



HOBBS OCD

SEP 17 2018

RECEIVED

April 10, 2018

Devon Energy Production Company, LP
Well: Thistle Unit 133H
County/Parish: Lea County, NM

LEAM MWD: (OH) from 1,525' MD – 17,371' MD
Projection: 17,430' MD

This Borehole Survey taken between 03/17/2018 and 04/07/2018 had been conducted and calculated according to the highest professional standards and complies with all known State and Federal requirements.

Reviewed and Approved:

Date: April 10, 2018



Survey Certification Form

State of New Mexico

Lea County

I, Randy W. Rakowitz, certify that; I am employed by LEAM Drilling Services, that I did on the day(s) of 03/17/2018 through 04/07/2018, conduct or supervise the taking of MWD Survey from a depth of 1,525' MD to 17,430' MD; that the data is true, correct, complete and within the limitations of the tools as set forth by LEAM Drilling Services, that I am authorized and qualified to make this report; that this survey was conducted at the request of Devon Energy Production Company, LP for the Thistle Unit 133H in Lea County, New Mexico; and that I reviewed this report and find that it conforms to the principals and procedures as set forth by LEAM Drilling Services.

A handwritten signature in black ink, appearing to read 'Randy W. Rakowitz', is written over a solid horizontal line.

Randy W. Rakowitz
MWD Operations Coordinator

LEAM Drilling Services

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well Thistle Unit 133H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3711.5' GE + 23.5' KB @ 3735.00usft
Site:	Thistle Unit Sec 22-27 Trac Pad	MD Reference:	3711.5' GE + 23.5' KB @ 3735.00usft
Well:	Thistle Unit 133H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 MULTI User DB

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

Site	Thistle Unit Sec 22-27 Trac Pad				
Site Position:		Northing:	472,548.43 usft	Latitude:	32° 17' 48.4331 N
From:	Map	Easting:	777,932.69 usft	Longitude:	103° 34' 3.4563 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.41 °

Well	Thistle Unit 133H					
Well Position	+N/-S	0.00 usft	Northing:	472,471.32 usft	Latitude:	32° 17' 47.5723 N
	+E/-W	0.00 usft	Easting:	779,313.03 usft	Longitude:	103° 33' 47.3818 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,711.50 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	1/17/2018	6.82	60.07	48,121

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	180.00	

Survey Program	Date	4/9/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
119.10	1,369.20	Survey #1 - Surface (OH)	MWD	MWD - Standard	
1,525.00	9,473.00	Survey #2 - MWD (OH)	LEAM MWD+HDGM	MWD+HDGM	
9,520.00	17,371.00	Survey #3 (OH)	MWD+IFR1	OWSG MWD + IFR1	
17,430.00	17,430.00	Survey #4 (OH)	Project	Projection	

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119.10	0.30	51.51	119.10	0.19	0.24	-0.19	0.25	0.25	0.00
242.50	0.40	357.51	242.50	0.83	0.48	-0.83	0.27	0.08	-43.76
329.90	0.50	32.51	329.89	1.45	0.67	-1.45	0.33	0.11	40.05
424.40	0.60	18.51	424.39	2.27	1.05	-2.27	0.18	0.11	-14.81
518.90	0.70	30.51	518.88	3.24	1.50	-3.24	0.18	0.11	12.70
613.30	0.60	357.51	613.28	4.23	1.77	-4.23	0.40	-0.11	-34.96
802.30	0.80	8.51	802.26	6.52	1.92	-6.52	0.13	0.11	5.82

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Well:	Thistle Unit 133H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 MULTI User DB

