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HOBBS OCD

SEP 19 2018

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March 23, 2018

Devon Energy Production Company LP
Well: Thistle Unit 125H
County/Parish: Lea County, NM

LEAM MWD: (OH) from 231' MD – 17,682' MD
Projection; 17,740' MD

This Borehole Survey taken between 02/28/2018 and 03/19/2018 had been conducted and calculated according to the highest professional standards and complies with all known State and Federal requirements.

Reviewed and Approved:

Date: March 23, 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 02/28/2018 through 03/19/2018, conduct or supervise the taking of MWD Survey from a depth of 231' MD to 17,740' 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 125H 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 125H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3711.2' GE + 23.5' KB @ 3734.70usft
Site:	Thistle Unit Sec 22-27 Trac Pad	MD Reference:	3711.2' GE + 23.5' KB @ 3734.70usft
Well:	Thistle Unit 125H	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 125H					
Well Position	+N/-S	0.00 usft	Northing:	472,469.26 usft	Latitude:	32° 17' 47.5775 N
	+E/-W	0.00 usft	Easting:	778,953.13 usft	Longitude:	103° 33' 51.5748 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,711.20 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	HDGM	1/17/2018	(°)	(°)	(nT)
			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)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.00	0.00	0.00		180.00

Survey Program	Date	3/23/2018		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
231.00	9,524.00	Survey #1 (OH)	LEAM MWD+HDGM	MWD+HDGM
9,620.00	17,682.00	Survey #2 (OH)	MWD+IFR1	OWSG MWD + IFR1
17,740.00	17,740.00	Survey #3 (OH)	Project	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	
231.00	0.80	8.80	230.99	1.59	0.25	-1.59	0.35	0.35	0.00	
322.00	1.00	23.90	321.98	2.95	0.67	-2.95	0.34	0.22	16.59	
421.00	0.90	23.30	420.97	4.45	1.32	-4.45	0.10	-0.10	-0.61	
512.00	0.80	20.50	511.96	5.70	1.83	-5.70	0.12	-0.11	-3.08	
602.00	0.40	5.40	601.95	6.60	2.08	-6.60	0.47	-0.44	-16.78	
692.00	0.80	23.70	691.95	7.49	2.36	-7.49	0.49	0.44	20.33	
783.00	0.90	20.20	782.94	8.74	2.86	-8.74	0.12	0.11	-3.85	
875.00	1.00	17.40	874.92	10.19	3.35	-10.19	0.12	0.11	-3.04	

