



Crestone Peak Resources

DJ BASIN

Sec.18-T1N-R67W (HINGLEY)

Hingley 1F-18H-A167

Hingley 1F-18H-A167 Wellbore #1

Survey: Survey #1

Standard Survey Report

17 October, 2019



CRESTONE PEAK
RESOURCES

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well Hingley 1F-18H-A167
Project:	DJ BASIN	TVD Reference:	WELL @ 5079.0ft (Ensign 153 RKB - 23')
Site:	Sec.18-T1N-R67W (HINGLEY)	MD Reference:	WELL @ 5079.0ft (Ensign 153 RKB - 23')
Well:	Hingley 1F-18H-A167	North Reference:	True
Wellbore:	Hingley 1F-18H-A167 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Hingley 1F-18H-A167 Wellbore #1	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	Sec.18-T1N-R67W (HINGLEY)				
Site Position:		Northing:	1,264,132.76 usft	Latitude:	40.057007
From:	Lat/Long	Easting:	3,160,624.47 usft	Longitude:	-104.926172
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.37 °

Well	Hingley 1F-18H-A167					
Well Position	+N/-S	0.0 ft	Northing:	1,264,133.07 usft	Latitude:	40.057007
	+E/-W	0.0 ft	Easting:	3,160,674.30 usft	Longitude:	-104.925994
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	5,056.0 ft

Wellbore	Hingley 1F-18H-A167 Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	10/10/2019	8.20	66.38	51,979

Design	Hingley 1F-18H-A167 Wellbore #1				
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	190.08	

Survey Program		Date	10/17/2019		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
112.0	12,619.0	Survey #1 (Hingley 1F-18H-A167 Wellbore	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
	112.0	0.26	258.75	112.0	0.0	-0.2	0.1	0.23	0.23	0.00
	202.0	0.44	88.24	202.0	-0.1	-0.1	0.1	0.78	0.20	-189.46
	294.0	0.62	136.93	294.0	-0.4	0.6	0.3	0.51	0.20	52.92
	384.0	2.29	328.89	384.0	0.8	0.0	-0.7	3.22	1.86	-186.71
	473.0	2.90	325.02	472.9	4.1	-2.2	-3.7	0.71	0.69	-4.35
	563.0	4.13	333.28	562.7	8.9	-5.0	-7.9	1.47	1.37	9.18
	652.0	6.69	332.31	651.3	16.3	-8.8	-14.5	2.88	2.88	-1.09
	734.0	7.83	330.03	732.7	25.4	-13.8	-22.6	1.43	1.39	-2.78
	805.0	8.40	333.03	802.9	34.2	-18.6	-30.4	1.00	0.80	4.23