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
896.70	1.50	0.51	896.65	8.41	2.03	-8.41	0.76	0.74	-8.47
991.30	1.90	3.51	991.20	11.21	2.14	-11.21	0.43	0.42	3.17
1,085.70	1.60	1.51	1,085.56	14.09	2.27	-14.09	0.32	-0.32	-2.12
1,180.20	1.80	353.51	1,180.02	16.88	2.14	-16.88	0.33	0.21	-8.47
1,274.70	1.80	350.51	1,274.47	19.82	1.72	-19.82	0.10	0.00	-3.17
1,369.20	2.30	352.51	1,368.91	23.17	1.23	-23.17	0.53	0.53	2.12
1,525.00	2.40	352.60	1,524.58	29.50	0.40	-29.50	0.06	0.06	0.06
1,617.00	2.10	346.50	1,616.51	33.05	-0.24	-33.05	0.42	-0.33	-6.63
1,708.00	1.70	334.10	1,707.46	35.88	-1.22	-35.88	0.63	-0.44	-13.63
1,802.00	1.10	325.60	1,801.43	37.88	-2.34	-37.88	0.67	-0.64	-9.04
1,897.00	0.90	316.90	1,896.42	39.18	-3.36	-39.18	0.26	-0.21	-9.16
1,991.00	0.70	284.70	1,990.41	39.87	-4.42	-39.87	0.51	-0.21	-34.26
2,086.00	0.50	213.10	2,085.40	39.67	-5.21	-39.67	0.76	-0.21	-75.37
2,181.00	0.50	182.90	2,180.40	38.90	-5.46	-38.90	0.27	0.00	-31.79
2,275.00	0.40	186.40	2,274.40	38.17	-5.51	-38.17	0.11	-0.11	3.72
2,369.00	0.40	203.20	2,368.39	37.54	-5.68	-37.54	0.12	0.00	17.87
2,464.00	0.40	181.60	2,463.39	36.90	-5.82	-36.90	0.16	0.00	-22.74
2,559.00	0.30	234.40	2,558.39	36.43	-6.03	-36.43	0.34	-0.11	55.58
2,653.00	0.50	158.20	2,652.39	35.90	-6.08	-35.90	0.55	0.21	-81.06
2,748.00	0.60	153.70	2,747.38	35.07	-5.70	-35.07	0.11	0.11	-4.74
2,843.00	0.50	152.10	2,842.38	34.26	-5.29	-34.26	0.11	-0.11	-1.68
2,938.00	0.50	157.00	2,937.38	33.51	-4.93	-33.51	0.04	0.00	5.16
3,032.00	0.40	140.40	3,031.37	32.88	-4.56	-32.88	0.17	-0.11	-17.66
3,127.00	0.40	125.90	3,126.37	32.43	-4.08	-32.43	0.11	0.00	-15.26
3,222.00	0.30	152.30	3,221.37	32.02	-3.70	-32.02	0.20	-0.11	27.79
3,317.00	0.30	128.70	3,316.37	31.64	-3.39	-31.64	0.13	0.00	-24.84
3,412.00	0.30	99.90	3,411.37	31.44	-2.95	-31.44	0.16	0.00	-30.32
3,508.00	0.30	88.50	3,507.37	31.41	-2.45	-31.41	0.06	0.00	-11.88
3,602.00	0.10	19.60	3,601.37	31.49	-2.18	-31.49	0.30	-0.21	-73.30
3,697.00	0.20	67.50	3,696.36	31.63	-2.00	-31.63	0.16	0.11	50.42
3,792.00	0.20	52.60	3,791.36	31.80	-1.71	-31.80	0.05	0.00	-15.68
3,886.00	0.30	1.60	3,885.36	32.14	-1.58	-32.14	0.25	0.11	-54.26
3,980.00	0.20	7.30	3,979.36	32.55	-1.55	-32.55	0.11	-0.11	6.06
4,075.00	0.60	59.70	4,074.36	32.97	-1.10	-32.97	0.53	0.42	55.16
4,170.00	1.10	60.80	4,169.35	33.66	0.13	-33.66	0.53	0.53	1.16
4,265.00	2.10	64.40	4,264.31	34.86	2.49	-34.86	1.06	1.05	3.79
4,359.00	3.40	71.90	4,358.20	36.47	6.70	-36.47	1.43	1.38	7.98
4,454.00	4.80	80.60	4,452.96	37.99	13.30	-37.99	1.61	1.47	9.16
4,548.00	5.40	85.80	4,546.58	38.98	21.59	-38.98	0.79	0.64	5.32
4,642.00	4.70	85.80	4,640.22	39.60	29.84	-39.60	0.74	-0.74	0.21
4,737.00	5.00	85.50	4,734.88	40.21	37.85	-40.21	0.32	0.32	-0.32
4,831.00	5.30	90.10	4,828.50	40.52	46.27	-40.52	0.54	0.32	4.89
4,925.00	5.50	92.50	4,922.08	40.32	55.11	-40.32	0.32	0.21	2.55

