



Crestone Peak Resources

DJ BASIN

S25-T1N-R66W (LOCHBUIE LAND)

LOCHBUIE LAND 2C-25H-D166

OH

Survey: Survey #1

Standard Survey Report

18 February, 2020



CRESTONE PEAK
RESOURCES

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well LOCHBUIE LAND 2C-25H-D166
Project:	DJ BASIN	TVD Reference:	KB @ 5101.0ft
Site:	S25-T1N-R66W (LOCHBUIE LAND)	MD Reference:	KB @ 5101.0ft
Well:	LOCHBUIE LAND 2C-25H-D166	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	US_EDM

Project	DJ BASIN		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		S25-T1N-R66W (LOCHBUIE LAND)			
Site Position:		Northing:	1,253,634.19 usft	Latitude:	40.027069
From:	Map	Easting:	3,214,538.35 usft	Longitude:	-104.733898
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.50 °

Well	LOCHBUIE LAND 2C-25H-D166					
Well Position	+N/-S	0.0 ft	Northing:	1,253,614.18 usft	Latitude:	40.027014
	+E/-W	0.0 ft	Easting:	3,214,538.35 usft	Longitude:	-104.733899
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	5,078.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	2/10/2020	7.97	66.28	51,875

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	332.75	

Survey Program		Date	2/18/2020		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
173.0	11,855.0	Survey #1 (OH)	MWD+HDGM	OWSG MWD + HDGM	

Survey										
	Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
	173.0	0.18	282.04	173.0	0.1	-0.3	0.2	0.10	0.10	0.00
	263.0	1.85	310.43	263.0	1.0	-1.5	1.6	1.88	1.86	31.54
	354.0	3.52	309.99	353.9	3.8	-4.8	5.5	1.84	1.84	-0.48
	474.0	4.66	325.72	473.6	10.2	-10.3	13.8	1.32	0.95	13.11
	564.0	5.54	327.74	563.2	16.9	-14.7	21.7	1.00	0.98	2.24
	654.0	5.19	329.59	652.8	24.1	-19.1	30.1	0.43	-0.39	2.06
	724.0	4.93	332.50	722.6	29.4	-22.1	36.3	0.52	-0.37	4.16
	813.0	4.29	330.68	811.3	35.7	-25.5	43.4	0.74	-0.72	-2.04
	903.0	3.91	332.44	901.0	41.4	-28.5	49.9	0.44	-0.42	1.96

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Site:	S25-T1N-R66W (LOCHBUIE LAND)	MD Reference:	KB @ 5101.0ft
Well:	LOCHBUIE LAND 2C-25H-D166	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	US_EDM

