11.67	9.48	81.76	727.62	1,713.62	1,932.71	1,911.62	21.09	91.652	
5,550.00	5,537.68	5,580.41	5,579.17	11.90	9.69	87.10	729.93	1,709.59	1,929.33	1,907.79	21.53	89.601	
5,645.00	5,632.22	5,710.46	5,709.02	12.13	9.93	95.22	732.77	1,703.06	1,925.43	1,903.44	21.99	87.578	
5,741.00	5,727.76	5,818.54	5,816.83	12.37	10.12	96.06	735.88	1,696.02	1,920.97	1,898.57	22.41	85.737	
5,836.00	5,822.40	5,918.31	5,916.33	12.60	10.30	92.77	738.66	1,689.13	1,915.92	1,893.11	22.81	84.007	
5,932.00	5,918.09	6,019.79	6,017.52	12.82	10.48	93.79	740.98	1,681.92	1,910.29	1,887.08	23.21	82.306	
6,027.00	6,012.72	6,115.07	6,112.54	13.05	10.64	99.47	742.66	1,675.14	1,905.13	1,881.53	23.61	80.709	
6,123.00	6,108.31	6,210.29	6,207.53	13.29	10.81	99.93	743.51	1,668.55	1,900.36	1,876.36	24.00	79.167	
6,218.00	6,202.96	6,300.00	6,297.05	13.52	10.97	97.12	743.71	1,662.69	1,895.58	1,871.19	24.39	77.717	
6,314.00	6,298.53	6,384.91	6,381.80	13.75	11.12	96.89	743.32	1,657.63	1,891.01	1,866.23	24.78	76.317	
6,410.00	6,394.04	6,478.08	6,474.84	13.99	11.28	95.96	742.14	1,652.59	1,886.74	1,861.56	25.18	74.933	
6,505.00	6,488.68	6,567.25	6,563.88	14.22	11.43	98.55	740.77	1,647.96	1,882.60	1,857.04	25.56	73.641	
6,601.00	6,584.37	6,661.08	6,657.57	14.45	11.59	100.38	739.49	1,643.30	1,878.92	1,852.96	25.96	72.389	
6,696.00	6,678.98	6,758.18	6,754.54	14.68	11.76	96.81	738.07	1,638.44	1,875.22	1,848.87	26.35	71.153	
6,792.00	6,774.47	6,852.61	6,848.84	14.93	11.93	95.64	736.68	1,633.62	1,871.17	1,844.41	26.76	69.925	
6,887.00	6,869.00	6,946.26	6,942.36	15.16	12.09	98.79	735.23	1,628.99	1,867.42	1,840.26	27.16	68.761	
6,983.00	6,964.62	7,041.34	7,037.32	15.40	12.26	102.04	733.46	1,624.28	1,863.92	1,836.36	27.55	67.644	
7,079.00	7,060.22	7,137.02	7,132.87	15.63	12.43	101.66	731.39	1,619.74	1,860.81	1,832.86	27.95	66.566	
7,174.00	7,154.74	7,240.07	7,235.75	15.87	12.61	102.74	728.88	1,614.57	1,857.70	1,829.33	28.37	65.487	
7,269.00	7,249.25	7,344.23	7,339.72	16.11	12.79	106.96	726.01	1,608.91	1,854.55	1,825.77	28.78	64.438	
7,365.00	7,344.87	7,436.80	7,432.08	16.35	12.96	103.75	723.15	1,603.53	1,850.79	1,821.62	29.17	63.439	
7,461.00	7,440.61	7,513.45	7,508.61	16.57	13.09	113.51	720.67	1,599.72	1,847.71	1,818.17	29.54	62.552	
7,556.00	7,535.44	7,589.06	7,584.12	16.79	13.23	98.53	718.18	1,596.77	1,845.12	1,815.23	29.89	61.728	
7,651.00	7,630.26	7,667.59	7,662.56	17.01	13.37	95.76	715.49	1,594.48	1,842.54	1,812.29	30.25	60.913	
7,746.00	7,725.12	7,748.30	7,743.20	17.22	13.51	103.15	712.46	1,592.85	1,840.82	1,810.22	30.60	60.149	
7,842.00	7,821.00	7,835.32	7,830.15	17.43	13.67	93.00	709.09	1,591.70	1,839.57	1,808.60	30.97	59.399	
7,938.00	7,916.89	7,926.64	7,921.38	17.64	13.83	86.75	705.29	1,590.73	1,837.95	1,806.60	31.34	58.640	
8,033.00	8,011.80	8,010.86	8,005.53	17.84	13.98	84.86	701.97	1,590.20	1,836.49	1,804.79	31.70	57.938	
8,128.00	8,106.75	8,100.00	8,094.63	18.04	14.14	85.03	699.13	1,590.10	1,835.64	1,803.59	32.06	57.265	
8,196.29	8,175.03	8,151.20	8,145.81	18.18	14.23	79.70	697.80	1,590.32	1,835.45	1,803.17	32.28	56.852	
8,224.00	8,202.73	8,174.35	8,168.95	18.24	14.27	75.63	697.23	1,590.51	1,835.48	1,803.10	32.38	56.682	
8,312.00	8,290.73	8,258.44	8,253.02	18.41	14.41	85.42	695.29	1,591.45	1,835.97	1,803.27	32.70	56.138	
8,363.00	8,341.72	8,309.82	8,304.38	18.51	14.50	36.08	694.19	1,592.00	1,836.09	1,803.19	32.90	55.816	
8,411.00	8,389.55	8,355.62	8,350.16	18.60	14.59	-9.58	693.14	1,592.53	1,832.90	1,799.83	33.07	55.432	
8,458.00	8,435.66	8,400.00	8,394.53	18.67	14.66	-12.14	691.99	1,593.11	1,824.48	1,791.26	33.22	54.914	
8,506.00	8,481.40	8,441.85	8,436.36	18.72	14.74	-12.32	690.84	1,593.74	1,810.81	1,777.44	33.37	54.263	
8,553.00	8,524.51	8,481.56	8,476.05	18.76	14.81	-10.61	689.77	1,594.41	1,792.99	1,759.48	33.51	53.513	
8,601.00	8,567.16	8,519.43	8,513.89	18.81	14.87	-7.68	688.75	1,595.14	1,771.85	1,738.22	33.63	52.683	
8,649.00	8,608.40	8,554.90	8,549.35	18.85	14.93	-8.04	687.86	1,595.94	1,748.26	1,714.51	33.75	51.797	
8,697.00	8,647.61	8,588.87	8,583.30	18.88	14.99	-11.07	687.05	1,596.82	1,721.74	1,687.88	33.86	50.844	
8,743.00	8,682.89	8,623.05	8,617.46	18.92	15.05	-13.37	686.28	1,597.79	1,693.54	1,659.57	33.96	49.864	

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: Eddy County, NM (NAD-83)
Reference Site: Emerald PWU 20-22
Site Error: 0.00 usft
Reference Well: 12H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Emerald PWU 20-21 - PWU #5 (offset) - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100-ISCWSA-GYRO-3													Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Semi Major Axis	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
8,791.00	8,717.88	8,658.98	8,653.35	18.94	15.12	-14.33		685.48	1,598.81	1,662.10	1,628.04	34.06	48.802	
8,839.00	8,751.41	8,693.49	8,687.85	18.97	15.18	-16.78		684.70	1,599.80	1,629.26	1,595.11	34.14	47.717	
8,887.00	8,782.81	8,725.94	8,720.28	19.01	15.23	-18.86		683.97	1,600.72	1,594.56	1,560.33	34.22	46.593	
8,935.00	8,811.32	8,755.59	8,749.90	19.08	15.28	-22.37		683.31	1,601.57	1,557.65	1,523.36	34.29	45.422	
8,983.00	8,837.12	8,782.58	8,776.88	19.25	15.33	-23.69		682.70	1,602.34	1,518.91	1,484.56	34.35	44.215	
9,031.00	8,860.37	8,807.06	8,801.34	19.57	15.37	-26.71		682.15	1,603.04	1,478.64	1,444.23	34.41	42.976	
9,078.00	8,880.89	8,828.82	8,823.09	19.95	15.41	-27.83		681.66	1,603.66	1,437.99	1,403.54	34.45	41.738	
9,126.00	8,899.61	8,848.80	8,843.05	20.41	15.45	-27.00		681.22	1,604.23	1,395.23	1,360.73	34.50	40.442	
9,174.00	8,916.02	8,866.47	8,860.71	20.94	15.48	-26.24		680.82	1,604.73	1,351.26	1,316.72	34.55	39.115	
9,222.00	8,930.13	8,881.83	8,876.07	21.53	15.50	-27.34		680.47	1,605.17	1,306.31	1,271.72	34.59	37.767	
9,270.00	8,941.24	8,894.20	8,888.42	22.17	15.53	-30.80		680.20	1,605.52	1,260.35	1,225.72	34.63	36.400	
9,333.00	8,950.94	8,905.55	8,899.77	23.10	15.55	-46.50		679.94	1,605.85	1,198.93	1,164.27	34.66	34.590	
9,340.00	8,951.69	8,906.49	8,900.70	23.21	15.55	-47.80		679.92	1,605.87	1,192.06	1,157.39	34.67	34.387	
9,400.00	8,958.00	8,914.42	8,908.63	23.88	15.56	-56.39		679.74	1,606.10	1,133.37	1,096.69	36.68	30.898	
9,500.00	8,968.52	8,927.78	8,921.98	24.42	15.58	-66.13		679.44	1,606.48	1,036.97	1,000.27	36.70	28.257	
9,547.24	8,973.49	8,934.13	8,928.33	24.76	15.60	-69.45		679.30	1,606.66	992.28	955.57	36.71	27.030	
9,600.00	8,978.18	8,940.39	8,934.59	25.20	15.61	-74.39		679.16	1,606.84	942.66	905.92	36.74	25.657	
9,708.82	8,982.48	8,947.87	8,942.06	26.30	15.62	-85.44		678.99	1,607.05	839.92	803.05	36.86	22.786	
9,800.00	8,983.04	8,951.06	8,945.25	27.43	15.62	-86.11		678.92	1,607.15	754.32	717.26	37.06	20.357	
9,900.00	8,983.66	8,954.56	8,948.75	28.84	15.63	-86.83		678.84	1,607.25	662.14	624.69	37.45	17.681	
10,000.00	8,984.27	8,958.06	8,952.25	30.42	15.64	-87.57		678.76	1,607.35	572.56	534.38	38.18	14.996	
10,100.00	8,984.88	8,961.57	8,955.75	32.14	15.64	-88.30		678.68	1,607.45	487.04	447.53	39.51	12.326	
10,200.00	8,985.50	8,965.07	8,959.24	33.97	15.65	-89.03		678.61	1,607.55	408.12	366.26	41.86	9.749	
10,300.00	8,986.11	8,968.57	8,962.74	35.91	15.66	-89.77		678.53	1,607.65	340.43	294.74	45.69	7.450	
10,400.00	8,986.73	8,972.07	8,966.24	37.94	15.66	-90.50		678.45	1,607.74	291.89	241.01	50.88	5.737	
10,500.00	8,987.34	8,975.57	8,969.74	40.04	15.67	-91.23		678.37	1,607.84	272.91	217.46	55.45	4.922	
10,503.66	8,987.36	8,975.70	8,969.87	40.11	15.67	-91.26		678.37	1,607.85	272.89	217.32	55.57	4.911 CC, ES, SF	
10,600.00	8,987.96	8,979.07	8,973.24	42.19	15.67	-91.97		678.29	1,607.94	289.38	232.61	56.77	5.098	
10,700.00	8,988.57	8,982.57	8,976.74	44.41	15.68	-92.70		678.21	1,608.04	336.11	280.92	55.19	6.090	
10,800.00	8,989.18	8,986.07	8,980.24	46.66	15.69	-93.44		678.13	1,608.14	402.72	349.96	52.76	7.633	
10,900.00	8,989.80	8,989.58	8,983.74	48.96	15.69	-94.17		678.06	1,608.24	481.00	430.45	50.56	9.514	
11,000.00	8,990.41	8,993.08	8,987.24	51.29	15.70	-94.90		677.98	1,608.34	566.15	517.34	48.81	11.599	
11,100.00	8,991.03	8,996.58	8,990.73	53.64	15.70	-95.63		677.90	1,608.44	655.48	608.01	47.48	13.807	
11,200.00	8,991.64	9,000.08	8,994.23	56.03	15.71	-96.36		677.82	1,608.54	747.51	701.05	46.46	16.090	
11,300.00	8,992.26	9,003.58	8,997.73	58.43	15.72	-97.09		677.74	1,608.64	841.34	795.67	45.68	18.420	
11,400.00	8,992.87	9,007.08	9,001.23	60.86	15.72	-97.82		677.66	1,608.74	936.44	891.37	45.07	20.780	
11,500.00	8,993.48	9,010.58	9,004.73	63.30	15.73	-98.54		677.58	1,608.84	1,032.45	987.86	44.58	23.157	
11,600.00	8,994.10	9,014.08	9,008.23	65.76	15.73	-99.26		677.51	1,608.94	1,129.14	1,084.94	44.20	25.544	
11,700.00	8,994.71	9,017.58	9,011.73	68.23	15.74	-99.98		677.43	1,609.04	1,226.36	1,182.46	43.90	27.937	
11,800.00	8,995.33	9,021.09	9,015.23	70.71	15.75	-100.70		677.35	1,609.14	1,323.98	1,280.33	43.65	30.331	
11,900.00	8,995.94	9,024.59	9,018.73	73.21	15.75	-101.41		677.27	1,609.24	1,421.92	1,378.47	43.45	32.724	
12,000.00	8,996.56	9,028.09	9,022.22	75.71	15.76	-102.12		677.19	1,609.34	1,520.12	1,476.83	43.29	35.113	
12,100.00	8,997.17	9,031.59	9,025.72	78.22	15.77	-102.83		677.11	1,609.44	1,618.54	1,575.37	43.16	37.498	
12,200.00	8,997.78	9,035.09	9,029.22	80.75	15.77	-103.53		677.03	1,609.54	1,717.13	1,674.07	43.06	39.877	
12,300.00	8,998.40	9,038.59	9,032.72	83.27	15.78	-104.23		676.96	1,609.64	1,815.86	1,772.88	42.98	42.250	
12,400.00	8,999.01	9,042.09	9,036.22	85.81	15.78	-104.93		676.88	1,609.74	1,914.73	1,871.81	42.92	44.615	
12,500.00	8,999.63	9,045.59	9,039.72	88.35	15.79	-105.62		676.80	1,609.84	2,013.70	1,970.82	42.87	46.972	
12,600.00	9,000.24	9,049.09	9,043.22	90.90	15.80	-106.31		676.72	1,609.94	2,112.76	2,069.92	42.84	49.320	
12,700.00	9,000.85	9,052.60	9,046.72	93.45	15.80	-106.99		676.64	1,610.04	2,211.89	2,169.08	42.82	51.659	
12,800.00	9,001.47	9,056.10	9,050.21	96.01	15.81	-107.67		676.56	1,610.14	2,311.10	2,268.30	42.81	53.989	
12,900.00	9,002.08	9,059.60	9,053.71	98.57	15.81	-108.34		676.48	1,610.24	2,410.37	2,367.57	42.81	56.310	
13,000.00	9,002.70	9,063.10	9,057.21	101.14	15.82	-109.01		676.41	1,610.34	2,509.69	2,466.88	42.81	58.620	

