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MS Directional Survey Data Certification

MS Directional Job Number: MSMO-68806
Survey Type: MWD
Operating Company: Matador Production Company
Well Name & Number: Leo Thorsness 13-24-33 AR #135H
Location: Lea County, NM
API Number: 30-025-46282
Tie In Depth: Surface
Surveyed Depths: 129' – 16,923' MD
Projected TD Survey: 16,987' MD
Dates Performed: 08/23/2019 – 09/07/2019

I certify that the data is true, correct and complete and within the limitations of the tool set forth by MS Directional; that I am authorized and qualified to make this report and that I have reviewed this report and find it conforms to the principles and procedures as set forth by MS Directional.

Digitally signed by:

A handwritten signature in black ink, appearing to read "Nick Barnes", written over a horizontal line.

MWD Surveyor Name: Nicholas Barnes

Date: 10-24-2019

Email: Nicholas.Barnes@msdir.com

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SURVEY CALCULATION PROGRAM

10/24/19 11:36

V09.04.02

Company:	Mataador Production Company		
Well Name:	Leo Thorsness 13-24-33 AR #135H		
Location:	Lea County, NM		
Rig:	Patterson #282	Magnetic Declination:	6.19
Job Number:	MSMO-68806		REFERENCED TO GRID NORTH
API #:	30-025-46282		

Vertical Section Azimuth:	179.55	Proposed Direction:	179.55
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Survey Calculation Method:	Minimum Curvature		
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PTB:	MD	INC	AZM	TVD	N/S	EW	N/S	EW	VS
	16.987	93	178.6	12073.97	-4649.55	1072.23		4657.83	

#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	EW Feet	Surface Vert Sec	Closure Distance	Azm	DLS/ 100	BUR/ 100'
TIE IN	0	0.00	0.00	0.00	0.00	0.00			0.00		
1	129	1.30	239.70	128.99	-0.74	-1.26	0.73	1.46	239.70	1.01	1.01
2	311	2.60	237.20	310.88	-4.02	-6.52	3.96	7.65	238.35	0.72	0.71
3	499	2.10	238.40	498.72	-8.13	-13.03	8.03	15.36	238.04	0.27	-0.27
4	684	0.40	216.90	683.67	-10.42	-16.31	10.30	19.36	237.42	0.94	-0.92
5	871	0.40	213.00	870.67	-11.49	-17.06	11.36	20.57	236.03	0.01	0.00
6	1,059	0.70	217.60	1058.66	-12.95	-18.11	12.81	22.27	234.43	0.16	0.16
7	1,247	0.50	160.10	1246.65	-14.63	-18.54	14.49	23.62	231.71	0.32	-0.11
8	1,319	0.70	125.30	1318.64	-15.18	-18.07	15.04	23.60	229.96	0.56	0.28
9	1,434	0.80	122.20	1433.63	-16.02	-16.82	15.89	23.23	226.40	0.09	0.09
10	1,622	3.70	78.30	1621.48	-15.49	-9.77	15.41	18.31	212.23	1.69	1.54
11	1,810	6.30	83.90	1808.75	-13.16	6.43	13.21	14.65	153.95	1.41	1.38
12	1,998	7.40	82.90	1995.40	-10.57	28.71	10.79	30.59	110.21	0.59	0.59
13	2,187	7.40	81.80	2182.83	-7.33	52.83	7.74	53.34	97.90	0.07	0.00
14	2,376	6.80	84.70	2370.38	-4.56	76.02	5.15	76.16	93.43	0.37	-0.32
15	2,564	7.60	82.00	2556.90	-1.80	99.41	2.58	99.43	91.04	0.46	0.43
16	2,753	8.20	84.50	2744.10	1.23	125.21	-0.25	125.21	89.44	0.37	0.32
17	2,942	8.10	84.80	2931.19	3.73	151.88	-2.54	151.93	88.59	0.06	-0.05
18	3,130	8.00	84.00	3117.34	6.30	178.08	-4.90	178.19	87.97	0.08	-0.05
19	3,319	7.70	83.80	3304.57	9.04	203.75	-7.44	203.95	87.46	0.16	-0.16
20	3,508	7.40	84.00	3491.93	11.68	228.44	-9.89	228.74	87.07	0.16	-0.16
21	3,697	7.10	83.40	3679.42	14.29	252.15	-12.31	252.56	86.76	0.16	-0.16
22	3,886	6.30	82.20	3867.13	17.04	274.03	-14.89	274.56	86.44	0.43	-0.42
23	4,075	5.50	84.30	4055.12	19.35	293.31	-17.05	293.95	86.23	0.44	-0.42
24	4,263	6.70	69.60	4242.07	24.07	312.56	-21.61	313.49	85.60	1.04	0.64
25	4,450	7.30	62.50	4427.68	33.36	333.32	-30.74	334.99	84.28	0.56	0.32
26	4,639	7.00	66.90	4615.21	43.42	354.57	-40.64	357.22	83.02	0.33	-0.16
27	4,828	6.70	68.60	4802.86	51.96	375.43	-49.01	379.01	82.12	0.19	-0.16
28	5,016	6.90	67.00	4989.54	60.38	396.03	-57.26	400.61	81.33	0.15	0.11
29	5,203	5.90	62.60	5175.37	69.19	414.91	-65.93	420.64	80.53	0.60	-0.53
30	5,390	4.80	60.80	5361.55	77.43	430.27	-74.05	437.18	79.80	0.59	-0.59
31	5,579	7.60	54.40	5549.43	88.57	447.34	-85.05	456.02	78.80	1.52	1.48
32	5,767	8.10	53.20	5735.67	103.74	468.05	-100.06	479.41	77.50	0.28	0.27
33	5,955	8.10	53.60	5921.79	119.53	489.32	-115.68	503.71	76.27	0.03	0.00



