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August 13, 2019

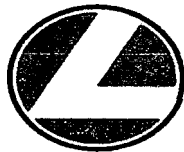
Lime Rock Resources
Well: Leavitt 13-3H
County/Parish: Eddy County, NM

LEAM MWD: (OH) from 200' MD to 8,952' MD
Projection: 9,023' MD

This Borehole Survey taken between 07/29/19 and 08/09/19 had been conducted and calculated according to the highest professional standards and complies with all known State and Federal requirements.

Reviewed and Approved:

Date: August 13, 2019



LEAM
Drilling Systems LLC

LEAM Drilling Services, LLC.
2027A Airport Rd.
Conroe, TX 77301
(936) 539-1315

Survey Certification Form

State of New Mexico,
Eddy County,

I, Michael Daigle, certify that; I am employed by LEAM Drilling Services, LLC., that I did on the day(s) of July 29, 2019 through August 9, 2019 conduct or supervise the taking of MWD Survey from a depth of 200' to 9,023' MD; that the data is true, correct, complete and within the limitations of the tools as set forth by LEAM Drilling Services, LLC., that I am authorized and qualified to make this report; that this survey was conducted at the request of Lime Rock Resources for the Leavitt 13-3H in Eddy County, New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by LEAM Drilling Services, LLC.



Michael Daigle
Lead MWD Field Operator

LEAM Drilling Systems

Survey Report

Company:	LIME ROCK RESOURCES	Local Co-ordinate Reference:	Well 13-3H
Project:	Eddy County, NM (NAD 83)	TVD Reference:	RKB 3307.8 @ 3307.80usft (Ensign 436)
Site:	Leavitt	MD Reference:	RKB 3307.8 @ 3307.80usft (Ensign 436)
Well:	13-3H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM 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:	Leavitt		
Site Position:		Northing:	638,004.86 usft
From:	Map	Easting:	543,939.96 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 45' 14.080 N
		Longitude:	104° 19' 29.525 W
		Grid Convergence:	0.00 "

Well	13-3H					
Well Position	+N/-S	0.00 usft	Northing:	633,803.97 usft	Latitude:	32° 44' 32.512 N
	+E/-W	0.00 usft	Easting:	543,721.99 usft	Longitude:	104° 19' 32.081 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,291.20 usft	

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	7/16/2019	7.17	60.47	47,968.10000000

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	267.03	

Survey Program	Date	8/13/2019		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
200.00	8,952.00	Survey #1 (OH)	LEAM_MWD+HDGM	LEAM MWD + HDGM
9,023.00	9,023.00	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
200.00	0.60	250.40	200.00	-0.35	-0.99	1.00	0.30	0.30	0.00
389.00	0.60	187.50	388.99	-1.66	-2.05	2.13	0.33	0.00	-33.28
574.00	1.30	197.50	573.96	-4.63	-2.81	3.04	0.39	0.38	5.41
757.00	1.10	195.20	756.92	-8.30	-3.89	4.32	0.11	-0.11	-1.26
943.00	1.10	195.00	942.89	-11.75	-4.82	5.42	0.00	0.00	-0.11
1,132.00	0.70	215.80	1,131.86	-14.44	-5.97	6.71	0.27	-0.21	11.01
1,295.00	0.50	203.50	1,294.85	-15.90	-6.83	7.65	0.15	-0.12	-7.55
1,483.00	0.40	197.30	1,482.85	-17.28	-7.35	8.24	0.06	-0.05	-3.30
1,670.00	0.20	202.60	1,669.85	-18.20	-7.67	8.61	0.11	-0.11	2.83

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Site:	Leavitt	MD Reference:	RKB 3307.8 @ 3307.80usft (Ensign 436)
Well:	13-3H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM Multi_User Db