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: Eddy County, NM (NAD-83)
Reference Site: Emerald PWU 20-22
Site Error: 0.00 usft
Reference Well: 12H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Emerald PWU 20-21 - PWU #5 (offset) - OH - OH													Offset Site Error:
Survey Program: 100-ISCWSA-GYRO-3													0.00 usft
Reference													Offset Well Error:
Offset													0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre (usft)	Between Centres (usft)	Between Ellipse (usft)	Minimum Separation (usft)	Separation Factor	Warning	
13,100.00	9,003.31	9,066.60	9,060.71	103.71	15.83	-109.67	676.33	1,610.44	2,609.06	2,566.23	42.83	60.921	
13,200.00	9,003.93	9,070.10	9,064.21	106.28	15.83	-110.33	676.25	1,610.54	2,708.47	2,665.62	42.85	63.211	
13,300.00	9,004.54	9,073.60	9,067.71	108.86	15.84	-110.99	676.17	1,610.64	2,807.92	2,765.05	42.87	65.491	
13,400.00	9,005.15	9,077.10	9,071.21	111.44	15.84	-111.63	676.09	1,610.74	2,907.40	2,864.50	42.91	67.760	
13,500.00	9,005.77	9,080.61	9,074.71	114.02	15.85	-112.28	676.01	1,610.84	3,006.91	2,963.97	42.94	70.018	
13,600.00	9,006.38	9,084.11	9,078.21	116.61	15.86	-112.91	675.93	1,610.94	3,106.45	3,063.47	42.99	72.266	
13,700.55	9,007.00	9,087.63	9,081.72	119.21	15.86	-113.55	675.85	1,611.04	3,206.56	3,163.53	43.03	74.514	
13,746.28	9,007.24	9,089.18	9,083.28	120.39	15.87	-109.50	675.82	1,611.09	3,252.07	3,209.02	43.05	75.536	
13,800.00	9,007.48	9,090.95	9,085.04	121.78	15.87	-109.78	675.78	1,611.14	3,305.50	3,262.43	43.08	76.736	
13,900.00	9,007.92	9,094.24	9,088.33	124.37	15.87	-110.30	675.71	1,611.23	3,404.98	3,361.86	43.12	78.960	
14,000.00	9,008.36	9,097.53	9,091.62	126.96	15.88	-110.82	675.63	1,611.32	3,504.49	3,461.31	43.17	81.173	
14,100.00	9,008.80	9,100.83	9,094.92	129.55	15.89	-111.34	675.56	1,611.42	3,604.02	3,560.79	43.23	83.375	
14,200.00	9,009.24	9,104.12	9,098.21	132.15	15.89	-111.85	675.48	1,611.51	3,703.57	3,660.29	43.28	85.565	
14,300.00	9,009.68	9,107.41	9,101.50	134.75	15.90	-112.36	675.41	1,611.61	3,803.14	3,759.80	43.34	87.743	
14,400.00	9,010.12	9,110.70	9,104.79	137.34	15.90	-112.86	675.34	1,611.70	3,902.74	3,859.33	43.41	89.910	
14,500.00	9,010.56	9,114.00	9,108.08	139.94	15.91	-113.37	675.26	1,611.79	4,002.35	3,958.87	43.47	92.064	
14,600.00	9,011.00	9,117.29	9,111.37	142.55	15.92	-113.86	675.19	1,611.89	4,101.97	4,058.43	43.54	94.207	
14,700.00	9,011.44	9,120.58	9,114.66	145.15	15.92	-114.36	675.12	1,611.98	4,201.61	4,158.00	43.61	96.339	
14,800.00	9,011.89	9,123.87	9,117.95	147.75	15.93	-114.85	675.04	1,612.07	4,301.27	4,257.58	43.69	98.458	
14,900.00	9,012.33	9,127.17	9,121.24	150.36	15.93	-115.34	674.97	1,612.17	4,400.94	4,357.17	43.76	100.565	
15,000.00	9,012.77	9,130.46	9,124.53	152.96	15.94	-115.82	674.89	1,612.26	4,500.62	4,456.78	43.84	102.661	
15,100.00	9,013.21	9,133.75	9,127.82	155.57	15.94	-116.30	674.82	1,612.36	4,600.31	4,556.39	43.92	104.744	
15,200.00	9,013.65	9,137.04	9,131.11	158.18	15.95	-116.78	674.75	1,612.45	4,700.01	4,656.01	44.00	106.815	
15,300.00	9,014.09	9,140.34	9,134.40	160.79	15.96	-117.25	674.67	1,612.54	4,799.73	4,755.64	44.08	108.874	
15,400.00	9,014.53	9,143.63	9,137.69	163.40	15.96	-117.72	674.60	1,612.64	4,899.45	4,855.28	44.17	110.922	
15,500.00	9,014.97	9,146.92	9,140.98	166.01	15.97	-118.18	674.52	1,612.73	4,999.18	4,954.92	44.26	112.957	
15,600.00	9,015.41	9,150.22	9,144.27	168.62	15.97	-118.65	674.45	1,612.83	5,098.92	5,054.57	44.35	114.980	
15,700.00	9,015.85	9,153.51	9,147.56	171.23	15.98	-119.10	674.38	1,612.92	5,198.67	5,154.23	44.44	116.990	
15,800.00	9,016.29	9,156.80	9,150.85	173.84	15.98	-119.56	674.30	1,613.01	5,298.42	5,253.90	44.53	118.989	
15,900.00	9,016.73	9,160.09	9,154.14	176.46	15.99	-120.01	674.23	1,613.11	5,398.19	5,353.56	44.62	120.976	
16,000.00	9,017.17	9,163.39	9,157.43	179.07	16.00	-120.45	674.15	1,613.20	5,497.96	5,453.24	44.72	122.950	
16,100.00	9,017.61	9,166.68	9,160.72	181.69	16.00	-120.89	674.08	1,613.30	5,597.73	5,552.92	44.81	124.913	
16,200.00	9,018.06	9,169.97	9,164.01	184.30	16.01	-121.33	674.01	1,613.39	5,697.51	5,652.60	44.91	126.863	
16,300.00	9,018.50	9,173.26	9,167.30	186.92	16.01	-121.77	673.93	1,613.48	5,797.30	5,752.29	45.01	128.802	
16,400.00	9,018.94	9,176.56	9,170.59	189.54	16.02	-122.20	673.86	1,613.58	5,897.09	5,851.98	45.11	130.728	
16,500.00	9,019.38	9,179.85	9,173.88	192.16	16.02	-122.62	673.78	1,613.67	5,996.89	5,951.68	45.21	132.642	
16,600.00	9,019.82	9,183.14	9,177.17	194.77	16.03	-123.05	673.71	1,613.77	6,096.69	6,051.38	45.31	134.544	
16,700.00	9,020.26	9,186.43	9,180.47	197.39	16.04	-123.47	673.64	1,613.86	6,196.50	6,151.08	45.42	136.434	
16,800.00	9,020.70	9,189.73	9,183.76	200.01	16.04	-123.88	673.56	1,613.95	6,296.31	6,250.79	45.52	138.313	
16,900.00	9,021.14	9,193.02	9,187.05	202.63	16.05	-124.29	673.49	1,614.05	6,396.13	6,350.50	45.63	140.179	
17,000.00	9,021.58	9,196.31	9,190.34	205.25	16.05	-124.70	673.42	1,614.14	6,495.95	6,450.21	45.74	142.033	
17,100.00	9,022.02	9,199.60	9,193.63	207.87	16.06	-125.10	673.34	1,614.23	6,595.77	6,549.93	45.84	143.876	
17,200.00	9,022.46	9,200.00	9,194.02	210.49	16.06	-125.15	673.33	1,614.25	6,695.60	6,649.65	45.95	145.723	
17,300.00	9,022.90	9,200.00	9,194.02	213.12	16.06	-125.15	673.33	1,614.25	6,795.43	6,749.38	46.05	147.561	
17,400.00	9,023.34	9,200.00	9,194.02	215.74	16.06	-125.15	673.33	1,614.25	6,895.27	6,849.11	46.16	149.388	
17,500.00	9,023.78	9,200.00	9,194.02	218.36	16.06	-125.15	673.33	1,614.25	6,995.11	6,948.85	46.26	151.203	
17,600.00	9,024.23	9,200.00	9,194.02	220.98	16.06	-125.15	673.33	1,614.25	7,094.96	7,048.59	46.37	153.007	
17,700.00	9,024.67	9,200.00	9,194.02	223.61	16.06	-125.15	673.33	1,614.25	7,194.81	7,148.33	46.48	154.800	
17,800.00	9,025.11	9,200.00	9,194.02	226.23	16.06	-125.15	673.33	1,614.25	7,294.66	7,248.07	46.59	156.582	
17,900.00	9,025.55	9,200.00	9,194.02	228.85	16.06	-125.15	673.33	1,614.25	7,394.52	7,347.82	46.70	158.352	
18,000.00	9,025.99	9,200.00	9,194.02	231.48	16.06	-125.15	673.33	1,614.25	7,494.38	7,447.58	46.81	160.112	
18,100.00	9,026.43	9,200.00	9,194.02	234.10	16.06	-125.15	673.33	1,614.25	7,594.25	7,547.33	46.92	161.860	