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Design:	Hingley 1F-18H-A167 Wellbore #1	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)
891.0	9.71	331.18	887.9	46.2	-25.0	-41.1	1.56	1.52	-2.15
977.0	10.17	318.68	972.6	58.2	-33.5	-51.5	2.56	0.53	-14.53
1,063.0	11.17	316.68	1,057.1	70.0	-44.2	-61.2	1.24	1.16	-2.33
1,152.0	10.04	312.43	1,144.6	81.5	-55.8	-70.5	1.54	-1.27	-4.78
1,242.0	8.03	313.15	1,233.5	91.1	-66.2	-78.1	2.24	-2.23	0.80
1,331.0	8.67	312.24	1,321.5	99.8	-75.7	-85.0	0.73	0.72	-1.02
1,418.0	9.49	311.54	1,407.4	109.0	-85.9	-92.3	0.95	0.94	-0.80
1,508.0	8.89	321.50	1,496.3	119.4	-95.8	-100.8	1.89	-0.67	11.07
1,598.0	9.30	325.03	1,585.1	130.8	-104.3	-110.5	0.77	0.46	3.92
1,684.0	10.11	325.16	1,669.9	142.7	-112.6	-120.7	0.94	0.94	0.15
1,774.0	10.09	327.18	1,758.5	155.8	-121.4	-132.1	0.39	-0.02	2.24
1,863.0	10.45	329.24	1,846.1	169.3	-129.8	-143.9	0.58	0.40	2.31
1,952.0	8.35	322.13	1,933.9	181.3	-137.8	-154.4	2.69	-2.36	-7.99
2,041.0	7.93	320.20	2,022.0	191.1	-145.7	-162.6	0.56	-0.47	-2.17
2,131.0	8.58	320.13	2,111.1	201.0	-154.0	-171.0	0.72	0.72	-0.08
2,221.0	9.02	322.94	2,200.0	211.8	-162.6	-180.1	0.68	0.49	3.12
2,310.0	9.12	324.24	2,287.9	223.1	-170.9	-189.7	0.26	0.11	1.46
2,399.0	8.64	323.87	2,375.8	234.2	-179.0	-199.3	0.54	-0.54	-0.42
2,489.0	8.61	323.18	2,464.8	245.1	-187.0	-208.6	0.12	-0.03	-0.77
2,642.0	8.09	325.56	2,616.2	263.1	-199.9	-224.1	0.41	-0.34	1.56
2,731.0	9.25	322.47	2,704.2	274.0	-207.8	-233.4	1.40	1.30	-3.47
2,820.0	8.69	318.76	2,792.1	284.7	-216.6	-242.4	0.90	-0.63	-4.17
2,909.0	7.99	312.99	2,880.1	294.0	-225.6	-249.9	1.22	-0.79	-6.48
2,999.0	8.62	319.66	2,969.2	303.4	-234.5	-257.6	1.28	0.70	7.41
3,088.0	9.30	319.05	3,057.1	313.9	-243.6	-266.4	0.77	0.76	-0.69
3,176.0	8.66	317.06	3,144.0	324.1	-252.7	-274.9	0.81	-0.73	-2.26
3,266.0	8.71	317.77	3,233.0	334.1	-261.9	-283.1	0.13	0.06	0.79
3,355.0	9.16	319.37	3,320.9	344.5	-271.1	-291.7	0.58	0.51	1.80
3,444.0	8.44	315.97	3,408.9	354.6	-280.2	-300.0	1.00	-0.81	-3.82
3,533.0	8.40	323.19	3,496.9	364.5	-288.7	-308.3	1.19	-0.04	8.11
3,622.0	8.45	322.97	3,585.0	374.9	-296.5	-317.2	0.07	0.06	-0.25
3,711.0	8.82	322.27	3,672.9	385.5	-304.6	-326.2	0.43	0.42	-0.79
3,822.0	9.23	320.49	3,782.6	399.1	-315.5	-337.7	0.45	0.37	-1.60
3,911.0	9.11	319.93	3,870.4	410.0	-324.6	-346.8	0.17	-0.13	-0.63
4,000.0	9.05	316.73	3,958.3	420.5	-333.9	-355.5	0.57	-0.07	-3.60
4,089.0	9.20	318.75	4,046.2	430.9	-343.4	-364.2	0.40	0.17	2.27
4,178.0	8.53	321.66	4,134.1	441.5	-352.2	-373.0	0.91	-0.75	3.27
4,267.0	8.70	319.12	4,222.1	451.7	-360.7	-381.6	0.47	0.19	-2.85
4,356.0	9.06	315.11	4,310.1	461.8	-370.0	-389.9	0.80	0.40	-4.51
4,445.0	9.40	316.36	4,397.9	472.0	-380.0	-398.2	0.44	0.38	1.40
4,534.0	9.38	317.68	4,485.7	482.6	-389.9	-406.9	0.24	-0.02	1.48
4,623.0	8.70	318.56	4,573.6	493.0	-399.2	-415.5	0.78	-0.76	0.99
4,712.0	8.27	318.88	4,661.6	502.9	-407.9	-423.7	0.49	-0.48	0.36
4,801.0	8.48	318.64	4,749.7	512.7	-416.4	-431.8	0.24	0.24	-0.27