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)
1,857.00	0.30	247.80	1,856.84	-18.69	-8.25	9.21	0.11	0.05	24.17
2,047.00	1.60	61.40	2,046.82	-17.60	-6.38	7.29	1.00	0.68	91.37
2,235.00	1.80	65.10	2,234.74	-15.11	-1.40	2.18	0.12	0.11	1.97
2,423.00	1.10	25.60	2,422.68	-12.23	2.06	-1.42	0.63	-0.37	-21.01
2,612.00	0.90	32.60	2,611.66	-9.35	3.64	-3.15	0.12	-0.11	3.70
2,801.00	1.10	33.50	2,800.63	-6.58	5.44	-5.09	0.11	0.11	0.48
2,990.00	1.00	39.80	2,989.59	-3.80	7.50	-7.29	0.08	-0.05	3.33
3,052.00	0.80	321.10	3,051.59	-3.05	7.57	-7.41	1.86	-0.32	-126.94
3,083.00	2.20	281.50	3,082.58	-2.77	6.85	-6.70	5.37	4.52	-127.74
3,115.00	3.60	267.10	3,114.54	-2.69	5.25	-5.10	4.90	4.38	-45.00
3,146.00	5.80	255.00	3,145.43	-3.15	2.76	-2.60	7.75	7.10	-39.03
3,178.00	8.40	250.90	3,177.18	-4.33	-1.01	1.23	8.27	8.13	-12.81
3,210.00	12.40	247.60	3,208.65	-6.41	-6.39	6.72	12.63	12.50	-10.31
3,241.00	16.10	245.80	3,238.69	-9.44	-13.40	13.87	12.02	11.94	-5.81
3,273.00	19.50	245.10	3,269.16	-13.51	-22.29	22.96	10.65	10.63	-2.19
3,304.00	22.60	246.70	3,298.08	-18.04	-32.46	33.35	10.17	10.00	5.16
3,336.00	27.00	248.30	3,327.13	-23.16	-44.86	46.00	13.91	13.75	5.00
3,367.00	30.80	249.00	3,354.26	-28.61	-58.81	60.21	12.31	12.26	2.26
3,398.00	35.00	249.20	3,380.28	-34.62	-74.54	76.23	13.55	13.55	0.65
3,430.00	38.10	249.50	3,405.99	-41.33	-92.37	94.39	9.70	9.69	0.94
3,461.00	40.70	248.60	3,429.94	-48.37	-110.74	113.10	8.59	8.39	-2.90
3,493.00	43.00	249.00	3,453.77	-56.09	-130.65	133.38	7.24	7.19	1.25
3,524.00	45.80	247.60	3,475.92	-64.12	-150.79	153.91	9.57	9.03	-4.52
3,555.00	48.40	246.70	3,497.02	-72.94	-171.72	175.26	8.65	8.39	-2.90
3,587.00	52.10	245.70	3,517.48	-82.87	-194.22	198.25	11.81	11.56	-3.13
3,618.00	55.40	245.10	3,535.81	-93.28	-216.95	221.49	10.76	10.65	-1.94
3,650.00	57.90	245.30	3,553.40	-104.49	-241.21	246.30	7.83	7.81	0.63
3,681.00	57.90	245.50	3,569.87	-115.42	-265.09	270.71	0.55	0.00	0.65
3,712.00	57.80	246.00	3,586.37	-126.20	-289.02	295.17	1.40	-0.32	1.61
3,744.00	57.70	246.00	3,603.45	-137.21	-313.74	320.43	0.31	-0.31	0.00
3,775.00	57.20	246.20	3,620.12	-147.79	-337.63	344.84	1.70	-1.61	0.65
3,806.00	57.00	246.20	3,636.96	-158.30	-361.45	369.16	0.65	-0.65	0.00
3,838.00	57.00	246.70	3,654.39	-169.02	-386.05	394.29	1.31	0.00	1.56
3,869.00	59.50	247.80	3,670.70	-179.21	-410.36	419.09	8.61	8.06	3.55
3,900.00	62.00	248.10	3,685.85	-189.36	-435.42	444.65	8.11	8.06	0.97
3,932.00	63.70	249.20	3,700.45	-199.72	-461.94	471.67	6.13	5.31	3.44
3,963.00	66.90	250.60	3,713.40	-209.40	-488.39	498.58	11.11	10.32	4.52
3,994.00	70.60	251.30	3,724.64	-218.82	-515.69	526.34	12.12	11.94	2.26
4,026.00	74.40	251.60	3,734.26	-228.53	-544.62	555.73	11.91	11.88	0.94
4,057.00	78.00	252.50	3,741.65	-237.81	-573.26	584.81	11.95	11.61	2.90
4,089.00	81.30	253.00	3,747.40	-247.14	-603.32	615.31	10.43	10.31	1.56
4,120.00	84.20	254.30	3,751.31	-255.79	-632.82	645.23	10.24	9.35	4.19
4,148.00	86.40	256.60	3,753.61	-262.80	-659.83	672.56	11.35	7.86	8.21