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Emerald PWU 20-21 - PWU #5 (offset) - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100-18CW8A-GYRO-3													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 (usft)	Between Centres (usft)	Between Ellipse (usft)	Minimum Separation (usft)	Separation Factor			
18,200.00	9,026.87	9,200.00	9,194.02	236.73	16.06	-125.15	673.33	1,614.25	7,694.12	7,647.09	47.03	163.597		
18,300.00	9,027.31	9,200.00	9,194.02	239.35	16.06	-125.15	673.33	1,614.25	7,793.99	7,746.85	47.14	165.323		
18,400.00	9,027.75	9,200.00	9,194.02	241.98	16.06	-125.15	673.33	1,614.25	7,893.87	7,846.61	47.26	167.039		
18,500.00	9,028.19	9,200.00	9,194.02	244.60	16.06	-125.15	673.33	1,614.25	7,993.75	7,946.38	47.37	168.743		
18,600.00	9,028.63	9,200.00	9,194.02	247.23	16.06	-125.15	673.33	1,614.25	8,093.63	8,046.14	47.49	170.437		
18,700.00	9,029.07	9,200.00	9,194.02	249.85	16.06	-125.15	673.33	1,614.25	8,193.52	8,145.91	47.60	172.119		
18,800.00	9,029.51	9,200.00	9,194.02	252.48	16.06	-125.15	673.33	1,614.25	8,293.40	8,245.68	47.72	173.791		
18,900.00	9,029.95	9,200.00	9,194.02	255.11	16.06	-125.15	673.33	1,614.25	8,393.29	8,345.46	47.84	175.453		
19,000.00	9,030.40	9,200.00	9,194.02	257.73	16.06	-125.15	673.33	1,614.25	8,493.19	8,445.23	47.96	177.103		
19,100.00	9,030.84	9,200.00	9,194.02	260.36	16.06	-125.15	673.33	1,614.25	8,593.08	8,545.01	48.08	178.743		
19,200.00	9,031.28	9,200.00	9,194.02	262.99	16.06	-125.15	673.33	1,614.25	8,692.98	8,644.79	48.19	180.373		
19,300.00	9,031.72	9,200.00	9,194.02	265.61	16.06	-125.15	673.33	1,614.25	8,792.88	8,744.57	48.31	181.991		
19,400.00	9,032.16	9,200.00	9,194.02	268.24	16.06	-125.15	673.33	1,614.25	8,892.78	8,844.35	48.44	183.600		
19,500.00	9,032.60	9,200.00	9,194.02	270.87	16.06	-125.15	673.33	1,614.25	8,992.69	8,944.13	48.56	185.198		
19,600.00	9,033.04	9,200.00	9,194.02	273.50	16.06	-125.15	673.33	1,614.25	9,092.60	9,043.92	48.68	186.786		
19,700.00	9,033.48	9,200.00	9,194.02	276.12	16.06	-125.15	673.33	1,614.25	9,192.51	9,143.70	48.80	188.363		
19,800.00	9,033.92	9,200.00	9,194.02	278.75	16.06	-125.15	673.33	1,614.25	9,292.42	9,243.49	48.93	189.930		
19,900.00	9,034.36	9,200.00	9,194.02	281.38	16.06	-125.15	673.33	1,614.25	9,392.33	9,343.28	49.05	191.487		
20,000.00	9,034.80	9,200.00	9,194.02	284.01	16.06	-125.15	673.33	1,614.25	9,492.24	9,443.07	49.17	193.034		
20,100.00	9,035.24	9,200.00	9,194.02	286.64	16.06	-125.15	673.33	1,614.25	9,592.16	9,542.86	49.30	194.571		
20,200.00	9,035.68	9,200.00	9,194.02	289.27	16.06	-125.15	673.33	1,614.25	9,692.08	9,642.65	49.42	196.097		
20,300.00	9,036.12	9,200.00	9,194.02	291.90	16.06	-125.15	673.33	1,614.25	9,792.00	9,742.45	49.55	197.614		
20,400.00	9,036.57	9,200.00	9,194.02	294.53	16.06	-125.15	673.33	1,614.25	9,891.92	9,842.24	49.68	199.121		
20,500.00	9,037.01	9,200.00	9,194.02	297.15	16.06	-125.15	673.33	1,614.25	9,991.84	9,942.04	49.81	200.618		

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Emerald PWU 20-22
Site Error: 0.00 usft
Reference Well: 12H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Emerald PWU 20-21 - PWU #6 (offset) - OH - OH														Offset Site Error:	0.00 usft
Survey Program: 3400-ISCWSA-GYRO-3														Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis 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	Warning		
0.00	0.00	3,313.80	3,313.80	0.00	0.00	85.40	686.64	8,536.94	9,191.76						
50.00	50.00	3,313.80	3,313.80	0.02	0.00	90.54	686.64	8,536.94	9,173.72	9,172.49	1.23	7,448.430			
100.00	100.00	3,313.80	3,313.80	0.09	0.00	109.86	686.64	8,536.94	9,155.97	9,154.76	1.20	7,622.356			
150.00	150.00	3,313.80	3,313.80	0.13	0.00	120.90	686.64	8,536.94	9,138.57	9,137.39	1.17	7,802.689			
285.00	284.98	3,313.80	3,313.80	0.24	0.00	-162.05	686.64	8,536.94	9,094.27	9,092.93	1.34	6,769.560			
338.00	337.96	3,313.80	3,313.80	0.33	0.00	-168.30	686.64	8,536.94	9,077.89	9,076.58	1.31	6,922.107			
438.00	437.92	3,313.80	3,313.80	0.52	0.00	-166.24	686.64	8,536.94	9,048.01	9,046.71	1.30	6,960.943			
529.00	528.87	3,313.80	3,313.80	0.71	0.00	-174.96	686.64	8,536.94	9,022.03	9,020.70	1.32	6,817.693			
620.00	619.82	3,313.80	3,313.80	0.90	0.00	-172.28	686.64	8,536.94	8,996.99	8,995.61	1.38	6,540.353			
711.00	710.77	3,313.80	3,313.80	1.08	0.00	-169.31	686.64	8,536.94	8,972.71	8,971.26	1.45	6,179.581			
803.00	802.73	3,313.80	3,313.80	1.28	0.00	-169.31	686.64	8,536.94	8,948.94	8,947.39	1.56	5,749.913			
894.00	893.69	3,313.80	3,313.80	1.47	0.00	178.30	686.64	8,536.94	8,926.26	8,924.58	1.68	5,321.112			
985.00	984.65	3,313.80	3,313.80	1.66	0.00	-177.53	686.64	8,536.94	8,904.23	8,902.43	1.81	4,922.687			
1,077.00	1,076.62	3,313.80	3,313.80	1.85	0.00	-175.44	686.64	8,536.94	8,882.62	8,880.67	1.95	4,544.587			
1,169.00	1,168.60	3,313.80	3,313.80	2.05	0.00	-167.79	686.64	8,536.94	8,861.81	8,859.70	2.11	4,194.061			
1,261.00	1,260.57	3,313.80	3,313.80	2.24	0.00	-172.47	686.64	8,536.94	8,841.98	8,839.71	2.28	3,881.446			
1,353.00	1,352.55	3,313.80	3,313.80	2.43	0.00	165.32	686.64	8,536.94	8,822.60	8,820.15	2.45	3,603.958			
1,448.00	1,448.54	3,313.80	3,313.80	2.63	0.00	174.89	686.64	8,536.94	8,802.54	8,799.91	2.63	3,344.074			
1,544.00	1,543.53	3,313.80	3,313.80	2.83	0.00	168.32	686.64	8,536.94	8,783.77	8,780.95	2.82	3,119.435			
1,640.00	1,639.52	3,313.80	3,313.80	3.03	0.00	176.39	686.64	8,536.94	8,765.97	8,762.97	3.01	2,916.978			
1,736.00	1,735.51	3,313.80	3,313.80	3.23	0.00	168.82	686.64	8,536.94	8,749.19	8,745.99	3.20	2,736.007			
1,831.00	1,830.51	3,313.80	3,313.80	3.43	0.00	151.24	686.64	8,536.94	8,733.52	8,730.13	3.39	2,576.413			
1,927.00	1,926.49	3,313.80	3,313.80	3.63	0.00	162.64	686.64	8,536.94	8,718.85	8,715.26	3.59	2,431.193			
2,022.00	2,021.48	3,313.80	3,313.80	3.83	0.00	137.27	686.64	8,536.94	8,705.26	8,701.48	3.78	2,301.230			
2,118.00	2,117.48	3,313.80	3,313.80	4.03	0.00	151.92	686.64	8,536.94	8,691.99	8,688.00	3.98	2,181.703			
2,214.00	2,213.48	3,313.80	3,313.80	4.23	0.00	149.53	686.64	8,536.94	8,679.62	8,675.43	4.19	2,073.897			
2,310.00	2,309.47	3,313.80	3,313.80	4.43	0.00	121.26	686.64	8,536.94	8,668.25	8,663.87	4.39	1,976.195			
2,405.00	2,404.47	3,313.80	3,313.80	4.63	0.00	156.04	686.64	8,536.94	8,658.29	8,653.70	4.59	1,888.308			
2,501.00	2,500.45	3,313.80	3,313.80	4.83	0.00	128.29	686.64	8,536.94	8,649.57	8,644.79	4.79	1,806.868			
2,596.00	2,595.43	3,313.80	3,313.80	5.03	0.00	127.42	686.64	8,536.94	8,642.21	8,637.23	4.99	1,732.360			
2,724.00	2,723.33	3,313.80	3,313.80	5.31	0.00	127.49	686.64	8,536.94	8,635.22	8,629.95	5.26	1,640.839			
2,788.00	2,787.23	3,313.80	3,313.80	5.45	0.00	123.50	686.64	8,536.94	8,632.93	8,627.53	5.40	1,598.362			
2,883.00	2,882.05	3,313.80	3,313.80	5.66	0.00	126.31	686.64	8,536.94	8,630.77	8,625.16	5.61	1,539.012			
2,958.99	2,957.84	3,313.80	3,313.80	5.83	0.00	124.67	686.64	8,536.94	8,630.25	8,624.48	5.78	1,494.386			
2,979.00	2,977.79	3,313.80	3,313.80	5.87	0.00	124.32	686.64	8,536.94	8,630.29	8,624.47	5.82	1,483.095			
3,074.00	3,072.45	3,313.80	3,313.80	6.09	0.00	125.81	686.64	8,536.94	8,631.48	8,625.45	6.03	1,431.301			
3,170.00	3,168.02	3,313.80	3,313.80	6.31	0.00	122.80	686.64	8,536.94	8,634.15	8,627.90	6.25	1,382.250			
3,265.00	3,262.52	3,313.80	3,313.80	6.54	0.00	124.88	686.64	8,536.94	8,638.27	8,631.81	6.46	1,336.740			
3,361.00	3,357.97	3,360.41	3,360.41	6.77	0.04	125.20	686.87	8,536.85	8,643.84	8,637.11	6.72	1,285.561			
3,406.00	3,402.71	3,427.81	3,427.80	6.88	0.13	125.44	687.90	8,536.45	8,646.41	8,639.50	6.91	1,251.409			
3,543.00	3,538.93	3,567.55	3,567.51	7.19	0.37	126.70	690.27	8,535.47	8,654.21	8,646.75	7.46	1,160.140			
3,639.00	3,634.45	3,668.61	3,668.56	7.42	0.55	120.19	692.01	8,534.70	8,658.95	8,651.09	7.85	1,102.655			
3,734.00	3,729.04	3,753.55	3,753.48	7.63	0.70	108.76	693.55	8,534.04	8,662.01	8,653.79	8.22	1,054.393			
3,830.00	3,824.64	3,913.70	3,913.59	7.85	0.99	110.13	696.85	8,532.56	8,664.28	8,655.57	8.72	993.900			
3,925.00	3,919.28	4,032.17	4,032.02	8.07	1.20	103.30	699.45	8,530.63	8,665.28	8,656.14	9.14	947.861			
4,021.00	4,014.96	4,132.63	4,132.43	8.28	1.38	102.84	701.82	8,528.86	8,665.52	8,655.98	9.54	908.766			
4,116.00	4,109.66	4,235.45	4,235.20	8.50	1.56	100.38	704.41	8,526.96	8,665.44	8,655.51	9.93	872.315			
4,212.00	4,205.31	4,338.18	4,337.87	8.72	1.75	97.83	707.23	8,524.94	8,665.03	8,654.69	10.34	837.954			
4,274.41	4,267.43	4,400.00	4,399.66	8.87	1.86	100.15	709.00	8,523.70	8,664.85	8,654.24	10.60	817.377			
4,307.00	4,299.84	4,429.13	4,428.76	8.95	1.91	101.16	709.86	8,523.12	8,664.90	8,654.17	10.73	807.453			
4,403.00	4,395.31	4,500.00	4,499.59	9.18	2.04	95.23	712.07	8,521.77	8,664.74	8,653.65	11.09	781.481			
4,431.73	4,423.90	4,532.64	4,532.21	9.25	2.10	98.69	713.12	8,521.19	8,664.63	8,653.42	11.21	772.628			