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
993.0	5.28	336.37	990.7	47.9	-31.6	57.1	1.56	1.52	4.37
1,075.0	5.59	335.77	1,072.4	55.0	-34.8	64.8	0.38	0.38	-0.73
1,162.0	5.76	334.82	1,158.9	62.8	-38.4	73.4	0.22	0.20	-1.09
1,248.0	6.09	329.54	1,244.5	70.7	-42.5	82.3	0.74	0.38	-6.14
1,331.0	5.80	326.53	1,327.0	78.0	-47.1	90.9	0.51	-0.35	-3.63
1,414.0	5.50	325.74	1,409.6	84.7	-51.6	99.0	0.37	-0.36	-0.95
1,496.0	5.47	324.95	1,491.3	91.2	-56.1	106.7	0.10	-0.04	-0.96
1,578.0	5.49	322.74	1,572.9	97.5	-60.7	114.5	0.26	0.02	-2.70
1,660.0	6.14	335.19	1,654.5	104.6	-64.9	122.7	1.73	0.79	15.18
1,743.0	6.36	337.97	1,737.0	112.9	-68.5	131.7	0.45	0.27	3.35
1,827.0	6.44	338.38	1,820.5	121.6	-72.0	141.1	0.11	0.10	0.49
1,909.0	6.87	341.85	1,901.9	130.5	-75.2	150.5	0.72	0.52	4.23
1,993.0	6.78	341.17	1,985.3	140.0	-78.4	160.3	0.14	-0.11	-0.81
2,080.0	7.06	341.18	2,071.7	149.9	-81.8	170.7	0.32	0.32	0.01
2,170.0	7.23	338.40	2,161.0	160.4	-85.6	181.8	0.43	0.19	-3.09
2,259.0	7.31	338.57	2,249.3	170.9	-89.8	193.0	0.09	0.09	0.19
2,326.0	7.27	337.87	2,315.7	178.8	-92.9	201.5	0.15	-0.06	-1.04
2,464.0	7.03	336.86	2,452.6	194.7	-99.5	218.6	0.20	-0.17	-0.73
2,553.0	5.89	332.29	2,541.1	203.7	-103.8	228.6	1.40	-1.28	-5.13
2,642.0	5.45	330.70	2,629.6	211.4	-108.0	237.4	0.52	-0.49	-1.79
2,731.0	4.92	326.66	2,718.3	218.3	-112.1	245.4	0.72	-0.60	-4.54
2,820.0	4.75	323.32	2,807.0	224.4	-116.4	252.9	0.37	-0.19	-3.75
2,909.0	4.31	318.58	2,895.7	229.9	-120.8	259.7	0.65	-0.49	-5.33
2,999.0	4.04	315.59	2,985.4	234.7	-125.3	266.0	0.39	-0.30	-3.32
3,088.0	3.78	311.72	3,074.2	238.9	-129.7	271.8	0.42	-0.29	-4.35
3,177.0	4.92	314.36	3,163.0	243.5	-134.6	278.1	1.30	1.28	2.97
3,266.0	6.24	324.20	3,251.6	250.1	-140.2	286.5	1.83	1.48	11.06
3,355.0	7.12	336.33	3,340.0	259.1	-145.2	296.8	1.86	0.99	13.63
3,444.0	6.68	336.68	3,428.3	268.9	-149.5	307.5	0.50	-0.49	0.39
3,533.0	6.16	332.64	3,516.8	277.9	-153.7	317.4	0.77	-0.58	-4.54
3,647.0	5.36	324.55	3,630.2	287.7	-159.6	328.8	1.00	-0.70	-7.10
3,736.0	6.07	335.98	3,718.7	295.3	-163.9	337.6	1.50	0.80	12.84
3,826.0	5.10	338.79	3,808.3	303.4	-167.3	346.4	1.12	-1.08	3.12
3,915.0	4.22	344.24	3,897.0	310.3	-169.6	353.5	1.11	-0.99	6.12
4,004.0	4.84	334.22	3,985.7	316.8	-172.2	360.5	1.13	0.70	-11.26
4,093.0	4.31	334.75	4,074.5	323.2	-175.2	367.6	0.60	-0.60	0.60
4,182.0	5.19	335.98	4,163.1	329.9	-178.3	374.9	1.00	0.99	1.38
4,272.0	5.19	335.10	4,252.8	337.3	-181.7	383.1	0.09	0.00	-0.98
4,361.0	4.57	335.45	4,341.5	344.2	-184.8	390.6	0.70	-0.70	0.39
4,450.0	3.96	335.98	4,430.2	350.2	-187.6	397.2	0.69	-0.69	0.60
4,539.0	5.36	335.98	4,518.9	356.8	-190.5	404.4	1.57	1.57	0.00
4,628.0	5.28	335.98	4,607.5	364.4	-193.9	412.7	0.09	-0.09	0.00
4,717.0	4.48	328.77	4,696.2	371.1	-197.3	420.2	1.13	-0.90	-8.10
4,806.0	5.63	321.92	4,784.9	377.5	-201.8	428.0	1.46	1.29	-7.70

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Well:	LOCHBUIE LAND 2C-25H-D166	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	US_EDM