LEAM Drilling Services

Survey Report

Company: Devon Energy
Project: Lea County, NM (NAD-83)
Site: Thistle Unit Sec 22-27 Trac Pad
Well: Thistle Unit 125H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Thistle Unit 125H
TVD Reference: 3711.2' GE + 23.5' KB @ 3734.70usft
MD Reference: 3711.2' GE + 23.5' KB @ 3734.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)
966.00	0.90	23.30	965.91	11.60	3.87	-11.60	0.15	-0.11	6.48
1,057.00	0.90	22.30	1,056.90	12.92	4.43	-12.92	0.02	0.00	-1.10
1,148.00	0.90	18.40	1,147.89	14.26	4.92	-14.26	0.07	0.00	-4.29
1,240.00	0.80	25.10	1,239.88	15.53	5.42	-15.53	0.15	-0.11	7.28
1,348.00	0.90	21.10	1,347.87	17.00	6.05	-17.00	0.11	0.09	-3.70
1,515.00	0.90	7.90	1,514.85	19.52	6.70	-19.52	0.12	0.00	-7.90
1,606.00	1.00	4.20	1,605.84	21.02	6.86	-21.02	0.13	0.11	-4.07
1,698.00	1.00	6.50	1,697.82	22.62	7.01	-22.62	0.04	0.00	2.50
1,793.00	0.90	356.80	1,792.81	24.19	7.06	-24.19	0.20	-0.11	-10.21
1,888.00	0.70	352.40	1,887.80	25.51	6.94	-25.51	0.22	-0.21	-4.63
1,984.00	0.60	353.60	1,983.79	26.59	6.81	-26.59	0.11	-0.10	1.25
2,079.00	0.50	337.80	2,078.79	27.47	6.59	-27.47	0.19	-0.11	-16.63
2,173.00	0.40	298.40	2,172.79	28.01	6.15	-28.01	0.34	-0.11	-41.91
2,269.00	0.40	215.60	2,268.78	27.89	5.66	-27.89	0.55	0.00	-86.25
2,363.00	0.60	208.40	2,362.78	27.19	5.24	-27.19	0.22	0.21	-7.66
2,459.00	0.40	217.10	2,458.78	26.48	4.80	-26.48	0.22	-0.21	9.06
2,554.00	0.40	246.40	2,553.77	26.09	4.29	-26.09	0.21	0.00	30.84
2,650.00	0.40	237.80	2,649.77	25.77	3.70	-25.77	0.06	0.00	-8.96
2,745.00	0.20	236.70	2,744.77	25.51	3.28	-25.51	0.21	-0.21	-1.16
2,840.00	0.40	188.90	2,839.77	25.09	3.09	-25.09	0.32	0.21	-50.32
2,935.00	0.20	159.20	2,934.77	24.60	3.10	-24.60	0.26	-0.21	-31.26
3,030.00	0.20	282.80	3,029.77	24.49	3.00	-24.49	0.37	0.00	130.11
3,126.00	0.20	243.40	3,125.77	24.45	2.68	-24.45	0.14	0.00	-41.04
3,221.00	0.30	284.90	3,220.77	24.44	2.29	-24.44	0.21	0.11	43.68
3,317.00	0.20	191.90	3,316.77	24.34	2.02	-24.34	0.38	-0.10	-96.88
3,412.00	0.10	294.40	3,411.77	24.21	1.91	-24.21	0.25	-0.11	107.89
3,508.00	0.20	332.00	3,507.77	24.39	1.75	-24.39	0.14	0.10	39.17
3,604.00	0.20	302.50	3,603.76	24.63	1.53	-24.63	0.11	0.00	-30.73
3,699.00	0.40	343.60	3,698.76	25.04	1.30	-25.04	0.30	0.21	43.26
3,795.00	0.30	225.80	3,794.76	25.18	1.02	-25.18	0.63	-0.10	-122.71
3,891.00	0.50	241.70	3,890.76	24.81	0.48	-24.81	0.24	0.21	16.56
3,986.00	0.50	233.80	3,985.76	24.37	-0.22	-24.37	0.07	0.00	-8.32
4,082.00	0.50	232.50	4,081.75	23.87	-0.89	-23.87	0.01	0.00	-1.35
4,177.00	0.40	243.40	4,176.75	23.47	-1.52	-23.47	0.14	-0.11	11.47
4,273.00	0.30	181.90	4,272.75	23.06	-1.83	-23.06	0.38	-0.10	-64.06
4,368.00	0.40	149.20	4,367.75	22.53	-1.67	-22.53	0.23	0.11	-34.42
4,464.00	0.90	116.90	4,463.74	21.90	-0.82	-21.90	0.63	0.52	-33.65
4,560.00	1.20	111.10	4,559.72	21.20	0.79	-21.20	0.33	0.31	-6.04
4,655.00	1.00	138.50	4,654.71	20.22	2.27	-20.22	0.59	-0.21	28.84
4,751.00	1.10	133.00	4,750.69	18.96	3.49	-18.96	0.15	0.10	-5.73
4,846.00	1.70	124.80	4,845.66	17.54	5.32	-17.54	0.66	0.63	-8.63
4,942.00	1.70	119.00	4,941.62	16.04	7.73	-16.04	0.18	0.00	-6.04
5,038.00	0.40	110.00	5,037.60	15.23	9.29	-15.23	1.36	-1.35	-9.38

