

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

OH
Plan #3

Anticollision Report

26 July, 2017

30-05-44097

Amended

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	OH	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #3	Offset TVD Reference:	Offset Datum

Reference		Plan #3
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	7/26/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	9,258.86	Plan #3 (OH)	LEAM MWD+HDGM	MWD+HDGM	
9,258.86	21,713.31	Plan #3 (OH)	MWD+IFR1+MS	MWD + IFR1 + Multi-Station Correction	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
AGATE PWU 21						
4H - OH - OH	15,265.75	8,589.51	1,198.22	1,127.47	16.935	CC
4H - OH - OH	18,931.21	12,258.00	1,204.04	1,052.41	7.941	ES
4H - OH - OH	19,000.00	12,258.00	1,206.00	1,053.85	7.926	SF
Agate PWU 21-22						
62H - OH - OH	16,940.43	12,049.00	873.58	697.20	4.953	CC, ES, SF
62H - OH - Plan #6	21,714.06	16,897.85	487.38	251.34	2.065	CC, ES, SF
Diamond PWU 22						
8H - OH - OH	21,714.06	10,041.64	2,008.52	1,883.62	16.082	CC, ES, SF
8H - Pilot - Pilot	18,468.55	7,700.00	1,455.04	1,367.31	16.586	CC, ES
8H - Pilot - Pilot	18,600.00	7,700.00	1,460.97	1,372.55	16.524	SF
Diamond PWU Offsets						
D-PWU-22 4H - OH - OH	21,714.06	11,073.97	1,139.43	1,008.13	8.678	CC, ES, SF
Emerald PWU 20-21						
Emerald 20 8H (offset) - OH - OH	6,865.92	11,684.00	218.84	121.49	2.248	CC, ES, SF
PWU #24 (offset) - OH - OH	14,672.45	8,996.84	293.16	212.88	3.652	CC, ES, SF
PWU #5 (offset) - OH - OH	10,588.81	8,969.38	253.56	211.15	5.979	CC, ES
PWU #5 (offset) - OH - OH	10,600.00	8,969.79	253.81	211.28	5.968	SF
PWU #6 (offset) - OH - OH	17,360.50	9,031.37	354.51	251.05	3.427	CC, ES, SF

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	
Reference		Offset		Semi Major Axis		Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	Offset Wellbore Centre +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	80.90	854.91	5,339.25	5,407.28						
100.00	100.00	64.34	64.34	0.09	0.09	80.90	855.18	5,339.32	5,407.41	5,407.23	0.17	N/A			
200.00	200.00	147.68	147.67	0.31	0.26	80.89	856.27	5,339.61	5,407.95	5,407.37	0.57	9,461.688			
300.00	300.00	232.85	232.83	0.54	0.49	80.87	857.79	5,340.03	5,408.73	5,407.71	1.02	5,288.032			
400.00	400.00	400.00	399.92	0.76	0.92	80.83	861.91	5,340.41	5,409.54	5,407.87	1.68	3,228.154			
500.00	500.00	485.30	485.20	0.99	1.13	80.81	863.54	5,339.85	5,409.22	5,407.10	2.12	2,556.193			

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

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Reference Well: 12H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #3

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-MS, 7249-MWD-ISCWSA, 12258-Project													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Tooface (")	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N-S (usft)	+E-W (usft)						
516.20	516.20	500.00	499.90	1.02	1.17	80.81	863.74	5,339.82	5,409.22	5,407.03	2.19	2,470.269		
600.00	600.00	557.85	557.75	1.21	1.32	80.80	864.58	5,339.85	5,409.45	5,408.92	2.53	2,137.681		
700.00	700.00	636.88	636.77	1.43	1.53	80.79	865.93	5,340.20	5,410.16	5,407.19	2.98	1,826.887		
800.00	800.00	700.00	699.88	1.66	1.69	80.78	866.86	5,340.66	5,411.20	5,407.85	3.35	1,615.718		
900.00	900.00	778.07	777.93	1.88	1.87	80.77	867.88	5,341.68	5,412.75	5,409.00	3.76	1,440.329		
1,000.00	1,000.00	844.31	844.15	2.11	2.02	80.77	868.63	5,343.09	5,415.04	5,410.91	4.12	1,312.793		
1,100.00	1,100.00	934.94	934.75	2.33	2.21	80.76	869.24	5,345.60	5,417.66	5,413.32	4.54	1,193.487		
1,200.00	1,200.00	1,087.36	1,087.12	2.56	2.57	80.75	871.37	5,348.66	5,420.03	5,414.90	5.13	1,058.931		
1,300.00	1,300.00	1,219.72	1,219.45	2.78	2.92	80.73	873.48	5,350.18	5,421.40	5,415.70	5.70	951.450		
1,400.00	1,400.00	1,300.00	1,299.72	3.01	3.13	80.72	874.67	5,351.13	5,422.79	5,416.66	6.13	884.261		
1,500.00	1,500.00	1,405.39	1,405.09	3.23	3.39	80.71	875.75	5,352.58	5,424.32	5,417.70	6.62	819.165		
1,600.00	1,600.00	1,503.42	1,503.11	3.46	3.64	80.70	876.71	5,353.89	5,425.79	5,418.70	7.09	764.854		
1,700.00	1,700.00	1,622.41	1,622.08	3.68	3.95	80.68	878.46	5,355.17	5,427.09	5,419.46	7.63	711.177		
1,800.00	1,800.00	1,750.97	1,750.62	3.91	4.29	80.66	880.47	5,356.07	5,428.06	5,419.87	8.19	662.553		
1,900.00	1,900.00	1,874.94	1,874.59	4.13	4.60	80.65	881.66	5,356.26	5,428.35	5,419.61	8.73	621.698		
2,000.00	2,000.00	2,000.00	1,999.64	4.36	4.89	80.64	882.77	5,356.03	5,428.32	5,419.07	9.25	586.944		
2,052.80	2,052.80	2,036.86	2,036.50	4.48	4.98	80.64	883.19	5,355.91	5,428.24	5,418.78	9.46	574.109		
2,100.00	2,100.00	2,069.55	2,069.19	4.58	5.06	80.63	883.57	5,355.89	5,428.30	5,418.66	9.64	563.157		
2,200.00	2,200.00	2,164.99	2,164.62	4.81	5.30	80.62	884.63	5,356.12	5,428.72	5,418.61	10.11	537.184		
2,300.00	2,300.00	2,287.32	2,286.94	5.03	5.61	80.61	885.72	5,356.14	5,428.88	5,418.24	10.64	510.415		
2,400.00	2,400.00	2,392.55	2,392.17	5.26	5.83	80.60	886.38	5,355.89	5,428.75	5,417.67	11.08	489.965		
2,500.00	2,500.00	2,500.00	2,499.62	5.48	6.00	80.60	886.59	5,355.58	5,428.49	5,417.01	11.48	473.012		
2,587.34	2,587.34	2,571.43	2,571.05	5.68	6.08	80.60	886.65	5,355.43	5,428.33	5,416.57	11.76	461.629		
2,600.00	2,600.00	2,581.28	2,580.90	5.71	6.10	80.60	886.65	5,355.44	5,428.34	5,416.54	11.80	460.051		
2,700.00	2,700.00	2,682.64	2,682.26	5.93	6.26	80.60	886.69	5,355.52	5,428.43	5,416.24	12.19	445.254		
2,800.00	2,800.00	2,776.54	2,776.16	6.15	6.49	80.60	887.00	5,355.53	5,428.49	5,415.85	12.64	429.380		
2,900.00	2,900.00	2,900.00	2,899.62	6.38	6.70	80.59	887.16	5,355.43	5,428.44	5,415.36	13.07	415.232		
2,994.38	2,994.38	2,978.45	2,978.07	6.59	6.81	80.59	887.25	5,355.26	5,428.26	5,414.86	13.40	405.096		
3,000.00	3,000.00	2,982.87	2,982.49	6.60	6.82	80.59	887.27	5,355.26	5,428.26	5,414.84	13.42	404.520		
3,100.00	3,100.00	3,079.96	3,079.58	6.83	7.05	80.59	887.76	5,355.26	5,428.35	5,414.47	13.88	391.217		
3,200.00	3,200.00	3,196.78	3,196.40	7.05	7.26	80.59	887.97	5,355.16	5,428.29	5,413.98	14.31	379.313		
3,280.83	3,280.83	3,264.92	3,264.53	7.24	7.37	80.58	888.01	5,355.06	5,428.19	5,413.59	14.61	371.616		
3,300.00	3,300.00	3,280.84	3,280.45	7.28	7.40	80.58	888.04	5,355.06	5,428.20	5,413.52	14.68	369.850		
3,400.00	3,400.00	3,384.16	3,383.77	7.50	7.65	80.58	888.48	5,355.06	5,428.27	5,413.12	15.15	358.318		
3,424.50	3,424.50	3,408.59	3,408.20	7.56	7.71	80.58	888.66	5,355.03	5,428.27	5,413.00	15.27	355.556		
3,500.00	3,500.00	3,473.28	3,472.90	7.73	7.88	80.57	889.08	5,355.03	5,428.34	5,412.74	15.60	347.914		
3,600.00	3,600.00	3,554.89	3,554.50	7.95	8.09	80.57	889.57	5,355.24	5,428.70	5,412.66	16.04	338.516		
3,700.00	3,700.00	3,630.77	3,630.37	8.18	8.28	107.40	890.20	5,355.70	5,429.70	5,413.25	16.45	330.022		
3,800.00	3,799.96	3,703.75	3,703.35	8.40	8.46	107.39	891.15	5,356.47	5,431.73	5,414.88	16.86	322.236		
3,900.00	3,899.86	3,840.84	3,840.41	8.62	8.82	107.40	893.79	5,357.44	5,434.01	5,416.58	17.43	311.709		
4,000.00	3,999.68	3,948.99	3,948.53	8.84	9.10	107.42	896.15	5,357.92	5,436.63	5,418.69	17.94	303.068		
4,100.00	4,099.37	4,142.57	4,142.07	9.07	9.56	107.51	899.55	5,356.91	5,438.76	5,420.14	18.62	292.097		
4,133.72	4,132.95	4,181.90	4,181.40	9.15	9.64	107.54	900.16	5,356.36	5,439.30	5,420.52	18.78	289.683		
4,200.00	4,198.94	4,245.52	4,245.01	9.29	9.78	107.59	901.10	5,355.43	5,440.37	5,421.31	19.06	285.469		
4,300.00	4,298.51	4,361.97	4,361.43	9.52	10.01	107.67	902.78	5,353.78	5,442.04	5,422.52	19.52	278.803		
4,400.00	4,398.07	4,440.35	4,439.79	9.75	10.18	107.73	903.88	5,352.42	5,443.44	5,423.52	19.91	273.354		
4,500.00	4,497.64	4,500.00	4,499.42	9.98	10.31	107.78	905.06	5,351.88	5,445.65	5,425.37	20.28	268.569		
4,600.00	4,597.21	4,624.00	4,623.41	10.22	10.57	107.87	906.60	5,350.88	5,447.90	5,427.12	20.77	262.257		
4,700.00	4,696.77	4,831.29	4,830.66	10.45	10.98	108.04	908.85	5,347.94	5,450.11	5,428.70	21.40	254.631		
4,800.00	4,796.34	5,000.00	4,999.24	10.69	11.24	108.17	910.14	5,341.71	5,449.36	5,427.47	21.89	248.994		
4,900.00	4,895.91	5,078.67	5,077.84	10.93	11.37	108.23	911.26	5,338.31	5,448.25	5,425.99	22.26	244.715		
5,000.00	4,995.47	5,159.77	5,158.86	11.17	11.53	108.28	913.09	5,335.24	5,447.75	5,425.09	22.66	240.399		

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LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
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Site Error: 0.00 usft
Reference Well: 12H
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Reference Wellbore: OH
Reference Design: Plan #3

Local Co-ordinate Reference: Well 12H
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Survey Calculation Method: Minimum Curvature
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Offset TVD Reference: Offset Datum

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Survey Program: 100-NS-GYRO-MS, 7249-MWD-ISCWSA, 12258-Project													0.00 usft
Reference Semi Major Axis													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
5,090.11	5,085.19	5,229.19	5,228.22	11.38	11.88	108.33	914.55	5,332.79	5,447.53	5,424.51	23.02	236.634	
5,100.00	5,095.04	5,235.54	5,234.56	11.41	11.69	108.33	914.69	5,332.58	5,447.53	5,424.48	23.06	236.251	
5,200.00	5,194.61	5,300.00	5,298.98	11.65	11.82	108.37	916.04	5,330.73	5,447.93	5,424.49	23.44	232.453	
5,300.00	5,294.17	5,374.86	5,373.81	11.89	11.99	108.42	917.47	5,329.01	5,448.88	5,425.04	23.84	228.514	
5,400.00	5,393.74	5,460.01	5,458.93	12.13	12.18	108.49	918.81	5,327.44	5,450.24	5,425.96	24.28	224.511	
5,500.00	5,493.31	5,566.63	5,565.52	12.38	12.46	108.58	920.53	5,325.11	5,451.60	5,426.81	24.79	219.876	
5,600.00	5,592.87	5,763.52	5,762.26	12.63	12.85	108.70	924.57	5,319.50	5,451.68	5,426.26	25.42	214.476	
5,700.00	5,692.44	5,860.70	5,859.34	12.87	13.06	108.75	927.27	5,315.71	5,451.20	5,425.32	25.88	210.638	
5,800.00	5,792.00	5,943.98	5,942.54	13.12	13.25	108.80	929.43	5,312.70	5,450.98	5,424.66	26.31	207.166	
5,900.00	5,891.57	6,042.77	6,040.37	13.37	13.96	109.12	930.82	5,287.44	5,446.50	5,419.31	27.19	200.285	
6,000.00	5,991.14	6,140.00	6,137.41	13.62	14.04	109.18	929.40	5,282.96	5,441.40	5,413.88	27.53	197.866	
6,100.00	6,090.70	6,247.36	6,244.63	13.87	14.09	109.24	928.13	5,279.68	5,437.18	5,409.33	27.85	195.261	
6,200.00	6,190.27	6,350.00	6,347.16	14.12	14.16	109.30	926.41	5,276.55	5,433.88	5,405.71	28.17	192.922	
6,300.00	6,289.84	6,457.69	6,454.76	14.37	14.20	109.36	924.59	5,274.19	5,431.50	5,403.03	28.47	190.803	
6,400.00	6,389.40	6,560.00	6,556.98	14.62	14.24	109.43	922.39	5,272.10	5,430.04	5,401.27	28.77	188.752	
6,500.00	6,488.97	6,647.29	6,644.20	14.87	14.27	109.49	920.36	5,270.65	5,429.51	5,400.46	29.05	186.883	
6,505.99	6,494.94	6,650.26	6,647.16	14.89	14.27	109.49	920.24	5,270.57	5,429.51	5,400.44	29.07	186.773	
6,600.00	6,588.54	6,700.00	6,696.85	15.12	14.31	109.56	918.25	5,269.50	5,429.93	5,400.59	29.34	185.077	
6,700.00	6,688.10	6,748.30	6,745.11	15.38	14.33	109.62	916.34	5,268.89	5,431.26	5,401.65	29.61	183.419	
6,800.00	6,787.67	6,800.00	6,796.77	15.63	14.35	109.69	914.22	5,268.68	5,433.49	5,403.61	29.88	181.825	
6,900.00	6,887.24	6,922.01	6,918.67	15.88	14.40	109.66	909.25	5,268.31	5,435.82	5,405.84	30.18	180.103	
7,000.00	6,986.80	7,000.00	6,996.59	16.14	14.43	109.96	905.78	5,268.29	5,438.41	5,407.95	30.47	178.513	
7,100.00	7,086.37	7,076.44	7,072.94	16.39	14.46	110.07	901.99	5,268.63	5,441.43	5,410.69	30.75	176.974	
7,200.00	7,185.93	7,160.02	7,156.39	16.65	14.50	110.20	897.50	5,269.22	5,444.73	5,413.70	31.03	175.442	
7,300.00	7,285.50	7,281.00	7,277.15	16.90	14.54	110.38	890.34	5,270.23	5,448.16	5,416.83	31.33	173.913	
7,400.00	7,385.07	7,281.00	7,277.15	17.16	14.54	110.38	890.34	5,270.23	5,452.18	5,420.55	31.64	172.345	
7,500.00	7,484.63	7,312.00	7,308.08	17.42	14.54	110.43	888.56	5,271.27	5,457.88	5,425.96	31.92	170.967	
7,600.00	7,584.20	7,312.00	7,308.08	17.67	14.54	110.43	888.56	5,271.27	5,465.00	5,432.78	32.22	169.615	
7,700.00	7,683.77	7,312.00	7,308.08	17.93	14.54	110.43	888.56	5,271.27	5,473.93	5,441.42	32.51	168.394	
7,800.00	7,783.33	7,312.00	7,308.08	18.19	14.54	110.43	888.56	5,271.27	5,484.67	5,451.89	32.78	167.299	
7,900.00	7,882.90	7,312.00	7,308.08	18.45	14.54	110.43	888.56	5,271.27	5,497.21	5,464.16	33.05	166.326	
8,000.00	7,982.47	7,344.00	7,339.81	18.70	14.55	110.48	886.90	5,274.95	5,511.32	5,478.01	33.31	165.458	
8,100.00	8,082.03	7,344.00	7,339.81	18.96	14.55	110.48	886.90	5,274.95	5,526.85	5,493.29	33.56	164.683	
8,200.00	8,181.60	7,344.00	7,339.81	19.22	14.55	110.48	886.90	5,274.95	5,544.14	5,510.34	33.80	164.018	
8,300.00	8,281.17	7,344.00	7,339.81	19.48	14.55	110.48	886.90	5,274.95	5,563.18	5,529.15	34.03	163.460	
8,400.00	8,380.73	7,344.00	7,339.81	19.74	14.55	110.48	886.90	5,274.95	5,583.95	5,549.69	34.26	163.004	
8,493.72	8,474.04	7,344.00	7,339.81	19.98	14.55	110.48	886.90	5,274.95	5,604.95	5,570.50	34.46	162.667	
8,500.00	8,480.30	7,344.00	7,339.81	20.00	14.55	102.85	886.90	5,274.95	5,606.38	5,571.91	34.47	162.653	
8,525.00	8,505.21	7,344.00	7,339.81	20.05	14.55	68.07	886.90	5,274.95	5,611.30	5,576.80	34.51	162.605	
8,550.00	8,530.09	7,344.00	7,339.81	20.10	14.55	41.57	886.90	5,274.95	5,615.06	5,580.51	34.55	162.532	
8,575.00	8,554.87	7,359.93	7,355.42	20.15	14.55	26.99	886.12	5,278.01	5,617.23	5,582.63	34.59	162.372	
8,600.00	8,579.49	7,376.00	7,371.00	20.19	14.55	18.83	885.30	5,281.85	5,618.88	5,584.24	34.64	162.202	
8,625.00	8,603.87	7,376.00	7,371.00	20.24	14.55	13.79	885.30	5,281.85	5,618.94	5,584.26	34.68	162.039	
8,650.00	8,627.95	7,376.00	7,371.00	20.27	14.55	10.41	885.30	5,281.85	5,617.81	5,583.10	34.71	161.850	
8,675.00	8,651.66	7,376.00	7,371.00	20.31	14.55	8.01	885.30	5,281.85	5,615.48	5,580.74	34.74	161.636	
8,700.00	8,674.94	7,376.00	7,371.00	20.35	14.55	6.21	885.30	5,281.85	5,611.98	5,577.21	34.77	161.397	
8,725.00	8,697.72	7,376.00	7,371.00	20.38	14.55	4.80	885.30	5,281.85	5,607.30	5,572.50	34.80	161.134	
8,750.00	8,719.95	7,376.00	7,371.00	20.41	14.55	3.66	885.30	5,281.85	5,601.46	5,566.63	34.82	160.848	
8,775.00	8,741.56	7,376.00	7,371.00	20.43	14.55	2.71	885.30	5,281.85	5,594.46	5,559.61	34.85	160.539	
8,800.00	8,762.49	7,376.00	7,371.00	20.46	14.55	1.89	885.30	5,281.85	5,586.32	5,551.45	34.87	160.207	
8,825.00	8,782.68	7,376.00	7,371.00	20.48	14.55	1.18	885.30	5,281.85	5,577.06	5,542.18	34.89	159.854	
8,850.00	8,802.08	7,376.00	7,371.00	20.50	14.55	0.53	885.30	5,281.85	5,566.71	5,531.80	34.91	159.479	

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: OH
Reference Design: Plan #3

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-MS, 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-S (usft)	Offset Wellbore Centre +E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)		
8,875.00	8,820.64	7,376.00	7,371.00	20.52	14.55	-0.07	885.30	5,281.85	5,555.27	5,520.35	34.92	159.083	
8,900.00	8,838.30	7,376.00	7,371.00	20.53	14.55	-0.64	885.30	5,281.85	5,542.78	5,507.85	34.93	158.667	
8,925.00	8,855.02	7,376.00	7,371.00	20.55	14.55	-1.18	885.30	5,281.85	5,529.26	5,494.32	34.94	158.231	
8,950.00	8,870.75	7,376.00	7,371.00	20.56	14.55	-1.73	885.30	5,281.85	5,514.75	5,479.80	34.95	157.776	
8,975.00	8,885.45	7,376.00	7,371.00	20.58	14.55	-2.28	885.30	5,281.85	5,499.27	5,464.31	34.96	157.303	
9,000.00	8,899.07	7,376.00	7,371.00	20.60	14.55	-2.84	885.30	5,281.85	5,482.86	5,447.90	34.96	156.811	
9,025.00	8,911.59	7,376.00	7,371.00	20.63	14.55	-3.44	885.30	5,281.85	5,465.56	5,430.59	34.97	156.303	
9,050.00	8,922.96	7,376.00	7,371.00	20.71	14.55	-4.09	885.30	5,281.85	5,447.40	5,412.43	34.97	155.779	
9,075.00	8,933.15	7,376.00	7,371.00	20.85	14.55	-4.80	885.30	5,281.85	5,428.43	5,393.46	34.97	155.240	
9,100.00	8,942.14	7,376.00	7,371.00	21.01	14.55	-5.59	885.30	5,281.85	5,408.69	5,373.73	34.97	154.686	
9,125.00	8,949.90	7,376.00	7,371.00	21.19	14.55	-6.50	885.30	5,281.85	5,388.23	5,353.27	34.96	154.119	
9,150.00	8,958.42	7,376.00	7,371.00	21.40	14.55	-7.55	885.30	5,281.85	5,367.09	5,332.14	34.96	153.539	
9,175.00	8,961.66	7,376.00	7,371.00	21.62	14.55	-8.80	885.30	5,281.85	5,345.33	5,310.38	34.95	152.947	
9,200.00	8,965.63	7,376.00	7,371.00	21.85	14.55	-10.33	885.30	5,281.85	5,322.99	5,288.05	34.94	152.345	
9,225.00	8,968.30	7,376.00	7,371.00	22.10	14.55	-12.23	885.30	5,281.85	5,300.14	5,265.21	34.93	151.733	
9,250.00	8,969.67	7,376.00	7,371.00	22.37	14.55	-14.67	885.30	5,281.85	5,276.82	5,241.90	34.92	151.112	
9,259.65	8,969.85	7,391.01	7,385.37	25.31	14.56	-15.91	884.45	5,286.10	5,267.37	5,227.13	40.25	130.872	
9,300.00	8,970.20	7,391.82	7,386.14	25.34	14.56	-15.92	884.40	5,286.35	5,229.14	5,188.87	40.27	129.859	
9,400.00	8,971.07	7,408.00	7,401.39	25.41	14.56	-16.03	883.33	5,291.64	5,134.80	5,094.47	40.33	127.321	
9,500.00	8,971.93	7,408.00	7,401.39	25.49	14.56	-16.03	883.33	5,291.64	5,040.27	4,999.89	40.38	124.827	
9,600.00	8,972.80	7,408.00	7,401.39	25.57	14.56	-16.03	883.33	5,291.64	4,945.96	4,905.53	40.43	122.340	
9,700.00	8,973.66	7,408.00	7,401.39	25.65	14.56	-16.03	883.33	5,291.64	4,851.88	4,811.40	40.48	119.880	
9,800.00	8,974.53	7,408.00	7,401.39	25.73	14.56	-16.03	883.33	5,291.64	4,758.04	4,717.50	40.53	117.387	
9,900.00	8,975.39	7,408.00	7,401.39	25.83	14.56	-16.03	883.33	5,291.64	4,664.45	4,623.86	40.59	114.922	
10,000.00	8,976.26	7,408.00	7,401.39	25.92	14.56	-16.03	883.33	5,291.64	4,571.14	4,530.49	40.64	112.465	
10,100.00	8,977.13	7,408.00	7,401.39	26.03	14.56	-16.03	883.33	5,291.64	4,478.11	4,437.41	40.70	110.017	
10,200.00	8,977.99	7,408.00	7,401.39	26.15	14.56	-16.03	883.33	5,291.64	4,385.39	4,344.63	40.76	107.578	
10,300.00	8,978.86	7,408.00	7,401.39	26.31	14.56	-16.03	883.33	5,291.64	4,293.00	4,252.17	40.83	105.147	
10,400.00	8,979.72	7,408.00	7,401.39	26.51	14.56	-16.03	883.33	5,291.64	4,200.96	4,160.06	40.89	102.726	
10,500.00	8,980.59	7,439.00	7,429.92	26.81	14.57	-16.21	880.71	5,303.47	4,109.12	4,068.10	41.02	100.179	
10,600.00	8,981.45	7,439.00	7,429.92	27.24	14.57	-16.21	880.71	5,303.47	4,017.54	3,976.45	41.09	97.769	
10,700.00	8,982.32	7,439.00	7,429.92	27.78	14.57	-16.21	880.71	5,303.47	3,926.38	3,885.21	41.17	95.370	
10,800.00	8,983.19	7,439.00	7,429.92	28.39	14.57	-16.21	880.71	5,303.47	3,835.65	3,794.40	41.25	92.981	
10,900.00	8,984.05	7,439.00	7,429.92	29.05	14.57	-16.21	880.71	5,303.47	3,745.39	3,704.06	41.34	90.605	
11,000.00	8,984.92	7,439.00	7,429.92	29.75	14.57	-16.21	880.71	5,303.47	3,655.65	3,614.22	41.43	88.240	
11,100.00	8,985.78	7,439.00	7,429.92	30.49	14.57	-16.21	880.71	5,303.47	3,566.44	3,524.92	41.52	85.888	
11,200.00	8,986.65	7,471.00	7,458.37	31.25	14.59	-16.39	877.64	5,317.78	3,477.66	3,435.96	41.70	83.402	
11,300.00	8,987.52	7,471.00	7,458.37	32.03	14.59	-16.39	877.64	5,317.78	3,389.24	3,347.43	41.81	81.068	
11,400.00	8,988.38	7,471.00	7,458.37	32.84	14.59	-16.39	877.64	5,317.78	3,301.49	3,259.56	41.92	78.748	
11,500.00	8,989.25	7,471.00	7,458.37	33.66	14.59	-16.39	877.64	5,317.78	3,214.45	3,172.40	42.05	76.444	
11,600.00	8,990.11	7,471.00	7,458.37	34.50	14.59	-16.39	877.64	5,317.78	3,128.18	3,086.00	42.18	74.157	
11,700.00	8,990.98	7,488.12	7,473.17	35.36	14.80	-16.49	876.07	5,326.23	3,042.43	3,000.06	42.37	71.806	
11,800.00	8,991.84	7,503.00	7,485.80	36.23	14.82	-16.57	874.72	5,333.99	2,957.61	2,915.05	42.56	69.488	
11,900.00	8,992.71	7,503.00	7,485.80	37.12	14.82	-16.57	874.72	5,333.99	2,873.51	2,830.78	42.73	67.248	
12,000.00	8,993.58	7,503.00	7,485.80	38.02	14.82	-16.57	874.72	5,333.99	2,790.45	2,747.54	42.91	65.029	
12,100.00	8,994.44	7,520.62	7,500.45	38.93	14.84	-16.67	873.19	5,343.66	2,708.17	2,665.02	43.15	62.757	
12,200.00	8,995.31	7,535.00	7,512.16	39.85	14.85	-16.75	872.01	5,351.92	2,627.06	2,583.68	43.40	60.526	
12,300.00	8,996.17	7,535.00	7,512.16	40.78	14.85	-16.75	872.01	5,351.92	2,547.04	2,503.41	43.63	58.374	
12,400.00	8,997.04	7,550.18	7,524.27	41.72	14.88	-16.84	870.83	5,361.00	2,468.21	2,424.28	43.92	56.192	
12,500.00	8,997.90	7,567.00	7,537.39	42.67	14.71	-16.93	869.63	5,371.45	2,390.74	2,346.50	44.24	54.038	
12,600.00	8,998.77	7,567.00	7,537.39	43.63	14.71	-16.93	869.63	5,371.45	2,314.66	2,270.12	44.53	51.975	
12,700.00	8,999.64	7,585.19	7,551.20	44.59	14.75	-17.04	868.42	5,383.23	2,240.06	2,195.15	44.90	49.885	

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
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 Site Error: 0.00 usft
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 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan #3

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:		
Survey Program: 100-NS-GYRO-MS, 7249-MWD-ISCWSA, 12258-Project											0.00 usft		
Reference Offset Semi Major Axis											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
12,800.00	9,000.50	7,599.00	7,561.40	45.56	14.78	-17.12	867.55	5,392.49	2,167.17	2,121.88	45.29	47.854	
12,900.00	9,001.37	7,613.65	7,571.99	46.54	14.82	-17.21	866.68	5,402.58	2,096.05	2,050.35	45.70	45.862	
13,000.00	9,002.23	7,630.00	7,583.52	47.53	14.87	-17.31	865.77	5,414.14	2,026.81	1,980.66	46.15	43.915	
13,100.00	9,003.10	7,662.00	7,605.34	48.52	14.99	-17.50	864.22	5,437.49	1,959.65	1,912.96	46.69	41.971	
13,200.00	9,003.96	7,662.00	7,605.34	49.51	14.99	-17.50	864.22	5,437.49	1,894.44	1,847.29	47.15	40.180	
13,300.00	9,004.83	7,694.00	7,626.25	50.51	15.13	-17.71	863.12	5,461.68	1,831.37	1,783.61	47.76	38.345	
13,400.00	9,005.70	7,726.00	7,646.25	51.52	15.29	-17.92	862.43	5,486.65	1,770.79	1,722.38	48.41	36.576	
13,500.00	9,006.56	7,758.00	7,665.47	52.53	15.48	-18.14	861.97	5,512.23	1,712.58	1,663.47	49.11	34.870	
13,600.00	9,007.43	7,822.00	7,703.25	53.55	15.91	-18.62	861.54	5,563.89	1,656.02	1,606.01	50.01	33.115	
13,700.00	9,008.29	7,864.05	7,727.89	54.56	16.24	-18.95	861.80	5,597.97	1,600.48	1,549.61	50.87	31.462	
13,800.00	9,009.16	7,885.00	7,739.62	55.59	16.42	-19.11	861.71	5,615.32	1,547.83	1,496.15	51.68	29.952	
13,900.00	9,010.03	7,917.00	7,756.45	56.61	16.73	-19.36	861.97	5,642.53	1,498.53	1,445.93	52.60	28.491	
14,000.00	9,010.89	7,949.00	7,771.88	57.64	17.06	-19.59	862.21	5,670.56	1,452.92	1,399.35	53.57	27.124	
14,100.00	9,011.76	7,978.22	7,784.90	58.68	17.40	-19.78	862.24	5,696.72	1,410.90	1,358.34	54.56	25.861	
14,200.00	9,012.62	8,029.00	7,805.67	59.71	18.03	-20.07	861.76	5,743.05	1,372.32	1,316.55	55.77	24.608	
14,300.00	9,013.49	8,071.93	7,822.04	60.75	18.61	-20.30	861.28	5,782.73	1,336.62	1,279.65	56.97	23.460	
14,400.00	9,014.35	8,125.00	7,840.37	61.80	19.39	-20.58	860.99	5,832.53	1,304.42	1,246.10	58.32	22.365	
14,500.00	9,015.22	8,157.00	7,850.21	62.84	19.89	-20.72	860.57	5,862.97	1,275.82	1,216.29	59.53	21.432	
14,600.00	9,016.09	8,189.00	7,858.56	63.89	20.41	-20.82	859.96	5,893.85	1,251.90	1,191.16	60.74	20.610	
14,700.00	9,016.95	8,220.00	7,865.04	64.94	20.94	-20.89	859.19	5,924.15	1,233.01	1,171.08	61.93	19.909	
14,800.00	9,017.82	8,252.00	7,870.06	65.99	21.51	-20.93	858.23	5,955.74	1,219.28	1,156.18	63.10	19.324	
14,900.00	9,018.68	8,297.40	7,874.52	67.04	22.34	-20.96	857.32	6,000.91	1,210.67	1,146.29	64.38	18.806	
15,000.00	9,019.55	8,379.66	7,878.82	68.10	23.91	-20.99	856.65	6,083.05	1,206.14	1,140.06	66.09	18.250	
15,100.00	9,020.41	8,475.00	7,884.18	69.16	25.81	-21.07	856.62	6,178.23	1,201.70	1,133.88	68.03	17.665	
15,200.00	9,021.28	8,545.05	7,887.41	70.22	27.26	-21.16	857.58	6,248.20	1,198.73	1,129.04	69.69	17.202	
15,265.75	9,021.85	8,589.51	7,888.55	70.92	28.20	-21.21	858.56	6,292.63	1,198.22	1,127.47	70.75	16.935 CC	
15,300.00	9,022.15	8,612.36	7,888.83	71.28	28.68	-21.24	859.17	6,315.47	1,198.43	1,127.12	71.31	16.807	
15,400.00	9,023.01	8,691.12	7,888.42	72.34	30.38	-21.34	861.74	6,394.19	1,200.80	1,127.70	73.10	16.427	
15,500.00	9,023.88	8,797.76	7,888.61	73.41	32.72	-21.51	866.00	6,500.75	1,202.87	1,127.48	75.38	15.957	
15,600.00	9,024.74	8,885.35	7,887.84	74.48	34.68	-21.64	869.51	6,588.26	1,205.93	1,128.55	77.38	15.585	
15,700.00	9,025.61	9,000.69	7,886.56	75.54	37.30	-21.74	872.53	6,703.55	1,208.74	1,128.96	79.78	15.151	
15,800.00	9,026.48	9,130.61	7,887.26	76.61	40.30	-21.82	874.63	6,833.44	1,209.67	1,127.28	82.39	14.682	
15,867.82	9,027.06	9,193.42	7,888.34	77.34	41.77	-21.86	875.31	6,896.24	1,209.42	1,125.61	83.80	14.432	
15,900.00	9,027.34	9,220.92	7,888.63	77.68	42.41	-21.87	875.57	6,923.74	1,209.48	1,125.05	84.43	14.325	
16,000.00	9,028.21	9,325.05	7,889.35	78.76	44.86	-21.90	876.20	7,027.87	1,209.87	1,123.22	86.65	13.963	
16,100.00	9,029.07	9,433.11	7,890.90	79.83	47.42	-21.94	876.86	7,135.91	1,209.57	1,120.63	88.94	13.599	
16,200.00	9,029.94	9,538.88	7,893.27	80.91	49.94	-22.02	878.18	7,241.65	1,208.77	1,117.50	91.26	13.245	
16,300.00	9,030.80	9,648.19	7,896.90	81.98	52.56	-22.14	879.89	7,350.88	1,207.06	1,113.37	93.68	12.885	
16,400.00	9,031.67	9,735.23	7,899.78	83.06	54.65	-22.26	881.77	7,437.86	1,205.63	1,109.80	95.83	12.581	
16,440.43	9,032.02	9,766.16	7,900.45	83.50	55.39	-22.30	882.43	7,468.78	1,205.47	1,108.85	96.62	12.476	
16,500.00	9,032.54	9,813.00	7,900.90	84.14	56.52	-22.34	883.28	7,515.60	1,205.82	1,108.03	97.79	12.331	
16,600.00	9,033.40	9,896.67	7,900.48	85.22	58.55	-22.37	884.46	7,599.26	1,207.61	1,107.83	99.78	12.103	
16,700.00	9,034.27	9,986.47	7,898.87	86.30	60.72	-22.37	885.41	7,689.04	1,210.46	1,108.66	101.80	11.890	
16,800.00	9,035.13	10,104.11	7,897.27	87.38	63.58	-22.41	887.39	7,806.64	1,213.19	1,108.88	104.31	11.631	
16,900.00	9,036.00	10,220.78	7,898.03	88.46	66.42	-22.53	890.31	7,923.28	1,214.36	1,107.45	106.91	11.359	
17,000.00	9,036.86	10,340.95	7,900.83	89.54	69.35	-22.68	893.02	8,043.38	1,213.85	1,104.27	109.59	11.076	
17,100.00	9,037.73	10,457.10	7,905.18	90.63	72.19	-22.84	895.35	8,159.43	1,211.98	1,099.75	112.23	10.799	
17,200.00	9,038.60	10,553.30	7,909.19	91.71	74.55	-22.95	896.42	8,255.54	1,209.38	1,094.81	114.57	10.556	
17,300.00	9,039.46	10,660.28	7,913.01	92.80	77.18	-23.02	896.81	8,362.45	1,207.04	1,090.05	116.99	10.318	
17,400.00	9,040.33	10,750.84	7,916.14	93.89	79.41	-23.04	896.36	8,452.95	1,204.47	1,085.32	119.15	10.108	
17,500.00	9,041.19	10,832.57	7,917.57	94.97	81.43	-23.01	895.22	8,534.66	1,203.13	1,082.01	121.11	9.934	
17,529.76	9,041.45	10,856.41	7,917.65	95.30	82.01	-22.98	894.75	8,558.49	1,203.04	1,081.38	121.67	9.888	

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: OH
Reference Design: Plan #3

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-CYRO-MS-7249-MWD-ISCWSA-12258-Project												Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	Offset Wellbore Centre +E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
17,600.00	9,042.06	10,923.87	7,917.44	96.06	83.68	-22.90	893.16	8,825.94	1,203.16	1,080.10	123.06	9.777	
17,700.00	9,042.93	11,031.11	7,916.87	97.15	86.33	-22.72	889.82	8,733.12	1,203.17	1,078.11	125.06	9.821	
17,771.72	9,043.55	11,098.03	7,916.55	97.93	87.98	-22.57	886.76	8,799.97	1,202.89	1,076.56	126.34	9.521	
17,800.00	9,043.79	11,121.79	7,916.35	98.24	88.57	-22.53	885.90	8,823.71	1,202.95	1,076.12	126.82	9.485	
17,900.00	9,044.66	11,203.00	7,915.25	99.33	90.58	-22.41	883.89	8,904.89	1,204.06	1,075.50	128.56	9.365	
18,000.00	9,045.52	11,289.14	7,913.25	100.42	92.71	-22.33	883.34	8,991.01	1,206.74	1,076.30	130.43	9.252	
18,100.00	9,046.39	11,393.36	7,910.61	101.51	95.29	-22.27	883.26	9,095.19	1,209.87	1,077.29	132.57	9.126	
18,200.00	9,047.25	11,505.92	7,909.62	102.60	98.07	-22.30	884.85	9,207.74	1,212.01	1,078.98	135.03	8.976	
18,300.00	9,048.12	11,611.40	7,910.13	103.69	100.68	-22.42	887.86	9,313.17	1,213.44	1,075.88	137.56	8.821	
18,400.00	9,048.99	11,711.65	7,910.74	104.79	103.16	-22.53	890.40	9,413.38	1,214.65	1,074.65	140.00	8.676	
18,500.00	9,049.85	11,840.61	7,912.72	105.88	106.35	-22.65	892.87	9,542.30	1,214.79	1,071.97	142.82	8.506	
18,600.00	9,050.72	11,954.56	7,916.48	106.98	109.18	-22.75	893.93	9,656.18	1,212.88	1,067.49	145.40	8.342	
18,700.00	9,051.58	12,057.49	7,920.11	108.07	111.74	-22.80	894.03	9,759.04	1,210.47	1,062.69	147.78	8.191	
18,800.00	9,052.45	12,164.51	7,923.83	109.16	114.40	-22.81	893.05	9,886.00	1,207.71	1,057.61	150.09	8.046	
18,900.00	9,053.31	12,258.00	7,927.25	110.26	115.01	-22.79	891.31	9,959.41	1,204.44	1,053.20	151.24	7.964	
18,931.21	9,053.58	12,258.00	7,927.25	110.60	115.01	-22.79	891.31	9,959.41	1,204.04	1,052.41	151.62	7.941 ES	
19,000.00	9,054.18	12,258.00	7,927.25	111.36	115.01	-22.79	891.31	9,959.41	1,206.00	1,053.85	152.15	7.926 SF	
19,100.00	9,055.05	12,258.00	7,927.25	112.45	115.01	-22.79	891.31	9,959.41	1,215.81	1,063.66	152.15	7.991	
19,200.00	9,055.91	12,258.00	7,927.25	113.55	115.01	-22.79	891.31	9,959.41	1,233.66	1,082.39	151.29	8.154	
19,300.00	9,056.78	12,258.00	7,927.25	114.65	115.01	-22.79	891.31	9,959.41	1,259.25	1,109.59	149.66	8.414	
19,400.00	9,057.64	12,258.00	7,927.25	115.74	115.01	-22.79	891.31	9,959.41	1,292.08	1,144.89	147.39	8.766	
19,500.00	9,058.51	12,258.00	7,927.25	116.84	115.01	-22.79	891.31	9,959.41	1,331.63	1,187.01	144.62	9.208	
19,600.00	9,059.37	12,258.00	7,927.25	117.94	115.01	-22.79	891.31	9,959.41	1,377.31	1,235.83	141.49	9.735	
19,700.00	9,060.24	12,258.00	7,927.25	119.04	115.01	-22.79	891.31	9,959.41	1,428.55	1,290.43	138.12	10.343	
19,800.00	9,061.11	12,258.00	7,927.25	120.14	115.01	-22.79	891.31	9,959.41	1,484.76	1,350.12	134.64	11.027	
19,900.00	9,061.97	12,258.00	7,927.25	121.24	115.01	-22.79	891.31	9,959.41	1,545.40	1,414.27	131.13	11.785	
20,000.00	9,062.84	12,258.00	7,927.25	122.34	115.01	-22.79	891.31	9,959.41	1,609.98	1,482.31	127.67	12.611	
20,100.00	9,063.70	12,258.00	7,927.25	123.44	115.01	-22.79	891.31	9,959.41	1,678.03	1,553.74	124.29	13.501	
20,200.00	9,064.57	12,258.00	7,927.25	124.54	115.01	-22.79	891.31	9,959.41	1,749.16	1,628.11	121.05	14.450	
20,300.00	9,065.44	12,258.00	7,927.25	125.64	115.01	-22.79	891.31	9,959.41	1,822.99	1,705.04	117.95	15.456	
20,400.00	9,066.30	12,258.00	7,927.25	126.74	115.01	-22.79	891.31	9,959.41	1,899.23	1,784.21	115.02	16.512	
20,500.00	9,067.17	12,258.00	7,927.25	127.84	115.01	-22.79	891.31	9,959.41	1,977.58	1,865.32	112.26	17.617	
20,600.00	9,068.03	12,258.00	7,927.25	128.95	115.01	-22.79	891.31	9,959.41	2,057.81	1,948.14	109.67	18.764	
20,700.00	9,068.90	12,258.00	7,927.25	130.05	115.01	-22.79	891.31	9,959.41	2,139.71	2,032.47	107.24	19.952	
20,800.00	9,069.76	12,258.00	7,927.25	131.15	115.01	-22.79	891.31	9,959.41	2,223.08	2,118.11	104.98	21.177	
20,900.00	9,070.63	12,258.00	7,927.25	132.25	115.01	-22.79	891.31	9,959.41	2,307.78	2,204.92	102.87	22.435	
21,000.00	9,071.50	12,258.00	7,927.25	133.36	115.01	-22.79	891.31	9,959.41	2,393.66	2,292.76	100.90	23.723	
21,100.00	9,072.36	12,258.00	7,927.25	134.46	115.01	-22.79	891.31	9,959.41	2,480.60	2,381.53	99.07	25.039	
21,200.00	9,073.23	12,258.00	7,927.25	135.56	115.01	-22.79	891.31	9,959.41	2,568.49	2,471.12	97.37	26.379	
21,300.00	9,074.09	12,258.00	7,927.25	136.67	115.01	-22.79	891.31	9,959.41	2,657.23	2,561.45	95.79	27.741	
21,400.00	9,074.96	12,258.00	7,927.25	137.77	115.01	-22.79	891.31	9,959.41	2,746.75	2,652.44	94.32	29.122	
21,500.00	9,075.82	12,258.00	7,927.25	138.87	115.01	-22.79	891.31	9,959.41	2,836.97	2,744.02	92.95	30.521	
21,600.00	9,076.69	12,258.00	7,927.25	139.98	115.01	-22.79	891.31	9,959.41	2,927.83	2,836.15	91.68	31.936	
21,700.00	9,077.56	12,258.00	7,927.25	141.08	115.01	-22.79	891.31	9,959.41	3,019.26	2,928.76	90.50	33.363	
21,714.06	9,077.68	12,258.00	7,927.25	141.16	115.01	-22.79	891.31	9,959.41	3,032.16	2,943.64	88.52	34.254	

CC - Min centre to center distance or covergent 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: OH
Reference Design: Plan #3

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 GyroFlex V2.243-LEAM MWD+HDCM														Offset Well Error:	0.00 usft		
Reference	Offset	Semi Major Axis		Highside		Offset Wellbore Centre		Distance		Minimum	Separation	Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Toolface (°)	+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor					
0.00	0.00	11.41	11.41	0.00	0.01	73.03	1,366.23	4,478.07	4,681.85								
100.00	100.00	111.51	111.51	0.09	0.08	73.03	1,366.66	4,477.94	4,681.85	4,681.68	0.17	N/A					
133.81	133.81	145.21	145.21	0.16	0.11	73.02	1,366.96	4,477.85	4,681.85	4,681.58	0.27	N/A					
200.00	200.00	209.72	209.71	0.31	0.16	73.02	1,367.55	4,477.68	4,681.86	4,681.39	0.46	N/A					
300.00	300.00	290.02	290.01	0.54	0.27	73.01	1,368.32	4,477.58	4,682.04	4,681.24	0.80	5,872.310					
400.00	400.00	378.24	378.22	0.76	0.43	72.99	1,369.61	4,477.85	4,682.74	4,681.55	1.19	3,949.890					
500.00	500.00	481.85	481.81	0.99	0.63	72.97	1,371.40	4,477.95	4,683.34	4,681.72	1.62	2,897.121					
600.00	600.00	568.10	568.05	1.21	0.81	72.95	1,373.07	4,478.12	4,684.09	4,682.07	2.02	2,313.500					
700.00	700.00	646.19	646.12	1.43	0.98	72.94	1,374.75	4,478.53	4,685.23	4,682.81	2.42	1,935.889					
800.00	800.00	724.24	724.15	1.66	1.15	72.92	1,376.39	4,479.39	4,686.90	4,684.08	2.81	1,664.973					
900.00	900.00	821.66	821.54	1.88	1.36	72.90	1,378.53	4,480.64	4,688.77	4,685.52	3.25	1,444.305					
1,000.00	1,000.00	911.00	910.85	2.11	1.55	72.89	1,380.08	4,482.05	4,690.79	4,687.13	3.66	1,282.715					
1,100.00	1,100.00	995.91	995.74	2.33	1.73	72.88	1,381.09	4,483.79	4,693.09	4,689.04	4.06	1,156.160					
1,200.00	1,200.00	1,093.10	1,092.89	2.56	1.94	72.87	1,382.39	4,486.01	4,695.68	4,691.19	4.49	1,046.008					
1,300.00	1,300.00	1,222.28	1,222.04	2.78	2.20	72.86	1,384.13	4,488.32	4,697.75	4,692.77	4.98	944.120					
1,400.00	1,400.00	1,329.93	1,329.67	3.01	2.42	72.85	1,385.75	4,489.88	4,699.58	4,694.15	5.42	866.633					
1,500.00	1,500.00	1,416.07	1,415.79	3.23	2.61	72.84	1,387.09	4,491.13	4,701.42	4,695.60	5.83	806.696					
1,600.00	1,600.00	1,525.00	1,524.69	3.46	2.84	72.82	1,388.72	4,492.93	4,703.45	4,697.17	6.28	748.797					
1,700.00	1,700.00	1,630.25	1,629.91	3.68	3.06	72.81	1,390.58	4,494.31	4,705.22	4,698.50	6.72	699.716					
1,800.00	1,800.00	1,742.93	1,742.58	3.91	3.29	72.80	1,392.10	4,495.79	4,706.88	4,699.70	7.18	655.499					
1,900.00	1,900.00	1,878.06	1,877.69	4.13	3.57	72.79	1,393.01	4,496.76	4,707.70	4,700.02	7.69	612.578					
2,000.00	2,000.00	1,971.87	1,971.50	4.36	3.77	72.78	1,393.57	4,497.37	4,708.50	4,700.39	8.11	580.781					
2,100.00	2,100.00	2,069.69	2,069.32	4.58	3.97	72.78	1,394.32	4,498.03	4,709.37	4,700.84	8.54	551.542					
2,200.00	2,200.00	2,180.91	2,180.53	4.81	4.21	72.77	1,394.94	4,498.80	4,710.20	4,701.21	9.00	523.574					
2,300.00	2,300.00	2,289.67	2,289.29	5.03	4.43	72.78	1,394.76	4,499.47	4,710.74	4,701.29	9.45	498.699					
2,400.00	2,400.00	2,424.18	2,423.80	5.26	4.71	72.78	1,394.36	4,499.62	4,710.73	4,700.78	9.95	473.541					
2,482.22	2,482.22	2,494.00	2,493.62	5.44	4.85	72.78	1,394.25	4,499.56	4,710.62	4,700.34	10.28	458.334					
2,500.00	2,500.00	2,511.15	2,510.77	5.48	4.89	72.78	1,394.25	4,499.56	4,710.62	4,700.27	10.35	454.978					
2,600.00	2,600.00	2,616.43	2,616.05	5.71	5.11	72.78	1,394.35	4,499.56	4,710.65	4,699.85	10.80	436.254					
2,700.00	2,700.00	2,724.22	2,723.84	5.93	5.33	72.79	1,393.89	4,499.31	4,710.30	4,699.05	11.25	418.788					
2,751.49	2,751.49	2,763.27	2,762.89	6.05	5.41	72.79	1,393.65	4,499.33	4,710.23	4,698.78	11.44	411.555					
2,800.00	2,800.00	2,813.75	2,813.37	6.15	5.52	72.79	1,393.34	4,499.45	4,710.25	4,698.59	11.66	403.992					
2,900.00	2,900.00	2,920.03	2,919.64	6.38	5.74	72.80	1,392.63	4,499.42	4,710.02	4,697.92	12.11	389.081					
3,000.00	3,000.00	3,017.85	3,017.46	6.60	5.94	72.81	1,391.98	4,499.56	4,709.96	4,697.42	12.53	375.766					
3,100.00	3,100.00	3,117.42	3,117.03	6.83	6.15	72.82	1,391.41	4,499.52	4,709.75	4,696.78	12.97	363.222					
3,139.21	3,139.21	3,151.00	3,150.61	6.92	6.22	72.82	1,391.38	4,499.51	4,709.72	4,696.60	13.12	358.845					
3,200.00	3,200.00	3,210.29	3,209.90	7.05	6.34	72.82	1,391.42	4,499.52	4,709.74	4,696.36	13.39	351.860					
3,300.00	3,300.00	3,321.52	3,321.13	7.28	6.57	72.82	1,391.20	4,499.53	4,709.71	4,695.86	13.64	340.239					
3,392.29	3,392.29	3,404.08	3,403.69	7.49	6.75	72.82	1,391.39	4,499.31	4,709.54	4,695.32	14.22	331.130					
3,400.00	3,400.00	3,410.16	3,409.77	7.50	6.76	72.82	1,391.43	4,499.30	4,709.54	4,695.29	14.25	330.431					
3,500.00	3,500.00	3,508.17	3,507.77	7.73	6.97	72.80	1,392.41	4,499.15	4,709.69	4,695.00	14.68	320.754					
3,600.00	3,600.00	3,592.95	3,592.55	7.95	7.14	72.79	1,393.55	4,498.92	4,709.84	4,694.75	15.09	312.187					
3,700.00	3,700.00	3,672.34	3,671.91	8.18	7.31	99.81	1,395.31	4,498.93	4,710.64	4,695.17	15.48	304.355					
3,800.00	3,799.96	3,779.32	3,778.85	8.40	7.54	99.59	1,398.46	4,498.94	4,711.98	4,696.05	15.93	295.876					
3,900.00	3,899.86	3,943.35	3,942.85	8.62	7.88	99.64	1,401.09	4,498.20	4,712.77	4,696.28	16.49	285.811					
4,000.00	3,999.68	4,096.27	4,095.75	8.84	8.20	99.76	1,399.98	4,496.55	4,712.54	4,695.51	17.03	276.779					
4,100.00	4,099.37	4,222.76	4,222.21	9.07	8.46	99.89	1,399.23	4,493.93	4,711.70	4,694.19	17.51	269.043					
4,133.72	4,132.95	4,250.19	4,249.63	9.15	8.52	99.92	1,399.14	4,493.29	4,711.45	4,693.80	17.65	266.990					
4,200.00	4,198.94	4,305.00	4,304.43	9.29	8.64	99.97	1,399.10	4,492.10	4,711.12	4,693.20	17.91	263.016					
4,300.00	4,298.51	4,390.26	4,389.67	9.52	8.81	100.06	1,399.43	4,490.37	4,710.90	4,692.58	18.32	257.156					
4,334.39	4,332.74	4,421.49	4,420.90	9.60	8.88	100.09	1,399.68	4,489.75	4,710.89	4,692.42	18.46	255.137					
4,400.00	4,398.07	4,482.60	4,481.99	9.75	9.01	100.14	1,400.42	4,488.52	4,710.92	4,692.18	18.74	251.326					