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Emerald PWU 20-21 - PWU #6 (offset) - OH - OH													Offset Site Error:
Survey Program: 3400-ISCINBA-GYRO-S													0.00 usft
Reference													Offset Well Error:
Offset													0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
4,498.00	4,489.83	4,584.44	4,583.97	9.40	2.19	106.71	714.75	8,520.33	8,665.15	8,653.68	11.46	755.833	
4,594.00	4,585.38	4,684.58	4,684.06	9.63	2.37	107.45	717.94	8,518.76	8,666.58	8,654.71	11.87	730.046	
4,689.00	4,679.99	4,792.76	4,792.16	9.85	2.57	106.79	721.58	8,516.91	8,667.71	8,655.42	12.29	705.365	
4,785.00	4,775.59	4,881.45	4,880.78	10.08	2.73	106.62	724.57	8,515.36	8,668.76	8,656.09	12.68	683.864	
4,881.00	4,871.20	5,027.84	5,027.05	10.31	3.00	107.37	729.84	8,512.41	8,669.57	8,656.40	13.17	658.265	
4,976.00	4,965.86	5,130.41	5,129.52	10.54	3.19	103.91	733.65	8,510.01	8,669.72	8,656.14	13.58	638.499	
5,072.00	5,061.56	5,254.32	5,253.30	10.76	3.42	100.25	738.25	8,506.89	8,669.16	8,655.13	14.03	617.996	
5,168.00	5,157.24	5,370.84	5,369.68	10.98	3.64	107.66	742.83	8,503.51	8,668.49	8,654.03	14.47	599.256	
5,263.00	5,251.86	5,526.54	5,525.15	11.21	3.93	103.42	749.51	8,498.35	8,667.88	8,652.91	14.98	578.664	
5,359.00	5,347.43	5,670.29	5,668.64	11.45	4.20	102.07	755.94	8,492.65	8,666.35	8,650.87	15.47	560.030	
5,454.00	5,442.06	5,924.43	5,922.22	11.67	4.67	93.46	766.98	8,479.83	8,663.17	8,647.01	16.16	535.962	
5,550.00	5,537.68	6,026.58	6,024.08	11.90	4.87	98.60	771.47	8,473.60	8,658.50	8,641.92	16.58	522.252	
5,645.00	5,632.22	6,139.73	6,136.90	12.13	5.08	106.50	776.30	8,466.45	8,654.77	8,637.75	17.02	508.653	
5,741.00	5,727.76	6,236.40	6,233.29	12.37	5.26	107.21	780.38	8,460.31	8,651.60	8,634.18	17.42	496.602	
5,836.00	5,822.40	6,345.53	6,342.09	12.60	5.46	103.83	784.94	8,453.26	8,647.92	8,630.08	17.84	484.654	
5,932.00	5,918.09	6,444.98	6,441.27	12.82	5.65	104.75	788.23	8,446.76	8,643.75	8,625.51	18.25	473.736	
6,027.00	6,012.72	6,553.16	6,549.18	13.05	5.84	110.30	791.22	8,439.70	8,640.26	8,621.60	18.66	462.965	
6,123.00	6,108.31	6,667.90	6,663.62	13.29	6.05	110.62	794.32	8,431.90	8,636.95	8,617.85	19.09	452.319	
6,218.00	6,202.96	6,733.90	6,729.45	13.52	6.16	107.65	795.77	8,427.43	8,633.35	8,613.91	19.44	444.180	
6,314.00	6,298.53	6,800.00	6,795.41	13.75	6.28	107.22	796.90	8,423.38	8,630.23	8,610.44	19.79	436.190	
6,410.00	6,394.04	6,850.00	6,845.33	13.99	6.37	106.04	797.64	8,420.54	8,627.52	8,607.42	20.11	429.039	
6,505.00	6,488.68	6,960.08	6,955.22	14.22	6.56	108.45	799.23	8,414.42	8,624.78	8,604.25	20.53	420.173	
6,601.00	6,584.37	7,108.57	7,103.42	14.45	6.82	110.11	801.36	8,405.34	8,621.51	8,600.50	21.01	410.357	
6,696.00	6,678.98	7,225.45	7,220.04	14.68	7.03	106.31	803.36	8,397.70	8,618.04	8,596.60	21.44	401.916	
6,792.00	6,774.47	7,300.00	7,294.41	14.93	7.16	104.88	804.56	8,392.70	8,614.36	8,592.55	21.81	394.946	
6,887.00	6,869.00	7,367.55	7,361.81	15.16	7.27	107.77	805.36	8,388.38	8,611.01	8,588.85	22.16	388.532	
6,983.00	6,964.62	7,446.81	7,440.94	15.40	7.41	110.78	805.86	8,383.76	8,608.24	8,585.71	22.53	382.071	
7,079.00	7,060.22	7,569.96	7,563.86	15.63	7.62	110.17	806.41	8,376.37	8,605.53	8,582.56	22.97	374.569	
7,174.00	7,154.74	7,700.00	7,693.64	15.87	7.84	110.96	805.67	8,368.09	8,602.80	8,579.37	23.43	367.108	
7,269.00	7,249.25	7,757.55	7,751.07	16.11	7.94	114.87	804.60	8,364.45	8,600.45	8,576.69	23.77	361.839	
7,365.00	7,344.87	7,800.00	7,793.43	16.35	8.01	111.39	803.66	8,362.00	8,598.21	8,574.14	24.07	357.165	
7,461.00	7,440.61	7,837.28	7,830.65	16.57	8.07	120.97	802.75	8,360.09	8,596.26	8,571.89	24.36	352.853	
7,556.00	7,535.44	7,900.00	7,893.30	16.79	8.18	105.83	801.05	8,357.60	8,594.52	8,569.83	24.69	348.142	
7,651.00	7,630.26	7,900.00	7,893.30	17.01	8.18	102.84	801.05	8,357.60	8,592.25	8,567.34	24.91	344.995	
7,746.00	7,725.12	7,946.43	7,939.68	17.22	8.26	110.04	799.75	8,356.23	8,590.72	8,565.52	25.20	340.895	
7,842.00	7,821.00	8,000.00	7,993.22	17.43	8.35	99.69	798.30	8,355.00	8,589.51	8,564.00	25.51	336.743	
7,938.00	7,916.89	8,036.49	8,029.70	17.64	8.42	93.21	797.38	8,354.37	8,588.25	8,562.46	25.79	333.052	
8,033.00	8,011.80	8,100.00	8,093.19	17.84	8.52	91.13	795.96	8,353.69	8,587.22	8,561.11	26.11	328.944	
8,128.00	8,106.75	8,126.01	8,119.20	18.04	8.57	91.13	795.49	8,353.56	8,586.56	8,560.21	26.35	325.810	
8,224.00	8,202.73	8,172.34	8,165.52	18.24	8.65	81.64	794.95	8,353.52	8,586.37	8,559.73	26.63	322.384	
8,249.75	8,228.48	8,200.00	8,193.18	18.29	8.70	83.64	794.81	8,353.62	8,586.41	8,559.68	26.73	321.188	
8,312.00	8,290.73	8,200.00	8,193.18	18.41	8.70	91.35	794.81	8,353.62	8,586.69	8,559.82	26.86	319.660	
8,363.00	8,341.72	8,200.00	8,193.18	18.51	8.70	41.95	794.81	8,353.62	8,587.05	8,560.08	26.97	318.431	
8,411.00	8,389.55	8,243.84	8,237.02	18.60	8.77	-3.67	794.61	8,354.07	8,583.95	8,556.82	27.13	316.367	
8,458.00	8,435.66	8,259.50	8,252.67	18.67	8.80	-6.10	794.50	8,354.34	8,575.76	8,548.52	27.25	314.751	
8,506.00	8,481.40	8,300.00	8,293.16	18.72	8.87	-6.01	794.10	8,355.30	8,562.41	8,535.02	27.39	312.564	
8,553.00	8,524.51	8,300.00	8,293.16	18.76	8.87	-4.02	794.10	8,355.30	8,544.72	8,517.25	27.47	311.069	
8,601.00	8,567.16	8,300.00	8,293.16	18.81	8.87	-0.87	794.10	8,355.30	8,523.88	8,496.34	27.54	309.494	
8,649.00	8,608.40	8,328.20	8,321.34	18.85	8.91	-0.90	793.75	8,356.14	8,500.58	8,472.92	27.66	307.352	
8,697.00	8,647.61	8,348.65	8,341.78	18.88	8.95	-3.42	793.49	8,356.81	8,474.21	8,446.46	27.76	305.313	
8,743.00	8,682.89	8,367.19	8,360.31	18.92	8.98	-5.11	793.24	8,357.46	8,446.00	8,418.16	27.84	303.374	
8,791.00	8,717.88	8,437.95	8,431.01	18.94	9.10	-5.59	791.99	8,359.95	8,414.48	8,386.48	28.00	300.493	

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Emerald PWU 20-21 - PWU #6 (offset) - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 3400-ISCWSA-GYRO-3													Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +NW- (usft)	Offset Wellbore Centre +SEW- (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
8,839.00	8,751.41	8,472.59	8,465.63	18.97	9.16	-7.43	791.26	8,361.07	8,381.33	8,353.23	28.10	298.269		
8,887.00	8,782.81	8,505.17	8,498.18	19.01	9.22	-8.50	790.57	8,362.12	8,346.19	8,318.00	28.19	296.064		
8,935.00	8,811.32	8,534.95	8,527.94	19.08	9.27	-10.67	789.94	8,363.08	8,308.71	8,280.44	28.27	293.890		
8,983.00	8,837.12	8,562.08	8,555.06	19.25	9.32	-10.57	789.37	8,363.95	8,269.30	8,240.96	28.34	291.771		
9,031.00	8,860.37	8,586.72	8,579.67	19.57	9.36	-11.73	788.84	8,364.75	8,228.27	8,199.87	28.40	289.690		
9,078.00	8,880.89	8,608.63	8,601.57	19.95	9.40	-11.06	788.38	8,365.46	8,186.84	8,158.38	28.46	287.684		
9,126.00	8,899.61	8,628.77	8,621.69	20.41	9.44	-6.71	787.96	8,366.10	8,143.35	8,114.84	28.51	285.629		
9,174.00	8,916.02	8,646.61	8,639.52	20.94	9.47	-2.57	787.58	8,366.68	8,098.81	8,070.24	28.56	283.556		
9,222.00	8,930.13	8,662.15	8,655.04	21.53	9.50	1.92	787.25	8,367.18	8,053.40	8,024.79	28.61	281.490		
9,270.00	8,941.24	8,674.69	8,667.57	22.17	9.52	8.00	786.98	8,367.59	8,007.09	7,978.44	28.65	279.439		
9,333.00	8,950.94	8,686.27	8,679.15	23.10	9.54	12.02	786.74	8,367.96	7,945.23	7,916.53	28.70	276.841		
9,340.00	8,951.69	8,687.24	8,680.12	23.21	9.54	12.44	786.72	8,367.99	7,938.30	7,909.59	28.71	276.542		
9,400.00	8,958.00	8,695.39	8,688.26	23.88	9.55	-5.04	786.55	8,368.25	7,878.86	7,848.05	30.82	255.659		
9,500.00	8,968.52	8,709.12	8,701.98	24.42	9.58	-31.31	786.26	8,368.70	7,779.93	7,749.06	30.87	252.025		
9,547.24	8,973.49	8,715.65	8,708.51	24.76	9.59	-40.65	786.12	8,368.91	7,733.36	7,702.48	30.89	250.369		
9,600.00	8,978.18	8,722.10	8,714.95	25.20	9.60	-43.81	785.98	8,369.11	7,681.30	7,650.39	30.91	248.520		
9,708.82	8,982.48	8,729.97	8,722.82	26.30	9.61	-59.89	785.81	8,369.37	7,573.14	7,542.19	30.95	244.674		
9,800.00	8,983.04	8,733.50	8,726.35	27.43	9.62	-60.20	785.74	8,369.48	7,482.21	7,451.22	30.99	241.447		
9,900.00	8,983.66	8,737.37	8,730.22	28.84	9.63	-60.54	785.66	8,369.61	7,382.50	7,351.47	31.03	237.906		
10,000.00	8,984.27	8,741.25	8,734.08	30.42	9.63	-60.88	785.58	8,369.73	7,282.79	7,251.71	31.08	234.353		
10,100.00	8,984.88	8,745.12	8,737.95	32.14	9.64	-61.22	785.49	8,369.86	7,183.08	7,151.96	31.12	230.789		
10,200.00	8,985.50	8,748.99	8,741.82	33.97	9.65	-61.57	785.41	8,369.98	7,083.39	7,052.21	31.18	227.214		
10,300.00	8,986.11	8,752.86	8,745.69	35.91	9.65	-61.92	785.33	8,370.11	6,983.70	6,952.47	31.23	223.628		
10,400.00	8,986.73	8,756.73	8,749.56	37.94	9.66	-62.27	785.25	8,370.23	6,884.01	6,852.73	31.29	220.032		
10,500.00	8,987.34	8,760.60	8,753.42	40.04	9.67	-62.63	785.17	8,370.36	6,784.34	6,752.99	31.35	216.425		
10,600.00	8,987.96	8,764.47	8,757.29	42.19	9.67	-62.98	785.08	8,370.48	6,684.67	6,653.25	31.41	212.809		
10,700.00	8,988.57	8,768.34	8,761.16	44.41	9.68	-63.34	785.00	8,370.60	6,585.00	6,553.52	31.48	209.182		
10,800.00	8,989.18	8,772.21	8,765.03	46.66	9.69	-63.70	784.92	8,370.73	6,485.35	6,453.80	31.55	205.545		
10,900.00	8,989.80	8,776.08	8,768.90	48.96	9.70	-64.07	784.84	8,370.85	6,385.71	6,354.08	31.63	201.898		
11,000.00	8,990.41	8,779.95	8,772.76	51.29	9.70	-64.43	784.76	8,370.98	6,286.07	6,254.36	31.71	198.242		
11,100.00	8,991.03	8,783.83	8,776.63	53.64	9.71	-64.80	784.67	8,371.10	6,186.44	6,154.65	31.79	194.575		
11,200.00	8,991.64	8,787.70	8,780.50	56.03	9.72	-65.17	784.59	8,371.23	6,086.83	6,054.94	31.88	190.900		
11,300.00	8,992.26	8,791.57	8,784.37	58.43	9.72	-65.54	784.51	8,371.35	5,987.22	5,955.24	31.98	187.214		
11,400.00	8,992.87	8,795.44	8,788.24	60.86	9.73	-65.92	784.43	8,371.48	5,887.62	5,855.54	32.08	183.520		
11,500.00	8,993.48	8,799.31	8,792.10	63.30	9.74	-66.30	784.35	8,371.60	5,788.04	5,755.85	32.19	179.815		
11,600.00	8,994.10	8,803.18	8,795.97	65.76	9.74	-66.68	784.27	8,371.73	5,688.46	5,656.16	32.30	176.102		
11,700.00	8,994.71	8,807.05	8,799.84	68.23	9.75	-67.06	784.18	8,371.85	5,588.90	5,556.48	32.42	172.379		
11,800.00	8,995.33	8,810.92	8,803.71	70.71	9.76	-67.44	784.10	8,371.98	5,489.36	5,456.81	32.55	168.647		
11,900.00	8,995.94	8,814.79	8,807.58	73.21	9.76	-67.83	784.02	8,372.10	5,389.82	5,357.14	32.68	164.906		
12,000.00	8,996.56	8,818.66	8,811.44	75.71	9.77	-68.22	783.94	8,372.23	5,290.31	5,257.48	32.83	161.156		
12,100.00	8,997.17	8,822.53	8,815.31	78.22	9.78	-68.61	783.86	8,372.35	5,190.80	5,157.82	32.98	157.396		
12,200.00	8,997.78	8,826.41	8,819.18	80.75	9.78	-69.01	783.77	8,372.48	5,091.32	5,058.18	33.14	153.628		
12,300.00	8,998.40	8,830.28	8,823.05	83.27	9.79	-69.40	783.69	8,372.60	4,991.85	4,958.54	33.31	149.851		
12,400.00	8,999.01	8,834.15	8,826.92	85.81	9.80	-69.80	783.61	8,372.73	4,892.40	4,858.90	33.49	146.066		
12,500.00	8,999.63	8,838.02	8,830.78	88.35	9.80	-70.20	783.53	8,372.85	4,792.97	4,759.28	33.69	142.272		
12,600.00	9,000.24	8,841.89	8,834.65	90.90	9.81	-70.60	783.45	8,372.98	4,693.56	4,659.66	33.90	138.470		
12,700.00	9,000.85	8,845.76	8,838.52	93.45	9.82	-71.01	783.36	8,373.10	4,594.17	4,560.05	34.12	134.660		
12,800.00	9,001.47	8,849.63	8,842.39	96.01	9.82	-71.41	783.28	8,373.23	4,494.81	4,460.46	34.35	130.843		
12,900.00	9,002.08	8,853.50	8,846.26	98.57	9.83	-71.82	783.20	8,373.35	4,395.47	4,360.87	34.61	127.018		
13,000.00	9,002.70	8,857.37	8,850.13	101.14	9.84	-72.23	783.12	8,373.48	4,296.16	4,261.29	34.88	123.187		
13,100.00	9,003.31	8,861.24	8,853.99	103.71	9.84	-72.65	783.04	8,373.60	4,196.88	4,161.71	35.16	119.351		
13,200.00	9,003.93	8,865.12	8,857.86	106.28	9.85	-73.06	782.96	8,373.73	4,097.63	4,062.15	35.47	115.509		