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,895.0	5.28	327.72	4,873.5	384.4	-206.7	436.4	0.73	-0.39	6.52
4,984.0	5.54	336.33	4,962.1	391.8	-210.6	444.7	0.96	0.29	9.67
5,073.0	5.72	342.13	5,050.6	399.9	-213.7	453.4	0.67	0.20	6.52
5,163.0	5.19	343.18	5,140.2	408.1	-216.3	461.8	0.60	-0.59	1.17
5,252.0	4.40	347.23	5,228.9	415.3	-218.2	469.1	0.97	-0.89	4.55
5,341.0	5.10	335.10	5,317.6	422.2	-220.6	476.3	1.37	0.79	-13.63
5,430.0	5.01	333.17	5,406.3	429.3	-224.0	484.2	0.22	-0.10	-2.17
5,519.0	6.42	327.36	5,494.8	436.9	-228.5	493.0	1.71	1.58	-6.53
5,608.0	5.80	327.19	5,583.3	444.9	-233.6	502.5	0.70	-0.70	-0.19
5,697.0	4.92	329.30	5,671.9	451.9	-238.0	510.7	1.01	-0.99	2.37
5,787.0	5.80	331.23	5,761.5	459.3	-242.1	519.1	1.00	0.98	2.14
5,876.0	5.10	333.52	5,850.1	466.7	-246.0	527.6	0.82	-0.79	2.57
5,965.0	3.96	334.04	5,938.8	473.0	-249.2	534.6	1.28	-1.28	0.58
6,054.0	4.92	328.77	6,027.6	479.1	-252.5	541.5	1.17	1.08	-5.92
6,143.0	5.63	339.49	6,116.2	486.4	-256.0	549.6	1.36	0.80	12.04
6,232.0	4.92	341.78	6,204.8	494.1	-258.7	557.7	0.83	-0.80	2.57
6,321.0	4.57	342.48	6,293.5	501.1	-261.0	565.0	0.40	-0.39	0.79
6,410.0	5.54	331.41	6,382.2	508.3	-264.1	572.8	1.54	1.09	-12.44
6,499.0	4.40	337.74	6,470.8	515.2	-267.4	580.5	1.42	-1.28	7.11
6,589.0	4.57	14.12	6,560.6	521.9	-267.9	586.6	3.11	0.19	40.42
6,678.0	7.47	36.62	6,649.1	530.0	-263.6	591.8	4.14	3.26	25.28
6,767.0	13.54	51.92	6,736.6	541.1	-251.9	596.3	7.45	6.82	17.19
6,856.0	19.70	64.40	6,821.8	554.0	-230.1	597.9	7.96	6.92	14.02
6,945.0	24.01	77.93	6,904.5	564.3	-198.9	592.7	7.42	4.84	15.20
7,034.0	30.16	79.16	6,983.7	572.3	-159.2	581.6	6.94	6.91	1.38
7,123.0	36.40	83.20	7,058.1	579.6	-110.9	566.1	7.44	7.01	4.54
7,212.0	43.62	87.07	7,126.2	584.3	-54.0	544.2	8.58	8.11	4.35
7,301.0	51.53	87.95	7,186.2	587.1	11.6	516.6	8.92	8.89	0.99
7,391.0	56.72	89.18	7,238.9	588.9	84.5	484.9	5.87	5.77	1.37
7,480.0	65.69	90.59	7,281.7	589.0	162.4	449.3	10.17	10.08	1.58
7,480.2	65.69	90.59	7,281.8	589.0	162.6	449.2	0.00	0.00	0.00
Final TPZ - 329'FNL, 460'FWL									
7,569.0	73.95	92.17	7,312.4	587.0	245.8	409.3	9.45	9.30	1.78
7,658.0	78.17	91.99	7,333.9	583.9	332.1	366.9	4.75	4.74	-0.20
7,747.0	83.10	93.22	7,348.3	579.9	419.8	323.2	5.70	5.54	1.38
7,836.0	88.55	92.87	7,354.8	575.2	508.4	278.5	6.14	6.12	-0.39
7,925.0	89.16	90.94	7,356.6	572.2	597.4	235.1	2.27	0.69	-2.17
8,014.0	89.43	90.94	7,357.7	570.7	686.4	193.1	0.30	0.30	0.00
8,104.0	88.90	90.24	7,359.0	569.8	776.3	151.0	0.98	-0.59	-0.78
8,193.0	90.13	89.53	7,359.7	570.0	865.3	110.4	1.60	1.38	-0.80
8,282.0	90.48	89.18	7,359.3	571.0	954.3	70.6	0.56	0.39	-0.39
8,371.0	89.87	88.65	7,359.0	572.7	1,043.3	31.3	0.91	-0.69	-0.60
8,460.0	90.48	89.18	7,358.7	574.4	1,132.3	-7.9	0.91	0.69	0.60

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Well:	LOCHBUIE LAND 2C-25H-D166	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	US_EDM