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
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: OH
Reference Design: Plan #3

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:	0.00 usft
Survey Program: 140- VES GyroFlex V2, 243-LEAM MWD+HDGM												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 (usft)	Offset Wellbore Centre (usft)	Distance (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,500.00	4,497.64	4,563.44	4,562.80	9.98	9.18	100.21	1,401.86	4,486.94	4,711.21	4,692.06	19.15	246.042	
4,600.00	4,597.21	4,649.03	4,648.36	10.22	9.36	100.28	1,403.85	4,485.48	4,711.90	4,692.33	19.56	240.850	
4,700.00	4,696.77	4,747.49	4,746.78	10.45	9.57	100.35	1,406.24	4,483.96	4,712.78	4,692.77	20.01	235.568	
4,800.00	4,796.34	4,841.71	4,840.98	10.69	9.77	100.45	1,407.07	4,482.93	4,713.66	4,693.22	20.44	230.638	
4,900.00	4,895.91	4,918.70	4,917.98	10.93	9.92	100.53	1,407.32	4,482.43	4,714.84	4,694.01	20.83	226.308	
5,000.00	4,995.47	4,992.38	4,991.65	11.17	10.08	100.62	1,406.88	4,482.64	4,716.64	4,695.42	21.22	222.229	
5,100.00	5,095.04	5,102.28	5,101.55	11.41	10.31	100.75	1,405.92	4,483.31	4,718.73	4,697.04	21.69	217.533	
5,200.00	5,194.61	5,261.00	5,260.22	11.65	10.63	100.97	1,402.52	4,483.20	4,719.75	4,697.50	22.26	212.041	
5,300.00	5,294.17	5,356.00	5,355.18	11.89	10.83	101.10	1,399.72	4,482.87	4,720.40	4,697.70	22.70	207.973	
5,400.00	5,393.74	5,448.11	5,447.27	12.13	11.02	101.23	1,397.73	4,482.58	4,721.31	4,698.18	23.13	204.095	
5,500.00	5,493.31	5,535.10	5,534.25	12.38	11.21	101.34	1,396.50	4,482.23	4,722.37	4,698.81	23.56	200.440	
5,600.00	5,592.87	5,671.81	5,670.94	12.63	11.49	101.50	1,395.35	4,481.00	4,723.10	4,699.01	24.09	196.067	
5,700.00	5,692.44	5,755.82	5,754.75	12.87	11.67	101.60	1,394.21	4,480.20	4,723.69	4,699.19	24.51	192.734	
5,800.00	5,792.00	5,833.00	5,832.11	13.12	11.82	101.70	1,392.76	4,479.94	4,724.76	4,699.84	24.92	189.634	
5,900.00	5,891.57	5,896.68	5,895.78	13.37	11.96	101.79	1,391.37	4,480.19	4,726.45	4,701.16	25.29	186.862	
6,000.00	5,991.14	5,959.94	5,959.01	13.62	12.09	101.88	1,389.84	4,480.94	4,728.89	4,703.22	25.67	184.211	
6,100.00	6,090.70	6,024.00	6,023.02	13.87	12.22	101.98	1,387.81	4,482.37	4,732.16	4,706.11	26.05	181.662	
6,200.00	6,190.27	6,092.97	6,091.89	14.12	12.36	102.10	1,384.78	4,484.62	4,736.14	4,709.71	26.44	179.148	
6,300.00	6,289.84	6,188.91	6,187.63	14.37	12.52	102.24	1,380.31	4,487.79	4,740.70	4,713.86	26.84	176.627	
6,400.00	6,389.40	6,269.56	6,267.96	14.62	12.73	102.44	1,373.74	4,492.52	4,745.66	4,718.36	27.30	173.841	
6,500.00	6,488.97	6,358.22	6,356.37	14.87	12.92	102.61	1,368.39	4,496.37	4,750.47	4,722.73	27.73	171.299	
6,600.00	6,588.54	6,426.73	6,424.64	15.12	13.06	102.75	1,363.90	4,499.85	4,755.89	4,727.77	28.12	169.125	
6,700.00	6,688.10	6,495.36	6,492.86	15.38	13.21	102.91	1,357.80	4,504.16	4,761.99	4,733.48	28.51	167.030	
6,800.00	6,787.67	6,682.85	6,679.27	15.63	13.61	103.33	1,341.37	4,514.88	4,767.75	4,738.57	29.17	163.424	
6,900.00	6,887.24	6,789.00	6,785.10	15.88	13.84	103.54	1,334.22	4,519.08	4,772.24	4,742.59	29.65	160.944	
7,000.00	6,986.80	6,866.36	6,864.21	16.14	14.01	103.70	1,328.81	4,522.34	4,776.94	4,746.87	30.07	158.860	
7,100.00	7,086.37	6,931.28	6,926.93	16.39	14.15	103.82	1,324.81	4,525.28	4,782.35	4,751.89	30.45	157.050	
7,200.00	7,185.93	6,980.00	6,975.47	16.65	14.25	103.92	1,321.60	4,527.95	4,788.61	4,757.81	30.80	155.491	
7,300.00	7,285.50	7,076.00	7,071.17	16.90	14.46	104.10	1,316.64	4,533.62	4,795.54	4,764.28	31.26	153.432	
7,400.00	7,385.07	7,161.64	7,156.53	17.16	14.65	104.25	1,312.27	4,538.98	4,802.84	4,771.15	31.69	151.564	
7,500.00	7,484.63	7,308.98	7,303.36	17.42	14.97	104.54	1,303.03	4,547.08	4,809.05	4,776.77	32.27	149.021	
7,600.00	7,584.20	7,362.00	7,356.24	17.67	15.09	104.63	1,300.85	4,549.99	4,815.87	4,783.25	32.63	147.608	
7,700.00	7,683.77	7,406.56	7,400.66	17.93	15.19	104.71	1,298.76	4,552.88	4,823.77	4,790.81	32.96	146.357	
7,800.00	7,783.33	7,458.00	7,451.88	18.19	15.30	104.80	1,296.21	4,556.98	4,832.88	4,799.58	33.31	145.104	
7,900.00	7,882.90	7,889.59	7,881.53	18.45	16.26	105.69	1,263.35	4,575.79	4,835.19	4,800.62	34.57	139.850	
8,000.00	7,982.47	8,031.00	8,022.78	18.70	16.56	105.91	1,256.99	4,577.58	4,838.35	4,803.21	35.13	137.716	
8,100.00	8,082.03	8,104.18	8,095.94	18.96	16.72	106.01	1,255.12	4,577.65	4,840.55	4,805.01	35.54	136.190	
8,200.00	8,181.60	8,186.36	8,178.10	19.22	16.89	106.12	1,253.44	4,578.12	4,843.31	4,807.34	35.97	134.644	
8,300.00	8,281.17	8,286.32	8,278.04	19.48	17.10	106.25	1,251.61	4,578.82	4,846.26	4,809.83	36.44	133.002	
8,400.00	8,380.73	8,331.00	8,322.70	19.74	17.20	106.31	1,250.41	4,579.05	4,849.37	4,812.59	36.78	131.836	
8,493.72	8,474.04	8,331.00	8,322.70	19.98	17.20	106.31	1,250.41	4,579.05	4,854.08	4,817.07	37.01	131.162	
8,500.00	8,480.30	8,331.00	8,322.70	20.00	17.20	98.67	1,250.41	4,579.05	4,854.42	4,817.40	37.02	131.124	
8,525.00	8,505.21	8,354.63	8,346.32	20.05	17.25	63.86	1,250.02	4,579.50	4,854.53	4,817.41	37.12	130.765	
8,550.00	8,530.09	8,357.40	8,349.10	20.10	17.25	37.30	1,250.01	4,579.60	4,853.87	4,816.69	37.18	130.561	
8,575.00	8,554.87	8,379.00	8,370.66	20.15	17.30	22.65	1,250.17	4,580.83	4,852.37	4,815.09	37.27	130.185	
8,600.00	8,579.49	8,379.00	8,370.66	20.19	17.30	14.37	1,250.17	4,580.83	4,849.28	4,811.96	37.32	129.952	
8,625.00	8,603.87	8,379.00	8,370.66	20.24	17.30	9.23	1,250.17	4,580.83	4,845.04	4,807.69	37.36	129.696	
8,650.00	8,627.95	8,379.00	8,370.66	20.27	17.30	5.75	1,250.17	4,580.83	4,839.67	4,802.28	37.40	129.419	
8,675.00	8,651.66	8,379.00	8,370.66	20.31	17.30	3.23	1,250.17	4,580.83	4,833.17	4,795.74	37.43	129.121	
8,700.00	8,674.94	8,379.00	8,370.66	20.35	17.30	1.29	1,250.17	4,580.83	4,825.56	4,788.09	37.46	128.803	
8,725.00	8,697.72	8,379.00	8,370.66	20.38	17.30	-0.28	1,250.17	4,580.83	4,816.85	4,779.35	37.50	128.466	
8,750.00	8,719.95	8,379.00	8,370.66	20.41	17.30	-1.59	1,250.17	4,580.83	4,807.05	4,769.53	37.52	128.109	

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: OH
Reference Design: Plan #3

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 GyroFlex V2, 243-LEAM MWD+HDGM														Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
8,775.00	8,741.56	8,379.00	8,370.66	20.43	17.30	-2.74	1,250.17	4,580.83	4,796.20	4,758.85	37.55	127.734			
8,800.00	8,762.49	8,379.00	8,370.66	20.46	17.30	-3.77	1,250.17	4,580.83	4,784.31	4,746.74	37.57	127.341			
8,825.00	8,782.68	8,379.00	8,370.66	20.48	17.30	-4.74	1,250.17	4,580.83	4,771.41	4,733.82	37.59	126.931			
8,850.00	8,802.08	8,379.00	8,370.66	20.50	17.30	-5.67	1,250.17	4,580.83	4,757.52	4,719.92	37.61	126.505			
8,875.00	8,820.64	8,379.00	8,370.66	20.52	17.30	-6.59	1,250.17	4,580.83	4,742.68	4,705.06	37.62	126.082			
8,900.00	8,838.30	8,379.00	8,370.66	20.53	17.30	-7.53	1,250.17	4,580.83	4,726.91	4,689.28	37.63	125.603			
8,925.00	8,855.02	8,379.00	8,370.66	20.55	17.30	-8.49	1,250.17	4,580.83	4,710.26	4,672.62	37.64	125.130			
8,950.00	8,870.75	8,379.00	8,370.66	20.56	17.30	-9.52	1,250.17	4,580.83	4,692.75	4,655.10	37.65	124.643			
8,975.00	8,885.45	8,379.00	8,370.66	20.58	17.30	-10.64	1,250.17	4,580.83	4,674.43	4,636.77	37.65	124.142			
9,000.00	8,899.07	8,379.00	8,370.66	20.60	17.30	-11.87	1,250.17	4,580.83	4,655.33	4,617.67	37.66	123.627			
9,025.00	8,911.59	8,401.61	8,393.16	20.63	17.35	-13.35	1,250.80	4,582.89	4,635.00	4,597.28	37.72	122.881			
9,050.00	8,922.96	8,403.13	8,394.67	20.71	17.35	-14.95	1,250.85	4,583.06	4,614.42	4,576.70	37.72	122.327			
9,075.00	8,933.15	8,404.53	8,396.07	20.85	17.36	-16.81	1,250.91	4,583.22	4,593.20	4,555.48	37.72	121.763			
9,100.00	8,942.14	8,427.00	8,418.30	21.01	17.41	-19.21	1,252.01	4,586.19	4,571.84	4,534.06	37.78	121.011			
9,125.00	8,949.90	8,427.00	8,418.30	21.19	17.41	-21.90	1,252.01	4,586.19	4,549.45	4,511.68	37.77	120.439			
9,150.00	8,956.42	8,427.00	8,418.30	21.40	17.41	-25.20	1,252.01	4,586.19	4,526.60	4,488.83	37.77	119.859			
9,175.00	8,961.66	8,427.00	8,418.30	21.62	17.41	-29.32	1,252.01	4,586.19	4,503.33	4,465.57	37.76	119.271			
9,200.00	8,965.83	8,427.00	8,418.30	21.85	17.41	-34.56	1,252.01	4,586.19	4,479.70	4,441.95	37.75	118.677			
9,225.00	8,968.30	8,427.00	8,418.30	22.10	17.41	-41.31	1,252.01	4,586.19	4,455.77	4,418.03	37.74	118.076			
9,250.00	8,969.67	8,427.00	8,418.30	22.37	17.41	-50.04	1,252.01	4,586.19	4,431.61	4,393.88	37.73	117.471			
9,259.65	8,969.85	8,427.00	8,418.30	25.31	17.41	-54.03	1,252.01	4,586.19	4,422.22	4,379.77	42.46	104.154			
9,300.00	8,970.20	8,427.00	8,418.30	25.34	17.41	-54.03	1,252.01	4,586.19	4,382.98	4,340.50	42.48	103.170			
9,400.00	8,971.07	8,427.00	8,418.30	25.41	17.41	-54.03	1,252.01	4,586.19	4,285.80	4,243.25	42.55	100.735			
9,500.00	8,971.93	8,427.00	8,418.30	25.49	17.41	-54.03	1,252.01	4,586.19	4,188.75	4,146.14	42.61	98.306			
9,600.00	8,972.80	8,427.00	8,418.30	25.57	17.41	-54.03	1,252.01	4,586.19	4,091.85	4,049.17	42.68	95.881			
9,700.00	8,973.66	8,427.00	8,418.30	25.65	17.41	-54.03	1,252.01	4,586.19	3,995.09	3,952.35	42.75	93.461			
9,800.00	8,974.53	8,427.00	8,418.30	25.73	17.41	-54.03	1,252.01	4,586.19	3,898.50	3,855.68	42.82	91.047			
9,900.00	8,975.39	8,427.00	8,418.30	25.83	17.41	-54.03	1,252.01	4,586.19	3,802.09	3,759.19	42.89	88.638			
10,000.00	8,976.26	8,427.00	8,418.30	25.92	17.41	-54.03	1,252.01	4,586.19	3,705.87	3,662.89	42.97	86.235			
10,100.00	8,977.13	8,427.00	8,418.30	26.03	17.41	-54.03	1,252.01	4,586.19	3,609.85	3,566.79	43.06	83.837			
10,200.00	8,977.99	8,427.00	8,418.30	26.15	17.41	-54.03	1,252.01	4,586.19	3,514.05	3,470.91	43.15	81.445			
10,300.00	8,978.86	8,427.00	8,418.30	26.31	17.41	-54.03	1,252.01	4,586.19	3,418.50	3,375.26	43.24	79.058			
10,400.00	8,979.72	8,427.00	8,418.30	26.51	17.41	-54.03	1,252.01	4,586.19	3,323.20	3,279.86	43.34	76.678			
10,500.00	8,980.59	8,427.00	8,418.30	26.81	17.41	-54.03	1,252.01	4,586.19	3,228.20	3,184.75	43.45	74.305			
10,600.00	8,981.45	8,427.00	8,418.30	27.24	17.41	-54.03	1,252.01	4,586.19	3,133.50	3,089.94	43.56	71.937			
10,700.00	8,982.32	8,427.00	8,418.30	27.78	17.41	-54.03	1,252.01	4,586.19	3,039.14	2,995.46	43.68	69.576			
10,800.00	8,983.19	8,427.00	8,418.30	28.39	17.41	-54.03	1,252.01	4,586.19	2,945.15	2,901.34	43.81	67.222			
10,900.00	8,984.05	8,427.00	8,418.30	29.05	17.41	-54.03	1,252.01	4,586.19	2,851.58	2,807.62	43.95	64.876			
11,000.00	8,984.92	8,449.05	8,439.98	29.75	17.46	-55.07	1,253.47	4,589.92	2,757.90	2,713.73	44.17	62.433			
11,100.00	8,985.78	8,452.31	8,443.17	30.49	17.46	-55.23	1,253.71	4,590.54	2,665.10	2,620.74	44.35	60.087			
11,200.00	8,986.65	8,476.00	8,466.23	31.25	17.52	-56.38	1,255.70	4,595.61	2,573.27	2,528.66	44.61	57.680			
11,300.00	8,987.52	8,476.00	8,466.23	32.03	17.52	-56.38	1,255.70	4,595.61	2,481.39	2,436.57	44.82	55.360			
11,400.00	8,988.38	8,476.00	8,466.23	32.84	17.52	-56.38	1,255.70	4,595.61	2,390.17	2,345.11	45.06	53.050			
11,500.00	8,989.25	8,476.00	8,466.23	33.66	17.52	-56.38	1,255.70	4,595.61	2,299.67	2,254.36	45.31	50.750			
11,600.00	8,990.11	8,476.00	8,466.23	34.50	17.52	-56.38	1,255.70	4,595.61	2,210.00	2,164.40	45.60	48.462			
11,700.00	8,990.98	8,476.00	8,466.23	35.36	17.52	-56.38	1,255.70	4,595.61	2,121.25	2,075.32	45.93	46.188			
11,800.00	8,991.84	8,476.00	8,466.23	36.23	17.52	-56.38	1,255.70	4,595.61	2,033.54	1,987.25	46.29	43.929			
11,900.00	8,992.71	8,476.00	8,466.23	37.12	17.52	-56.38	1,255.70	4,595.61	1,947.02	1,900.31	46.70	41.689			
12,000.00	8,993.58	8,476.00	8,466.23	38.02	17.52	-56.38	1,255.70	4,595.61	1,861.84	1,814.67	47.17	39.470			
12,100.00	8,994.44	8,498.31	8,487.69	38.93	17.57	-57.48	1,257.91	4,601.29	1,777.59	1,729.80	47.79	37.194			
12,200.00	8,995.31	8,522.00	8,510.16	39.85	17.63	-58.67	1,260.60	4,608.29	1,695.68	1,647.18	48.50	34.962			
12,300.00	8,996.17	8,522.00	8,510.16	40.78	17.63	-58.67	1,260.60	4,608.29	1,615.02	1,565.83	49.20	32.827			

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: OH
Reference Design: Plan #3

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+ YES GyroFlex V2, 243-LEAM MWD+HDGM												Offset Well Error:	0.00 usft
Reference	Vertical	Measured	Vertical	Reference	Offset	Semi Major Axis	Highside	Offset Wellbore Centre	Between	Between	Minimum	Separation	Warning
Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Centres	Ellipses	Separation	Factor	
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	
12,400.00	8,997.04	8,522.00	8,510.16	41.72	17.63	-58.67	1,260.60	4,608.29	1,536.65	1,466.66	49.99	30.739	
12,500.00	8,997.90	8,522.00	8,510.16	42.67	17.63	-58.67	1,260.60	4,608.29	1,460.91	1,410.03	50.89	28.708	
12,600.00	8,998.77	8,539.74	8,526.76	43.63	17.67	-59.58	1,262.84	4,614.12	1,387.89	1,335.89	52.00	26.689	
12,700.00	8,999.64	8,551.22	8,537.41	44.59	17.70	-60.17	1,264.40	4,618.13	1,318.19	1,264.98	53.22	24.769	
12,800.00	9,000.50	8,570.00	8,554.64	45.56	17.74	-61.13	1,267.11	4,625.08	1,252.30	1,197.67	54.63	22.925	
12,900.00	9,001.37	8,570.00	8,554.64	46.54	17.74	-61.13	1,267.11	4,625.08	1,190.72	1,134.66	56.05	21.244	
13,000.00	9,002.23	8,595.98	8,578.12	47.53	17.81	-62.48	1,271.10	4,635.45	1,133.93	1,076.13	57.80	19.618	
13,100.00	9,003.10	8,618.00	8,597.68	48.52	17.87	-63.62	1,274.64	4,644.93	1,082.78	1,023.13	59.65	18.152	
13,200.00	9,003.96	8,638.84	8,615.88	49.51	17.93	-64.70	1,278.05	4,654.50	1,037.83	976.24	61.59	16.852	
13,300.00	9,004.83	8,666.00	8,639.08	50.51	18.00	-66.09	1,282.46	4,667.90	999.66	936.04	63.62	15.712	
13,400.00	9,005.70	8,686.77	8,656.35	51.52	18.07	-67.14	1,285.99	4,678.89	969.06	903.48	65.58	14.776	
13,500.00	9,006.56	8,714.00	8,678.17	52.53	18.16	-68.49	1,291.12	4,694.34	946.80	879.29	67.51	14.025	
13,600.00	9,007.43	8,741.98	8,699.54	53.55	18.27	-69.84	1,296.77	4,711.48	933.01	863.72	69.29	13.466	
13,700.00	9,008.29	8,764.93	8,730.16	54.56	18.45	-71.79	1,305.68	4,740.23	927.30	856.25	71.05	13.052	
13,730.37	9,008.56	8,800.92	8,740.93	54.88	18.53	-72.48	1,309.00	4,751.58	926.99	855.41	71.58	12.951	
13,800.00	9,009.16	8,839.64	8,765.31	55.59	18.74	-74.05	1,316.96	4,780.57	928.54	855.77	72.77	12.760	
13,900.00	9,010.03	8,913.79	8,804.37	56.61	19.24	-76.57	1,331.46	4,841.82	935.26	860.62	74.64	12.530	
14,000.00	9,010.89	9,003.13	8,837.79	57.64	20.06	-78.72	1,346.10	4,923.21	944.24	867.51	76.73	12.306	
14,100.00	9,011.76	9,174.43	8,858.92	58.68	22.26	-80.07	1,361.86	5,091.81	951.52	871.24	80.29	11.852	
14,200.00	9,012.62	9,303.99	8,866.08	59.71	24.31	-80.46	1,364.95	5,221.14	953.12	869.73	83.39	11.430	
14,300.00	9,013.49	9,430.65	8,875.95	60.75	26.59	-80.98	1,364.28	5,347.40	951.43	864.73	86.70	10.974	
14,400.00	9,014.35	9,537.13	8,884.05	61.80	28.68	-81.38	1,361.96	5,453.55	948.24	858.41	89.83	10.556	
14,500.00	9,015.22	9,639.69	8,891.18	62.84	30.79	-81.73	1,358.92	5,555.81	944.41	851.40	93.01	10.154	
14,600.00	9,016.09	9,732.30	8,896.04	63.89	32.77	-81.95	1,356.26	5,648.26	940.95	844.88	96.07	9.794	
14,700.00	9,016.95	9,822.78	8,898.90	64.94	34.76	-82.06	1,354.29	5,738.67	938.46	839.33	99.13	9.467	
14,800.00	9,017.82	9,913.71	8,898.35	65.99	36.81	-81.96	1,352.67	5,829.57	936.91	834.69	102.22	9.166	
14,900.00	9,018.68	10,007.36	8,896.28	67.04	38.95	-81.78	1,351.82	5,923.19	936.43	831.05	105.38	8.887	
15,000.00	9,019.55	10,117.55	8,893.43	68.10	41.53	-81.54	1,350.11	6,033.33	935.38	826.46	108.92	8.588	
15,100.00	9,020.41	10,220.25	8,890.73	69.16	43.97	-81.30	1,347.96	6,135.98	933.83	821.49	112.34	8.312	
15,200.00	9,021.28	10,343.42	8,888.21	70.22	46.94	-81.05	1,344.25	6,259.07	931.40	815.20	116.20	8.016	
15,300.00	9,022.15	10,436.00	8,887.33	71.28	49.19	-80.90	1,339.94	6,351.53	927.12	807.63	119.49	7.759	
15,400.00	9,023.01	10,526.53	8,887.35	72.34	51.40	-80.83	1,337.33	6,442.03	924.39	801.63	122.76	7.530	
15,500.00	9,023.88	10,620.30	8,887.97	73.41	53.72	-80.80	1,335.33	6,535.78	922.31	796.20	126.11	7.313	
15,600.00	9,024.74	10,720.85	8,889.20	74.48	56.21	-80.81	1,333.76	6,636.31	920.73	791.09	129.64	7.102	
15,700.00	9,025.61	10,812.06	8,890.89	75.54	58.49	-80.85	1,332.49	6,727.49	919.22	786.24	132.98	6.912	
15,800.00	9,026.48	10,907.42	8,892.84	76.61	60.88	-80.92	1,332.35	6,822.83	918.87	782.44	136.43	6.735	
15,882.91	9,027.19	10,987.47	8,894.59	77.50	62.89	-80.98	1,332.30	6,902.86	918.65	779.33	139.32	6.594	
15,900.00	9,027.34	11,003.32	8,895.06	77.68	63.29	-81.00	1,332.37	6,918.71	918.66	778.76	139.90	6.566	
16,000.00	9,028.21	11,114.08	8,899.21	78.78	66.08	-81.20	1,332.74	7,029.39	918.58	774.81	143.77	6.389	
16,075.94	9,028.86	11,180.58	8,901.63	79.57	67.77	-81.31	1,332.46	7,095.84	917.97	771.68	146.29	6.275	
16,100.00	9,029.07	11,199.54	8,902.20	79.83	68.25	-81.34	1,332.57	7,114.79	918.04	771.01	147.03	6.244	
16,200.00	9,029.94	11,317.00	8,903.97	80.91	71.23	-81.39	1,332.82	7,232.22	918.25	767.20	151.05	6.079	
16,300.00	9,030.80	11,409.00	8,901.94	81.98	73.57	-81.20	1,331.62	7,324.19	917.41	763.01	154.40	5.942	
16,400.00	9,031.67	11,534.20	8,894.78	83.06	76.77	-80.66	1,328.06	7,449.12	915.65	757.26	158.39	5.781	
16,500.00	9,032.54	11,670.80	8,883.53	84.14	80.25	-79.80	1,319.31	7,584.96	910.98	748.65	162.33	5.612	
16,600.00	9,033.40	11,801.29	8,873.98	85.22	83.59	-78.96	1,304.95	7,714.29	901.45	735.48	165.97	5.431	
16,700.00	9,034.27	11,890.37	8,869.73	86.30	85.87	-78.52	1,295.17	7,802.72	891.73	722.44	169.29	5.267	
16,800.00	9,035.13	11,983.47	8,868.88	87.38	88.27	-78.30	1,286.00	7,895.35	882.46	709.74	172.73	5.109	
16,900.00	9,036.00	12,049.00	8,870.31	88.46	89.96	-78.28	1,280.38	7,960.63	874.52	698.69	175.82	4.974	
16,940.43	9,036.35	12,049.00	8,870.31	88.90	89.96	-78.28	1,280.38	7,960.63	873.58	697.20	176.38	4.953 CC, ES, SF	
17,000.00	9,036.86	12,049.00	8,870.31	89.54	89.96	-78.28	1,280.38	7,960.63	875.61	699.02	176.59	4.958	
17,100.00	9,037.73	12,049.00	8,870.31	90.63	89.96	-78.28	1,280.38	7,960.63	888.04	712.73	175.30	5.066	

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
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Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #3

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- VES GyroFlex V2, 243-LEAM MWD+HGM													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
17,200.00	9,038.60	12,049.00	8,870.31	91.71	89.96	-78.28	1,280.38	7,960.63	911.33	739.15	172.19	5.293	
17,300.00	9,039.46	12,049.00	8,870.31	92.80	89.96	-78.28	1,280.38	7,960.63	944.69	777.07	167.62	5.636	
17,400.00	9,040.33	12,049.00	8,870.31	93.89	89.96	-78.28	1,280.38	7,960.63	987.09	825.05	162.05	6.091	
17,500.00	9,041.19	12,049.00	8,870.31	94.97	89.96	-78.28	1,280.38	7,960.63	1,037.43	881.53	155.91	6.654	
17,600.00	9,042.06	12,049.00	8,870.31	96.06	89.96	-78.28	1,280.38	7,960.63	1,094.62	945.06	149.55	7.319	
17,700.00	9,042.93	12,049.00	8,870.31	97.15	89.96	-78.28	1,280.38	7,960.63	1,157.63	1,014.37	143.25	8.081	
17,800.00	9,043.79	12,049.00	8,870.31	98.24	89.96	-78.28	1,280.38	7,960.63	1,225.57	1,088.38	137.18	8.934	
17,900.00	9,044.66	12,049.00	8,870.31	99.33	89.96	-78.28	1,280.38	7,960.63	1,297.66	1,166.21	131.45	9.872	
18,000.00	9,045.52	12,049.00	8,870.31	100.42	89.96	-78.28	1,280.38	7,960.63	1,373.26	1,247.15	126.11	10.889	
18,100.00	9,046.39	12,049.00	8,870.31	101.51	89.96	-78.28	1,280.38	7,960.63	1,451.81	1,330.62	121.19	11.980	
18,200.00	9,047.25	12,049.00	8,870.31	102.60	89.96	-78.28	1,280.38	7,960.63	1,532.86	1,416.19	116.67	13.138	
18,300.00	9,048.12	12,049.00	8,870.31	103.69	89.96	-78.28	1,280.38	7,960.63	1,616.04	1,503.49	112.55	14.359	
18,400.00	9,048.99	12,049.00	8,870.31	104.79	89.96	-78.28	1,280.38	7,960.63	1,701.03	1,592.24	108.79	15.636	
18,500.00	9,049.85	12,049.00	8,870.31	105.88	89.96	-78.28	1,280.38	7,960.63	1,787.57	1,682.20	105.37	16.965	
18,600.00	9,050.72	12,049.00	8,870.31	106.98	89.96	-78.28	1,280.38	7,960.63	1,875.46	1,773.20	102.26	18.340	
18,700.00	9,051.58	12,049.00	8,870.31	108.07	89.96	-78.28	1,280.38	7,960.63	1,964.50	1,865.07	99.43	19.757	
18,800.00	9,052.45	12,049.00	8,870.31	109.16	89.96	-78.28	1,280.38	7,960.63	2,054.55	1,957.69	96.86	21.212	
18,900.00	9,053.31	12,049.00	8,870.31	110.26	89.96	-78.28	1,280.38	7,960.63	2,145.48	2,050.97	94.51	22.700	
19,000.00	9,054.18	12,049.00	8,870.31	111.36	89.96	-78.28	1,280.38	7,960.63	2,237.18	2,144.81	92.38	24.218	
19,100.00	9,055.05	12,049.00	8,870.31	112.45	89.96	-78.28	1,280.38	7,960.63	2,329.57	2,239.15	90.43	25.762	
19,200.00	9,055.91	12,049.00	8,870.31	113.55	89.96	-78.28	1,280.38	7,960.63	2,422.57	2,333.92	88.64	27.329	
19,300.00	9,056.78	12,049.00	8,870.31	114.65	89.96	-78.28	1,280.38	7,960.63	2,516.10	2,429.08	87.02	28.916	
19,400.00	9,057.64	12,049.00	8,870.31	115.74	89.96	-78.28	1,280.38	7,960.63	2,610.11	2,524.58	85.52	30.519	
19,500.00	9,058.51	12,049.00	8,870.31	116.84	89.96	-78.28	1,280.38	7,960.63	2,704.55	2,620.39	84.16	32.137	
19,600.00	9,059.37	12,049.00	8,870.31	117.94	89.96	-78.28	1,280.38	7,960.63	2,799.37	2,716.47	82.90	33.767	
19,700.00	9,060.24	12,049.00	8,870.31	119.04	89.96	-78.28	1,280.38	7,960.63	2,894.55	2,812.80	81.75	35.407	
19,800.00	9,061.11	12,049.00	8,870.31	120.14	89.96	-78.28	1,280.38	7,960.63	2,990.04	2,909.34	80.69	37.055	
19,900.00	9,061.97	12,049.00	8,870.31	121.24	89.96	-78.28	1,280.38	7,960.63	3,085.81	3,006.09	79.72	38.710	
20,000.00	9,062.84	12,049.00	8,870.31	122.34	89.96	-78.28	1,280.38	7,960.63	3,181.85	3,103.03	78.82	40.369	
20,100.00	9,063.70	12,049.00	8,870.31	123.44	89.96	-78.28	1,280.38	7,960.63	3,278.12	3,200.12	77.99	42.031	
20,200.00	9,064.57	12,049.00	8,870.31	124.54	89.96	-78.28	1,280.38	7,960.63	3,374.61	3,297.38	77.23	43.695	
20,300.00	9,065.44	12,049.00	8,870.31	125.64	89.96	-78.28	1,280.38	7,960.63	3,471.29	3,394.77	76.53	45.360	
20,400.00	9,066.30	12,049.00	8,870.31	126.74	89.96	-78.28	1,280.38	7,960.63	3,568.16	3,492.29	75.88	47.025	
20,500.00	9,067.17	12,049.00	8,870.31	127.84	89.96	-78.28	1,280.38	7,960.63	3,665.20	3,589.92	75.28	48.688	
20,600.00	9,068.03	12,049.00	8,870.31	128.95	89.96	-78.28	1,280.38	7,960.63	3,762.40	3,687.67	74.73	50.349	
20,700.00	9,068.90	12,049.00	8,870.31	130.05	89.96	-78.28	1,280.38	7,960.63	3,859.73	3,785.52	74.22	52.007	
20,800.00	9,069.76	12,049.00	8,870.31	131.15	89.96	-78.28	1,280.38	7,960.63	3,957.20	3,883.46	73.74	53.662	
20,900.00	9,070.63	12,049.00	8,870.31	132.25	89.96	-78.28	1,280.38	7,960.63	4,054.80	3,981.49	73.31	55.313	
21,000.00	9,071.50	12,049.00	8,870.31	133.36	89.96	-78.28	1,280.38	7,960.63	4,152.50	4,079.60	72.90	56.958	
21,100.00	9,072.36	12,049.00	8,870.31	134.46	89.96	-78.28	1,280.38	7,960.63	4,250.32	4,177.79	72.53	58.599	
21,200.00	9,073.23	12,049.00	8,870.31	135.56	89.96	-78.28	1,280.38	7,960.63	4,348.23	4,276.04	72.19	60.234	
21,300.00	9,074.09	12,049.00	8,870.31	136.67	89.96	-78.28	1,280.38	7,960.63	4,446.24	4,374.37	71.87	61.862	
21,400.00	9,074.96	12,049.00	8,870.31	137.77	89.96	-78.28	1,280.38	7,960.63	4,544.33	4,472.75	71.58	63.485	
21,500.00	9,075.82	12,049.00	8,870.31	138.87	89.96	-78.28	1,280.38	7,960.63	4,642.51	4,571.19	71.31	65.100	
21,600.00	9,076.69	12,049.00	8,870.31	139.98	89.96	-78.28	1,280.38	7,960.63	4,740.76	4,669.69	71.07	66.709	
21,700.00	9,077.56	12,049.00	8,870.31	141.08	89.96	-78.28	1,280.38	7,960.63	4,839.08	4,768.24	70.84	68.311	
21,714.06	9,077.68	12,049.00	8,870.31	141.16	89.96	-78.28	1,280.38	7,960.63	4,852.91	4,786.10	66.81	72.636	

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: OH
Reference Design: Plan #3

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 - Plan #6													Offset Site Error: 0.00 usft
Survey Program: 140- VES GyroFlex V2, 243-LEAM MWD+HDGM, 11775-MWD+IFR1+MS													Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	11.41	11.41	0.00	0.01	73.03	1,366.23	4,478.07	4,681.85				
100.00	100.00	111.51	111.51	0.09	0.08	73.03	1,366.66	4,477.94	4,681.85	4,681.68	0.17	N/A	
133.81	133.81	145.21	145.21	0.16	0.11	73.02	1,366.96	4,477.85	4,681.85	4,681.58	0.27	N/A	
200.00	200.00	209.72	209.71	0.31	0.16	73.02	1,367.55	4,477.68	4,681.66	4,681.39	0.46	N/A	
300.00	300.00	290.02	290.01	0.54	0.27	73.01	1,368.32	4,477.58	4,682.04	4,681.24	0.80	5,872.310	
400.00	400.00	378.24	378.22	0.76	0.43	72.99	1,369.61	4,477.85	4,682.74	4,681.55	1.19	3,949.890	
500.00	500.00	481.85	481.81	0.99	0.63	72.97	1,371.40	4,477.95	4,683.34	4,681.72	1.62	2,897.121	
600.00	600.00	568.10	568.05	1.21	0.81	72.95	1,373.07	4,478.12	4,684.09	4,682.07	2.02	2,313.500	
700.00	700.00	646.19	646.12	1.43	0.98	72.94	1,374.75	4,478.53	4,685.23	4,682.81	2.42	1,935.889	
800.00	800.00	724.24	724.15	1.66	1.15	72.92	1,376.39	4,479.39	4,686.90	4,684.08	2.81	1,664.973	
900.00	900.00	821.66	821.54	1.88	1.36	72.90	1,378.53	4,480.64	4,688.77	4,685.52	3.25	1,444.305	
1,000.00	1,000.00	911.00	910.85	2.11	1.55	72.89	1,380.08	4,482.05	4,690.79	4,687.13	3.66	1,282.715	
1,100.00	1,100.00	995.91	995.74	2.33	1.73	72.88	1,381.09	4,483.79	4,693.09	4,689.04	4.06	1,156.160	
1,200.00	1,200.00	1,093.10	1,092.89	2.56	1.94	72.87	1,382.39	4,486.01	4,695.68	4,691.19	4.49	1,046.006	
1,300.00	1,300.00	1,222.28	1,222.04	2.78	2.20	72.86	1,384.13	4,488.32	4,697.75	4,692.77	4.98	944.120	
1,400.00	1,400.00	1,329.93	1,329.67	3.01	2.42	72.85	1,385.75	4,489.88	4,699.58	4,694.15	5.42	866.633	
1,500.00	1,500.00	1,416.07	1,415.79	3.23	2.61	72.84	1,387.09	4,491.13	4,701.42	4,695.60	5.83	806.696	
1,600.00	1,600.00	1,525.00	1,524.69	3.46	2.84	72.82	1,388.72	4,492.93	4,703.45	4,697.17	6.28	748.797	
1,700.00	1,700.00	1,630.25	1,629.91	3.68	3.06	72.81	1,390.58	4,494.31	4,705.22	4,698.50	6.72	699.716	
1,800.00	1,800.00	1,742.93	1,742.58	3.91	3.29	72.80	1,392.10	4,495.79	4,706.88	4,699.70	7.18	655.499	
1,900.00	1,900.00	1,878.06	1,877.69	4.13	3.57	72.79	1,393.01	4,496.76	4,707.70	4,700.02	7.69	612.578	
2,000.00	2,000.00	1,971.87	1,971.50	4.36	3.77	72.78	1,393.57	4,497.37	4,708.50	4,700.39	8.11	580.781	
2,100.00	2,100.00	2,069.69	2,069.32	4.58	3.97	72.78	1,394.32	4,498.03	4,709.37	4,700.84	8.54	551.542	
2,200.00	2,200.00	2,180.91	2,180.53	4.81	4.21	72.77	1,394.94	4,498.80	4,710.20	4,701.21	9.00	523.574	
2,300.00	2,300.00	2,289.67	2,289.29	5.03	4.43	72.78	1,394.76	4,499.47	4,710.74	4,701.29	9.45	498.699	
2,400.00	2,400.00	2,424.18	2,423.80	5.26	4.71	72.78	1,394.36	4,499.62	4,710.73	4,700.78	9.95	473.541	
2,482.22	2,482.22	2,494.00	2,493.62	5.44	4.85	72.78	1,394.25	4,499.56	4,710.62	4,700.34	10.28	458.334	
2,500.00	2,500.00	2,511.15	2,510.77	5.48	4.89	72.78	1,394.25	4,499.56	4,710.62	4,700.27	10.35	454.978	
2,600.00	2,600.00	2,616.43	2,616.05	5.71	5.11	72.78	1,394.35	4,499.56	4,710.65	4,699.85	10.80	436.254	
2,700.00	2,700.00	2,724.22	2,723.84	5.93	5.33	72.79	1,393.89	4,499.31	4,710.30	4,699.05	11.25	418.788	
2,751.49	2,751.49	2,763.27	2,762.89	6.05	5.41	72.79	1,393.65	4,499.33	4,710.23	4,698.78	11.44	411.555	
2,800.00	2,800.00	2,813.75	2,813.37	6.15	5.52	72.79	1,393.34	4,499.45	4,710.25	4,698.59	11.66	403.992	
2,900.00	2,900.00	2,920.03	2,919.64	6.38	5.74	72.80	1,392.63	4,499.42	4,710.02	4,697.92	12.11	389.081	
3,000.00	3,000.00	3,017.85	3,017.46	6.60	5.94	72.81	1,391.98	4,499.56	4,709.96	4,697.42	12.53	375.766	
3,100.00	3,100.00	3,117.42	3,117.03	6.83	6.15	72.82	1,391.41	4,499.52	4,709.75	4,696.78	12.97	363.222	
3,139.21	3,139.21	3,151.00	3,150.61	6.92	6.22	72.82	1,391.38	4,499.51	4,709.72	4,696.60	13.12	358.845	
3,200.00	3,200.00	3,210.29	3,209.90	7.05	6.34	72.82	1,391.42	4,499.52	4,709.74	4,696.36	13.39	351.880	
3,300.00	3,300.00	3,321.52	3,321.13	7.28	6.57	72.82	1,391.20	4,499.53	4,709.71	4,695.86	13.84	340.239	
3,392.29	3,392.29	3,404.08	3,403.69	7.49	6.75	72.82	1,391.39	4,499.31	4,709.54	4,695.32	14.22	331.130	
3,400.00	3,400.00	3,410.16	3,409.77	7.50	6.76	72.82	1,391.43	4,499.30	4,709.54	4,695.29	14.25	330.431	
3,500.00	3,500.00	3,508.17	3,507.77	7.73	6.97	72.80	1,392.41	4,499.15	4,709.69	4,695.00	14.68	320.754	
3,600.00	3,600.00	3,592.95	3,592.55	7.95	7.14	72.79	1,393.55	4,498.92	4,709.84	4,694.75	15.09	312.187	
3,700.00	3,700.00	3,672.34	3,671.91	8.18	7.31	99.61	1,395.31	4,498.93	4,710.64	4,695.17	15.48	304.355	
3,800.00	3,799.96	3,779.32	3,778.85	8.40	7.54	99.59	1,398.46	4,498.94	4,711.68	4,696.05	15.93	295.876	
3,900.00	3,899.86	3,943.35	3,942.85	8.62	7.88	99.64	1,401.09	4,498.20	4,712.77	4,696.28	16.49	285.811	
4,000.00	3,999.88	4,096.27	4,095.75	8.84	8.20	99.76	1,399.98	4,496.55	4,712.54	4,695.51	17.03	276.779	
4,100.00	4,099.37	4,222.76	4,222.21	9.07	8.46	99.89	1,399.23	4,493.93	4,711.70	4,694.19	17.51	269.043	
4,133.72	4,132.95	4,250.19	4,249.63	9.15	8.52	99.92	1,399.14	4,493.29	4,711.45	4,693.80	17.65	266.990	
4,200.00	4,198.94	4,305.00	4,304.43	9.29	8.64	99.97	1,399.10	4,492.10	4,711.12	4,693.20	17.91	263.016	
4,300.00	4,298.51	4,390.26	4,389.67	9.52	8.81	100.06	1,399.43	4,490.37	4,710.90	4,692.58	18.32	257.156	
4,334.39	4,332.74	4,421.49	4,420.90	9.60	8.88	100.09	1,399.68	4,489.75	4,710.89	4,692.42	18.46	255.137	
4,400.00	4,398.07	4,482.60	4,481.99	9.75	9.01	100.14	1,400.42	4,488.52	4,710.92	4,692.18	18.74	251.326	

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
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: OH
Reference Design: Plan #3

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 - Plan #6												Offset Site Error:
Survey Program: 140- VES GyroFlex V2, 243-LEAM MWD+HDGM, 11775-MWD+FR1+MS												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 +N-S (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,500.00	4,497.64	4,563.44	4,562.80	9.98	9.18	100.21	1,401.86	4,486.94	4,711.21	4,692.06	19.15	246.042
4,600.00	4,597.21	4,649.03	4,648.36	10.22	9.36	100.28	1,403.85	4,485.48	4,711.90	4,692.33	19.56	240.850
4,700.00	4,696.77	4,747.49	4,746.78	10.45	9.57	100.35	1,406.24	4,483.96	4,712.78	4,692.77	20.01	235.568
4,800.00	4,796.34	4,841.71	4,840.98	10.69	9.77	100.45	1,407.07	4,482.93	4,713.66	4,693.22	20.44	230.638
4,900.00	4,895.91	4,918.70	4,917.98	10.93	9.92	100.53	1,407.32	4,482.43	4,714.84	4,694.01	20.83	226.308
5,000.00	4,995.47	4,992.38	4,991.65	11.17	10.08	100.62	1,406.88	4,482.64	4,716.64	4,695.42	21.22	222.229
5,100.00	5,095.04	5,102.28	5,101.55	11.41	10.31	100.75	1,405.92	4,483.31	4,718.73	4,697.04	21.69	217.533
5,200.00	5,194.61	5,261.00	5,260.22	11.65	10.63	100.97	1,402.52	4,483.20	4,719.75	4,697.50	22.26	212.041
5,300.00	5,294.17	5,356.00	5,355.18	11.89	10.83	101.10	1,399.72	4,482.87	4,720.40	4,697.70	22.70	207.973
5,400.00	5,393.74	5,448.11	5,447.27	12.13	11.02	101.23	1,397.73	4,482.58	4,721.31	4,698.18	23.13	204.095
5,500.00	5,493.31	5,535.10	5,534.25	12.38	11.21	101.34	1,396.50	4,482.23	4,722.37	4,698.81	23.56	200.440
5,600.00	5,592.87	5,671.81	5,670.94	12.63	11.49	101.50	1,395.35	4,481.00	4,723.10	4,699.01	24.09	196.067
5,700.00	5,692.44	5,755.62	5,754.75	12.87	11.67	101.60	1,394.21	4,480.20	4,723.69	4,699.19	24.51	192.734
5,800.00	5,792.00	5,833.00	5,832.11	13.12	11.82	101.70	1,392.76	4,479.94	4,724.76	4,699.84	24.92	189.634
5,900.00	5,891.57	5,896.68	5,895.78	13.37	11.96	101.79	1,391.37	4,480.19	4,726.45	4,701.16	25.29	186.862
6,000.00	5,991.14	5,959.94	5,959.01	13.62	12.09	101.88	1,389.84	4,480.94	4,728.89	4,703.22	25.67	184.211
6,100.00	6,090.70	6,024.00	6,023.02	13.87	12.22	101.98	1,387.81	4,482.37	4,732.16	4,706.11	26.05	181.662
6,200.00	6,190.27	6,092.97	6,091.89	14.12	12.36	102.10	1,384.78	4,484.62	4,736.14	4,709.71	26.44	179.148
6,300.00	6,289.84	6,168.91	6,167.63	14.37	12.52	102.24	1,380.31	4,487.79	4,740.70	4,713.86	26.84	176.627
6,400.00	6,389.40	6,269.56	6,267.96	14.62	12.73	102.44	1,373.74	4,492.52	4,745.66	4,718.36	27.30	173.841
6,500.00	6,488.97	6,358.22	6,356.37	14.87	12.92	102.61	1,368.39	4,496.37	4,750.47	4,722.73	27.73	171.299
6,600.00	6,588.54	6,426.73	6,424.64	15.12	13.06	102.75	1,363.90	4,499.85	4,755.89	4,727.77	28.12	169.125
6,700.00	6,688.10	6,495.36	6,492.86	15.38	13.21	102.91	1,357.80	4,504.16	4,761.99	4,733.48	28.51	167.030
6,800.00	6,787.67	6,682.85	6,679.27	15.63	13.61	103.33	1,341.37	4,514.88	4,767.75	4,738.57	29.17	163.424
6,900.00	6,887.24	6,789.00	6,785.10	15.88	13.84	103.54	1,334.22	4,519.08	4,772.24	4,742.59	29.65	160.944
7,000.00	6,986.80	6,868.36	6,864.21	16.14	14.01	103.70	1,328.81	4,522.34	4,776.94	4,746.87	30.07	158.860
7,100.00	7,086.37	6,931.28	6,926.93	16.39	14.15	103.82	1,324.81	4,525.28	4,782.35	4,751.89	30.45	157.050
7,200.00	7,185.93	6,980.00	6,975.47	16.65	14.25	103.92	1,321.80	4,527.95	4,788.61	4,757.81	30.80	155.491
7,300.00	7,285.50	7,076.00	7,071.17	16.90	14.46	104.10	1,316.64	4,533.62	4,795.54	4,764.28	31.26	153.432
7,400.00	7,385.07	7,161.64	7,156.53	17.16	14.65	104.25	1,312.27	4,538.98	4,802.84	4,771.15	31.69	151.564
7,500.00	7,484.63	7,308.98	7,303.36	17.42	14.97	104.54	1,303.03	4,547.08	4,809.05	4,776.77	32.27	149.021
7,600.00	7,584.20	7,362.00	7,356.24	17.67	15.09	104.63	1,300.65	4,549.99	4,815.87	4,783.25	32.63	147.608
7,700.00	7,683.77	7,406.56	7,400.66	17.93	15.19	104.71	1,298.76	4,552.88	4,823.77	4,790.81	32.96	146.357
7,800.00	7,783.33	7,458.00	7,451.88	18.19	15.30	104.80	1,296.21	4,556.98	4,832.88	4,799.58	33.31	145.104
7,900.00	7,882.90	7,889.59	7,881.53	18.45	16.26	105.69	1,263.35	4,575.79	4,835.19	4,800.62	34.57	139.850
8,000.00	7,982.47	8,031.00	8,022.78	18.70	16.56	105.91	1,256.99	4,577.58	4,838.35	4,803.21	35.13	137.716
8,100.00	8,082.03	8,104.18	8,095.94	18.96	16.72	106.01	1,255.12	4,577.65	4,840.55	4,805.01	35.54	136.190
8,200.00	8,181.60	8,186.36	8,178.10	19.22	16.89	106.12	1,253.44	4,578.12	4,843.31	4,807.34	35.97	134.644
8,300.00	8,281.17	8,286.32	8,278.04	19.48	17.10	106.25	1,251.61	4,578.82	4,846.26	4,809.83	36.44	133.002
8,400.00	8,380.73	8,331.00	8,322.70	19.74	17.20	106.31	1,250.41	4,579.05	4,849.37	4,812.59	36.78	131.836
8,493.72	8,474.04	8,331.00	8,322.70	19.98	17.20	106.31	1,250.41	4,579.05	4,854.08	4,817.07	37.01	131.162
8,500.00	8,480.30	8,331.00	8,322.70	20.00	17.20	98.67	1,250.41	4,579.05	4,854.42	4,817.40	37.02	131.124
8,525.00	8,505.21	8,354.63	8,346.32	20.05	17.25	63.86	1,250.02	4,579.50	4,854.53	4,817.41	37.12	130.765
8,550.00	8,530.09	8,357.40	8,349.10	20.10	17.25	37.30	1,250.01	4,579.60	4,853.87	4,816.69	37.18	130.561
8,575.00	8,554.87	8,379.00	8,370.66	20.15	17.30	22.65	1,250.17	4,580.83	4,852.37	4,815.09	37.27	130.185
8,600.00	8,579.49	8,379.00	8,370.66	20.19	17.30	14.37	1,250.17	4,580.83	4,849.28	4,811.96	37.32	129.952
8,625.00	8,603.87	8,379.00	8,370.66	20.24	17.30	9.23	1,250.17	4,580.83	4,845.04	4,807.69	37.36	129.696
8,650.00	8,627.95	8,379.00	8,370.66	20.27	17.30	5.75	1,250.17	4,580.83	4,839.67	4,802.28	37.40	129.419
8,675.00	8,651.66	8,379.00	8,370.66	20.31	17.30	3.23	1,250.17	4,580.83	4,833.17	4,795.74	37.43	129.121
8,700.00	8,674.94	8,379.00	8,370.66	20.35	17.30	1.29	1,250.17	4,580.83	4,825.56	4,788.09	37.46	128.803
8,725.00	8,697.72	8,379.00	8,370.66	20.38	17.30	-0.28	1,250.17	4,580.83	4,816.85	4,779.35	37.50	128.466
8,750.00	8,719.95	8,379.00	8,370.66	20.41	17.30	-1.59	1,250.17	4,580.83	4,807.05	4,769.53	37.52	128.109