LEAM Drilling Services

Survey Report

Company: Devon Energy
Project: Lea County, NM (NAD-83)
Site: Thistle Unit Sec 22-27 Trac Pad
Well: Thistle Unit 125H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Thistle Unit 125H
TVD Reference: 3711.2' GE + 23.5' KB @ 3734.70usft
MD Reference: 3711.2' GE + 23.5' KB @ 3734.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)
5,133.00	0.60	344.70	5,132.60	15.60	9.47	-15.60	0.94	0.21	-131.89
5,229.00	1.30	330.30	5,228.59	17.03	8.80	-17.03	0.76	0.73	-15.00
5,300.00	1.90	327.60	5,299.56	18.72	7.77	-18.72	0.85	0.85	-3.80
5,426.00	2.70	329.90	5,425.46	23.05	5.16	-23.05	0.64	0.63	1.83
5,520.00	3.30	339.60	5,519.33	27.50	3.11	-27.50	0.83	0.64	10.32
5,615.00	4.20	336.90	5,614.12	33.27	0.79	-33.27	0.97	0.95	-2.84
5,710.00	5.00	332.20	5,708.82	40.13	-2.50	-40.13	0.93	0.84	-4.95
5,805.00	5.30	327.80	5,803.43	47.50	-6.77	-47.50	0.52	0.32	-4.63
5,900.00	5.20	328.80	5,898.04	54.90	-11.34	-54.90	0.14	-0.11	1.05
5,995.00	4.80	328.50	5,992.67	61.97	-15.65	-61.97	0.42	-0.42	-0.32
6,091.00	4.20	327.10	6,088.38	68.35	-19.66	-68.35	0.64	-0.63	-1.46
6,186.00	4.00	325.20	6,183.13	73.99	-23.44	-73.99	0.25	-0.21	-2.00
6,281.00	4.00	331.70	6,277.90	79.63	-26.90	-79.63	0.48	0.00	6.84
6,377.00	4.10	331.70	6,373.66	85.60	-30.11	-85.60	0.10	0.10	0.00
6,472.00	4.20	333.40	6,468.41	91.70	-33.28	-91.70	0.17	0.11	1.79
6,568.00	4.30	335.70	6,564.15	98.12	-36.33	-98.12	0.21	0.10	2.40
6,662.00	4.10	336.40	6,657.90	104.41	-39.13	-104.41	0.22	-0.21	0.74
6,758.00	4.50	333.60	6,753.63	110.93	-42.18	-110.93	0.47	0.42	-2.92
6,852.00	4.70	331.70	6,847.32	117.62	-45.64	-117.62	0.27	0.21	-2.02
6,947.00	4.40	330.60	6,942.03	124.23	-49.28	-124.23	0.33	-0.32	-1.16
7,042.00	4.00	329.90	7,036.77	130.27	-52.73	-130.27	0.42	-0.42	-0.74
7,138.00	4.60	327.80	7,132.50	136.42	-56.46	-136.42	0.65	0.63	-2.19
7,233.00	4.90	326.20	7,227.17	143.02	-60.75	-143.02	0.35	0.32	-1.68
7,328.00	4.60	328.60	7,321.85	149.57	-65.10	-149.57	0.32	-0.32	0.42
7,423.00	4.20	327.40	7,416.57	155.68	-69.07	-155.68	0.43	-0.42	0.84
7,519.00	4.50	328.30	7,512.29	161.84	-72.95	-161.84	0.32	0.31	0.94
7,614.00	4.20	330.20	7,607.02	168.03	-76.63	-168.03	0.35	-0.32	2.00
7,710.00	3.90	328.30	7,702.78	173.86	-80.09	-173.86	0.34	-0.31	-1.98
7,805.00	3.00	325.30	7,797.60	178.66	-83.21	-178.66	0.97	-0.95	-3.16
7,901.00	2.20	321.80	7,893.50	182.17	-85.78	-182.17	0.85	-0.83	-3.65
7,995.00	1.40	325.50	7,987.46	184.53	-87.54	-184.53	0.86	-0.85	3.94
8,091.00	0.90	321.50	8,083.44	186.09	-88.68	-186.09	0.53	-0.52	-4.17
8,186.00	0.50	313.50	8,178.43	186.96	-89.44	-186.96	0.43	-0.42	-8.42
8,281.00	0.60	297.60	8,273.43	187.47	-90.18	-187.47	0.19	0.11	-16.74
8,377.00	0.90	280.00	8,369.42	187.84	-91.37	-187.84	0.39	0.31	-18.33
8,472.00	0.90	253.10	8,464.41	187.75	-92.82	-187.75	0.44	0.00	-28.32
8,568.00	0.90	249.70	8,560.39	187.27	-94.25	-187.27	0.06	0.00	-3.54
8,664.00	1.10	238.00	8,656.38	186.52	-95.74	-186.52	0.30	0.21	-12.19
8,759.00	0.80	260.30	8,751.37	185.93	-97.16	-185.93	0.50	-0.32	23.47
8,854.00	0.80	259.40	8,846.36	185.69	-98.47	-185.69	0.01	0.00	-0.95
8,950.00	0.80	246.60	8,942.35	185.30	-99.74	-185.30	0.19	0.00	-13.33
9,045.00	0.30	291.80	9,037.34	185.13	-100.58	-185.13	0.66	-0.53	47.58
9,141.00	0.50	124.40	9,133.34	184.99	-100.47	-184.99	0.83	0.21	-174.38