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Survey									
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4,890.0	10.34	323.69	4,837.5	524.0	-425.5	-441.4	2.28	2.09	5.67
4,979.0	9.14	322.48	4,925.2	536.1	-434.5	-451.7	1.37	-1.35	-1.36
5,068.0	7.58	320.82	5,013.3	546.2	-442.5	-460.3	1.77	-1.75	-1.87
5,157.0	7.55	322.07	5,101.5	555.4	-449.8	-468.0	0.19	-0.03	1.40
5,247.0	8.54	318.89	5,190.6	565.1	-457.9	-476.2	1.21	1.10	-3.53
5,336.0	7.90	317.13	5,278.7	574.5	-466.4	-484.0	0.77	-0.72	-1.98
5,425.0	8.25	320.96	5,366.8	584.0	-474.6	-491.9	0.72	0.39	4.30
5,514.0	6.79	319.16	5,455.0	592.9	-482.0	-499.4	1.66	-1.64	-2.02
5,603.0	7.83	318.84	5,543.3	601.5	-489.5	-506.5	1.17	1.17	-0.36
5,692.0	7.93	318.72	5,631.5	610.7	-497.5	-514.1	0.11	0.11	-0.13
5,781.0	9.49	320.68	5,719.4	620.9	-506.2	-522.7	1.78	1.75	2.20
5,870.0	9.28	321.03	5,807.2	632.2	-515.4	-532.2	0.24	-0.24	0.39
5,959.0	9.15	317.79	5,895.1	643.0	-524.6	-541.2	0.60	-0.15	-3.64
6,048.0	10.08	320.87	5,982.8	654.3	-534.3	-550.6	1.19	1.04	3.46
6,137.0	8.27	318.19	6,070.7	665.1	-543.5	-559.7	2.09	-2.03	-3.01
6,226.0	8.20	321.58	6,158.8	674.9	-551.7	-567.8	0.55	-0.08	3.81
6,315.0	8.27	315.82	6,246.9	684.4	-560.1	-575.8	0.93	0.08	-6.47
6,404.0	8.50	317.85	6,334.9	693.9	-569.0	-583.5	0.42	0.26	2.28
6,493.0	9.20	324.37	6,422.9	704.5	-577.5	-592.5	1.37	0.79	7.33
6,582.0	8.62	322.91	6,510.8	715.7	-585.7	-602.0	0.70	-0.65	-1.64
6,671.0	8.96	319.72	6,598.7	726.3	-594.2	-611.0	0.67	0.38	-3.58
6,760.0	9.37	318.85	6,686.6	737.0	-603.4	-620.0	0.49	0.46	-0.98
6,849.0	9.47	315.92	6,774.4	747.7	-613.3	-628.8	0.55	0.11	-3.29
6,938.0	9.22	318.63	6,862.2	758.3	-623.1	-637.5	0.57	-0.28	3.04
7,027.0	8.96	282.46	6,950.2	765.2	-634.6	-642.2	6.32	-0.29	-40.64
7,116.0	9.01	238.44	7,038.2	763.0	-647.3	-637.9	7.54	0.06	-49.46
7,205.0	13.83	214.03	7,125.4	750.5	-659.2	-623.5	7.56	5.42	-27.43
7,294.0	16.33	195.39	7,211.4	729.7	-668.5	-601.3	6.09	2.81	-20.94
7,383.0	20.24	192.32	7,295.9	702.5	-675.1	-573.5	4.52	4.39	-3.45
7,473.0	25.85	188.25	7,378.7	667.9	-681.3	-538.3	6.48	6.23	-4.52
7,562.0	33.34	182.33	7,456.1	624.2	-685.0	-494.6	9.03	8.42	-6.65
7,651.0	39.37	181.65	7,527.7	571.5	-686.8	-442.4	6.79	6.78	-0.76
7,740.0	45.65	181.35	7,593.3	511.4	-688.4	-382.9	7.06	7.06	-0.34
7,829.0	53.62	181.55	7,650.9	443.6	-690.1	-315.9	8.96	8.96	0.22
7,918.0	65.45	184.97	7,695.9	367.2	-694.6	-239.9	13.70	13.29	3.84
8,007.0	73.92	187.49	7,726.8	284.3	-703.7	-156.7	9.88	9.52	2.83
8,096.0	79.06	184.70	7,747.6	198.3	-712.9	-70.4	6.53	5.78	-3.13
8,186.0	84.31	181.54	7,760.6	109.4	-717.7	17.9	6.79	5.83	-3.51
8,232.6	87.02	181.23	7,764.1	63.0	-718.8	63.8	5.85	5.81	-0.68
Final TPZ - 460'FNL, 1287'FEL									
8,275.0	89.48	180.94	7,765.4	20.6	-719.6	105.7	5.85	5.81	-0.67
8,364.0	89.67	179.46	7,766.1	-68.4	-719.9	193.4	1.68	0.21	-1.66
8,453.0	90.58	179.64	7,765.9	-157.4	-719.2	280.9	1.04	1.02	0.20