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: OH
 Reference Design: Plan #3

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 - Plan #6												Offset Site Error:	0.00 usft
Survey Program: 140-VES GyroFlex V2. 243-LEAM MWD+HDGM. 11775-MWD+IFR1+MS												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N-S (usft)	+E-W (usft)					
8,775.00	8,741.58	8,379.00	8,370.66	20.43	17.30	-2.74	1,250.17	4,580.83	4,796.20	4,758.65	37.55	127.734	
8,800.00	8,762.49	8,379.00	8,370.66	20.46	17.30	-3.77	1,250.17	4,580.83	4,784.31	4,746.74	37.57	127.341	
8,825.00	8,782.68	8,379.00	8,370.66	20.48	17.30	-4.74	1,250.17	4,580.83	4,771.41	4,733.82	37.59	126.931	
8,850.00	8,802.08	8,379.00	8,370.66	20.50	17.30	-5.67	1,250.17	4,580.83	4,757.52	4,719.92	37.61	126.505	
8,875.00	8,820.64	8,379.00	8,370.66	20.52	17.30	-6.59	1,250.17	4,580.83	4,742.68	4,705.06	37.62	126.062	
8,900.00	8,838.30	8,379.00	8,370.66	20.53	17.30	-7.53	1,250.17	4,580.83	4,726.91	4,689.28	37.63	125.603	
8,925.00	8,855.02	8,379.00	8,370.66	20.55	17.30	-8.49	1,250.17	4,580.83	4,710.26	4,672.62	37.64	125.130	
8,950.00	8,870.75	8,379.00	8,370.66	20.58	17.30	-9.52	1,250.17	4,580.83	4,692.75	4,655.10	37.65	124.643	
8,975.00	8,885.45	8,379.00	8,370.66	20.58	17.30	-10.64	1,250.17	4,580.83	4,674.43	4,636.77	37.65	124.142	
9,000.00	8,899.07	8,379.00	8,370.66	20.60	17.30	-11.87	1,250.17	4,580.83	4,655.33	4,617.67	37.66	123.627	
9,025.00	8,911.59	8,401.61	8,393.16	20.63	17.35	-13.35	1,250.80	4,582.89	4,635.00	4,597.28	37.72	122.881	
9,050.00	8,922.96	8,403.13	8,394.67	20.71	17.35	-14.95	1,250.85	4,583.06	4,614.42	4,576.70	37.72	122.327	
9,075.00	8,933.15	8,404.53	8,396.07	20.85	17.36	-16.81	1,250.91	4,583.22	4,593.20	4,555.48	37.72	121.763	
9,100.00	8,942.14	8,427.00	8,418.30	21.01	17.41	-19.21	1,252.01	4,586.19	4,571.84	4,534.06	37.78	121.011	
9,125.00	8,949.90	8,427.00	8,418.30	21.19	17.41	-21.90	1,252.01	4,586.19	4,549.45	4,511.68	37.77	120.439	
9,150.00	8,956.42	8,427.00	8,418.30	21.40	17.41	-25.20	1,252.01	4,586.19	4,526.60	4,488.83	37.77	119.859	
9,175.00	8,961.66	8,427.00	8,418.30	21.62	17.41	-29.32	1,252.01	4,586.19	4,503.33	4,465.57	37.76	119.271	
9,200.00	8,965.83	8,427.00	8,418.30	21.85	17.41	-34.56	1,252.01	4,586.19	4,479.70	4,441.95	37.75	118.677	
9,225.00	8,968.30	8,427.00	8,418.30	22.10	17.41	-41.31	1,252.01	4,586.19	4,455.77	4,418.03	37.74	118.076	
9,250.00	8,969.67	8,427.00	8,418.30	22.37	17.41	-50.04	1,252.01	4,586.19	4,431.61	4,393.88	37.73	117.471	
9,259.65	8,969.85	8,427.00	8,418.30	25.31	17.41	-54.03	1,252.01	4,586.19	4,422.22	4,379.77	42.46	104.154	
9,300.00	8,970.20	8,427.00	8,418.30	25.34	17.41	-54.03	1,252.01	4,586.19	4,382.98	4,340.50	42.48	103.170	
9,400.00	8,971.07	8,427.00	8,418.30	25.41	17.41	-54.03	1,252.01	4,586.19	4,285.80	4,243.25	42.55	100.735	
9,500.00	8,971.93	8,427.00	8,418.30	25.49	17.41	-54.03	1,252.01	4,586.19	4,188.75	4,146.14	42.61	98.306	
9,600.00	8,972.80	8,427.00	8,418.30	25.57	17.41	-54.03	1,252.01	4,586.19	4,091.85	4,049.17	42.68	95.881	
9,700.00	8,973.66	8,427.00	8,418.30	25.65	17.41	-54.03	1,252.01	4,586.19	3,995.09	3,952.35	42.75	93.461	
9,800.00	8,974.53	8,427.00	8,418.30	25.73	17.41	-54.03	1,252.01	4,586.19	3,898.50	3,855.68	42.82	91.047	
9,900.00	8,975.39	8,427.00	8,418.30	25.83	17.41	-54.03	1,252.01	4,586.19	3,802.09	3,759.19	42.89	88.638	
10,000.00	8,976.26	8,427.00	8,418.30	25.92	17.41	-54.03	1,252.01	4,586.19	3,705.87	3,662.89	42.97	86.235	
10,100.00	8,977.13	8,427.00	8,418.30	26.03	17.41	-54.03	1,252.01	4,586.19	3,609.85	3,566.79	43.06	83.837	
10,200.00	8,977.99	8,427.00	8,418.30	26.15	17.41	-54.03	1,252.01	4,586.19	3,514.05	3,470.91	43.15	81.445	
10,300.00	8,978.86	8,427.00	8,418.30	26.31	17.41	-54.03	1,252.01	4,586.19	3,418.50	3,375.26	43.24	79.058	
10,400.00	8,979.72	8,427.00	8,418.30	26.51	17.41	-54.03	1,252.01	4,586.19	3,323.20	3,279.86	43.34	76.678	
10,500.00	8,980.59	8,427.00	8,418.30	26.81	17.41	-54.03	1,252.01	4,586.19	3,228.20	3,184.75	43.45	74.305	
10,600.00	8,981.45	8,427.00	8,418.30	27.24	17.41	-54.03	1,252.01	4,586.19	3,133.50	3,089.94	43.56	71.937	
10,700.00	8,982.32	8,427.00	8,418.30	27.78	17.41	-54.03	1,252.01	4,586.19	3,039.14	2,995.46	43.68	69.576	
10,800.00	8,983.19	8,427.00	8,418.30	28.39	17.41	-54.03	1,252.01	4,586.19	2,945.15	2,901.34	43.81	67.222	
10,900.00	8,984.05	8,427.00	8,418.30	29.05	17.41	-54.03	1,252.01	4,586.19	2,851.58	2,807.62	43.95	64.876	
11,000.00	8,984.92	8,449.05	8,439.98	29.75	17.46	-55.07	1,253.47	4,589.92	2,757.90	2,713.73	44.17	62.433	
11,100.00	8,985.78	8,452.31	8,443.17	30.49	17.46	-55.23	1,253.71	4,590.54	2,665.10	2,620.74	44.35	60.087	
11,200.00	8,986.65	8,476.00	8,466.23	31.25	17.52	-56.38	1,255.70	4,595.61	2,573.27	2,528.66	44.61	57.680	
11,300.00	8,987.52	8,476.00	8,466.23	32.03	17.52	-56.38	1,255.70	4,595.61	2,481.39	2,436.57	44.82	55.360	
11,400.00	8,988.38	8,476.00	8,466.23	32.84	17.52	-56.38	1,255.70	4,595.61	2,390.17	2,345.11	45.06	53.050	
11,500.00	8,989.25	8,476.00	8,466.23	33.66	17.52	-56.38	1,255.70	4,595.61	2,299.67	2,254.36	45.31	50.750	
11,600.00	8,990.11	8,476.00	8,466.23	34.50	17.52	-56.38	1,255.70	4,595.61	2,210.00	2,164.40	45.60	48.462	
11,700.00	8,990.98	8,476.00	8,466.23	35.36	17.52	-56.38	1,255.70	4,595.61	2,121.25	2,075.32	45.93	46.188	
11,800.00	8,991.84	8,476.00	8,466.23	36.23	17.52	-56.38	1,255.70	4,595.61	2,033.54	1,987.25	46.29	43.929	
11,900.00	8,992.71	8,476.00	8,466.23	37.12	17.52	-56.38	1,255.70	4,595.61	1,947.02	1,900.31	46.70	41.689	
12,000.00	8,993.58	8,476.00	8,466.23	38.02	17.52	-56.38	1,255.70	4,595.61	1,861.84	1,814.67	47.17	39.470	
12,100.00	8,994.44	8,498.31	8,487.69	38.93	17.57	-57.48	1,257.91	4,601.29	1,777.59	1,729.80	47.79	37.194	
12,200.00	8,995.31	8,522.00	8,510.16	39.85	17.63	-58.67	1,260.60	4,608.29	1,695.68	1,647.18	48.50	34.962	
12,300.00	8,996.17	8,522.00	8,510.16	40.78	17.63	-58.67	1,260.60	4,608.29	1,615.02	1,565.83	49.20	32.827	

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: OH
Reference Design: Plan #3

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 - Plan #6														Offset Site Error:	0.00 usft
Survey Program: 140- VES GYROFLEX V2, 243-LEAM MWD+HDCM, 11775-MWD+IFR1+MS														Offset Well Error:	0.00 usft
Reference	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre	Between	Between	Minimum	Separation				
Depth	Depth	Depth	Depth	Reference	Offset	Toolface	+N-S	+E-W	Centres	Ellipses	Separation	Factor	Warning		
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)				
12,400.00	8,997.04	8,522.00	8,510.16	41.72	17.63	-58.67	1,260.60	4,608.29	1,536.65	1,486.66	49.99	30.739			
12,500.00	8,997.90	8,522.00	8,510.16	42.67	17.63	-58.67	1,260.60	4,608.29	1,460.91	1,410.03	50.89	28.708			
12,600.00	8,998.77	8,539.74	8,526.76	43.63	17.67	-59.58	1,262.84	4,614.12	1,387.89	1,335.89	52.00	26.689			
12,700.00	8,999.64	8,551.22	8,537.41	44.59	17.70	-60.17	1,264.40	4,618.13	1,318.19	1,264.98	53.22	24.769			
12,800.00	9,000.50	8,570.00	8,554.64	45.56	17.74	-61.13	1,267.11	4,625.08	1,252.30	1,197.67	54.63	22.925			
12,900.00	9,001.37	8,570.00	8,554.64	46.54	17.74	-61.13	1,267.11	4,625.08	1,190.72	1,134.66	56.05	21.244			
13,000.00	9,002.23	8,595.98	8,578.12	47.53	17.81	-62.48	1,271.10	4,635.45	1,133.93	1,076.13	57.80	19.618			
13,100.00	9,003.10	8,618.00	8,597.68	48.52	17.87	-63.62	1,274.64	4,644.93	1,082.78	1,023.13	59.65	18.152			
13,200.00	9,003.96	8,638.84	8,615.88	49.51	17.93	-64.70	1,278.05	4,654.50	1,037.83	976.24	61.59	16.852			
13,300.00	9,004.83	8,666.00	8,639.08	50.51	18.00	-66.09	1,282.46	4,667.90	999.66	936.04	63.62	15.712			
13,400.00	9,005.70	8,686.77	8,656.35	51.52	18.07	-67.14	1,285.99	4,678.89	969.06	903.48	65.58	14.776			
13,500.00	9,006.56	8,714.00	8,678.17	52.53	18.16	-68.49	1,291.12	4,694.34	946.80	879.29	67.51	14.025			
13,600.00	9,007.43	8,741.98	8,699.54	53.55	18.27	-69.84	1,296.77	4,711.48	933.01	863.72	69.29	13.466			
13,700.00	9,008.29	8,764.93	8,730.16	54.56	18.45	-71.79	1,305.68	4,740.23	927.30	856.25	71.05	13.052			
13,730.37	9,008.56	8,800.92	8,740.93	54.88	18.53	-72.48	1,309.00	4,751.58	926.99	855.41	71.58	12.951			
13,800.00	9,009.16	8,839.64	8,765.31	55.59	18.74	-74.05	1,316.96	4,780.57	928.54	855.77	72.77	12.760			
13,900.00	9,010.03	8,913.79	8,804.37	56.61	19.24	-76.57	1,331.48	4,841.82	935.26	860.62	74.64	12.530			
14,000.00	9,010.89	9,003.13	8,837.79	57.64	20.06	-78.72	1,346.10	4,923.21	944.24	867.51	76.73	12.306			
14,100.00	9,011.76	9,174.43	8,858.92	58.68	22.26	-80.07	1,361.86	5,091.81	951.52	871.24	80.29	11.852			
14,200.00	9,012.62	9,303.99	8,866.08	59.71	24.31	-80.46	1,364.95	5,221.14	953.12	869.73	83.39	11.430			
14,300.00	9,013.49	9,430.65	8,875.95	60.75	26.59	-80.98	1,364.28	5,347.40	951.43	864.73	86.70	10.974			
14,400.00	9,014.35	9,537.13	8,884.05	61.80	28.68	-81.38	1,361.96	5,453.55	948.24	858.41	89.83	10.556			
14,500.00	9,015.22	9,639.69	8,891.18	62.84	30.79	-81.73	1,358.92	5,555.81	944.41	851.40	93.01	10.154			
14,600.00	9,016.09	9,732.30	8,896.04	63.89	32.77	-81.95	1,356.26	5,648.26	940.95	844.88	96.07	9.794			
14,700.00	9,016.95	9,822.78	8,898.90	64.94	34.76	-82.06	1,354.29	5,738.67	938.46	839.33	99.13	9.467			
14,800.00	9,017.82	9,913.71	8,898.35	65.99	36.81	-81.96	1,352.67	5,829.57	936.91	834.69	102.22	9.166			
14,900.00	9,018.68	10,007.36	8,896.28	67.04	38.95	-81.78	1,351.82	5,923.19	936.43	831.05	105.38	8.887			
15,000.00	9,019.55	10,117.55	8,893.43	68.10	41.53	-81.54	1,350.11	6,033.33	935.38	826.46	108.92	8.588			
15,100.00	9,020.41	10,220.25	8,890.73	69.16	43.97	-81.30	1,347.96	6,135.98	933.83	821.49	112.34	8.312			
15,200.00	9,021.28	10,343.42	8,888.21	70.22	46.94	-81.05	1,344.25	6,259.07	931.40	815.20	116.20	8.016			
15,300.00	9,022.15	10,436.00	8,887.33	71.28	49.19	-80.90	1,339.94	6,351.53	927.12	807.63	119.49	7.759			
15,400.00	9,023.01	10,526.53	8,887.35	72.34	51.40	-80.83	1,337.33	6,442.03	924.39	801.63	122.76	7.530			
15,500.00	9,023.88	10,620.30	8,887.97	73.41	53.72	-80.80	1,335.33	6,535.78	922.31	796.20	126.11	7.313			
15,600.00	9,024.74	10,720.85	8,889.20	74.48	56.21	-80.81	1,333.76	6,636.31	920.73	791.09	129.64	7.102			
15,700.00	9,025.61	10,812.06	8,890.89	75.54	58.49	-80.85	1,332.49	6,727.49	919.22	786.24	132.98	6.912			
15,800.00	9,026.48	10,907.42	8,892.84	76.61	60.88	-80.92	1,332.35	6,822.83	918.87	782.44	136.43	6.735			
15,882.91	9,027.19	10,987.47	8,894.59	77.50	62.89	-80.98	1,332.30	6,902.86	918.65	779.33	139.32	6.594			
15,900.00	9,027.34	11,003.32	8,895.06	77.68	63.29	-81.00	1,332.37	6,918.71	918.66	778.76	139.90	6.566			
16,000.00	9,028.21	11,106.10	8,898.55	78.76	65.88	-81.17	1,332.97	7,021.42	918.86	775.28	143.58	6.400			
16,100.00	9,029.07	11,212.97	8,900.78	79.83	68.59	-81.24	1,332.57	7,128.26	918.29	770.96	147.34	6.233			
16,200.00	9,029.94	11,317.00	8,901.41	80.91	71.24	-81.22	1,331.22	7,232.28	917.05	766.04	151.01	6.073			
16,300.00	9,030.80	11,409.00	8,899.38	81.98	73.58	-81.03	1,330.01	7,324.25	916.22	761.86	154.36	5.936			
16,400.00	9,031.67	11,533.83	8,892.24	83.06	76.77	-80.49	1,326.47	7,448.81	914.49	756.15	158.34	5.775			
16,500.00	9,032.54	11,670.13	8,881.02	84.14	80.24	-79.62	1,317.76	7,584.36	909.87	747.59	162.27	5.607			
16,600.00	9,033.40	11,804.98	8,871.14	85.22	83.28	-78.76	1,302.81	7,717.99	900.31	734.82	165.49	5.440			
16,700.00	9,034.27	11,895.97	8,865.92	86.30	83.29	-78.24	1,291.78	7,808.16	889.73	723.22	166.50	5.344			
16,800.00	9,035.13	11,980.15	8,862.59	87.38	83.31	-77.86	1,283.20	7,891.83	880.72	713.06	167.66	5.253			
16,900.00	9,036.00	12,064.81	8,860.92	88.46	83.34	-77.61	1,276.39	7,976.19	873.46	704.63	168.84	5.173			
17,000.00	9,036.86	12,149.78	8,860.94	89.54	83.38	-77.50	1,271.41	8,061.01	867.92	697.88	170.04	5.104			
17,100.00	9,037.73	12,234.92	8,862.68	90.63	83.43	-77.52	1,268.29	8,146.08	864.08	692.81	171.26	5.045			
17,200.00	9,038.60	12,320.09	8,866.12	91.71	83.50	-77.67	1,267.03	8,231.16	861.95	689.43	172.52	4.996			
17,272.58	9,039.22	12,381.83	8,869.68	92.50	83.55	-77.87	1,267.28	8,292.80	861.49	688.04	173.45	4.967			

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: OH
Reference Design: Plan #3

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 - Plan #6												Offset Site Error:	0.00 usft
Survey Program: 140- VES GyroFlex V2, 243-LEAM MWD+HDGM, 11775-MWD+IFR1+MS												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)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
17,300.00	9,039.46	12,405.59	8,871.28	92.80	83.57	-77.97	1,267.64	8,316.51	861.56	687.75	173.81	4.957	
17,400.00	9,040.33	12,505.39	8,878.25	93.89	83.67	-78.39	1,269.38	8,416.05	862.01	686.84	175.17	4.921	
17,500.00	9,041.19	12,605.19	8,885.21	94.97	83.78	-78.81	1,271.11	8,515.59	862.51	685.97	176.53	4.886	
17,600.00	9,042.06	12,704.98	8,892.17	96.06	83.91	-79.23	1,272.85	8,615.12	863.05	685.14	177.91	4.851	
17,700.00	9,042.93	12,804.78	8,899.13	97.15	84.06	-79.65	1,274.59	8,714.66	863.65	684.35	179.30	4.817	
17,800.00	9,043.79	12,904.58	8,906.09	98.24	84.22	-80.07	1,276.33	8,814.20	864.29	683.59	180.70	4.783	
17,900.00	9,044.66	13,010.23	8,913.37	99.33	84.40	-80.50	1,277.99	8,919.59	864.83	682.70	182.13	4.749	
18,000.00	9,045.52	13,124.05	8,920.40	100.42	84.62	-80.90	1,278.11	9,033.19	864.07	680.53	183.55	4.708	
18,100.00	9,046.39	13,237.94	8,926.42	101.51	84.85	-81.21	1,276.19	9,146.91	861.73	676.82	184.91	4.660	
18,200.00	9,047.25	13,351.81	8,931.44	102.60	85.10	-81.44	1,272.25	9,260.59	857.77	671.55	186.22	4.606	
18,300.00	9,048.12	13,465.58	8,935.45	103.69	85.38	-81.58	1,266.30	9,374.12	852.19	664.72	187.47	4.546	
18,400.00	9,048.99	13,579.11	8,938.45	104.79	85.66	-81.64	1,258.33	9,487.34	845.00	656.33	188.67	4.479	
18,500.00	9,049.85	13,692.37	8,940.44	105.88	85.97	-81.61	1,248.39	9,600.14	836.18	646.37	189.81	4.405	
18,600.00	9,050.72	13,803.21	8,941.43	106.98	86.29	-81.49	1,236.74	9,710.36	825.77	634.83	190.94	4.325	
18,700.00	9,051.58	13,902.59	8,942.00	108.07	86.58	-81.35	1,225.67	9,809.12	814.79	622.51	192.28	4.237	
18,800.00	9,052.45	14,001.96	8,942.58	109.16	86.89	-81.21	1,214.59	9,907.88	803.81	610.18	193.63	4.151	
18,900.00	9,053.31	14,101.34	8,943.15	110.26	87.22	-81.07	1,203.51	10,006.63	792.84	597.84	195.00	4.066	
19,000.00	9,054.18	14,200.71	8,943.72	111.36	87.55	-80.92	1,192.43	10,105.39	781.87	585.50	196.37	3.982	
19,100.00	9,055.05	14,300.09	8,944.29	112.45	87.90	-80.77	1,181.35	10,204.14	770.90	573.15	197.76	3.898	
19,200.00	9,055.91	14,399.47	8,944.86	113.55	88.26	-80.61	1,170.27	10,302.90	759.95	560.79	199.15	3.816	
19,300.00	9,056.78	14,498.84	8,945.43	114.65	88.64	-80.45	1,159.19	10,401.65	749.00	548.44	200.56	3.735	
19,400.00	9,057.64	14,598.22	8,946.00	115.74	89.02	-80.29	1,148.12	10,500.41	738.05	536.08	201.97	3.654	
19,500.00	9,058.51	14,697.60	8,946.57	116.84	89.42	-80.12	1,137.04	10,599.16	727.11	523.71	203.40	3.575	
19,600.00	9,059.37	14,796.97	8,947.14	117.94	89.83	-79.94	1,125.96	10,697.92	716.18	511.34	204.83	3.496	
19,700.00	9,060.24	14,896.35	8,947.71	119.04	90.26	-79.76	1,114.88	10,796.67	705.25	498.98	206.28	3.419	
19,800.00	9,061.11	14,995.72	8,948.28	120.14	90.69	-79.58	1,103.80	10,895.43	694.33	486.61	207.73	3.343	
19,900.00	9,061.97	15,095.10	8,948.85	121.24	91.14	-79.38	1,092.72	10,994.18	683.42	474.24	209.18	3.267	
20,000.00	9,062.84	15,194.48	8,949.42	122.34	91.59	-79.18	1,081.64	11,092.94	672.52	461.87	210.65	3.193	
20,100.00	9,063.70	15,293.85	8,949.99	123.44	92.06	-78.98	1,070.57	11,191.69	661.62	449.50	212.12	3.119	
20,200.00	9,064.57	15,393.23	8,950.56	124.54	92.54	-78.77	1,059.49	11,290.45	650.74	437.14	213.60	3.047	
20,300.00	9,065.44	15,492.61	8,951.13	125.64	93.03	-78.55	1,048.41	11,389.20	639.86	424.78	215.08	2.975	
20,400.00	9,066.30	15,591.98	8,951.70	126.74	93.53	-78.32	1,037.33	11,487.96	628.99	412.43	216.57	2.904	
20,500.00	9,067.17	15,691.36	8,952.27	127.84	94.04	-78.08	1,026.25	11,586.71	618.13	400.08	218.06	2.835	
20,600.00	9,068.03	15,790.73	8,952.84	128.95	94.56	-77.84	1,015.17	11,685.47	607.29	387.74	219.55	2.766	
20,700.00	9,068.90	15,890.11	8,953.42	130.05	95.10	-77.59	1,004.10	11,784.22	596.45	375.40	221.05	2.698	
20,800.00	9,069.76	15,989.49	8,953.99	131.15	95.64	-77.33	993.02	11,882.98	585.63	363.08	222.55	2.631	
20,900.00	9,070.63	16,088.86	8,954.56	132.25	96.19	-77.05	981.94	11,981.73	574.82	350.77	224.05	2.566	
21,000.00	9,071.50	16,188.24	8,955.13	133.36	96.75	-76.77	970.86	12,080.49	564.02	338.47	225.55	2.501	
21,100.00	9,072.36	16,287.62	8,955.70	134.46	97.32	-76.48	959.78	12,179.24	553.23	326.19	227.05	2.437	
21,200.00	9,073.23	16,386.99	8,956.27	135.56	97.90	-76.18	948.70	12,278.00	542.47	313.92	228.54	2.374	
21,300.00	9,074.09	16,486.37	8,956.84	136.67	98.49	-75.86	937.62	12,376.75	531.71	301.68	230.04	2.311	
21,400.00	9,074.96	16,585.74	8,957.41	137.77	99.09	-75.53	926.55	12,475.51	520.98	289.45	231.53	2.250	
21,500.00	9,075.82	16,685.12	8,957.98	138.87	99.70	-75.18	915.47	12,574.26	510.26	277.25	233.01	2.190	
21,600.00	9,076.69	16,784.50	8,958.55	139.98	100.31	-74.83	904.39	12,673.02	499.56	265.07	234.49	2.130	
21,700.00	9,077.56	16,883.87	8,959.12	141.08	100.94	-74.45	893.31	12,771.77	488.88	252.92	235.95	2.072	
21,714.06	9,077.68	16,897.85	8,959.20	141.16	101.03	-74.40	891.75	12,785.66	487.38	251.34	236.04	2.065 CC, ES, SF	

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: OH
Reference Design: Plan #3

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- VES GyoFlex V2, 8416-LEAM MWD-ADJ, 12528-Project												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N-S (usft)	+E-W (usft)					
0.00	0.00	26.64	26.64	0.00	0.02	85.20	799.56	9,526.93	9,560.43				
100.00	100.00	119.24	119.24	0.09	0.09	85.20	799.79	9,526.97	9,560.48	9,560.31	0.18	N/A	
200.00	200.00	210.93	210.93	0.31	0.23	85.20	800.09	9,527.07	9,560.63	9,560.09	0.54	N/A	
300.00	300.00	300.00	300.00	0.54	0.36	85.20	800.36	9,527.25	9,560.86	9,559.96	0.89	N/A	
400.00	400.00	381.74	381.74	0.76	0.43	85.20	800.61	9,527.55	9,561.24	9,560.06	1.18	8,106.115	
500.00	500.00	461.21	461.20	0.99	0.49	85.20	800.87	9,528.00	9,561.84	9,560.37	1.46	6,529.460	
600.00	600.00	537.35	537.34	1.21	0.54	85.19	801.11	9,528.61	9,562.66	9,560.92	1.74	5,490.096	
700.00	700.00	610.31	610.30	1.43	0.58	85.19	801.28	9,529.40	9,563.76	9,561.75	2.01	4,753.339	
800.00	800.00	700.00	699.98	1.66	0.64	85.19	801.37	9,530.66	9,565.16	9,562.87	2.29	4,173.252	
900.00	900.00	762.47	762.45	1.88	0.67	85.19	801.46	9,531.69	9,566.77	9,564.22	2.55	3,749.132	
1,000.00	1,000.00	843.52	843.48	2.11	0.72	85.19	801.74	9,533.16	9,568.61	9,565.79	2.82	3,391.866	
1,100.00	1,100.00	900.00	899.95	2.33	0.75	85.19	802.07	9,534.27	9,570.68	9,567.61	3.08	3,109.832	
1,200.00	1,200.00	974.65	974.57	2.56	0.79	85.19	802.66	9,535.99	9,573.09	9,569.75	3.34	2,865.908	
1,300.00	1,300.00	1,031.92	1,031.82	2.78	0.82	85.19	803.25	9,537.60	9,575.97	9,572.37	3.59	2,663.890	
1,400.00	1,400.00	1,100.00	1,099.86	3.01	0.85	85.18	804.10	9,539.83	9,579.30	9,575.45	3.85	2,485.486	
1,500.00	1,500.00	1,217.07	1,216.85	3.23	0.91	85.17	805.70	9,543.73	9,582.76	9,578.63	4.13	2,318.406	
1,600.00	1,600.00	1,449.57	1,449.25	3.46	1.02	85.16	808.83	9,549.71	9,585.59	9,581.12	4.46	2,148.735	
1,700.00	1,700.00	1,741.26	1,740.91	3.68	1.13	85.14	812.06	9,551.75	9,586.22	9,581.43	4.79	2,002.731	
1,800.00	1,800.00	1,878.51	1,878.16	3.91	1.17	85.14	812.91	9,551.24	9,585.90	9,580.86	5.04	1,901.037	
1,900.00	1,900.00	1,989.58	1,989.22	4.13	1.20	85.13	813.48	9,550.53	9,585.30	9,580.01	5.29	1,812.889	
2,000.00	2,000.00	2,095.79	2,095.42	4.36	1.22	85.13	814.08	9,549.77	9,584.64	9,579.11	5.53	1,732.772	
2,100.00	2,100.00	2,201.22	2,200.85	4.58	1.25	85.12	814.80	9,548.94	9,583.91	9,578.14	5.78	1,659.306	
2,200.00	2,200.00	2,307.79	2,307.41	4.81	1.28	85.12	815.73	9,548.03	9,583.13	9,577.11	6.02	1,591.752	
2,300.00	2,300.00	2,431.62	2,431.24	5.03	1.30	85.11	816.54	9,546.78	9,582.19	9,575.92	6.27	1,528.996	
2,400.00	2,400.00	2,546.23	2,545.84	5.26	1.33	85.11	816.75	9,545.42	9,581.01	9,574.50	6.51	1,471.366	
2,500.00	2,500.00	2,649.45	2,649.05	5.48	1.35	85.11	817.01	9,544.11	9,579.77	9,573.02	6.75	1,418.360	
2,600.00	2,600.00	2,740.53	2,740.11	5.71	1.37	85.10	817.36	9,542.95	9,578.53	9,571.54	7.00	1,369.316	
2,700.00	2,700.00	2,819.94	2,819.53	5.93	1.39	85.10	817.61	9,542.08	9,577.48	9,570.24	7.23	1,323.826	
2,800.00	2,800.00	2,900.00	2,899.58	6.15	1.41	85.10	817.79	9,541.39	9,576.64	9,569.16	7.47	1,281.252	
2,900.00	2,900.00	3,012.41	3,011.99	6.38	1.43	85.10	817.90	9,540.48	9,575.84	9,568.12	7.72	1,240.275	
3,000.00	3,000.00	3,122.98	3,122.55	6.60	1.45	85.10	817.87	9,539.44	9,574.90	9,566.93	7.97	1,201.843	
3,100.00	3,100.00	3,224.16	3,223.73	6.83	1.47	85.10	817.84	9,538.45	9,573.91	9,565.70	8.21	1,165.820	
3,200.00	3,200.00	3,322.47	3,322.03	7.05	1.49	85.10	817.88	9,537.46	9,572.92	9,564.46	8.46	1,131.861	
3,300.00	3,300.00	3,412.16	3,411.72	7.28	1.51	85.10	817.97	9,536.62	9,572.00	9,563.30	8.70	1,099.992	
3,400.00	3,400.00	3,502.09	3,501.64	7.50	1.54	85.10	818.12	9,535.88	9,571.18	9,562.24	8.95	1,069.904	
3,500.00	3,500.00	3,602.77	3,602.32	7.73	1.56	85.10	818.27	9,535.09	9,570.42	9,561.23	9.19	1,041.040	
3,600.00	3,600.00	3,703.66	3,703.21	7.95	1.59	85.09	818.35	9,534.30	9,569.65	9,560.21	9.44	1,013.695	
3,700.00	3,700.00	3,810.28	3,809.82	8.18	1.61	111.94	818.51	9,533.42	9,569.16	9,559.47	9.69	987.762	
3,733.76	3,733.75	3,846.27	3,845.81	8.25	1.62	111.94	818.60	9,533.10	9,569.13	9,559.36	9.77	979.387	
3,800.00	3,799.96	3,900.00	3,899.54	8.40	1.64	111.95	818.78	9,532.60	9,569.27	9,559.34	9.93	963.745	
3,900.00	3,899.88	3,995.84	3,995.38	8.62	1.67	111.96	819.21	9,531.80	9,570.10	9,559.93	10.17	940.867	
4,000.00	3,999.88	4,078.51	4,078.04	8.84	1.69	111.97	819.70	9,531.25	9,571.78	9,561.37	10.41	919.358	
4,100.00	4,099.37	4,188.55	4,188.08	9.07	1.72	111.99	820.55	9,530.58	9,574.19	9,563.53	10.66	898.362	
4,133.72	4,132.95	4,228.90	4,228.42	9.15	1.74	112.00	820.93	9,530.28	9,575.11	9,564.36	10.74	891.424	
4,200.00	4,198.94	4,300.00	4,299.52	9.29	1.76	112.03	821.70	9,529.68	9,576.92	9,566.01	10.91	878.195	
4,300.00	4,298.51	4,393.56	4,393.07	9.52	1.79	112.07	823.00	9,528.86	9,579.67	9,568.52	11.15	859.138	
4,400.00	4,398.07	4,481.18	4,480.87	9.75	1.82	112.11	824.63	9,528.18	9,582.55	9,571.16	11.40	840.868	
4,500.00	4,497.64	4,584.77	4,584.22	9.98	1.85	112.15	826.86	9,527.41	9,585.50	9,573.86	11.65	823.088	
4,600.00	4,597.21	4,692.70	4,692.13	10.22	1.88	112.19	829.18	9,526.52	9,588.38	9,576.48	11.90	805.898	
4,700.00	4,696.77	4,775.05	4,774.46	10.45	1.91	112.22	830.99	9,525.87	9,591.29	9,579.15	12.15	789.685	
4,800.00	4,796.34	4,855.54	4,854.93	10.69	1.94	112.25	832.88	9,525.39	9,594.41	9,582.02	12.39	774.080	
4,900.00	4,895.91	4,950.92	4,950.28	10.93	1.97	112.29	835.24	9,524.97	9,597.70	9,585.06	12.65	758.880	

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: OH
Reference Design: Plan #3

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- VES GyroFlex V2, 8416-LEAM MWD-ADJ, 12528-Project											Offset Well Error:	0.00 usft
Reference	Offset	Berm Major Axis		Highside	Offset Wellbore Centre		Distance		Minimum	Separation	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Toolface (°)	N-S (usft)	E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor
5,000.00	4,995.47	5,064.65	5,063.97	11.17	2.00	112.33	837.85	9,524.38	9,600.91	9,588.00	12.90	744.025
5,100.00	5,095.04	5,157.30	5,156.60	11.41	2.03	112.36	839.85	9,523.83	9,604.04	9,590.88	13.16	729.910
5,200.00	5,194.61	5,240.46	5,239.74	11.65	2.06	112.39	841.78	9,523.47	9,607.34	9,593.93	13.41	716.384
5,300.00	5,294.17	5,330.57	5,329.82	11.89	2.09	112.43	844.04	9,523.22	9,610.80	9,597.14	13.67	703.269
5,400.00	5,393.74	5,438.20	5,437.41	12.13	2.12	112.47	846.88	9,522.88	9,614.25	9,600.33	13.92	690.457
5,500.00	5,493.31	5,546.12	5,545.29	12.38	2.16	112.50	849.91	9,522.44	9,617.63	9,603.44	14.18	678.058
5,600.00	5,592.87	5,654.45	5,653.55	12.63	2.19	112.54	853.51	9,521.86	9,620.91	9,606.47	14.44	666.053
5,700.00	5,692.44	5,763.43	5,762.45	12.87	2.23	112.57	857.63	9,521.14	9,624.11	9,609.41	14.71	654.425
5,800.00	5,792.00	5,872.84	5,871.79	13.12	2.26	112.60	861.59	9,520.33	9,627.22	9,612.25	14.97	643.159
5,900.00	5,891.57	5,967.77	5,966.66	13.37	2.30	112.63	864.94	9,519.58	9,630.28	9,615.05	15.23	632.363
6,000.00	5,991.14	6,057.95	6,056.77	13.62	2.33	112.65	868.34	9,518.95	9,633.44	9,617.95	15.49	621.946
6,100.00	6,090.70	6,100.00	6,098.79	13.87	2.34	112.67	870.00	9,518.67	9,636.84	9,621.09	15.74	612.191
6,200.00	6,190.27	6,179.34	6,178.07	14.12	2.36	112.69	873.03	9,518.49	9,640.54	9,624.54	16.00	602.561
6,300.00	6,289.84	6,231.02	6,229.72	14.37	2.38	112.70	874.84	9,518.71	9,644.81	9,628.56	16.25	593.404
6,400.00	6,389.40	6,300.00	6,298.66	14.62	2.40	112.73	877.04	9,519.43	9,649.62	9,633.11	16.51	584.449
6,500.00	6,488.97	6,395.76	6,394.37	14.87	2.41	112.76	879.76	9,520.61	9,654.66	9,637.89	16.76	575.904
6,600.00	6,588.54	6,416.00	6,414.60	15.12	2.41	112.77	880.29	9,520.83	9,659.87	9,642.86	17.01	567.905
6,700.00	6,688.10	6,416.00	6,414.60	15.38	2.41	112.77	880.29	9,520.83	9,666.10	9,648.85	17.25	560.238
6,800.00	6,787.67	6,416.00	6,414.60	15.63	2.41	112.77	880.29	9,520.83	9,673.36	9,655.87	17.50	552.844
6,900.00	6,887.24	6,416.00	6,414.60	15.88	2.41	112.77	880.29	9,520.83	9,681.65	9,663.91	17.74	545.714
7,000.00	6,986.80	6,479.00	6,477.47	16.14	2.43	112.80	879.84	9,524.32	9,690.72	9,672.72	18.00	538.327
7,100.00	7,086.37	6,479.00	6,477.47	16.39	2.43	112.80	879.84	9,524.32	9,700.41	9,682.17	18.24	531.894
7,200.00	7,185.93	6,479.00	6,477.47	16.65	2.43	112.80	879.84	9,524.32	9,711.13	9,692.64	18.49	525.297
7,300.00	7,285.50	6,479.00	6,477.47	16.90	2.43	112.80	879.84	9,524.32	9,722.85	9,704.13	18.73	519.127
7,400.00	7,385.07	6,479.00	6,477.47	17.16	2.43	112.80	879.84	9,524.32	9,735.60	9,716.63	18.97	513.176
7,500.00	7,484.63	6,479.00	6,477.47	17.42	2.43	112.80	879.84	9,524.32	9,749.35	9,730.14	19.21	507.438
7,600.00	7,584.20	6,479.00	6,477.47	17.67	2.43	112.80	879.84	9,524.32	9,764.11	9,744.65	19.45	501.904
7,700.00	7,683.77	6,479.00	6,477.47	17.93	2.43	112.80	879.84	9,524.32	9,779.86	9,760.17	19.69	496.569
7,800.00	7,783.33	6,511.00	6,509.19	18.19	2.45	112.82	879.16	9,528.45	9,796.40	9,776.45	19.95	491.111
7,900.00	7,882.90	6,511.00	6,509.19	18.45	2.45	112.82	879.16	9,528.45	9,813.82	9,793.64	20.19	486.179
8,000.00	7,982.47	6,511.00	6,509.19	18.70	2.45	112.82	879.16	9,528.45	9,832.23	9,811.81	20.42	481.423
8,100.00	8,082.03	6,511.00	6,509.19	18.96	2.45	112.82	879.16	9,528.45	9,851.62	9,830.96	20.66	476.836
8,200.00	8,181.60	6,511.00	6,509.19	19.22	2.45	112.82	879.16	9,528.45	9,871.99	9,851.09	20.90	472.414
8,300.00	8,281.17	6,511.00	6,509.19	19.48	2.45	112.82	879.16	9,528.45	9,893.32	9,872.19	21.13	468.151
8,400.00	8,380.73	6,542.00	6,539.66	19.74	2.48	112.84	878.72	9,534.13	9,915.37	9,893.99	21.39	463.680
8,493.72	8,474.04	6,542.00	6,539.66	19.98	2.48	112.84	878.72	9,534.13	9,936.85	9,915.25	21.60	459.955
8,500.00	8,480.30	6,542.00	6,539.66	20.00	2.48	105.21	878.72	9,534.13	9,938.28	9,916.67	21.62	459.742
8,525.00	8,505.21	6,542.00	6,539.66	20.05	2.48	70.40	878.72	9,534.13	9,943.21	9,921.55	21.66	458.966
8,550.00	8,530.09	6,542.00	6,539.66	20.10	2.48	43.88	878.72	9,534.13	9,946.91	9,925.20	21.71	458.164
8,575.00	8,554.87	6,542.00	6,539.66	20.15	2.48	29.27	878.72	9,534.13	9,949.38	9,927.63	21.76	457.319
8,600.00	8,579.49	6,542.00	6,539.66	20.19	2.48	21.07	878.72	9,534.13	9,950.61	9,928.81	21.80	456.434
8,625.00	8,603.87	6,542.00	6,539.66	20.24	2.48	16.03	878.72	9,534.13	9,950.60	9,928.76	21.84	455.514
8,650.00	8,627.95	6,542.00	6,539.66	20.27	2.48	12.66	878.72	9,534.13	9,949.35	9,927.46	21.89	454.563
8,675.00	8,651.66	6,542.00	6,539.66	20.31	2.48	10.27	878.72	9,534.13	9,946.85	9,924.92	21.93	453.582
8,700.00	8,674.94	6,542.00	6,539.66	20.35	2.48	8.48	878.72	9,534.13	9,943.12	9,921.15	21.97	452.577
8,725.00	8,697.72	6,542.00	6,539.66	20.38	2.48	7.09	878.72	9,534.13	9,938.17	9,916.16	22.01	451.548
8,750.00	8,719.95	6,542.00	6,539.66	20.41	2.48	5.98	878.72	9,534.13	9,932.00	9,909.95	22.05	450.499
8,775.00	8,741.56	6,542.00	6,539.66	20.43	2.48	5.06	878.72	9,534.13	9,924.63	9,902.55	22.08	449.432
8,800.00	8,762.49	6,542.00	6,539.66	20.46	2.48	4.28	878.72	9,534.13	9,916.09	9,893.97	22.12	448.349
8,825.00	8,782.68	6,542.00	6,539.66	20.48	2.48	3.61	878.72	9,534.13	9,906.38	9,884.23	22.15	447.252
8,850.00	8,802.08	6,542.00	6,539.66	20.50	2.48	3.02	878.72	9,534.13	9,895.53	9,873.35	22.18	446.143
8,875.00	8,820.64	6,542.00	6,539.66	20.52	2.48	2.48	878.72	9,534.13	9,883.58	9,861.37	22.21	445.024

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: OH
Reference Design: Plan #3

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- VES GyroFlex V2, 8418-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 +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
8,900.00	8,838.30	6,542.00	6,539.66	20.53	2.48	1.98	878.72	9,534.13	9,870.54	9,848.30	22.24	443.897			
8,925.00	8,855.02	6,558.11	6,555.36	20.55	2.51	1.52	878.32	9,537.72	9,856.19	9,833.92	22.27	442.499			
8,950.00	8,870.75	6,574.00	6,570.73	20.56	2.53	1.07	877.96	9,541.72	9,841.27	9,818.96	22.31	441.136			
8,975.00	8,885.45	6,574.00	6,570.73	20.58	2.53	0.63	877.96	9,541.72	9,825.13	9,802.80	22.33	440.000			
9,000.00	8,899.07	6,574.00	6,570.73	20.60	2.53	0.17	877.96	9,541.72	9,808.04	9,785.69	22.35	438.865			
9,025.00	8,911.59	6,574.00	6,570.73	20.63	2.53	-0.29	877.96	9,541.72	9,790.06	9,767.69	22.37	437.732			
9,050.00	8,922.96	6,574.00	6,570.73	20.71	2.53	-0.79	877.96	9,541.72	9,771.22	9,748.84	22.38	436.605			
9,075.00	8,933.15	6,574.00	6,570.73	20.85	2.53	-1.33	877.96	9,541.72	9,751.58	9,729.19	22.39	435.484			
9,100.00	8,942.14	6,574.00	6,570.73	21.01	2.53	-1.93	877.96	9,541.72	9,731.19	9,708.79	22.40	434.372			
9,125.00	8,949.90	6,574.00	6,570.73	21.19	2.53	-2.61	877.96	9,541.72	9,710.09	9,687.68	22.41	433.272			
9,150.00	8,956.42	6,574.00	6,570.73	21.40	2.53	-3.41	877.96	9,541.72	9,688.34	9,665.93	22.42	432.184			
9,175.00	8,961.66	6,574.00	6,570.73	21.62	2.53	-4.38	877.96	9,541.72	9,666.00	9,643.58	22.42	431.111			
9,200.00	8,965.63	6,574.00	6,570.73	21.85	2.53	-5.58	877.96	9,541.72	9,643.12	9,620.69	22.42	430.054			
9,225.00	8,968.30	6,574.00	6,570.73	22.10	2.53	-7.13	877.96	9,541.72	9,619.76	9,597.33	22.42	429.013			
9,250.00	8,969.67	6,574.00	6,570.73	22.37	2.53	-9.22	877.96	9,541.72	9,595.98	9,573.56	22.42	427.989			
9,259.65	8,969.85	6,574.00	6,570.73	25.31	2.53	-10.24	877.96	9,541.72	9,586.70	9,559.02	27.67	346.452			
9,300.00	8,970.20	6,574.00	6,570.73	25.34	2.53	-10.24	877.96	9,541.72	9,547.81	9,520.11	27.70	344.700			
9,400.00	8,971.07	6,574.00	6,570.73	25.41	2.53	-10.24	877.96	9,541.72	9,451.47	9,423.70	27.77	340.369			
9,500.00	8,971.93	6,574.00	6,570.73	25.49	2.53	-10.24	877.96	9,541.72	9,355.22	9,327.38	27.84	336.032			
9,600.00	8,972.80	6,574.00	6,570.73	25.57	2.53	-10.24	877.96	9,541.72	9,259.04	9,231.12	27.91	331.689			
9,700.00	8,973.66	6,574.00	6,570.73	25.65	2.53	-10.24	877.96	9,541.72	9,162.94	9,134.95	27.99	327.339			
9,800.00	8,974.53	6,574.00	6,570.73	25.73	2.53	-10.24	877.96	9,541.72	9,066.93	9,038.86	28.07	322.985			
9,900.00	8,975.39	6,574.00	6,570.73	25.83	2.53	-10.24	877.96	9,541.72	8,971.01	8,942.85	28.16	318.625			
10,000.00	8,976.26	6,574.00	6,570.73	25.92	2.53	-10.24	877.96	9,541.72	8,875.17	8,846.93	28.24	314.260			
10,100.00	8,977.13	6,574.00	6,570.73	26.03	2.53	-10.24	877.96	9,541.72	8,779.43	8,751.10	28.33	309.892			
10,200.00	8,977.99	6,574.00	6,570.73	26.15	2.53	-10.24	877.96	9,541.72	8,683.78	8,655.36	28.42	305.519			
10,300.00	8,978.86	6,574.00	6,570.73	26.31	2.53	-10.24	877.96	9,541.72	8,588.24	8,559.72	28.52	301.144			
10,400.00	8,979.72	6,574.00	6,570.73	26.51	2.53	-10.24	877.96	9,541.72	8,492.79	8,464.18	28.62	296.765			
10,500.00	8,980.59	6,574.00	6,570.73	26.81	2.53	-10.24	877.96	9,541.72	8,397.46	8,368.74	28.72	292.383			
10,600.00	8,981.45	6,589.22	6,585.34	27.24	2.58	-10.29	877.63	9,545.98	8,302.00	8,273.16	28.84	287.885			
10,700.00	8,982.32	6,605.00	6,600.35	27.78	2.62	-10.34	877.29	9,550.84	8,207.02	8,178.06	28.96	283.409			
10,800.00	8,983.19	6,605.00	6,600.35	28.39	2.62	-10.34	877.29	9,550.84	8,111.90	8,082.83	29.07	279.031			
10,900.00	8,984.05	6,605.00	6,600.35	29.05	2.62	-10.34	877.29	9,550.84	8,016.91	7,987.72	29.19	274.653			
11,000.00	8,984.92	6,605.00	6,600.35	29.75	2.62	-10.34	877.29	9,550.84	7,922.04	7,892.72	29.31	270.274			
11,100.00	8,985.78	6,605.00	6,600.35	30.49	2.62	-10.34	877.29	9,550.84	7,827.29	7,797.85	29.44	265.896			
11,200.00	8,986.65	6,605.00	6,600.35	31.25	2.62	-10.34	877.29	9,550.84	7,732.68	7,703.11	29.57	261.518			
11,300.00	8,987.52	6,605.00	6,600.35	32.03	2.62	-10.34	877.29	9,550.84	7,638.21	7,608.50	29.70	257.142			
11,400.00	8,988.38	6,605.00	6,600.35	32.84	2.62	-10.34	877.29	9,550.84	7,543.87	7,514.03	29.85	252.768			
11,500.00	8,989.25	6,605.00	6,600.35	33.66	2.62	-10.34	877.29	9,550.84	7,449.89	7,419.70	29.99	248.395			
11,600.00	8,990.11	6,605.00	6,600.35	34.50	2.62	-10.34	877.29	9,550.84	7,355.66	7,325.52	30.14	244.026			
11,700.00	8,990.98	6,605.00	6,600.35	35.36	2.62	-10.34	877.29	9,550.84	7,261.79	7,231.49	30.30	239.660			
11,800.00	8,991.84	6,605.00	6,600.35	36.23	2.62	-10.34	877.29	9,550.84	7,168.08	7,137.62	30.46	235.298			
11,900.00	8,992.71	6,605.00	6,600.35	37.12	2.62	-10.34	877.29	9,550.84	7,074.55	7,043.92	30.63	230.941			
12,000.00	8,993.58	6,605.00	6,600.35	38.02	2.62	-10.34	877.29	9,550.84	6,981.20	6,950.39	30.81	226.589			
12,100.00	8,994.44	6,620.20	6,614.66	38.93	2.69	-10.39	876.94	9,555.96	6,887.77	6,856.77	31.00	222.185			
12,200.00	8,995.31	6,637.00	6,630.27	39.85	2.77	-10.45	876.49	9,562.15	6,794.94	6,763.75	31.20	217.816			
12,300.00	8,996.17	6,637.00	6,630.27	40.78	2.77	-10.45	876.49	9,562.15	6,702.00	6,670.61	31.39	213.498			
12,400.00	8,997.04	6,637.00	6,630.27	41.72	2.77	-10.45	876.49	9,562.15	6,609.26	6,577.67	31.59	209.187			
12,500.00	8,997.90	6,637.00	6,630.27	42.67	2.77	-10.45	876.49	9,562.15	6,516.74	6,484.93	31.81	204.886			
12,600.00	8,998.77	6,637.00	6,630.27	43.63	2.77	-10.45	876.49	9,562.15	6,424.44	6,392.41	32.03	200.594			
12,700.00	8,999.64	6,637.00	6,630.27	44.59	2.77	-10.45	876.49	9,562.15	6,332.37	6,300.12	32.26	196.312			
12,800.00	9,000.50	6,637.00	6,630.27	45.56	2.77	-10.45	876.49	9,562.15	6,240.55	6,208.05	32.50	192.042			

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: OH
 Reference Design: Plan #3