LEAM Drilling Systems

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Site:	Leavitt	MD Reference:	RKB 3307.8 @ 3307.80usft (Ensign 436)
Well:	13-3H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM 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)
4,180.00	87.50	258.80	3,755.31	-269.61	-691.05	704.09	7.68	3.44	6.88
4,211.00	88.10	262.00	3,756.50	-274.77	-721.59	734.86	10.49	1.94	10.32
4,243.00	89.10	265.50	3,757.28	-278.26	-753.38	766.79	11.37	3.13	10.94
4,274.00	91.40	269.60	3,757.15	-279.58	-784.35	797.78	15.16	7.42	13.23
4,306.00	92.90	270.60	3,755.95	-279.52	-816.32	829.71	5.63	4.69	3.13
4,368.00	92.40	270.30	3,753.08	-279.04	-878.25	891.53	0.94	-0.81	-0.48
4,431.00	90.00	270.40	3,751.76	-278.65	-941.23	954.41	3.81	-3.81	0.16
4,494.00	89.60	269.90	3,751.98	-278.49	-1,004.23	1,017.31	1.02	-0.63	-0.79
4,557.00	89.30	269.70	3,752.59	-278.71	-1,067.23	1,080.24	0.57	-0.48	-0.32
4,620.00	89.30	270.10	3,753.36	-278.82	-1,130.22	1,143.15	0.63	0.00	0.63
4,683.00	90.70	269.70	3,753.36	-278.93	-1,193.22	1,206.07	2.31	2.22	-0.63
4,746.00	90.20	269.40	3,752.86	-279.42	-1,256.22	1,269.01	0.93	-0.79	-0.48
4,809.00	89.50	269.40	3,753.03	-280.08	-1,319.21	1,331.95	1.11	-1.11	0.00
4,872.00	90.00	269.20	3,753.30	-280.85	-1,382.21	1,394.90	0.85	0.79	-0.32
4,935.00	91.60	268.70	3,752.42	-282.01	-1,445.19	1,457.86	2.66	2.54	-0.79
4,998.00	91.50	268.30	3,750.72	-283.66	-1,508.15	1,520.82	0.65	-0.16	-0.63
5,061.00	91.80	269.00	3,748.90	-285.14	-1,571.10	1,583.77	1.21	0.48	1.11
5,123.00	92.40	271.50	3,746.63	-284.87	-1,633.05	1,645.62	4.14	0.97	4.03
5,186.00	92.60	271.30	3,743.88	-283.33	-1,695.98	1,708.38	0.45	0.32	-0.32
5,249.00	89.30	271.50	3,742.84	-281.79	-1,758.94	1,771.18	5.25	-5.24	0.32