LEAM Drilling Services

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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 MULTI User DB

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,020.00	5.00	88.40	5,016.68	40.23	63.80	-40.23	0.66	-0.53	-4.32
5,115.00	4.30	84.20	5,111.37	40.71	71.48	-40.71	0.82	-0.74	-4.42
5,209.00	4.00	85.40	5,205.12	41.33	78.26	-41.33	0.33	-0.32	1.28
5,295.00	3.70	79.50	5,290.93	42.08	83.97	-42.08	0.58	-0.35	-6.86
5,403.00	3.90	75.40	5,398.69	43.64	90.95	-43.64	0.31	0.19	-3.80
5,498.00	4.30	66.90	5,493.45	45.85	97.36	-45.85	0.76	0.42	-8.95
5,592.00	4.70	58.00	5,587.16	49.27	103.86	-49.27	0.85	0.43	-9.47
5,686.00	4.60	55.20	5,680.85	53.46	110.23	-53.46	0.26	-0.11	-2.98
5,780.00	4.40	51.60	5,774.56	57.85	116.15	-57.85	0.37	-0.21	-3.83
5,874.00	4.70	56.90	5,868.27	62.20	122.20	-62.20	0.55	0.32	5.64
5,969.00	5.00	61.00	5,962.93	66.33	129.08	-66.33	0.48	0.32	4.32
6,064.00	4.70	58.80	6,057.59	70.35	136.03	-70.35	0.37	-0.32	-2.32
6,159.00	4.40	56.00	6,152.29	74.41	142.38	-74.41	0.39	-0.32	-2.95
6,253.00	4.80	61.80	6,245.99	78.28	148.84	-78.28	0.65	0.43	6.17
6,348.00	4.80	61.10	6,340.65	82.08	155.82	-82.08	0.06	0.00	-0.74
6,443.00	4.80	58.80	6,435.32	86.06	162.70	-86.06	0.20	0.00	-2.42
6,538.00	4.90	55.70	6,529.98	90.41	169.45	-90.41	0.30	0.11	-3.26
6,633.00	4.80	53.90	6,624.64	95.03	176.01	-95.03	0.19	-0.11	-1.89
6,728.00	5.20	49.50	6,719.28	100.17	182.50	-100.17	0.58	0.42	-4.63
6,822.00	5.20	49.40	6,812.89	105.71	188.97	-105.71	0.01	0.00	-0.11
6,917.00	4.40	51.30	6,907.56	110.79	195.08	-110.79	0.86	-0.84	2.00
7,011.00	4.00	54.10	7,001.30	114.97	200.55	-114.97	0.48	-0.43	2.98
7,106.00	4.00	58.10	7,096.07	118.66	206.05	-118.66	0.29	0.00	4.21
7,201.00	4.40	57.80	7,190.82	122.35	211.95	-122.35	0.42	0.42	-0.32
7,296.00	4.60	59.70	7,285.52	126.22	218.32	-126.22	0.26	0.21	2.00
7,390.00	4.50	57.10	7,379.23	130.12	224.67	-130.12	0.24	-0.11	-2.77
7,485.00	4.40	56.20	7,473.94	134.17	230.83	-134.17	0.13	-0.11	-0.95
7,580.00	4.70	56.70	7,568.64	138.34	237.11	-138.34	0.32	0.32	0.53
7,675.00	5.10	58.10	7,663.30	142.71	243.95	-142.71	0.44	0.42	1.47
7,770.00	4.60	61.80	7,757.96	146.74	250.89	-146.74	0.62	-0.53	3.89
7,864.00	4.20	62.90	7,851.68	150.09	257.28	-150.09	0.43	-0.43	1.17
7,959.00	4.00	63.80	7,946.43	153.14	263.35	-153.14	0.22	-0.21	0.95
8,054.00	4.00	68.00	8,041.20	155.84	269.39	-155.84	0.31	0.00	4.42
8,149.00	3.70	68.30	8,135.99	158.21	275.31	-158.21	0.32	-0.32	0.32
8,244.00	3.80	63.90	8,230.79	160.73	280.99	-160.73	0.32	0.11	-4.63
8,338.00	4.50	59.50	8,324.54	163.97	286.96	-163.97	0.82	0.74	-4.68
8,433.00	4.60	59.40	8,419.24	167.81	293.45	-167.81	0.11	0.11	-0.11
8,528.00	4.00	62.20	8,513.97	171.29	299.66	-171.29	0.67	-0.63	2.95
8,622.00	3.60	63.90	8,607.77	174.12	305.21	-174.12	0.44	-0.43	1.81
8,716.00	3.40	63.40	8,701.59	176.66	310.35	-176.66	0.22	-0.21	-0.53
8,810.00	3.30	71.10	8,795.43	178.79	315.41	-178.79	0.49	-0.11	8.19
8,905.00	3.30	78.00	8,890.27	180.24	320.67	-180.24	0.42	0.00	7.26
8,999.00	2.70	74.00	8,984.14	181.41	325.44	-181.41	0.68	-0.64	-4.26
9,094.00	2.60	77.10	9,079.04	182.51	329.69	-182.51	0.18	-0.11	3.26