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-VES GYROFLEX V2.0418-LEAM MWD-ADJ. 12528-Project												Offset Well Error:	0.00 usft
Reference		Offset		Sensi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N-S (usft)	+E-W (usft)					
12,900.00	9,001.37	6,637.00	6,630.27	46.54	2.77	-10.45	876.49	9,562.15	6,148.98	6,116.24	32.74	187.785	
13,000.00	9,002.23	6,637.00	6,630.27	47.53	2.77	-10.45	876.49	9,562.15	6,057.68	6,024.68	33.00	183.541	
13,100.00	9,003.10	6,637.00	6,630.27	48.52	2.77	-10.45	876.49	9,562.15	5,966.66	5,933.39	33.28	179.311	
13,200.00	9,003.96	6,653.82	6,645.69	49.51	2.89	-10.50	875.92	9,568.83	5,875.69	5,842.13	33.56	175.104	
13,300.00	9,004.83	6,668.00	6,658.54	50.51	2.99	-10.54	875.28	9,574.79	5,785.22	5,751.37	33.84	170.938	
13,400.00	9,005.70	6,668.00	6,658.54	51.52	2.99	-10.54	875.28	9,574.79	5,694.88	5,660.73	34.15	166.774	
13,500.00	9,006.56	6,668.00	6,658.54	52.53	2.99	-10.54	875.28	9,574.79	5,604.88	5,570.41	34.46	162.629	
13,600.00	9,007.43	6,668.00	6,658.54	53.55	2.99	-10.54	875.28	9,574.79	5,515.21	5,480.42	34.80	158.505	
13,700.00	9,008.29	6,682.60	6,671.66	54.56	3.12	-10.58	874.49	9,581.16	5,425.81	5,390.68	35.14	154.417	
13,800.00	9,009.16	6,700.00	6,687.18	55.59	3.28	-10.62	873.36	9,588.94	5,336.77	5,301.28	35.49	150.395	
13,900.00	9,010.03	6,700.00	6,687.18	56.61	3.28	-10.62	873.36	9,588.94	5,247.97	5,212.11	35.86	146.355	
14,000.00	9,010.89	6,700.00	6,687.18	57.64	3.28	-10.62	873.36	9,588.94	5,159.58	5,123.33	36.25	142.343	
14,100.00	9,011.76	6,731.00	6,714.50	58.68	3.61	-10.67	870.63	9,603.32	5,071.47	5,034.83	36.64	138.423	
14,200.00	9,012.62	6,731.00	6,714.50	59.71	3.61	-10.67	870.63	9,603.32	4,983.67	4,946.61	37.06	134.481	
14,300.00	9,013.49	6,731.00	6,714.50	60.75	3.61	-10.67	870.63	9,603.32	4,896.34	4,858.84	37.50	130.571	
14,400.00	9,014.35	6,731.00	6,714.50	61.80	3.61	-10.67	870.63	9,603.32	4,809.50	4,771.54	37.96	126.695	
14,500.00	9,015.22	6,766.00	6,744.66	62.84	4.06	-10.71	866.39	9,620.57	4,722.95	4,684.53	38.42	122.928	
14,600.00	9,016.09	6,766.00	6,744.66	63.89	4.06	-10.71	866.39	9,620.57	4,636.80	4,597.88	38.92	119.140	
14,700.00	9,016.95	6,766.00	6,744.66	64.94	4.06	-10.71	866.39	9,620.57	4,551.22	4,511.78	39.44	115.391	
14,800.00	9,017.82	6,766.00	6,744.66	65.99	4.06	-10.71	866.39	9,620.57	4,466.23	4,426.24	39.99	111.685	
14,900.00	9,018.68	6,797.00	6,770.61	67.04	4.53	-10.71	861.73	9,636.86	4,381.65	4,341.11	40.54	108.088	
15,000.00	9,019.55	6,797.00	6,770.61	68.10	4.53	-10.71	861.73	9,636.86	4,297.58	4,256.45	41.13	104.485	
15,100.00	9,020.41	6,797.00	6,770.61	69.16	4.53	-10.71	861.73	9,636.86	4,214.20	4,172.45	41.75	100.931	
15,200.00	9,021.28	6,828.00	6,795.89	70.22	5.05	-10.69	856.30	9,653.95	4,131.30	4,088.92	42.38	97.484	
15,300.00	9,022.15	6,828.00	6,795.89	71.28	5.05	-10.69	856.30	9,653.95	4,049.02	4,005.96	43.05	94.045	
15,400.00	9,023.01	6,828.00	6,795.89	72.34	5.05	-10.69	856.30	9,653.95	3,967.55	3,923.79	43.76	90.663	
15,500.00	9,023.88	6,844.74	6,809.22	73.41	5.36	-10.68	853.10	9,663.58	3,886.65	3,842.16	44.49	87.365	
15,600.00	9,024.74	6,858.00	6,819.51	74.48	5.61	-10.66	850.43	9,671.49	3,806.68	3,761.44	45.24	84.138	
15,700.00	9,025.61	6,858.00	6,819.51	75.54	5.61	-10.66	850.43	9,671.49	3,727.49	3,681.44	46.05	80.948	
15,800.00	9,026.48	6,858.00	6,819.51	76.61	5.61	-10.66	850.43	9,671.49	3,649.31	3,602.42	46.89	77.825	
15,900.00	9,027.34	6,875.36	6,832.65	77.68	5.98	-10.63	846.80	9,682.23	3,571.89	3,524.15	47.75	74.806	
16,000.00	9,028.21	6,889.00	6,842.69	78.76	6.26	-10.60	843.87	9,690.99	3,495.61	3,446.97	48.64	71.863	
16,100.00	9,029.07	6,889.00	6,842.69	79.83	6.26	-10.60	843.87	9,690.99	3,420.34	3,370.74	49.60	68.961	
16,200.00	9,029.94	6,889.00	6,842.69	80.91	6.26	-10.60	843.87	9,690.99	3,346.36	3,295.76	50.60	66.138	
16,300.00	9,030.80	6,920.00	6,864.51	81.98	6.98	-10.53	837.05	9,711.92	3,273.42	3,221.85	51.57	63.469	
16,400.00	9,031.67	6,920.00	6,864.51	83.06	6.98	-10.53	837.05	9,711.92	3,201.64	3,148.99	52.65	60.809	
16,500.00	9,032.54	6,920.00	6,864.51	84.14	6.98	-10.53	837.05	9,711.92	3,131.40	3,077.63	53.77	58.234	
16,600.00	9,033.40	6,935.83	6,875.06	85.22	7.38	-10.49	833.45	9,723.16	3,062.49	3,007.58	54.90	55.781	
16,700.00	9,034.27	6,949.00	6,883.48	86.30	7.72	-10.45	830.35	9,732.80	2,995.19	2,939.12	56.07	53.416	
16,800.00	9,035.13	6,949.00	6,883.48	87.38	7.72	-10.45	830.35	9,732.80	2,929.53	2,872.21	57.32	51.108	
16,900.00	9,036.00	6,980.00	6,902.41	88.46	8.54	-10.36	823.14	9,756.26	2,865.44	2,806.91	58.52	48.963	
17,000.00	9,036.86	6,980.00	6,902.41	89.54	8.54	-10.36	823.14	9,756.26	2,803.03	2,743.18	59.85	46.838	
17,100.00	9,037.73	7,010.00	6,919.62	90.63	9.38	-10.27	816.45	9,779.90	2,742.58	2,681.46	61.12	44.873	
17,200.00	9,038.60	7,010.00	6,919.62	91.71	9.38	-10.27	816.45	9,779.90	2,683.88	2,621.37	62.51	42.934	
17,300.00	9,039.46	7,041.00	6,936.11	92.80	10.30	-10.16	809.50	9,805.21	2,627.42	2,563.57	63.85	41.151	
17,400.00	9,040.33	7,041.00	6,936.11	93.89	10.30	-10.16	809.50	9,805.21	2,572.88	2,507.58	65.30	39.403	
17,500.00	9,041.19	7,071.00	6,950.86	94.97	11.21	-10.05	802.72	9,830.44	2,520.67	2,453.98	66.68	37.800	
17,600.00	9,042.06	7,071.00	6,950.86	96.06	11.21	-10.05	802.72	9,830.44	2,470.85	2,402.68	68.17	36.245	
17,700.00	9,042.93	7,102.00	6,964.64	97.15	12.19	-9.93	795.63	9,857.28	2,423.47	2,353.89	69.59	34.827	
17,800.00	9,043.79	7,102.00	6,964.64	98.24	12.19	-9.93	795.63	9,857.28	2,378.90	2,307.82	71.08	33.468	
17,900.00	9,044.66	7,133.00	6,976.50	99.33	13.19	-9.79	788.17	9,884.92	2,337.18	2,264.68	72.50	32.237	
18,000.00	9,045.52	7,133.00	6,976.50	100.42	13.19	-9.79	788.17	9,884.92	2,298.43	2,224.46	73.97	31.073	

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: OH
Reference Design: Plan #3

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- VES GyroFlex V2, 0416-LEAM MWD-ADJ, 12528-Project													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	Offset Wellbore Centre +E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
18,100.00	9,046.39	7,163.00	6,986.22	101.51	14.18	-9.63	780.61	9,912.28	2,262.68	2,187.32	75.36	30.025		
18,200.00	9,047.25	7,193.00	6,994.59	102.60	15.18	-9.46	772.76	9,939.99	2,230.11	2,153.38	76.73	29.066		
18,300.00	9,048.12	7,206.47	6,997.94	103.69	15.63	-9.38	769.17	9,952.53	2,200.46	2,122.39	78.07	28.185		
18,400.00	9,048.99	7,224.00	7,001.96	104.79	16.22	-9.27	764.46	9,968.94	2,174.11	2,094.75	79.36	27.395		
18,500.00	9,049.85	7,255.00	7,008.19	105.88	17.28	-9.07	756.15	9,998.14	2,150.81	2,070.22	80.59	26.688		
18,600.00	9,050.72	7,297.33	7,015.24	106.98	18.72	-8.79	744.69	10,038.27	2,130.52	2,048.75	81.78	26.052		
18,700.00	9,051.58	7,337.19	7,020.76	108.07	20.10	-8.52	733.90	10,076.24	2,113.04	2,030.13	82.91	25.485		
18,800.00	9,052.45	7,378.00	7,025.43	109.16	21.52	-8.25	723.57	10,115.45	2,098.39	2,014.39	84.00	24.981		
18,900.00	9,053.31	7,427.32	7,030.15	110.26	23.24	-7.98	712.87	10,163.35	2,086.36	2,001.28	85.08	24.523		
19,000.00	9,054.18	7,470.00	7,033.69	111.36	24.73	-7.78	705.23	10,205.19	2,076.66	1,990.57	86.09	24.122		
19,100.00	9,055.05	7,537.01	7,038.02	112.45	27.08	-7.50	694.51	10,271.20	2,069.03	1,981.84	87.20	23.729		
19,200.00	9,055.91	7,612.41	7,041.35	113.55	29.71	-7.18	682.47	10,345.55	2,063.33	1,975.00	88.33	23.360		
19,300.00	9,056.78	7,732.43	7,046.41	114.65	33.90	-6.82	661.93	10,463.69	2,057.91	1,968.20	89.70	22.942		
19,400.00	9,057.64	7,832.53	7,051.46	115.74	37.43	-6.14	643.87	10,562.02	2,051.64	1,960.68	90.96	22.555		
19,500.00	9,058.51	7,919.89	7,055.70	116.84	40.57	-5.73	629.02	10,648.01	2,045.83	1,953.67	92.16	22.199		
19,600.00	9,059.37	8,002.55	7,059.23	117.94	43.56	-5.36	615.56	10,729.48	2,040.79	1,947.47	93.32	21.868		
19,700.00	9,060.24	8,107.41	7,063.34	119.04	47.35	-4.91	599.14	10,832.97	2,036.29	1,941.65	94.64	21.515		
19,800.00	9,061.11	8,229.70	7,069.41	120.14	51.74	-4.44	581.84	10,953.87	2,030.99	1,934.88	96.10	21.133		
19,900.00	9,061.97	8,327.25	7,075.17	121.24	55.25	-4.15	571.30	11,050.67	2,025.12	1,927.68	97.44	20.784		
20,000.00	9,062.84	8,405.00	7,079.35	122.34	58.06	-4.01	566.27	11,128.14	2,020.11	1,921.44	98.67	20.473		
20,100.00	9,063.70	8,479.09	7,082.72	123.44	60.71	-3.98	564.96	11,202.14	2,016.28	1,916.38	99.91	20.181		
20,200.00	9,064.57	8,545.56	7,085.11	124.54	63.08	-4.03	566.46	11,268.55	2,013.76	1,912.66	101.10	19.919		
20,281.00	9,065.27	8,594.00	7,086.11	125.43	64.81	-4.09	568.52	11,316.93	2,013.06	1,911.06	102.00	19.736		
20,300.00	9,065.44	8,594.00	7,086.11	125.64	64.81	-4.09	568.52	11,316.93	2,013.15	1,911.07	102.08	19.722		
20,400.00	9,066.30	8,667.11	7,086.24	126.74	67.41	-4.20	572.37	11,389.93	2,014.36	1,911.03	103.32	19.495		
20,500.00	9,067.17	8,769.82	7,084.83	127.84	71.06	-4.33	577.42	11,492.51	2,016.97	1,912.04	104.93	19.221		
20,600.00	9,068.03	8,903.96	7,084.83	128.95	75.90	-4.50	583.40	11,626.51	2,018.14	1,911.20	106.94	18.872		
20,700.00	9,068.90	9,066.00	7,088.27	130.05	81.73	-4.78	592.99	11,788.21	2,017.54	1,908.21	109.33	18.454		
20,800.00	9,069.76	9,124.88	7,090.24	131.15	83.85	-4.89	596.67	11,846.94	2,015.74	1,905.25	110.50	18.242		
20,822.44	9,069.96	9,136.31	7,090.42	131.40	84.26	-4.90	597.19	11,858.35	2,015.68	1,904.95	110.73	18.204		
20,900.00	9,070.63	9,184.67	7,090.52	132.25	86.01	-4.95	598.84	11,906.68	2,016.35	1,904.74	111.61	18.066		
21,000.00	9,071.50	9,267.35	7,089.84	133.36	89.01	-5.02	601.44	11,989.32	2,018.30	1,905.31	112.99	17.862		
21,100.00	9,072.36	9,384.45	7,088.78	134.46	93.27	-5.11	605.07	12,106.36	2,020.36	1,905.52	114.84	17.593		
21,200.00	9,073.23	9,515.51	7,089.41	135.56	98.05	-5.20	608.01	12,237.39	2,020.91	1,904.06	116.85	17.296		
21,300.00	9,074.09	9,686.84	7,094.33	136.67	104.31	-5.23	608.93	12,408.62	2,018.88	1,899.63	119.25	16.930		
21,400.00	9,074.96	9,776.59	7,098.37	137.77	107.60	-5.22	608.13	12,498.28	2,015.21	1,894.51	120.70	16.696		
21,500.00	9,075.82	9,870.71	7,101.50	138.87	111.05	-5.18	606.57	12,592.33	2,012.80	1,890.42	122.17	16.473		
21,600.00	9,076.69	9,956.03	7,104.56	139.98	114.18	-5.14	605.09	12,677.59	2,009.78	1,886.24	123.54	16.268		
21,700.00	9,077.56	10,026.13	7,105.84	141.08	116.75	-5.11	603.88	12,747.66	2,008.61	1,883.87	124.73	16.103		
21,714.06	9,077.68	10,041.64	7,106.05	141.16	117.32	-5.10	603.64	12,763.17	2,008.52	1,883.62	124.90	16.082 CC, ES, SF		

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: OH
 Reference Design: Plan #3

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
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Tooface (")	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	26.64	26.64	0.00	0.02	85.20	799.56	9,526.93	9,560.43				
100.00	100.00	119.24	119.24	0.09	0.09	85.20	799.79	9,526.97	9,560.48	9,560.31	0.18	N/A	
200.00	200.00	210.93	210.93	0.31	0.23	85.20	800.09	9,527.07	9,560.63	9,560.09	0.54	N/A	
300.00	300.00	300.00	300.00	0.54	0.36	85.20	800.36	9,527.25	9,560.86	9,559.96	0.89	N/A	
400.00	400.00	381.74	381.74	0.76	0.43	85.20	800.61	9,527.55	9,561.24	9,560.06	1.18	8,106.115	
500.00	500.00	461.21	461.20	0.99	0.49	85.20	800.87	9,528.00	9,561.84	9,560.37	1.46	6,529.460	
600.00	600.00	537.35	537.34	1.21	0.54	85.19	801.11	9,528.61	9,562.66	9,560.92	1.74	5,490.096	
700.00	700.00	610.31	610.30	1.43	0.58	85.19	801.28	9,529.40	9,563.76	9,561.75	2.01	4,753.339	
800.00	800.00	700.00	699.98	1.66	0.64	85.19	801.37	9,530.66	9,565.16	9,562.87	2.29	4,173.252	
900.00	900.00	762.47	762.45	1.88	0.67	85.19	801.46	9,531.69	9,566.77	9,564.22	2.55	3,749.132	
1,000.00	1,000.00	843.52	843.48	2.11	0.72	85.19	801.74	9,533.16	9,568.61	9,565.79	2.82	3,391.886	
1,100.00	1,100.00	900.00	899.95	2.33	0.75	85.19	802.07	9,534.27	9,570.68	9,567.61	3.08	3,109.832	
1,200.00	1,200.00	974.65	974.57	2.56	0.79	85.19	802.66	9,535.99	9,573.09	9,569.75	3.34	2,865.908	
1,300.00	1,300.00	1,031.92	1,031.82	2.78	0.82	85.19	803.25	9,537.80	9,575.97	9,572.37	3.59	2,663.890	
1,400.00	1,400.00	1,100.00	1,099.86	3.01	0.85	85.18	804.10	9,539.83	9,579.30	9,575.45	3.85	2,485.486	
1,500.00	1,500.00	1,217.07	1,216.85	3.23	0.91	85.17	805.70	9,543.73	9,582.76	9,578.63	4.13	2,318.406	
1,600.00	1,600.00	1,449.57	1,449.25	3.46	1.02	85.16	808.83	9,549.71	9,585.59	9,581.12	4.46	2,148.735	
1,700.00	1,700.00	1,741.26	1,740.91	3.68	1.13	85.14	812.06	9,551.75	9,586.22	9,581.43	4.79	2,002.731	
1,800.00	1,800.00	1,878.51	1,878.16	3.91	1.17	85.14	812.91	9,551.24	9,585.90	9,580.88	5.04	1,901.037	
1,900.00	1,900.00	1,989.58	1,989.22	4.13	1.20	85.13	813.48	9,550.53	9,585.30	9,580.01	5.29	1,812.689	
2,000.00	2,000.00	2,095.79	2,095.42	4.36	1.22	85.13	814.08	9,549.77	9,584.64	9,579.11	5.53	1,732.772	
2,100.00	2,100.00	2,201.22	2,200.85	4.58	1.25	85.12	814.80	9,548.94	9,583.91	9,578.14	5.78	1,659.306	
2,200.00	2,200.00	2,307.79	2,307.41	4.81	1.28	85.12	815.73	9,548.03	9,583.13	9,577.11	6.02	1,591.752	
2,300.00	2,300.00	2,431.62	2,431.24	5.03	1.30	85.11	816.54	9,546.78	9,582.19	9,575.92	6.27	1,528.996	
2,400.00	2,400.00	2,546.23	2,545.84	5.26	1.33	85.11	816.75	9,545.42	9,581.01	9,574.50	6.51	1,471.366	
2,500.00	2,500.00	2,649.45	2,649.05	5.48	1.35	85.11	817.01	9,544.11	9,579.77	9,573.02	6.75	1,418.360	
2,600.00	2,600.00	2,740.53	2,740.11	5.71	1.37	85.10	817.36	9,542.95	9,578.53	9,571.54	7.00	1,369.316	
2,700.00	2,700.00	2,819.94	2,819.53	5.93	1.39	85.10	817.61	9,542.08	9,577.48	9,570.24	7.23	1,323.826	
2,800.00	2,800.00	2,900.00	2,899.58	6.15	1.41	85.10	817.79	9,541.39	9,576.64	9,569.16	7.47	1,281.252	
2,900.00	2,900.00	3,012.41	3,011.99	6.38	1.43	85.10	817.90	9,540.48	9,575.84	9,568.12	7.72	1,240.275	
3,000.00	3,000.00	3,122.98	3,122.55	6.60	1.45	85.10	817.87	9,539.44	9,574.90	9,566.93	7.97	1,201.843	
3,100.00	3,100.00	3,224.16	3,223.73	6.83	1.47	85.10	817.84	9,538.45	9,573.91	9,565.70	8.21	1,165.820	
3,200.00	3,200.00	3,322.47	3,322.03	7.05	1.49	85.10	817.88	9,537.46	9,572.92	9,564.46	8.46	1,131.861	
3,300.00	3,300.00	3,412.16	3,411.72	7.28	1.51	85.10	817.97	9,536.62	9,572.00	9,563.30	8.70	1,099.992	
3,400.00	3,400.00	3,502.09	3,501.64	7.50	1.54	85.10	818.12	9,535.88	9,571.18	9,562.24	8.95	1,069.904	
3,500.00	3,500.00	3,602.77	3,602.32	7.73	1.56	85.10	818.27	9,535.09	9,570.42	9,561.23	9.19	1,041.040	
3,600.00	3,600.00	3,703.66	3,703.21	7.95	1.59	85.09	818.35	9,534.30	9,569.65	9,560.21	9.44	1,013.695	
3,700.00	3,700.00	3,810.28	3,809.82	8.18	1.61	111.94	818.51	9,533.42	9,569.16	9,559.47	9.69	987.762	
3,733.76	3,733.75	3,846.27	3,845.81	8.25	1.62	111.94	818.60	9,533.10	9,569.13	9,559.36	9.77	979.387	
3,800.00	3,799.96	3,900.00	3,899.54	8.40	1.64	111.95	818.78	9,532.60	9,569.27	9,559.34	9.93	963.745	
3,900.00	3,899.86	3,995.84	3,995.38	8.62	1.67	111.96	819.21	9,531.80	9,570.10	9,559.93	10.17	940.867	
4,000.00	3,999.68	4,078.51	4,078.04	8.84	1.69	111.97	819.70	9,531.25	9,571.78	9,561.37	10.41	919.358	
4,100.00	4,099.37	4,188.55	4,188.08	9.07	1.72	111.99	820.55	9,530.58	9,574.19	9,563.53	10.66	898.362	
4,133.72	4,132.95	4,228.90	4,228.42	9.15	1.74	112.00	820.93	9,530.28	9,575.11	9,564.36	10.74	891.424	
4,200.00	4,198.94	4,300.00	4,299.52	9.29	1.76	112.03	821.70	9,529.68	9,576.92	9,566.01	10.91	878.195	
4,300.00	4,298.51	4,393.56	4,393.07	9.52	1.79	112.07	823.00	9,528.86	9,579.67	9,568.52	11.15	859.138	
4,400.00	4,398.07	4,481.18	4,480.67	9.75	1.82	112.11	824.63	9,528.18	9,582.55	9,571.16	11.40	840.868	
4,500.00	4,497.84	4,584.77	4,584.22	9.98	1.85	112.15	826.86	9,527.41	9,585.50	9,573.86	11.65	823.088	
4,600.00	4,597.21	4,692.70	4,692.13	10.22	1.88	112.19	829.18	9,526.52	9,588.38	9,576.48	11.90	805.898	
4,700.00	4,696.77	4,775.05	4,774.46	10.45	1.91	112.22	830.99	9,525.87	9,591.29	9,579.15	12.15	789.685	
4,800.00	4,796.34	4,855.54	4,854.93	10.69	1.94	112.25	832.88	9,525.39	9,594.41	9,582.02	12.39	774.080	
4,900.00	4,895.91	4,950.92	4,950.28	10.93	1.97	112.29	835.24	9,524.97	9,597.70	9,585.06	12.65	758.880	

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: OH
Reference Design: Plan #3

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
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	4,995.47	5,064.65	5,063.97	11.17	2.00	112.33	837.85	9,524.38	9,600.91	9,588.00	12.90	744.025	
5,100.00	5,095.04	5,157.30	5,156.60	11.41	2.03	112.36	839.85	9,523.83	9,604.04	9,590.88	13.16	729.910	
5,200.00	5,194.61	5,240.46	5,239.74	11.65	2.06	112.39	841.78	9,523.47	9,607.34	9,593.93	13.41	716.384	
5,300.00	5,294.17	5,330.57	5,329.82	11.89	2.09	112.43	844.04	9,523.22	9,610.80	9,597.14	13.67	703.269	
5,400.00	5,393.74	5,438.20	5,437.41	12.13	2.12	112.47	846.88	9,522.88	9,614.25	9,600.33	13.92	690.457	
5,500.00	5,493.31	5,548.12	5,545.29	12.38	2.16	112.50	849.91	9,522.44	9,617.63	9,603.44	14.18	678.058	
5,600.00	5,592.87	5,654.45	5,653.55	12.63	2.19	112.54	853.51	9,521.86	9,620.91	9,606.47	14.44	666.053	
5,700.00	5,692.44	5,763.43	5,762.45	12.87	2.23	112.57	857.63	9,521.14	9,624.11	9,609.41	14.71	654.425	
5,800.00	5,792.00	5,872.84	5,871.79	13.12	2.28	112.60	861.59	9,520.33	9,627.22	9,612.25	14.97	643.159	
5,900.00	5,891.57	5,967.77	5,966.66	13.37	2.30	112.63	864.94	9,519.58	9,630.28	9,615.05	15.23	632.363	
6,000.00	5,991.14	6,057.95	6,056.77	13.62	2.33	112.65	868.34	9,518.95	9,633.44	9,617.95	15.49	621.946	
6,100.00	6,090.70	6,100.00	6,098.79	13.87	2.34	112.67	870.00	9,518.67	9,636.84	9,621.09	15.74	612.191	
6,200.00	6,190.27	6,179.34	6,178.07	14.12	2.36	112.69	873.03	9,518.49	9,640.54	9,624.54	16.00	602.561	
6,300.00	6,289.84	6,231.02	6,229.72	14.37	2.38	112.70	874.84	9,518.71	9,644.81	9,628.56	16.25	593.404	
6,400.00	6,389.40	6,300.00	6,298.66	14.62	2.40	112.73	877.04	9,519.43	9,649.62	9,633.11	16.51	584.449	
6,500.00	6,488.97	6,438.42	6,437.03	14.87	2.44	112.78	880.62	9,520.86	9,654.51	9,637.73	16.78	575.469	
6,600.00	6,588.54	6,950.74	6,949.19	15.12	2.59	112.99	887.88	9,514.56	9,657.72	9,640.60	17.12	564.078	
6,700.00	6,688.10	7,023.77	7,022.18	15.38	2.60	113.03	888.04	9,512.14	9,658.06	9,640.67	17.38	555.605	
6,800.00	6,787.67	7,100.00	7,098.38	15.63	2.62	113.06	888.18	9,509.82	9,658.88	9,641.03	17.65	547.362	
6,900.00	6,887.24	7,151.17	7,149.52	15.88	2.63	113.09	888.22	9,508.46	9,659.67	9,641.77	17.90	539.543	
7,000.00	6,986.80	7,204.65	7,203.00	16.14	2.64	113.12	888.16	9,507.30	9,661.15	9,642.98	18.16	531.932	
7,100.00	7,086.37	7,300.00	7,298.33	16.39	2.65	113.17	887.81	9,505.87	9,663.27	9,644.84	18.43	524.263	
7,200.00	7,185.93	7,391.21	7,389.53	16.65	2.66	113.21	887.22	9,504.59	9,665.46	9,646.76	18.70	516.823	
7,300.00	7,285.50	7,500.00	7,498.29	16.90	2.68	113.27	886.28	9,502.21	9,666.87	9,647.89	18.98	509.426	
7,400.00	7,385.07	7,583.35	7,581.62	17.16	2.69	113.32	885.76	9,500.40	9,668.41	9,649.17	19.24	502.441	
7,500.00	7,484.63	7,631.22	7,629.48	17.42	2.71	113.34	885.74	9,499.70	9,670.64	9,651.14	19.50	495.874	
7,600.00	7,584.20	7,700.00	7,698.26	17.67	2.72	113.38	886.05	9,499.11	9,673.45	9,653.68	19.77	489.374	
7,700.00	7,683.77	7,700.00	7,698.26	17.93	2.72	113.38	886.05	9,499.11	9,676.78	9,656.76	20.02	483.355	
7,800.00	7,783.33	7,700.00	7,698.26	18.19	2.72	113.38	886.05	9,499.11	9,681.15	9,660.87	20.28	477.443	
7,900.00	7,882.90	7,700.00	7,698.26	18.45	2.72	113.38	886.05	9,499.11	9,686.55	9,666.01	20.54	471.640	
8,000.00	7,982.47	7,700.00	7,698.26	18.70	2.72	113.38	886.05	9,499.11	9,692.97	9,672.17	20.80	465.950	
8,100.00	8,082.03	7,700.00	7,698.26	18.96	2.72	113.38	886.05	9,499.11	9,700.43	9,679.36	21.07	460.374	
8,200.00	8,181.60	7,700.00	7,698.26	19.22	2.72	113.38	886.05	9,499.11	9,708.90	9,687.56	21.34	454.917	
8,300.00	8,281.17	7,700.00	7,698.26	19.48	2.72	113.38	886.05	9,499.11	9,718.40	9,696.79	21.62	449.581	
8,400.00	8,380.73	7,700.00	7,698.26	19.74	2.72	113.38	886.05	9,499.11	9,728.92	9,707.03	21.89	444.369	
8,493.72	8,474.04	7,700.00	7,698.26	19.98	2.72	113.38	886.05	9,499.11	9,739.70	9,717.54	22.16	439.598	
8,500.00	8,480.30	7,700.00	7,698.26	20.00	2.72	105.73	886.05	9,499.11	9,740.41	9,718.24	22.17	439.308	
8,525.00	8,505.21	7,700.00	7,698.26	20.05	2.72	70.90	886.05	9,499.11	9,742.48	9,720.25	22.23	438.215	
8,550.00	8,530.09	7,700.00	7,698.26	20.10	2.72	44.35	886.05	9,499.11	9,743.30	9,721.01	22.29	437.083	
8,575.00	8,554.87	7,700.00	7,698.26	20.15	2.72	29.72	886.05	9,499.11	9,742.88	9,720.53	22.35	435.909	
8,600.00	8,579.49	7,700.00	7,698.26	20.19	2.72	21.50	886.05	9,499.11	9,741.23	9,718.82	22.41	434.699	
8,625.00	8,603.87	7,700.00	7,698.26	20.24	2.72	16.44	886.05	9,499.11	9,738.33	9,715.86	22.47	433.456	
8,650.00	8,627.95	7,700.00	7,698.26	20.27	2.72	13.05	886.05	9,499.11	9,734.20	9,711.68	22.52	432.186	
8,675.00	8,651.66	7,700.00	7,698.26	20.31	2.72	10.64	886.05	9,499.11	9,728.85	9,706.28	22.58	430.892	
8,700.00	8,674.94	7,700.00	7,698.26	20.35	2.72	8.83	886.05	9,499.11	9,722.30	9,699.67	22.63	429.577	
8,725.00	8,697.72	7,700.00	7,698.26	20.38	2.72	7.42	886.05	9,499.11	9,714.55	9,691.86	22.68	428.246	
8,750.00	8,719.95	7,700.00	7,698.26	20.41	2.72	6.29	886.05	9,499.11	9,705.63	9,682.89	22.74	426.901	
8,775.00	8,741.56	7,700.00	7,698.26	20.43	2.72	5.35	886.05	9,499.11	9,695.55	9,672.77	22.78	425.547	
8,800.00	8,762.49	7,700.00	7,698.26	20.46	2.72	4.55	886.05	9,499.11	9,684.35	9,661.51	22.83	424.185	
8,825.00	8,782.68	7,700.00	7,698.26	20.48	2.72	3.85	886.05	9,499.11	9,672.04	9,649.16	22.88	422.819	
8,850.00	8,802.08	7,700.00	7,698.26	20.50	2.72	3.23	886.05	9,499.11	9,658.66	9,635.74	22.92	421.451	
8,875.00	8,820.64	7,700.00	7,698.26	20.52	2.72	2.67	886.05	9,499.11	9,644.24	9,621.28	22.96	420.085	

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: OH
 Reference Design: Plan #3

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
Reference		Offset		Semi Major Axis		Highside Tooface (")	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N-S (usft)	+E-W (usft)					
8,900.00	8,838.30	7,700.00	7,698.26	20.53	2.72	2.14	886.05	9,499.11	9,628.82	9,605.82	23.00	418.722	
8,925.00	8,855.02	7,700.00	7,698.26	20.55	2.72	1.63	886.05	9,499.11	9,612.42	9,589.39	23.03	417.367	
8,950.00	8,870.75	7,700.00	7,698.26	20.56	2.72	1.13	886.05	9,499.11	9,595.10	9,572.04	23.06	416.020	
8,975.00	8,885.45	7,700.00	7,698.26	20.58	2.72	0.63	886.05	9,499.11	9,576.90	9,553.80	23.09	414.686	
9,000.00	8,899.07	7,700.00	7,698.26	20.60	2.72	0.11	886.05	9,499.11	9,557.85	9,534.73	23.12	413.367	
9,025.00	8,911.59	7,700.00	7,698.26	20.63	2.72	-0.45	886.05	9,499.11	9,538.02	9,514.87	23.15	412.065	
9,050.00	8,922.96	7,700.00	7,698.26	20.71	2.72	-1.05	886.05	9,499.11	9,517.44	9,494.27	23.17	410.782	
9,075.00	8,933.15	7,700.00	7,698.26	20.85	2.72	-1.74	886.05	9,499.11	9,496.16	9,472.98	23.19	409.522	
9,100.00	8,942.14	7,700.00	7,698.26	21.01	2.72	-2.53	886.05	9,499.11	9,474.26	9,451.05	23.20	408.286	
9,125.00	8,949.90	7,700.00	7,698.26	21.19	2.72	-3.48	886.05	9,499.11	9,451.78	9,428.55	23.22	407.077	
9,150.00	8,956.42	7,700.00	7,698.26	21.40	2.72	-4.65	886.05	9,499.11	9,428.75	9,405.52	23.23	405.895	
9,175.00	8,961.66	7,700.00	7,698.26	21.62	2.72	-6.17	886.05	9,499.11	9,405.27	9,382.03	23.24	404.742	
9,200.00	8,965.63	7,700.00	7,698.26	21.85	2.72	-8.24	886.05	9,499.11	9,381.39	9,358.14	23.24	403.620	
9,225.00	8,968.30	7,700.00	7,698.26	22.10	2.72	-11.22	886.05	9,499.11	9,357.16	9,333.92	23.25	402.528	
9,250.00	8,969.67	7,700.00	7,698.26	22.37	2.72	-15.89	886.05	9,499.11	9,332.66	9,309.42	23.25	401.467	
9,259.65	8,969.85	7,700.00	7,698.26	25.31	2.72	-18.47	886.05	9,499.11	9,323.14	9,294.95	28.19	330.748	
9,300.00	8,970.20	7,700.00	7,698.26	25.34	2.72	-18.47	886.05	9,499.11	9,283.29	9,255.07	28.22	328.948	
9,400.00	8,971.07	7,700.00	7,698.26	25.41	2.72	-18.47	886.05	9,499.11	9,184.54	9,156.24	28.30	324.501	
9,500.00	8,971.93	7,700.00	7,698.26	25.49	2.72	-18.47	886.05	9,499.11	9,085.82	9,057.43	28.39	320.060	
9,600.00	8,972.80	7,700.00	7,698.26	25.57	2.72	-18.47	886.05	9,499.11	8,987.12	8,958.65	28.47	315.625	
9,700.00	8,973.66	7,700.00	7,698.26	25.65	2.72	-18.47	886.05	9,499.11	8,888.46	8,859.90	28.56	311.196	
9,800.00	8,974.53	7,700.00	7,698.26	25.73	2.72	-18.47	886.05	9,499.11	8,789.82	8,761.17	28.65	306.775	
9,900.00	8,975.39	7,700.00	7,698.26	25.83	2.72	-18.47	886.05	9,499.11	8,691.22	8,662.47	28.74	302.362	
10,000.00	8,976.26	7,700.00	7,698.26	25.92	2.72	-18.47	886.05	9,499.11	8,592.65	8,563.81	28.84	297.956	
10,100.00	8,977.13	7,700.00	7,698.26	26.03	2.72	-18.47	886.05	9,499.11	8,494.11	8,465.17	28.93	293.560	
10,200.00	8,977.99	7,700.00	7,698.26	26.15	2.72	-18.47	886.05	9,499.11	8,395.60	8,366.57	29.03	289.172	
10,300.00	8,978.86	7,700.00	7,698.26	26.31	2.72	-18.47	886.05	9,499.11	8,297.13	8,268.00	29.13	284.793	
10,400.00	8,979.72	7,700.00	7,698.26	26.51	2.72	-18.47	886.05	9,499.11	8,198.70	8,169.47	29.24	280.424	
10,500.00	8,980.59	7,700.00	7,698.26	26.81	2.72	-18.47	886.05	9,499.11	8,100.31	8,070.97	29.34	276.065	
10,600.00	8,981.45	7,700.00	7,698.26	27.24	2.72	-18.47	886.05	9,499.11	8,001.96	7,972.51	29.45	271.716	
10,700.00	8,982.32	7,700.00	7,698.26	27.78	2.72	-18.47	886.05	9,499.11	7,903.64	7,874.08	29.56	267.378	
10,800.00	8,983.19	7,700.00	7,698.26	28.39	2.72	-18.47	886.05	9,499.11	7,805.37	7,775.70	29.67	263.051	
10,900.00	8,984.05	7,700.00	7,698.26	29.05	2.72	-18.47	886.05	9,499.11	7,707.15	7,677.36	29.79	258.736	
11,000.00	8,984.92	7,700.00	7,698.26	29.75	2.72	-18.47	886.05	9,499.11	7,608.97	7,579.07	29.91	254.432	
11,100.00	8,985.78	7,700.00	7,698.26	30.49	2.72	-18.47	886.05	9,499.11	7,510.84	7,480.81	30.03	250.140	
11,200.00	8,986.65	7,700.00	7,698.26	31.25	2.72	-18.47	886.05	9,499.11	7,412.76	7,382.61	30.15	245.860	
11,300.00	8,987.52	7,700.00	7,698.26	32.03	2.72	-18.47	886.05	9,499.11	7,314.73	7,284.46	30.28	241.593	
11,400.00	8,988.38	7,700.00	7,698.26	32.84	2.72	-18.47	886.05	9,499.11	7,216.76	7,186.35	30.41	237.339	
11,500.00	8,989.25	7,700.00	7,698.26	33.66	2.72	-18.47	886.05	9,499.11	7,118.84	7,088.30	30.54	233.098	
11,600.00	8,990.11	7,700.00	7,698.26	34.50	2.72	-18.47	886.05	9,499.11	7,020.98	6,990.31	30.68	228.870	
11,700.00	8,990.98	7,700.00	7,698.26	35.36	2.72	-18.47	886.05	9,499.11	6,923.18	6,892.37	30.82	224.656	
11,800.00	8,991.84	7,700.00	7,698.26	36.23	2.72	-18.47	886.05	9,499.11	6,825.45	6,794.49	30.96	220.456	
11,900.00	8,992.71	7,700.00	7,698.26	37.12	2.72	-18.47	886.05	9,499.11	6,727.78	6,696.67	31.11	216.270	
12,000.00	8,993.58	7,700.00	7,698.26	38.02	2.72	-18.47	886.05	9,499.11	6,630.18	6,598.82	31.26	212.098	
12,100.00	8,994.44	7,700.00	7,698.26	38.93	2.72	-18.47	886.05	9,499.11	6,532.66	6,501.24	31.42	207.940	
12,200.00	8,995.31	7,700.00	7,698.26	39.85	2.72	-18.47	886.05	9,499.11	6,435.21	6,403.63	31.58	203.798	
12,300.00	8,996.17	7,700.00	7,698.26	40.78	2.72	-18.47	886.05	9,499.11	6,337.84	6,306.10	31.74	199.670	
12,400.00	8,997.04	7,700.00	7,698.26	41.72	2.72	-18.47	886.05	9,499.11	6,240.55	6,208.64	31.91	195.558	
12,500.00	8,997.90	7,700.00	7,698.26	42.67	2.72	-18.47	886.05	9,499.11	6,143.35	6,111.27	32.09	191.461	
12,600.00	8,998.77	7,700.00	7,698.26	43.63	2.72	-18.47	886.05	9,499.11	6,046.24	6,013.98	32.27	187.380	
12,700.00	8,999.64	7,700.00	7,698.26	44.59	2.72	-18.47	886.05	9,499.11	5,949.23	5,916.78	32.45	183.315	
12,800.00	9,000.50	7,700.00	7,698.26	45.56	2.72	-18.47	886.05	9,499.11	5,852.32	5,819.67	32.65	179.266	

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: OH
Reference Design: Plan #3

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
Reference		Offset		Semi Major Axis			Distance		Minimum Separation		Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
12,900.00	9,001.37	7,700.00	7,698.26	46.54	2.72	-18.47	886.05	9,499.11	5,755.51	5,722.67	32.84	175.233	
13,000.00	9,002.23	7,700.00	7,698.26	47.53	2.72	-18.47	886.05	9,499.11	5,658.82	5,625.77	33.05	171.217	
13,100.00	9,003.10	7,700.00	7,698.26	48.52	2.72	-18.47	886.05	9,499.11	5,562.24	5,528.98	33.26	167.218	
13,200.00	9,003.96	7,700.00	7,698.26	49.51	2.72	-18.47	886.05	9,499.11	5,465.79	5,432.30	33.48	163.236	
13,300.00	9,004.83	7,700.00	7,698.26	50.51	2.72	-18.47	886.05	9,499.11	5,369.46	5,335.75	33.71	159.272	
13,400.00	9,005.70	7,700.00	7,698.26	51.52	2.72	-18.47	886.05	9,499.11	5,273.27	5,239.32	33.95	155.326	
13,500.00	9,006.56	7,700.00	7,698.26	52.53	2.72	-18.47	886.05	9,499.11	5,177.23	5,143.03	34.20	151.398	
13,600.00	9,007.43	7,700.00	7,698.26	53.55	2.72	-18.47	886.05	9,499.11	5,081.34	5,046.88	34.45	147.488	
13,700.00	9,008.29	7,700.00	7,698.26	54.56	2.72	-18.47	886.05	9,499.11	4,985.60	4,950.89	34.72	143.598	
13,800.00	9,009.16	7,700.00	7,698.26	55.59	2.72	-18.47	886.05	9,499.11	4,890.05	4,855.05	35.00	139.727	
13,900.00	9,010.03	7,700.00	7,698.26	56.61	2.72	-18.47	886.05	9,499.11	4,794.67	4,759.38	35.29	135.876	
14,000.00	9,010.89	7,700.00	7,698.26	57.64	2.72	-18.47	886.05	9,499.11	4,699.48	4,663.89	35.59	132.045	
14,100.00	9,011.76	7,700.00	7,698.26	58.68	2.72	-18.47	886.05	9,499.11	4,604.50	4,568.59	35.91	128.236	
14,200.00	9,012.62	7,700.00	7,698.26	59.71	2.72	-18.47	886.05	9,499.11	4,509.73	4,473.50	36.24	124.449	
14,300.00	9,013.49	7,700.00	7,698.26	60.75	2.72	-18.47	886.05	9,499.11	4,415.20	4,378.62	36.58	120.684	
14,400.00	9,014.35	7,700.00	7,698.26	61.80	2.72	-18.47	886.05	9,499.11	4,320.91	4,283.96	36.95	116.943	
14,500.00	9,015.22	7,700.00	7,698.26	62.84	2.72	-18.47	886.05	9,499.11	4,226.89	4,189.56	37.33	113.227	
14,600.00	9,016.09	7,700.00	7,698.26	63.89	2.72	-18.47	886.05	9,499.11	4,133.14	4,095.41	37.73	109.536	
14,700.00	9,016.95	7,700.00	7,698.26	64.94	2.72	-18.47	886.05	9,499.11	4,039.70	4,001.54	38.16	105.872	
14,800.00	9,017.82	7,700.00	7,698.26	65.99	2.72	-18.47	886.05	9,499.11	3,946.57	3,907.97	38.60	102.236	
14,900.00	9,018.68	7,700.00	7,698.26	67.04	2.72	-18.47	886.05	9,499.11	3,853.79	3,814.72	39.07	98.629	
15,000.00	9,019.55	7,700.00	7,698.26	68.10	2.72	-18.47	886.05	9,499.11	3,761.38	3,721.81	39.57	95.054	
15,100.00	9,020.41	7,700.00	7,698.26	69.16	2.72	-18.47	886.05	9,499.11	3,669.37	3,629.28	40.10	91.511	
15,200.00	9,021.28	7,700.00	7,698.26	70.22	2.72	-18.47	886.05	9,499.11	3,577.79	3,537.14	40.66	88.004	
15,300.00	9,022.15	7,700.00	7,698.26	71.28	2.72	-18.47	886.05	9,499.11	3,486.67	3,445.43	41.25	84.533	
15,400.00	9,023.01	7,700.00	7,698.26	72.34	2.72	-18.47	886.05	9,499.11	3,396.05	3,354.18	41.87	81.102	
15,500.00	9,023.88	7,700.00	7,698.26	73.41	2.72	-18.47	886.05	9,499.11	3,305.97	3,263.43	42.54	77.712	
15,600.00	9,024.74	7,700.00	7,698.26	74.48	2.72	-18.47	886.05	9,499.11	3,216.48	3,173.23	43.25	74.368	
15,700.00	9,025.61	7,700.00	7,698.26	75.54	2.72	-18.47	886.05	9,499.11	3,127.62	3,083.62	44.01	71.071	
15,800.00	9,026.48	7,700.00	7,698.26	76.61	2.72	-18.47	886.05	9,499.11	3,039.46	2,994.65	44.81	67.825	
15,900.00	9,027.34	7,700.00	7,698.26	77.68	2.72	-18.47	886.05	9,499.11	2,952.05	2,906.38	45.67	64.635	
16,000.00	9,028.21	7,700.00	7,698.26	78.76	2.72	-18.47	886.05	9,499.11	2,865.47	2,818.88	46.59	61.503	
16,100.00	9,029.07	7,700.00	7,698.26	79.83	2.72	-18.47	886.05	9,499.11	2,779.78	2,732.21	47.57	58.434	
16,200.00	9,029.94	7,700.00	7,698.26	80.91	2.72	-18.47	886.05	9,499.11	2,695.08	2,646.47	48.62	55.432	
16,300.00	9,030.80	7,700.00	7,698.26	81.98	2.72	-18.47	886.05	9,499.11	2,611.47	2,561.73	49.74	52.502	
16,400.00	9,031.67	7,700.00	7,698.26	83.06	2.72	-18.47	886.05	9,499.11	2,529.04	2,478.11	50.94	49.650	
16,500.00	9,032.54	7,700.00	7,698.26	84.14	2.72	-18.47	886.05	9,499.11	2,447.93	2,395.71	52.22	46.879	
16,600.00	9,033.40	7,700.00	7,698.26	85.22	2.72	-18.47	886.05	9,499.11	2,368.26	2,314.67	53.58	44.197	
16,700.00	9,034.27	7,700.00	7,698.26	86.30	2.72	-18.47	886.05	9,499.11	2,290.18	2,235.14	55.04	41.607	
16,800.00	9,035.13	7,700.00	7,698.26	87.38	2.72	-18.47	886.05	9,499.11	2,213.87	2,157.27	56.80	39.116	
16,900.00	9,036.00	7,700.00	7,698.26	88.46	2.72	-18.47	886.05	9,499.11	2,139.51	2,081.26	58.25	36.730	
17,000.00	9,036.86	7,700.00	7,698.26	89.54	2.72	-18.47	886.05	9,499.11	2,067.32	2,007.31	60.00	34.454	
17,100.00	9,037.73	7,700.00	7,698.26	90.63	2.72	-18.47	886.05	9,499.11	1,997.52	1,935.67	61.85	32.294	
17,200.00	9,038.60	7,700.00	7,698.26	91.71	2.72	-18.47	886.05	9,499.11	1,930.38	1,866.58	63.80	30.256	
17,300.00	9,039.46	7,700.00	7,698.26	92.80	2.72	-18.47	886.05	9,499.11	1,866.19	1,800.35	65.84	28.344	
17,400.00	9,040.33	7,700.00	7,698.26	93.89	2.72	-18.47	886.05	9,499.11	1,805.26	1,737.30	67.96	26.564	
17,500.00	9,041.19	7,700.00	7,698.26	94.97	2.72	-18.47	886.05	9,499.11	1,747.92	1,677.79	70.14	24.921	
17,600.00	9,042.06	7,700.00	7,698.26	96.06	2.72	-18.47	886.05	9,499.11	1,694.56	1,622.20	72.36	23.417	
17,700.00	9,042.93	7,700.00	7,698.26	97.15	2.72	-18.47	886.05	9,499.11	1,645.55	1,570.94	74.60	22.058	
17,800.00	9,043.79	7,700.00	7,698.26	98.24	2.72	-18.47	886.05	9,499.11	1,601.28	1,524.46	76.82	20.845	
17,900.00	9,044.66	7,700.00	7,698.26	99.33	2.72	-18.47	886.05	9,499.11	1,562.18	1,483.20	78.97	19.781	
18,000.00	9,045.52	7,700.00	7,698.26	100.42	2.72	-18.47	886.05	9,499.11	1,528.62	1,447.60	81.02	18.867	

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: OH
Reference Design: Plan #3

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
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N-S (usft)	+E-W (usft)					
18,100.00	9,046.39	7,700.00	7,698.26	101.51	2.72	-18.47	886.05	9,499.11	1,500.99	1,418.08	82.91	18.104	
18,200.00	9,047.25	7,700.00	7,698.26	102.60	2.72	-18.47	886.05	9,499.11	1,479.62	1,395.03	84.59	17.492	
18,300.00	9,048.12	7,700.00	7,698.26	103.69	2.72	-18.47	886.05	9,499.11	1,464.77	1,378.76	86.01	17.030	
18,400.00	9,048.99	7,700.00	7,698.26	104.79	2.72	-18.47	886.05	9,499.11	1,456.65	1,369.52	87.14	16.716	
18,468.55	9,049.58	7,700.00	7,698.26	105.54	2.72	-18.47	886.05	9,499.11	1,455.04	1,367.31	87.73	16.586	CC, ES
18,500.00	9,049.85	7,700.00	7,698.26	105.88	2.72	-18.47	886.05	9,499.11	1,455.38	1,367.44	87.95	16.549	
18,600.00	9,050.72	7,700.00	7,698.26	106.98	2.72	-18.47	886.05	9,499.11	1,460.97	1,372.55	88.42	16.524	SF
18,700.00	9,051.58	7,700.00	7,698.26	108.07	2.72	-18.47	886.05	9,499.11	1,473.33	1,384.78	88.55	16.638	
18,800.00	9,052.45	7,700.00	7,698.26	109.16	2.72	-18.47	886.05	9,499.11	1,492.31	1,403.94	88.37	16.887	
18,900.00	9,053.31	7,700.00	7,698.26	110.26	2.72	-18.47	886.05	9,499.11	1,517.66	1,429.76	87.90	17.267	
19,000.00	9,054.18	7,700.00	7,698.26	111.36	2.72	-18.47	886.05	9,499.11	1,549.06	1,461.89	87.17	17.771	
19,100.00	9,055.05	7,700.00	7,698.26	112.45	2.72	-18.47	886.05	9,499.11	1,586.15	1,499.92	86.23	18.395	
19,200.00	9,055.91	7,700.00	7,698.26	113.55	2.72	-18.47	886.05	9,499.11	1,628.54	1,543.43	85.12	19.133	
19,300.00	9,056.78	7,700.00	7,698.26	114.65	2.72	-18.47	886.05	9,499.11	1,675.84	1,591.96	83.88	19.979	
19,400.00	9,057.64	7,700.00	7,698.26	115.74	2.72	-18.47	886.05	9,499.11	1,727.64	1,645.08	82.56	20.926	
19,500.00	9,058.51	7,700.00	7,698.26	116.84	2.72	-18.47	886.05	9,499.11	1,783.54	1,702.36	81.18	21.970	
19,600.00	9,059.37	7,700.00	7,698.26	117.94	2.72	-18.47	886.05	9,499.11	1,843.18	1,763.40	79.78	23.104	
19,700.00	9,060.24	7,700.00	7,698.26	119.04	2.72	-18.47	886.05	9,499.11	1,906.20	1,827.83	78.37	24.322	
19,800.00	9,061.11	7,700.00	7,698.26	120.14	2.72	-18.47	886.05	9,499.11	1,972.28	1,895.29	76.99	25.617	
19,900.00	9,061.97	7,700.00	7,698.26	121.24	2.72	-18.47	886.05	9,499.11	2,041.12	1,965.49	75.64	26.986	
20,000.00	9,062.84	7,700.00	7,698.26	122.34	2.72	-18.47	886.05	9,499.11	2,112.46	2,038.13	74.33	28.421	
20,100.00	9,063.70	7,700.00	7,698.26	123.44	2.72	-18.47	886.05	9,499.11	2,186.04	2,112.97	73.07	29.918	
20,200.00	9,064.57	7,700.00	7,698.26	124.54	2.72	-18.47	886.05	9,499.11	2,261.65	2,189.78	71.86	31.471	
20,300.00	9,065.44	7,700.00	7,698.26	125.64	2.72	-18.47	886.05	9,499.11	2,339.09	2,268.37	70.72	33.077	
20,400.00	9,066.30	7,700.00	7,698.26	126.74	2.72	-18.47	886.05	9,499.11	2,418.19	2,348.56	69.63	34.729	
20,500.00	9,067.17	7,700.00	7,698.26	127.84	2.72	-18.47	886.05	9,499.11	2,498.78	2,430.18	68.60	36.424	
20,600.00	9,068.03	7,700.00	7,698.26	128.95	2.72	-18.47	886.05	9,499.11	2,580.74	2,513.10	67.63	38.158	
20,700.00	9,068.90	7,700.00	7,698.26	130.05	2.72	-18.47	886.05	9,499.11	2,663.92	2,597.20	66.72	39.927	
20,800.00	9,069.76	7,700.00	7,698.26	131.15	2.72	-18.47	886.05	9,499.11	2,748.23	2,682.37	65.86	41.727	
20,900.00	9,070.63	7,700.00	7,698.26	132.25	2.72	-18.47	886.05	9,499.11	2,833.56	2,768.50	65.06	43.555	
21,000.00	9,071.50	7,700.00	7,698.26	133.36	2.72	-18.47	886.05	9,499.11	2,919.82	2,855.52	64.30	45.407	
21,100.00	9,072.36	7,700.00	7,698.26	134.46	2.72	-18.47	886.05	9,499.11	3,006.93	2,943.34	63.60	47.282	
21,200.00	9,073.23	7,700.00	7,698.26	135.56	2.72	-18.47	886.05	9,499.11	3,094.82	3,031.89	62.93	49.175	
21,300.00	9,074.09	7,700.00	7,698.26	136.67	2.72	-18.47	886.05	9,499.11	3,183.43	3,121.11	62.32	51.085	
21,400.00	9,074.96	7,700.00	7,698.26	137.77	2.72	-18.47	886.05	9,499.11	3,272.69	3,210.95	61.74	53.010	
21,500.00	9,075.82	7,700.00	7,698.26	138.87	2.72	-18.47	886.05	9,499.11	3,362.56	3,301.36	61.20	54.946	
21,600.00	9,076.69	7,700.00	7,698.26	139.98	2.72	-18.47	886.05	9,499.11	3,452.98	3,392.29	60.69	56.892	
21,700.00	9,077.56	7,700.00	7,698.26	141.08	2.72	-18.47	886.05	9,499.11	3,543.92	3,483.70	60.22	58.846	
21,714.06	9,077.88	7,700.00	7,698.26	141.16	2.72	-18.47	886.05	9,499.11	3,556.75	3,498.30	58.45	60.855	

