



April 28, 2017

Devon Energy Production Company, LP
Well: Thistle Unit 102H
County/Parish: Lea County, NM

HOBBS OCD
SEP 29 2017
RECEIVED

LEAM MWD: (OH) from 0' MD – 10,256' MD
Projection: 10,311'

This Borehole Survey taken between 03/28/2017 and 04/07/2017 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 28, 2017



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 03/28/2017 through 04/07/2017, conduct or supervise the taking of MWD Survey from a depth of 0' MD to 10,311' 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 102H 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 horizontal line.

Randy W. Rakowitz
MWD Operations Coordinator

LEAM Drilling Systems LLC

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 102H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3636.4' GE + 21' KB @ 3657.40usft
Site:	Thistle Unit	MD Reference:	3636.4' GE + 21' KB @ 3657.40usft
Well:	102H	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		
Site Position:		Northing:	468,026.90 usft
From:	Map	Easting:	780,722.56 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 17' 3.494 N
		Longitude:	103° 33' 31.335 W
		Grid Convergence:	0.41 °

Well	102H		
Well Position	+N/-S	0.00 usft	Northing: 457,187.09 usft
	+E/-W	0.00 usft	Easting: 782,576.89 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	3,657.40 usft
		Latitude:	32° 15' 16.100 N
		Longitude:	103° 33' 10.653 W
		Ground Level:	3,636.40 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	HDGM	1/5/2017	6.90
			Dip Angle
			(°)
			60.05
			Field Strength
			(nT)
			48,205

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			359.65

Survey Program	Date 4/28/2017		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
115.00	10,311.00	Survey #1 (OH)	LEAM MWD+HDGM
10,311.00	24,213.00	Survey #2 (OH)	MWD+IFR1+MS
24,246.00	24,246.00	Survey #3 (OH)	Project
			Description
			MWD+HDGM
			MWD + IFR1 + Multi-Station Correction
			Projection

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115.00	0.40	74.60	115.00	0.11	0.39	0.10	0.35	0.35	0.00
211.00	0.60	68.40	211.00	0.38	1.18	0.37	0.22	0.21	-6.46
271.00	0.60	70.00	270.99	0.60	1.76	0.59	0.03	0.00	2.67
364.00	0.60	89.60	363.99	0.77	2.71	0.76	0.22	0.00	21.08
455.00	0.50	89.30	454.98	0.78	3.58	0.76	0.11	-0.11	-0.33
547.00	0.70	84.40	546.98	0.84	4.54	0.81	0.22	0.22	-5.33
639.00	0.70	81.60	638.97	0.98	5.66	0.94	0.04	0.00	-3.04
730.00	0.60	84.00	729.97	1.11	6.68	1.07	0.11	-0.11	2.64

