

~~CONFIDENTIAL~~



July 10, 2018

Devon Energy Production Company, LP
Well: Ko Lanta 9-4 Fed Com 528H (OH)
County/Parish: Eddy County, NM

30.015-44865

LEAM MWD: (OH) from 0' MD – 9,476' MD
Projection; 9,535' MD

This Borehole Survey taken between 05/08/18 and 06/08/18 had been conducted and calculated according to the highest professional standards and complies with all known State and Federal requirements.

Reviewed and Approved:

Date: July 10, 2018



Survey Certification Form

State of New Mexico

Eddy County

I, Randy W. Rakowitz, certify that; I am employed by LEAM Drilling Services, that I did on the day(s) of May 8, 2018 through June 8, 2018, conduct or supervise the taking of MWD Survey from a depth of 0' MD to 9,535' 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 Ko Lanta 9-4 Fed Com 528H (OH) in Eddy 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 Services

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well Ko Lanta 9-4 Fed Com 528H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3372.3' GE + 23.2' KB @ 3395.50usft
Site:	Ko Lanta 9-4 Fed Com	MD Reference:	3372.3' GE + 23.2' KB @ 3395.50usft
Well:	Ko Lanta 9-4 Fed Com 528H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Multi User Db

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

Site		Ko Lanta 9-4 Fed Com			
Site Position:		Northing:	478,201.74 usft	Latitude:	32° 18' 48.2902 N
From:	Map	Easting:	713,851.39 usft	Longitude:	103° 46' 29.6811 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.30 °

Well	Ko Lanta 9-4 Fed Com 528H					
Well Position	+N/-S	0.00 usft	Northing:	478,201.88 usft	Latitude:	32° 18' 48.2900 N
	+E/-W	0.00 usft	Easting:	713,881.47 usft	Longitude:	103° 46' 29.3306 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,372.30 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/26/2018	6.97	60.08	48,103

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	199.93	

Survey Program	Date 7/31/2018				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
149.00	9,476.00	Survey #1 (OH)	MWD+IFR1	OWSG MWD + IFR1	
9,535.00	9,535.00	Survey #2 (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	
149.00	0.50	345.40	149.00	0.63	-0.16	-0.54	0.34	0.34	0.00	
240.00	0.60	347.40	239.99	1.48	-0.37	-1.26	0.11	0.11	2.20	
332.00	0.70	344.30	331.99	2.49	-0.63	-2.13	0.12	0.11	-3.37	
423.00	0.70	336.90	422.98	3.54	-0.99	-2.99	0.10	0.00	-8.13	
480.00	0.70	328.00	479.98	4.15	-1.31	-3.45	0.19	0.00	-15.61	
602.00	0.53	314.61	601.97	5.18	-2.11	-4.15	0.18	-0.14	-10.98	
693.00	0.53	321.47	692.97	5.80	-2.67	-4.55	0.07	0.00	7.54	
784.00	0.53	322.00	783.96	6.47	-3.19	-4.99	0.01	0.00	0.58	
876.00	0.44	345.37	875.96	7.14	-3.55	-5.51	0.23	-0.10	25.40	