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9,189.00	2.10	73.40	9,173.96	183.49	333.46	-183.49	0.55	-0.53	-3.89
9,284.00	1.80	67.60	9,268.91	184.56	336.51	-184.56	0.38	-0.32	-6.11
9,378.00	1.10	57.80	9,362.88	185.60	338.64	-185.60	0.79	-0.74	-10.43
9,415.00	1.00	64.30	9,399.87	185.93	339.23	-185.93	0.42	-0.27	17.57
9,473.00	1.00	118.80	9,457.86	185.91	340.13	-185.91	1.58	0.00	93.97
9,520.00	5.10	170.10	9,504.79	183.65	340.85	-183.65	9.66	8.72	109.15
9,567.00	9.50	175.60	9,551.40	177.72	341.50	-177.72	9.47	9.36	11.70
9,614.00	14.60	173.50	9,597.35	167.96	342.47	-167.96	10.89	10.85	-4.47
9,662.00	18.30	174.70	9,643.38	154.44	343.85	-154.44	7.74	7.71	2.50
9,709.00	21.50	175.40	9,687.56	138.51	345.23	-138.51	6.83	6.81	1.49
9,757.00	23.30	175.90	9,731.94	120.27	346.61	-120.27	3.77	3.75	1.04
9,804.00	27.80	178.20	9,774.33	100.03	347.62	-100.03	9.80	9.57	4.89
9,851.00	30.80	179.10	9,815.32	77.04	348.15	-77.04	6.45	6.38	1.91
9,898.00	33.40	179.40	9,855.13	52.07	348.48	-52.07	5.54	5.53	0.64
9,914.00	35.00	179.30	9,868.36	43.08	348.58	-43.08	10.01	10.00	-0.63
9,946.00	38.10	178.70	9,894.06	24.02	348.92	-24.02	9.75	9.69	-1.88
9,977.00	42.20	177.00	9,917.76	4.06	349.68	-4.06	13.69	13.23	-5.48
10,009.00	46.50	175.00	9,940.63	-18.25	351.25	18.25	14.13	13.44	-6.25
10,040.00	50.50	174.90	9,961.17	-41.37	353.30	41.37	12.91	12.90	-0.32
10,072.00	54.50	176.30	9,980.65	-66.68	355.24	66.68	12.97	12.50	4.38
10,103.00	58.40	177.80	9,997.78	-92.48	356.56	92.48	13.21	12.58	4.84
10,135.00	62.60	178.70	10,013.53	-120.31	357.40	120.31	13.35	13.13	2.81
10,167.00	67.40	179.40	10,027.05	-149.30	357.88	149.30	15.13	15.00	2.19
10,198.00	72.50	179.30	10,037.68	-178.41	358.21	178.41	16.45	16.45	-0.32
10,229.00	77.80	179.10	10,045.62	-208.36	358.63	208.36	17.11	17.10	-0.65
10,245.00	79.60	178.90	10,048.75	-224.04	358.91	224.04	11.32	11.25	-1.25
10,252.00	80.20	178.50	10,049.98	-230.93	359.06	230.93	10.25	8.57	-5.71
10,297.00	84.70	179.80	10,055.89	-275.53	359.72	275.53	10.40	10.00	2.89
10,346.00	89.60	181.50	10,058.33	-324.45	359.16	324.45	10.58	10.00	3.47
10,441.00	89.80	182.20	10,058.83	-419.39	356.10	419.39	0.77	0.21	0.74
10,535.00	90.40	181.20	10,058.66	-513.35	353.31	513.35	1.24	0.64	-1.06
10,630.00	90.10	180.70	10,058.25	-608.34	351.73	608.34	0.61	-0.32	-0.53
10,726.00	89.70	180.70	10,058.41	-704.33	350.56	704.33	0.42	-0.42	0.00
10,821.00	89.70	179.30	10,058.91	-799.33	350.56	799.33	1.47	0.00	-1.47
10,917.00	92.90	179.60	10,056.73	-895.28	351.48	895.28	3.35	3.33	0.31
11,011.00	92.70	180.00	10,052.14	-989.17	351.81	989.17	0.48	-0.21	0.43
11,106.00	92.60	179.80	10,047.75	-1,084.07	351.98	1,084.07	0.24	-0.11	-0.21
11,142.00	92.50	179.40	10,046.15	-1,120.03	352.23	1,120.03	1.14	-0.28	-1.11
11,236.00	92.80	179.10	10,041.80	-1,213.92	353.46	1,213.92	0.45	0.32	-0.32
11,330.00	90.70	178.50	10,038.93	-1,307.85	355.42	1,307.85	2.32	-2.23	-0.64
11,424.00	89.40	178.00	10,038.85	-1,401.81	358.29	1,401.81	1.48	-1.38	-0.53
11,518.00	89.30	177.80	10,039.92	-1,495.74	361.74	1,495.74	0.24	-0.11	-0.21
11,612.00	89.60	178.00	10,040.82	-1,589.67	365.18	1,589.67	0.38	0.32	0.21