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Site:	Thistle Unit	MD Reference:	3636.4' GE + 21' KB @ 3657.40usft
Well:	102H	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)
825.00	0.50	84.20	824.96	1.20	7.59	1.16	0.11	-0.11	0.21
915.00	0.50	81.30	914.96	1.30	8.37	1.25	0.03	0.00	-3.22
1,007.00	0.50	65.50	1,006.95	1.53	9.13	1.47	0.15	0.00	-17.17
1,099.00	0.50	70.40	1,098.95	1.83	9.87	1.77	0.05	0.00	5.33
1,194.00	0.50	57.80	1,193.95	2.19	10.62	2.13	0.12	0.00	-13.26
1,269.00	0.50	50.10	1,268.94	2.58	11.14	2.51	0.09	0.00	-10.27
1,440.00	0.70	91.60	1,439.94	3.02	12.76	2.95	0.27	0.12	24.27
1,535.00	0.70	74.60	1,534.93	3.16	13.90	3.08	0.22	0.00	-17.89
1,630.00	0.60	64.60	1,629.92	3.53	14.91	3.44	0.16	-0.11	-10.53
1,726.00	0.50	61.20	1,725.92	3.95	15.73	3.85	0.11	-0.10	-3.54
1,821.00	0.40	82.80	1,820.91	4.19	16.42	4.09	0.21	-0.11	22.74
1,916.00	0.60	94.60	1,915.91	4.19	17.25	4.08	0.24	0.21	12.42
2,011.00	0.30	55.40	2,010.91	4.29	17.95	4.18	0.44	-0.32	-41.26
2,106.00	0.30	21.90	2,105.91	4.66	18.24	4.55	0.18	0.00	-35.26
2,201.00	0.10	29.50	2,200.91	4.97	18.38	4.85	0.21	-0.21	8.00
2,296.00	0.30	318.90	2,295.91	5.23	18.26	5.11	0.30	0.21	-74.32
2,392.00	0.40	296.80	2,391.90	5.57	17.79	5.46	0.17	0.10	-23.02
2,487.00	0.60	329.30	2,486.90	6.14	17.24	6.04	0.36	0.21	34.21
2,582.00	0.70	334.40	2,581.89	7.09	16.74	6.99	0.12	0.11	5.37
2,677.00	0.80	319.80	2,676.89	8.12	16.06	8.03	0.23	0.11	-15.37
2,772.00	1.00	330.30	2,771.87	9.35	15.22	9.26	0.27	0.21	11.05
2,867.00	1.00	340.60	2,866.86	10.85	14.53	10.76	0.19	0.00	10.84
2,962.00	1.10	345.60	2,961.84	12.52	14.03	12.43	0.14	0.11	5.26
3,057.00	1.10	340.00	3,056.83	14.26	13.49	14.18	0.11	0.00	-5.89
3,151.00	1.10	340.60	3,150.81	15.96	12.88	15.88	0.01	0.00	0.64
3,246.00	0.90	333.20	3,245.80	17.48	12.24	17.41	0.25	-0.21	-7.79
3,340.00	0.30	350.70	3,339.79	18.39	11.87	18.31	0.66	-0.64	18.62
3,435.00	0.30	341.40	3,434.79	18.87	11.75	18.79	0.05	0.00	-9.79
3,529.00	0.40	7.20	3,528.79	19.43	11.71	19.35	0.20	0.11	27.45
3,624.00	0.60	348.50	3,623.78	20.24	11.66	20.17	0.27	0.21	-19.68
3,719.00	0.50	9.00	3,718.78	21.14	11.62	21.07	0.23	-0.11	21.58
3,814.00	0.20	339.80	3,813.78	21.70	11.63	21.63	0.36	-0.32	-30.74
3,909.00	0.30	286.10	3,908.78	21.93	11.33	21.86	0.26	0.11	-56.53
4,004.00	0.30	280.10	4,003.77	22.04	10.85	21.97	0.03	0.00	-6.32
4,099.00	0.30	274.20	4,098.77	22.10	10.36	22.04	0.03	0.00	-6.21
4,195.00	0.30	286.10	4,194.77	22.19	9.87	22.13	0.06	0.00	12.40
4,290.00	0.40	306.10	4,289.77	22.45	9.36	22.40	0.16	0.11	21.05
4,385.00	0.30	79.30	4,384.77	22.70	9.33	22.64	0.68	-0.11	140.21
4,480.00	1.00	103.20	4,479.76	22.55	10.39	22.49	0.77	0.74	25.16
4,575.00	1.30	104.90	4,574.74	22.09	12.23	22.01	0.32	0.32	1.79
4,670.00	1.50	103.50	4,669.72	21.52	14.49	21.43	0.21	0.21	-1.47
4,765.00	1.90	105.00	4,764.67	20.82	17.22	20.72	0.42	0.42	1.58
4,860.00	2.20	109.40	4,859.61	19.81	20.46	19.68	0.36	0.32	4.63