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,549.0	90.31	88.65	7,358.1	576.1	1,221.3	-47.2	0.63	-0.19	-0.60
8,638.0	90.84	90.24	7,357.2	576.9	1,310.3	-87.2	1.88	0.60	1.79
8,727.0	90.22	89.88	7,356.4	576.8	1,399.3	-128.0	0.81	-0.70	-0.40
8,816.0	90.75	91.64	7,355.6	575.6	1,488.2	-169.8	2.07	0.60	1.98
8,905.0	90.31	91.29	7,354.8	573.4	1,577.2	-212.6	0.63	-0.49	-0.39
8,994.0	89.43	90.94	7,355.0	571.6	1,666.2	-254.9	1.06	-0.99	-0.39
9,084.0	88.46	90.76	7,356.7	570.3	1,756.2	-297.2	1.10	-1.08	-0.20
9,173.0	89.60	90.76	7,358.2	569.1	1,845.1	-339.0	1.28	1.28	0.00
9,262.0	91.01	90.41	7,357.7	568.2	1,934.1	-380.6	1.63	1.58	-0.39
9,351.0	91.28	89.88	7,355.9	568.0	2,023.1	-421.5	0.67	0.30	-0.60
9,440.0	91.71	89.71	7,353.6	568.3	2,112.1	-462.0	0.52	0.48	-0.19
9,529.0	91.89	88.83	7,350.8	569.4	2,201.0	-501.7	1.01	0.20	-0.99
9,618.0	93.83	87.95	7,346.4	571.9	2,289.9	-540.2	2.39	2.18	-0.99
9,707.0	96.02	88.30	7,338.7	574.8	2,378.5	-578.2	2.49	2.46	0.39
9,796.0	94.09	88.65	7,330.9	577.2	2,467.1	-616.7	2.20	-2.17	0.39
9,885.0	92.24	90.41	7,326.0	577.9	2,556.0	-656.7	2.87	-2.08	1.98
9,975.0	90.48	89.18	7,323.8	578.2	2,645.9	-697.6	2.39	-1.96	-1.37
10,064.0	90.13	90.06	7,323.4	578.8	2,734.9	-737.9	1.06	-0.39	0.99
10,153.0	89.96	89.36	7,323.3	579.3	2,823.9	-778.2	0.81	-0.19	-0.79
10,242.0	89.60	90.94	7,323.6	579.1	2,912.9	-819.2	1.82	-0.40	1.78
10,331.0	89.87	89.88	7,324.1	578.4	3,001.9	-860.5	1.23	0.30	-1.19
10,420.0	88.90	91.11	7,325.0	577.6	3,090.9	-902.0	1.76	-1.09	1.38
10,509.0	88.20	90.59	7,327.3	576.3	3,179.9	-943.9	0.98	-0.79	-0.58
10,598.0	88.02	92.17	7,330.2	574.2	3,268.8	-986.5	1.79	-0.20	1.78
10,688.0	89.69	92.35	7,332.0	570.6	3,358.7	-1,030.8	1.87	1.86	0.20
10,777.0	89.60	90.59	7,332.5	568.4	3,447.7	-1,073.6	1.98	-0.10	-1.98
10,866.0	89.16	90.59	7,333.5	567.4	3,536.7	-1,115.2	0.49	-0.49	0.00
10,955.0	90.31	91.11	7,333.9	566.1	3,625.6	-1,157.1	1.42	1.29	0.58
11,044.0	91.10	90.59	7,332.8	564.8	3,714.6	-1,199.0	1.06	0.89	-0.58
11,133.0	89.96	91.82	7,332.0	562.9	3,803.6	-1,241.4	1.88	-1.28	1.38
11,222.0	90.04	90.94	7,332.0	560.8	3,892.6	-1,284.1	0.99	0.09	-0.99
11,311.0	90.04	90.06	7,331.9	560.0	3,981.6	-1,325.5	0.99	0.00	-0.99
11,400.0	89.60	89.36	7,332.2	560.5	4,070.6	-1,365.9	0.93	-0.49	-0.79
11,490.0	89.43	88.83	7,333.0	561.9	4,160.6	-1,405.8	0.62	-0.19	-0.59
11,579.0	88.72	89.01	7,334.4	563.6	4,249.5	-1,445.1	0.82	-0.80	0.20
11,668.0	88.99	87.95	7,336.2	565.9	4,338.5	-1,483.7	1.23	0.30	-1.19
11,757.0	88.37	87.42	7,338.3	569.5	4,427.4	-1,521.2	0.92	-0.70	-0.60
11,790.0	88.29	87.42	7,339.2	571.0	4,460.3	-1,535.0	0.24	-0.24	0.00
Last Survey - 11,790' MD									
11,855.0	88.29	87.42	7,341.2	573.9	4,525.2	-1,562.1	0.00	0.00	0.00
PTB - 346°FNL, 465°FEL									

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well LOCHBUIE LAND 2C-25H-D166
Project:	DJ BASIN	TVD Reference:	KB @ 5101.0ft
Site:	S25-T1N-R66W (LOCHBUIE LAND)	MD Reference:	KB @ 5101.0ft
Well:	LOCHBUIE LAND 2C-25H-D166	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	US_EDM

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
7,480.2	7,281.8	589.0	162.6	Final TPZ - 329'FNL, 460'FWL
11,790.0	7,339.2	571.0	4,460.3	Last Survey - 11,790' MD
11,855.0	7,341.2	573.9	4,525.2	PTB - 346'FNL, 465'FEL

Checked By: _____	Approved By: _____	Date: _____
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