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: OH
Reference Design: Plan #3

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 (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
0.00	0.00	49.82	49.82	0.00	0.04	86.21	624.41	9,427.52	9,448.19				
100.00	100.00	157.89	157.88	0.09	0.20	86.21	624.83	9,427.13	9,447.86	9,447.57	0.29	N/A	
200.00	200.00	301.76	301.76	0.31	0.50	86.21	624.76	9,426.55	9,447.50	9,446.88	0.81	N/A	
300.00	300.00	411.08	411.07	0.54	0.74	86.21	624.83	9,425.86	9,446.89	9,445.41	1.27	7,411.198	
400.00	400.00	500.00	499.99	0.76	0.93	86.20	625.43	9,424.87	9,445.85	9,444.16	1.69	5,586.825	
500.00	500.00	549.43	549.41	0.99	1.03	86.20	625.90	9,424.58	9,445.36	9,443.34	2.02	4,683.804	
533.91	533.91	564.63	564.61	1.06	1.06	86.20	626.01	9,424.55	9,445.32	9,443.20	2.12	4,446.866	
600.00	600.00	600.00	599.98	1.21	1.14	86.20	626.20	9,424.62	9,445.45	9,443.11	2.35	4,027.341	
700.00	700.00	707.14	707.12	1.43	1.36	86.20	626.66	9,424.97	9,445.81	9,443.02	2.79	3,382.415	
800.00	800.00	800.00	799.98	1.66	1.56	86.19	627.40	9,425.09	9,446.00	9,442.78	3.22	2,934.408	
900.00	900.00	872.11	872.08	1.88	1.71	86.19	628.15	9,425.30	9,446.39	9,442.79	3.59	2,628.081	
1,000.00	1,000.00	930.16	930.13	2.11	1.83	86.18	628.70	9,425.75	9,447.23	9,443.29	3.94	2,398.200	
1,100.00	1,100.00	1,000.00	999.96	2.33	1.97	86.18	629.37	9,426.65	9,448.54	9,444.23	4.31	2,193.932	
1,200.00	1,200.00	1,072.67	1,072.62	2.56	2.12	86.18	630.07	9,427.80	9,450.15	9,445.47	4.68	2,018.631	
1,300.00	1,300.00	1,146.72	1,146.66	2.78	2.28	86.17	630.76	9,429.07	9,451.93	9,446.87	5.06	1,867.725	
1,400.00	1,400.00	1,220.72	1,220.63	3.01	2.43	86.17	631.53	9,430.60	9,454.05	9,448.81	5.44	1,737.488	
1,500.00	1,500.00	1,330.15	1,330.04	3.23	2.66	86.16	632.77	9,432.90	9,456.23	9,450.33	5.90	1,603.402	
1,600.00	1,600.00	1,522.56	1,522.40	3.46	3.07	86.15	634.88	9,436.14	9,458.10	9,451.57	6.52	1,449.682	
1,700.00	1,700.00	1,719.28	1,719.12	3.68	3.48	86.14	636.17	9,437.33	9,458.76	9,451.60	7.16	1,320.971	
1,800.00	1,800.00	1,839.65	1,839.48	3.91	3.74	86.14	636.70	9,437.27	9,458.72	9,451.09	7.64	1,238.268	
1,890.26	1,890.26	1,921.13	1,920.96	4.11	3.91	86.14	637.16	9,437.17	9,458.66	9,450.65	8.01	1,180.440	
1,900.00	1,900.00	1,928.25	1,928.08	4.13	3.92	86.14	637.21	9,437.17	9,458.66	9,450.61	8.05	1,175.041	
2,000.00	2,000.00	2,000.00	1,999.83	4.36	4.07	86.13	637.71	9,437.26	9,458.83	9,450.41	8.42	1,122.720	
2,100.00	2,100.00	2,080.93	2,080.75	4.58	4.24	86.13	638.43	9,437.55	9,459.25	9,450.43	8.82	1,072.535	
2,200.00	2,200.00	2,279.75	2,279.57	4.81	4.66	86.13	639.07	9,437.66	9,459.40	9,449.94	9.46	999.964	
2,300.00	2,300.00	2,359.83	2,359.65	5.03	4.82	86.13	639.17	9,437.25	9,458.91	9,449.06	9.85	960.079	
2,400.00	2,400.00	2,446.45	2,446.27	5.26	5.01	86.12	639.35	9,437.10	9,458.75	9,448.49	10.26	922.012	
2,500.00	2,500.00	2,572.63	2,572.44	5.48	5.27	86.12	640.51	9,436.66	9,458.46	9,447.71	10.75	879.811	
2,600.00	2,600.00	2,652.87	2,652.67	5.71	5.44	86.11	641.40	9,436.27	9,458.07	9,446.92	11.15	848.591	
2,700.00	2,700.00	2,800.00	2,799.79	5.93	5.75	86.10	643.41	9,435.70	9,457.87	9,446.19	11.68	809.713	
2,800.00	2,800.00	2,869.57	2,869.35	6.15	5.90	86.10	643.97	9,435.26	9,457.29	9,445.24	12.05	784.870	
2,900.00	2,900.00	2,940.73	2,940.52	6.38	6.04	86.09	644.11	9,435.07	9,457.04	9,444.82	12.42	761.379	
2,937.21	2,937.21	2,968.35	2,968.14	6.46	6.10	86.09	644.12	9,435.06	9,457.02	9,444.46	12.56	752.874	
3,000.00	3,000.00	3,021.36	3,021.15	6.60	6.21	86.09	644.12	9,435.10	9,457.06	9,444.25	12.81	738.141	
3,100.00	3,100.00	3,130.52	3,130.31	6.83	6.44	86.09	644.70	9,435.13	9,457.13	9,443.86	13.27	712.914	
3,200.00	3,200.00	3,246.46	3,246.25	7.05	6.68	86.09	645.29	9,434.99	9,457.04	9,443.31	13.73	688.609	
3,300.00	3,300.00	3,346.10	3,345.89	7.28	6.89	86.08	646.05	9,434.74	9,456.85	9,442.68	14.17	667.451	
3,397.16	3,397.16	3,428.08	3,427.86	7.50	7.06	86.08	646.82	9,434.61	9,456.76	9,442.20	14.56	649.496	
3,400.00	3,400.00	3,430.31	3,430.08	7.50	7.07	86.08	646.84	9,434.61	9,456.76	9,442.19	14.57	649.003	
3,500.00	3,500.00	3,511.70	3,511.47	7.73	7.24	86.07	647.52	9,434.66	9,456.88	9,441.91	14.97	631.876	
3,600.00	3,600.00	3,600.00	3,599.77	7.95	7.42	86.07	648.02	9,434.79	9,457.07	9,441.69	15.38	615.061	
3,700.00	3,700.00	3,686.27	3,686.05	8.18	7.60	112.90	648.63	9,435.01	9,457.73	9,441.95	15.78	599.275	
3,800.00	3,799.96	3,838.62	3,838.38	8.40	7.92	112.90	650.18	9,435.18	9,458.92	9,442.60	16.32	579.619	
3,900.00	3,899.86	3,943.86	3,943.61	8.62	8.15	112.91	651.37	9,434.98	9,460.51	9,443.74	16.78	564.352	
4,000.00	3,999.88	4,042.66	4,042.40	8.84	8.36	112.91	652.87	9,434.73	9,462.74	9,445.54	17.20	550.286	
4,100.00	4,099.37	4,100.00	4,099.73	9.07	8.48	112.90	653.97	9,434.60	9,465.78	9,448.24	17.55	539.510	
4,133.72	4,132.95	4,133.40	4,133.12	9.15	8.55	112.90	654.74	9,434.59	9,467.01	9,449.32	17.69	535.096	
4,200.00	4,198.94	4,164.36	4,164.07	9.29	8.62	112.91	655.57	9,434.69	9,469.76	9,451.84	17.92	528.582	
4,300.00	4,298.51	4,300.00	4,299.65	9.52	8.91	112.96	659.59	9,435.43	9,474.22	9,455.80	18.42	514.341	
4,400.00	4,398.07	4,373.25	4,372.87	9.75	9.06	112.98	661.67	9,435.60	9,478.29	9,459.48	18.81	503.898	
4,500.00	4,497.64	4,430.86	4,430.47	9.98	9.19	113.00	663.61	9,435.92	9,482.73	9,463.56	19.17	494.809	
4,600.00	4,597.21	4,500.00	4,499.55	10.22	9.33	113.03	665.69	9,436.75	9,487.71	9,468.15	19.56	485.123	

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: OH
Reference Design: Plan #3

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
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
4,700.00	4,696.77	4,536.65	4,536.18	10.45	9.41	113.04	666.73	9,437.37	9,493.12	9,473.24	19.88	477.456		
4,800.00	4,796.34	4,600.00	4,599.49	10.69	9.55	113.06	668.73	9,438.67	9,499.02	9,478.76	20.26	468.875		
4,900.00	4,895.91	4,821.19	4,820.55	10.93	10.01	113.14	674.74	9,442.80	9,505.05	9,484.12	20.92	454.262		
5,000.00	4,995.47	4,900.00	4,899.33	11.17	10.18	113.17	676.53	9,443.71	9,510.00	9,488.67	21.33	445.789		
5,100.00	5,095.04	5,037.80	5,037.11	11.41	10.47	113.23	678.99	9,445.22	9,514.92	9,493.07	21.85	435.525		
5,200.00	5,194.61	5,200.00	5,199.27	11.65	10.82	113.29	682.21	9,445.74	9,518.95	9,496.53	22.42	424.608		
5,300.00	5,294.17	5,268.65	5,267.88	11.89	10.97	113.31	684.33	9,445.75	9,522.91	9,500.10	22.81	417.550		
5,400.00	5,393.74	5,328.07	5,327.26	12.13	11.09	113.33	686.41	9,446.15	9,527.46	9,504.27	23.19	410.867		
5,500.00	5,493.31	5,414.14	5,413.30	12.38	11.28	113.36	688.90	9,446.94	9,532.25	9,508.64	23.62	403.615		
5,600.00	5,592.87	5,500.00	5,499.10	12.63	11.46	113.39	691.85	9,447.84	9,537.20	9,513.15	24.05	396.603		
5,700.00	5,692.44	5,569.74	5,568.77	12.87	11.61	113.41	694.90	9,448.69	9,542.38	9,517.92	24.45	390.220		
5,800.00	5,792.00	5,637.03	5,635.97	13.12	11.76	113.42	698.12	9,449.70	9,547.87	9,523.01	24.86	384.122		
5,900.00	5,891.57	5,705.54	5,704.39	13.37	11.91	113.44	701.42	9,450.99	9,553.73	9,528.46	25.26	378.196		
6,000.00	5,991.14	5,838.20	5,836.91	13.62	12.20	113.47	707.17	9,453.30	9,559.39	9,533.62	25.78	370.654		
6,100.00	6,090.70	5,981.79	5,980.35	13.87	12.51	113.51	713.40	9,455.72	9,565.13	9,538.82	26.31	363.529		
6,200.00	6,190.27	6,102.24	6,100.69	14.12	12.77	113.54	718.29	9,457.02	9,570.16	9,543.35	26.81	356.988		
6,300.00	6,289.84	6,300.00	6,298.20	14.37	13.21	113.59	727.94	9,458.25	9,574.92	9,547.45	27.47	348.546		
6,400.00	6,389.40	6,372.48	6,370.60	14.62	13.36	113.60	731.35	9,458.34	9,579.03	9,551.16	27.88	343.641		
6,500.00	6,488.97	6,451.19	6,449.22	14.87	13.53	113.62	735.09	9,458.64	9,583.42	9,555.12	28.29	338.725		
6,600.00	6,588.54	6,630.86	6,628.76	15.12	13.92	113.67	742.08	9,459.08	9,587.73	9,558.80	28.93	331.454		
6,700.00	6,688.10	6,931.82	6,929.57	15.38	14.56	113.78	749.77	9,454.86	9,589.98	9,560.17	29.81	321.723		
6,800.00	6,787.67	7,015.27	7,013.00	15.63	14.73	113.81	751.03	9,453.06	9,591.67	9,561.43	30.23	317.258		
6,900.00	6,887.24	7,133.75	7,131.43	15.88	14.98	113.86	752.74	9,450.34	9,593.19	9,562.46	30.73	312.174		
7,000.00	6,986.80	7,204.13	7,201.79	16.14	15.12	113.89	753.37	9,448.84	9,594.88	9,563.76	31.13	308.248		
7,100.00	7,086.37	7,277.42	7,275.07	16.39	15.27	113.93	753.79	9,447.53	9,596.90	9,565.37	31.53	304.385		
7,200.00	7,185.93	7,300.92	7,298.57	16.65	15.32	113.94	753.77	9,447.20	9,599.40	9,567.57	31.83	301.596		
7,300.00	7,285.50	7,318.00	7,315.65	16.90	15.36	113.95	753.66	9,447.14	9,602.77	9,570.66	32.11	299.025		
7,400.00	7,385.07	7,318.00	7,315.65	17.16	15.36	113.95	753.66	9,447.14	9,607.08	9,574.67	32.41	296.403		
7,500.00	7,484.63	7,335.07	7,332.71	17.42	15.39	113.96	753.45	9,447.32	9,612.26	9,579.51	32.75	293.467		
7,600.00	7,584.20	7,350.00	7,347.63	17.67	15.42	113.97	753.13	9,447.74	9,618.46	9,585.37	33.09	290.661		
7,700.00	7,683.77	7,350.00	7,347.63	17.93	15.42	113.97	753.13	9,447.74	9,625.55	9,592.15	33.41	288.138		
7,800.00	7,783.33	7,350.00	7,347.63	18.19	15.42	113.97	753.13	9,447.74	9,633.68	9,599.96	33.72	285.718		
7,900.00	7,882.90	7,361.00	7,378.56	18.45	15.48	113.99	752.03	9,449.48	9,642.76	9,608.69	34.07	283.031		
8,000.00	7,982.47	7,361.00	7,378.56	18.70	15.48	113.99	752.03	9,449.48	9,652.63	9,618.25	34.38	280.796		
8,100.00	8,082.03	7,361.00	7,378.56	18.96	15.48	113.99	752.03	9,449.48	9,663.52	9,628.84	34.68	278.655		
8,200.00	8,181.60	7,361.00	7,378.56	19.22	15.48	113.99	752.03	9,449.48	9,675.44	9,640.46	34.98	276.607		
8,300.00	8,281.17	7,413.00	7,410.37	19.48	15.55	114.02	750.16	9,452.41	9,688.20	9,652.87	35.32	274.268		
8,400.00	8,380.73	7,413.00	7,410.37	19.74	15.55	114.02	750.16	9,452.41	9,701.82	9,666.20	35.62	272.380		
8,493.72	8,474.04	7,413.00	7,410.37	19.98	15.55	114.02	750.16	9,452.41	9,715.50	9,679.61	35.89	270.688		
8,500.00	8,480.30	7,413.00	7,410.37	20.00	15.55	106.37	750.16	9,452.41	9,716.41	9,680.50	35.91	270.586		
8,525.00	8,505.21	7,413.00	7,410.37	20.05	15.55	71.54	750.16	9,452.41	9,719.25	9,683.28	35.97	270.199		
8,550.00	8,530.09	7,413.00	7,410.37	20.10	15.55	45.00	750.16	9,452.41	9,720.85	9,684.82	36.03	269.787		
8,575.00	8,554.87	7,413.00	7,410.37	20.15	15.55	30.37	750.16	9,452.41	9,721.22	9,685.12	36.09	269.345		
8,600.00	8,579.49	7,413.00	7,410.37	20.19	15.55	22.16	750.16	9,452.41	9,720.33	9,684.18	36.15	268.878		
8,625.00	8,603.87	7,413.00	7,410.37	20.24	15.55	17.11	750.16	9,452.41	9,718.21	9,682.00	36.21	268.385		
8,650.00	8,627.95	7,413.00	7,410.37	20.27	15.55	13.73	750.16	9,452.41	9,714.85	9,678.59	36.27	267.870		
8,675.00	8,651.66	7,428.99	7,426.21	20.31	15.58	11.34	749.07	9,454.32	9,710.06	9,673.71	36.35	267.136		
8,700.00	8,674.94	7,445.00	7,442.02	20.35	15.61	9.56	748.13	9,456.62	9,704.39	9,667.96	36.43	266.391		
8,725.00	8,697.72	7,445.00	7,442.02	20.38	15.61	8.17	748.13	9,456.62	9,697.30	9,660.82	36.48	265.812		
8,750.00	8,719.95	7,445.00	7,442.02	20.41	15.61	7.06	748.13	9,456.62	9,689.03	9,652.50	36.53	265.217		
8,775.00	8,741.56	7,445.00	7,442.02	20.43	15.61	6.14	748.13	9,456.62	9,679.59	9,643.01	36.58	264.605		
8,800.00	8,762.49	7,445.00	7,442.02	20.46	15.61	5.37	748.13	9,456.62	9,669.01	9,632.39	36.63	263.979		

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: OH
Reference Design: Plan #3

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
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
8,825.00	8,782.68	7,445.00	7,442.02	20.48	15.61	4.70	748.13	9,456.62	9,657.32	9,620.64	36.67	263.340		
8,850.00	8,802.08	7,445.00	7,442.02	20.50	15.61	4.12	748.13	9,456.62	9,644.53	9,607.81	36.71	262.889		
8,875.00	8,820.64	7,445.00	7,442.02	20.52	15.61	3.59	748.13	9,456.62	9,630.68	9,593.93	36.75	262.027		
8,900.00	8,838.30	7,445.00	7,442.02	20.53	15.61	3.11	748.13	9,456.62	9,615.81	9,579.02	36.79	261.356		
8,925.00	8,855.02	7,445.00	7,442.02	20.55	15.61	2.65	748.13	9,456.62	9,599.94	9,563.12	36.83	260.677		
8,950.00	8,870.75	7,445.00	7,442.02	20.56	15.61	2.22	748.13	9,456.62	9,583.13	9,546.27	36.86	259.991		
8,975.00	8,885.45	7,445.00	7,442.02	20.58	15.61	1.79	748.13	9,456.62	9,565.41	9,528.52	36.89	259.300		
9,000.00	8,899.07	7,445.00	7,442.02	20.60	15.61	1.36	748.13	9,456.62	9,548.82	9,509.90	36.92	258.605		
9,025.00	8,911.59	7,445.00	7,442.02	20.63	15.61	0.91	748.13	9,456.62	9,527.41	9,490.47	36.94	257.907		
9,050.00	8,922.96	7,445.00	7,442.02	20.71	15.61	0.43	748.13	9,456.62	9,507.23	9,470.26	36.96	257.207		
9,075.00	8,933.15	7,445.00	7,442.02	20.85	15.61	-0.10	748.13	9,456.62	9,486.32	9,449.34	36.98	256.508		
9,100.00	8,942.14	7,445.00	7,442.02	21.01	15.61	-0.69	748.13	9,456.62	9,464.75	9,427.75	37.00	255.810		
9,125.00	8,949.90	7,445.00	7,442.02	21.19	15.61	-1.39	748.13	9,456.62	9,442.57	9,405.55	37.01	255.115		
9,150.00	8,956.42	7,445.00	7,442.02	21.40	15.61	-2.23	748.13	9,456.62	9,419.82	9,382.80	37.02	254.423		
9,175.00	8,961.66	7,445.00	7,442.02	21.62	15.61	-3.29	748.13	9,456.62	9,396.58	9,359.55	37.03	253.736		
9,200.00	8,965.63	7,445.00	7,442.02	21.85	15.61	-4.69	748.13	9,456.62	9,372.90	9,335.87	37.04	253.056		
9,225.00	8,968.30	7,445.00	7,442.02	22.10	15.61	-6.64	748.13	9,456.62	9,348.85	9,311.81	37.04	252.381		
9,250.00	8,969.67	7,445.00	7,442.02	22.37	15.61	-9.58	748.13	9,456.62	9,324.48	9,287.44	37.04	251.715		
9,259.65	8,969.85	7,445.00	7,442.02	25.31	15.61	-11.16	748.13	9,456.62	9,315.00	9,272.92	42.08	221.381		
9,300.00	8,970.20	7,445.00	7,442.02	25.34	15.61	-11.16	748.13	9,456.62	9,275.31	9,233.20	42.11	220.267		
9,400.00	8,971.07	7,445.00	7,442.02	25.41	15.61	-11.16	748.13	9,456.62	9,176.96	9,134.77	42.19	217.514		
9,500.00	8,971.93	7,459.75	7,456.55	25.49	15.64	-11.23	747.33	9,459.03	9,078.51	9,036.22	42.29	214.650		
9,600.00	8,972.80	7,461.36	7,458.14	25.57	15.64	-11.24	747.24	9,459.31	9,080.20	9,037.82	42.38	211.890		
9,700.00	8,973.66	7,477.00	7,473.49	25.65	15.68	-11.31	746.40	9,462.17	8,882.05	8,839.56	42.49	209.035		
9,800.00	8,974.53	7,477.00	7,473.49	25.73	15.68	-11.31	746.40	9,462.17	8,783.79	8,741.21	42.58	206.293		
9,900.00	8,975.39	7,477.00	7,473.49	25.83	15.68	-11.31	746.40	9,462.17	8,685.56	8,642.89	42.67	203.554		
10,000.00	8,976.26	7,477.00	7,473.49	25.92	15.68	-11.31	746.40	9,462.17	8,587.38	8,544.62	42.76	200.818		
10,100.00	8,977.13	7,477.00	7,473.49	26.03	15.68	-11.31	746.40	9,462.17	8,489.24	8,446.38	42.86	198.086		
10,200.00	8,977.99	7,477.00	7,473.49	26.15	15.68	-11.31	746.40	9,462.17	8,391.14	8,348.19	42.95	195.357		
10,300.00	8,978.86	7,477.00	7,473.49	26.31	15.68	-11.31	746.40	9,462.17	8,293.09	8,250.04	43.05	192.632		
10,400.00	8,979.72	7,477.00	7,473.49	26.51	15.68	-11.31	746.40	9,462.17	8,195.08	8,151.93	43.15	189.911		
10,500.00	8,980.59	7,477.00	7,473.49	26.81	15.68	-11.31	746.40	9,462.17	8,097.13	8,053.87	43.26	187.194		
10,600.00	8,981.45	7,477.00	7,473.49	27.24	15.68	-11.31	746.40	9,462.17	7,999.22	7,955.86	43.36	184.481		
10,700.00	8,982.32	7,477.00	7,473.49	27.78	15.68	-11.31	746.40	9,462.17	7,901.37	7,857.90	43.47	181.773		
10,800.00	8,983.19	7,477.00	7,473.49	28.39	15.68	-11.31	746.40	9,462.17	7,803.57	7,759.96	43.58	179.069		
10,900.00	8,984.05	7,477.00	7,473.49	29.05	15.68	-11.31	746.40	9,462.17	7,705.82	7,662.13	43.69	176.370		
11,000.00	8,984.92	7,477.00	7,473.49	29.75	15.68	-11.31	746.40	9,462.17	7,608.14	7,564.33	43.81	173.676		
11,100.00	8,985.78	7,477.00	7,473.49	30.49	15.68	-11.31	746.40	9,462.17	7,510.52	7,466.59	43.92	170.988		
11,200.00	8,986.65	7,477.00	7,473.49	31.25	15.68	-11.31	746.40	9,462.17	7,412.96	7,368.91	44.05	168.304		
11,300.00	8,987.52	7,477.00	7,473.49	32.03	15.68	-11.31	746.40	9,462.17	7,315.46	7,271.30	44.17	165.626		
11,400.00	8,988.38	7,492.20	7,488.35	32.84	15.71	-11.39	745.56	9,465.25	7,217.84	7,173.53	44.32	162.875		
11,500.00	8,989.25	7,494.06	7,490.16	33.66	15.71	-11.40	745.45	9,465.65	7,120.44	7,075.99	44.45	160.201		
11,600.00	8,990.11	7,509.00	7,504.68	34.50	15.74	-11.47	744.59	9,469.07	7,023.25	6,978.65	44.60	157.477		
11,700.00	8,990.98	7,509.00	7,504.68	35.36	15.74	-11.47	744.59	9,469.07	6,925.94	6,881.20	44.73	154.825		
11,800.00	8,991.84	7,509.00	7,504.68	36.23	15.74	-11.47	744.59	9,469.07	6,828.71	6,783.84	44.87	152.178		
11,900.00	8,992.71	7,509.00	7,504.68	37.12	15.74	-11.47	744.59	9,469.07	6,731.56	6,686.54	45.02	149.538		
12,000.00	8,993.58	7,509.00	7,504.68	38.02	15.74	-11.47	744.59	9,469.07	6,634.50	6,589.33	45.16	146.905		
12,100.00	8,994.44	7,509.00	7,504.68	38.93	15.74	-11.47	744.59	9,469.07	6,537.52	6,492.21	45.31	144.277		
12,200.00	8,995.31	7,509.00	7,504.68	39.85	15.74	-11.47	744.59	9,469.07	6,440.64	6,395.17	45.47	141.657		
12,300.00	8,996.17	7,509.00	7,504.68	40.78	15.74	-11.47	744.59	9,469.07	6,343.85	6,298.23	45.62	139.043		
12,400.00	8,997.04	7,509.00	7,504.68	41.72	15.74	-11.47	744.59	9,469.07	6,247.17	6,201.38	45.79	136.437		
12,500.00	8,997.90	7,509.00	7,504.68	42.67	15.74	-11.47	744.59	9,469.07	6,150.59	6,104.63	45.96	133.837		

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LEAM Drilling Systems LLC

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Reference Design: Plan #3

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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
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
12,600.00	8,998.77	7,509.00	7,504.68	43.63	15.74	-11.47	744.59	9,469.07	6,054.12	6,007.99	48.13	131.244	
12,700.00	8,999.64	7,523.52	7,518.72	44.59	15.77	-11.53	743.66	9,472.67	5,957.62	5,911.30	46.32	128.623	
12,800.00	9,000.50	7,526.82	7,521.90	45.56	15.78	-11.55	743.43	9,473.53	5,861.32	5,814.82	46.50	126.040	
12,900.00	9,001.37	7,541.00	7,535.51	46.54	15.81	-11.61	742.36	9,477.35	5,765.21	5,718.51	46.70	123.448	
13,000.00	9,002.23	7,541.00	7,535.51	47.53	15.81	-11.61	742.36	9,477.35	5,669.09	5,622.19	46.90	120.889	
13,100.00	9,003.10	7,541.00	7,535.51	48.52	15.81	-11.61	742.36	9,477.35	5,573.10	5,526.01	47.09	118.337	
13,200.00	9,003.96	7,541.00	7,535.51	49.51	15.81	-11.61	742.36	9,477.35	5,477.26	5,429.96	47.30	115.794	
13,300.00	9,004.83	7,541.00	7,535.51	50.51	15.81	-11.61	742.36	9,477.35	5,381.57	5,334.06	47.52	113.260	
13,400.00	9,005.70	7,541.00	7,535.51	51.52	15.81	-11.61	742.36	9,477.35	5,286.04	5,238.31	47.74	110.733	
13,500.00	9,006.56	7,541.00	7,535.51	52.53	15.81	-11.61	742.36	9,477.35	5,190.68	5,142.72	47.97	108.216	
13,600.00	9,007.43	7,557.22	7,550.99	53.55	15.84	-11.67	740.97	9,482.01	5,095.32	5,047.11	48.21	105.701	
13,700.00	9,008.29	7,572.00	7,564.99	54.56	15.88	-11.73	739.56	9,486.51	5,000.28	4,951.83	48.45	103.205	
13,800.00	9,009.16	7,572.00	7,564.99	55.59	15.88	-11.73	739.56	9,486.51	4,905.29	4,856.59	48.70	100.717	
13,900.00	9,010.03	7,572.00	7,564.99	56.61	15.88	-11.73	739.56	9,486.51	4,810.50	4,761.53	48.97	98.240	
14,000.00	9,010.89	7,572.00	7,564.99	57.64	15.88	-11.73	739.56	9,486.51	4,715.93	4,666.69	49.24	95.771	
14,100.00	9,011.76	7,572.00	7,564.99	58.68	15.88	-11.73	739.56	9,486.51	4,621.58	4,572.05	49.53	93.313	
14,200.00	9,012.62	7,572.00	7,564.99	59.71	15.88	-11.73	739.56	9,486.51	4,527.48	4,477.65	49.83	90.866	
14,300.00	9,013.49	7,572.00	7,564.99	60.75	15.88	-11.73	739.56	9,486.51	4,433.63	4,383.49	50.14	88.429	
14,400.00	9,014.35	7,588.34	7,580.34	61.80	15.91	-11.79	738.03	9,491.88	4,339.77	4,289.33	50.45	86.027	
14,500.00	9,015.22	7,604.00	7,594.92	62.84	15.95	-11.85	736.76	9,497.47	4,246.50	4,195.73	50.77	83.649	
14,600.00	9,016.09	7,604.00	7,594.92	63.89	15.95	-11.85	736.76	9,497.47	4,153.26	4,102.14	51.12	81.249	
14,700.00	9,016.95	7,604.00	7,594.92	64.94	15.95	-11.85	736.76	9,497.47	4,060.34	4,008.85	51.49	78.862	
14,800.00	9,017.82	7,604.00	7,594.92	65.99	15.95	-11.85	736.76	9,497.47	3,967.76	3,915.89	51.87	76.489	
14,900.00	9,018.68	7,604.00	7,594.92	67.04	15.95	-11.85	736.76	9,497.47	3,875.56	3,823.28	52.28	74.129	
15,000.00	9,019.55	7,623.28	7,612.65	68.10	15.99	-11.92	734.89	9,504.78	3,783.54	3,730.88	52.67	71.841	
15,100.00	9,020.41	7,636.00	7,624.22	69.16	16.02	-11.95	733.17	9,509.78	3,691.90	3,638.82	53.08	69.555	
15,200.00	9,021.28	7,636.00	7,624.22	70.22	16.02	-11.95	733.17	9,509.78	3,600.62	3,547.07	53.55	67.242	
15,300.00	9,022.15	7,649.54	7,638.43	71.28	16.05	-11.97	731.09	9,515.27	3,509.67	3,455.67	54.00	64.995	
15,400.00	9,023.01	7,668.00	7,652.89	72.34	16.09	-11.99	728.12	9,523.07	3,419.22	3,364.77	54.45	62.792	
15,500.00	9,023.88	7,668.00	7,652.89	73.41	16.09	-11.99	728.12	9,523.07	3,329.07	3,274.07	55.00	60.533	
15,600.00	9,024.74	7,668.00	7,652.89	74.48	16.09	-11.99	728.12	9,523.07	3,239.48	3,183.91	55.57	58.294	
15,700.00	9,025.61	7,683.73	7,666.74	75.54	16.13	-12.00	725.42	9,530.01	3,150.32	3,094.21	56.11	56.144	
15,800.00	9,026.48	7,700.00	7,680.87	76.61	16.17	-12.00	722.43	9,537.51	3,061.79	3,005.12	56.67	54.025	
15,900.00	9,027.34	7,700.00	7,680.87	77.68	16.17	-12.00	722.43	9,537.51	2,973.75	2,916.40	57.35	51.852	
16,000.00	9,028.21	7,700.00	7,680.87	78.76	16.17	-12.00	722.43	9,537.51	2,886.50	2,828.43	58.07	49.707	
16,100.00	9,029.07	7,732.00	7,707.93	79.83	16.25	-11.96	715.80	9,553.23	2,799.81	2,741.18	58.64	47.747	
16,200.00	9,029.94	7,732.00	7,707.93	80.91	16.25	-11.96	715.80	9,553.23	2,713.75	2,654.30	59.44	45.655	
16,300.00	9,030.80	7,732.00	7,707.93	81.98	16.25	-11.96	715.80	9,553.23	2,628.66	2,568.37	60.29	43.597	
16,400.00	9,031.67	7,763.00	7,733.24	83.06	16.34	-11.88	708.60	9,569.62	2,544.31	2,483.34	60.97	41.730	
16,500.00	9,032.54	7,763.00	7,733.24	84.14	16.34	-11.88	708.60	9,569.62	2,460.82	2,398.89	61.93	39.738	
16,600.00	9,033.40	7,779.19	7,746.12	85.22	16.39	-11.83	704.66	9,578.61	2,378.36	2,315.55	62.81	37.867	
16,700.00	9,034.27	7,795.00	7,758.44	86.30	16.44	-11.77	700.69	9,587.68	2,296.99	2,233.25	63.74	36.035	
16,800.00	9,035.13	7,795.00	7,758.44	87.38	16.44	-11.77	700.69	9,587.68	2,216.90	2,152.02	64.89	34.166	
16,900.00	9,036.00	7,827.00	7,782.56	88.46	16.56	-11.62	692.17	9,606.90	2,137.88	2,072.10	65.78	32.501	
17,000.00	9,036.86	7,827.00	7,782.56	89.54	16.56	-11.62	692.17	9,606.90	2,060.37	1,993.31	67.06	30.725	
17,100.00	9,037.73	7,858.00	7,804.60	90.63	16.69	-11.44	683.42	9,626.86	1,984.62	1,916.55	68.07	29.155	
17,200.00	9,038.60	7,858.00	7,804.60	91.71	16.69	-11.44	683.42	9,626.86	1,910.31	1,840.81	69.49	27.489	
17,300.00	9,039.46	7,858.00	7,804.60	92.80	16.69	-11.44	683.42	9,626.86	1,838.43	1,767.44	71.00	25.895	
17,400.00	9,040.33	7,890.00	7,825.58	93.89	16.85	-11.22	674.14	9,649.16	1,768.44	1,696.25	72.19	24.498	
17,500.00	9,041.19	7,890.00	7,825.58	94.97	16.85	-11.22	674.14	9,649.16	1,701.01	1,627.18	73.83	23.040	
17,600.00	9,042.06	7,908.19	7,838.55	96.06	16.96	-11.08	668.80	9,662.64	1,636.33	1,561.02	75.30	21.730	
17,700.00	9,042.93	7,922.00	7,844.37	97.15	17.03	-10.96	664.74	9,673.28	1,574.76	1,497.88	76.88	20.483	

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: OH
 Reference Design: Plan #3

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
Reference		Offset		Semi Major Axis		Highside Topface (")	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N-S (usft)	+E-W (usft)					
17,800.00	9,043.79	7,941.06	7,854.53	98.24	17.16	-10.80	659.15	9,888.40	1,516.45	1,438.02	78.43	19.335	
17,900.00	9,044.66	7,954.00	7,861.08	99.33	17.25	-10.68	655.37	9,698.90	1,461.63	1,381.56	80.07	18.254	
18,000.00	9,045.52	7,966.00	7,876.03	100.42	17.49	-10.38	645.87	9,725.54	1,410.31	1,328.80	81.50	17.304	
18,100.00	9,046.39	8,018.00	7,889.43	101.51	17.76	-10.03	636.05	9,752.89	1,362.85	1,279.92	82.93	16.434	
18,200.00	9,047.25	8,018.00	7,889.43	102.60	17.76	-10.03	636.05	9,752.89	1,320.06	1,235.46	84.60	15.603	
18,300.00	9,048.12	8,070.07	7,908.13	103.69	18.28	-9.43	620.19	9,798.80	1,280.31	1,194.53	85.78	14.925	
18,400.00	9,048.99	8,114.00	7,920.67	104.79	18.73	-8.92	607.46	9,838.93	1,246.30	1,159.31	86.99	14.327	
18,500.00	9,049.85	8,114.00	7,920.67	105.88	18.73	-8.92	607.46	9,838.93	1,217.05	1,128.74	88.31	13.782	
18,600.00	9,050.72	8,151.00	7,928.40	106.98	19.18	-8.45	596.60	9,873.43	1,193.24	1,103.92	89.32	13.359	
18,700.00	9,051.58	8,183.00	7,932.53	108.07	19.58	-7.99	586.70	9,903.57	1,175.71	1,085.51	90.20	13.034	
18,800.00	9,052.45	8,215.00	7,934.88	109.16	20.01	-7.52	576.80	9,933.91	1,163.99	1,073.05	90.94	12.799	
18,900.00	9,053.31	8,279.00	7,937.55	110.26	20.94	-6.67	559.21	9,995.37	1,156.84	1,065.15	91.69	12.617	
19,000.00	9,054.18	8,361.91	7,940.81	111.36	22.26	-5.88	542.84	10,076.57	1,151.59	1,058.96	92.63	12.432	
19,100.00	9,055.05	8,434.45	7,942.25	112.45	23.51	-5.31	531.32	10,148.17	1,148.80	1,055.24	93.56	12.278	
19,200.00	9,055.91	8,538.86	7,943.32	113.55	25.41	-4.60	517.07	10,251.59	1,147.47	1,052.68	94.79	12.106	
19,300.00	9,056.78	8,638.71	7,945.32	114.65	27.35	-3.91	503.00	10,350.43	1,145.26	1,049.27	95.99	11.931	
19,400.00	9,057.64	8,728.89	7,946.66	115.74	29.17	-3.31	491.00	10,439.79	1,143.78	1,046.63	97.15	11.773	
19,500.00	9,058.51	8,826.65	7,947.60	116.84	31.21	-2.71	479.00	10,536.81	1,143.03	1,044.63	98.40	11.616	
19,593.36	9,059.32	8,912.16	7,948.34	117.87	33.04	-2.24	469.76	10,621.82	1,142.60	1,043.05	99.55	11.477	
19,600.00	9,059.37	8,918.02	7,948.37	117.94	33.16	-2.22	469.19	10,627.65	1,142.60	1,042.97	99.63	11.468	
19,700.00	9,060.24	9,002.14	7,948.24	119.04	34.99	-1.85	461.98	10,711.45	1,143.32	1,042.50	100.82	11.340	
19,800.00	9,061.11	9,100.14	7,947.02	120.14	37.16	-1.56	456.19	10,809.27	1,145.25	1,043.05	102.19	11.207	
19,900.00	9,061.97	9,215.13	7,946.75	121.24	39.72	-1.43	453.64	10,924.23	1,146.29	1,042.49	103.80	11.043	
20,000.00	9,062.84	9,330.00	7,948.40	122.34	42.32	-1.48	454.52	11,039.07	1,145.71	1,040.26	105.45	10.865	
20,100.00	9,063.70	9,425.00	7,949.85	123.44	44.48	-1.57	456.30	11,134.04	1,145.09	1,038.17	106.92	10.710	
20,200.00	9,064.57	9,521.00	7,951.02	124.54	46.69	-1.70	458.92	11,230.00	1,144.81	1,036.39	108.42	10.559	
20,231.62	9,064.84	9,551.09	7,951.44	124.89	47.38	-1.74	459.72	11,260.07	1,144.68	1,035.79	108.89	10.512	
20,300.00	9,065.44	9,602.28	7,951.53	125.64	48.57	-1.80	460.91	11,311.25	1,145.19	1,035.44	109.75	10.434	
20,400.00	9,066.30	9,711.65	7,951.07	126.74	51.12	-1.90	463.00	11,420.60	1,146.56	1,035.16	111.40	10.292	
20,500.00	9,067.17	9,826.84	7,952.47	127.84	53.83	-2.01	465.20	11,535.76	1,146.23	1,033.13	113.11	10.134	
20,540.19	9,067.51	9,859.74	7,952.88	128.29	54.61	-2.05	465.92	11,568.64	1,146.11	1,032.45	113.66	10.084	
20,600.00	9,068.03	9,911.31	7,953.13	128.95	55.83	-2.11	467.19	11,620.20	1,146.38	1,031.87	114.51	10.011	
20,700.00	9,068.90	10,022.45	7,954.19	130.05	58.46	-2.24	469.78	11,731.31	1,146.35	1,030.15	116.20	9.866	
20,725.73	9,069.12	10,045.37	7,954.43	130.33	59.01	-2.26	470.14	11,754.22	1,146.32	1,029.75	116.57	9.834	
20,800.00	9,069.76	10,114.08	7,954.82	131.15	60.65	-2.28	470.64	11,822.93	1,146.56	1,028.90	117.66	9.745	
20,900.00	9,070.63	10,219.22	7,955.35	132.25	63.18	-2.26	470.24	11,928.07	1,146.91	1,027.69	119.22	9.620	
21,000.00	9,071.50	10,328.35	7,956.76	133.36	65.82	-2.20	469.00	12,037.18	1,146.43	1,025.63	120.80	9.490	
21,100.00	9,072.36	10,430.53	7,958.49	134.46	68.29	-2.13	467.66	12,139.34	1,145.56	1,023.24	122.32	9.366	
21,200.00	9,073.23	10,535.49	7,960.51	135.56	70.84	-2.08	466.53	12,244.27	1,144.46	1,020.60	123.86	9.240	
21,300.00	9,074.09	10,624.67	7,962.33	136.67	73.01	-2.02	465.27	12,333.42	1,143.27	1,018.01	125.26	9.127	
21,324.24	9,074.30	10,643.97	7,962.53	136.93	73.48	-2.00	464.87	12,352.71	1,143.22	1,017.64	125.57	9.104	
21,400.00	9,074.96	10,718.98	7,962.89	137.77	75.31	-1.90	462.83	12,427.70	1,143.43	1,016.76	126.67	9.027	
21,500.00	9,075.82	10,837.80	7,964.56	138.87	78.22	-1.67	458.34	12,546.42	1,142.79	1,014.56	128.23	8.912	
21,600.00	9,076.69	10,926.48	7,966.45	139.98	80.39	-1.48	454.55	12,635.00	1,141.44	1,011.88	129.57	8.810	
21,700.00	9,077.56	11,061.73	7,969.78	141.08	83.71	-1.30	450.80	12,770.14	1,139.94	1,008.71	131.23	8.687	
21,714.06	9,077.68	11,073.97	7,970.32	141.16	84.01	-1.29	450.73	12,782.36	1,139.43	1,008.13	131.30	8.678 CC, ES, SF	

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: OH
Reference Design: Plan #3

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 - Emerald 20 8H (offset) - OH - OH													Offset Site Error:
Survey Program: 160-ISCWSA-GYRO-3, 8428-MWD-ISCWSA													Offset Well Error:
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N-S (usft)	+E-W (usft)					
0.00	0.00	0.00	0.00	0.00	0.00	88.24	156.02	5,081.22	5,083.67				
100.00	100.00	104.11	104.11	0.09	0.10	88.24	156.02	5,080.93	5,083.40	5,083.22	0.19	N/A	
200.00	200.00	234.82	234.81	0.31	0.32	88.25	155.49	5,079.83	5,082.55	5,081.90	0.64	7,891.001	
300.00	300.00	344.54	344.52	0.54	0.52	88.26	154.40	5,078.42	5,081.22	5,080.16	1.06	4,794.107	
400.00	400.00	443.87	443.83	0.76	0.69	88.27	153.16	5,077.17	5,079.93	5,078.47	1.46	3,487.480	
500.00	500.00	553.00	552.95	0.99	0.88	88.28	151.99	5,075.66	5,078.51	5,076.64	1.87	2,711.576	
600.00	600.00	637.64	637.58	1.21	1.03	88.29	151.10	5,074.44	5,077.06	5,074.81	2.24	2,262.964	
700.00	700.00	700.00	699.93	1.43	1.14	88.30	150.60	5,073.90	5,076.19	5,073.61	2.58	1,971.182	
800.00	800.00	783.50	783.43	1.66	1.29	88.30	150.18	5,073.61	5,075.84	5,072.89	2.95	1,723.258	
873.85	873.85	850.42	850.35	1.83	1.40	88.31	149.98	5,073.59	5,075.81	5,072.58	3.23	1,572.436	
900.00	900.00	875.33	875.26	1.88	1.45	88.31	149.91	5,073.60	5,075.81	5,072.48	3.33	1,524.223	
1,000.00	1,000.00	955.66	955.59	2.11	1.59	88.31	149.84	5,073.74	5,075.99	5,072.30	3.69	1,373.912	
1,100.00	1,100.00	1,033.49	1,033.41	2.33	1.72	88.31	150.13	5,074.23	5,076.64	5,072.58	4.05	1,252.021	
1,200.00	1,200.00	1,115.91	1,115.83	2.56	1.86	88.30	150.36	5,075.08	5,077.66	5,073.24	4.42	1,148.045	
1,300.00	1,300.00	1,201.88	1,201.79	2.78	2.01	88.30	150.81	5,076.21	5,079.00	5,074.21	4.80	1,058.734	
1,400.00	1,400.00	1,321.06	1,320.96	3.01	2.22	88.29	151.42	5,077.76	5,080.32	5,075.09	5.23	971.610	
1,500.00	1,500.00	1,441.76	1,441.65	3.23	2.43	88.29	152.05	5,078.69	5,081.09	5,075.42	5.66	897.160	
1,600.00	1,600.00	1,537.82	1,537.71	3.46	2.60	88.28	152.65	5,079.39	5,081.83	5,075.77	6.06	839.149	
1,700.00	1,700.00	1,639.86	1,639.75	3.68	2.78	88.27	153.41	5,080.13	5,082.58	5,076.12	6.46	786.916	
1,800.00	1,800.00	11,684.00	6,828.90	3.91	123.69	10.30	356.29	64.74	5,065.36	5,025.85	39.51	128.205	
1,900.00	1,900.00	11,684.00	6,828.90	4.13	123.69	10.30	356.29	64.74	4,965.62	4,926.14	39.48	125.764	
2,000.00	2,000.00	11,684.00	6,828.90	4.36	123.69	10.30	356.29	64.74	4,865.89	4,826.43	39.46	123.304	
2,100.00	2,100.00	11,684.00	6,828.90	4.58	123.69	10.30	356.29	64.74	4,766.17	4,726.73	39.45	120.824	
2,200.00	2,200.00	11,684.00	6,828.90	4.81	123.69	10.30	356.29	64.74	4,666.47	4,627.03	39.44	118.324	
2,300.00	2,300.00	11,684.00	6,828.90	5.03	123.69	10.30	356.29	64.74	4,566.78	4,527.34	39.44	115.803	
2,400.00	2,400.00	11,684.00	6,828.90	5.26	123.69	10.30	356.29	64.74	4,467.10	4,427.66	39.44	113.262	
2,500.00	2,500.00	11,684.00	6,828.90	5.48	123.69	10.30	356.29	64.74	4,367.44	4,327.98	39.45	110.700	
2,600.00	2,600.00	11,684.00	6,828.90	5.71	123.69	10.30	356.29	64.74	4,267.79	4,228.31	39.47	108.116	
2,700.00	2,700.00	11,684.00	6,828.90	5.93	123.69	10.30	356.29	64.74	4,168.16	4,128.65	39.50	105.511	
2,800.00	2,800.00	11,684.00	6,828.90	6.15	123.69	10.30	356.29	64.74	4,068.55	4,029.00	39.54	102.884	
2,900.00	2,900.00	11,684.00	6,828.90	6.38	123.69	10.30	356.29	64.74	3,968.95	3,929.36	39.60	100.236	
3,000.00	3,000.00	11,684.00	6,828.90	6.60	123.69	10.30	356.29	64.74	3,869.38	3,829.72	39.66	97.566	
3,100.00	3,100.00	11,684.00	6,828.90	6.83	123.69	10.30	356.29	64.74	3,769.83	3,730.10	39.74	94.874	
3,200.00	3,200.00	11,684.00	6,828.90	7.05	123.69	10.30	356.29	64.74	3,670.31	3,630.48	39.82	92.162	
3,300.00	3,300.00	11,684.00	6,828.90	7.28	123.69	10.30	356.29	64.74	3,570.81	3,530.88	39.93	89.430	
3,400.00	3,400.00	11,684.00	6,828.90	7.50	123.69	10.30	356.29	64.74	3,471.34	3,431.29	40.05	86.678	
3,500.00	3,500.00	11,684.00	6,828.90	7.73	123.69	10.30	356.29	64.74	3,371.90	3,331.71	40.19	83.908	
3,600.00	3,600.00	11,684.00	6,828.90	7.95	123.69	10.30	356.29	64.74	3,272.49	3,232.15	40.34	81.120	
3,700.00	3,700.00	11,684.00	6,828.90	8.18	123.69	43.21	356.29	64.74	3,173.05	3,132.54	40.51	78.318	
3,800.00	3,799.96	11,684.00	6,828.90	8.40	123.69	50.77	356.29	64.74	3,073.52	3,032.75	40.76	75.397	
3,900.00	3,899.86	11,684.00	6,828.90	8.62	123.69	60.06	356.29	64.74	2,973.91	2,932.91	41.00	72.533	
4,000.00	3,999.68	11,684.00	6,828.90	8.84	123.69	71.05	356.29	64.74	2,874.25	2,833.03	41.22	69.729	
4,100.00	4,099.37	11,684.00	6,828.90	9.07	123.69	83.24	356.29	64.74	2,774.56	2,733.15	41.42	66.988	
4,133.72	4,132.95	11,684.00	6,828.90	9.15	123.69	87.45	356.29	64.74	2,740.95	2,699.47	41.48	66.078	
4,200.00	4,198.94	11,684.00	6,828.90	9.29	123.69	87.45	356.29	64.74	2,674.89	2,633.29	41.60	64.297	
4,300.00	4,298.51	11,684.00	6,828.90	9.52	123.69	87.45	356.29	64.74	2,575.24	2,533.44	41.80	61.608	
4,400.00	4,398.07	11,684.00	6,828.90	9.75	123.69	87.45	356.29	64.74	2,475.61	2,433.60	42.02	58.921	
4,500.00	4,497.64	11,684.00	6,828.90	9.98	123.69	87.45	356.29	64.74	2,376.02	2,333.77	42.25	56.235	
4,600.00	4,597.21	11,684.00	6,828.90	10.22	123.69	87.45	356.29	64.74	2,276.46	2,233.96	42.51	53.553	
4,700.00	4,696.77	11,684.00	6,828.90	10.45	123.69	87.45	356.29	64.74	2,176.95	2,134.16	42.79	50.877	
4,800.00	4,796.34	11,684.00	6,828.90	10.69	123.69	87.45	356.29	64.74	2,077.48	2,034.38	43.09	48.207	
4,900.00	4,895.91	11,684.00	6,828.90	10.93	123.69	87.45	356.29	64.74	1,978.06	1,934.63	43.43	45.546	

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: OH
Reference Design: Plan #3