LEAM Drilling Systems LLC

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Site:	Thistle Unit	MD Reference:	3636.4' GE + 21' KB @ 3657.40usft
Well:	102H	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)
4,955.00	2.50	109.20	4,954.53	18.52	24.13	18.37	0.32	0.32	-0.21
5,050.00	2.50	109.90	5,049.44	17.13	28.04	16.96	0.03	0.00	0.74
5,145.00	2.40	111.20	5,144.36	15.71	31.84	15.52	0.12	-0.11	1.37
5,246.00	2.30	114.40	5,245.27	14.11	35.66	13.89	0.16	-0.10	3.17
5,341.00	2.20	111.40	5,340.20	12.66	39.09	12.42	0.16	-0.11	-3.16
5,436.00	2.30	110.00	5,435.12	11.34	42.58	11.08	0.12	0.11	-1.47
5,532.00	2.30	109.10	5,531.05	10.05	46.21	9.77	0.04	0.00	-0.94
5,627.00	2.40	107.40	5,625.97	8.83	49.91	8.53	0.13	0.11	-1.79
5,721.00	2.40	108.40	5,719.88	7.62	53.66	7.29	0.04	0.00	1.06
5,816.00	2.40	101.10	5,814.80	6.61	57.50	6.26	0.32	0.00	-7.68
5,912.00	2.30	71.20	5,910.72	6.84	61.29	6.47	1.27	-0.10	-31.15
6,007.00	2.10	44.30	6,005.66	8.70	64.31	8.31	1.10	-0.21	-28.32
6,102.00	0.90	5.60	6,100.62	10.69	65.60	10.29	1.59	-1.26	-40.74
6,197.00	0.90	357.20	6,195.61	12.18	65.64	11.78	0.14	0.00	-8.84
6,292.00	1.00	353.50	6,290.60	13.75	65.51	13.35	0.12	0.11	-3.89
6,387.00	0.30	262.40	6,385.59	14.54	65.17	14.14	1.10	-0.74	-95.89
6,482.00	0.30	220.10	6,480.59	14.32	64.76	13.92	0.23	0.00	-44.53
6,577.00	0.20	209.90	6,575.59	13.98	64.52	13.59	0.11	-0.11	-10.74
6,672.00	0.20	259.40	6,670.59	13.81	64.27	13.42	0.18	0.00	52.11
6,767.00	0.20	17.20	6,765.59	13.94	64.16	13.54	0.36	0.00	124.00
6,863.00	0.40	28.30	6,861.59	14.39	64.37	14.00	0.22	0.21	11.56
6,958.00	0.40	102.60	6,956.59	14.61	64.85	14.21	0.51	0.00	78.21
7,052.00	1.00	137.10	7,050.58	13.94	65.72	13.54	0.75	0.64	36.70
7,147.00	0.30	102.60	7,145.57	13.28	66.53	12.87	0.81	-0.74	-36.32
7,243.00	1.10	284.40	7,241.57	13.45	65.88	13.05	1.46	0.83	-185.63
7,338.00	1.10	279.50	7,336.55	13.83	64.10	13.44	0.10	0.00	-5.16
7,433.00	1.00	269.10	7,431.54	13.97	62.37	13.58	0.23	-0.11	-10.95
7,528.00	1.00	262.20	7,526.52	13.84	60.72	13.47	0.13	0.00	-7.26
7,623.00	0.90	249.20	7,621.51	13.46	59.20	13.10	0.25	-0.11	-13.68
7,718.00	1.00	235.70	7,716.50	12.73	57.82	12.38	0.26	0.11	-14.21
7,813.00	1.10	217.40	7,811.48	11.54	56.58	11.19	0.37	0.11	-19.26
7,908.00	1.00	209.20	7,906.46	10.09	55.63	9.75	0.19	-0.11	-8.63
8,003.00	1.00	205.10	8,001.45	8.62	54.87	8.28	0.08	0.00	-4.32
8,098.00	1.20	190.70	8,096.43	6.89	54.33	6.56	0.36	0.21	-15.16
8,193.00	1.20	204.40	8,191.41	5.01	53.74	4.68	0.30	0.00	14.42
8,288.00	1.30	194.40	8,286.39	3.06	53.06	2.73	0.25	0.11	-10.53
8,384.00	1.40	196.70	8,382.36	0.88	52.45	0.56	0.12	0.10	2.40
8,479.00	1.70	197.00	8,477.33	-1.58	51.71	-1.90	0.32	0.32	0.32
8,574.00	2.90	198.60	8,572.25	-5.21	50.53	-5.52	1.26	1.26	1.68
8,669.00	1.10	236.90	8,667.19	-7.98	49.00	-8.28	2.26	-1.89	40.32
8,764.00	1.00	236.90	8,762.18	-8.93	47.54	-9.22	0.11	-0.11	0.00
8,859.00	0.90	236.40	8,857.16	-9.80	46.22	-10.08	0.11	-0.11	-0.53
8,950.00	3.50	340.60	8,948.11	-7.57	44.70	-7.85	4.20	2.86	114.51

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Survey Report

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Site:	Thistle Unit	MD Reference:	3636.4' GE + 21' KB @ 3657.40usft
Well:	102H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 MULTI User DB