LEAM Drilling Services

Survey Report

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Site: Thistle Unit Sec 22-27 Trac Pad
Well: Thistle Unit 125H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Thistle Unit 125H
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MD Reference: 3711.2' GE + 23.5' KB @ 3734.70usft
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Survey Calculation Method: Minimum Curvature
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)
9,236.00	0.70	122.80	9,228.34	184.44	-99.64	-184.44	0.21	0.21	-1.68
9,331.00	0.20	109.10	9,323.33	184.07	-99.00	-184.07	0.53	-0.53	-14.42
9,427.00	0.20	14.50	9,419.33	184.18	-98.80	-184.18	0.31	0.00	-98.54
9,524.00	0.50	219.90	9,516.33	184.02	-99.03	-184.02	0.71	0.31	-159.38
9,620.00	11.10	175.90	9,611.71	174.45	-98.63	-174.45	11.19	11.04	-45.83
9,668.00	16.40	177.70	9,658.32	163.06	-98.03	-163.06	11.08	11.04	3.75
9,715.00	20.70	178.90	9,702.87	148.12	-97.60	-148.12	9.18	9.15	2.55
9,763.00	25.00	177.80	9,747.09	129.50	-97.05	-129.50	9.00	8.96	-2.29
9,810.00	30.20	178.70	9,788.73	107.74	-96.40	-107.74	11.10	11.06	1.91
9,858.00	36.20	179.10	9,828.88	81.47	-95.90	-81.47	12.51	12.50	0.83
9,906.00	42.20	180.10	9,866.06	51.15	-95.71	-51.15	12.57	12.50	2.08
9,954.00	48.50	180.10	9,899.77	17.02	-95.77	-17.02	13.13	13.13	0.00
10,002.00	54.20	178.90	9,929.74	-20.45	-95.43	20.45	12.03	11.88	-2.50
10,049.00	58.20	177.30	9,955.88	-59.47	-94.12	59.47	8.97	8.51	-3.40
10,097.00	62.40	176.80	9,979.66	-101.10	-91.97	101.10	8.80	8.75	-1.04
10,145.00	67.30	176.80	10,000.05	-144.47	-89.55	144.47	10.21	10.21	0.00
10,193.00	72.40	178.40	10,016.58	-189.48	-87.67	189.48	11.08	10.63	3.33
10,240.00	77.40	179.60	10,028.82	-234.83	-86.88	234.83	10.92	10.64	2.55
10,288.00	82.40	179.60	10,037.24	-282.07	-86.55	282.07	10.42	10.42	0.00
10,367.00	89.20	179.40	10,043.02	-360.81	-85.87	360.81	8.61	8.61	-0.25
10,415.00	90.00	179.30	10,043.36	-408.81	-85.32	408.81	1.68	1.67	-0.21
10,510.00	90.00	179.30	10,043.36	-503.80	-84.16	503.80	0.00	0.00	0.00
10,605.00	89.70	179.40	10,043.60	-598.79	-83.08	598.79	0.33	-0.32	0.11
10,701.00	89.30	179.30	10,044.44	-694.78	-81.99	694.78	0.43	-0.42	-0.10
10,796.00	90.50	178.40	10,044.61	-789.76	-80.09	789.76	1.58	1.26	-0.95
10,891.00	89.90	177.80	10,044.28	-884.71	-76.94	884.71	0.89	-0.63	-0.63
10,986.00	89.70	179.10	10,044.61	-979.67	-74.37	979.67	1.38	-0.21	1.37
11,082.00	90.60	181.00	10,044.36	-1,075.66	-74.45	1,075.66	2.19	0.94	1.98
11,178.00	89.90	180.80	10,043.94	-1,171.65	-75.96	1,171.65	0.76	-0.73	-0.21
11,273.00	89.80	179.80	10,044.19	-1,266.65	-76.46	1,266.65	1.06	-0.11	-1.05
11,369.00	92.10	180.00	10,042.59	-1,362.63	-76.29	1,362.63	2.40	2.40	0.21
11,464.00	90.70	180.50	10,040.27	-1,457.60	-76.70	1,457.60	1.56	-1.47	0.53
11,560.00	91.00	180.70	10,038.85	-1,553.58	-77.71	1,553.58	0.38	0.31	0.21
11,687.00	89.90	180.70	10,037.85	-1,680.57	-79.26	1,680.57	0.87	-0.87	0.00
11,750.00	89.30	180.50	10,038.29	-1,743.56	-79.92	1,743.56	1.00	-0.95	-0.32
11,846.00	90.70	180.00	10,038.29	-1,839.56	-80.34	1,839.56	1.55	1.46	-0.52
11,941.00	91.00	179.40	10,036.88	-1,934.54	-79.84	1,934.54	0.71	0.32	-0.63
12,037.00	88.80	178.70	10,037.05	-2,030.52	-78.25	2,030.52	2.40	-2.29	-0.73
12,125.00	90.00	178.50	10,037.97	-2,118.49	-76.10	2,118.49	1.38	1.36	-0.23
12,221.00	90.00	178.40	10,037.97	-2,214.46	-73.50	2,214.46	0.10	0.00	-0.10
12,316.00	90.60	178.90	10,037.47	-2,309.43	-71.27	2,309.43	0.82	0.63	0.53
12,412.00	89.90	178.50	10,037.05	-2,405.40	-69.09	2,405.40	0.84	-0.73	-0.42
12,507.00	90.10	179.60	10,037.05	-2,500.39	-67.51	2,500.39	1.18	0.21	1.16
12,603.00	90.20	180.70	10,036.80	-2,596.38	-67.76	2,596.38	1.15	0.10	1.15