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 - Emerald 20 8H (offset) - OH - OH												Offset Site Error:
Survey Program: 100-ISCWSA-GYRO-3, 8428-MWD-ISCWSA												Offset Well Error:
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
5,000.00	4,995.47	11,684.00	6,828.90	11.17	123.69	87.45	356.29	64.74	1,878.71	1,834.91	43.80	42.894
5,100.00	5,095.04	11,684.00	6,828.90	11.41	123.69	87.45	356.29	64.74	1,779.43	1,735.22	44.20	40.254
5,200.00	5,194.61	11,684.00	6,828.90	11.65	123.69	87.45	356.29	64.74	1,680.23	1,635.58	44.66	37.627
5,300.00	5,294.17	11,684.00	6,828.90	11.89	123.69	87.45	356.29	64.74	1,581.14	1,535.98	45.16	35.014
5,400.00	5,393.74	11,684.00	6,828.90	12.13	123.69	87.45	356.29	64.74	1,482.17	1,436.44	45.72	32.418
5,500.00	5,493.31	11,684.00	6,828.90	12.38	123.69	87.45	356.29	64.74	1,383.34	1,336.98	46.36	29.839
5,600.00	5,592.87	11,684.00	6,828.90	12.63	123.69	87.45	356.29	64.74	1,284.70	1,237.61	47.09	27.281
5,700.00	5,692.44	11,684.00	6,828.90	12.87	123.69	87.45	356.29	64.74	1,186.28	1,138.34	47.94	24.747
5,800.00	5,792.00	11,684.00	6,828.90	13.12	123.69	87.45	356.29	64.74	1,088.15	1,039.22	48.93	22.238
5,900.00	5,891.57	11,684.00	6,828.90	13.37	123.69	87.45	356.29	64.74	990.40	940.28	50.12	19.761
6,000.00	5,991.14	11,684.00	6,828.90	13.62	123.69	87.45	356.29	64.74	893.15	841.58	51.56	17.322
6,100.00	6,090.70	11,684.00	6,828.90	13.87	123.69	87.45	356.29	64.74	796.57	743.21	53.36	14.929
6,200.00	6,190.27	11,684.00	6,828.90	14.12	123.69	87.45	356.29	64.74	700.96	645.31	55.65	12.596
6,300.00	6,289.84	11,684.00	6,828.90	14.37	123.69	87.45	356.29	64.74	606.76	548.10	58.66	10.343
6,400.00	6,389.40	11,684.00	6,828.90	14.62	123.69	87.45	356.29	64.74	514.76	452.01	62.75	8.203
6,500.00	6,488.97	11,684.00	6,828.90	14.87	123.69	87.45	356.29	64.74	426.37	357.92	68.45	6.229
6,600.00	6,588.54	11,684.00	6,828.90	15.12	123.69	87.45	356.29	64.74	344.39	287.91	76.48	4.503
6,700.00	6,688.10	11,684.00	6,828.90	15.38	123.69	87.45	356.29	64.74	274.83	187.59	87.04	3.155
6,800.00	6,787.67	11,684.00	6,828.90	15.63	123.69	87.45	356.29	64.74	228.55	132.00	96.55	2.367
6,865.92	6,853.30	11,684.00	6,828.90	15.80	123.69	87.45	356.29	64.74	218.84	121.49	97.35	2.248 CC, ES, SF
6,900.00	6,887.24	11,684.00	6,828.90	15.88	123.69	87.45	356.29	64.74	221.48	126.31	95.17	2.327
7,000.00	6,986.80	11,684.00	6,828.90	16.14	123.69	87.45	356.29	64.74	256.65	174.27	82.37	3.116
7,100.00	7,086.37	11,684.00	6,828.90	16.39	123.69	87.45	356.29	64.74	320.44	250.84	69.60	4.604
7,200.00	7,185.93	11,684.00	6,828.90	16.65	123.69	87.45	356.29	64.74	399.37	338.25	61.12	6.534
7,300.00	7,285.50	11,684.00	6,828.90	16.90	123.69	87.45	356.29	64.74	486.12	430.10	56.02	8.678
7,400.00	7,385.07	11,684.00	6,828.90	17.16	123.69	87.45	356.29	64.74	577.18	524.23	52.94	10.902
7,500.00	7,484.63	11,684.00	6,828.90	17.42	123.69	87.45	356.29	64.74	670.78	619.74	51.04	13.141
7,600.00	7,584.20	11,684.00	6,828.90	17.67	123.69	87.45	356.29	64.74	766.00	716.16	49.84	15.369
7,700.00	7,683.77	11,684.00	6,828.90	17.93	123.69	87.45	356.29	64.74	862.31	813.24	49.07	17.574
7,800.00	7,783.33	11,684.00	6,828.90	18.19	123.69	87.45	356.29	64.74	959.37	910.80	48.57	19.753
7,900.00	7,882.90	11,684.00	6,828.90	18.45	123.69	87.45	356.29	64.74	1,056.98	1,008.73	48.26	21.904
8,000.00	7,982.47	11,684.00	6,828.90	18.70	123.69	87.45	356.29	64.74	1,155.00	1,106.93	48.07	24.028
8,100.00	8,082.03	11,684.00	6,828.90	18.96	123.69	87.45	356.29	64.74	1,253.33	1,205.36	47.97	26.126
8,200.00	8,181.60	11,684.00	6,828.90	19.22	123.69	87.45	356.29	64.74	1,351.91	1,303.97	47.94	28.198
8,300.00	8,281.17	11,684.00	6,828.90	19.48	123.69	87.45	356.29	64.74	1,450.68	1,402.72	47.96	30.245
8,400.00	8,380.73	11,684.00	6,828.90	19.74	123.69	87.45	356.29	64.74	1,549.61	1,501.59	48.02	32.267
8,493.72	8,474.04	11,684.00	6,828.90	19.98	123.69	87.45	356.29	64.74	1,642.44	1,594.33	48.11	34.141
8,500.00	8,480.30	11,684.00	6,828.90	20.00	123.69	82.33	356.29	64.74	1,648.66	1,600.55	48.11	34.266
8,525.00	8,505.21	11,684.00	6,828.90	20.05	123.69	54.50	356.29	64.74	1,673.31	1,625.18	48.14	34.762
8,550.00	8,530.09	11,684.00	6,828.90	20.10	123.69	32.14	356.29	64.74	1,697.74	1,649.59	48.15	35.256
8,575.00	8,554.87	11,684.00	6,828.90	20.15	123.69	20.27	356.29	64.74	1,721.89	1,673.72	48.17	35.745
8,600.00	8,579.49	11,684.00	6,828.90	20.19	123.69	14.01	356.29	64.74	1,745.72	1,697.53	48.19	36.228
8,625.00	8,603.87	11,684.00	6,828.90	20.24	123.69	10.39	356.29	64.74	1,769.16	1,720.96	48.20	36.704
8,650.00	8,627.95	11,684.00	6,828.90	20.27	123.69	8.13	356.29	64.74	1,792.18	1,743.97	48.21	37.172
8,675.00	8,651.66	11,684.00	6,828.90	20.31	123.69	6.62	356.29	64.74	1,814.72	1,766.50	48.22	37.633
8,700.00	8,674.94	11,684.00	6,828.90	20.35	123.69	5.56	356.29	64.74	1,836.75	1,788.52	48.23	38.083
8,725.00	8,697.72	11,684.00	6,828.90	20.38	123.69	4.78	356.29	64.74	1,858.22	1,809.98	48.24	38.524
8,750.00	8,719.95	11,684.00	6,828.90	20.41	123.69	4.20	356.29	64.74	1,879.09	1,830.85	48.24	38.954
8,775.00	8,741.56	11,684.00	6,828.90	20.43	123.69	3.75	356.29	64.74	1,899.33	1,851.09	48.24	39.372
8,800.00	8,762.49	11,684.00	6,828.90	20.46	123.69	3.39	356.29	64.74	1,918.90	1,870.66	48.24	39.778
8,825.00	8,782.68	11,684.00	6,828.90	20.48	123.69	3.10	356.29	64.74	1,937.77	1,889.53	48.24	40.171
8,850.00	8,802.08	11,684.00	6,828.90	20.50	123.69	2.87	356.29	64.74	1,955.91	1,907.67	48.23	40.550

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: OH
Reference Design: Plan #3

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 - Emerald 20 8H (offset) - OH - OH												Offset Site Error:	0.00 usft
Survey Program: 100-ISCWSA-GYRO-3, 6426-MWD-ISCWSA												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)		Separation Factor
8,875.00	8,820.64	11,684.00	6,828.90	20.52	123.69	2.68	356.29	64.74	1,973.29	1,925.06	48.23	40.914	
8,900.00	8,838.30	11,684.00	6,828.90	20.53	123.69	2.52	356.29	64.74	1,989.88	1,941.66	48.22	41.263	
8,925.00	8,855.02	11,684.00	6,828.90	20.55	123.69	2.38	356.29	64.74	2,005.66	1,957.45	48.22	41.597	
8,950.00	8,870.75	11,684.00	6,828.90	20.56	123.69	2.27	356.29	64.74	2,020.61	1,972.40	48.21	41.913	
8,975.00	8,885.45	11,684.00	6,828.90	20.58	123.69	2.18	356.29	64.74	2,034.70	1,986.49	48.20	42.212	
9,000.00	8,899.07	11,684.00	6,828.90	20.60	123.69	2.10	356.29	64.74	2,047.90	1,999.71	48.19	42.493	
9,025.00	8,911.59	11,679.05	6,828.94	20.63	123.57	2.04	356.16	69.69	2,060.21	2,012.05	48.16	42.781	
9,050.00	8,922.96	11,656.75	6,829.13	20.71	123.01	2.03	355.56	91.98	2,071.43	2,023.41	48.02	43.136	
9,075.00	8,933.15	11,633.88	6,829.33	20.85	122.44	2.01	354.95	114.84	2,081.47	2,033.59	47.88	43.471	
9,100.00	8,942.14	11,610.52	6,829.53	21.01	121.86	2.00	354.33	138.19	2,090.30	2,042.56	47.74	43.782	
9,125.00	8,949.90	11,584.92	6,829.75	21.19	121.22	2.00	353.67	163.79	2,097.89	2,050.29	47.59	44.080	
9,150.00	8,956.42	11,555.50	6,830.05	21.40	120.48	2.00	352.99	193.19	2,104.19	2,056.76	47.42	44.370	
9,175.00	8,961.66	11,521.78	6,830.52	21.62	119.64	2.00	352.26	226.91	2,109.12	2,061.89	47.23	44.654	
9,200.00	8,965.83	11,487.69	6,831.15	21.85	118.79	2.01	351.57	260.98	2,112.66	2,065.62	47.04	44.911	
9,225.00	8,968.30	11,447.03	6,832.12	22.10	117.77	2.02	350.78	301.62	2,114.76	2,067.95	46.82	45.172	
9,250.00	8,969.67	11,402.96	6,833.55	22.37	116.67	2.04	349.89	345.66	2,115.34	2,068.77	46.57	45.421	
9,259.65	8,969.85	11,385.93	6,834.21	25.31	116.25	2.05	349.54	362.67	2,115.16	2,068.48	46.68	45.312	
9,300.00	8,970.20	11,331.45	6,836.61	25.34	114.89	2.08	348.35	417.08	2,113.76	2,067.38	46.38	45.579	
9,400.00	8,971.07	11,205.40	6,843.40	25.41	111.74	2.16	345.49	542.92	2,109.31	2,063.64	45.67	46.185	
9,500.00	8,971.93	11,114.47	6,848.70	25.49	109.48	2.21	343.88	633.68	2,104.43	2,059.36	45.07	46.697	
9,600.00	8,972.80	11,010.18	6,854.46	25.57	106.88	2.25	342.71	737.80	2,099.82	2,055.31	44.50	47.182	
9,700.00	8,973.66	10,925.26	6,859.03	25.65	104.77	2.27	342.20	822.60	2,095.33	2,051.31	44.02	47.596	
9,800.00	8,974.53	10,824.70	6,863.93	25.73	102.27	2.27	342.42	923.04	2,091.33	2,047.75	43.58	47.990	
9,900.00	8,975.39	10,757.01	6,866.88	25.83	100.58	2.27	342.51	990.66	2,087.88	2,044.65	43.23	48.297	
10,000.00	8,976.26	10,671.85	6,869.17	25.92	98.46	2.27	342.45	1,075.79	2,086.00	2,043.09	42.90	48.620	
10,100.00	8,977.13	10,572.55	6,872.10	26.03	95.99	2.28	342.03	1,175.05	2,083.93	2,041.34	42.59	48.928	
10,200.00	8,977.99	10,467.94	6,874.81	26.15	93.39	2.31	341.20	1,279.62	2,082.26	2,039.95	42.30	49.224	
10,300.00	8,978.86	10,349.15	6,878.90	26.31	90.44	2.33	340.52	1,398.33	2,079.69	2,037.68	42.01	49.505	
10,400.00	8,979.72	10,271.23	6,881.58	26.51	88.50	2.34	340.16	1,476.21	2,077.19	2,035.34	41.85	49.638	
10,500.00	8,980.59	10,178.86	6,883.79	26.81	86.20	2.35	339.87	1,568.56	2,075.64	2,033.96	41.68	49.802	
10,600.00	8,981.45	10,088.12	6,885.86	27.24	83.95	2.36	339.52	1,659.26	2,074.25	2,032.72	41.54	49.935	
10,700.00	8,982.32	9,974.01	6,888.23	27.78	81.12	2.38	338.84	1,773.36	2,073.10	2,031.75	41.35	50.136	
10,800.00	8,983.19	9,832.22	6,893.75	28.39	77.60	2.39	338.66	1,915.03	2,069.98	2,028.89	41.09	50.381	
10,900.00	8,984.05	9,704.36	6,899.96	29.05	74.44	2.37	339.70	2,042.74	2,066.07	2,025.19	40.88	50.539	
11,000.00	8,984.92	9,601.36	6,906.48	29.75	71.90	2.34	340.85	2,145.52	2,060.56	2,019.79	40.77	50.539	
11,100.00	8,985.78	9,538.83	6,909.87	30.49	70.36	2.33	341.36	2,207.95	2,056.05	2,015.22	40.82	50.363	
11,200.00	8,986.65	9,487.00	6,911.59	31.25	69.08	2.33	341.36	2,259.76	2,053.67	2,012.73	40.94	50.162	
11,300.00	8,987.52	9,403.73	6,913.08	32.03	67.02	2.36	340.56	2,343.01	2,052.82	2,011.87	40.95	50.132	
11,400.00	8,988.38	9,273.08	6,915.60	32.84	63.80	2.41	338.60	2,473.62	2,051.83	2,011.06	40.77	50.330	
11,500.00	8,989.25	9,148.76	6,919.59	33.66	60.73	2.46	337.15	2,597.87	2,049.56	2,008.95	40.62	50.459	
11,600.00	8,990.11	9,043.19	6,924.05	34.50	58.14	2.47	336.84	2,703.34	2,046.21	2,005.65	40.56	50.449	
11,700.00	8,990.98	8,974.31	6,926.56	35.36	56.45	2.48	336.46	2,772.17	2,043.53	2,002.86	40.68	50.239	
11,789.93	8,991.76	8,920.00	6,927.52	36.14	55.12	2.52	335.28	2,826.46	2,042.79	2,001.96	40.83	50.037	
11,800.00	8,991.84	8,913.15	6,927.58	36.23	54.95	2.52	335.07	2,833.30	2,042.80	2,001.96	40.84	50.021	
11,900.00	8,992.71	8,826.00	6,928.21	37.12	52.81	2.59	332.69	2,920.42	2,043.09	2,002.20	40.89	49.968	
12,000.00	8,993.58	8,731.00	6,928.32	38.02	50.48	2.66	330.01	3,015.38	2,043.96	2,003.06	40.91	49.966	
12,100.00	8,994.44	8,627.81	6,928.15	38.93	47.96	2.73	327.55	3,118.74	2,045.11	2,004.22	40.89	50.013	
12,200.00	8,995.31	8,508.39	6,928.86	39.85	45.06	2.78	325.92	3,237.95	2,045.44	2,004.63	40.80	50.130	
12,300.00	8,996.17	8,396.40	6,930.24	40.78	42.35	2.80	325.07	3,349.92	2,045.11	2,004.36	40.75	50.181	
12,400.00	8,997.04	8,272.56	6,932.77	41.72	39.37	2.81	324.99	3,473.73	2,043.95	2,003.30	40.65	50.283	
12,500.00	8,997.90	8,177.26	6,935.27	42.67	37.09	2.78	325.96	3,569.00	2,042.15	2,001.45	40.70	50.177	
12,600.00	8,998.77	8,104.59	6,936.59	43.63	35.37	2.75	327.03	3,641.65	2,041.16	2,000.28	40.88	49.934	

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: OH
Reference Design: Plan #3

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 - 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 +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
12,616.81	8,998.92	8,092.94	6,936.70	43.79	35.09	2.75	327.21	3,853.29	2,041.14	2,000.23	40.91	49.892		
12,700.00	8,999.64	8,037.36	6,936.77	44.59	33.78	2.72	328.20	3,708.87	2,041.68	2,000.59	41.09	49.685		
12,800.00	9,000.50	7,970.68	6,935.77	45.56	32.22	2.66	330.06	3,775.51	2,043.89	2,002.58	41.32	49.467		
12,900.00	9,001.37	7,853.08	6,933.98	46.54	29.50	2.57	333.39	3,893.05	2,046.10	2,004.83	41.27	49.580		
13,000.00	9,002.23	7,763.62	6,932.30	47.53	27.46	2.54	334.10	3,982.49	2,048.78	2,007.40	41.38	49.511		
13,100.00	9,003.10	7,604.10	6,932.23	48.52	23.88	2.56	333.52	4,142.00	2,049.55	2,008.44	41.11	49.860		
13,200.00	9,003.96	7,508.69	6,933.24	49.51	21.82	2.55	333.85	4,237.41	2,049.34	2,008.13	41.20	49.736		
13,207.04	9,004.03	7,501.00	6,933.31	49.58	21.65	2.55	333.89	4,245.10	2,049.34	2,008.13	41.21	49.734		
13,300.00	9,004.83	7,445.02	6,933.30	50.51	20.49	2.54	334.09	4,301.08	2,050.12	2,008.63	41.49	49.409		
13,400.00	9,005.70	7,376.13	6,932.07	51.52	19.09	2.54	333.97	4,369.96	2,052.73	2,010.97	41.77	49.149		
13,500.00	9,006.56	7,312.00	6,930.37	52.53	17.83	2.57	333.06	4,434.05	2,056.49	2,014.41	42.08	48.871		
13,600.00	9,007.43	7,249.00	6,927.64	53.55	16.65	2.62	330.85	4,496.95	2,062.04	2,019.62	42.42	48.605		
13,700.00	9,008.29	7,217.00	6,925.39	54.56	16.08	2.68	328.75	4,528.80	2,070.39	2,027.42	42.97	48.187		
13,800.00	9,009.16	7,164.74	6,920.48	55.59	15.18	2.81	323.91	4,580.61	2,081.33	2,037.90	43.42	47.931		
13,900.00	9,010.03	7,136.14	6,916.94	56.61	14.71	2.88	321.19	4,608.85	2,095.23	2,051.20	44.03	47.587		
14,000.00	9,010.89	7,123.00	6,914.95	57.64	14.51	2.91	319.89	4,621.77	2,112.74	2,068.02	44.72	47.242		
14,100.00	9,011.76	7,091.00	6,908.81	58.68	14.03	2.98	316.97	4,653.03	2,133.71	2,088.38	45.33	47.071		
14,200.00	9,012.62	7,091.00	6,908.81	59.71	14.03	2.98	316.97	4,653.03	2,158.58	2,112.52	46.06	46.865		
14,300.00	9,013.49	7,060.00	6,900.78	60.75	13.60	3.03	314.60	4,682.88	2,186.63	2,139.97	46.66	46.866		
14,400.00	9,014.35	7,044.30	6,895.93	61.80	13.39	3.06	313.53	4,697.77	2,218.32	2,171.03	47.29	46.912		
14,500.00	9,015.22	7,028.00	6,890.47	62.84	13.19	3.08	312.47	4,713.09	2,253.22	2,205.33	47.89	47.054		
14,600.00	9,016.09	7,028.00	6,890.47	63.89	13.19	3.08	312.47	4,713.09	2,291.67	2,243.20	48.48	47.275		
14,700.00	9,016.95	6,992.41	6,876.92	64.94	12.80	3.12	309.95	4,745.90	2,332.25	2,283.26	48.99	47.604		
14,800.00	9,017.82	6,964.00	6,864.48	65.99	12.49	3.17	307.58	4,771.32	2,376.36	2,326.86	49.50	48.003		
14,900.00	9,018.68	6,964.00	6,864.48	67.04	12.49	3.17	307.58	4,771.32	2,422.87	2,372.88	49.98	48.476		
15,000.00	9,019.55	6,949.99	6,857.78	68.10	12.37	3.19	306.27	4,783.55	2,472.24	2,421.82	50.42	49.030		
15,100.00	9,020.41	6,933.00	6,849.08	69.16	12.22	3.23	304.51	4,798.04	2,524.28	2,473.43	50.85	49.646		
15,200.00	9,021.28	6,933.00	6,849.08	70.22	12.22	3.23	304.51	4,798.04	2,578.72	2,527.52	51.20	50.362		
15,300.00	9,022.15	6,915.23	6,839.36	71.28	12.08	3.27	302.51	4,812.78	2,635.42	2,583.84	51.58	51.097		
15,400.00	9,023.01	6,901.00	6,831.15	72.34	11.97	3.30	300.84	4,824.28	2,694.35	2,642.45	51.90	51.913		
15,500.00	9,023.88	6,901.00	6,831.15	73.41	11.97	3.30	300.84	4,824.28	2,755.38	2,703.22	52.16	52.821		
15,600.00	9,024.74	6,870.00	6,811.99	74.48	11.77	3.38	296.78	4,848.30	2,818.45	2,765.93	52.51	53.673		
15,700.00	9,025.61	6,870.00	6,811.99	75.54	11.77	3.38	296.78	4,848.30	2,882.97	2,830.24	52.73	54.676		
15,800.00	9,026.48	6,870.00	6,811.99	76.61	11.77	3.38	296.78	4,848.30	2,949.47	2,896.55	52.92	55.735		
15,900.00	9,027.34	6,852.69	6,800.60	77.68	11.68	3.42	294.37	4,861.10	3,017.46	2,964.30	53.17	56.752		
16,000.00	9,028.21	6,838.00	6,790.56	78.76	11.60	3.46	292.38	4,871.65	3,087.05	3,033.65	53.39	57.817		
16,100.00	9,029.07	6,838.00	6,790.56	79.83	11.60	3.46	292.38	4,871.65	3,158.02	3,104.48	53.53	58.991		
16,200.00	9,029.94	6,823.38	6,780.28	80.91	11.54	3.49	290.45	4,881.85	3,230.29	3,176.55	53.74	60.114		
16,300.00	9,030.80	6,807.00	6,768.39	81.98	11.47	3.53	288.36	4,892.93	3,303.89	3,249.96	53.94	61.254		
16,400.00	9,031.67	6,807.00	6,768.39	83.06	11.47	3.53	288.36	4,892.93	3,378.57	3,324.53	54.04	62.517		
16,500.00	9,032.54	6,807.00	6,768.39	84.14	11.47	3.53	288.36	4,892.93	3,454.52	3,400.39	54.14	63.811		
16,600.00	9,033.40	6,775.00	6,744.19	85.22	11.37	3.59	284.49	4,913.50	3,531.46	3,477.05	54.41	64.908		
16,700.00	9,034.27	6,775.00	6,744.19	86.30	11.37	3.59	284.49	4,913.50	3,609.18	3,554.69	54.49	66.239		
16,800.00	9,035.13	6,775.00	6,744.19	87.38	11.37	3.59	284.49	4,913.50	3,687.97	3,633.40	54.56	67.593		
16,900.00	9,036.00	6,775.00	6,744.19	88.46	11.37	3.59	284.49	4,913.50	3,767.76	3,713.13	54.63	68.970		
17,000.00	9,036.86	6,744.00	6,719.59	89.54	11.29	3.64	280.68	4,931.96	3,848.37	3,793.49	54.88	70.119		
17,100.00	9,037.73	6,744.00	6,719.59	90.63	11.29	3.64	280.68	4,931.96	3,929.54	3,874.59	54.94	71.519		
17,200.00	9,038.60	6,744.00	6,719.59	91.71	11.29	3.64	280.68	4,931.96	4,011.55	3,956.55	55.00	72.936		
17,300.00	9,039.46	6,744.00	6,719.59	92.80	11.29	3.64	280.68	4,931.96	4,094.37	4,039.31	55.06	74.369		
17,400.00	9,040.33	6,729.79	6,707.97	93.89	11.27	3.67	278.85	4,939.94	4,177.75	4,122.55	55.20	75.687		
17,500.00	9,041.19	6,712.00	6,693.18	94.97	11.25	3.70	276.54	4,949.55	4,261.90	4,206.54	55.36	76.982		
17,600.00	9,042.06	6,712.00	6,693.18	96.06	11.25	3.70	276.54	4,949.55	4,346.45	4,291.04	55.41	78.439		

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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Well Error: 0.00 usft
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Reference Design: Plan #3

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 - 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
Reference		Offset		Semi Major Axis		Highside Tooface (")	Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N-S (usft)	+E-W (usft)				
17,700.00	9,042.93	6,712.00	6,693.18	97.15	11.25	3.70	276.54	4,949.55	4,431.64	4,376.18	55.46	79.908
17,800.00	9,043.79	6,712.00	6,693.18	98.24	11.25	3.70	276.54	4,949.55	4,517.44	4,461.93	55.51	81.385
17,900.00	9,044.66	6,712.00	6,693.18	99.33	11.25	3.70	276.54	4,949.55	4,603.81	4,548.26	55.55	82.872
18,000.00	9,045.52	6,681.00	6,666.70	100.42	11.21	3.76	272.59	4,965.18	4,690.55	4,634.75	55.80	84.055
18,100.00	9,046.39	6,681.00	6,666.70	101.51	11.21	3.76	272.59	4,965.18	4,777.65	4,721.80	55.85	85.545
18,200.00	9,047.25	6,681.00	6,666.70	102.60	11.21	3.76	272.59	4,965.18	4,865.26	4,809.36	55.90	87.041
18,300.00	9,048.12	6,681.00	6,666.70	103.69	11.21	3.76	272.59	4,965.18	4,953.33	4,897.38	55.94	88.542
18,400.00	9,048.99	6,681.00	6,666.70	104.79	11.21	3.76	272.59	4,965.18	5,041.84	4,985.85	55.99	90.048
18,500.00	9,049.85	6,681.00	6,666.70	105.88	11.21	3.76	272.59	4,965.18	5,130.78	5,074.74	56.04	91.557
18,600.00	9,050.72	6,681.00	6,666.70	106.98	11.21	3.76	272.59	4,965.18	5,220.12	5,164.03	56.09	93.070
18,700.00	9,051.58	6,649.00	6,638.42	108.07	11.19	3.81	268.74	4,979.63	5,309.69	5,253.34	56.35	94.232
18,800.00	9,052.45	6,649.00	6,638.42	109.16	11.19	3.81	268.74	4,979.63	5,399.51	5,343.11	56.40	95.740
18,900.00	9,053.31	6,649.00	6,638.42	110.26	11.19	3.81	268.74	4,979.63	5,489.68	5,433.23	56.45	97.250
19,000.00	9,054.18	6,649.00	6,638.42	111.36	11.19	3.81	268.74	4,979.63	5,580.19	5,523.68	56.50	98.762
19,100.00	9,055.05	6,649.00	6,638.42	112.45	11.19	3.81	268.74	4,979.63	5,671.01	5,614.46	56.56	100.274
19,200.00	9,055.91	6,649.00	6,638.42	113.55	11.19	3.81	268.74	4,979.63	5,762.14	5,705.53	56.61	101.786
19,300.00	9,056.78	6,649.00	6,638.42	114.65	11.19	3.81	268.74	4,979.63	5,853.56	5,796.89	56.67	103.298
19,400.00	9,057.64	6,649.00	6,638.42	115.74	11.19	3.81	268.74	4,979.63	5,945.26	5,888.53	56.72	104.810
19,500.00	9,058.51	6,634.68	6,625.47	116.84	11.18	3.83	267.11	4,985.52	6,037.01	5,980.13	56.87	106.147
19,600.00	9,059.37	6,618.00	6,610.19	117.94	11.17	3.84	265.31	4,991.95	6,129.30	6,072.26	57.04	107.457
19,700.00	9,060.24	6,618.00	6,610.19	119.04	11.17	3.84	265.31	4,991.95	6,221.56	6,164.46	57.10	108.958
19,800.00	9,061.11	6,618.00	6,610.19	120.14	11.17	3.84	265.31	4,991.95	6,314.06	6,256.89	57.16	110.457
19,900.00	9,061.97	6,618.00	6,610.19	121.24	11.17	3.84	265.31	4,991.95	6,406.78	6,349.55	57.23	111.955
20,000.00	9,062.84	6,618.00	6,610.19	122.34	11.17	3.84	265.31	4,991.95	6,499.71	6,442.42	57.29	113.450
20,100.00	9,063.70	6,618.00	6,610.19	123.44	11.17	3.84	265.31	4,991.95	6,592.86	6,535.50	57.36	114.943
20,200.00	9,064.57	6,618.00	6,610.19	124.54	11.17	3.84	265.31	4,991.95	6,686.20	6,628.77	57.43	116.433
20,300.00	9,065.44	6,618.00	6,610.19	125.64	11.17	3.84	265.31	4,991.95	6,779.73	6,722.23	57.49	117.920
20,400.00	9,066.30	6,618.00	6,610.19	126.74	11.17	3.84	265.31	4,991.95	6,873.44	6,815.88	57.56	119.404
20,500.00	9,067.17	6,618.00	6,610.19	127.84	11.17	3.84	265.31	4,991.95	6,967.33	6,909.69	57.64	120.884
20,600.00	9,068.03	6,602.54	6,595.84	128.95	11.17	3.86	263.73	4,997.50	7,061.17	7,003.37	57.80	122.160
20,700.00	9,068.90	6,586.00	6,580.34	130.05	11.16	3.87	262.13	5,003.03	7,155.48	7,097.51	57.98	123.420
20,800.00	9,069.76	6,586.00	6,580.34	131.15	11.16	3.87	262.13	5,003.03	7,249.71	7,191.65	58.05	124.884
20,900.00	9,070.63	6,586.00	6,580.34	132.25	11.16	3.87	262.13	5,003.03	7,344.08	7,285.96	58.13	126.345
21,000.00	9,071.50	6,586.00	6,580.34	133.36	11.16	3.87	262.13	5,003.03	7,438.61	7,380.40	58.20	127.801
21,100.00	9,072.36	6,586.00	6,580.34	134.46	11.16	3.87	262.13	5,003.03	7,533.27	7,474.99	58.28	129.253
21,200.00	9,073.23	6,586.00	6,580.34	135.56	11.16	3.87	262.13	5,003.03	7,628.07	7,569.71	58.36	130.700
21,300.00	9,074.09	6,586.00	6,580.34	136.67	11.16	3.87	262.13	5,003.03	7,723.01	7,664.56	58.44	132.143
21,400.00	9,074.96	6,586.00	6,580.34	137.77	11.16	3.87	262.13	5,003.03	7,818.07	7,759.54	58.53	133.581
21,500.00	9,075.82	6,586.00	6,580.34	138.87	11.16	3.87	262.13	5,003.03	7,913.25	7,854.64	58.61	135.014
21,600.00	9,076.69	6,586.00	6,580.34	139.98	11.16	3.87	262.13	5,003.03	8,008.54	7,949.85	58.70	136.443
21,700.00	9,077.56	6,586.00	6,580.34	141.08	11.16	3.87	262.13	5,003.03	8,103.96	8,045.17	58.78	137.867
21,714.06	9,077.68	6,586.00	6,580.34	141.16	11.16	3.87	262.13	5,003.03	8,117.38	8,061.17	58.81	144.411

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: OH
Reference Design: Plan #3

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:
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)	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
0.00	0.00	0.00	0.00	0.00	0.00	83.27	680.07	5,766.62	5,806.63				
100.00	100.00	178.55	178.54	0.09	0.24	83.29	678.26	5,765.13	5,805.79	5,805.43	0.36	N/A	
200.00	200.00	284.97	284.92	0.31	0.42	83.30	676.69	5,763.29	5,803.90	5,803.15	0.74	7,806.474	
300.00	300.00	389.54	389.47	0.54	0.60	83.32	675.15	5,761.48	5,802.00	5,800.86	1.15	5,062.790	
400.00	400.00	484.35	484.26	0.76	0.77	83.33	673.73	5,759.82	5,800.09	5,798.56	1.53	3,783.535	
500.00	500.00	591.42	591.29	0.99	0.96	83.34	672.06	5,757.96	5,798.19	5,796.24	1.95	2,980.977	
600.00	600.00	685.56	685.41	1.21	1.12	83.35	670.62	5,756.29	5,796.25	5,793.92	2.33	2,484.174	
700.00	700.00	773.21	773.03	1.43	1.28	83.37	669.42	5,754.86	5,794.47	5,791.76	2.71	2,138.113	
800.00	800.00	848.18	848.00	1.66	1.41	83.37	668.49	5,753.85	5,792.99	5,789.92	3.08	1,890.341	
900.00	900.00	924.06	923.87	1.88	1.54	83.38	667.68	5,753.19	5,792.00	5,788.58	3.42	1,692.912	
1,000.00	1,000.00	1,020.13	1,019.93	2.11	1.71	83.39	666.83	5,752.55	5,791.24	5,787.42	3.81	1,518.322	
1,100.00	1,100.00	1,123.65	1,123.45	2.33	1.89	83.39	666.15	5,751.80	5,790.44	5,786.22	4.22	1,372.068	
1,200.00	1,200.00	1,217.99	1,217.78	2.56	2.05	83.40	665.89	5,751.10	5,789.67	5,785.06	4.61	1,255.924	
1,300.00	1,300.00	1,313.48	1,313.27	2.78	2.22	83.39	666.01	5,750.45	5,789.01	5,784.00	5.00	1,157.440	
1,400.00	1,400.00	1,414.51	1,414.30	3.01	2.40	83.39	666.42	5,749.74	5,788.36	5,782.96	5.40	1,071.322	
1,500.00	1,500.00	1,514.71	1,514.49	3.23	2.57	83.38	667.11	5,749.01	5,787.71	5,781.91	5.80	997.359	
1,600.00	1,600.00	1,618.60	1,618.37	3.46	2.75	83.37	667.99	5,748.18	5,787.02	5,780.81	6.21	931.940	
1,700.00	1,700.00	1,720.19	1,719.96	3.68	2.93	83.36	668.94	5,747.32	5,786.28	5,779.67	6.61	875.079	
1,800.00	1,800.00	1,819.95	1,819.70	3.91	3.11	83.35	669.92	5,746.45	5,785.53	5,778.52	7.01	825.116	
1,900.00	1,900.00	1,915.83	1,915.58	4.13	3.27	83.34	671.01	5,745.61	5,784.80	5,777.39	7.40	781.252	
2,000.00	2,000.00	2,000.00	1,999.74	4.36	3.42	83.33	672.00	5,745.05	5,784.26	5,776.48	7.78	743.795	
2,100.00	2,100.00	2,118.47	2,118.19	4.58	3.63	83.31	673.46	5,744.16	5,783.65	5,775.45	8.21	704.535	
2,200.00	2,200.00	2,209.40	2,209.11	4.81	3.79	83.30	674.69	5,743.43	5,783.02	5,774.43	8.59	672.956	
2,300.00	2,300.00	2,310.82	2,310.53	5.03	3.97	83.29	676.05	5,742.70	5,782.45	5,773.46	9.00	642.767	
2,400.00	2,400.00	2,418.37	2,418.06	5.26	4.16	83.27	677.55	5,741.77	5,781.76	5,772.35	9.41	614.442	
2,500.00	2,500.00	2,503.18	2,502.86	5.48	4.30	83.26	678.79	5,741.13	5,781.17	5,771.39	9.78	590.912	
2,600.00	2,600.00	2,612.36	2,612.03	5.71	4.50	83.24	680.44	5,740.35	5,780.64	5,770.44	10.20	566.724	
2,700.00	2,700.00	2,719.68	2,719.32	5.93	4.69	83.22	682.17	5,739.38	5,779.93	5,769.32	10.61	544.578	
2,800.00	2,800.00	2,810.15	2,809.78	6.15	4.84	83.21	683.58	5,738.61	5,779.27	5,768.28	11.00	525.508	
2,900.00	2,900.00	2,901.32	2,900.94	6.38	5.00	83.19	684.87	5,738.00	5,778.78	5,767.39	11.38	507.692	
3,000.00	3,000.00	3,000.60	3,000.21	6.60	5.18	83.18	686.15	5,737.43	5,778.36	5,766.58	11.78	490.462	
3,100.00	3,100.00	3,104.09	3,103.69	6.83	5.36	83.17	687.42	5,736.81	5,777.92	5,765.73	12.19	474.072	
3,200.00	3,200.00	3,200.00	3,199.59	7.05	5.53	83.16	688.57	5,736.29	5,777.52	5,764.93	12.58	459.229	
3,300.00	3,300.00	3,305.78	3,305.36	7.28	5.71	83.14	689.90	5,735.68	5,777.10	5,764.10	12.99	444.689	
3,400.00	3,400.00	3,400.00	3,399.57	7.50	5.88	83.13	691.20	5,735.11	5,776.66	5,763.28	13.38	431.685	
3,500.00	3,500.00	3,488.71	3,488.27	7.73	6.04	83.11	692.56	5,734.69	5,776.37	5,762.61	13.76	419.721	
3,600.00	3,600.00	3,600.86	3,600.40	7.95	6.23	83.09	694.57	5,734.12	5,776.08	5,761.90	14.18	407.201	
3,675.05	3,675.05	3,677.80	3,677.32	8.12	6.37	109.92	696.10	5,733.60	5,775.93	5,761.44	14.49	398.671	
3,700.00	3,700.00	3,703.30	3,702.82	8.18	6.41	109.92	696.61	5,733.42	5,775.95	5,761.36	14.59	395.922	
3,800.00	3,799.96	3,800.00	3,799.49	8.40	6.59	109.92	698.78	5,732.72	5,776.38	5,761.40	14.98	385.590	
3,900.00	3,899.86	3,890.93	3,890.38	8.62	6.75	109.92	701.18	5,732.11	5,777.52	5,762.16	15.36	376.069	
4,000.00	3,999.68	4,013.32	4,012.73	8.84	6.96	109.94	704.63	5,731.16	5,779.18	5,763.38	15.80	365.726	
4,100.00	4,099.37	4,125.15	4,124.50	9.07	7.16	109.97	707.77	5,729.98	5,781.15	5,764.93	16.22	356.349	
4,133.72	4,132.95	4,166.80	4,166.13	9.15	7.24	109.99	708.90	5,729.46	5,781.88	5,765.51	16.37	353.142	
4,200.00	4,198.94	4,241.85	4,241.15	9.29	7.37	110.03	710.86	5,728.41	5,783.28	5,766.63	16.65	347.245	
4,300.00	4,298.51	4,340.71	4,339.97	9.52	7.55	110.09	713.36	5,726.96	5,785.32	5,768.26	17.06	339.186	
4,400.00	4,398.07	4,438.28	4,437.51	9.75	7.72	110.15	715.63	5,725.65	5,787.46	5,770.00	17.46	331.516	
4,500.00	4,497.64	4,542.41	4,541.59	9.98	7.91	110.21	718.14	5,724.14	5,789.51	5,771.64	17.87	323.945	
4,600.00	4,597.21	4,646.74	4,645.89	10.22	8.09	110.28	720.42	5,722.66	5,791.59	5,773.30	18.29	316.689	
4,700.00	4,696.77	4,752.87	4,751.98	10.45	8.28	110.35	722.72	5,720.95	5,793.47	5,774.76	18.71	309.671	
4,800.00	4,796.34	4,863.05	4,862.12	10.69	8.47	110.42	725.08	5,719.15	5,795.33	5,776.20	19.14	302.828	
4,900.00	4,895.91	4,964.73	4,963.74	10.93	8.69	110.49	727.74	5,716.72	5,796.85	5,777.26	19.59	295.946	

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: OH
Reference Design: Plan #3

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 +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,000.00	4,995.47	5,086.95	5,085.92	11.17	8.87	110.56	729.99	5,714.45	5,798.15	5,778.15	20.00	289.837	
5,100.00	5,095.04	5,198.99	5,197.90	11.41	9.07	110.63	732.18	5,711.89	5,799.37	5,778.93	20.44	283.729	
5,200.00	5,194.61	5,270.03	5,268.92	11.65	9.19	110.68	733.43	5,710.37	5,800.72	5,779.92	20.80	278.818	
5,300.00	5,294.17	5,337.99	5,336.86	11.89	9.31	110.72	734.45	5,709.29	5,802.60	5,781.43	21.16	274.166	
5,400.00	5,393.74	5,405.67	5,404.53	12.13	9.43	110.77	735.22	5,708.63	5,805.05	5,783.53	21.52	269.702	
5,500.00	5,493.31	5,500.88	5,499.74	12.38	9.60	110.85	736.04	5,708.02	5,807.81	5,785.88	21.93	264.812	
5,600.00	5,592.87	5,600.00	5,598.85	12.63	9.77	110.92	736.77	5,707.41	5,810.80	5,788.26	22.35	260.015	
5,700.00	5,692.44	5,694.27	5,693.12	12.87	9.94	111.00	737.33	5,706.89	5,813.46	5,790.70	22.75	255.486	
5,800.00	5,792.00	5,828.65	5,827.50	13.12	10.17	111.11	737.86	5,705.85	5,816.07	5,792.84	23.23	250.344	
5,900.00	5,891.57	5,942.49	5,941.33	13.37	10.37	111.20	738.29	5,704.50	5,818.30	5,794.82	23.67	245.758	
6,000.00	5,991.14	6,057.55	6,056.37	13.62	10.57	111.29	738.97	5,702.84	5,820.29	5,796.17	24.12	241.301	
6,100.00	6,090.70	6,162.31	6,161.11	13.87	10.75	111.37	740.14	5,701.03	5,822.08	5,797.53	24.55	237.154	
6,200.00	6,190.27	6,264.68	6,263.44	14.12	10.93	111.43	742.30	5,699.16	5,823.86	5,798.88	24.98	233.168	
6,300.00	6,289.84	6,383.52	6,382.21	14.37	11.15	111.50	745.64	5,696.71	5,825.48	5,800.05	25.43	229.036	
6,400.00	6,389.40	6,497.10	6,495.73	14.62	11.35	111.57	747.98	5,694.07	5,826.78	5,800.90	25.88	225.125	
6,500.00	6,488.97	6,593.55	6,592.15	14.87	11.52	111.64	749.13	5,691.83	5,828.00	5,801.70	26.30	221.604	
6,600.00	6,588.54	6,681.61	6,680.18	15.12	11.67	111.70	749.67	5,689.94	5,829.36	5,802.66	26.70	218.317	
6,700.00	6,688.10	6,775.08	6,773.63	15.38	11.83	111.78	749.99	5,688.12	5,830.90	5,803.79	27.11	215.059	
6,800.00	6,787.67	6,876.01	6,874.55	15.63	12.01	111.86	750.08	5,686.22	5,832.50	5,804.96	27.54	211.800	
6,900.00	6,887.24	6,975.46	6,973.98	15.88	12.18	111.94	750.10	5,684.33	5,834.08	5,806.12	27.96	208.657	
7,000.00	6,986.80	7,101.87	7,100.36	16.14	12.40	112.05	749.81	5,681.72	5,835.51	5,807.08	28.43	205.265	
7,100.00	7,086.37	7,206.96	7,205.42	16.39	12.59	112.15	749.07	5,679.25	5,836.81	5,807.75	28.86	202.223	
7,200.00	7,185.93	7,300.00	7,298.43	16.65	12.75	112.24	747.84	5,677.11	5,837.73	5,808.45	29.28	199.407	
7,300.00	7,285.50	7,376.92	7,375.32	16.90	12.88	112.31	746.40	5,675.57	5,839.12	5,809.45	29.66	196.856	
7,400.00	7,385.07	7,444.82	7,443.20	17.16	13.00	112.39	744.81	5,674.54	5,840.97	5,810.94	30.03	194.485	
7,500.00	7,484.63	7,500.00	7,498.35	17.42	13.10	112.45	743.35	5,674.02	5,843.44	5,813.06	30.38	192.335	
7,600.00	7,584.20	7,570.69	7,569.01	17.67	13.23	112.52	741.43	5,673.80	5,846.54	5,815.78	30.76	190.085	
7,700.00	7,683.77	7,649.93	7,648.23	17.93	13.37	112.61	739.45	5,674.04	5,850.22	5,819.07	31.15	187.819	
7,800.00	7,783.33	7,755.87	7,754.15	18.19	13.55	112.72	737.05	5,674.42	5,854.02	5,822.44	31.59	185.331	
7,900.00	7,882.90	7,858.59	7,856.83	18.45	13.74	112.83	734.71	5,674.61	5,857.66	5,825.64	32.02	182.939	
8,000.00	7,982.47	7,959.43	7,957.65	18.70	13.91	112.94	732.46	5,674.82	5,861.35	5,828.90	32.45	180.629	
8,100.00	8,082.03	8,068.30	8,066.49	18.96	14.11	113.05	730.00	5,674.93	5,864.95	5,832.05	32.89	178.297	
8,200.00	8,181.60	8,143.80	8,141.98	19.22	14.24	113.13	728.21	5,675.01	5,868.59	5,835.32	33.28	176.345	
8,300.00	8,281.17	8,200.00	8,198.15	19.48	14.34	113.19	726.90	5,675.41	5,872.87	5,839.24	33.63	174.638	
8,400.00	8,380.73	8,267.99	8,266.12	19.74	14.46	113.27	725.49	5,676.32	5,877.79	5,843.79	34.00	172.883	
8,493.72	8,474.04	8,330.81	8,328.92	19.98	14.57	113.33	724.43	5,677.54	5,882.97	5,848.63	34.34	171.302	
8,500.00	8,480.30	8,335.36	8,333.47	20.00	14.58	105.68	724.36	5,677.64	5,883.29	5,848.93	34.37	171.200	
8,525.00	8,505.21	8,353.47	8,351.57	20.05	14.61	70.86	724.08	5,678.04	5,883.77	5,849.32	34.45	170.795	
8,550.00	8,530.09	8,371.58	8,369.68	20.10	14.64	44.32	723.81	5,678.47	5,882.98	5,848.45	34.53	170.358	
8,575.00	8,554.87	8,400.00	8,398.09	20.15	14.69	29.70	723.40	5,679.18	5,880.93	5,846.29	34.63	169.798	
8,600.00	8,579.49	8,413.17	8,411.25	20.19	14.71	21.48	723.22	5,679.52	5,877.57	5,842.86	34.71	169.343	
8,625.00	8,603.87	8,443.98	8,442.05	20.24	14.77	16.43	722.81	5,680.29	5,872.92	5,838.11	34.81	168.702	
8,650.00	8,627.95	8,474.44	8,472.49	20.27	14.82	13.05	722.42	5,681.01	5,866.97	5,832.06	34.91	168.037	
8,675.00	8,651.66	8,503.96	8,502.01	20.31	14.87	10.65	722.07	5,681.68	5,859.74	5,824.72	35.01	167.353	
8,700.00	8,674.94	8,530.20	8,528.24	20.35	14.92	8.85	721.77	5,682.26	5,851.24	5,816.14	35.11	166.673	
8,725.00	8,697.72	8,555.91	8,553.94	20.38	14.96	7.44	721.49	5,682.81	5,841.53	5,806.33	35.20	165.974	
8,750.00	8,719.95	8,581.02	8,579.04	20.41	15.00	6.30	721.22	5,683.33	5,830.61	5,795.33	35.28	165.257	
8,775.00	8,741.56	8,605.65	8,603.66	20.43	15.05	5.36	720.96	5,683.84	5,818.52	5,783.16	35.37	164.524	
8,800.00	8,762.49	8,630.21	8,628.22	20.46	15.09	4.55	720.72	5,684.33	5,805.30	5,769.85	35.45	163.772	
8,825.00	8,782.68	8,653.93	8,651.93	20.48	15.13	3.85	720.50	5,684.79	5,790.97	5,755.45	35.53	163.008	
8,850.00	8,802.08	8,676.73	8,674.73	20.50	15.17	3.21	720.31	5,685.21	5,775.59	5,739.99	35.60	162.236	
8,875.00	8,820.64	8,698.56	8,696.56	20.52	15.21	2.62	720.14	5,685.61	5,759.18	5,723.51	35.67	161.456	

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: OH
Reference Design: Plan #3

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:
Survey Program: 100-ISCWSA-GYRO-3													0.00 usft
Reference													Offset Well Error:
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-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,900.00	8,838.30	8,716.05	8,714.05	20.53	15.24	2.05	720.00	5,885.92	5,741.81	5,706.08	35.73	160.698	
8,925.00	8,855.02	8,732.41	8,730.40	20.55	15.27	1.49	719.89	5,886.22	5,723.53	5,687.74	35.79	159.936	
8,950.00	8,870.75	8,747.83	8,745.82	20.56	15.29	0.93	719.77	5,886.50	5,704.39	5,668.55	35.84	159.170	
8,975.00	8,885.45	8,762.29	8,760.27	20.58	15.32	0.35	719.67	5,886.76	5,684.43	5,648.55	35.89	158.402	
9,000.00	8,899.07	8,775.73	8,773.71	20.60	15.34	-0.28	719.58	5,887.01	5,663.72	5,627.79	35.93	157.634	
9,025.00	8,911.59	8,788.12	8,786.10	20.63	15.36	-0.98	719.49	5,887.24	5,642.31	5,606.34	35.97	156.868	
9,050.00	8,922.96	8,800.00	8,797.98	20.71	15.38	-1.78	719.41	5,887.46	5,620.26	5,584.26	36.00	156.100	
9,075.00	8,933.15	8,809.52	8,807.49	20.85	15.40	-2.75	719.35	5,887.63	5,597.63	5,561.60	36.03	155.346	
9,100.00	8,942.14	8,818.47	8,816.44	21.01	15.41	-3.94	719.29	5,887.80	5,574.48	5,538.42	36.06	154.593	
9,125.00	8,949.90	8,826.27	8,824.24	21.19	15.43	-5.50	719.24	5,887.95	5,550.87	5,514.79	36.08	153.848	
9,150.00	8,956.42	8,832.89	8,830.86	21.40	15.44	-7.65	719.19	5,888.07	5,526.88	5,490.78	36.10	153.111	
9,175.00	8,961.66	8,838.31	8,836.28	21.62	15.45	-10.83	719.16	5,888.17	5,502.55	5,466.44	36.11	152.384	
9,200.00	8,965.63	8,842.52	8,840.49	21.85	15.46	-16.01	719.13	5,888.25	5,477.97	5,441.85	36.12	151.667	
9,225.00	8,968.30	8,845.51	8,843.48	22.10	15.46	-25.76	719.11	5,888.31	5,453.20	5,417.07	36.12	150.963	
9,250.00	8,969.67	8,847.26	8,845.23	22.37	15.46	-47.96	719.10	5,888.34	5,428.30	5,392.17	36.12	150.271	
9,259.65	8,969.85	8,847.61	8,845.58	25.31	15.47	-63.35	719.09	5,888.35	5,418.66	5,378.02	40.64	133.329	
9,300.00	8,970.20	8,848.67	8,846.64	25.34	15.47	-63.51	719.09	5,888.37	5,378.39	5,337.72	40.67	132.238	
9,400.00	8,971.07	8,851.31	8,849.28	25.41	15.47	-63.92	719.07	5,888.42	5,278.58	5,237.83	40.75	129.537	
9,500.00	8,971.93	8,853.95	8,851.92	25.49	15.48	-64.34	719.05	5,888.47	5,178.78	5,137.95	40.83	126.843	
9,600.00	8,972.80	8,856.59	8,854.56	25.57	15.48	-64.76	719.03	5,888.52	5,078.98	5,038.07	40.91	124.157	
9,700.00	8,973.68	8,859.24	8,857.21	25.65	15.49	-65.18	719.02	5,888.57	4,979.19	4,938.20	40.99	121.477	
9,800.00	8,974.53	8,861.90	8,859.86	25.73	15.49	-65.61	719.00	5,888.62	4,879.40	4,838.33	41.07	118.805	
9,900.00	8,975.39	8,864.56	8,862.52	25.83	15.49	-66.04	718.98	5,888.67	4,779.63	4,738.47	41.15	116.140	
10,000.00	8,976.26	8,867.22	8,865.18	25.92	15.50	-66.47	718.96	5,888.72	4,679.86	4,638.62	41.24	113.483	
10,100.00	8,977.13	8,869.89	8,867.85	26.03	15.50	-66.91	718.94	5,888.78	4,580.10	4,538.77	41.32	110.834	
10,200.00	8,977.99	8,872.56	8,870.53	26.15	15.51	-67.35	718.93	5,888.83	4,480.35	4,438.93	41.41	108.193	
10,300.00	8,978.86	8,875.24	8,873.20	26.31	15.51	-67.79	718.91	5,888.88	4,380.60	4,339.10	41.50	105.560	
10,400.00	8,979.72	8,877.92	8,875.89	26.51	15.52	-68.24	718.89	5,888.93	4,280.87	4,239.28	41.59	102.935	
10,500.00	8,980.59	8,880.61	8,878.57	26.81	15.52	-68.69	718.87	5,888.98	4,181.15	4,139.47	41.68	100.318	
10,600.00	8,981.45	8,883.30	8,881.26	27.24	15.53	-69.15	718.85	5,889.03	4,081.44	4,039.67	41.77	97.710	
10,700.00	8,982.32	8,886.00	8,883.96	27.78	15.53	-69.61	718.84	5,889.09	3,981.75	3,939.88	41.86	95.111	
10,800.00	8,983.19	8,888.70	8,886.66	28.39	15.54	-70.07	718.82	5,889.14	3,882.06	3,840.10	41.96	92.521	
10,900.00	8,984.05	8,891.41	8,889.37	29.05	15.54	-70.54	718.80	5,889.19	3,782.40	3,740.34	42.06	89.939	
11,000.00	8,984.92	8,894.12	8,892.08	29.75	15.55	-71.01	718.78	5,889.24	3,682.74	3,640.59	42.15	87.366	
11,100.00	8,985.78	8,896.84	8,894.80	30.49	15.55	-71.48	718.76	5,889.30	3,583.11	3,540.86	42.25	84.802	
11,200.00	8,986.65	8,900.00	8,897.96	31.25	15.56	-72.04	718.74	5,889.36	3,483.49	3,441.14	42.35	82.247	
11,300.00	8,987.52	8,902.45	8,900.41	32.03	15.56	-72.47	718.73	5,889.41	3,383.90	3,341.44	42.46	79.702	
11,400.00	8,988.38	8,905.36	8,903.32	32.84	15.57	-72.99	718.71	5,889.46	3,284.32	3,241.76	42.56	77.165	
11,500.00	8,989.25	8,908.27	8,906.22	33.66	15.57	-73.50	718.69	5,889.52	3,184.77	3,142.10	42.67	74.638	
11,600.00	8,990.11	8,911.17	8,909.12	34.50	15.58	-74.02	718.67	5,889.57	3,085.25	3,042.47	42.78	72.120	
11,700.00	8,990.98	8,914.06	8,912.01	35.36	15.58	-74.55	718.65	5,889.63	2,985.76	2,942.87	42.89	69.612	
11,800.00	8,991.84	8,916.94	8,914.90	36.23	15.59	-75.07	718.63	5,889.69	2,886.30	2,843.29	43.01	67.112	
11,900.00	8,992.71	8,919.82	8,917.77	37.12	15.59	-75.59	718.61	5,889.74	2,786.87	2,743.75	43.13	64.623	
12,000.00	8,993.58	8,922.69	8,920.64	38.02	15.60	-76.12	718.60	5,889.80	2,687.48	2,644.24	43.25	62.142	
12,100.00	8,994.44	8,925.55	8,923.50	38.93	15.60	-76.64	718.58	5,889.85	2,588.14	2,544.77	43.37	59.671	
12,200.00	8,995.31	8,928.41	8,926.36	39.85	15.60	-77.17	718.56	5,889.91	2,488.85	2,445.35	43.50	57.210	
12,300.00	8,996.17	8,931.25	8,929.21	40.78	15.61	-77.70	718.54	5,889.96	2,389.61	2,345.97	43.64	54.757	
12,400.00	8,997.04	8,934.10	8,932.05	41.72	15.61	-78.23	718.52	5,890.02	2,290.44	2,246.66	43.78	52.314	
12,500.00	8,997.90	8,936.93	8,934.88	42.67	15.62	-78.76	718.51	5,890.07	2,191.34	2,147.40	43.93	49.879	
12,600.00	8,998.77	8,939.76	8,937.71	43.63	15.62	-79.29	718.49	5,890.12	2,092.32	2,048.23	44.09	47.454	
12,700.00	8,999.64	8,942.58	8,940.53	44.59	15.63	-79.82	718.47	5,890.18	1,993.39	1,949.13	44.26	45.037	
12,800.00	9,000.50	8,945.39	8,943.34	45.56	15.63	-80.36	718.45	5,890.23	1,894.57	1,850.13	44.44	42.628	