SURVEY CALCULATION PROGRAM

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V09.04.02

Company:	Matador Production Company			
Well Name:	Leo Thorsness 13-24-33 AR #135H			
Location:	Lea County, NM			Magnetic Declination: 6.19
Rig:	Patterson #282			REFERENCED TO GRID NORTH
Job Number:	MSMO-68806			
API #:	30-025-46282			
Vertical Section Azimuth:	179.55			Proposed Direction: 179.55

Survey Calculation Method:		Minimum Curvature		Proposed Direction:	
PTB:	MD	INC	AZM	TVD	N/S
	16.987	93	178.6	12073.97	-4649.55

#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	EW Feet	Surface Vert Sec	Distance Closure	Azm	DLS/ 100	VS BUR/ 100'
34	6,142	7.40	54.40	6107.08	134.36	509.71	-130.35	527.12	75.23	0.38	-0.37
35	6,330	7.20	53.20	6293.56	148.46	528.99	-144.30	549.43	74.32	0.13	-0.11
36	6,518	7.00	52.90	6480.12	162.43	547.56	-158.12	571.15	73.48	0.11	-0.11
37	6,707	7.30	53.30	6667.65	176.55	566.38	-172.10	593.26	72.69	0.16	0.16
38	6,894	6.80	54.10	6853.23	190.15	584.87	-185.55	615.00	71.99	0.27	-0.27
39	7,082	7.20	55.10	7039.83	203.41	603.55	-198.67	636.90	71.37	0.22	0.21
40	7,271	7.30	56.80	7227.32	216.76	623.31	-211.86	659.92	70.82	0.13	0.05
41	7,460	7.60	49.40	7414.73	231.47	642.85	-226.42	683.25	70.20	0.53	0.16
42	7,650	7.00	49.10	7603.19	247.23	661.14	-242.03	705.85	69.50	0.32	-0.32
43	7,838	7.40	43.50	7789.71	263.51	678.13	-258.18	727.53	68.76	0.43	0.21
44	8,027	6.40	43.90	7977.34	279.93	693.81	-274.47	748.16	68.03	0.53	-0.53
45	8,216	8.00	51.50	8164.85	295.71	711.41	-290.11	770.42	67.43	0.98	0.85
46	8,404	7.50	54.30	8351.13	311.01	731.61	-305.26	794.98	66.97	0.33	-0.27
47	8,591	6.70	55.80	8536.69	324.27	750.55	-318.36	817.60	66.63	0.44	-0.43
48	8,780	5.50	53.90	8724.62	335.80	766.98	-329.77	837.27	66.36	0.64	-0.63
49	8,968	6.30	53.20	8911.62	347.29	782.52	-341.13	856.13	66.07	0.43	0.43
50	9,157	5.70	55.80	9099.59	358.78	798.59	-352.49	875.48	65.81	0.35	-0.32
51	9,347	5.10	49.00	9288.74	369.62	812.77	-363.23	892.87	65.55	0.46	-0.32
52	9,536	6.00	55.70	9476.86	380.70	827.27	-374.19	910.66	65.29	0.59	0.48
53	9,725	7.70	47.50	9664.51	394.82	844.77	-388.17	932.48	64.95	1.04	0.90
54	9,914	7.80	47.10	9851.78	412.11	863.50	-405.31	956.79	64.49	0.06	0.05
55	10,102	6.20	43.30	10038.37	428.18	879.80	-421.26	978.46	64.05	0.89	-0.85
56	10,290	7.10	46.50	10225.11	443.57	895.20	-436.52	999.06	63.64	0.52	0.48
57	10,477	5.70	50.20	10410.94	457.47	910.71	-450.30	1019.15	63.33	0.78	-0.75
58	10,667	4.40	55.70	10600.20	467.61	923.98	-460.34	1035.57	63.16	0.73	-0.68
59	10,855	3.60	63.20	10787.74	474.34	935.21	-466.98	1048.62	63.11	0.51	-0.43
60	11,043	5.30	58.70	10975.17	481.51	947.90	-474.05	1063.19	63.07	0.92	0.90
61	11,138	4.80	62.10	11069.80	485.65	955.16	-478.13	1071.53	63.05	0.61	-0.53
62	11,233	4.40	66.30	11164.49	488.97	962.01	-481.40	1079.15	63.06	0.55	-0.42
63	11,327	4.40	61.60	11258.22	492.14	968.48	-484.52	1086.35	63.06	0.38	0.00
64	11,433	3.70	55.10	11363.95	496.03	974.87	-488.36	1093.80	63.03	0.79	-0.66
65	11,523	5.00	99.80	11453.71	497.02	981.11	-489.30	1099.83	63.13	3.91	1.44
66	11,570	8.40	113.90	11500.39	495.28	986.27	-487.52	1103.65	63.34	7.98	7.23
67	11,617	12.40	133.70	11546.62	490.40	993.06	-482.59	1107.55	63.72	11.30	8.51