Survey									
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8,997.00	10.00	352.60	8,994.76	-2.17	43.70	-2.43	14.08	13.83	25.53
9,045.00	15.70	0.00	9,041.54	8.47	43.16	8.20	12.34	11.88	15.42
9,092.00	19.70	359.10	9,086.30	22.75	43.04	22.49	8.53	8.51	-1.91
9,139.00	23.10	354.50	9,130.06	39.86	42.03	39.60	8.06	7.23	-9.79
9,186.00	28.50	353.60	9,172.36	60.19	39.89	59.95	11.52	11.49	-1.91
9,234.00	33.20	354.00	9,213.56	84.66	37.24	84.43	9.80	9.79	0.83
9,281.00	36.80	352.60	9,252.05	111.42	34.08	111.21	7.85	7.66	-2.98
9,328.00	39.90	352.90	9,288.91	140.35	30.41	140.16	6.61	6.60	0.64
9,375.00	43.70	353.10	9,323.94	171.44	26.59	171.27	8.09	8.09	0.43
9,423.00	46.70	352.90	9,357.76	205.24	22.44	205.10	6.26	6.25	-0.42
9,470.00	49.10	353.30	9,389.26	239.86	18.25	239.74	5.15	5.11	0.85
9,517.00	51.60	353.50	9,419.25	275.80	14.09	275.71	5.33	5.32	0.43
9,564.00	54.60	352.90	9,447.47	313.12	9.64	313.05	6.46	6.38	-1.28
9,612.00	57.00	354.00	9,474.45	352.56	5.12	352.52	5.35	5.00	2.29
9,659.00	60.10	354.70	9,498.97	392.45	1.18	392.44	6.72	6.60	1.49
9,707.00	62.30	356.60	9,522.09	434.39	-2.01	434.39	5.75	4.58	3.96
9,754.00	64.60	357.30	9,543.10	476.37	-4.24	476.39	5.07	4.89	1.49
9,801.00	66.20	0.00	9,562.67	519.09	-5.24	519.11	6.23	3.40	5.74
9,848.00	67.40	1.00	9,581.18	562.28	-4.86	562.30	3.22	2.55	2.13
9,896.00	69.70	358.20	9,598.74	606.95	-5.18	606.97	7.24	4.79	-5.83
9,927.00	73.40	357.30	9,608.55	636.33	-6.34	636.35	12.25	11.94	-2.90
10,007.00	76.60	356.20	9,629.25	713.46	-10.73	713.52	4.21	4.00	-1.38
10,054.00	77.40	356.00	9,639.82	759.15	-13.84	759.22	1.75	1.70	-0.43
10,085.00	79.30	356.00	9,646.08	789.44	-15.96	789.52	6.13	6.13	0.00
10,121.00	84.40	357.10	9,651.18	825.00	-18.10	825.09	14.49	14.17	3.06
10,153.00	86.80	358.50	9,653.64	856.88	-19.32	856.98	8.68	7.50	4.38
10,185.00	87.70	359.40	9,655.17	888.83	-19.91	888.94	3.98	2.81	2.81
10,216.00	88.70	0.80	9,656.15	919.82	-19.86	919.92	5.55	3.23	4.52
10,256.00	91.20	0.50	9,656.18	959.81	-19.40	959.91	6.29	6.25	-0.75
10,311.00	92.10	0.20	9,654.60	1,014.79	-19.07	1,014.89	1.72	1.64	-0.55
10,422.00	92.57	0.24	9,650.08	1,125.69	-18.64	1,125.79	0.42	0.42	0.04
10,517.00	90.66	359.11	9,647.40	1,220.65	-19.18	1,220.74	2.34	-2.01	-1.19
10,613.00	90.20	358.18	9,646.68	1,316.62	-21.45	1,316.72	1.08	-0.48	-0.97
10,708.00	90.56	358.00	9,646.05	1,411.56	-24.62	1,411.69	0.42	0.38	-0.19
10,803.00	90.59	358.25	9,645.09	1,506.51	-27.72	1,506.65	0.27	0.03	0.26
10,898.00	91.13	359.44	9,643.67	1,601.48	-29.64	1,601.63	1.38	0.57	1.25
10,993.00	89.99	1.98	9,642.74	1,696.45	-28.46	1,696.60	2.93	-1.20	2.67
11,089.00	89.87	3.59	9,642.86	1,792.34	-23.80	1,792.45	1.68	-0.13	1.68
11,184.00	89.52	4.98	9,643.36	1,887.07	-16.70	1,887.14	1.51	-0.37	1.46
11,278.00	89.19	3.31	9,644.42	1,980.81	-9.91	1,980.84	1.81	-0.35	-1.78
11,373.00	89.02	0.71	9,645.91	2,075.73	-6.57	2,075.74	2.74	-0.18	-2.74
11,468.00	88.74	359.30	9,647.76	2,170.71	-6.57	2,170.71	1.51	-0.29	-1.48
11,564.00	87.39	357.41	9,651.00	2,266.61	-9.32	2,266.63	2.42	-1.41	-1.97
11,659.00	89.05	358.07	9,653.95	2,361.49	-13.06	2,361.53	1.88	1.75	0.69