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8,542.0	90.01	179.23	7,765.4	-246.4	-718.4	368.3	0.79	-0.64	-0.46
8,631.0	91.09	179.13	7,764.6	-335.3	-717.1	455.7	1.22	1.21	-0.11
8,720.0	90.34	180.22	7,763.5	-424.3	-716.6	543.3	1.49	-0.84	1.22
8,809.0	89.86	181.21	7,763.3	-513.3	-717.7	631.1	1.24	-0.54	1.11
8,898.0	90.73	181.12	7,762.8	-602.3	-719.5	719.0	0.98	0.98	-0.10
8,987.0	89.51	180.49	7,762.7	-691.3	-720.8	806.8	1.54	-1.37	-0.71
9,076.0	88.47	181.11	7,764.2	-780.3	-722.0	894.6	1.36	-1.17	0.70
9,165.0	88.69	179.96	7,766.4	-869.2	-722.8	982.4	1.32	0.25	-1.29
9,254.0	89.51	182.14	7,767.8	-958.2	-724.5	1,070.3	2.62	0.92	2.45
9,343.0	89.43	182.10	7,768.7	-1,047.1	-727.8	1,158.4	0.10	-0.09	-0.04
9,432.0	89.31	182.29	7,769.6	-1,136.1	-731.2	1,246.5	0.25	-0.13	0.21
9,522.0	88.85	180.74	7,771.1	-1,226.0	-733.5	1,335.5	1.80	-0.51	-1.72
9,611.0	88.90	180.25	7,772.8	-1,315.0	-734.3	1,423.3	0.55	0.06	-0.55
9,700.0	88.72	179.45	7,774.7	-1,404.0	-734.1	1,510.8	0.92	-0.20	-0.90
9,789.0	90.10	179.98	7,775.6	-1,493.0	-733.6	1,598.4	1.66	1.55	0.60
9,878.0	90.11	180.28	7,775.4	-1,582.0	-733.8	1,686.0	0.34	0.01	0.34
9,967.0	91.13	181.03	7,774.5	-1,671.0	-734.9	1,773.8	1.42	1.15	0.84
10,056.0	92.13	181.11	7,771.9	-1,759.9	-736.5	1,861.7	1.13	1.12	0.09
10,145.0	92.28	180.80	7,768.5	-1,848.8	-738.0	1,949.5	0.39	0.17	-0.35
10,234.0	92.01	179.73	7,765.2	-1,937.8	-738.4	2,037.1	1.24	-0.30	-1.20
10,323.0	91.99	178.41	7,762.1	-2,026.7	-737.0	2,124.4	1.48	-0.02	-1.48
10,413.0	90.75	180.18	7,759.9	-2,116.7	-735.9	2,212.8	2.40	-1.38	1.97
10,502.0	90.59	180.23	7,758.9	-2,205.7	-736.2	2,300.5	0.19	-0.18	0.06
10,591.0	90.46	179.39	7,758.1	-2,294.6	-735.9	2,388.1	0.96	-0.15	-0.94
10,680.0	90.59	181.88	7,757.3	-2,383.6	-736.9	2,475.8	2.80	0.15	2.80
10,769.0	90.79	180.87	7,756.2	-2,472.6	-739.0	2,563.8	1.16	0.22	-1.13
10,858.0	90.96	180.47	7,754.8	-2,561.6	-740.0	2,651.6	0.49	0.19	-0.45
10,947.0	91.04	181.89	7,753.3	-2,650.5	-741.9	2,739.5	1.60	0.09	1.60
11,036.0	91.20	181.42	7,751.5	-2,739.5	-744.5	2,827.5	0.56	0.18	-0.53
11,125.0	90.54	179.11	7,750.2	-2,828.5	-744.9	2,915.2	2.70	-0.74	-2.60
11,214.0	91.65	179.43	7,748.5	-2,917.5	-743.7	3,002.6	1.30	1.25	0.36
11,303.0	92.01	179.61	7,745.6	-3,006.4	-743.0	3,090.1	0.45	0.40	0.20
11,393.0	90.64	180.19	7,743.6	-3,096.4	-742.8	3,178.6	1.65	-1.52	0.64
11,482.0	89.53	181.19	7,743.4	-3,185.4	-743.9	3,266.4	1.68	-1.25	1.12
11,571.0	89.57	180.87	7,744.1	-3,274.3	-745.5	3,354.3	0.36	0.04	-0.36
11,660.0	88.06	181.45	7,746.0	-3,363.3	-747.3	3,442.2	1.82	-1.70	0.65
11,749.0	87.66	181.05	7,749.3	-3,452.2	-749.2	3,530.1	0.64	-0.45	-0.45
11,838.0	87.85	179.87	7,752.8	-3,541.2	-750.0	3,617.8	1.34	0.21	-1.33
11,927.0	88.82	181.29	7,755.4	-3,630.1	-750.9	3,705.5	1.93	1.09	1.60
12,016.0	88.89	181.38	7,757.1	-3,719.1	-752.9	3,793.4	0.13	0.08	0.10
12,105.0	89.14	181.34	7,758.7	-3,808.0	-755.0	3,881.4	0.28	0.28	-0.04
12,194.0	91.04	181.67	7,758.5	-3,897.0	-757.4	3,969.4	2.17	2.13	0.37
12,283.0	91.41	181.72	7,756.6	-3,985.9	-760.0	4,057.4	0.42	0.42	0.06
12,372.0	90.71	181.75	7,755.0	-4,074.9	-762.7	4,145.5	0.79	-0.79	0.03