LEAM Drilling Services

Survey Report

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Site: Ko Lanta 9-4 Fed Com
Well: Ko Lanta 9-4 Fed Com 528H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
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	0.26	335.00	965.96	7.66	-3.72	-5.94	0.21	-0.20	-11.52
1,057.00	0.09	336.23	1,056.96	7.91	-3.84	-6.13	0.19	-0.19	1.35
1,148.00	0.09	238.50	1,147.96	7.94	-3.92	-6.13	0.15	0.00	-107.40
1,238.00	0.09	291.76	1,237.96	7.93	-4.05	-6.08	0.09	0.00	59.18
1,329.00	0.09	169.95	1,328.96	7.89	-4.10	-6.02	0.17	0.00	-133.86
1,420.00	0.26	243.07	1,419.96	7.72	-4.28	-5.80	0.27	0.19	80.35
1,510.00	0.09	270.67	1,509.96	7.63	-4.53	-5.63	0.21	-0.19	30.67
1,601.00	0.18	227.25	1,600.96	7.54	-4.71	-5.48	0.14	0.10	-47.71
1,691.00	0.26	265.04	1,690.95	7.42	-5.01	-5.27	0.18	0.09	41.99
1,785.00	0.18	245.00	1,784.95	7.34	-5.36	-5.08	0.12	-0.09	-21.32
1,879.00	0.26	259.42	1,878.95	7.24	-5.70	-4.86	0.10	0.09	15.34
1,973.00	0.26	225.32	1,972.95	7.05	-6.06	-4.56	0.16	0.00	-36.28
2,068.00	0.53	219.34	2,067.95	6.56	-6.50	-3.95	0.29	0.28	-6.29
2,163.00	0.35	230.94	2,162.95	6.04	-7.00	-3.29	0.21	-0.19	12.21
2,258.00	0.26	261.53	2,257.95	5.82	-7.44	-2.94	0.19	-0.09	32.20
2,352.00	0.35	261.70	2,351.94	5.75	-7.93	-2.70	0.10	0.10	0.18
2,446.00	0.44	211.43	2,445.94	5.40	-8.41	-2.21	0.37	0.10	-53.48
2,541.00	0.88	190.51	2,540.94	4.37	-8.73	-1.13	0.52	0.46	-22.02
2,636.00	1.49	190.86	2,635.92	2.44	-9.09	0.80	0.64	0.64	0.37
2,730.00	2.55	193.85	2,729.86	-0.79	-9.83	4.09	1.13	1.13	3.18
2,824.00	2.99	198.60	2,823.75	-5.14	-11.11	8.62	0.53	0.47	5.05
2,919.00	3.52	197.72	2,918.59	-10.27	-12.79	14.01	0.56	0.56	-0.93
3,013.00	4.57	193.15	3,012.36	-16.66	-14.52	20.61	1.17	1.12	-4.86
3,107.00	5.10	192.80	3,106.02	-24.39	-16.29	28.48	0.56	0.56	-0.37
3,202.00	5.89	194.38	3,200.59	-33.23	-18.44	37.52	0.85	0.83	1.66
3,297.00	6.86	197.89	3,295.00	-43.35	-21.39	48.04	1.10	1.02	3.69
3,392.00	7.74	198.77	3,389.23	-54.80	-25.19	60.11	0.93	0.93	0.93
3,485.00	8.00	195.26	3,481.35	-66.98	-28.91	72.82	0.59	0.28	-3.77
3,580.00	7.47	192.62	3,575.49	-79.38	-32.00	85.53	0.67	-0.56	-2.78
3,674.00	6.33	192.80	3,668.80	-90.40	-34.49	96.74	1.21	-1.21	0.19
3,769.00	6.68	192.80	3,763.19	-100.89	-36.87	107.42	0.37	0.37	0.00
3,863.00	7.83	193.32	3,856.44	-112.45	-39.56	119.20	1.23	1.22	0.55
3,957.00	8.27	192.62	3,949.51	-125.28	-42.51	132.27	0.48	0.47	-0.74
4,052.00	7.39	191.04	4,043.62	-137.95	-45.17	145.08	0.95	-0.93	-1.66
4,147.00	7.39	196.49	4,137.84	-149.80	-48.08	157.22	0.74	0.00	5.74
4,241.00	7.47	198.95	4,231.05	-161.38	-51.78	169.36	0.35	0.09	2.62
4,336.00	6.86	198.42	4,325.31	-172.60	-55.57	181.21	0.65	-0.64	-0.56
4,430.00	7.39	197.89	4,418.58	-183.68	-59.20	192.86	0.57	0.56	-0.56
4,525.00	7.47	198.07	4,512.78	-195.36	-63.00	205.14	0.09	0.08	0.19
4,619.00	7.21	199.12	4,606.01	-206.75	-66.82	217.14	0.31	-0.28	1.12
4,714.00	7.30	198.42	4,700.25	-218.11	-70.68	229.14	0.13	0.09	-0.74
4,809.00	8.71	197.37	4,794.32	-230.70	-74.74	242.36	1.49	1.48	-1.11
4,904.00	8.97	198.42	4,888.19	-244.59	-79.23	256.95	0.32	0.27	1.11

LEAM Drilling Services

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Well: Ko Lanta 9-4 Fed Com 528H
Wellbore: OH
Design: OH