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: Eddy County, NM (NAD-83)
Reference Site: Emerald PWU 20-22
Site Error: 0.00 usft
Reference Well: 12H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Emerald PWU 20-21 - PWU #6 (offset) - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 3400-ISCW&A-GYRO-3													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
13,300.00	9,004.54	8,868.99	8,861.73	108.86	9.86	-73.48	782.87	8,373.85	3,998.41	3,962.61	35.81	111.663	
13,400.00	9,005.15	8,872.86	8,865.60	111.44	9.86	-73.90	782.79	8,373.97	3,899.23	3,863.07	36.17	107.814	
13,500.00	9,005.77	8,876.73	8,869.47	114.02	9.87	-74.32	782.71	8,374.10	3,800.09	3,763.54	36.55	103.964	
13,600.00	9,006.38	8,880.60	8,873.33	116.61	9.88	-74.74	782.63	8,374.22	3,700.99	3,664.03	36.97	100.113	
13,700.55	9,007.00	8,884.49	8,877.22	119.21	9.88	-75.17	782.55	8,374.35	3,601.40	3,563.98	37.42	96.243	
13,746.28	9,007.24	8,886.21	8,878.94	120.39	9.89	-74.28	782.51	8,374.41	3,556.07	3,518.44	37.63	94.510	
13,800.00	9,007.48	8,888.18	8,880.91	121.78	9.89	-74.53	782.47	8,374.47	3,502.77	3,464.91	37.87	92.504	
13,900.00	9,007.92	8,891.85	8,884.57	124.37	9.90	-74.98	782.39	8,374.59	3,403.60	3,365.26	38.34	88.779	
14,000.00	9,008.36	8,895.51	8,888.23	126.96	9.90	-75.44	782.31	8,374.71	3,304.47	3,265.63	38.85	85.063	
14,100.00	9,008.80	8,899.18	8,891.90	129.55	9.91	-75.90	782.23	8,374.82	3,205.40	3,166.00	39.40	81.360	
14,200.00	9,009.24	8,902.84	8,895.56	132.15	9.92	-76.36	782.16	8,374.94	3,106.37	3,066.38	39.99	77.671	
14,300.00	9,009.68	8,906.50	8,899.22	134.75	9.92	-76.82	782.08	8,375.06	3,007.41	2,966.77	40.64	73.999	
14,400.00	9,010.12	8,910.17	8,902.88	137.34	9.93	-77.28	782.00	8,375.18	2,908.52	2,867.17	41.35	70.347	
14,500.00	9,010.56	8,913.83	8,906.54	139.94	9.94	-77.75	781.92	8,375.30	2,809.70	2,767.58	42.11	66.718	
14,600.00	9,011.00	8,917.50	8,910.21	142.55	9.94	-78.22	781.85	8,375.41	2,710.96	2,668.00	42.95	63.117	
14,700.00	9,011.44	8,921.16	8,913.87	145.15	9.95	-78.69	781.77	8,375.53	2,612.31	2,568.44	43.87	59.546	
14,800.00	9,011.89	8,924.83	8,917.53	147.75	9.96	-79.16	781.69	8,375.65	2,513.76	2,468.88	44.88	56.011	
14,900.00	9,012.33	8,928.49	8,921.19	150.36	9.96	-79.63	781.61	8,375.77	2,415.32	2,369.33	45.99	52.517	
15,000.00	9,012.77	8,932.16	8,924.85	152.96	9.97	-80.10	781.54	8,375.89	2,317.02	2,269.80	47.22	49.070	
15,100.00	9,013.21	8,935.82	8,928.51	155.57	9.97	-80.58	781.46	8,376.00	2,218.86	2,170.28	48.58	45.677	
15,200.00	9,013.65	8,939.48	8,932.18	158.18	9.98	-81.06	781.38	8,376.12	2,120.66	2,070.77	50.09	42.343	
15,300.00	9,014.09	8,943.15	8,935.84	160.79	9.99	-81.54	781.30	8,376.24	2,023.05	1,971.28	51.77	39.077	
15,400.00	9,014.53	8,946.81	8,939.50	163.40	9.99	-82.02	781.23	8,376.36	1,925.47	1,871.81	53.66	35.886	
15,500.00	9,014.97	8,950.48	8,943.16	166.01	10.00	-82.50	781.15	8,376.48	1,828.13	1,772.36	55.77	32.779	
15,600.00	9,015.41	8,954.14	8,946.82	168.62	10.01	-82.98	781.07	8,376.60	1,731.09	1,672.94	58.16	29.766	
15,700.00	9,015.85	8,957.81	8,950.48	171.23	10.01	-83.47	780.99	8,376.71	1,634.40	1,573.54	60.86	26.855	
15,800.00	9,016.29	8,961.47	8,954.15	173.84	10.02	-83.95	780.92	8,376.83	1,538.13	1,474.19	63.94	24.056	
15,900.00	9,016.73	8,965.14	8,957.81	176.46	10.03	-84.44	780.84	8,376.95	1,442.35	1,374.89	67.46	21.380	
16,000.00	9,017.17	8,968.80	8,961.47	179.07	10.03	-84.92	780.76	8,377.07	1,347.18	1,275.66	71.52	18.837	
16,100.00	9,017.61	8,972.46	8,965.13	181.69	10.04	-85.41	780.68	8,377.19	1,252.75	1,176.53	76.22	16.437	
16,200.00	9,018.06	8,976.13	8,968.79	184.30	10.05	-85.90	780.61	8,377.30	1,159.24	1,077.54	81.70	14.190	
16,300.00	9,018.50	8,979.79	8,972.45	186.92	10.05	-86.39	780.53	8,377.42	1,066.90	978.77	88.13	12.106	
16,400.00	9,018.94	8,983.46	8,976.12	189.54	10.06	-86.88	780.45	8,377.54	976.05	880.31	95.74	10.195	
16,500.00	9,019.38	8,987.12	8,979.78	192.16	10.06	-87.37	780.37	8,377.66	887.16	782.36	104.80	8.465	
16,600.00	9,019.82	8,990.79	8,983.44	194.77	10.07	-87.86	780.30	8,377.78	800.88	685.23	115.64	6.925	
16,700.00	9,020.26	8,994.45	8,987.10	197.39	10.08	-88.36	780.22	8,377.90	718.14	589.50	128.64	5.583	
16,800.00	9,020.70	8,998.12	8,990.76	200.01	10.08	-88.85	780.14	8,378.01	640.33	496.22	144.12	4.443	
16,900.00	9,021.14	9,001.78	8,994.42	202.63	10.09	-89.34	780.06	8,378.13	569.47	407.32	162.15	3.512	
17,000.00	9,021.58	9,005.44	8,998.09	205.25	10.10	-89.84	779.99	8,378.25	508.47	326.39	182.08	2.793	
17,100.00	9,022.02	9,009.11	9,001.75	207.87	10.10	-90.33	779.91	8,378.37	461.26	259.52	201.73	2.286	
17,200.00	9,022.46	9,012.77	9,005.41	210.49	10.11	-90.82	779.83	8,378.49	432.37	215.46	216.91	1.993	
17,279.22	9,022.81	9,015.68	9,008.31	212.57	10.11	-91.21	779.77	8,378.58	425.06	202.54	222.53	1.910 CC, ES	
17,300.00	9,022.90	9,016.44	9,009.07	213.12	10.12	-91.32	779.75	8,378.60	425.57	202.74	222.84	1.910 SF	
17,400.00	9,023.34	9,020.10	9,012.73	215.74	10.12	-91.81	779.68	8,378.72	441.87	224.16	217.71	2.030	
17,500.00	9,023.78	9,023.77	9,016.39	218.36	10.13	-92.30	779.60	8,378.84	478.91	274.57	204.34	2.344	
17,600.00	9,024.23	9,027.43	9,020.06	220.98	10.13	-92.80	779.52	8,378.96	532.39	344.97	187.42	2.841	
17,700.00	9,024.67	9,031.10	9,023.72	223.61	10.14	-93.29	779.44	8,379.08	597.91	427.47	170.44	3.508	
17,800.00	9,025.11	9,034.76	9,027.38	226.23	10.15	-93.78	779.37	8,379.19	671.96	516.89	155.07	4.333	
17,900.00	9,025.55	9,038.42	9,031.04	228.85	10.15	-94.27	779.29	8,379.31	752.01	610.21	141.80	5.303	
18,000.00	9,025.99	9,042.09	9,034.70	231.48	10.16	-94.77	779.21	8,379.43	836.36	705.80	130.56	6.406	
18,100.00	9,026.43	9,045.75	9,038.36	234.10	10.17	-95.26	779.13	8,379.55	923.82	802.73	121.09	7.629	
18,200.00	9,026.87	9,049.42	9,042.03	236.73	10.17	-95.75	779.06	8,379.67	1,013.59	900.49	113.10	8.962	