LEAM Drilling Services

Survey Report

Company: Devon Energy
Project: Lea County, NM (NAD-83)
Site: Thistle Unit Sec 22-27 Trac Pad
Well: Thistle Unit 125H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Thistle Unit 125H
TVD Reference: 3711.2' GE + 23.5' KB @ 3734.70usft
MD Reference: 3711.2' GE + 23.5' KB @ 3734.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)
12,699.00	92.50	180.80	10,034.54	-2,692.34	-69.02	2,692.34	2.40	2.40	0.10
12,794.00	93.60	181.00	10,029.49	-2,787.20	-70.51	2,787.20	1.18	1.16	0.21
12,890.00	91.30	180.00	10,025.38	-2,883.10	-71.35	2,883.10	2.61	-2.40	-1.04
12,985.00	88.80	178.40	10,025.30	-2,978.08	-70.02	2,978.08	3.12	-2.63	-1.68
13,081.00	88.50	178.40	10,027.56	-3,074.01	-67.34	3,074.01	0.31	-0.31	0.00
13,176.00	88.30	178.40	10,030.22	-3,168.94	-64.69	3,168.94	0.21	-0.21	0.00
13,271.00	88.50	178.20	10,032.87	-3,263.86	-61.87	3,263.86	0.30	0.21	-0.21
13,367.00	88.00	178.40	10,035.80	-3,359.77	-59.03	3,359.77	0.56	-0.52	0.21
13,462.00	88.40	179.10	10,038.78	-3,454.70	-56.95	3,454.70	0.85	0.42	0.74
13,558.00	88.00	178.50	10,041.80	-3,550.63	-54.94	3,550.63	0.75	-0.42	-0.63
13,654.00	88.20	178.00	10,044.98	-3,646.54	-52.01	3,646.54	0.56	0.21	-0.52
13,749.00	88.90	179.80	10,047.39	-3,741.48	-50.19	3,741.48	2.03	0.74	1.89
13,845.00	88.70	180.30	10,049.40	-3,837.46	-50.28	3,837.46	0.56	-0.21	0.52
13,941.00	88.90	181.20	10,051.41	-3,933.43	-51.53	3,933.43	0.96	0.21	0.94
14,036.00	88.80	180.80	10,053.31	-4,028.40	-53.19	4,028.40	0.43	-0.11	-0.42
14,132.00	89.80	180.80	10,054.49	-4,124.38	-54.53	4,124.38	1.04	1.04	0.00
14,227.00	88.10	180.70	10,056.23	-4,219.35	-55.77	4,219.35	1.79	-1.79	-0.11
14,322.00	88.40	179.60	10,059.13	-4,314.31	-56.02	4,314.31	1.20	0.32	-1.16
14,418.00	88.60	179.10	10,061.64	-4,410.27	-54.93	4,410.27	0.56	0.21	-0.52
14,513.00	88.80	178.90	10,063.80	-4,505.23	-53.28	4,505.23	0.30	0.21	-0.21
14,609.00	87.90	178.50	10,066.56	-4,601.16	-51.10	4,601.16	1.03	-0.94	-0.42
14,704.00	88.70	178.50	10,069.38	-4,696.09	-48.61	4,696.09	0.84	0.84	0.00
14,799.00	89.90	178.50	10,070.54	-4,791.04	-46.13	4,791.04	1.26	1.26	0.00
14,894.00	89.00	178.20	10,071.45	-4,886.00	-43.39	4,886.00	1.00	-0.95	-0.32
14,989.00	87.90	177.80	10,074.02	-4,980.91	-40.08	4,980.91	1.23	-1.16	-0.42
15,084.00	87.60	177.30	10,077.75	-5,075.75	-36.02	5,075.75	0.61	-0.32	-0.53
15,180.00	89.30	178.20	10,080.35	-5,171.63	-32.25	5,171.63	2.00	1.77	0.94
15,275.00	89.30	181.00	10,081.51	-5,266.61	-31.59	5,266.61	2.95	0.00	2.95
15,370.00	90.10	180.70	10,082.01	-5,361.60	-33.00	5,361.60	0.90	0.84	-0.32
15,464.00	89.90	181.20	10,082.01	-5,455.59	-34.56	5,455.59	0.57	-0.21	0.53
15,559.00	89.90	181.90	10,082.17	-5,550.55	-37.13	5,550.55	0.74	0.00	0.74
15,653.00	90.00	182.10	10,082.25	-5,644.49	-40.41	5,644.49	0.24	0.11	0.21
15,748.00	89.70	181.50	10,082.50	-5,739.45	-43.39	5,739.45	0.71	-0.32	-0.63
15,844.00	91.00	179.80	10,081.92	-5,835.43	-44.48	5,835.43	2.23	1.35	-1.77
15,939.00	90.80	180.00	10,080.42	-5,930.42	-44.31	5,930.42	0.30	-0.21	0.21
16,035.00	90.00	179.40	10,079.75	-6,026.42	-43.81	6,026.42	1.04	-0.83	-0.63
16,130.00	89.40	179.40	10,080.25	-6,121.41	-42.82	6,121.41	0.63	-0.63	0.00
16,226.00	90.40	179.30	10,080.42	-6,217.40	-41.73	6,217.40	1.05	1.04	-0.10
16,321.00	89.70	179.30	10,080.34	-6,312.39	-40.57	6,312.39	0.74	-0.74	0.00
16,417.00	89.30	179.40	10,081.17	-6,408.38	-39.48	6,408.38	0.43	-0.42	0.10
16,512.00	90.80	179.80	10,081.09	-6,503.38	-38.81	6,503.38	1.63	1.58	0.42
16,607.00	90.70	179.30	10,079.85	-6,598.37	-38.07	6,598.37	0.54	-0.11	-0.53
16,703.00	90.70	178.90	10,078.67	-6,694.35	-36.56	6,694.35	0.42	0.00	-0.42