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Survey

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4,999.00	8.79	198.77	4,982.06	-258.49	-83.90	271.61	0.20	-0.19	0.37
5,093.00	8.27	197.89	5,075.02	-271.72	-88.29	285.54	0.57	-0.55	-0.94
5,187.00	7.74	198.42	5,168.10	-284.16	-92.37	298.63	0.57	-0.56	0.56
5,281.00	7.39	198.60	5,261.28	-295.90	-96.30	311.00	0.37	-0.37	0.19
5,375.00	6.95	198.60	5,354.55	-307.02	-100.04	322.73	0.47	-0.47	0.00
5,470.00	7.03	196.80	5,448.84	-318.03	-103.55	334.28	0.25	0.08	-1.89
5,564.00	6.86	197.02	5,542.15	-328.90	-106.86	345.63	0.18	-0.18	0.23
5,658.00	6.42	197.37	5,635.52	-339.29	-110.07	356.49	0.47	-0.47	0.37
5,753.00	7.03	193.50	5,729.87	-350.01	-113.01	367.57	0.80	0.64	-4.07
5,847.00	7.21	192.62	5,823.14	-361.36	-115.64	379.14	0.22	0.19	-0.94
5,941.00	7.03	194.73	5,916.42	-372.68	-118.40	390.72	0.34	-0.19	2.24
6,036.00	6.95	197.37	6,010.71	-383.79	-121.59	402.25	0.35	-0.08	2.78
6,129.00	7.30	198.60	6,102.99	-394.76	-125.15	413.78	0.41	0.38	1.32
6,224.00	7.39	199.48	6,197.21	-406.24	-129.12	425.92	0.15	0.09	0.93
6,319.00	7.30	200.88	6,291.43	-417.64	-133.30	438.06	0.21	-0.09	1.47
6,413.00	6.86	202.46	6,384.72	-428.40	-137.58	449.64	0.51	-0.47	1.68
6,507.00	7.21	198.25	6,478.01	-439.19	-141.57	461.15	0.66	0.37	-4.48
6,601.00	7.12	195.43	6,571.28	-450.41	-144.97	472.85	0.39	-0.10	-3.00
6,697.00	6.51	197.02	6,666.60	-461.35	-148.14	484.22	0.67	-0.64	1.66
6,792.00	6.07	198.77	6,761.02	-471.26	-151.34	494.62	0.51	-0.46	1.84
6,887.00	5.98	200.71	6,855.50	-480.64	-154.70	504.59	0.23	-0.09	2.04
6,982.00	5.72	203.87	6,950.01	-489.60	-158.37	514.26	0.44	-0.27	3.33
7,077.00	5.72	202.99	7,044.53	-498.29	-162.13	523.71	0.09	0.00	-0.93
7,215.00	5.54	206.16	7,181.87	-510.60	-167.76	537.20	0.26	-0.13	2.30
7,361.00	5.19	207.74	7,327.23	-522.77	-173.94	550.75	0.26	-0.24	1.08
7,456.00	4.84	207.91	7,421.86	-530.11	-177.81	558.97	0.37	-0.37	0.18
7,549.00	4.40	207.39	7,514.56	-536.75	-181.29	566.40	0.48	-0.47	-0.56
7,644.00	3.69	205.80	7,609.32	-542.73	-184.30	573.05	0.76	-0.75	-1.67
7,738.00	2.73	207.56	7,703.18	-547.44	-186.65	578.28	1.03	-1.02	1.87
7,832.00	1.85	215.30	7,797.10	-550.66	-188.56	581.96	0.99	-0.94	8.23
7,926.00	1.67	216.35	7,891.05	-553.01	-190.25	584.74	0.19	-0.19	1.12
8,021.00	1.67	225.14	7,986.01	-555.10	-192.05	587.32	0.27	0.00	9.25
8,098.00	1.85	226.20	8,062.98	-556.75	-193.74	589.45	0.24	0.23	1.38
8,182.00	1.93	227.28	8,146.93	-558.65	-195.76	591.92	0.10	0.10	1.29
8,214.00	1.76	226.75	8,178.92	-559.35	-196.52	592.84	0.53	-0.53	-1.66
8,309.00	0.70	238.53	8,273.89	-560.65	-198.07	594.59	1.14	-1.12	12.40
8,404.00	0.35	266.83	8,368.89	-560.97	-198.86	595.16	0.45	-0.37	29.79
8,499.00	0.35	206.36	8,463.89	-561.25	-199.28	595.56	0.37	0.00	-63.65
8,513.00	0.53	207.77	8,477.89	-561.34	-199.33	595.67	1.29	1.29	10.07
8,592.00	0.62	197.22	8,556.88	-562.07	-199.62	596.46	0.18	0.11	-13.35
8,687.00	0.70	184.04	8,651.88	-563.14	-199.82	597.53	0.18	0.08	-13.87
8,782.00	0.62	194.06	8,746.87	-564.22	-199.98	598.60	0.15	-0.08	10.55
8,877.00	0.44	199.86	8,841.87	-565.06	-200.23	599.47	0.20	-0.19	6.11

LEAM Drilling Services

Survey Report

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Project: Eddy County, NM (NAD-83)
Site: Ko Lanta 9-4 Fed Com
Well: Ko Lanta 9-4 Fed Com 528H
Wellbore: OH
Design: OH

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8,972.00	0.53	205.66	8,936.86	-565.80	-200.54	600.28	0.11	0.09	6.11
9,067.00	0.70	213.04	9,031.86	-566.68	-201.05	601.28	0.20	0.18	7.77
9,162.00	0.18	303.22	9,126.86	-567.09	-201.49	601.81	0.76	-0.55	94.93
9,257.00	0.18	227.81	9,221.85	-567.11	-201.73	601.91	0.23	0.00	-79.38
9,352.00	1.06	246.26	9,316.85	-567.56	-202.64	602.65	0.94	0.93	19.42
9,447.00	1.14	249.78	9,411.83	-568.24	-204.33	603.86	0.11	0.08	3.71
9,476.00	1.41	248.73	9,440.82	-568.47	-204.94	604.28	0.93	0.93	-3.62
9,535.00	1.41	248.73	9,499.81	-569.00	-206.29	605.24	0.00	0.00	0.00
Projection									