LEAM Drilling Systems LLC

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 102H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3636.4' GE + 21' KB @ 3657.40usft
Site:	Thistle Unit	MD Reference:	3636.4' GE + 21' KB @ 3657.40usft
Well:	102H	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)
11,754.00	89.19	357.21	9,655.41	2,456.40	-16.97	2,456.46	0.92	0.15	-0.91
11,849.00	90.03	357.65	9,656.06	2,551.30	-21.23	2,551.38	1.00	0.88	0.46
11,944.00	89.81	357.72	9,656.19	2,646.22	-25.07	2,646.32	0.24	-0.23	0.07
12,039.00	88.92	358.94	9,657.25	2,741.17	-27.84	2,741.29	1.59	-0.94	1.28
12,134.00	88.62	359.42	9,659.29	2,836.14	-29.20	2,836.27	0.60	-0.32	0.51
12,229.00	89.63	358.49	9,660.74	2,931.11	-30.93	2,931.24	1.45	1.06	-0.98
12,324.00	89.89	358.73	9,661.13	3,026.08	-33.24	3,026.23	0.37	0.27	0.25
12,420.00	89.76	358.52	9,661.43	3,122.05	-35.54	3,122.21	0.26	-0.14	-0.22
12,515.00	89.33	358.93	9,662.18	3,217.03	-37.65	3,217.20	0.63	-0.45	0.43
12,609.00	89.58	358.51	9,663.08	3,311.00	-39.75	3,311.18	0.52	0.27	-0.45
12,704.00	89.61	358.64	9,663.75	3,405.97	-42.12	3,406.16	0.14	0.03	0.14
12,800.00	89.61	358.65	9,664.40	3,501.94	-44.39	3,502.14	0.01	0.00	0.01
12,895.00	88.45	359.77	9,666.01	3,596.91	-45.70	3,597.12	1.70	-1.22	1.18
12,990.00	88.45	0.18	9,668.58	3,691.88	-45.74	3,692.09	0.43	0.00	0.43
13,085.00	88.43	358.94	9,671.17	3,786.84	-46.47	3,787.05	1.30	-0.02	-1.31
13,180.00	88.45	359.14	9,673.75	3,881.79	-48.06	3,882.01	0.21	0.02	0.21
13,275.00	88.34	0.08	9,676.41	3,976.75	-48.70	3,976.97	1.00	-0.12	0.99
13,370.00	89.20	2.94	9,678.45	4,071.68	-46.20	4,071.89	3.14	0.91	3.01
13,465.00	89.04	1.71	9,679.91	4,166.59	-42.35	4,166.77	1.31	-0.17	-1.29
13,560.00	89.28	1.27	9,681.30	4,261.55	-39.88	4,261.71	0.53	0.25	-0.46
13,655.00	89.46	0.80	9,682.35	4,356.53	-38.16	4,356.68	0.53	0.19	-0.49
13,750.00	89.60	1.04	9,683.13	4,451.51	-36.64	4,451.65	0.29	0.15	0.25
13,845.00	89.75	0.94	9,683.67	4,546.50	-34.99	4,546.62	0.19	0.16	-0.11
13,941.00	89.77	0.82	9,684.07	4,642.48	-33.52	4,642.60	0.13	0.02	-0.13
14,036.00	89.93	1.02	9,684.32	4,737.47	-31.99	4,737.58	0.27	0.17	0.21
14,131.00	89.27	0.68	9,684.98	4,832.46	-30.59	4,832.55	0.78	-0.69	-0.36
14,226.00	89.76	1.44	9,685.78	4,927.44	-28.83	4,927.52	0.95	0.52	0.80
14,321.00	89.75	0.55	9,686.19	5,022.42	-27.18	5,022.49	0.94	-0.01	-0.94
14,416.00	89.58	1.35	9,686.75	5,117.41	-25.60	5,117.47	0.86	-0.18	0.84
14,511.00	89.81	359.65	9,687.25	5,212.40	-24.77	5,212.45	1.81	0.24	-1.79
14,606.00	89.71	359.91	9,687.65	5,307.40	-25.14	5,307.45	0.29	-0.11	0.27
14,700.00	89.63	0.68	9,688.19	5,401.39	-24.66	5,401.44	0.82	-0.09	0.82
14,795.00	89.51	359.49	9,688.90	5,496.39	-24.51	5,496.43	1.26	-0.13	-1.25
14,889.00	89.74	0.22	9,689.52	5,590.38	-24.75	5,590.43	0.81	0.24	0.78
14,984.00	88.98	359.04	9,690.58	5,685.37	-25.37	5,685.42	1.48	-0.80	-1.24
15,079.00	89.90	359.57	9,691.51	5,780.36	-26.52	5,780.41	1.12	0.97	0.56
15,173.00	89.76	359.92	9,691.79	5,874.36	-26.94	5,874.41	0.40	-0.15	0.37
15,268.00	89.40	359.81	9,692.48	5,969.36	-27.16	5,969.41	0.40	-0.38	-0.12
15,362.00	88.91	0.32	9,693.87	6,063.35	-27.05	6,063.40	0.75	-0.52	0.54
15,457.00	89.37	359.72	9,695.30	6,158.33	-27.02	6,158.38	0.80	0.48	-0.63
15,552.00	88.74	358.61	9,696.86	6,253.31	-28.40	6,253.37	1.34	-0.66	-1.17
15,647.00	89.47	358.69	9,698.35	6,348.27	-30.64	6,348.34	0.77	0.77	0.08
15,741.00	89.65	358.78	9,699.07	6,442.24	-32.72	6,442.32	0.21	0.19	0.10