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Location:		Lea County, NM									
Rig:		Patterson #282									
Job Number:		MSMO-68806									
API #:		30-025-46282									
Vertical Section Azimuth:		179.55									
Survey Calculation Method:		Minimum Curvature									
PTB:		MD		INC		AZM		TVD		N/S	
		16.987		93		178.6		12073.97		-4649.55	
		Depth		Inc		Azim		TVD		N/S	
		Feet		Degrees		Degrees		Feet		Feet	
		68		16.70		148.30		11592.12		481.16	
		69		20.10		156.20		11636.72		468.02	
		70		24.40		160.00		11680.21		451.50	
		71		28.30		168.10		11722.33		431.46	
		72		32.80		175.60		11761.09		408.85	
		73		38.50		177.90		11800.89		380.36	
		74		49.40		183.10		11867.77		315.96	
		75		62.70		183.50		11920.15		238.29	
		76		74.00		181.60		11955.14		150.22	
		77		84.10		181.00		11968.61		80.62	
		78		87.20		181.00		11970.51		55.70	
		79		91.30		180.30		11971.75		-39.26	
		80		90.50		180.90		11970.27		-133.24	
		81		89.70		180.90		11970.11		-226.23	
		82		89.00		180.70		11971.18		-320.22	
		83		88.30		180.50		11973.39		-414.18	
		84		87.60		180.50		11976.75		-508.12	
		85		87.30		180.50		11980.94		-602.02	
		86		86.50		180.20		11986.07		-696.88	
		87		86.10		180.10		11992.07		-789.69	
		88		87.00		179.50		11997.73		-883.51	
		89		86.80		179.40		12002.87		-978.37	
		90		88.20		179.20		12006.93		-1071.27	
		91		88.10		179.10		12009.99		-1166.21	
		92		89.00		179.20		12012.37		-1260.17	
		93		88.90		179.20		12014.09		-1354.15	
		94		88.70		178.90		12016.06		-1448.11	
		95		89.30		179.00		12017.70		-1542.08	
		96		87.60		179.90		12020.25		-1636.04	
		97		88.00		179.90		12023.85		-1729.97	
		98		88.20		179.70		12026.97		-1823.92	
		99		86.00		180.10		12031.78		-1918.79	
		100		84.80		178.50		12039.40		-2013.47	
		101		85.40		178.40		12047.42		-2107.09	
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PTB:	MD	INC		AZM		TVD		N/S		VS	
	16,987	93		178.6		12073.97		-4649.55		4657.83	
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