5,312.00	89.30	271.30	3,743.61	-280.25	-1,821.92	1,833.99	0.32	0.00	-0.32
5,375.00	89.30	271.10	3,744.38	-278.93	-1,884.90	1,896.82	0.32	0.00	-0.32
5,438.00	89.20	270.60	3,745.20	-278.00	-1,947.88	1,959.67	0.81	-0.16	-0.79
5,501.00	89.00	270.30	3,746.19	-277.50	-2,010.87	2,022.55	0.57	-0.32	-0.48
5,564.00	88.80	270.30	3,747.40	-277.17	-2,073.86	2,085.44	0.32	-0.32	0.00
5,627.00	88.50	270.30	3,748.88	-276.84	-2,136.84	2,148.32	0.48	-0.48	0.00
5,690.00	88.50	269.60	3,750.53	-276.90	-2,199.82	2,211.21	1.11	0.00	-1.11
5,752.00	91.40	270.30	3,750.59	-276.95	-2,261.81	2,273.13	4.81	4.68	1.13
5,815.00	91.60	270.10	3,748.94	-276.73	-2,324.79	2,336.01	0.45	0.32	-0.32
5,878.00	91.50	269.70	3,747.23	-276.84	-2,387.77	2,398.91	0.65	-0.16	-0.63
5,940.00	91.90	269.70	3,745.40	-277.17	-2,449.74	2,460.81	0.65	0.65	0.00
6,003.00	92.50	270.30	3,742.98	-277.17	-2,512.69	2,523.68	1.35	0.95	0.95
6,067.00	90.70	272.00	3,741.19	-275.88	-2,576.65	2,587.48	3.87	-2.81	2.66
6,127.00	91.50	271.50	3,740.04	-274.05	-2,636.61	2,647.27	1.57	1.33	-0.83
6,188.00	89.90	269.00	3,739.29	-273.79	-2,697.60	2,708.16	4.87	-2.62	-4.10
6,250.00	90.00	269.00	3,739.35	-274.87	-2,759.59	2,770.13	0.16	0.16	0.00
6,311.00	90.30	269.20	3,739.19	-275.83	-2,820.58	2,831.09	0.59	0.49	0.33
6,371.00	90.20	268.90	3,738.93	-276.82	-2,880.57	2,891.05	0.53	-0.17	-0.50
6,432.00	88.80	267.50	3,739.46	-278.74	-2,941.54	2,952.03	3.25	-2.30	-2.30
6,494.00	89.30	267.80	3,740.49	-281.28	-3,003.48	3,014.02	0.94	0.81	0.48
6,556.00	90.70	270.30	3,740.49	-282.31	-3,065.46	3,075.97	4.62	2.26	4.03
6,617.00	91.00	270.40	3,739.58	-281.93	-3,126.45	3,136.86	0.52	0.49	0.16
6,678.00	91.40	270.40	3,738.30	-281.51	-3,187.44	3,197.74	0.66	0.66	0.00