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well Hingley 1F-18H-A167
Project:	DJ BASIN	TVD Reference:	WELL @ 5079.0ft (Ensign 153 RKB - 23')
Site:	Sec.18-T1N-R67W (HINGLEY)	MD Reference:	WELL @ 5079.0ft (Ensign 153 RKB - 23')
Well:	Hingley 1F-18H-A167	North Reference:	True
Wellbore:	Hingley 1F-18H-A167 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Hingley 1F-18H-A167 Wellbore #1	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)
12,462.0	90.97	181.48	7,753.7	-4,164.8	-765.2	4,234.5	0.42	0.29	-0.30
12,554.0	91.27	181.12	7,751.9	-4,256.8	-767.3	4,325.4	0.51	0.33	-0.39
Last Survey Drilled - 12,554' MD									
12,619.0	91.27	181.12	7,750.4	-4,321.8	-768.6	4,389.6	0.00	0.00	0.00
PTB - 466'FSL, 1293'FEL									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
8,232.6	7,764.1	63.0	-718.8	Final TPZ - 460'FNL, 1287'FEL
12,554.0	7,751.9	-4,256.8	-767.3	Last Survey Drilled - 12,554' MD
12,619.0	7,750.4	-4,321.8	-768.6	PTB - 466'FSL, 1293'FEL

Checked By: _____ Approved By: _____ Date: _____