LEAM Drilling Services

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well Thistle Unit 133H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3711.5' GE + 23.5' KB @ 3735.00usft
Site:	Thistle Unit Sec 22-27 Trac Pad	MD Reference:	3711.5' GE + 23.5' KB @ 3735.00usft
Well:	Thistle Unit 133H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 MULTI User DB

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,706.00	89.50	178.20	10,041.56	-1,683.62	368.30	1,683.62	0.24	-0.11	0.21
11,801.00	89.00	178.00	10,042.80	-1,778.56	371.45	1,778.56	0.57	-0.53	-0.21
11,896.00	88.70	178.40	10,044.71	-1,873.49	374.43	1,873.49	0.53	-0.32	0.42
11,990.00	90.60	179.60	10,045.28	-1,967.47	376.07	1,967.47	2.39	2.02	1.28
12,086.00	91.00	179.80	10,043.94	-2,063.46	376.58	2,063.46	0.47	0.42	0.21
12,180.00	89.40	180.80	10,043.61	-2,157.45	376.08	2,157.45	2.01	-1.70	1.06
12,239.00	88.80	180.80	10,044.54	-2,216.44	375.26	2,216.44	1.02	-1.02	0.00
12,334.00	90.00	181.00	10,045.53	-2,311.42	373.77	2,311.42	1.28	1.26	0.21
12,428.00	91.10	181.40	10,044.63	-2,405.39	371.80	2,405.39	1.25	1.17	0.43
12,523.00	91.90	181.50	10,042.15	-2,500.33	369.40	2,500.33	0.85	0.84	0.11
12,618.00	90.90	182.20	10,039.82	-2,595.25	366.33	2,595.25	1.28	-1.05	0.74
12,713.00	89.20	181.40	10,039.74	-2,690.20	363.35	2,690.20	1.98	-1.79	-0.84
12,808.00	89.30	181.20	10,040.98	-2,785.16	361.19	2,785.16	0.24	0.11	-0.21
12,902.00	89.50	180.70	10,041.97	-2,879.15	359.63	2,879.15	0.57	0.21	-0.53
12,996.00	90.10	180.50	10,042.30	-2,973.14	358.65	2,973.14	0.67	0.64	-0.21
13,091.00	90.90	179.90	10,041.47	-3,068.13	358.32	3,068.13	1.05	0.84	-0.63
13,186.00	89.80	179.40	10,040.89	-3,163.13	358.90	3,163.13	1.27	-1.16	-0.53
13,280.00	89.50	179.10	10,041.46	-3,257.12	360.13	3,257.12	0.45	-0.32	-0.32
13,375.00	90.30	179.20	10,041.63	-3,352.11	361.54	3,352.11	0.85	0.84	0.11