LEAM Drilling Systems LLC

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 102H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3636.4' GE + 21' KB @ 3657.40usft
Site:	Thistle Unit	MD Reference:	3636.4' GE + 21' KB @ 3657.40usft
Well:	102H	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)
15,836.00	90.34	358.40	9,699.08	6,537.22	-35.06	6,537.31	0.83	0.73	-0.40
15,931.00	90.45	357.78	9,698.42	6,632.16	-38.22	6,632.27	0.66	0.12	-0.65
16,026.00	90.54	358.63	9,697.60	6,727.11	-41.20	6,727.23	0.90	0.09	0.89
16,121.00	90.15	358.60	9,697.03	6,822.08	-43.49	6,822.22	0.41	-0.41	-0.03
16,216.00	90.99	358.90	9,696.08	6,917.05	-45.57	6,917.20	0.94	0.88	0.32
16,311.00	90.29	358.52	9,695.02	7,012.02	-47.70	7,012.18	0.84	-0.74	-0.40
16,406.00	90.46	359.06	9,694.40	7,107.00	-49.71	7,107.17	0.60	0.18	0.57
16,501.00	89.79	0.31	9,694.19	7,201.99	-50.23	7,202.16	1.49	-0.71	1.32
16,596.00	89.40	1.52	9,694.87	7,296.98	-48.72	7,297.14	1.34	-0.41	1.27
16,691.00	89.43	1.51	9,695.84	7,391.94	-46.20	7,392.08	0.03	0.03	-0.01
16,786.00	89.61	2.54	9,696.63	7,486.87	-42.85	7,487.00	1.10	0.19	1.08
16,881.00	89.46	2.69	9,697.40	7,581.77	-38.51	7,581.87	0.22	-0.16	0.16
16,975.00	89.27	2.33	9,698.44	7,675.68	-34.40	7,675.74	0.43	-0.20	-0.38
17,069.00	89.36	1.65	9,699.57	7,769.61	-31.13	7,769.66	0.73	0.10	-0.72
17,163.00	89.46	1.82	9,700.54	7,863.56	-28.29	7,863.59	0.21	0.11	0.18
17,256.00	89.38	0.41	9,701.48	7,956.54	-26.48	7,956.55	1.52	-0.09	-1.52
17,349.00	89.26	359.30	9,702.58	8,049.53	-26.71	8,049.54	1.20	-0.13	-1.19
17,443.00	89.98	357.87	9,703.21	8,143.50	-29.03	8,143.52	1.70	0.77	-1.52
17,536.00	90.44	357.66	9,702.86	8,236.42	-32.66	8,236.47	0.54	0.49	-0.23
17,629.00	91.47	358.55	9,701.31	8,329.36	-35.74	8,329.42	1.46	1.11	0.96
17,723.00	90.33	358.13	9,699.84	8,423.31	-38.46	8,423.38	1.29	-1.21	-0.45
17,816.00	90.29	357.28	9,699.33	8,516.23	-42.18	8,516.33	0.91	-0.04	-0.91
17,911.00	90.46	356.76	9,698.71	8,611.10	-47.12	8,611.23	0.58	0.18	-0.55
18,006.00	90.11	357.40	9,698.24	8,705.97	-51.96	8,706.13	0.77	-0.37	0.67
18,100.00	90.34	357.32	9,697.87	8,799.87	-56.29	8,800.05	0.26	0.24	-0.09
18,194.00	90.70	358.10	9,697.02	8,893.79	-60.05	8,893.99	0.91	0.38	0.83
18,288.00	91.03	359.38	9,695.60	8,987.76	-62.11	8,987.97	1.41	0.35	1.36
18,381.00	90.79	1.86	9,694.12	9,080.73	-61.11	9,080.94	2.68	-0.26	2.67
18,475.00	89.81	1.27	9,693.63	9,174.70	-58.54	9,174.88	1.22	-1.04	-0.63
18,569.00	89.44	1.15	9,694.24	9,268.67	-56.55	9,268.84	0.41	-0.39	-0.13
18,663.00	89.43	0.67	9,695.17	9,362.66	-55.06	9,362.82	0.51	-0.01	-0.51
18,758.00	89.79	1.59	9,695.82	9,457.63	-53.19	9,457.78	1.04	0.38	0.97
18,851.00	89.65	1.83	9,696.27	9,550.59	-50.41	9,550.72	0.30	-0.15	0.26
18,945.00	89.79	2.10	9,696.73	9,644.53	-47.19	9,644.64	0.32	0.15	0.29
19,038.00	89.71	1.56	9,697.14	9,737.49	-44.22	9,737.57	0.59	-0.09	-0.58
19,131.00	90.29	1.49	9,697.14	9,830.45	-41.74	9,830.52	0.63	0.62	-0.08
19,224.00	89.54	1.18	9,697.28	9,923.43	-39.58	9,923.48	0.87	-0.81	-0.33
19,318.00	90.02	359.61	9,697.64	10,017.42	-38.93	10,017.47	1.75	0.51	-1.67
19,412.00	90.33	0.33	9,697.35	10,111.42	-38.98	10,111.47	0.83	0.33	0.77
19,507.00	89.50	0.07	9,697.49	10,206.42	-38.65	10,206.46	0.92	-0.87	-0.27
19,601.00	90.03	359.37	9,697.88	10,300.41	-39.11	10,300.46	0.93	0.56	-0.74
19,696.00	89.53	359.09	9,698.24	10,395.40	-40.38	10,395.46	0.60	-0.53	-0.29
19,790.00	89.36	358.51	9,699.15	10,489.38	-42.35	10,489.44	0.64	-0.18	-0.62