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Emerald PWU 20-21 - PWU #6 (offset) - OH - OH										Offset Site Error: 0.00 usft			
Survey Program: 3400-ISCWSA-GYRD-1										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-E (usft)	+S-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)		Separation Factor
18,300.00	9,027.31	9,053.08	9,045.69	239.35	10.18	-96.24	778.98	8,379.79	1,105.11	998.79	106.32	10.394	
18,400.00	9,027.75	9,056.75	9,049.35	241.98	10.19	-96.73	778.90	8,379.90	1,197.97	1,097.43	100.54	11.915	
18,500.00	9,028.19	9,060.41	9,053.01	244.60	10.19	-97.22	778.82	8,380.02	1,291.89	1,196.31	95.57	13.517	
18,600.00	9,028.63	9,064.07	9,056.67	247.23	10.20	-97.70	778.75	8,380.14	1,386.65	1,295.36	91.28	15.191	
18,700.00	9,029.07	9,067.74	9,060.33	249.85	10.21	-98.19	778.67	8,380.26	1,482.08	1,394.53	87.55	16.928	
18,800.00	9,029.51	9,071.40	9,064.00	252.48	10.21	-98.68	778.59	8,380.38	1,578.08	1,493.79	84.29	18.723	
18,900.00	9,029.95	9,075.07	9,067.66	255.11	10.22	-99.16	778.51	8,380.49	1,674.54	1,593.12	81.41	20.568	
19,000.00	9,030.40	9,078.73	9,071.32	257.73	10.22	-99.65	778.44	8,380.61	1,771.38	1,692.50	78.88	22.458	
19,100.00	9,030.84	9,082.40	9,074.98	260.36	10.23	-100.13	778.36	8,380.73	1,868.54	1,791.92	76.62	24.386	
19,200.00	9,031.28	9,086.06	9,078.64	262.99	10.24	-100.61	778.28	8,380.85	1,965.99	1,891.37	74.61	26.349	
19,300.00	9,031.72	9,089.73	9,082.31	265.61	10.24	-101.09	778.20	8,380.97	2,063.67	1,990.85	72.82	28.341	
19,400.00	9,032.16	9,093.39	9,085.97	268.24	10.25	-101.57	778.13	8,381.08	2,161.56	2,090.36	71.20	30.358	
19,500.00	9,032.60	9,097.05	9,089.63	270.87	10.26	-102.04	778.05	8,381.20	2,259.63	2,189.88	69.75	32.397	
19,600.00	9,033.04	9,100.72	9,093.29	273.50	10.26	-102.52	777.97	8,381.32	2,357.85	2,289.42	68.43	34.454	
19,700.00	9,033.48	9,104.38	9,096.95	276.12	10.27	-102.99	777.89	8,381.44	2,456.21	2,388.97	67.24	36.527	
19,800.00	9,033.92	9,108.05	9,100.61	278.75	10.28	-103.47	777.82	8,381.56	2,554.69	2,488.53	66.16	38.611	
19,900.00	9,034.36	9,111.71	9,104.28	281.38	10.28	-103.94	777.74	8,381.68	2,653.29	2,588.10	65.18	40.706	
20,000.00	9,034.80	9,115.38	9,107.94	284.01	10.29	-104.40	777.66	8,381.79	2,751.97	2,687.69	64.29	42.808	
20,100.00	9,035.24	9,119.04	9,111.60	286.64	10.30	-104.87	777.58	8,381.91	2,850.75	2,787.28	63.47	44.915	
20,200.00	9,035.68	9,122.71	9,115.26	289.27	10.30	-105.34	777.51	8,382.03	2,949.60	2,886.88	62.72	47.026	
20,300.00	9,036.12	9,126.37	9,118.92	291.90	10.31	-105.80	777.43	8,382.15	3,048.53	2,986.49	62.04	49.139	
20,400.00	9,036.57	9,130.03	9,122.58	294.53	10.31	-106.26	777.35	8,382.27	3,147.51	3,086.10	61.41	51.252	
20,500.00	9,037.01	9,133.70	9,126.25	297.15	10.32	-106.72	777.27	8,382.38	3,246.56	3,185.72	60.84	53.364	
20,600.00	9,037.45	9,137.36	9,129.91	299.78	10.33	-107.18	777.20	8,382.50	3,345.66	3,285.35	60.31	55.473	
20,700.00	9,037.89	9,141.03	9,133.57	302.41	10.33	-107.63	777.12	8,382.62	3,444.80	3,384.98	59.83	57.579	
20,800.00	9,038.33	9,144.69	9,137.23	305.04	10.34	-108.09	777.04	8,382.74	3,544.00	3,484.61	59.38	59.681	
20,900.00	9,038.77	9,148.36	9,140.89	307.67	10.35	-108.54	776.96	8,382.86	3,643.23	3,584.25	58.97	61.778	
21,000.00	9,039.21	9,152.02	9,144.55	310.30	10.35	-108.99	776.89	8,382.98	3,742.50	3,683.90	58.60	63.868	
21,100.00	9,039.65	9,155.69	9,148.22	312.93	10.36	-109.43	776.81	8,383.09	3,841.80	3,783.55	58.25	65.952	
21,200.00	9,040.09	9,159.35	9,151.88	315.56	10.37	-109.88	776.73	8,383.21	3,941.13	3,883.20	57.93	68.028	
21,300.00	9,040.53	9,163.01	9,155.54	318.19	10.37	-110.32	776.65	8,383.33	4,040.50	3,982.85	57.64	70.095	
21,400.00	9,040.97	9,166.68	9,159.20	320.83	10.38	-110.76	776.58	8,383.45	4,139.89	4,082.51	57.38	72.155	
21,500.00	9,041.41	9,170.34	9,162.86	323.46	10.39	-111.20	776.50	8,383.57	4,239.31	4,182.18	57.13	74.205	
21,600.00	9,041.85	9,174.01	9,166.52	326.09	10.39	-111.63	776.42	8,383.68	4,338.75	4,281.84	56.91	76.245	
21,633.18	9,042.00	9,175.22	9,167.74	326.62	10.39	-111.77	776.40	8,383.72	4,371.74	4,314.88	56.86	76.888	

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Emerald PWU 20-22 - 12H - OH - OH														Offset Site Error:	0.00 usft
Survey Program: 50-VE8 GyroFlex V2.285-LEAM MWD+HDGM, 9544-MWD+IFR1+MS, 21684-Project														Offset Well Error:	0.00 usft
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	Warning		
9,340.00	8,951.69	9,340.00	8,951.69	0.00	0.00	0.00	424.44	441.84	0.00	0.00	0.00	N/A			
9,346.54	8,952.38	9,346.54	8,952.38	0.22	0.11	-42.92	424.93	448.33	0.02	-0.20	0.22	0.098 Level 1			
9,400.00	8,958.00	9,399.94	8,956.67	2.06	1.00	-43.12	428.94	501.41	1.82	0.65	1.17	1.557			
9,500.00	8,968.52	9,499.29	8,961.23	2.13	2.61	-52.71	436.97	600.31	11.93	9.30	2.62	4.545			
9,547.24	8,973.49	9,545.87	8,962.86	2.21	4.81	-56.84	440.98	646.70	19.18	16.66	2.52	7.611			
9,600.00	8,978.18	9,597.81	8,964.35	2.37	4.85	-60.09	445.57	698.41	27.53	25.60	1.93	14.268			
9,708.82	8,982.48	9,706.32	8,965.98	3.18	4.94	-65.63	454.58	806.53	40.06	36.67	3.38	11.843 CC			
9,800.00	8,983.04	9,798.44	8,965.93	4.26	5.02	-68.01	459.10	898.53	45.74	39.83	5.91	7.741			
9,900.00	8,983.66	9,899.29	8,966.18	5.66	5.10	-69.35	461.49	999.35	49.55	41.58	7.97	6.217			
10,000.00	8,984.27	10,001.29	8,966.99	7.24	5.19	-70.16	461.42	1,101.34	50.91	40.58	10.33	4.928			
10,100.00	8,984.88	10,101.91	8,967.57	8.96	5.27	-69.26	457.71	1,201.89	48.95	36.65	12.30	3.979			
10,200.00	8,985.50	10,201.34	8,967.87	10.81	5.36	-68.06	454.13	1,301.26	47.18	33.11	14.07	3.352			
10,300.00	8,986.11	10,301.45	8,968.12	12.76	5.45	-67.03	451.23	1,401.32	46.11	29.97	16.14	2.858			
10,387.08	8,986.65	10,387.94	8,968.65	14.53	5.52	-66.68	449.18	1,487.78	45.48	27.59	17.89	2.542			
10,400.00	8,986.73	10,400.76	8,968.69	14.79	5.53	-66.64	448.97	1,500.60	45.49	27.34	18.15	2.506			
10,500.00	8,987.34	10,500.74	8,968.95	16.89	5.62	-66.30	447.53	1,600.58	45.76	25.31	20.45	2.238			
10,600.00	8,987.96	10,600.80	8,968.34	19.06	5.71	-64.73	445.60	1,700.61	45.95	23.29	22.66	2.028			
10,700.00	8,988.57	10,700.98	8,967.51	21.28	5.95	-62.65	443.18	1,800.76	45.84	21.02	24.82	1.847			
10,717.48	8,988.68	10,718.36	8,967.46	21.67	6.04	-62.41	442.80	1,818.14	45.82	20.62	25.20	1.818			
10,800.00	8,989.18	10,800.49	8,967.50	23.54	6.48	-62.03	441.71	1,900.26	46.23	19.10	27.13	1.704			
10,900.00	8,989.80	10,900.59	8,968.07	25.84	7.05	-62.48	441.00	2,000.36	47.02	17.17	29.84	1.575			
11,000.00	8,990.41	11,000.85	8,969.10	28.17	7.66	-63.18	439.87	2,100.60	47.24	14.52	32.71	1.444 Level 3			
11,100.00	8,991.03	11,100.59	8,969.75	30.53	8.28	-63.47	438.76	2,200.33	47.63	12.16	35.47	1.343 Level 3			
11,200.00	8,991.64	11,200.20	8,970.21	32.92	8.94	-63.74	438.00	2,299.94	48.44	10.17	38.28	1.266 Level 3			
11,300.00	8,992.26	11,299.33	8,970.36	35.33	9.61	-64.51	438.92	2,399.06	50.90	9.67	41.23	1.235 Level 2			
11,400.00	8,992.87	11,399.08	8,970.06	37.75	10.31	-65.16	440.67	2,498.79	54.31	10.01	44.30	1.226 Level 2			
11,500.00	8,993.48	11,498.36	8,969.43	40.20	11.03	-65.50	442.61	2,598.06	58.04	10.76	47.28	1.227 Level 2			
11,600.00	8,994.10	11,597.56	8,967.83	42.66	11.77	-65.63	446.21	2,697.18	63.71	13.46	50.24	1.268 Level 3			
11,700.00	8,994.71	11,696.83	8,965.36	45.13	12.53	-64.94	449.42	2,796.36	69.38	16.42	52.96	1.310 Level 3			
11,800.00	8,995.33	11,795.38	8,961.47	47.62	13.29	-63.86	454.08	2,894.72	77.04	21.58	55.46	1.389 Level 3			
11,900.00	8,995.94	11,895.02	8,967.41	50.11	14.09	-63.09	459.42	2,994.14	85.33	27.16	58.17	1.467 Level 3			
12,000.00	8,996.56	11,995.67	8,956.49	52.62	14.90	-64.49	465.86	3,094.57	93.16	31.26	61.91	1.505			
12,100.00	8,997.17	12,098.61	8,956.63	55.14	15.76	-65.83	470.64	3,197.39	99.03	33.25	65.78	1.506			
12,200.00	8,997.78	12,202.44	8,956.57	57.66	16.63	-65.94	471.05	3,301.21	101.10	31.98	69.12	1.463 Level 3			
12,300.00	8,998.40	12,304.40	8,957.82	60.19	17.51	-66.09	468.68	3,403.14	100.17	27.80	72.38	1.384 Level 3			
12,400.00	8,999.01	12,406.50	8,959.34	62.73	18.40	-65.91	464.28	3,505.13	97.33	21.86	75.47	1.290 Level 3			
12,500.00	8,999.63	12,504.81	8,959.66	65.27	19.27	-64.89	459.26	3,603.31	94.24	16.07	78.17	1.206 Level 2			
12,600.00	9,000.24	12,604.53	8,958.50	67.82	20.17	-63.08	454.58	3,702.90	92.22	11.84	80.38	1.147 Level 2			
12,700.00	9,000.85	12,705.04	8,958.97	70.37	21.08	-62.26	450.45	3,803.33	90.05	6.98	83.06	1.084 Level 2			
12,800.00	9,001.47	12,805.13	8,959.48	72.93	21.99	-61.27	445.83	3,903.31	87.42	1.81	85.61	1.021 Level 2			
12,900.00	9,002.08	12,904.47	8,958.83	75.49	22.91	-59.54	441.19	4,002.54	85.36	-2.23	87.59	0.975 Level 1			
13,000.00	9,002.70	13,005.26	8,959.11	78.06	23.85	-58.38	436.85	4,103.23	83.19	-6.68	89.87	0.926 Level 1			
13,100.00	9,003.31	13,105.74	8,961.69	80.63	24.80	-58.48	432.35	4,203.58	79.70	-13.34	93.04	0.857 Level 1			
13,200.00	9,003.93	13,204.60	8,962.46	83.20	25.74	-57.51	428.02	4,302.33	77.23	-18.16	95.39	0.810 Level 1			
13,300.00	9,004.54	13,304.20	8,962.72	85.78	26.69	-56.30	424.02	4,401.85	75.39	-22.08	97.47	0.774 Level 1			
13,400.00	9,005.15	13,403.19	8,964.01	88.36	27.64	-56.51	421.93	4,500.82	74.57	-26.15	100.72	0.740 Level 1			
13,407.35	9,005.20	13,410.47	8,964.13	88.55	27.71	-56.58	421.86	4,508.09	74.57	-26.44	101.01	0.738 Level 1			
13,500.00	9,005.77	13,502.05	8,965.72	90.94	28.60	-57.84	421.86	4,599.65	75.23	-29.74	104.98	0.717 Level 1			
13,600.00	9,006.38	13,601.43	8,967.02	93.53	29.57	-59.37	423.08	4,699.02	77.27	-32.17	109.44	0.706 Level 1			
13,700.55	9,007.00	13,701.42	8,967.64	96.13	30.55	-60.41	424.30	4,798.99	79.71	-33.81	113.52	0.702 Level 1			
13,746.28	9,007.24	13,746.68	8,967.80	97.31	30.99	-60.64	425.09	4,844.26	80.85	-34.31	115.16	0.702 Level 1			
13,800.00	9,007.48	13,801.09	8,967.89	98.70	31.53	-61.03	426.12	4,898.66	81.72	-35.55	117.27	0.697 Level 1			