13,470.00	89.30	179.80	10,041.96	-3,447.10	362.37	3,447.10	1.23	-1.05	0.63
13,566.00	89.70	179.40	10,042.80	-3,543.10	363.04	3,543.10	0.59	0.42	-0.42
13,661.00	87.60	179.80	10,045.04	-3,638.06	363.70	3,638.06	2.25	-2.21	0.42
13,756.00	87.70	179.60	10,048.93	-3,732.98	364.20	3,732.98	0.24	0.11	-0.21
13,850.00	87.00	179.20	10,053.28	-3,826.87	365.18	3,826.87	0.86	-0.74	-0.43
13,945.00	87.20	180.50	10,058.08	-3,921.75	365.43	3,921.75	1.38	0.21	1.37
14,039.00	88.50	180.60	10,061.61	-4,015.68	364.53	4,015.68	1.39	1.38	0.11
14,135.00	89.30	181.20	10,063.45	-4,111.65	363.02	4,111.65	1.04	0.83	0.63
14,229.00	89.20	180.50	10,064.68	-4,205.63	361.62	4,205.63	0.75	-0.11	-0.74
14,324.00	89.00	180.60	10,066.18	-4,300.61	360.71	4,300.61	0.24	-0.21	0.11
14,419.00	90.70	180.50	10,066.42	-4,395.60	359.80	4,395.60	1.79	1.79	-0.11
14,514.00	91.00	180.50	10,065.01	-4,490.59	358.97	4,490.59	0.32	0.32	0.00
14,608.00	90.70	180.30	10,063.62	-4,584.58	358.31	4,584.58	0.38	-0.32	-0.21
14,703.00	90.50	180.10	10,062.63	-4,679.57	357.98	4,679.57	0.30	-0.21	-0.21
14,798.00	89.20	179.60	10,062.87	-4,774.57	358.23	4,774.57	1.47	-1.37	-0.53
14,893.00	89.20	179.20	10,064.20	-4,869.55	359.23	4,869.55	0.42	0.00	-0.42
14,988.00	89.50	179.20	10,065.28	-4,964.54	360.55	4,964.54	0.32	0.32	0.00
15,083.00	88.70	178.50	10,066.77	-5,059.50	362.46	5,059.50	1.12	-0.84	-0.74
15,176.00	89.30	178.90	10,068.39	-5,152.47	364.57	5,152.47	0.78	0.65	0.43
15,270.00	90.10	180.10	10,068.89	-5,246.46	365.39	5,246.46	1.53	0.85	1.28
15,365.00	90.70	180.30	10,068.22	-5,341.46	365.06	5,341.46	0.67	0.63	0.21
15,459.00	90.70	179.90	10,067.07	-5,435.45	364.89	5,435.45	0.43	0.00	-0.43
15,554.00	90.90	180.10	10,065.75	-5,530.44	364.89	5,530.44	0.30	0.21	0.21
15,648.00	90.80	179.90	10,064.35	-5,624.43	364.89	5,624.43	0.24	-0.11	-0.21