LEAM Drilling Systems LLC

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 102H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3636.4' GE + 21' KB @ 3657.40usft
Site:	Thistle Unit	MD Reference:	3636.4' GE + 21' KB @ 3657.40usft
Well:	102H	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)
19,883.00	90.11	356.93	9,699.58	10,582.30	-46.05	10,582.38	1.88	0.81	-1.70
19,978.00	90.20	356.66	9,699.32	10,677.15	-51.36	10,677.27	0.30	0.09	-0.28
20,072.00	91.38	356.67	9,698.03	10,770.98	-56.83	10,771.13	1.26	1.26	0.01
20,167.00	92.08	359.22	9,695.16	10,865.87	-60.24	10,866.03	2.78	0.74	2.68
20,261.00	93.81	1.76	9,690.33	10,959.73	-59.43	10,959.89	3.27	1.84	2.70
20,355.00	92.87	2.42	9,684.85	11,053.51	-56.01	11,053.64	1.22	-1.00	0.70
20,450.00	90.84	1.69	9,681.78	11,148.39	-52.61	11,148.50	2.27	-2.14	-0.77
20,544.00	90.38	0.25	9,680.78	11,242.37	-51.02	11,242.47	1.61	-0.49	-1.53
20,638.00	90.22	1.75	9,680.29	11,336.35	-49.38	11,336.44	1.60	-0.17	1.60
20,732.00	90.02	359.63	9,680.09	11,430.34	-48.24	11,430.42	2.27	-0.21	-2.26
20,826.00	90.40	356.98	9,679.74	11,524.29	-51.02	11,524.38	2.85	0.40	-2.82
20,920.00	90.30	356.90	9,679.17	11,618.15	-56.04	11,618.28	0.14	-0.11	-0.09
21,014.00	90.34	357.39	9,678.64	11,712.03	-60.72	11,712.19	0.52	0.04	0.52
21,109.00	90.25	356.98	9,678.16	11,806.92	-65.39	11,807.10	0.44	-0.09	-0.43
21,203.00	90.32	357.03	9,677.69	11,900.79	-70.30	11,901.00	0.09	0.07	0.05
21,297.00	90.68	358.80	9,676.87	11,994.72	-73.72	11,994.94	1.92	0.38	1.88
21,391.00	90.29	357.45	9,676.07	12,088.66	-76.80	12,088.91	1.49	-0.41	-1.44
21,484.00	90.28	357.24	9,675.61	12,181.56	-81.10	12,181.83	0.23	-0.01	-0.23
21,578.00	90.33	357.44	9,675.11	12,275.46	-85.47	12,275.75	0.22	0.05	0.21
21,672.00	90.63	357.69	9,674.32	12,369.37	-89.46	12,369.69	0.42	0.32	0.27
21,766.00	90.25	357.70	9,673.60	12,463.29	-93.24	12,463.63	0.40	-0.40	0.01
21,861.00	90.80	358.10	9,672.73	12,558.22	-96.72	12,558.58	0.72	0.58	0.42
21,955.00	90.34	357.96	9,671.79	12,652.16	-99.95	12,652.54	0.51	-0.49	-0.15
22,049.00	91.78	359.15	9,670.06	12,746.11	-102.32	12,746.50	1.99	1.53	1.27