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
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: OH
Reference Design: Plan #3

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 +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
12,900.00	9,001.37	8,948.20	8,948.15	46.54	15.64	-80.89	718.44	5,690.28	1,795.88	1,751.24	44.64	40.228	
13,000.00	9,002.23	8,951.00	8,948.95	47.53	15.64	-81.42	718.42	5,690.34	1,697.34	1,652.48	44.86	37.835	
13,100.00	9,003.10	8,953.79	8,951.74	48.52	15.65	-81.96	718.40	5,690.39	1,598.97	1,553.87	45.10	35.451	
13,200.00	9,003.96	8,956.58	8,954.53	49.51	15.65	-82.49	718.39	5,690.44	1,500.81	1,455.44	45.38	33.073	
13,300.00	9,004.83	8,959.36	8,957.31	50.51	15.66	-83.02	718.37	5,690.49	1,402.91	1,357.22	45.69	30.703	
13,400.00	9,005.70	8,962.13	8,960.08	51.52	15.66	-83.56	718.35	5,690.54	1,305.32	1,259.26	46.06	28.339	
13,500.00	9,006.56	8,964.90	8,962.84	52.53	15.67	-84.09	718.34	5,690.60	1,208.12	1,161.62	46.50	25.982	
13,600.00	9,007.43	8,967.66	8,965.60	53.55	15.67	-84.62	718.32	5,690.65	1,111.41	1,064.38	47.03	23.631	
13,700.00	9,008.29	8,970.41	8,968.35	54.56	15.68	-85.16	718.31	5,690.70	1,015.33	967.64	47.69	21.290	
13,800.00	9,009.16	8,973.16	8,971.10	55.59	15.68	-85.69	718.29	5,690.75	920.08	871.55	48.53	18.958	
13,900.00	9,010.03	8,975.90	8,973.84	56.61	15.69	-86.22	718.28	5,690.80	825.94	776.32	49.63	16.643	
14,000.00	9,010.89	8,978.63	8,976.57	57.64	15.69	-86.75	718.26	5,690.85	733.35	682.26	51.09	14.355	
14,100.00	9,011.76	8,981.36	8,979.30	58.68	15.70	-87.28	718.25	5,690.90	642.96	589.87	53.09	12.112	
14,200.00	9,012.62	8,984.08	8,982.02	59.71	15.70	-87.81	718.23	5,690.95	555.86	499.99	55.87	9.949	
14,300.00	9,013.49	8,986.79	8,984.73	60.75	15.71	-88.34	718.22	5,691.00	473.87	414.11	59.77	7.928	
14,400.00	9,014.35	8,989.49	8,987.44	61.80	15.71	-88.87	718.20	5,691.05	400.14	335.03	65.11	6.146	
14,500.00	9,015.22	8,992.20	8,990.13	62.84	15.72	-89.40	718.19	5,691.10	340.08	268.34	71.74	4.740	
14,600.00	9,016.09	8,994.89	8,992.83	63.89	15.72	-89.92	718.17	5,691.15	301.97	223.99	77.98	3.872	
14,724.5	9,016.71	8,996.84	8,994.78	64.65	15.72	-90.31	718.16	5,691.19	293.16	212.88	80.27	3.652 CC, ES, SF	
14,700.00	9,016.95	8,997.58	8,995.51	64.94	15.72	-90.45	718.16	5,691.20	294.45	214.07	80.38	3.663	
14,800.00	9,017.82	9,000.26	8,998.20	65.99	15.73	-90.97	718.14	5,691.25	319.68	242.15	77.54	4.123	
14,900.00	9,018.68	9,002.95	9,000.89	67.04	15.73	-91.50	718.13	5,691.30	371.06	298.93	72.13	5.144	
15,000.00	9,019.55	9,005.64	9,003.58	68.10	15.74	-92.03	718.11	5,691.35	439.49	372.81	66.88	6.571	
15,100.00	9,020.41	9,008.34	9,006.27	69.16	15.74	-92.55	718.10	5,691.40	518.27	455.56	62.72	8.264	
15,200.00	9,021.28	9,011.03	9,008.97	70.22	15.75	-93.08	718.09	5,691.45	603.37	543.74	59.63	10.118	
15,300.00	9,022.15	9,013.72	9,011.66	71.28	15.75	-93.60	718.07	5,691.50	692.44	635.07	57.37	12.069	
15,400.00	9,023.01	9,016.42	9,014.35	72.34	15.76	-94.13	718.06	5,691.55	784.15	728.43	55.72	14.074	
15,500.00	9,023.88	9,019.11	9,017.04	73.41	15.76	-94.65	718.04	5,691.59	877.66	823.17	54.49	16.108	
15,600.00	9,024.74	9,021.80	9,019.74	74.48	15.77	-95.17	718.03	5,691.64	972.46	918.89	53.57	18.155	
15,700.00	9,025.61	9,024.50	9,022.43	75.54	15.77	-95.69	718.02	5,691.69	1,068.19	1,015.33	52.87	20.205	
15,800.00	9,026.48	9,027.19	9,025.12	76.61	15.78	-96.21	718.00	5,691.74	1,164.64	1,112.31	52.34	22.253	
15,900.00	9,027.34	9,029.88	9,027.81	77.68	15.78	-96.73	717.99	5,691.79	1,261.64	1,209.71	51.93	24.295	
16,000.00	9,028.21	9,032.57	9,030.51	78.76	15.79	-97.25	717.97	5,691.84	1,359.07	1,307.45	51.62	26.328	
16,100.00	9,029.07	9,035.27	9,033.20	79.83	15.79	-97.77	717.96	5,691.89	1,456.84	1,405.45	51.38	28.352	
16,200.00	9,029.94	9,037.96	9,035.89	80.91	15.79	-98.29	717.94	5,691.94	1,554.88	1,503.68	51.21	30.366	
16,300.00	9,030.80	9,040.65	9,038.58	81.98	15.80	-98.80	717.93	5,691.99	1,653.16	1,602.09	51.07	32.368	
16,400.00	9,031.67	9,043.35	9,041.28	83.06	15.80	-99.32	717.92	5,692.04	1,751.83	1,700.65	50.98	34.359	
16,500.00	9,032.54	9,046.04	9,043.97	84.14	15.81	-99.83	717.90	5,692.09	1,850.26	1,799.34	50.92	36.339	
16,600.00	9,033.40	9,048.73	9,046.66	85.22	15.81	-100.34	717.89	5,692.14	1,949.03	1,898.15	50.88	38.306	
16,700.00	9,034.27	9,051.43	9,049.36	86.30	15.82	-100.85	717.87	5,692.19	2,047.91	1,997.04	50.86	40.262	
16,800.00	9,035.13	9,054.12	9,052.05	87.38	15.82	-101.36	717.86	5,692.23	2,146.89	2,096.02	50.87	42.207	
16,900.00	9,036.00	9,056.81	9,054.74	88.46	15.83	-101.88	717.84	5,692.28	2,245.96	2,195.08	50.88	44.139	
17,000.00	9,036.86	9,059.51	9,057.43	89.54	15.83	-102.37	717.83	5,692.33	2,345.10	2,294.19	50.91	46.060	
17,100.00	9,037.73	9,062.20	9,060.13	90.63	15.84	-102.87	717.82	5,692.38	2,444.32	2,393.36	50.96	47.970	
17,200.00	9,038.60	9,064.89	9,062.82	91.71	15.84	-103.37	717.80	5,692.43	2,543.59	2,492.58	51.01	49.868	
17,300.00	9,039.46	9,067.58	9,065.51	92.80	15.85	-103.87	717.79	5,692.48	2,642.91	2,591.84	51.07	51.754	
17,400.00	9,040.33	9,070.28	9,068.20	93.89	15.85	-104.36	717.77	5,692.53	2,742.28	2,691.14	51.13	53.630	
17,500.00	9,041.19	9,072.97	9,070.90	94.97	15.86	-104.86	717.76	5,692.58	2,841.69	2,790.48	51.21	55.494	
17,600.00	9,042.06	9,075.66	9,073.59	96.06	15.86	-105.35	717.75	5,692.63	2,941.14	2,889.85	51.29	57.347	
17,700.00	9,042.93	9,078.36	9,076.28	97.15	15.86	-105.84	717.73	5,692.68	3,040.62	2,989.25	51.37	59.189	
17,800.00	9,043.79	9,081.05	9,078.97	98.24	15.87	-106.33	717.72	5,692.73	3,140.13	3,088.67	51.46	61.020	
17,900.00	9,044.66	9,083.74	9,081.67	99.33	15.87	-106.81	717.70	5,692.78	3,239.67	3,188.12	51.55	62.840	

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: OH
Reference Design: Plan #3

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					Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre N-S (usft)	Offset Wellbore Centre E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)		Separation Factor
18,000.00	9,045.52	9,086.44	9,084.36	100.42	15.88	-107.29	717.69	5,692.83	3,339.24	3,287.59	51.65	64.649	
18,100.00	9,046.39	9,089.13	9,087.05	101.51	15.88	-107.77	717.67	5,692.87	3,438.83	3,387.08	51.75	66.447	
18,200.00	9,047.25	9,091.82	9,089.74	102.60	15.89	-108.25	717.66	5,692.92	3,538.44	3,486.58	51.86	68.235	
18,300.00	9,048.12	9,094.52	9,092.44	103.69	15.89	-108.73	717.65	5,692.97	3,638.07	3,586.10	51.96	70.012	
18,400.00	9,048.99	9,097.21	9,095.13	104.79	15.90	-109.20	717.63	5,693.02	3,737.71	3,685.64	52.07	71.778	
18,500.00	9,049.85	9,099.90	9,097.82	105.88	15.90	-109.67	717.62	5,693.07	3,837.38	3,785.19	52.19	73.534	
18,600.00	9,050.72	9,102.59	9,100.51	106.98	15.91	-110.14	717.60	5,693.12	3,937.06	3,884.76	52.30	75.279	
18,700.00	9,051.58	9,105.29	9,103.21	108.07	15.91	-110.60	717.59	5,693.17	4,036.75	3,984.34	52.42	77.014	
18,800.00	9,052.45	9,107.98	9,105.90	109.16	15.92	-111.06	717.57	5,693.22	4,136.46	4,083.92	52.53	78.739	
18,900.00	9,053.31	9,110.67	9,108.59	110.26	15.92	-111.52	717.56	5,693.27	4,236.18	4,183.52	52.65	80.454	
19,000.00	9,054.18	9,113.37	9,111.28	111.36	15.92	-111.98	717.55	5,693.32	4,335.90	4,283.13	52.78	82.158	
19,100.00	9,055.05	9,116.06	9,113.98	112.45	15.93	-112.43	717.53	5,693.37	4,435.64	4,382.75	52.90	83.852	
19,200.00	9,055.91	9,118.75	9,116.67	113.55	15.93	-112.88	717.52	5,693.42	4,535.39	4,482.37	53.02	85.536	
19,300.00	9,056.78	9,121.45	9,119.38	114.65	15.94	-113.33	717.50	5,693.46	4,635.15	4,582.00	53.15	87.210	
19,400.00	9,057.64	9,124.14	9,122.05	115.74	15.94	-113.77	717.49	5,693.51	4,734.92	4,681.65	53.28	88.875	
19,500.00	9,058.51	9,126.83	9,124.75	116.84	15.95	-114.21	717.47	5,693.56	4,834.70	4,781.29	53.41	90.529	
19,600.00	9,059.37	9,129.52	9,127.44	117.94	15.95	-114.65	717.46	5,693.61	4,934.48	4,880.95	53.53	92.173	
19,700.00	9,060.24	9,132.22	9,130.13	119.04	15.96	-115.08	717.45	5,693.66	5,034.27	4,980.61	53.67	93.808	
19,800.00	9,061.11	9,134.91	9,132.82	120.14	15.96	-115.52	717.43	5,693.71	5,134.07	5,080.27	53.80	95.433	
19,900.00	9,061.97	9,137.60	9,135.52	121.24	15.97	-115.95	717.42	5,693.76	5,233.87	5,179.94	53.93	97.048	
20,000.00	9,062.84	9,140.30	9,138.21	122.34	15.97	-116.37	717.40	5,693.81	5,333.68	5,279.62	54.06	98.654	
20,100.00	9,063.70	9,142.99	9,140.90	123.44	15.98	-116.80	717.39	5,693.86	5,433.50	5,379.30	54.20	100.251	
20,200.00	9,064.57	9,145.68	9,143.60	124.54	15.98	-117.22	717.38	5,693.91	5,533.32	5,478.98	54.33	101.837	
20,300.00	9,065.44	9,148.38	9,146.29	125.64	15.99	-117.63	717.36	5,693.96	5,633.14	5,578.67	54.47	103.415	
20,400.00	9,066.30	9,151.07	9,148.98	126.74	15.99	-118.05	717.35	5,694.01	5,732.98	5,678.37	54.61	104.983	
20,500.00	9,067.17	9,153.76	9,151.67	127.84	15.99	-118.46	717.33	5,694.06	5,832.81	5,778.06	54.75	106.542	
20,600.00	9,068.03	9,156.46	9,154.37	128.95	16.00	-118.86	717.32	5,694.10	5,932.65	5,877.76	54.89	108.091	
20,700.00	9,068.90	9,159.15	9,157.06	130.05	16.00	-119.27	717.30	5,694.15	6,032.49	5,977.47	55.03	109.632	
20,800.00	9,069.76	9,161.84	9,159.75	131.15	16.01	-119.67	717.29	5,694.20	6,132.34	6,077.18	55.17	111.163	
20,900.00	9,070.63	9,164.53	9,162.44	132.25	16.01	-120.07	717.28	5,694.25	6,232.19	6,176.89	55.31	112.685	
21,000.00	9,071.50	9,167.23	9,165.14	133.36	16.02	-120.46	717.26	5,694.30	6,332.05	6,276.60	55.45	114.198	
21,100.00	9,072.36	9,169.92	9,167.83	134.46	16.02	-120.85	717.25	5,694.35	6,431.91	6,376.32	55.59	115.703	
21,200.00	9,073.23	9,172.61	9,170.52	135.56	16.03	-121.24	717.23	5,694.40	6,531.77	6,476.03	55.73	117.198	
21,300.00	9,074.09	9,175.31	9,173.21	136.67	16.03	-121.63	717.22	5,694.45	6,631.63	6,575.76	55.88	118.685	
21,400.00	9,074.96	9,178.00	9,175.91	137.77	16.04	-122.01	717.20	5,694.50	6,731.50	6,675.48	56.02	120.162	
21,500.00	9,075.82	9,180.69	9,178.60	138.87	16.04	-122.39	717.19	5,694.55	6,831.37	6,775.20	56.16	121.631	
21,600.00	9,076.69	9,183.39	9,181.29	139.98	16.05	-122.77	717.18	5,694.60	6,931.24	6,874.93	56.31	123.092	
21,700.00	9,077.56	9,186.08	9,183.98	141.08	16.05	-123.14	717.16	5,694.65	7,031.12	6,974.66	56.46	124.544	
21,714.06	9,077.68	9,186.46	9,184.36	141.16	16.05	-123.19	717.16	5,694.65	7,045.16	6,993.80	51.36	137.171	

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: OH
Reference Design: Plan #3

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
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N-S (usft)	+E-W (usft)				
0.00	0.00	0.00	0.00	0.00	0.00	69.19	671.00	1,765.05	1,888.44			
100.00	100.00	77.97	77.97	0.09	0.07	69.18	671.00	1,765.02	1,888.26	1,888.11	0.15	N/A
200.00	200.00	177.34	177.34	0.31	0.22	69.18	671.01	1,764.93	1,888.18	1,887.65	0.53	3,537.806
300.00	300.00	277.24	277.24	0.54	0.40	69.18	671.08	1,764.87	1,888.15	1,887.22	0.93	2,023.987
349.57	349.57	326.08	326.07	0.65	0.48	69.18	671.15	1,764.83	1,888.14	1,887.01	1.13	1,671.731
400.00	400.00	375.01	375.01	0.76	0.57	69.18	671.21	1,764.82	1,888.15	1,886.83	1.33	1,421.752
500.00	500.00	475.01	475.01	0.99	0.74	69.17	671.37	1,764.87	1,888.25	1,886.53	1.73	1,093.346
600.00	600.00	573.52	573.52	1.21	0.92	69.17	671.62	1,764.88	1,888.36	1,886.23	2.12	889.185
700.00	700.00	666.80	666.80	1.43	1.08	69.18	671.90	1,765.08	1,888.66	1,886.15	2.51	751.905
800.00	800.00	761.08	761.08	1.66	1.24	69.16	672.21	1,765.66	1,889.35	1,886.45	2.90	651.059
900.00	900.00	857.33	857.33	1.88	1.41	69.16	672.59	1,766.46	1,890.27	1,886.98	3.30	573.634
1,000.00	1,000.00	957.36	957.35	2.11	1.59	69.15	673.14	1,767.38	1,891.32	1,887.63	3.69	511.870
1,100.00	1,100.00	1,058.53	1,058.51	2.33	1.76	69.15	673.63	1,768.24	1,892.29	1,888.19	4.10	461.924
1,200.00	1,200.00	1,158.86	1,158.84	2.56	1.94	69.14	674.21	1,769.03	1,893.23	1,888.74	4.50	421.011
1,300.00	1,300.00	1,267.25	1,267.22	2.78	2.13	69.12	674.99	1,769.65	1,894.03	1,889.12	4.91	385.686
1,400.00	1,400.00	1,370.49	1,370.46	3.01	2.31	69.10	675.65	1,769.76	1,894.35	1,889.04	5.32	356.350
1,500.00	1,500.00	1,471.92	1,471.88	3.23	2.49	69.09	676.26	1,769.85	1,894.66	1,888.94	5.72	331.347
1,600.00	1,600.00	1,575.41	1,575.38	3.46	2.67	69.07	676.82	1,769.81	1,894.81	1,888.69	6.12	309.432
1,700.00	1,700.00	1,681.54	1,681.51	3.68	2.86	69.05	677.32	1,769.52	1,894.73	1,888.19	6.53	290.014
1,800.00	1,800.00	1,786.76	1,786.72	3.91	3.04	69.04	677.70	1,768.91	1,894.32	1,887.37	6.94	272.915
1,900.00	1,900.00	1,885.21	1,885.17	4.13	3.21	69.02	678.06	1,768.23	1,893.80	1,886.46	7.34	258.108
2,000.00	2,000.00	1,985.65	1,985.61	4.36	3.39	69.00	678.58	1,767.53	1,893.34	1,885.60	7.74	244.713
2,100.00	2,100.00	2,086.51	2,086.46	4.58	3.56	68.98	679.03	1,766.82	1,892.83	1,884.70	8.14	232.604
2,200.00	2,200.00	2,184.91	2,184.86	4.81	3.73	68.95	679.64	1,766.06	1,892.34	1,883.81	8.53	221.741
2,300.00	2,300.00	2,285.51	2,285.45	5.03	3.91	68.92	680.32	1,765.32	1,891.89	1,882.96	8.93	211.755
2,400.00	2,400.00	2,383.13	2,383.06	5.26	4.08	68.90	680.94	1,764.64	1,891.47	1,882.14	9.33	202.739
2,500.00	2,500.00	2,486.08	2,486.02	5.48	4.26	68.87	681.64	1,763.92	1,891.07	1,881.34	9.73	194.273
2,600.00	2,600.00	2,587.65	2,587.57	5.71	4.44	68.84	682.30	1,763.07	1,890.52	1,880.38	10.14	186.512
2,700.00	2,700.00	2,684.51	2,684.44	5.93	4.61	68.81	683.01	1,762.25	1,890.00	1,879.47	10.53	179.483
2,800.00	2,800.00	2,785.40	2,785.32	6.15	4.79	68.79	683.67	1,761.54	1,889.58	1,878.65	10.93	172.861
2,900.00	2,900.00	2,888.80	2,888.72	6.38	4.97	68.76	684.30	1,760.69	1,889.03	1,877.69	11.34	166.632
3,000.00	3,000.00	2,988.72	2,988.63	6.60	5.14	68.73	684.97	1,759.72	1,888.37	1,876.64	11.74	160.906
3,100.00	3,100.00	3,086.70	3,086.60	6.83	5.31	68.70	685.66	1,758.83	1,887.78	1,875.65	12.13	155.604
3,200.00	3,200.00	3,186.58	3,186.47	7.05	5.49	68.67	686.50	1,757.94	1,887.26	1,874.73	12.53	150.603
3,300.00	3,300.00	3,289.21	3,289.09	7.28	5.67	68.63	687.34	1,756.96	1,886.67	1,873.73	12.94	145.852
3,400.00	3,400.00	3,384.14	3,384.02	7.50	5.83	68.60	688.13	1,756.09	1,886.11	1,872.79	13.33	141.531
3,500.00	3,500.00	3,483.33	3,483.19	7.73	6.01	68.56	689.15	1,755.31	1,885.76	1,872.03	13.72	137.397
3,600.00	3,600.00	3,585.61	3,585.46	7.95	6.19	68.53	690.12	1,754.48	1,885.35	1,871.22	14.13	133.442
3,700.00	3,700.00	3,697.84	3,697.68	8.18	6.38	95.38	691.15	1,753.15	1,884.67	1,870.12	14.55	129.555
3,800.00	3,799.96	3,817.08	3,816.90	8.40	6.59	95.41	692.12	1,750.63	1,883.24	1,868.27	14.97	125.762
3,900.00	3,899.88	3,927.25	3,927.02	8.62	6.79	95.52	692.77	1,747.53	1,881.25	1,865.86	15.39	122.266
4,000.00	3,999.88	4,030.89	4,030.60	8.84	6.97	95.69	693.31	1,744.06	1,878.91	1,863.12	15.79	119.004
4,100.00	4,099.37	4,117.97	4,117.63	9.07	7.12	95.85	694.37	1,741.22	1,877.09	1,860.93	16.17	116.110
4,133.72	4,132.95	4,145.27	4,144.91	9.15	7.17	95.90	694.89	1,740.42	1,876.71	1,860.42	16.29	115.198
4,200.00	4,198.94	4,200.00	4,199.60	9.29	7.26	96.01	696.22	1,739.00	1,876.31	1,859.78	16.54	113.453
4,233.54	4,232.33	4,227.65	4,227.24	9.37	7.31	96.05	697.04	1,738.36	1,876.27	1,859.61	16.66	112.596
4,300.00	4,298.51	4,284.72	4,284.27	9.52	7.41	96.15	698.94	1,737.19	1,876.44	1,859.52	16.92	110.925
4,400.00	4,398.07	4,376.69	4,376.15	9.75	7.57	96.29	702.56	1,735.58	1,877.19	1,859.88	17.31	108.451
4,500.00	4,497.64	4,502.20	4,501.51	9.98	7.79	96.46	707.98	1,732.75	1,877.66	1,859.90	17.76	105.707
4,600.00	4,597.21	4,615.40	4,614.56	10.22	7.99	96.61	712.20	1,728.86	1,876.77	1,858.58	18.20	103.144
4,700.00	4,696.77	4,702.45	4,701.54	10.45	8.15	96.76	714.56	1,726.28	1,876.02	1,857.43	18.59	100.937
4,800.00	4,796.34	4,800.00	4,799.04	10.69	8.32	96.95	716.78	1,724.02	1,875.73	1,856.73	18.99	98.751

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: OH
Reference Design: Plan #3

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
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N-S (usft)	+E-W (usft)					
4,900.00	4,895.91	4,898.70	4,897.69	10.93	8.49	97.15	718.82	1,721.90	1,875.55	1,856.14	19.41	96.647	
5,000.00	4,995.47	4,995.60	4,994.55	11.17	8.66	97.35	720.76	1,719.89	1,875.44	1,855.63	19.82	94.643	
5,007.29	5,002.73	5,002.63	5,001.58	11.18	8.88	97.38	720.91	1,719.75	1,875.44	1,855.59	19.85	94.500	
5,100.00	5,095.04	5,091.42	5,090.34	11.41	8.83	97.55	722.57	1,718.14	1,875.54	1,855.32	20.22	92.734	
5,200.00	5,194.61	5,179.15	5,178.05	11.65	8.99	97.75	723.83	1,717.04	1,876.08	1,855.46	20.62	90.981	
5,300.00	5,294.17	5,280.02	5,278.91	11.89	9.17	97.99	725.14	1,716.25	1,877.04	1,856.00	21.04	89.215	
5,400.00	5,393.74	5,390.78	5,389.65	12.13	9.36	98.24	726.63	1,714.91	1,877.65	1,856.17	21.48	87.429	
5,500.00	5,493.31	5,517.96	5,516.78	12.38	9.58	98.51	728.74	1,711.86	1,877.25	1,855.32	21.94	85.563	
5,600.00	5,592.87	5,648.10	5,646.78	12.63	9.81	98.75	731.28	1,706.56	1,875.40	1,853.00	22.41	83.703	
5,700.00	5,692.44	5,770.47	5,768.89	12.87	10.03	98.93	734.42	1,699.26	1,871.93	1,849.07	22.86	81.894	
5,800.00	5,792.00	5,877.53	5,875.66	13.12	10.22	99.07	737.58	1,691.96	1,867.78	1,844.49	23.29	80.196	
5,900.00	5,891.57	5,984.45	5,982.28	13.37	10.41	99.23	740.23	1,684.45	1,863.32	1,839.60	23.72	78.548	
6,000.00	5,991.14	6,086.36	6,083.91	13.62	10.59	99.39	742.21	1,677.17	1,858.59	1,834.44	24.15	76.967	
6,100.00	6,090.70	6,187.60	6,184.90	13.87	10.77	99.58	743.39	1,670.10	1,853.80	1,829.22	24.57	75.442	
6,200.00	6,190.27	6,282.23	6,279.31	14.12	10.94	99.78	743.70	1,663.82	1,849.10	1,824.11	24.99	73.996	
6,300.00	6,289.84	6,373.95	6,370.87	14.37	11.10	100.00	743.41	1,658.25	1,844.79	1,819.39	25.40	72.623	
6,400.00	6,389.40	6,470.99	6,467.75	14.62	11.26	100.26	742.25	1,652.97	1,840.85	1,815.03	25.82	71.289	
6,500.00	6,488.97	6,565.38	6,562.01	14.87	11.43	100.53	740.80	1,648.05	1,837.08	1,810.84	26.24	70.013	
6,600.00	6,588.54	6,663.07	6,659.56	15.12	11.60	100.81	739.46	1,643.20	1,833.63	1,806.97	26.66	68.776	
6,700.00	6,688.10	6,765.37	6,761.72	15.38	11.78	101.10	737.97	1,638.08	1,830.17	1,803.08	27.09	67.562	
6,800.00	6,787.67	6,863.26	6,859.48	15.63	11.95	101.38	736.52	1,633.08	1,826.66	1,799.14	27.51	66.396	
6,900.00	6,887.24	6,963.30	6,959.39	15.88	12.12	101.68	734.94	1,628.14	1,823.32	1,795.38	27.94	65.264	
7,000.00	6,986.80	7,061.27	7,057.21	16.14	12.29	101.97	733.05	1,623.32	1,819.96	1,791.59	28.36	64.171	
7,100.00	7,086.37	7,164.47	7,160.28	16.39	12.48	102.30	730.75	1,618.41	1,816.72	1,787.93	28.79	63.098	
7,200.00	7,185.93	7,272.95	7,268.58	16.65	12.67	102.65	728.01	1,612.83	1,813.11	1,783.88	29.23	62.030	
7,300.00	7,285.50	7,383.86	7,379.26	16.90	12.86	103.02	724.82	1,606.61	1,809.00	1,779.33	29.67	60.972	
7,400.00	7,385.07	7,468.83	7,464.06	17.16	13.02	103.31	722.13	1,601.84	1,804.92	1,774.84	30.08	60.005	
7,500.00	7,484.63	7,548.98	7,544.08	17.42	13.18	103.60	719.50	1,598.24	1,801.92	1,771.44	30.48	59.113	
7,600.00	7,584.20	7,630.31	7,625.32	17.67	13.30	103.89	716.80	1,595.47	1,800.05	1,769.16	30.89	58.280	
7,700.00	7,683.77	7,714.48	7,709.41	17.93	13.45	104.21	713.75	1,593.45	1,799.15	1,767.86	31.29	57.494	
7,756.38	7,739.90	7,763.15	7,758.04	18.08	13.54	104.41	711.90	1,592.61	1,799.03	1,767.50	31.52	57.069	
7,800.00	7,783.33	7,800.89	7,795.75	18.19	13.60	104.56	710.45	1,592.10	1,799.10	1,767.40	31.70	56.750	
7,900.00	7,882.90	7,898.92	7,893.69	18.45	13.78	104.95	706.46	1,591.00	1,799.52	1,767.39	32.13	56.008	
8,000.00	7,982.47	7,987.40	7,982.09	18.70	13.94	105.31	702.86	1,590.30	1,800.36	1,767.81	32.54	55.324	
8,100.00	8,082.03	8,074.17	8,068.81	18.96	14.09	105.65	699.86	1,590.08	1,801.91	1,768.96	32.95	54.685	
8,200.00	8,181.60	8,158.36	8,152.97	19.22	14.24	105.96	697.62	1,590.37	1,804.29	1,770.94	33.35	54.096	
8,300.00	8,281.17	8,250.48	8,245.06	19.48	14.40	106.30	695.47	1,591.36	1,807.50	1,773.74	33.77	53.527	
8,400.00	8,380.73	8,348.74	8,343.29	19.74	14.57	106.65	693.31	1,592.45	1,810.85	1,776.66	34.19	52.959	
8,493.72	8,474.04	8,436.26	8,430.77	19.98	14.73	106.97	691.00	1,593.65	1,814.23	1,779.64	34.58	52.459	
8,500.00	8,480.30	8,441.96	8,436.47	20.00	14.74	99.35	690.84	1,593.74	1,814.43	1,779.82	34.61	52.427	
8,525.00	8,505.21	8,464.66	8,459.16	20.05	14.78	84.58	690.22	1,594.11	1,814.44	1,779.74	34.70	52.287	
8,550.00	8,530.09	8,487.36	8,481.85	20.10	14.82	38.08	689.61	1,594.52	1,813.19	1,778.40	34.79	52.113	
8,575.00	8,554.87	8,509.24	8,503.72	20.15	14.85	23.46	689.02	1,594.93	1,810.70	1,775.81	34.88	51.908	
8,600.00	8,579.49	8,530.07	8,524.53	20.19	14.89	15.24	688.48	1,595.37	1,808.97	1,772.00	34.97	51.674	
8,625.00	8,603.87	8,550.73	8,545.18	20.24	14.93	10.14	687.96	1,595.84	1,802.03	1,768.97	35.05	51.409	
8,650.00	8,627.95	8,571.19	8,565.63	20.27	14.96	6.70	687.46	1,596.35	1,795.88	1,760.74	35.14	51.113	
8,675.00	8,651.66	8,591.40	8,585.82	20.31	15.00	4.21	686.99	1,596.89	1,788.54	1,753.32	35.22	50.786	
8,700.00	8,674.94	8,613.32	8,607.73	20.35	15.04	2.30	686.50	1,597.51	1,780.02	1,744.72	35.30	50.430	
8,725.00	8,697.72	8,636.33	8,630.73	20.38	15.08	0.78	685.98	1,598.17	1,770.30	1,734.92	35.38	50.040	
8,750.00	8,719.95	8,658.83	8,653.21	20.41	15.12	-0.54	685.48	1,598.81	1,759.41	1,723.96	35.46	49.622	
8,775.00	8,741.56	8,680.73	8,675.10	20.43	15.15	-1.69	684.99	1,599.44	1,747.38	1,711.85	35.53	49.179	
8,800.00	8,762.49	8,702.00	8,696.35	20.46	15.19	-2.73	684.51	1,600.04	1,734.24	1,698.64	35.60	48.712	

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: OH
 Reference Design: Plan #3

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
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,825.00	8,782.68	8,722.56	8,716.89	20.48	15.23	-3.73	684.05	1,600.63	1,720.02	1,684.35	35.67	48.221	
8,850.00	8,802.08	8,742.36	8,736.68	20.50	15.26	-4.70	683.60	1,601.19	1,704.77	1,669.03	35.73	47.708	
8,875.00	8,820.64	8,761.34	8,755.66	20.52	15.29	-5.69	683.18	1,601.73	1,688.52	1,652.73	35.79	47.174	
8,900.00	8,838.30	8,779.47	8,773.76	20.53	15.33	-6.73	682.77	1,602.25	1,671.33	1,635.48	35.85	46.621	
8,925.00	8,855.02	8,796.67	8,790.96	20.55	15.36	-7.83	682.39	1,602.74	1,653.23	1,617.33	35.90	46.051	
8,950.00	8,870.75	8,812.91	8,807.19	20.56	15.38	-9.04	682.02	1,603.21	1,634.28	1,598.34	35.95	45.464	
8,975.00	8,885.45	8,828.15	8,822.42	20.58	15.41	-10.41	681.68	1,603.64	1,614.54	1,578.55	35.99	44.862	
9,000.00	8,899.07	8,842.34	8,836.60	20.60	15.44	-11.96	681.36	1,604.04	1,594.05	1,558.02	36.03	44.246	
9,025.00	8,911.59	8,855.44	8,849.69	20.63	15.46	-13.79	681.07	1,604.42	1,572.87	1,536.81	36.06	43.618	
9,050.00	8,922.96	8,867.41	8,861.65	20.71	15.48	-15.96	680.80	1,604.76	1,551.07	1,514.98	36.09	42.980	
9,075.00	8,933.15	8,878.23	8,872.47	20.85	15.50	-18.61	680.55	1,605.07	1,528.70	1,492.59	36.11	42.333	
9,100.00	8,942.14	8,887.86	8,882.09	21.01	15.51	-21.89	680.34	1,605.34	1,505.83	1,469.70	36.13	41.677	
9,125.00	8,949.90	8,896.29	8,890.51	21.19	15.53	-26.05	680.15	1,605.58	1,482.52	1,446.37	36.14	41.016	
9,150.00	8,956.42	8,903.47	8,897.69	21.40	15.54	-31.43	679.99	1,605.79	1,458.83	1,422.68	36.15	40.350	
9,175.00	8,961.66	8,909.40	8,903.61	21.62	15.55	-38.50	679.86	1,605.96	1,434.84	1,398.68	36.16	39.680	
9,200.00	8,965.63	8,914.06	8,908.27	21.85	15.56	-47.81	679.75	1,606.09	1,410.61	1,374.45	36.16	39.008	
9,225.00	8,968.30	8,917.43	8,911.64	22.10	15.57	-59.82	679.67	1,606.19	1,386.20	1,350.04	36.16	38.336	
9,250.00	8,969.67	8,919.51	8,913.72	22.37	15.57	-74.29	679.63	1,606.25	1,361.70	1,325.55	36.15	37.665	
9,259.65	8,969.85	8,919.97	8,914.18	25.31	15.57	-80.27	679.62	1,606.26	1,352.22	1,311.70	40.53	33.364	
9,300.00	8,970.20	8,921.47	8,915.67	25.34	15.57	-80.59	679.58	1,606.30	1,312.64	1,272.10	40.55	32.372	
9,400.00	8,971.07	8,925.19	8,919.39	25.41	15.58	-81.41	679.50	1,606.41	1,214.75	1,174.16	40.59	29.926	
9,500.00	8,971.93	8,928.90	8,923.10	25.49	15.59	-82.22	679.42	1,606.51	1,117.21	1,076.58	40.63	27.496	
9,600.00	8,972.80	8,932.62	8,926.82	25.57	15.59	-83.04	679.33	1,606.62	1,020.14	979.48	40.66	25.087	
9,700.00	8,973.66	8,936.34	8,930.53	25.65	15.60	-83.87	679.25	1,606.73	923.68	882.99	40.69	22.700	
9,800.00	8,974.53	8,940.06	8,934.25	25.73	15.61	-84.69	679.17	1,606.83	828.04	787.34	40.71	20.341	
9,900.00	8,975.39	8,943.77	8,937.96	25.83	15.61	-85.52	679.08	1,606.94	733.55	692.84	40.71	18.017	
10,000.00	8,976.26	8,947.49	8,941.68	25.92	15.62	-86.36	679.00	1,607.04	640.71	600.00	40.71	15.739	
10,100.00	8,977.13	8,951.21	8,945.39	26.03	15.62	-87.19	678.92	1,607.15	550.36	509.67	40.69	13.525	
10,200.00	8,977.99	8,954.92	8,949.11	26.15	15.63	-88.03	678.83	1,607.26	463.96	423.28	40.68	11.406	
10,300.00	8,978.86	8,958.64	8,952.82	26.31	15.64	-88.86	678.75	1,607.36	384.18	343.47	40.70	9.438	
10,400.00	8,979.72	8,962.36	8,956.54	26.51	15.64	-89.70	678.67	1,607.47	316.06	275.16	40.90	7.728	
10,500.00	8,980.59	8,966.08	8,960.25	26.81	15.65	-90.54	678.58	1,607.57	268.65	227.14	41.50	6.473	
10,588.81	8,981.36	8,969.38	8,963.55	27.19	15.66	-91.29	678.51	1,607.67	253.56	211.15	42.41	5.979 CC, ES	
10,600.00	8,981.45	8,969.79	8,963.97	27.24	15.66	-91.38	678.50	1,607.68	253.81	211.28	42.53	5.968 SF	
10,700.00	8,982.32	8,973.51	8,967.68	27.78	15.66	-92.22	678.42	1,607.79	276.84	233.46	43.38	6.382	
10,800.00	8,983.19	8,977.23	8,971.40	28.39	15.67	-93.06	678.33	1,607.89	329.90	286.19	43.71	7.548	
10,900.00	8,984.05	8,980.95	8,975.11	29.05	15.68	-93.90	678.25	1,608.00	401.25	357.50	43.75	9.172	
11,000.00	8,984.92	8,984.66	8,978.83	29.75	15.68	-94.73	678.17	1,608.10	482.84	439.13	43.71	11.047	
11,100.00	8,985.78	8,988.38	8,982.54	30.49	15.69	-95.57	678.08	1,608.21	570.30	526.64	43.67	13.061	
11,200.00	8,986.65	8,992.10	8,986.26	31.25	15.70	-96.40	678.00	1,608.32	661.31	617.67	43.64	15.153	
11,300.00	8,987.52	8,995.82	8,989.97	32.03	15.70	-97.24	677.92	1,608.42	754.58	710.94	43.64	17.292	
11,400.00	8,988.38	8,999.53	8,993.69	32.84	15.71	-98.06	677.83	1,608.53	849.36	805.71	43.65	19.457	
11,500.00	8,989.25	9,003.25	8,997.40	33.66	15.72	-98.89	677.75	1,608.63	945.20	901.52	43.68	21.638	
11,600.00	8,990.11	9,006.97	9,001.12	34.50	15.72	-99.71	677.67	1,608.74	1,041.82	998.09	43.72	23.827	
11,700.00	8,990.98	9,010.68	9,004.83	35.36	15.73	-100.53	677.58	1,608.85	1,139.00	1,095.23	43.78	26.019	
11,800.00	8,991.84	9,014.40	9,008.55	36.23	15.74	-101.35	677.50	1,608.95	1,236.63	1,192.79	43.84	28.210	
11,900.00	8,992.71	9,018.12	9,012.26	37.12	15.74	-102.16	677.41	1,609.06	1,334.59	1,290.69	43.90	30.399	
12,000.00	8,993.58	9,021.84	9,015.98	38.02	15.75	-102.97	677.33	1,609.16	1,432.83	1,388.85	43.97	32.583	
12,100.00	8,994.44	9,025.55	9,019.69	38.93	15.75	-103.77	677.25	1,609.27	1,531.28	1,487.23	44.05	34.761	
12,200.00	8,995.31	9,029.27	9,023.41	39.85	15.76	-104.57	677.16	1,609.38	1,629.92	1,585.79	44.13	36.932	
12,300.00	8,996.17	9,032.99	9,027.12	40.78	15.77	-105.36	677.08	1,609.48	1,728.70	1,684.49	44.22	39.095	
12,400.00	8,997.04	9,036.71	9,030.84	41.72	15.77	-106.15	677.00	1,609.59	1,827.61	1,783.31	44.31	41.250	

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: OH
Reference Design: Plan #3

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
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
12,500.00	8,997.90	9,040.42	9,034.55	42.67	15.78	-106.93	676.91	1,609.69	1,926.63	1,882.23	44.40	43.397		
12,600.00	8,998.77	9,044.14	9,038.27	43.63	15.79	-107.70	676.83	1,609.80	2,025.73	1,981.24	44.49	45.533		
12,700.00	8,999.64	9,047.86	9,041.98	44.59	15.79	-108.47	676.75	1,609.91	2,124.91	2,080.33	44.58	47.661		
12,800.00	9,000.50	9,051.58	9,045.70	45.56	15.80	-109.24	676.66	1,610.01	2,224.16	2,179.48	44.68	49.778		
12,900.00	9,001.37	9,055.29	9,049.41	46.54	15.81	-109.99	676.58	1,610.12	2,323.47	2,278.69	44.78	51.885		
13,000.00	9,002.23	9,059.01	9,053.13	47.53	15.81	-110.74	676.50	1,610.22	2,422.83	2,377.95	44.88	53.982		
13,100.00	9,003.10	9,062.73	9,056.84	48.52	15.82	-111.49	676.41	1,610.33	2,522.23	2,477.25	44.98	56.069		
13,200.00	9,003.96	9,066.45	9,060.56	49.51	15.83	-112.22	676.33	1,610.44	2,621.68	2,576.59	45.09	58.145		
13,300.00	9,004.83	9,070.16	9,064.27	50.51	15.83	-112.95	676.25	1,610.54	2,721.15	2,675.96	45.19	60.210		
13,400.00	9,005.70	9,073.88	9,067.99	51.52	15.84	-113.67	676.16	1,610.65	2,820.67	2,775.36	45.30	62.265		
13,500.00	9,006.56	9,077.60	9,071.70	52.53	15.85	-114.39	676.08	1,610.75	2,920.21	2,874.80	45.41	64.309		
13,600.00	9,007.43	9,081.31	9,075.42	53.55	15.85	-115.09	676.00	1,610.86	3,019.77	2,974.25	45.52	66.341		
13,700.00	9,008.29	9,085.03	9,079.13	54.56	15.86	-115.79	675.91	1,610.97	3,119.36	3,073.73	45.63	68.363		
13,800.00	9,009.16	9,088.75	9,082.85	55.59	15.87	-116.48	675.83	1,611.07	3,218.97	3,173.23	45.74	70.374		
13,900.00	9,010.03	9,092.47	9,086.56	56.61	15.87	-117.17	675.75	1,611.18	3,318.60	3,272.75	45.85	72.374		
14,000.00	9,010.89	9,096.18	9,090.28	57.64	15.88	-117.84	675.66	1,611.28	3,418.25	3,372.28	45.97	74.362		
14,100.00	9,011.76	9,099.90	9,093.99	58.68	15.88	-118.51	675.58	1,611.39	3,517.91	3,471.83	46.08	76.340		
14,200.00	9,012.62	9,103.62	9,097.71	59.71	15.89	-119.17	675.50	1,611.50	3,617.59	3,571.39	46.20	78.306		
14,300.00	9,013.49	9,107.34	9,101.42	60.75	15.90	-119.82	675.41	1,611.60	3,717.28	3,670.97	46.31	80.261		
14,400.00	9,014.35	9,111.05	9,105.14	61.80	15.90	-120.46	675.33	1,611.71	3,816.99	3,770.55	46.43	82.205		
14,500.00	9,015.22	9,114.77	9,108.85	62.84	15.91	-121.10	675.25	1,611.82	3,916.70	3,870.15	46.55	84.138		
14,600.00	9,016.09	9,118.49	9,112.56	63.89	15.92	-121.73	675.16	1,611.92	4,016.43	3,969.76	46.67	86.060		
14,700.00	9,016.95	9,122.21	9,116.28	64.94	15.92	-122.35	675.08	1,612.03	4,116.16	4,069.37	46.79	87.971		
14,800.00	9,017.82	9,125.92	9,119.99	65.99	15.93	-122.96	675.00	1,612.13	4,215.91	4,169.00	46.91	89.870		
14,900.00	9,018.68	9,129.64	9,123.71	67.04	15.94	-123.56	674.91	1,612.24	4,315.66	4,268.63	47.03	91.758		
15,000.00	9,019.55	9,133.36	9,127.42	68.10	15.94	-124.16	674.83	1,612.35	4,415.43	4,368.27	47.16	93.636		
15,100.00	9,020.41	9,137.08	9,131.14	69.16	15.95	-124.75	674.74	1,612.45	4,515.20	4,467.92	47.28	95.502		
15,200.00	9,021.28	9,140.79	9,134.85	70.22	15.96	-125.33	674.66	1,612.56	4,614.97	4,567.57	47.40	97.357		
15,300.00	9,022.15	9,144.51	9,138.57	71.28	15.96	-125.90	674.58	1,612.66	4,714.76	4,667.23	47.53	99.201		
15,400.00	9,023.01	9,148.23	9,142.28	72.34	15.97	-126.47	674.49	1,612.77	4,814.55	4,766.89	47.65	101.034		
15,500.00	9,023.88	9,151.94	9,146.00	73.41	15.98	-127.02	674.41	1,612.88	4,914.34	4,866.56	47.78	102.856		
15,600.00	9,024.74	9,155.66	9,149.71	74.48	15.98	-127.57	674.33	1,612.98	5,014.14	4,966.24	47.91	104.667		
15,700.00	9,025.61	9,159.38	9,153.43	75.54	15.99	-128.11	674.24	1,613.09	5,113.95	5,065.91	48.03	106.468		
15,800.00	9,026.48	9,163.10	9,157.14	76.61	16.00	-128.65	674.16	1,613.19	5,213.76	5,165.60	48.16	108.257		
15,900.00	9,027.34	9,166.81	9,160.86	77.68	16.00	-129.17	674.08	1,613.30	5,313.57	5,265.28	48.29	110.035		
16,000.00	9,028.21	9,170.53	9,164.57	78.76	16.01	-129.69	673.99	1,613.41	5,413.39	5,364.97	48.42	111.803		
16,100.00	9,029.07	9,174.25	9,168.29	79.83	16.01	-130.20	673.91	1,613.51	5,513.21	5,464.66	48.55	113.560		
16,200.00	9,029.94	9,177.97	9,172.00	80.91	16.02	-130.71	673.83	1,613.62	5,613.04	5,564.36	48.68	115.306		
16,300.00	9,030.80	9,181.68	9,175.72	81.98	16.03	-131.21	673.74	1,613.72	5,712.87	5,664.06	48.81	117.041		
16,400.00	9,031.67	9,185.40	9,179.43	83.06	16.03	-131.70	673.66	1,613.83	5,812.71	5,763.76	48.94	118.766		
16,500.00	9,032.54	9,189.12	9,183.15	84.14	16.04	-132.18	673.58	1,613.94	5,912.54	5,863.47	49.07	120.480		
16,600.00	9,033.40	9,192.84	9,186.86	85.22	16.05	-132.66	673.49	1,614.04	6,012.38	5,963.18	49.21	122.184		
16,700.00	9,034.27	9,196.55	9,190.58	86.30	16.05	-133.13	673.41	1,614.15	6,112.23	6,062.89	49.34	123.877		
16,800.00	9,035.13	9,200.00	9,194.02	87.38	16.06	-133.55	673.33	1,614.25	6,212.07	6,162.60	49.47	125.561		
16,900.00	9,036.00	9,200.00	9,194.02	88.46	16.06	-133.55	673.33	1,614.25	6,311.92	6,262.32	49.60	127.259		
17,000.00	9,036.86	9,200.00	9,194.02	89.54	16.06	-133.55	673.33	1,614.25	6,411.78	6,362.05	49.72	128.947		
17,100.00	9,037.73	9,200.00	9,194.02	90.63	16.06	-133.55	673.33	1,614.25	6,511.64	6,461.79	49.85	130.625		
17,200.00	9,038.60	9,200.00	9,194.02	91.71	16.06	-133.55	673.33	1,614.25	6,611.50	6,561.52	49.98	132.293		
17,300.00	9,039.46	9,200.00	9,194.02	92.80	16.06	-133.55	673.33	1,614.25	6,711.37	6,661.27	50.10	133.951		
17,400.00	9,040.33	9,200.00	9,194.02	93.89	16.06	-133.55	673.33	1,614.25	6,811.24	6,761.01	50.23	135.599		
17,500.00	9,041.19	9,200.00	9,194.02	94.97	16.06	-133.55	673.33	1,614.25	6,911.12	6,860.76	50.36	137.238		
17,600.00	9,042.06	9,200.00	9,194.02	96.06	16.06	-133.55	673.33	1,614.25	7,010.99	6,960.51	50.49	138.867		