LEAM Drilling Services

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well Thistle Unit 133H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3711.5' GE + 23.5' KB @ 3735.00usft
Site:	Thistle Unit Sec 22-27 Trac Pad	MD Reference:	3711.5' GE + 23.5' KB @ 3735.00usft
Well:	Thistle Unit 133H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 MULTI User DB

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,744.00	90.60	179.20	10,063.18	-5,720.42	365.65	5,720.42	0.76	-0.21	-0.73
15,838.00	91.40	180.10	10,061.54	-5,814.40	366.22	5,814.40	1.28	0.85	0.96
15,933.00	89.40	179.90	10,060.88	-5,909.39	366.22	5,909.39	2.12	-2.11	-0.21
16,027.00	89.70	179.90	10,061.61	-6,003.39	366.39	6,003.39	0.32	0.32	0.00
16,121.00	89.70	179.90	10,062.11	-6,097.39	366.55	6,097.39	0.00	0.00	0.00
16,216.00	89.90	179.90	10,062.44	-6,192.39	366.72	6,192.39	0.21	0.21	0.00
16,310.00	89.40	179.90	10,063.01	-6,286.38	366.88	6,286.38	0.53	-0.53	0.00
16,404.00	89.00	179.80	10,064.33	-6,380.38	367.13	6,380.38	0.44	-0.43	-0.11
16,498.00	89.00	179.20	10,065.97	-6,474.36	367.95	6,474.36	0.64	0.00	-0.64
16,593.00	89.30	179.90	10,067.38	-6,569.34	368.69	6,569.34	0.80	0.32	0.74
16,688.00	89.60	180.30	10,068.29	-6,664.34	368.53	6,664.34	0.53	0.32	0.42
16,782.00	89.00	178.90	10,069.44	-6,758.33	369.18	6,758.33	1.62	-0.64	-1.49
16,877.00	88.50	178.00	10,071.51	-6,853.27	371.75	6,853.27	1.08	-0.53	-0.95
16,972.00	88.30	177.80	10,074.16	-6,948.17	375.23	6,948.17	0.30	-0.21	-0.21
17,066.00	87.90	177.50	10,077.28	-7,042.04	379.08	7,042.04	0.53	-0.43	-0.32
17,161.00	87.40	177.00	10,081.17	-7,136.85	383.64	7,136.85	0.74	-0.53	-0.53
17,255.00	87.80	175.20	10,085.11	-7,230.54	390.02	7,230.54	1.96	0.43	-1.91
17,350.00	89.40	175.60	10,087.43	-7,325.20	397.64	7,325.20	1.74	1.68	0.42
17,371.00	89.80	175.70	10,087.58	-7,346.14	399.23	7,346.14	1.96	1.90	0.48
17,430.00	89.80	175.70	10,087.78	-7,404.98	403.66	7,404.98	0.00	0.00	0.00
Projection									