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Site:	Leavitt	MD Reference:	RKB 3307.8 @ 3307.80usft (Ensign 436)
Well:	13-3H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM Multi_User Db

Survey

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6,739.00	91.60	270.40	3,736.71	-281.08	-3,248.42	3,258.62	0.33	0.33	0.00
6,800.00	92.00	270.80	3,734.79	-280.44	-3,309.38	3,319.47	0.93	0.66	0.66
6,862.00	92.20	270.80	3,732.52	-279.58	-3,371.34	3,381.29	0.32	0.32	0.00
6,925.00	92.90	271.00	3,729.72	-278.59	-3,434.26	3,444.09	1.16	1.11	0.32
6,986.00	93.30	271.10	3,726.42	-277.47	-3,495.17	3,504.85	0.68	0.66	0.16
7,049.00	93.50	270.60	3,722.68	-276.54	-3,558.05	3,567.60	0.85	0.32	-0.79
7,112.00	91.60	270.10	3,719.88	-276.16	-3,620.98	3,630.43	3.12	-3.02	-0.79
7,175.00	92.20	269.90	3,717.79	-276.16	-3,683.95	3,693.31	1.00	0.95	-0.32
7,238.00	92.60	270.10	3,715.15	-276.16	-3,746.89	3,756.17	0.71	0.63	0.32
7,300.00	92.80	269.90	3,712.23	-276.16	-3,808.82	3,818.01	0.46	0.32	-0.32
7,363.00	92.90	269.90	3,709.10	-276.27	-3,871.74	3,880.86	0.16	0.16	0.00
7,426.00	93.30	269.70	3,705.69	-276.49	-3,934.65	3,943.69	0.71	0.63	-0.32
7,489.00	92.20	268.20	3,702.67	-277.64	-3,997.56	4,006.58	2.95	-1.75	-2.38
7,552.00	92.00	268.00	3,700.36	-279.73	-4,060.49	4,069.53	0.45	-0.32	-0.32
7,615.00	92.40	268.20	3,697.94	-281.81	-4,123.41	4,132.47	0.71	0.63	0.32
7,678.00	92.50	267.60	3,695.25	-284.12	-4,186.31	4,195.40	0.96	0.16	-0.95
7,741.00	92.90	268.20	3,692.28	-286.43	-4,249.19	4,258.33	1.14	0.63	0.95
7,803.00	91.50	270.80	3,689.90	-286.97	-4,311.14	4,320.22	4.76	-2.26	4.19
7,866.00	91.70	271.00	3,688.14	-285.98	-4,374.11	4,383.05	0.45	0.32	0.32
7,929.00	92.10	271.10	3,686.05	-284.82	-4,437.06	4,445.86	0.65	0.63	0.16
7,992.00	92.20	271.10	3,683.69	-283.62	-4,500.00	4,508.66	0.16	0.16	0.00
8,055.00	92.40	271.30	3,681.16	-282.30	-4,562.94	4,571.44	0.45	0.32	0.32
8,117.00	92.90	271.50	3,678.29	-280.78	-4,624.86	4,633.19	0.87	0.81	0.32
8,181.00	93.40	271.50	3,674.78	-279.11	-4,688.74	4,696.90	0.78	0.78	0.00
8,243.00	93.60	271.50	3,670.99	-277.49	-4,750.60	4,758.60	0.32	0.32	0.00
8,306.00	93.80	271.30	3,666.93	-275.96	-4,813.45	4,821.28	0.45	0.32	-0.32
8,369.00	94.30	271.10	3,662.48	-274.64	-4,876.28	4,883.96	0.85	0.79	-0.32
8,432.00	94.40	271.00	3,657.70	-273.49	-4,939.09	4,946.62	0.22	0.16	-0.16
8,495.00	94.00	270.60	3,653.08	-272.61	-5,001.91	5,009.32	0.90	-0.63	-0.63
8,557.00	91.30	270.60	3,650.22	-271.96	-5,063.84	5,071.12	4.35	-4.35	0.00
8,620.00	91.60	270.80	3,648.62	-271.19	-5,126.81	5,133.98	0.57	0.48	0.32
8,682.00	92.20	270.80	3,646.57	-270.33	-5,188.77	5,195.81	0.97	0.97	0.00
8,746.00	92.70	270.80	3,643.83	-269.44	-5,252.70	5,259.61	0.78	0.78	0.00
8,808.00	92.90	270.60	3,640.80	-268.68	-5,314.63	5,321.41	0.46	0.32	-0.32
8,871.00	93.50	270.30	3,637.29	-268.18	-5,377.53	5,384.20	1.06	0.95	-0.48
8,933.00	93.80	270.40	3,633.34	-267.81	-5,439.40	5,445.97	0.51	0.48	0.16
8,952.00	94.10	270.30	3,632.03	-267.69	-5,458.35	5,464.89	1.66	1.58	-0.53
9,023.00	94.10	270.30	3,626.95	-267.32	-5,529.17	5,535.59	0.00	0.00	0.00
Projection									