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: OH
 Reference Design: Plan #3

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	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
17,700.00	9,042.93	9,200.00	9,194.02	97.15	16.06	-133.55	673.33	1,614.25	7,110.88	7,060.26	50.62	140.486	
17,800.00	9,043.79	9,200.00	9,194.02	98.24	16.06	-133.55	673.33	1,614.25	7,210.76	7,160.02	50.75	142.096	
17,900.00	9,044.66	9,200.00	9,194.02	99.33	16.06	-133.55	673.33	1,614.25	7,310.65	7,259.77	50.88	143.696	
18,000.00	9,045.52	9,200.00	9,194.02	100.42	16.06	-133.55	673.33	1,614.25	7,410.54	7,359.54	51.01	145.286	
18,100.00	9,046.39	9,200.00	9,194.02	101.51	16.06	-133.55	673.33	1,614.25	7,510.44	7,459.30	51.14	146.867	
18,200.00	9,047.25	9,200.00	9,194.02	102.60	16.06	-133.55	673.33	1,614.25	7,610.33	7,559.06	51.27	148.439	
18,300.00	9,048.12	9,200.00	9,194.02	103.69	16.06	-133.55	673.33	1,614.25	7,710.23	7,658.83	51.40	150.001	
18,400.00	9,048.99	9,200.00	9,194.02	104.79	16.06	-133.55	673.33	1,614.25	7,810.14	7,758.60	51.53	151.554	
18,500.00	9,049.85	9,200.00	9,194.02	105.88	16.06	-133.55	673.33	1,614.25	7,910.04	7,858.37	51.67	153.098	
18,600.00	9,050.72	9,200.00	9,194.02	106.98	16.06	-133.55	673.33	1,614.25	8,009.95	7,958.15	51.80	154.632	
18,700.00	9,051.58	9,200.00	9,194.02	108.07	16.06	-133.55	673.33	1,614.25	8,109.86	8,057.92	51.93	156.157	
18,800.00	9,052.45	9,200.00	9,194.02	109.16	16.06	-133.55	673.33	1,614.25	8,209.77	8,157.70	52.07	157.673	
18,900.00	9,053.31	9,200.00	9,194.02	110.26	16.06	-133.55	673.33	1,614.25	8,309.68	8,257.48	52.20	159.179	
19,000.00	9,054.18	9,200.00	9,194.02	111.36	16.06	-133.55	673.33	1,614.25	8,409.60	8,357.26	52.34	160.677	
19,100.00	9,055.05	9,200.00	9,194.02	112.45	16.06	-133.55	673.33	1,614.25	8,509.52	8,457.04	52.47	162.166	
19,200.00	9,055.91	9,200.00	9,194.02	113.55	16.06	-133.55	673.33	1,614.25	8,609.44	8,556.83	52.61	163.645	
19,300.00	9,056.78	9,200.00	9,194.02	114.65	16.06	-133.55	673.33	1,614.25	8,709.36	8,656.61	52.75	165.116	
19,400.00	9,057.64	9,200.00	9,194.02	115.74	16.06	-133.55	673.33	1,614.25	8,809.28	8,756.40	52.88	166.578	
19,500.00	9,058.51	9,200.00	9,194.02	116.84	16.06	-133.55	673.33	1,614.25	8,909.21	8,856.19	53.02	168.031	
19,600.00	9,059.37	9,200.00	9,194.02	117.94	16.06	-133.55	673.33	1,614.25	9,009.13	8,955.98	53.16	169.475	
19,700.00	9,060.24	9,200.00	9,194.02	119.04	16.06	-133.55	673.33	1,614.25	9,109.06	9,055.77	53.30	170.911	
19,800.00	9,061.11	9,200.00	9,194.02	120.14	16.06	-133.55	673.33	1,614.25	9,208.99	9,155.56	53.44	172.338	
19,900.00	9,061.97	9,200.00	9,194.02	121.24	16.06	-133.55	673.33	1,614.25	9,308.92	9,255.35	53.57	173.756	
20,000.00	9,062.84	9,200.00	9,194.02	122.34	16.06	-133.55	673.33	1,614.25	9,408.86	9,355.14	53.71	175.166	
20,100.00	9,063.70	9,200.00	9,194.02	123.44	16.06	-133.55	673.33	1,614.25	9,508.79	9,454.94	53.85	176.567	
20,200.00	9,064.57	9,200.00	9,194.02	124.54	16.06	-133.55	673.33	1,614.25	9,608.73	9,554.73	53.99	177.960	
20,300.00	9,065.44	9,200.00	9,194.02	125.64	16.06	-133.55	673.33	1,614.25	9,708.66	9,654.53	54.13	179.344	
20,400.00	9,066.30	9,200.00	9,194.02	126.74	16.06	-133.55	673.33	1,614.25	9,808.60	9,754.33	54.27	180.720	
20,500.00	9,067.17	9,200.00	9,194.02	127.84	16.06	-133.55	673.33	1,614.25	9,908.54	9,854.13	54.42	182.088	

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: OH
Reference Design: Plan #3

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
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N-S (usft)	+E-W (usft)					
0.00	0.00	3,313.80	3,313.80	0.00	0.00	85.40	686.64	8,536.94	9,191.76				
100.00	100.00	3,313.80	3,313.80	0.09	0.00	85.40	686.64	8,536.94	9,155.92	9,154.40	1.52	6,024.083	
200.00	200.00	3,313.80	3,313.80	0.31	0.00	85.40	686.64	8,536.94	9,121.05	9,119.57	1.47	6,189.962	
300.00	300.00	3,313.80	3,313.80	0.54	0.00	85.40	686.64	8,536.94	9,087.14	9,085.67	1.46	6,213.077	
400.00	400.00	3,313.80	3,313.80	0.76	0.00	85.40	686.64	8,536.94	9,054.20	9,052.71	1.49	6,083.866	
500.00	500.00	3,313.80	3,313.80	0.99	0.00	85.40	686.64	8,536.94	9,022.26	9,020.71	1.55	5,824.551	
600.00	600.00	3,313.80	3,313.80	1.21	0.00	85.40	686.64	8,536.94	8,991.31	8,989.67	1.64	5,478.111	
700.00	700.00	3,313.80	3,313.80	1.43	0.00	85.40	686.64	8,536.94	8,961.37	8,959.61	1.76	5,090.301	
800.00	800.00	3,313.80	3,313.80	1.66	0.00	85.40	686.64	8,536.94	8,932.45	8,930.55	1.90	4,697.128	
900.00	900.00	3,313.80	3,313.80	1.88	0.00	85.40	686.64	8,536.94	8,904.56	8,902.50	2.06	4,321.362	
1,000.00	1,000.00	3,313.80	3,313.80	2.11	0.00	85.40	686.64	8,536.94	8,877.71	8,875.48	2.23	3,974.653	
1,100.00	1,100.00	3,313.80	3,313.80	2.33	0.00	85.40	686.64	8,536.94	8,851.91	8,849.49	2.42	3,661.213	
1,200.00	1,200.00	3,313.80	3,313.80	2.56	0.00	85.40	686.64	8,536.94	8,827.17	8,824.56	2.61	3,380.978	
1,300.00	1,300.00	3,313.80	3,313.80	2.78	0.00	85.40	686.64	8,536.94	8,803.49	8,800.68	2.81	3,131.749	
1,400.00	1,400.00	3,313.80	3,313.80	3.01	0.00	85.40	686.64	8,536.94	8,780.89	8,777.87	3.02	2,910.458	
1,500.00	1,500.00	3,313.80	3,313.80	3.23	0.00	85.40	686.64	8,536.94	8,759.37	8,756.14	3.23	2,713.857	
1,600.00	1,600.00	3,313.80	3,313.80	3.46	0.00	85.40	686.64	8,536.94	8,738.94	8,735.50	3.44	2,538.853	
1,700.00	1,700.00	3,313.80	3,313.80	3.68	0.00	85.40	686.64	8,536.94	8,719.61	8,715.95	3.66	2,382.648	
1,800.00	1,800.00	3,313.80	3,313.80	3.91	0.00	85.40	686.64	8,536.94	8,701.39	8,697.51	3.88	2,242.786	
1,900.00	1,900.00	3,313.80	3,313.80	4.13	0.00	85.40	686.64	8,536.94	8,684.28	8,680.18	4.10	2,117.138	
2,000.00	2,000.00	3,313.80	3,313.80	4.36	0.00	85.40	686.64	8,536.94	8,668.29	8,663.96	4.33	2,003.881	
2,100.00	2,100.00	3,313.80	3,313.80	4.58	0.00	85.40	686.64	8,536.94	8,653.42	8,648.87	4.55	1,901.453	
2,200.00	2,200.00	3,313.80	3,313.80	4.81	0.00	85.40	686.64	8,536.94	8,639.69	8,634.92	4.78	1,808.519	
2,300.00	2,300.00	3,313.80	3,313.80	5.03	0.00	85.40	686.64	8,536.94	8,627.10	8,622.09	5.00	1,723.940	
2,400.00	2,400.00	3,313.80	3,313.80	5.26	0.00	85.40	686.64	8,536.94	8,615.65	8,610.42	5.23	1,646.739	
2,500.00	2,500.00	3,313.80	3,313.80	5.48	0.00	85.40	686.64	8,536.94	8,605.34	8,599.88	5.46	1,576.076	
2,600.00	2,600.00	3,313.80	3,313.80	5.71	0.00	85.40	686.64	8,536.94	8,596.19	8,590.50	5.69	1,511.230	
2,700.00	2,700.00	3,313.80	3,313.80	5.93	0.00	85.40	686.64	8,536.94	8,588.19	8,582.27	5.92	1,451.575	
2,800.00	2,800.00	3,313.80	3,313.80	6.15	0.00	85.40	686.64	8,536.94	8,581.35	8,575.20	6.14	1,396.569	
2,900.00	2,900.00	3,313.80	3,313.80	6.38	0.00	85.40	686.64	8,536.94	8,575.67	8,569.30	6.37	1,345.740	
3,000.00	3,000.00	3,313.80	3,313.80	6.60	0.00	85.40	686.64	8,536.94	8,571.15	8,564.55	6.60	1,298.677	
3,100.00	3,100.00	3,313.80	3,313.80	6.83	0.00	85.40	686.64	8,536.94	8,567.80	8,560.97	6.83	1,255.017	
3,200.00	3,200.00	3,313.80	3,313.80	7.05	0.00	85.40	686.64	8,536.94	8,565.61	8,558.56	7.05	1,214.444	
3,300.00	3,300.00	3,313.80	3,313.80	7.28	0.00	85.40	686.64	8,536.94	8,564.59	8,557.31	7.28	1,176.677	
3,400.00	3,400.00	3,423.56	3,423.55	7.50	0.12	85.39	687.83	8,536.48	8,564.28	8,556.66	7.62	1,123.681	
3,500.00	3,500.00	3,525.78	3,525.75	7.73	0.30	85.38	689.56	8,535.77	8,563.72	8,555.69	8.03	1,066.865	
3,600.00	3,600.00	3,629.67	3,629.63	7.95	0.48	85.37	691.33	8,535.00	8,563.12	8,554.69	8.44	1,015.166	
3,693.25	3,693.25	3,722.47	3,722.41	8.16	0.65	112.20	692.97	8,534.27	8,562.81	8,554.00	8.81	972.263	
3,700.00	3,700.00	3,728.00	3,727.94	8.18	0.66	112.20	693.07	8,534.23	8,562.81	8,553.98	8.83	969.528	
3,800.00	3,799.96	3,840.45	3,840.36	8.40	0.86	112.20	695.27	8,533.45	8,563.28	8,554.03	9.25	925.552	
3,900.00	3,899.86	4,008.19	4,008.04	8.62	1.16	112.22	698.92	8,531.05	8,563.60	8,553.83	9.77	876.501	
4,000.00	3,999.68	4,111.95	4,111.77	8.84	1.34	112.23	701.32	8,529.23	8,564.36	8,554.18	10.18	841.650	
4,100.00	4,099.37	4,219.36	4,219.12	9.07	1.53	112.25	703.99	8,527.26	8,565.71	8,555.12	10.59	808.915	
4,133.72	4,132.95	4,256.48	4,256.22	9.15	1.60	112.26	704.97	8,526.56	8,566.29	8,555.56	10.73	798.297	
4,200.00	4,198.94	4,327.11	4,326.81	9.29	1.73	112.29	708.91	8,525.16	8,567.47	8,556.47	11.01	778.467	
4,300.00	4,298.51	4,424.03	4,423.67	9.52	1.90	112.33	709.71	8,523.22	8,569.24	8,557.83	11.41	751.341	
4,400.00	4,398.07	4,500.00	4,499.59	9.75	2.04	112.35	712.07	8,521.77	8,571.14	8,559.37	11.77	728.229	
4,500.00	4,497.64	4,587.17	4,586.70	9.98	2.20	112.38	714.83	8,520.29	8,573.24	8,561.09	12.16	705.234	
4,600.00	4,597.21	4,692.61	4,692.08	10.22	2.39	112.42	718.21	8,518.63	8,575.48	8,562.90	12.58	681.779	
4,700.00	4,696.77	4,805.18	4,804.57	10.45	2.60	112.46	722.00	8,516.69	8,577.57	8,564.56	13.01	659.080	
4,800.00	4,796.34	4,900.00	4,899.32	10.69	2.77	112.49	725.19	8,515.05	8,579.66	8,566.24	13.42	639.309	
4,900.00	4,895.91	5,048.06	5,047.24	10.93	3.04	112.54	730.60	8,511.94	8,581.39	8,567.46	13.92	616.277	

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: OH
Reference Design: Plan #3

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	
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)		Separation Factor
5,000.00	4,995.47	5,157.93	5,157.01	11.17	3.24	112.58	734.66	8,509.34	8,582.88	8,568.52	14.36	597.652	
5,100.00	5,095.04	5,296.70	5,295.64	11.41	3.50	112.62	739.89	8,505.69	8,584.13	8,569.27	14.85	578.019	
5,200.00	5,194.61	5,407.67	5,406.47	11.65	3.71	112.65	744.31	8,502.40	8,585.05	8,569.76	15.29	561.397	
5,300.00	5,294.17	5,575.50	5,574.03	11.89	4.02	112.69	751.73	8,496.49	8,585.41	8,569.57	15.84	542.019	
5,400.00	5,393.74	5,731.84	5,730.08	12.13	4.31	112.74	758.56	8,489.95	8,585.15	8,568.78	16.37	524.584	
5,500.00	5,493.31	5,965.89	5,963.56	12.38	4.75	112.80	768.81	8,477.30	8,583.54	8,566.51	17.03	504.032	
5,600.00	5,592.87	6,091.78	6,089.09	12.63	4.99	112.83	774.27	8,469.51	8,581.29	8,563.79	17.50	490.379	
5,700.00	5,692.44	6,187.47	6,184.50	12.87	5.17	112.85	778.31	8,463.42	8,578.84	8,560.92	17.92	478.855	
5,800.00	5,792.00	6,301.27	6,297.97	13.12	5.38	112.88	783.15	8,456.14	8,576.36	8,558.00	18.36	467.013	
5,900.00	5,891.57	6,411.94	6,408.32	13.37	5.59	112.92	787.22	8,448.91	8,573.72	8,554.92	18.81	455.904	
6,000.00	5,991.14	6,511.65	6,507.78	13.62	5.77	112.95	790.09	8,442.43	8,571.05	8,551.83	19.23	445.793	
6,100.00	6,090.70	6,640.69	6,636.47	13.87	6.00	113.00	793.64	8,433.76	8,568.15	8,548.45	19.70	434.988	
6,200.00	6,190.27	6,700.00	6,695.63	14.12	6.10	113.02	795.06	8,429.69	8,565.21	8,545.16	20.05	427.217	
6,300.00	6,289.84	6,776.14	6,771.60	14.37	6.24	113.05	796.53	8,424.78	8,562.60	8,542.17	20.43	419.150	
6,400.00	6,389.40	6,842.15	6,837.49	14.62	6.35	113.08	797.52	8,420.98	8,560.56	8,539.77	20.79	411.741	
6,500.00	6,488.97	6,949.79	6,944.95	14.87	6.54	113.13	799.08	8,415.01	8,558.78	8,537.56	21.22	403.247	
6,600.00	6,588.54	7,106.34	7,101.19	15.12	6.82	113.20	801.32	8,405.48	8,556.43	8,534.69	21.74	393.546	
6,700.00	6,688.10	7,228.76	7,223.34	15.38	7.03	113.25	803.41	8,397.48	8,553.68	8,531.47	22.20	385.259	
6,800.00	6,787.67	7,300.00	7,294.41	15.63	7.16	113.28	804.56	8,392.70	8,550.81	8,528.23	22.58	378.752	
6,900.00	6,887.24	7,374.74	7,368.99	15.88	7.29	113.32	805.42	8,387.94	8,548.25	8,525.30	22.96	372.378	
7,000.00	6,986.80	7,470.37	7,464.45	16.14	7.45	113.37	805.99	8,382.38	8,546.16	8,522.79	23.37	365.677	
7,100.00	7,086.37	7,597.50	7,591.36	16.39	7.67	113.43	806.45	8,374.67	8,543.81	8,519.97	23.84	358.396	
7,200.00	7,185.93	7,700.00	7,693.64	16.65	7.84	113.50	805.67	8,368.09	8,541.04	8,516.77	24.27	351.974	
7,300.00	7,285.50	7,775.68	7,769.16	16.90	7.97	113.55	804.22	8,363.38	8,538.47	8,513.82	24.65	346.405	
7,400.00	7,385.07	7,800.00	7,793.43	17.16	8.01	113.56	803.66	8,362.00	8,536.60	8,511.66	24.94	342.218	
7,500.00	7,484.63	7,852.01	7,845.35	17.42	8.10	113.60	802.37	8,359.42	8,535.38	8,510.09	25.29	337.513	
7,600.00	7,584.20	7,900.00	7,893.30	17.67	8.18	113.64	801.05	8,357.60	8,535.02	8,509.39	25.63	333.052	
7,614.36	7,598.50	7,900.00	7,893.30	17.71	8.18	113.64	801.05	8,357.60	8,535.01	8,509.34	25.66	332.573	
7,700.00	7,683.77	7,927.27	7,920.54	17.93	8.23	113.66	800.28	8,356.76	8,535.34	8,509.41	25.93	329.171	
7,800.00	7,783.33	8,000.00	7,993.22	18.19	8.35	113.71	798.30	8,355.00	8,536.42	8,510.11	26.31	324.445	
7,900.00	7,882.90	8,000.00	7,993.22	18.45	8.35	113.71	798.30	8,355.00	8,538.02	8,511.45	26.57	321.362	
8,000.00	7,982.47	8,067.68	8,060.88	18.70	8.47	113.76	796.66	8,353.97	8,540.21	8,513.27	26.94	316.998	
8,100.00	8,082.03	8,100.00	8,093.19	18.96	8.52	113.78	795.96	8,353.69	8,543.12	8,515.86	27.25	313.463	
8,200.00	8,181.60	8,162.45	8,155.63	19.22	8.63	113.82	795.04	8,353.51	8,546.59	8,518.97	27.62	309.478	
8,300.00	8,281.17	8,200.00	8,193.18	19.48	8.70	113.85	794.81	8,353.62	8,550.70	8,522.77	27.94	306.066	
8,400.00	8,380.73	8,241.12	8,234.30	19.74	8.77	113.87	794.63	8,354.03	8,555.53	8,527.26	28.26	302.705	
8,493.72	8,474.04	8,300.00	8,293.16	19.98	8.87	113.91	794.10	8,355.30	8,560.88	8,532.28	28.60	299.308	
8,500.00	8,480.30	8,300.00	8,293.16	20.00	8.87	106.26	794.10	8,355.30	8,561.20	8,532.58	28.62	299.161	
8,525.00	8,505.21	8,300.00	8,293.16	20.05	8.87	71.42	794.10	8,355.30	8,561.68	8,533.01	28.67	298.602	
8,550.00	8,530.09	8,300.00	8,293.16	20.10	8.87	44.86	794.10	8,355.30	8,560.92	8,532.20	28.73	298.005	
8,575.00	8,554.87	8,300.00	8,293.16	20.15	8.87	30.22	794.10	8,355.30	8,558.94	8,530.16	28.78	297.375	
8,600.00	8,579.49	8,300.00	8,293.16	20.19	8.87	21.99	794.10	8,355.30	8,555.72	8,526.89	28.84	296.712	
8,625.00	8,603.87	8,325.31	8,318.46	20.24	8.91	16.94	793.79	8,356.05	8,551.22	8,522.29	28.93	295.601	
8,650.00	8,627.95	8,337.64	8,330.78	20.27	8.93	13.55	793.63	8,356.44	8,545.48	8,516.48	29.00	294.679	
8,675.00	8,651.66	8,349.81	8,342.95	20.31	8.95	11.14	793.47	8,356.85	8,538.52	8,509.45	29.07	293.735	
8,700.00	8,674.94	8,361.80	8,354.92	20.35	8.97	9.34	793.31	8,357.27	8,530.34	8,501.20	29.14	292.773	
8,725.00	8,697.72	8,373.56	8,366.68	20.38	8.99	7.93	793.15	8,357.69	8,520.97	8,491.77	29.20	291.794	
8,750.00	8,719.95	8,437.42	8,430.48	20.41	9.10	6.83	792.00	8,359.94	8,510.40	8,481.05	29.35	289.959	
8,775.00	8,741.56	8,459.37	8,452.42	20.43	9.14	5.90	791.54	8,360.64	8,498.58	8,469.15	29.43	288.779	
8,800.00	8,762.49	8,480.68	8,473.72	20.46	9.18	5.11	791.09	8,361.33	8,485.61	8,456.11	29.51	287.597	
8,825.00	8,782.88	8,501.30	8,494.32	20.48	9.21	4.42	790.65	8,361.99	8,471.55	8,441.98	29.58	286.415	
8,850.00	8,802.08	8,521.16	8,514.16	20.50	9.25	3.81	790.23	8,362.64	8,456.43	8,426.79	29.65	285.237	

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: OH
Reference Design: Plan #3

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:
Survey Program: 3400-ISCWSA-GYRO-3													Offset Well Error:
Reference	Offset	Semi Major Axis		Distance		Warning							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
8,875.00	8,820.64	8,540.21	8,533.19	20.52	9.28	3.25	789.83	8,363.25	8,440.29	8,410.58	29.71	284.064	
8,900.00	8,838.30	8,558.39	8,551.37	20.53	9.31	2.72	789.44	8,363.84	8,423.18	8,393.40	29.77	282.899	
8,925.00	8,855.02	8,575.67	8,568.63	20.55	9.34	2.21	789.08	8,364.39	8,405.13	8,375.30	29.83	281.745	
8,950.00	8,870.75	8,591.98	8,584.93	20.56	9.37	1.71	788.73	8,364.92	8,386.21	8,356.33	29.89	280.603	
8,975.00	8,885.45	8,607.30	8,600.23	20.58	9.40	1.19	788.41	8,365.41	8,366.46	8,336.53	29.94	279.477	
9,000.00	8,899.07	8,621.56	8,614.49	20.60	9.42	0.65	788.11	8,365.87	8,345.94	8,315.96	29.98	278.368	
9,025.00	8,911.59	8,634.74	8,627.66	20.63	9.45	0.05	787.83	8,366.30	8,324.71	8,294.68	30.02	277.279	
9,050.00	8,922.96	8,646.80	8,639.71	20.71	9.47	-0.62	787.57	8,366.69	8,302.81	8,272.75	30.06	276.212	
9,075.00	8,933.15	8,657.70	8,650.60	20.85	9.49	-1.42	787.34	8,367.04	8,280.32	8,250.23	30.09	275.168	
9,100.00	8,942.14	8,667.42	8,660.32	21.01	9.50	-2.39	787.14	8,367.35	8,257.29	8,227.17	30.12	274.149	
9,125.00	8,949.90	8,675.93	8,668.82	21.19	9.52	-3.64	786.96	8,367.63	8,233.79	8,203.64	30.14	273.157	
9,150.00	8,956.42	8,683.21	8,676.09	21.40	9.53	-5.33	786.80	8,367.86	8,209.87	8,179.71	30.16	272.193	
9,175.00	8,961.66	8,689.23	8,682.11	21.62	9.54	-7.79	786.68	8,368.05	8,185.62	8,155.44	30.18	271.257	
9,200.00	8,965.63	8,693.98	8,686.85	21.85	9.55	-11.71	786.58	8,368.21	8,161.09	8,130.90	30.19	270.352	
9,225.00	8,968.30	8,697.45	8,690.32	22.10	9.56	-18.93	786.50	8,368.32	8,136.34	8,106.15	30.19	269.477	
9,250.00	8,969.67	8,699.62	8,692.49	22.37	9.56	-35.54	786.46	8,368.39	8,111.46	8,081.26	30.20	268.633	
9,259.65	8,969.85	8,700.11	8,692.98	25.31	9.56	-48.18	786.45	8,368.40	8,101.83	8,067.06	34.77	233.029	
9,300.00	8,970.20	8,701.76	8,694.63	25.34	9.57	-48.32	786.41	8,368.46	8,061.55	8,026.75	34.80	231.656	
9,400.00	8,971.07	8,705.85	8,698.71	25.41	9.57	-48.68	786.32	8,368.59	7,961.74	7,926.86	34.88	228.261	
9,500.00	8,971.93	8,709.94	8,702.80	25.49	9.58	-49.04	786.24	8,368.72	7,861.92	7,826.96	34.96	224.874	
9,600.00	8,972.80	8,714.03	8,706.89	25.57	9.59	-49.40	786.15	8,368.85	7,762.11	7,727.06	35.04	221.495	
9,700.00	8,973.66	8,718.12	8,710.97	25.65	9.59	-49.77	786.06	8,368.99	7,662.30	7,627.17	35.13	218.126	
9,800.00	8,974.53	8,722.21	8,715.06	25.73	9.60	-50.15	785.98	8,369.12	7,562.49	7,527.27	35.21	214.765	
9,900.00	8,975.39	8,726.30	8,719.14	25.83	9.61	-50.52	785.89	8,369.25	7,462.68	7,427.38	35.30	211.414	
10,000.00	8,976.26	8,730.38	8,723.23	25.92	9.62	-50.90	785.81	8,369.38	7,362.88	7,327.49	35.39	208.073	
10,100.00	8,977.13	8,734.47	8,727.32	26.03	9.62	-51.29	785.72	8,369.51	7,263.08	7,227.61	35.47	204.741	
10,200.00	8,977.99	8,738.56	8,731.40	26.15	9.63	-51.68	785.63	8,369.64	7,163.29	7,127.72	35.56	201.420	
10,300.00	8,978.86	8,742.65	8,735.49	26.31	9.64	-52.08	785.55	8,369.78	7,063.49	7,027.84	35.65	198.109	
10,400.00	8,979.72	8,746.74	8,739.58	26.51	9.64	-52.48	785.46	8,369.91	6,963.71	6,927.96	35.75	194.809	
10,500.00	8,980.59	8,750.83	8,743.66	26.81	9.65	-52.88	785.37	8,370.04	6,863.92	6,828.08	35.84	191.520	
10,600.00	8,981.45	8,754.92	8,747.75	27.24	9.66	-53.29	785.29	8,370.17	6,764.14	6,728.21	35.93	188.242	
10,700.00	8,982.32	8,759.01	8,751.83	27.78	9.67	-53.70	785.20	8,370.30	6,664.36	6,628.33	36.03	184.975	
10,800.00	8,983.19	8,763.10	8,755.92	28.39	9.67	-54.12	785.11	8,370.44	6,564.59	6,528.46	36.12	181.719	
10,900.00	8,984.05	8,767.19	8,760.01	29.05	9.68	-54.54	785.03	8,370.57	6,464.82	6,428.60	36.22	178.476	
11,000.00	8,984.92	8,771.28	8,764.09	29.75	9.69	-54.97	784.94	8,370.70	6,365.06	6,328.74	36.32	175.244	
11,100.00	8,985.78	8,775.37	8,768.18	30.49	9.69	-55.40	784.85	8,370.83	6,265.30	6,228.88	36.42	172.024	
11,200.00	8,986.65	8,779.45	8,772.26	31.25	9.70	-55.84	784.77	8,370.96	6,165.55	6,129.02	36.52	168.817	
11,300.00	8,987.52	8,783.54	8,776.35	32.03	9.71	-56.28	784.68	8,371.10	6,065.80	6,029.17	36.62	165.622	
11,400.00	8,988.38	8,787.63	8,780.44	32.84	9.72	-56.73	784.59	8,371.23	5,966.05	5,929.33	36.73	162.439	
11,500.00	8,989.25	8,791.72	8,784.52	33.66	9.72	-57.18	784.51	8,371.36	5,866.32	5,829.48	36.83	159.269	
11,600.00	8,990.11	8,795.81	8,788.61	34.50	9.73	-57.63	784.42	8,371.49	5,766.59	5,729.65	36.94	156.112	
11,700.00	8,990.98	8,799.90	8,792.70	35.36	9.74	-58.09	784.33	8,371.62	5,666.86	5,629.82	37.05	152.968	
11,800.00	8,991.84	8,803.99	8,796.78	36.23	9.74	-58.56	784.25	8,371.75	5,567.15	5,529.99	37.15	149.836	
11,900.00	8,992.71	8,808.08	8,800.87	37.12	9.75	-59.03	784.16	8,371.89	5,467.44	5,430.17	37.26	146.718	
12,000.00	8,993.58	8,812.17	8,804.95	38.02	9.76	-59.51	784.08	8,372.02	5,367.73	5,330.36	37.38	143.613	
12,100.00	8,994.44	8,816.26	8,809.04	38.93	9.77	-59.99	783.99	8,372.15	5,268.04	5,230.55	37.49	140.522	
12,200.00	8,995.31	8,820.35	8,813.13	39.85	9.77	-60.47	783.90	8,372.28	5,168.35	5,130.75	37.60	137.444	
12,300.00	8,996.17	8,824.44	8,817.21	40.78	9.78	-60.96	783.82	8,372.41	5,068.68	5,030.96	37.72	134.379	
12,400.00	8,997.04	8,828.52	8,821.30	41.72	9.79	-61.46	783.73	8,372.55	4,969.01	4,931.17	37.84	131.328	
12,500.00	8,997.90	8,832.61	8,825.38	42.67	9.79	-61.96	783.64	8,372.68	4,869.35	4,831.40	37.96	128.290	
12,600.00	8,998.77	8,836.70	8,829.47	43.63	9.80	-62.46	783.56	8,372.81	4,769.71	4,731.63	38.08	125.266	
12,700.00	8,999.64	8,840.79	8,833.56	44.59	9.81	-62.97	783.47	8,372.94	4,670.07	4,631.88	38.20	122.255	

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: OH
Reference Design: Plan #3

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
Reference	Offset	Semi Major Axis		Distance		Warning							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,800.00	9,000.50	8,844.88	8,837.64	45.56	9.82	-63.49	783.38	8,373.07	4,570.45	4,532.13	38.32	119.259	
12,900.00	9,001.37	8,848.97	8,841.73	46.54	9.82	-64.01	783.30	8,373.20	4,470.84	4,432.39	38.45	116.276	
13,000.00	9,002.23	8,853.06	8,845.82	47.53	9.83	-64.53	783.21	8,373.34	4,371.25	4,332.67	38.58	113.306	
13,100.00	9,003.10	8,857.15	8,849.90	48.52	9.84	-65.06	783.12	8,373.47	4,271.67	4,232.98	38.71	110.351	
13,200.00	9,003.96	8,861.24	8,853.99	49.51	9.84	-65.60	783.04	8,373.60	4,172.11	4,133.26	38.84	107.409	
13,300.00	9,004.83	8,865.33	8,858.07	50.51	9.85	-66.13	782.95	8,373.73	4,072.56	4,033.58	38.98	104.480	
13,400.00	9,005.70	8,869.42	8,862.16	51.52	9.86	-66.68	782.86	8,373.86	3,973.03	3,933.91	39.12	101.565	
13,500.00	9,006.56	8,873.51	8,866.25	52.53	9.87	-67.23	782.78	8,374.00	3,873.53	3,834.27	39.26	98.664	
13,600.00	9,007.43	8,877.60	8,870.33	53.55	9.87	-67.78	782.69	8,374.13	3,774.04	3,734.63	39.40	95.776	
13,700.00	9,008.29	8,881.68	8,874.42	54.56	9.88	-68.34	782.60	8,374.26	3,674.58	3,635.02	39.55	92.901	
13,800.00	9,009.16	8,885.77	8,878.50	55.59	9.89	-68.90	782.52	8,374.39	3,575.14	3,535.43	39.71	90.040	
13,900.00	9,010.03	8,889.86	8,882.59	56.61	9.89	-69.47	782.43	8,374.52	3,475.73	3,435.87	39.86	87.191	
14,000.00	9,010.89	8,893.95	8,886.68	57.64	9.90	-70.04	782.35	8,374.65	3,376.35	3,336.32	40.02	84.356	
14,100.00	9,011.76	8,898.04	8,890.76	58.68	9.91	-70.62	782.26	8,374.79	3,277.00	3,236.81	40.19	81.534	
14,200.00	9,012.62	8,902.13	8,894.85	59.71	9.92	-71.20	782.17	8,374.92	3,177.69	3,137.33	40.37	78.724	
14,300.00	9,013.49	8,906.22	8,898.94	60.75	9.92	-71.78	782.09	8,375.05	3,078.42	3,037.87	40.54	75.926	
14,400.00	9,014.35	8,910.31	8,903.02	61.80	9.93	-72.37	782.00	8,375.18	2,979.19	2,938.46	40.73	73.141	
14,500.00	9,015.22	8,914.40	8,907.11	62.84	9.94	-72.97	781.91	8,375.31	2,880.01	2,839.08	40.93	70.368	
14,600.00	9,016.09	8,918.49	8,911.19	63.89	9.94	-73.56	781.83	8,375.45	2,780.88	2,739.74	41.13	67.607	
14,700.00	9,016.95	8,922.58	8,915.28	64.94	9.95	-74.17	781.74	8,375.58	2,681.81	2,640.46	41.35	64.857	
14,800.00	9,017.82	8,926.67	8,919.37	65.99	9.96	-74.77	781.65	8,375.71	2,582.80	2,541.22	41.58	62.118	
14,900.00	9,018.68	8,930.75	8,923.45	67.04	9.97	-75.38	781.57	8,375.84	2,483.87	2,442.04	41.82	59.390	
15,000.00	9,019.55	8,934.84	8,927.54	68.10	9.97	-75.99	781.48	8,375.97	2,385.02	2,342.93	42.08	56.672	
15,100.00	9,020.41	8,938.93	8,931.62	69.16	9.98	-76.61	781.39	8,376.11	2,286.26	2,243.89	42.37	53.964	
15,200.00	9,021.28	8,943.02	8,935.71	70.22	9.99	-77.23	781.31	8,376.24	2,187.61	2,144.93	42.67	51.266	
15,300.00	9,022.15	8,947.11	8,939.80	71.28	9.99	-77.85	781.22	8,376.37	2,089.07	2,046.07	43.00	48.578	
15,400.00	9,023.01	8,951.20	8,943.88	72.34	10.00	-78.48	781.13	8,376.50	1,990.68	1,947.31	43.37	45.898	
15,500.00	9,023.88	8,955.29	8,947.97	73.41	10.01	-79.11	781.05	8,376.63	1,892.44	1,848.66	43.78	43.227	
15,600.00	9,024.74	8,959.38	8,952.05	74.48	10.02	-79.74	780.96	8,376.76	1,794.39	1,750.16	44.24	40.584	
15,700.00	9,025.61	8,963.47	8,956.14	75.54	10.02	-80.38	780.87	8,376.90	1,696.56	1,651.81	44.75	37.910	
15,800.00	9,026.48	8,967.56	8,960.23	76.61	10.03	-81.02	780.79	8,377.03	1,598.99	1,553.64	45.34	35.285	
15,900.00	9,027.34	8,971.65	8,964.31	77.68	10.04	-81.66	780.70	8,377.16	1,501.72	1,455.70	46.02	32.630	
16,000.00	9,028.21	8,975.74	8,968.40	78.76	10.04	-82.30	780.62	8,377.29	1,404.83	1,358.01	46.82	30.005	
16,100.00	9,029.07	8,979.82	8,972.49	79.83	10.05	-82.95	780.53	8,377.42	1,308.39	1,260.62	47.76	27.394	
16,200.00	9,029.94	8,983.91	8,976.57	80.91	10.06	-83.60	780.44	8,377.55	1,212.51	1,163.62	48.89	24.802	
16,300.00	9,030.80	8,988.00	8,980.66	81.98	10.07	-84.24	780.36	8,377.69	1,117.34	1,067.08	50.26	22.233	
16,400.00	9,031.67	8,992.09	8,984.74	83.06	10.07	-84.90	780.27	8,377.82	1,023.08	971.14	51.94	19.698	
16,500.00	9,032.54	8,996.18	8,988.83	84.14	10.08	-85.55	780.18	8,377.95	930.00	875.96	54.03	17.211	
16,600.00	9,033.40	9,000.27	8,992.92	85.22	10.09	-86.20	780.10	8,378.08	838.49	781.81	56.68	14.793	
16,700.00	9,034.27	9,004.36	8,997.00	86.30	10.09	-86.86	780.01	8,378.21	749.13	689.08	60.06	12.473	
16,800.00	9,035.13	9,008.45	9,001.09	87.38	10.10	-87.52	779.92	8,378.35	662.80	598.40	64.41	10.291	
16,900.00	9,036.00	9,012.54	9,005.17	88.46	10.11	-88.18	779.84	8,378.48	580.84	510.83	70.01	8.297	
17,000.00	9,036.86	9,016.63	9,009.26	89.54	10.12	-88.83	779.75	8,378.61	505.39	428.28	77.11	6.554	
17,100.00	9,037.73	9,020.72	9,013.35	90.63	10.12	-89.49	779.66	8,378.74	439.80	354.15	85.65	5.135	
17,200.00	9,038.60	9,024.81	9,017.43	91.71	10.13	-90.15	779.58	8,378.87	389.09	294.42	94.67	4.110	
17,300.00	9,039.46	9,028.89	9,021.52	92.80	10.14	-90.81	779.49	8,379.01	359.62	257.98	101.64	3.538	
17,360.50	9,039.99	9,031.37	9,023.99	93.46	10.14	-91.21	779.44	8,379.09	354.51	251.05	103.46	3.427 CC, ES, SF	
17,400.00	9,040.33	9,032.98	9,025.61	93.89	10.14	-91.47	779.40	8,379.14	356.70	253.29	103.40	3.450	
17,500.00	9,041.19	9,037.07	9,029.69	94.97	10.15	-92.13	779.32	8,379.27	380.93	281.60	99.33	3.835	
17,600.00	9,042.06	9,041.16	9,033.78	96.06	10.16	-92.79	779.23	8,379.40	427.72	335.71	92.01	4.649	
17,700.00	9,042.93	9,045.25	9,037.86	97.15	10.17	-93.45	779.14	8,379.53	490.66	406.39	84.27	5.823	
17,800.00	9,043.79	9,049.34	9,041.95	98.24	10.17	-94.11	779.06	8,379.66	564.37	486.88	77.49	7.283	

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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Reference Well: 12H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #3

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
Reference	Offset		Semi Major Axis		Distance		Minimum		Separation		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
17,900.00	9,044.66	9,053.43	9,046.04	99.33	10.18	-94.77	778.97	8,379.80	645.18	573.17	72.00	8.961	
18,000.00	9,045.52	9,057.52	9,050.12	100.42	10.19	-95.43	778.89	8,379.93	730.72	663.05	67.67	10.798	
18,100.00	9,046.39	9,061.61	9,054.21	101.51	10.19	-96.08	778.80	8,380.06	819.53	755.24	64.29	12.748	
18,200.00	9,047.25	9,065.70	9,058.29	102.60	10.20	-96.74	778.71	8,380.19	910.64	849.01	61.63	14.776	
18,300.00	9,048.12	9,069.79	9,062.38	103.69	10.21	-97.39	778.63	8,380.32	1,003.43	943.90	59.53	16.855	
18,400.00	9,048.99	9,073.88	9,066.47	104.79	10.22	-98.04	778.54	8,380.46	1,097.47	1,039.60	57.86	18.967	
18,500.00	9,049.85	9,077.97	9,070.55	105.88	10.22	-98.69	778.45	8,380.59	1,192.46	1,135.94	56.52	21.096	
18,600.00	9,050.72	9,082.05	9,074.64	106.98	10.23	-99.34	778.37	8,380.72	1,288.21	1,232.76	55.44	23.234	
18,700.00	9,051.58	9,086.14	9,078.73	108.07	10.24	-99.99	778.28	8,380.85	1,384.54	1,329.97	54.57	25.373	
18,800.00	9,052.45	9,090.23	9,082.81	109.16	10.24	-100.63	778.19	8,380.98	1,481.34	1,427.49	53.85	27.507	
18,900.00	9,053.31	9,094.32	9,086.90	110.26	10.25	-101.27	778.11	8,381.12	1,578.54	1,525.27	53.27	29.634	
19,000.00	9,054.18	9,098.41	9,090.98	111.36	10.26	-101.91	778.02	8,381.25	1,676.05	1,623.26	52.79	31.750	
19,100.00	9,055.05	9,102.50	9,095.07	112.45	10.27	-102.55	777.93	8,381.38	1,773.83	1,721.44	52.40	33.855	
19,200.00	9,055.91	9,106.59	9,099.16	113.55	10.27	-103.18	777.85	8,381.51	1,871.84	1,819.77	52.07	35.946	
19,300.00	9,056.78	9,110.68	9,103.24	114.65	10.28	-103.81	777.76	8,381.64	1,970.04	1,918.23	51.81	38.024	
19,400.00	9,057.64	9,114.77	9,107.33	115.74	10.29	-104.44	777.67	8,381.77	2,068.40	2,016.61	51.60	40.088	
19,500.00	9,058.51	9,118.86	9,111.41	116.84	10.29	-105.06	777.59	8,381.91	2,166.91	2,115.48	51.43	42.136	
19,600.00	9,059.37	9,122.95	9,115.50	117.94	10.30	-105.69	777.50	8,382.04	2,265.54	2,214.25	51.29	44.170	
19,700.00	9,060.24	9,127.04	9,119.59	119.04	10.31	-106.30	777.41	8,382.17	2,364.27	2,313.09	51.19	46.189	
19,800.00	9,061.11	9,131.12	9,123.67	120.14	10.32	-106.92	777.33	8,382.30	2,463.11	2,412.00	51.11	48.193	
19,900.00	9,061.97	9,135.21	9,127.76	121.24	10.32	-107.53	777.24	8,382.43	2,562.02	2,510.97	51.05	50.182	
20,000.00	9,062.84	9,139.30	9,131.85	122.34	10.33	-108.13	777.15	8,382.57	2,661.01	2,610.00	51.02	52.157	
20,100.00	9,063.70	9,143.39	9,135.93	123.44	10.34	-108.74	777.07	8,382.70	2,760.07	2,709.07	51.00	54.117	
20,200.00	9,064.57	9,147.48	9,140.02	124.54	10.35	-109.33	776.98	8,382.83	2,859.19	2,808.19	51.00	56.063	
20,300.00	9,065.44	9,151.57	9,144.10	125.64	10.35	-109.93	776.90	8,382.96	2,958.36	2,907.35	51.01	57.994	
20,400.00	9,066.30	9,155.66	9,148.19	126.74	10.36	-110.52	776.81	8,383.09	3,057.58	3,006.55	51.04	59.911	
20,500.00	9,067.17	9,159.75	9,152.28	127.84	10.37	-111.10	776.72	8,383.22	3,156.85	3,105.78	51.07	61.815	
20,600.00	9,068.03	9,163.84	9,156.36	128.95	10.37	-111.69	776.64	8,383.36	3,256.15	3,205.04	51.11	63.704	
20,700.00	9,068.90	9,167.93	9,160.45	130.05	10.38	-112.26	776.55	8,383.49	3,355.49	3,304.32	51.17	65.580	
20,800.00	9,069.76	9,172.02	9,164.53	131.15	10.39	-112.84	776.46	8,383.62	3,454.86	3,403.64	51.23	67.443	
20,900.00	9,070.63	9,176.11	9,168.62	132.25	10.40	-113.41	776.38	8,383.75	3,554.27	3,502.97	51.29	69.293	
21,000.00	9,071.50	9,180.19	9,172.71	133.36	10.40	-113.97	776.29	8,383.88	3,653.70	3,602.33	51.37	71.129	
21,100.00	9,072.36	9,184.28	9,176.79	134.46	10.41	-114.53	776.20	8,384.02	3,753.15	3,701.71	51.45	72.952	
21,200.00	9,073.23	9,188.37	9,180.88	135.56	10.42	-115.08	776.12	8,384.15	3,852.64	3,801.10	51.53	74.763	
21,300.00	9,074.09	9,192.46	9,184.96	136.67	10.42	-115.63	776.03	8,384.28	3,952.14	3,900.52	51.62	76.560	
21,400.00	9,074.96	9,196.55	9,189.05	137.77	10.43	-116.18	775.94	8,384.41	4,051.66	3,999.95	51.72	78.346	
21,500.00	9,075.82	9,200.64	9,192.50	138.87	10.44	-116.63	775.87	8,384.52	4,151.21	4,099.39	51.81	80.123	
21,600.00	9,076.69	9,200.00	9,192.50	139.98	10.44	-116.63	775.87	8,384.52	4,250.77	4,198.87	51.89	81.911	
21,700.00	9,077.56	9,200.00	9,192.50	141.08	10.44	-116.63	775.87	8,384.52	4,350.35	4,298.37	51.98	83.688	
21,714.06	9,077.68	9,200.00	9,192.50	141.16	10.44	-116.63	775.87	8,384.52	4,364.35	4,317.36	46.99	92.871	

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: OH
Reference Design: Plan #3

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

Reference Depths are relative to 3313.8' GE + 23.5' KB @ 3337.30usft

Offset Depths are relative to Offset Datum

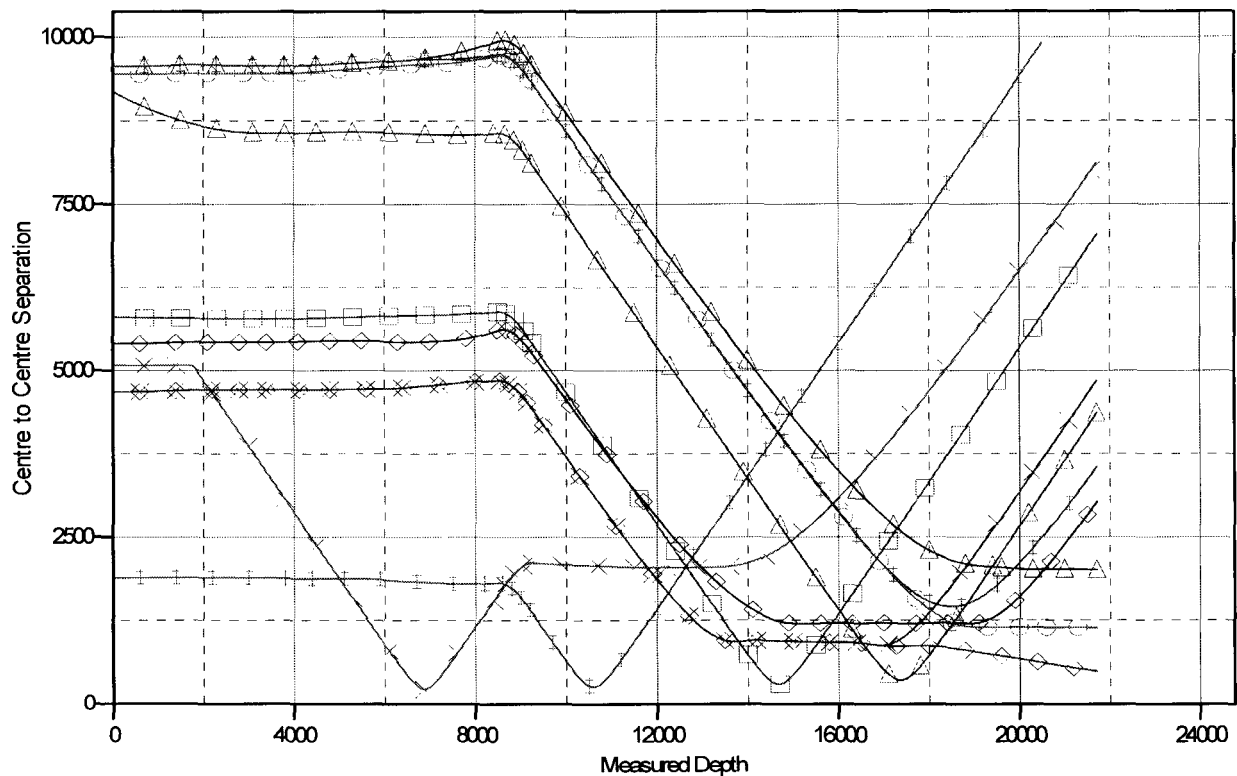
Central Meridian is 104° 20' 0.000 W

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

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

LEAM Drilling Systems LLC

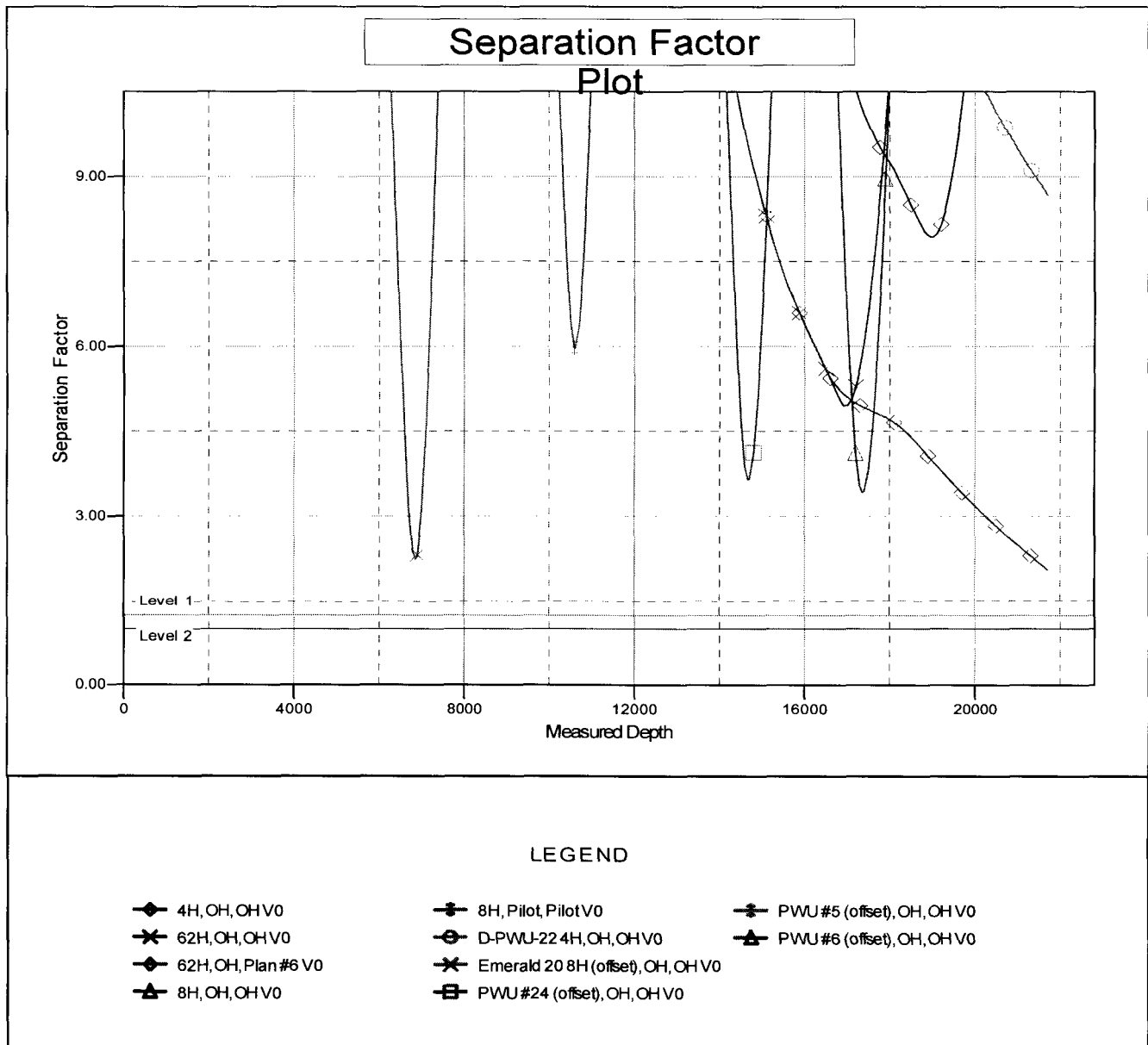
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CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation