



Legacy Reserves

Lea County, NM (NAD83)

Lea

Lea Unit #64H

Original Wellbore

Design: Original Wellbore

Daily Survey Report

22 August, 2018



Company:	Legacy Reserves	Local Co-ordinate Reference:	Well Lea Unit #64H
Project:	Lea County, NM (NAD83)	TVD Reference:	RKB @ 3715.90ft
Site:	Lea	MD Reference:	RKB @ 3715.90ft
Well:	Lea Unit #64H	North Reference:	Grid
Wellbore:	Original Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	Original Wellbore	Database:	EDM 5000.1 Single User Db

Project	Lea County, NM (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Lea		
Site Position:		Northing:	567,587.000 usft
From:	Map	Easting:	797,256.100 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16"
		Latitude:	32.557609°N
		Longitude:	-103.502704
		Grid Convergence:	0.45 °

Well	Lea Unit #64H		
Well Position	+N/-S	0.00 ft	Northing: 567,604.000 usft
	+E/-W	0.00 ft	Easting: 799,156.100 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	3,715.90 ft
		Latitude:	32.557614°N
		Longitude:	-103.496537
		Ground Level:	3,689.00 ft

Wellbore	Original Wellbore		
Magnetics	Model Name	Sample Date	Declination (°)
	HDGM	7/12/2018	6.72
		Dip Angle (°)	60.52
		Field Strength (nT)	48,205

Design	Original Wellbore		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)
	0.00	0.00	0.00
		Direction (°)	216.48

Survey Program	Date 8/22/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name
124.88	5,401.05	Gyro (Original Wellbore)	GYRO-MWD
5,624.00	17,597.00	As Drilled (Original Wellbore)	MWD+HDGM
			Description
			Gyro MWD
			OWSG MWD + HDGM

Survey	MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	V. Sec (ft)	N/S (ft)	E/W (ft)	DLeg (°/100usft)
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	124.88	0.94	185.88	124.87	0.88	-1.02	-0.10	0.75
	215.60	0.35	223.32	215.59	1.80	-1.96	-0.37	0.77
	306.59	0.38	238.66	306.58	2.35	-2.32	-0.82	0.11
	396.71	0.71	210.89	396.69	3.19	-2.95	-1.36	0.46
	456.91	0.69	231.81	456.89	3.91	-3.50	-1.84	0.42
	548.20	0.69	218.33	548.17	4.99	-4.27	-2.61	0.18
	639.14	0.43	191.53	639.11	5.84	-5.03	-3.02	0.40
	729.48	0.24	207.82	729.45	6.34	-5.53	-3.17	0.23
	820.43	0.24	185.17	820.40	6.69	-5.89	-3.28	0.10
	914.58	0.26	194.34	914.54	7.05	-6.29	-3.35	0.05

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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey								
MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	V. Sec (ft)	N/S (ft)	E/W (ft)	DLeg (°/100usft)	
1,008.33	0.38	193.12	1,008.29	7.54	-6.80	-3.47	0.13	
1,101.68	0.54	223.18	1,101.64	8.26	-7.43	-3.85	0.30	
1,195.58	0.64	223.03	1,195.53	9.22	-8.13	-4.51	0.11	
1,382.19	0.72	162.88	1,382.13	10.95	-10.01	-4.87	0.37	
1,475.63	0.81	199.97	1,475.57	11.93	-11.20	-4.93	0.53	
1,568.99	0.82	214.25	1,568.92	13.23	-12.37	-5.53	0.22	
1,662.30	0.97	224.26	1,662.22	14.68	-13.49	-6.45	0.23	
1,756.04	0.73	230.93	1,755.95	16.05	-14.43	-7.47	0.28	
1,850.31	0.55	253.73	1,850.21	16.99	-14.94	-8.37	0.33	
1,943.68	0.58	230.69	1,943.57	17.80	-15.36	-9.17	0.24	
2,036.99	0.48	231.85	2,036.88	18.64	-15.90	-9.84	0.11	
2,130.35	0.43	247.72	2,130.24	19.31	-16.28	-10.47	0.14	
2,317.06	0.12	321.34	2,316.95	19.86	-16.39	-11.24	0.22	
2,410.30	0.30	37.51	2,410.19	19.59	-16.12	-11.15	0.32	
2,597.83	1.12	28.58	2,597.70	17.29	-14.12	-9.98	0.44	
2,690.17	1.36	35.59	2,690.02	15.30	-12.44	-8.91	0.31	
2,783.46	1.52	36.36	2,783.28	12.95	-10.54	-7.53	0.17	
2,876.67	1.43	33.84	2,876.46	10.55	-8.58	-6.15	0.12	
2,969.96	1.35	42.52	2,969.72	8.30	-6.80	-4.76	0.24	
3,063.23	1.44	43.07	3,062.96	6.04	-5.14	-3.22	0.10	
3,156.50	1.52	49.55	3,156.20	3.67	-3.48	-1.48	0.20	
3,249.74	1.69	52.14	3,249.40	1.14	-1.83	0.55	0.20	
3,342.97	1.81	50.53	3,342.59	-1.61	-0.05	2.77	0.14	
3,436.27	1.87	50.94	3,435.84	-4.51	1.84	5.09	0.07	
3,529.61	1.89	49.91	3,529.13	-7.48	3.80	7.45	0.04	
3,622.84	1.86	45.93	3,622.31	-10.47	5.84	9.72	0.14	
3,716.23	1.78	42.14	3,715.66	-13.41	7.97	11.78	0.15	
3,809.88	1.69	40.92	3,809.26	-16.23	10.09	13.66	0.10	
3,903.46	1.46	42.65	3,902.81	-18.79	12.01	15.37	0.25	
4,090.53	1.18	33.64	4,089.83	-23.09	15.37	18.05	0.19	
4,183.99	1.04	60.79	4,183.27	-24.82	16.58	19.32	0.58	
4,277.31	1.13	94.72	4,276.58	-26.08	16.92	20.98	0.68	
4,370.94	1.08	122.19	4,370.19	-26.63	16.37	22.65	0.56	
4,464.18	1.00	131.73	4,463.41	-26.62	15.36	24.00	0.20	
4,651.88	1.12	111.56	4,651.08	-26.94	13.60	26.93	0.21	
4,745.80	1.24	111.08	4,744.98	-27.45	12.90	28.73	0.13	
4,839.06	1.05	108.05	4,838.22	-27.99	12.27	30.48	0.21	
4,932.78	1.20	241.46	4,931.94	-27.37	11.53	30.44	2.21	
5,026.43	1.29	250.75	5,025.56	-25.61	10.72	28.58	0.24	
5,119.62	0.94	234.58	5,118.74	-24.02	9.93	26.97	0.50	
5,213.20	1.06	231.84	5,212.30	-22.45	8.95	25.66	0.14	
5,306.50	1.19	235.83	5,305.58	-20.70	7.87	24.18	0.16	
5,401.05	1.17	236.60	5,400.11	-18.87	6.79	22.56	0.03	
5,624.00	1.72	231.52	5,622.99	-13.50	3.45	18.04	0.25	

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Well Lea Unit #64H
 RKB @ 3715.90ft
 RKB @ 3715.90ft
 Grid
 Minimum Curvature
 EDM 5000.1 Single User Db

Survey

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5,718.00	1.72	226.41	5,716.95	-10.75	1.60	15.92	0.16
5,812.00	1.85	228.62	5,810.90	-7.88	-0.37	13.76	0.16
5,906.00	1.86	229.56	5,904.85	-4.91	-2.37	11.46	0.03
6,000.00	2.05	232.34	5,998.80	-1.81	-4.38	8.97	0.23
6,094.00	2.08	230.37	6,092.74	1.47	-6.50	6.32	0.08
6,188.00	2.17	230.54	6,186.67	4.85	-8.72	3.63	0.10
6,282.00	2.22	232.34	6,280.60	8.33	-10.96	0.82	0.09
6,376.00	1.86	225.40	6,374.55	11.59	-13.14	-1.71	0.46
6,471.00	0.87	223.97	6,469.52	13.82	-14.75	-3.31	1.04
6,564.00	0.72	272.60	6,562.51	14.85	-15.23	-4.38	0.72
6,658.00	0.66	288.19	6,656.50	15.35	-15.03	-5.49	0.21
6,753.00	0.53	284.23	6,751.50	15.69	-14.75	-6.43	0.14
6,847.00	0.63	272.21	6,845.49	16.14	-14.63	-7.37	0.17
6,941.00	0.50	262.22	6,939.49	16.72	-14.66	-8.29	0.17
7,035.00	0.50	261.96	7,033.48	17.29	-14.77	-9.11	0.00
7,130.00	0.55	265.82	7,128.48	17.88	-14.86	-9.97	0.06
7,224.00	0.48	300.18	7,222.48	18.22	-14.70	-10.76	0.33
7,318.00	0.31	90.18	7,316.48	18.11	-14.50	-10.85	0.81
7,412.00	1.18	112.42	7,410.47	17.72	-14.87	-9.70	0.96
7,506.00	1.38	98.20	7,504.44	16.95	-15.40	-7.68	0.40
7,599.00	1.22	95.89	7,597.42	15.92	-15.66	-5.59	0.18
7,694.00	1.07	91.92	7,692.40	14.90	-15.80	-3.70	0.18
7,788.00	1.12	92.23	7,786.38	13.89	-15.86	-1.90	0.05
7,882.00	1.08	86.98	7,880.37	12.81	-15.85	-0.10	0.12
7,976.00	1.01	82.60	7,974.35	11.67	-15.70	1.61	0.11
8,070.00	0.78	77.29	8,068.34	10.61	-15.45	3.05	0.26
8,164.00	0.87	78.76	8,162.33	9.60	-15.17	4.38	0.10
8,258.00	0.78	72.87	8,256.32	8.55	-14.84	5.69	0.13
8,352.00	0.64	49.09	8,350.31	7.53	-14.31	6.70	0.34
8,445.00	0.62	39.58	8,443.31	6.52	-13.58	7.41	0.11
8,539.00	0.54	40.57	8,537.30	5.57	-12.86	8.02	0.09
8,633.00	0.84	3.10	8,631.30	4.55	-11.83	8.35	0.56
8,726.00	1.68	343.46	8,724.27	3.16	-9.84	8.00	1.00
8,820.00	2.43	345.39	8,818.21	1.08	-6.59	7.10	0.80
8,914.00	2.28	339.57	8,912.13	-1.19	-2.91	5.95	0.30
9,009.00	2.31	339.18	9,007.06	-3.26	0.65	4.61	0.04
9,103.00	2.14	337.24	9,100.99	-5.18	4.04	3.25	0.20
9,197.00	2.05	334.32	9,194.92	-6.86	7.17	1.85	0.15
9,281.00	2.26	325.54	9,278.86	-8.10	9.89	0.26	0.47
9,387.00	8.58	327.18	9,384.34	-11.59	18.27	-5.22	5.96
9,434.00	14.65	329.82	9,430.35	-15.18	26.36	-10.11	12.96
9,475.00	20.29	330.80	9,469.45	-20.17	37.05	-16.19	13.77
9,483.00	21.19	330.65	9,476.93	-21.33	39.52	-17.57	11.27
9,525.00	25.01	333.56	9,515.55	-28.49	54.10	-25.25	9.49
9,578.00	30.11	338.51	9,562.53	-40.65	76.52	-35.12	10.54

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9,669.00	37.13	352.26	9,638.37	-72.53	125.10	-47.21	11.34
9,731.00	39.85	5.64	9,686.98	-103.05	163.49	-47.78	14.10
9,766.00	43.23	6.89	9,713.17	-123.11	186.55	-45.24	9.94
9,816.00	47.87	3.28	9,748.19	-153.54	222.09	-42.12	10.61
9,858.00	53.34	0.64	9,774.83	-180.25	254.51	-41.04	13.90
9,907.00	60.30	2.78	9,801.64	-213.93	295.47	-39.79	14.67
9,953.00	68.37	4.72	9,821.54	-248.79	336.81	-37.06	17.95
9,999.00	75.35	6.89	9,835.86	-286.37	380.26	-32.62	15.82
10,019.00	79.47	6.95	9,840.22	-303.35	399.64	-30.27	20.60
10,049.00	84.93	6.16	9,844.29	-329.10	429.15	-26.88	18.39
10,077.00	88.35	3.00	9,845.93	-352.82	457.01	-24.65	16.62
10,158.00	90.17	358.29	9,846.97	-418.46	537.97	-23.74	6.23
10,204.00	89.66	358.44	9,847.04	-454.66	583.95	-25.05	1.16
10,298.00	91.91	357.82	9,845.76	-528.37	677.89	-28.12	2.48
10,319.36	92.09	357.70	9,845.01	-545.02	699.22	-28.95	1.04
FTP-Lea Unit 64H							
10,392.00	92.72	357.27	9,841.96	-601.43	771.72	-32.14	1.04
10,487.00	90.80	356.55	9,839.04	-674.62	866.53	-37.26	2.16
10,581.00	90.70	356.88	9,837.81	-746.87	960.37	-42.65	0.37
10,675.00	90.91	355.47	9,836.49	-818.55	1,054.15	-48.92	1.52
10,770.00	91.01	355.62	9,834.90	-890.31	1,148.85	-56.29	0.19
10,864.00	91.27	354.12	9,833.03	-960.58	1,242.45	-64.70	1.62
10,959.00	88.56	355.00	9,833.17	-1,031.27	1,337.01	-73.70	3.00
11,052.00	88.08	354.59	9,835.89	-1,100.69	1,429.59	-82.13	0.68
11,147.00	90.13	354.18	9,837.38	-1,171.17	1,524.12	-91.43	2.20
11,241.00	88.02	354.75	9,838.90	-1,241.00	1,617.66	-100.49	2.33
11,336.00	88.99	354.52	9,841.37	-1,311.75	1,712.21	-109.37	1.05
11,430.00	90.74	356.25	9,841.60	-1,382.59	1,805.90	-116.94	2.62
11,524.00	88.86	356.67	9,841.92	-1,454.58	1,899.72	-122.74	2.05
11,619.00	90.37	356.85	9,842.56	-1,527.65	1,994.56	-128.11	1.60
11,713.00	91.61	357.11	9,840.94	-1,600.17	2,088.41	-133.06	1.35
11,807.00	88.15	356.46	9,841.14	-1,672.49	2,182.25	-138.33	3.75
11,901.00	91.48	356.41	9,841.44	-1,744.44	2,276.05	-144.17	3.54
11,995.00	91.31	356.22	9,839.15	-1,816.26	2,369.83	-150.21	0.27
12,090.00	92.18	356.39	9,836.26	-1,888.81	2,464.59	-156.33	0.93
12,184.00	89.09	356.04	9,835.22	-1,960.53	2,558.37	-162.54	3.31
12,278.00	90.84	356.59	9,835.27	-2,032.36	2,652.17	-168.58	1.95
12,318.00	91.81	356.42	9,834.35	-2,063.01	2,692.08	-171.02	2.46
12,347.00	92.42	356.27	9,833.28	-2,085.17	2,721.00	-172.86	2.17
12,442.00	90.94	357.40	9,830.49	-2,158.29	2,815.81	-178.11	1.96
12,536.00	90.27	358.78	9,829.50	-2,231.96	2,909.75	-181.24	1.63
12,630.00	89.33	356.36	9,829.83	-2,305.10	3,003.66	-185.22	2.76
12,724.00	90.07	354.65	9,830.32	-2,376.07	3,097.37	-192.59	1.98
12,819.00	90.23	354.55	9,830.07	-2,446.80	3,191.94	-201.53	0.20

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12,913.00	90.07	355.10	9,829.83	-2,517.04	3,285.56	-210.01	0.61
13,007.00	87.21	355.56	9,832.06	-2,587.79	3,379.21	-217.66	3.08
13,101.00	89.66	355.04	9,834.62	-2,658.51	3,472.85	-225.36	2.66
13,185.00	91.24	354.52	9,833.96	-2,721.23	3,556.50	-233.00	1.98
13,289.00	91.54	354.54	9,831.44	-2,798.56	3,660.00	-242.91	0.29
13,383.00	91.88	354.99	9,828.64	-2,868.70	3,753.56	-251.48	0.60
13,477.00	90.44	354.44	9,826.73	-2,938.80	3,847.14	-260.14	1.64
13,572.00	90.60	353.63	9,825.87	-3,008.90	3,941.62	-270.01	0.87
13,666.00	91.04	354.97	9,824.53	-3,078.55	4,035.14	-279.35	1.50
13,760.00	91.08	355.23	9,822.79	-3,149.07	4,128.78	-287.38	0.28
13,855.00	91.14	356.00	9,820.95	-3,220.91	4,223.49	-294.64	0.81
13,949.00	91.34	357.74	9,818.91	-3,293.31	4,317.32	-299.77	1.86
14,044.00	90.94	358.06	9,817.02	-3,367.56	4,412.24	-303.25	0.54
14,138.00	91.14	354.47	9,815.32	-3,439.32	4,506.01	-309.37	3.82
14,232.00	91.41	352.23	9,813.22	-3,507.90	4,599.35	-320.25	2.40
14,327.00	88.59	351.99	9,813.22	-3,575.81	4,693.44	-333.29	2.98
14,357.00	86.17	352.04	9,814.59	-3,597.20	4,723.11	-337.46	8.07
14,445.00	88.59	355.65	9,818.62	-3,661.86	4,810.49	-346.88	4.93
14,539.00	89.46	357.22	9,820.22	-3,733.81	4,904.29	-352.72	1.91
14,634.00	90.34	358.12	9,820.38	-3,807.83	4,999.21	-356.58	1.32
14,728.00	91.58	357.71	9,818.81	-3,881.32	5,093.14	-360.00	1.39
14,799.00	91.78	356.97	9,816.73	-3,936.37	5,164.03	-363.29	1.08
14,893.00	91.48	357.86	9,814.05	-4,009.33	5,257.89	-367.53	1.00
14,988.00	91.34	359.38	9,811.72	-4,084.31	5,352.84	-369.82	1.61
15,082.00	91.85	1.40	9,809.10	-4,160.24	5,446.79	-369.18	2.22
15,176.00	91.27	2.30	9,806.54	-4,237.56	5,540.71	-366.15	1.14
15,222.00	91.21	1.89	9,805.54	-4,275.51	5,586.66	-364.47	0.90
15,270.00	91.38	1.40	9,804.46	-4,314.90	5,634.63	-363.09	1.08
15,364.00	91.21	359.73	9,802.34	-4,391.01	5,728.60	-362.16	1.79
15,458.00	91.24	358.64	9,800.33	-4,465.77	5,822.57	-363.50	1.16
15,553.00	91.34	357.89	9,798.19	-4,540.40	5,917.50	-366.37	0.80
15,647.00	91.51	358.45	9,795.85	-4,614.14	6,011.42	-369.37	0.62
15,741.00	91.44	358.84	9,793.43	-4,688.35	6,105.36	-371.60	0.42
15,835.00	91.14	355.36	9,791.31	-4,760.99	6,199.21	-376.35	3.71
15,929.00	91.07	352.71	9,789.50	-4,830.33	6,292.67	-386.12	2.82
16,023.00	90.94	350.46	9,787.85	-4,896.91	6,385.64	-399.87	2.40
16,117.00	92.08	353.04	9,785.37	-4,963.67	6,478.62	-413.35	3.00
16,211.00	91.31	353.75	9,782.59	-5,032.29	6,571.96	-424.16	1.11
16,305.00	91.24	355.74	9,780.50	-5,102.42	6,665.54	-432.77	2.12
16,399.00	91.27	356.14	9,778.44	-5,173.84	6,759.28	-439.42	0.43
16,493.00	91.18	354.27	9,776.43	-5,244.47	6,852.92	-447.28	1.99
16,588.00	91.51	354.66	9,774.20	-5,315.03	6,947.45	-456.44	0.54
16,682.00	89.83	353.52	9,773.10	-5,384.45	7,040.94	-466.11	2.16
16,776.00	90.57	354.03	9,772.78	-5,453.53	7,134.39	-476.31	0.96

Company: Legacy Reserves
Project: Lea County, NM (NAD83)
Site: Lea
Well: Lea Unit #64H
Wellbore: Original Wellbore
Design: Original Wellbore

Local Co-ordinate Reference: Well Lea Unit #64H
TVD Reference: RKB @ 3715.90ft
MD Reference: RKB @ 3715.90ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	V. Sec (ft)	N/S (ft)	E/W (ft)	DLeg (°/100usft)
16,870.00	91.14	354.74	9,771.37	-5,523.28	7,227.92	-485.50	0.97
16,964.00	91.38	354.72	9,769.31	-5,593.39	7,321.50	-494.13	0.26
17,057.00	91.41	355.11	9,767.04	-5,662.96	7,414.11	-502.37	0.42
17,151.00	90.91	353.91	9,765.14	-5,732.83	7,507.66	-511.37	1.38
17,244.00	91.04	355.16	9,763.56	-5,802.00	7,600.22	-520.22	1.35
17,337.00	91.78	355.43	9,761.27	-5,871.97	7,692.88	-527.85	0.85
17,431.00	90.91	354.27	9,759.06	-5,942.21	7,786.47	-536.28	1.54
17,524.00	91.44	354.80	9,757.15	-6,011.37	7,879.03	-545.14	0.81
17,597.00	91.44	354.80	9,755.32	-6,065.88	7,951.70	-551.75	0.00

BHL-Lea Unit 64H

Checked By: _____ Approved By: _____ Date: _____