22,143.00	91.96	359.58	9,666.99	12,840.06	-103.36	12,840.45	0.50	0.19	0.46
22,237.00	90.60	358.30	9,664.89	12,934.01	-105.10	12,934.41	1.99	-1.45	-1.36
22,331.00	90.20	359.40	9,664.23	13,027.99	-106.99	13,028.40	1.25	-0.43	1.17
22,425.00	90.20	0.30	9,663.90	13,121.99	-107.24	13,122.40	0.96	0.00	0.96
22,519.00	90.20	0.70	9,663.58	13,215.98	-106.42	13,216.39	0.43	0.00	0.43
22,613.00	90.00	0.60	9,663.41	13,309.98	-105.35	13,310.37	0.24	-0.21	-0.11
22,707.00	90.20	0.20	9,663.25	13,403.97	-104.69	13,404.36	0.48	0.21	-0.43
22,801.00	90.90	0.20	9,662.35	13,497.97	-104.36	13,498.35	0.74	0.74	0.00
22,895.00	91.10	2.20	9,660.70	13,591.93	-102.40	13,592.30	2.14	0.21	2.13
22,990.00	91.00	1.90	9,658.96	13,686.85	-99.00	13,687.20	0.33	-0.11	-0.32
23,084.00	91.00	1.70	9,657.32	13,780.79	-96.05	13,781.12	0.21	0.00	-0.21
23,178.00	91.10	1.80	9,655.60	13,874.73	-93.18	13,875.04	0.15	0.11	0.11
23,271.00	90.20	1.30	9,654.55	13,967.69	-90.66	13,967.98	1.11	-0.97	-0.54
23,365.00	90.20	1.60	9,654.22	14,061.66	-88.28	14,061.94	0.32	0.00	0.32
23,459.00	90.10	0.90	9,653.97	14,155.64	-86.23	14,155.90	0.75	-0.11	-0.74
23,553.00	90.20	1.00	9,653.73	14,249.62	-84.67	14,249.87	0.15	0.11	0.11
23,648.00	90.30	359.60	9,653.31	14,344.62	-84.18	14,344.87	1.48	0.11	-1.47
23,743.00	91.10	359.40	9,652.15	14,439.61	-85.00	14,439.86	0.87	0.84	-0.21
23,837.00	92.00	358.70	9,649.61	14,533.56	-86.56	14,533.82	1.21	0.96	-0.74
23,931.00	93.60	359.10	9,645.02	14,627.43	-88.37	14,627.69	1.75	1.70	0.43

LEAM Drilling Systems LLC

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 102H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3636.4' GE + 21' KB @ 3657.40usft
Site:	Thistle Unit	MD Reference:	3636.4' GE + 21' KB @ 3657.40usft
Well:	102H	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)
24,025.00	94.40	359.30	9,638.46	14,721.19	-89.67	14,721.46	0.88	0.85	0.21
24,119.00	95.50	359.30	9,630.35	14,814.83	-90.82	14,815.11	1.17	1.17	0.00
24,213.00	96.60	358.70	9,620.44	14,908.29	-92.45	14,908.57	1.33	1.17	-0.64
24,246.00	96.60	358.70	9,616.65	14,941.06	-93.19	14,941.35	0.00	0.00	0.00
Projection									