LEAM Drilling Services

Survey Report

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Project: Lea County, NM (NAD-83)
Site: Thistle Unit Sec 22-27 Trac Pad
Well: Thistle Unit 125H
Wellbore: OH
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Local Co-ordinate Reference: Well Thistle Unit 125H
TVD Reference: 3711.2' GE + 23.5' KB @ 3734.70usft
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)	
16,797.00	90.50	178.50	10,077.69	-6,788.32	-34.43	6,788.32	0.48	-0.21	-0.43	
16,893.00	90.50	178.50	10,076.85	-6,884.28	-31.92	6,884.28	0.00	0.00	0.00	
16,989.00	90.10	178.50	10,076.35	-6,980.25	-29.40	6,980.25	0.42	-0.42	0.00	
17,084.00	90.10	179.60	10,076.18	-7,075.23	-27.83	7,075.23	1.16	0.00	1.16	
17,180.00	90.00	179.80	10,076.10	-7,171.23	-27.32	7,171.23	0.23	-0.10	0.21	
17,276.00	90.10	180.30	10,076.02	-7,267.23	-27.41	7,267.23	0.53	0.10	0.52	
17,371.00	90.00	180.70	10,075.93	-7,362.23	-28.24	7,362.23	0.43	-0.11	0.42	
17,466.00	90.30	180.80	10,075.68	-7,457.22	-29.48	7,457.22	0.33	0.32	0.11	
17,561.00	90.40	181.50	10,075.10	-7,552.20	-31.39	7,552.20	0.74	0.11	0.74	
17,657.00	90.50	181.70	10,074.35	-7,648.16	-34.07	7,648.16	0.23	0.10	0.21	
17,682.00	90.70	181.70	10,074.09	-7,673.14	-34.81	7,673.14	0.80	0.80	0.00	
17,740.00	90.70	181.70	10,073.38	-7,731.11	-36.53	7,731.11	0.00	0.00	0.00	
Projection										