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Emerald PWU 20-22 - 12H - OH - OH													Offset Site Error:
Survey Program: 50-YES GYROFLEX V2.285-LEAM MWD+HDGM. 9544-MWD+FR1+MS. 21864-Project													0.00 usft
Reference		Offset		Semi Major Axis		Distance		Minimum		Separation		Warning	Offset Well Error:
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Footcandle (")	Offset Wellbore Centre +/-S (usft)	Offset Wellbore Centre +/-LW (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)		0.00 usft
13,900.00	9,007.92	13,902.18	8,971.04	101.29	32.53	-63.35	428.12	4,999.67	82.21	-40.33	122.54	0.671 Level 1	
13,966.41	9,008.21	13,968.66	8,975.25	103.01	33.18	-66.33	429.83	5,065.99	82.09	-45.03	127.11	0.646 Level 1	
14,000.00	9,008.36	14,002.07	8,977.50	103.88	33.51	-67.93	430.77	5,099.31	82.14	-47.27	129.42	0.635 Level 1	
14,100.00	9,008.80	14,101.61	8,983.97	106.48	34.50	-72.57	433.76	5,198.59	82.91	-52.93	135.85	0.610 Level 1	
14,200.00	9,009.24	14,203.35	8,990.14	109.07	35.52	-76.76	435.90	5,300.13	83.45	-58.12	141.57	0.589 Level 1	
14,300.00	9,009.68	14,304.78	8,996.38	111.67	36.54	-80.64	435.40	5,401.36	81.85	-64.80	146.64	0.558 Level 1	
14,400.00	9,010.12	14,405.25	9,002.51	114.27	37.56	-84.48	433.56	5,501.62	79.28	-71.95	151.24	0.524 Level 1	
14,500.00	9,010.56	14,504.50	9,008.49	116.87	38.56	-88.46	431.73	5,600.67	77.09	-78.28	155.37	0.496 Level 1	
14,600.00	9,011.00	14,603.82	9,012.75	119.47	39.57	-91.31	430.68	5,699.90	76.02	-82.98	159.00	0.478 Level 1	
14,700.00	9,011.44	14,703.49	9,015.52	122.07	40.59	-93.09	430.22	5,799.53	75.65	-86.80	162.45	0.466 Level 1	
14,726.39	9,011.56	14,729.78	9,016.11	122.76	40.86	-93.45	430.18	5,825.80	75.63	-87.73	163.36	0.463 Level 1	
14,800.00	9,011.89	14,803.14	9,017.30	124.67	41.61	-94.10	430.26	5,899.16	75.76	-90.16	165.92	0.457 Level 1	
14,900.00	9,012.33	14,903.22	9,017.56	127.28	42.64	-93.94	430.63	5,999.24	76.12	-93.45	169.57	0.449 Level 1	
15,000.00	9,012.77	15,004.13	9,015.48	129.88	43.68	-92.05	430.38	6,100.13	75.73	-97.72	173.46	0.437 Level 1	
15,100.00	9,013.21	15,104.66	9,012.49	132.49	44.72	-89.44	429.09	6,200.60	74.40	-102.79	177.19	0.420 Level 1	
15,200.00	9,013.65	15,204.56	9,009.46	135.10	45.76	-86.70	427.50	6,300.43	72.92	-107.71	180.63	0.404 Level 1	
15,285.61	9,014.03	15,289.24	9,006.96	137.33	46.64	-84.37	426.35	6,385.07	71.99	-111.31	183.30	0.393 Level 1	
15,300.00	9,014.09	15,302.97	9,006.56	137.71	46.78	-84.01	426.37	6,398.80	72.06	-111.66	183.71	0.392 Level 1	
15,400.00	9,014.53	15,403.58	9,005.32	140.32	47.83	-82.78	427.44	6,499.38	73.31	-113.70	187.00	0.392 Level 1	
15,500.00	9,014.97	15,505.32	9,007.99	142.93	48.89	-84.45	426.58	6,601.08	72.22	-118.88	191.10	0.378 Level 1	
15,600.00	9,015.41	15,605.61	9,011.74	145.54	49.94	-86.98	424.32	6,701.28	69.71	-125.51	195.22	0.357 Level 1	
15,700.00	9,015.85	15,707.83	9,015.59	148.15	51.01	-89.76	420.02	6,803.33	65.41	-133.40	198.81	0.329 Level 1	
15,800.00	9,016.29	15,807.79	9,019.41	150.77	52.06	-93.00	413.87	6,903.02	59.33	-142.88	202.20	0.293 Level 1	
15,900.00	9,016.73	15,906.91	9,022.50	153.38	53.11	-96.14	408.23	7,001.94	53.86	-151.40	205.25	0.262 Level 1	
16,000.00	9,017.17	16,005.49	9,023.87	156.00	54.15	-97.62	404.76	7,100.44	50.47	-158.08	208.55	0.242 Level 1	
16,076.32	9,017.51	16,080.78	9,024.76	157.99	54.94	-98.39	403.89	7,175.72	49.68	-161.36	211.04	0.235 Level 1	
16,100.00	9,017.61	16,104.27	9,025.14	158.61	55.19	-98.71	403.90	7,199.21	49.73	-162.03	211.76	0.235 Level 1	
16,200.00	9,018.06	16,203.74	9,026.72	161.23	56.24	-99.85	404.67	7,298.66	50.67	-164.14	214.80	0.236 Level 1	
16,300.00	9,018.50	16,303.35	9,028.46	163.84	57.30	-100.95	406.29	7,398.24	52.50	-165.28	217.78	0.241 Level 1	
16,400.00	9,018.94	16,403.11	9,030.46	166.46	58.36	-102.13	408.45	7,497.96	54.93	-165.71	220.64	0.249 Level 1	
16,500.00	9,019.38	16,502.94	9,032.91	169.08	59.41	-103.61	410.70	7,597.73	57.57	-165.60	223.17	0.258 Level 1	
16,600.00	9,019.82	16,602.97	9,036.03	171.70	60.48	-105.53	413.12	7,697.68	60.59	-164.60	225.19	0.269 Level 1	
16,700.00	9,020.26	16,703.99	9,039.15	174.32	61.55	-107.55	414.50	7,798.65	62.64	-164.29	226.93	0.276 Level 1	
16,800.00	9,020.70	16,804.97	9,040.93	176.94	62.63	-108.80	414.21	7,899.61	62.78	-166.41	229.19	0.274 Level 1	
16,900.00	9,021.14	16,905.28	9,041.81	179.56	63.70	-109.46	413.26	7,999.91	62.02	-169.95	231.97	0.267 Level 1	
17,000.00	9,021.58	17,005.56	9,042.50	182.18	64.77	-110.09	411.97	8,100.17	60.89	-173.84	234.74	0.259 Level 1	
17,100.00	9,022.02	17,105.83	9,043.27	184.80	65.85	-111.01	410.09	8,200.43	59.24	-177.86	237.10	0.250 Level 1	
17,200.00	9,022.46	17,206.04	9,043.86	187.42	66.93	-111.98	407.81	8,300.61	57.18	-182.15	239.33	0.239 Level 1	
17,300.00	9,022.90	17,305.03	9,044.55	190.04	67.99	-112.95	405.93	8,399.57	55.52	-186.02	241.54	0.230 Level 1	
17,317.20	9,022.98	17,321.97	9,044.88	190.49	68.17	-113.25	405.78	8,416.51	55.48	-186.23	241.71	0.230 Level 1	
17,400.00	9,023.34	17,404.21	9,046.95	192.66	69.06	-114.96	405.54	8,498.72	55.96	-186.06	242.02	0.231 Level 1	
17,500.00	9,023.78	17,504.01	9,049.89	195.28	70.13	-117.13	405.77	8,598.48	57.27	-184.66	241.93	0.237 Level 1	
17,600.00	9,024.23	17,603.96	9,052.98	197.91	71.21	-119.31	406.03	8,698.39	58.75	-182.72	241.46	0.243 Level 1	
17,700.00	9,024.67	17,703.76	9,056.34	200.53	72.28	-121.62	406.27	8,798.12	60.44	-179.95	240.39	0.251 Level 1	
17,800.00	9,025.11	17,803.39	9,059.86	203.15	73.35	-123.73	406.90	8,897.69	62.63	-176.70	239.33	0.262 Level 1	
17,900.00	9,025.55	17,903.47	9,063.14	205.78	74.43	-125.31	407.91	8,997.71	65.07	-174.06	239.13	0.272 Level 1	
18,000.00	9,025.99	18,003.59	9,066.32	208.40	75.51	-126.81	408.73	9,097.78	67.34	-171.57	238.91	0.282 Level 1	
18,100.00	9,026.43	18,104.16	9,068.67	211.02	76.60	-127.73	409.45	9,198.32	69.04	-170.86	239.90	0.288 Level 1	
18,200.00	9,026.87	18,204.44	9,069.84	213.65	77.68	-127.80	410.25	9,298.59	70.12	-172.71	242.83	0.289 Level 1	
18,300.00	9,027.31	18,304.65	9,070.65	216.27	78.76	-127.68	410.96	9,398.79	70.90	-175.31	246.21	0.288 Level 1	
18,400.00	9,027.75	18,405.02	9,070.51	218.90	79.85	-126.91	411.77	9,499.16	71.19	-180.01	251.20	0.283 Level 1	
18,478.80	9,028.10	18,483.88	9,069.73	220.97	80.70	-125.78	412.61	9,578.01	71.20	-185.19	256.38	0.278 Level 1	

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 12H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Reference Site:	Emerald PWU 20-22	MD Reference:	3313.8' GE + 23.5' KB @ 3337.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Emerald PWU 20-22 - 12H - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 50-VES GYROFLEX V2.285-LEAM MWD+HOGM, 9544-MWD+IFR1+MS, 21664-Project													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+E (usft)	Offset Wellbore Centre +S+W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
18,500.00	9,028.19	18,505.01	9,069.45	221.52	80.93	-125.41	412.90	9,599.13	71.21	-186.75	257.96	0.276	Level 1	
18,600.00	9,028.63	18,604.64	9,067.69	224.15	82.01	-123.05	414.91	9,698.73	71.64	-195.01	266.65	0.269	Level 1	
18,700.00	9,029.07	18,704.29	9,065.28	226.78	83.09	-119.92	417.79	9,798.30	72.60	-204.19	276.79	0.262	Level 1	
18,800.00	9,029.51	18,803.95	9,062.68	229.40	84.17	-116.56	421.25	9,897.87	74.22	-212.73	286.95	0.259	Level 1	
18,900.00	9,029.95	18,904.46	9,059.87	232.03	85.26	-113.17	424.78	9,998.28	76.05	-220.57	296.62	0.256	Level 1	
19,000.00	9,030.40	19,005.30	9,057.16	234.66	86.35	-110.43	426.74	10,099.07	76.69	-227.98	304.66	0.252	Level 1	
19,100.00	9,030.84	19,105.34	9,055.48	237.28	87.44	-108.71	427.67	10,199.08	76.84	-233.96	310.80	0.247	Level 1	
19,200.00	9,031.28	19,205.18	9,055.73	239.91	88.52	-108.46	428.15	10,298.92	77.23	-237.48	314.72	0.245	Level 1	
19,300.00	9,031.72	19,304.85	9,059.55	242.54	89.61	-110.93	427.66	10,398.51	77.91	-236.49	314.40	0.248	Level 1	
19,400.00	9,032.16	19,404.79	9,064.49	245.16	90.70	-114.15	427.03	10,498.33	79.06	-233.11	312.16	0.253	Level 1	
19,500.00	9,032.60	19,504.54	9,068.66	247.79	91.78	-116.67	426.72	10,597.99	80.37	-230.15	310.53	0.259	Level 1	
19,600.00	9,033.04	19,607.01	9,069.80	250.42	92.90	-117.11	426.71	10,700.44	80.67	-232.32	312.99	0.258	Level 1	
19,700.00	9,033.48	19,707.18	9,067.52	253.05	93.99	-115.54	426.13	10,800.57	78.94	-240.76	319.70	0.247	Level 1	
19,800.00	9,033.92	19,808.08	9,065.23	255.68	95.10	-114.10	424.87	10,901.44	76.67	-249.30	325.97	0.235	Level 1	
19,900.00	9,034.36	19,908.37	9,062.29	258.30	96.19	-112.34	422.86	11,001.67	73.49	-259.32	332.81	0.221	Level 1	
20,000.00	9,034.80	20,007.52	9,060.17	260.93	97.28	-110.95	421.18	11,100.78	70.96	-268.01	338.97	0.209	Level 1	
20,100.00	9,035.24	20,108.04	9,058.43	263.56	98.38	-109.84	419.18	11,201.26	68.33	-276.05	344.38	0.198	Level 1	
20,200.00	9,035.68	20,207.40	9,056.06	266.19	99.46	-108.06	417.39	11,300.59	65.71	-285.24	350.95	0.187	Level 1	
20,300.00	9,036.12	20,306.39	9,055.27	268.82	100.55	-107.19	416.83	11,399.57	64.78	-291.16	355.95	0.182	Level 1	
20,400.00	9,036.57	20,406.60	9,054.70	271.45	101.65	-106.40	416.57	11,499.78	64.24	-296.49	360.72	0.178	Level 1	
20,500.00	9,037.01	20,506.38	9,053.00	274.08	102.74	-104.60	416.34	11,599.54	63.44	-303.43	366.87	0.173	Level 1	
20,523.19	9,037.11	20,529.35	9,052.67	274.69	102.99	-104.20	416.41	11,622.51	63.40	-304.83	368.23	0.172	Level 1	
20,600.00	9,037.45	20,605.84	9,051.92	276.71	103.83	-103.13	416.99	11,698.98	63.71	-308.66	372.37	0.171	Level 1	
20,700.00	9,037.89	20,705.76	9,050.89	279.34	104.92	-101.68	417.91	11,798.89	64.28	-313.42	377.70	0.170	Level 1	
20,800.00	9,038.33	20,805.49	9,049.51	281.97	106.01	-99.89	419.12	11,898.61	65.13	-318.05	383.18	0.170	Level 1, SF	
20,900.00	9,038.77	20,905.13	9,049.62	284.60	107.11	-99.39	420.56	11,998.24	66.49	-320.80	387.29	0.172	Level 1	
21,000.00	9,039.21	21,005.38	9,050.94	287.23	108.20	-99.92	422.05	12,098.47	68.10	-322.40	390.50	0.174	Level 1	
21,100.00	9,039.65	21,105.56	9,052.35	289.86	109.30	-100.59	422.92	12,198.64	69.12	-324.40	393.53	0.176	Level 1	
21,200.00	9,040.09	21,205.63	9,053.88	292.49	110.40	-101.35	423.68	12,298.69	70.07	-326.31	396.38	0.177	Level 1	
21,300.00	9,040.53	21,305.96	9,055.12	295.12	111.50	-101.90	424.23	12,399.01	70.77	-328.66	399.43	0.177	Level 1	
21,400.00	9,040.97	21,406.11	9,056.10	297.75	112.60	-102.29	424.42	12,499.16	71.06	-331.56	402.62	0.176	Level 1	
21,500.00	9,041.41	21,506.09	9,057.00	300.38	113.70	-102.63	424.54	12,599.13	71.27	-334.57	405.85	0.176	Level 1	
21,600.00	9,041.85	21,606.36	9,057.76	303.01	114.49	-102.89	424.48	12,699.40	71.28	-337.58	408.86	0.174	Level 1	
21,633.18	9,042.00	21,639.54	9,058.00	303.54	114.49	-102.98	424.41	12,732.58	71.23	-338.03	409.26	0.174	Level 1, ES	

LEAM Drilling Systems LLC

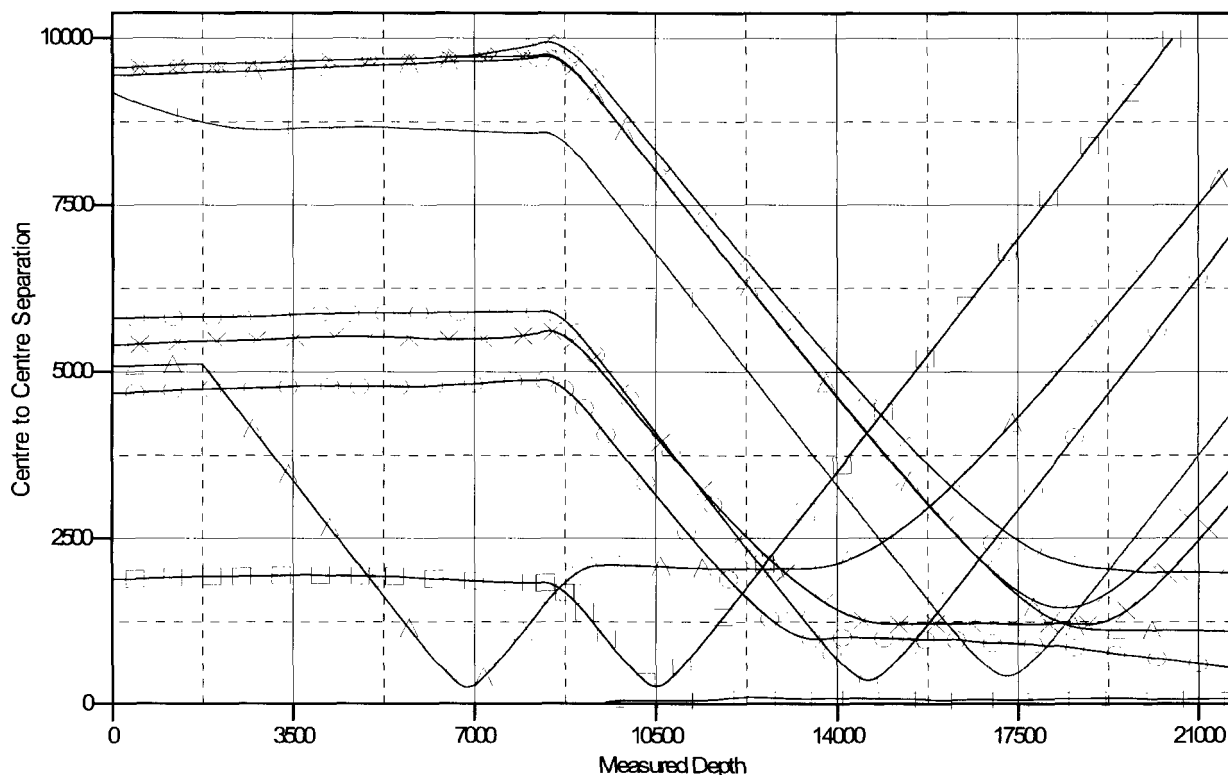
Anticollision Report

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Reference Well:	12H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 3313.8' GE + 23.5' KB @ 3337.30usft
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: 12H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.12°

Ladder Plot



LEGEND

- | | | |
|-----------------------|-------------------------------------|-------------------------------|
| ◆ 12H, OH, OH V0 | ◆ 8H, OH, OH V0 | ■ PWU #5 (offset), OH, OH V0 |
| ✕ 4H, OH, OH V0 | ▲ D-PWU-22 4H, OH, OH V0 | ● PWU #24 (offset), OH, OH V0 |
| ⊙ 62H, OH, OH V0 | ▲ Emerald 20 8H (offset), OH, OH V0 | |
| ✕ 8H, Pilot, Pilot V0 | ◆ PWU #6 (offset), OH, OH V0 | |

LEAM Drilling Systems LLC

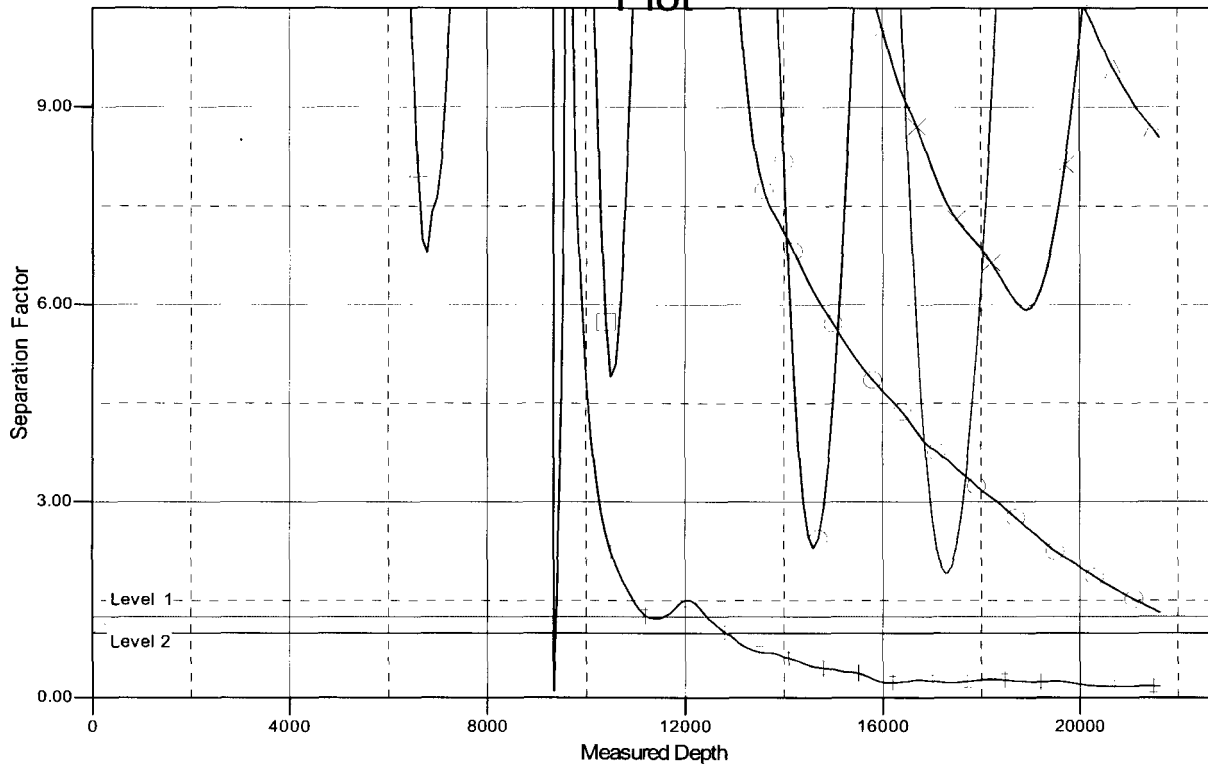
Anticollision Report

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 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.12°

Separation Factor Plot



LEGEND

- | | | |
|----------------------|------------------------------------|------------------------------|
| ◆ 12H, OH, OHV0 | ◆ 8H, OH, OHV0 | ◆ PWU #5 (offset), OH, OHV0 |
| ✕ 4H, OH, OHV0 | ▲ D-PWU-22 4H, OH, OHV0 | ○ PWU #24 (offset), OH, OHV0 |
| ○ 62H, OH, OHV0 | ▲ Emerald 20 8H (offset), OH, OHV0 | |
| ✕ 8H, Pilot, PilotV0 | ◆ PWU #6 (offset), OH, OHV0 | |