

Crestone Peak Resources

DJ BASIN

BIGHORN

BIGHORN 4R-17H-P267

BIGHORN 4R-17H-P267 OH

Survey: Survey #1 - MWD Survey

Standard Survey Report

20 March, 2019



CRESTONE PEAK
RESOURCES

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4R-17H-P267
Project:	DJ BASIN	TVD Reference:	GL 4960' & RKB 23' @ 4983.0ft (Ensign 153)
Site:	BIGHORN	MD Reference:	GL 4960' & RKB 23' @ 4983.0ft (Ensign 153)
Well:	BIGHORN 4R-17H-P267	North Reference:	True
Wellbore:	BIGHORN 4R-17H-P267 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	BIGHORN				
Site Position:		Northing:	1,292,097.01 usft	Latitude:	40.133684
From:	Lat/Long	Easting:	3,165,479.29 usft	Longitude:	-104.908162
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.38 °

Well	BIGHORN 4R-17H-P267					
Well Position	+N/-S	0.0 ft	Northing:	1,292,097.01 usft	Latitude:	40.133681
	+E/-W	0.0 ft	Easting:	3,165,649.29 usft	Longitude:	-104.907554
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,960.0 ft

Wellbore	BIGHORN 4R-17H-P267 OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/6/2019	8.30	66.53	52,081

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	4.17	

Survey Program	Date	3/20/2019			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
134.0	15,342.0	Survey #1 - MWD Survey (BIGHORN 4R-1)	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	
134.0	1.14	226.58	134.0	-0.9	-1.0	-1.0	0.85	0.85	0.00	
260.0	1.67	243.98	260.0	-2.6	-3.5	-2.8	0.54	0.42	13.81	
354.0	2.46	205.31	353.9	-5.0	-5.6	-5.4	1.66	0.84	-41.14	
448.0	3.43	161.63	447.8	-9.5	-5.6	-9.9	2.52	1.03	-46.47	
543.0	5.81	153.98	542.5	-16.5	-2.6	-16.7	2.58	2.51	-8.05	
637.0	7.13	153.02	635.9	-26.0	2.1	-25.8	1.41	1.40	-1.02	
711.0	8.97	154.80	709.1	-35.3	6.7	-34.7	2.51	2.49	2.41	
806.0	10.32	156.10	802.8	-49.8	13.3	-48.7	1.44	1.42	1.37	
900.0	11.50	153.17	895.1	-65.9	20.9	-64.2	1.39	1.26	-3.12	

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Wellbore:	BIGHORN 4R-17H-P267 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)	
994.0	10.97	159.26	987.3	-82.6	28.3	-80.3	1.38	-0.56	6.48	
1,089.0	10.64	156.60	1,080.6	-99.1	35.0	-96.3	0.63	-0.35	-2.80	
1,183.0	11.78	163.67	1,172.8	-116.3	41.1	-113.0	1.90	1.21	7.52	
1,278.0	13.01	162.33	1,265.6	-135.7	47.1	-132.0	1.33	1.29	-1.41	
1,372.0	14.22	162.65	1,357.0	-156.9	53.8	-152.5	1.29	1.29	0.34	
1,467.0	13.27	162.61	1,449.2	-178.4	60.5	-173.5	1.00	-1.00	-0.04	
1,562.0	11.38	158.00	1,542.0	-197.5	67.3	-192.1	2.24	-1.99	-4.85	
1,656.0	10.51	151.03	1,634.3	-213.6	74.9	-207.6	1.68	-0.93	-7.41	
1,751.0	10.10	155.28	1,727.8	-228.7	82.6	-222.1	0.91	-0.43	4.47	
1,846.0	11.22	160.10	1,821.2	-245.0	89.2	-237.9	1.51	1.18	5.07	
1,940.0	11.85	164.69	1,913.3	-262.9	94.9	-255.3	1.18	0.67	4.88	
2,035.0	11.55	159.47	2,006.3	-281.2	100.8	-273.1	1.16	-0.32	-5.49	
2,129.0	11.32	159.16	2,098.4	-298.7	107.4	-290.1	0.25	-0.24	-0.33	
2,224.0	12.11	163.80	2,191.5	-316.9	113.5	-307.9	1.29	0.83	4.88	
2,340.0	10.79	159.25	2,305.2	-338.8	120.7	-329.1	1.38	-1.14	-3.92	
2,509.0	9.15	150.51	2,471.6	-365.3	132.9	-354.6	1.32	-0.97	-5.17	
2,604.0	9.15	159.65	2,565.4	-378.9	139.3	-367.8	1.53	0.00	9.62	
2,698.0	10.46	168.96	2,658.0	-394.3	143.5	-382.8	2.18	1.39	9.90	
2,792.0	12.31	173.71	2,750.2	-412.6	146.2	-400.9	2.20	1.97	5.05	
2,887.0	14.25	174.76	2,842.6	-434.4	148.4	-422.4	2.06	2.04	1.11	
2,981.0	13.28	173.36	2,933.9	-456.6	150.7	-444.4	1.09	-1.03	-1.49	
3,076.0	13.81	169.32	3,026.3	-478.6	154.1	-466.1	1.14	0.56	-4.25	
3,169.0	14.42	164.75	3,116.5	-500.7	159.2	-487.8	1.37	0.66	-4.91	
3,264.0	13.54	158.24	3,208.7	-522.4	166.4	-508.9	1.90	-0.93	-6.85	
3,358.0	12.05	157.19	3,300.3	-541.7	174.3	-527.6	1.60	-1.59	-1.12	
3,453.0	12.13	155.60	3,393.2	-559.9	182.3	-545.2	0.36	0.08	-1.67	
3,547.0	11.78	157.54	3,485.2	-577.8	190.0	-562.4	0.57	-0.37	2.06	
3,641.0	11.96	157.71	3,577.2	-595.6	197.4	-579.7	0.20	0.19	0.18	
3,759.0	10.11	151.03	3,693.0	-616.0	207.0	-599.3	1.90	-1.57	-5.66	
3,853.0	10.64	161.23	3,785.5	-631.5	213.8	-614.2	2.03	0.56	10.85	
3,948.0	11.52	163.16	3,878.7	-648.8	219.4	-631.2	1.01	0.93	2.03	
4,042.0	12.49	162.46	3,970.6	-667.5	225.2	-649.4	1.04	1.03	-0.74	
4,136.0	11.17	159.82	4,062.6	-685.8	231.4	-667.1	1.52	-1.40	-2.81	
4,231.0	13.37	161.05	4,155.5	-704.8	238.1	-685.6	2.33	2.32	1.29	
4,325.0	11.87	158.24	4,247.2	-724.0	245.2	-704.3	1.72	-1.60	-2.99	
4,420.0	12.05	157.54	4,340.1	-742.3	252.7	-722.0	0.24	0.19	-0.74	
4,515.0	12.22	160.53	4,433.0	-760.9	259.8	-740.0	0.69	0.18	3.15	
4,609.0	12.93	159.82	4,524.8	-780.2	266.7	-758.7	0.77	0.76	-0.76	
4,703.0	12.31	158.59	4,616.5	-799.4	274.0	-777.3	0.72	-0.66	-1.31	
4,798.0	13.10	164.22	4,709.2	-819.2	280.7	-796.6	1.55	0.83	5.93	
4,893.0	11.96	163.51	4,801.9	-839.0	286.4	-815.9	1.21	-1.20	-0.75	
4,987.0	13.01	163.34	4,893.7	-858.4	292.2	-834.9	1.12	1.12	-0.18	
5,081.0	11.78	162.11	4,985.5	-877.7	298.2	-853.7	1.34	-1.31	-1.31	
5,175.0	11.17	161.58	5,077.6	-895.5	304.0	-871.0	0.66	-0.65	-0.56	

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5,270.0	12.57	159.65	5,170.6	-913.9	310.5	-888.9	1.53	1.47	-2.03	
5,364.0	11.34	158.24	5,262.5	-932.1	317.5	-906.5	1.34	-1.31	-1.50	
5,458.0	11.17	162.64	5,354.7	-949.4	323.6	-923.3	0.93	-0.18	4.68	
5,552.0	11.96	164.57	5,446.8	-967.4	328.9	-941.0	0.94	0.84	2.05	
5,646.0	10.82	163.87	5,539.0	-985.3	334.0	-958.4	1.22	-1.21	-0.74	
5,740.0	11.52	160.18	5,631.2	-1,002.6	339.6	-975.3	1.06	0.74	-3.93	
5,834.0	12.57	158.59	5,723.1	-1,021.0	346.5	-993.1	1.17	1.12	-1.69	
5,929.0	10.99	157.19	5,816.1	-1,038.9	353.8	-1,010.5	1.69	-1.66	-1.47	
6,024.0	11.17	165.80	5,909.3	-1,056.2	359.6	-1,027.3	1.75	0.19	9.06	
6,118.0	11.78	152.62	6,001.5	-1,073.5	366.2	-1,044.1	2.86	0.65	-14.02	
6,212.0	11.70	159.30	6,093.5	-1,091.0	374.0	-1,060.9	1.45	-0.09	7.11	
6,307.0	10.64	166.33	6,186.7	-1,108.5	379.5	-1,078.0	1.81	-1.12	7.40	
6,401.0	11.26	168.79	6,279.0	-1,126.0	383.3	-1,095.1	0.83	0.66	2.62	
6,496.0	12.22	164.22	6,372.0	-1,144.7	387.8	-1,113.5	1.41	1.01	-4.81	
6,590.0	11.61	163.87	6,464.0	-1,163.4	393.2	-1,131.7	0.65	-0.65	-0.37	
6,685.0	6.42	112.54	6,557.9	-1,174.6	400.8	-1,142.4	9.56	-5.46	-54.03	
6,779.0	8.35	39.76	6,651.3	-1,171.4	410.0	-1,138.5	9.45	2.05	-77.43	
6,873.0	14.51	29.92	6,743.4	-1,155.9	420.2	-1,122.3	6.85	6.55	-10.47	
6,967.0	19.52	14.63	6,833.3	-1,130.5	430.1	-1,096.2	7.10	5.33	-16.27	
7,062.0	26.03	14.10	6,920.9	-1,094.9	439.2	-1,060.1	6.86	6.85	-0.56	
7,156.0	30.07	2.50	7,003.9	-1,051.3	445.2	-1,016.1	7.20	4.30	-12.34	
7,250.0	35.17	356.50	7,083.0	-1,000.7	444.6	-965.7	6.42	5.43	-6.38	
7,344.0	42.56	6.19	7,156.2	-941.9	446.4	-907.0	10.16	7.86	10.31	
7,438.0	51.35	7.42	7,220.3	-873.8	454.6	-838.4	9.40	9.35	1.31	
7,533.0	59.97	6.54	7,273.9	-796.0	464.1	-760.2	9.11	9.07	-0.93	
7,628.0	68.76	1.27	7,315.0	-710.7	469.8	-674.6	10.51	9.25	-5.55	
7,722.0	76.50	359.69	7,343.0	-621.0	470.5	-585.2	8.39	8.23	-1.68	
7,817.0	80.46	0.57	7,362.0	-528.0	470.7	-492.4	4.27	4.17	0.93	
7,886.9	86.66	3.42	7,369.8	-458.6	473.1	-423.0	9.76	8.88	4.08	
TPZ - 460'FSL, 172'FEL, Sec.17 - Bighorn 4R-17H-P267 TPZ 460'FSL & 184'FEL										
7,912.0	88.90	4.43	7,370.8	-433.6	474.8	-397.9	9.76	8.89	4.03	
8,006.0	90.22	0.74	7,371.5	-339.7	479.1	-304.0	4.17	1.40	-3.93	
8,101.0	90.48	1.09	7,370.9	-244.7	480.6	-209.1	0.46	0.27	0.37	
8,196.0	91.89	358.98	7,369.0	-149.7	480.7	-114.4	2.67	1.48	-2.22	
8,290.0	91.63	357.58	7,366.1	-55.8	477.8	-20.9	1.51	-0.28	-1.49	
8,384.0	90.40	355.64	7,364.4	38.0	472.3	72.2	2.44	-1.31	-2.06	
8,478.0	89.69	357.40	7,364.3	131.8	466.6	165.4	2.02	-0.76	1.87	
8,573.0	89.69	355.82	7,364.8	226.6	461.0	259.6	1.66	0.00	-1.66	
8,667.0	89.52	358.63	7,365.5	320.5	456.4	352.8	2.99	-0.18	2.99	
8,762.0	90.75	358.28	7,365.3	415.5	453.8	447.4	1.35	1.29	-0.37	
8,855.0	91.54	0.74	7,363.4	508.5	453.0	540.0	2.78	0.85	2.65	
8,949.0	92.15	2.85	7,360.4	602.4	456.0	633.9	2.34	0.65	2.24	
9,043.0	92.68	2.15	7,356.4	696.2	460.1	727.8	0.93	0.56	-0.74	

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9,138.0	92.15	3.73	7,352.4	791.0	465.0	822.7	1.75	-0.56	1.66	
9,232.0	90.84	3.38	7,350.0	884.8	470.8	916.6	1.44	-1.39	-0.37	
9,326.0	91.45	2.32	7,348.1	978.6	475.5	1,010.6	1.30	0.65	-1.13	
9,421.0	91.63	2.15	7,345.5	1,073.5	479.2	1,105.5	0.26	0.19	-0.18	
9,515.0	91.80	0.92	7,342.7	1,167.4	481.7	1,199.4	1.32	0.18	-1.31	
9,609.0	92.07	1.27	7,339.6	1,261.4	483.5	1,293.2	0.47	0.29	0.37	
9,703.0	91.19	358.81	7,336.9	1,355.3	483.5	1,386.9	2.78	-0.94	-2.62	
9,798.0	91.36	358.63	7,334.8	1,450.3	481.4	1,481.4	0.26	0.18	-0.19	
9,892.0	90.48	0.04	7,333.3	1,544.2	480.3	1,575.1	1.77	-0.94	1.50	
9,986.0	90.66	359.51	7,332.3	1,638.2	480.0	1,668.8	0.60	0.19	-0.56	
10,081.0	90.66	359.16	7,331.2	1,733.2	478.8	1,763.4	0.37	0.00	-0.37	
10,175.0	90.40	359.34	7,330.4	1,827.2	477.6	1,857.1	0.34	-0.28	0.19	
10,210.0	90.79	359.79	7,330.0	1,862.2	477.4	1,891.9	1.70	1.11	1.29	
BIGHORN 4R 1862' TGT										
10,270.0	91.45	0.57	7,328.8	1,922.2	477.5	1,951.8	1.70	1.11	1.29	
10,364.0	91.45	359.16	7,326.4	2,016.2	477.3	2,045.5	1.50	0.00	-1.50	
10,458.0	91.45	359.16	7,324.1	2,110.1	475.9	2,139.1	0.00	0.00	0.00	
10,553.0	91.45	1.09	7,321.7	2,205.1	476.2	2,233.9	2.03	0.00	2.03	
10,647.0	89.87	1.09	7,320.6	2,299.1	477.9	2,327.7	1.68	-1.68	0.00	
10,742.0	90.31	0.92	7,320.4	2,394.0	479.6	2,422.6	0.50	0.46	-0.18	
10,837.0	90.75	359.34	7,319.5	2,489.0	479.8	2,517.3	1.73	0.46	-1.66	
10,931.0	91.28	358.63	7,317.9	2,583.0	478.2	2,610.9	0.94	0.56	-0.76	
11,026.0	91.01	0.92	7,316.0	2,678.0	477.8	2,705.6	2.43	-0.28	2.41	
11,121.0	91.45	1.09	7,313.9	2,772.9	479.4	2,800.5	0.50	0.46	0.18	
11,215.0	91.89	0.21	7,311.2	2,866.9	480.5	2,894.2	1.05	0.47	-0.94	
11,310.0	92.51	358.98	7,307.6	2,961.8	479.8	2,988.9	1.45	0.65	-1.29	
11,404.0	90.66	0.57	7,305.0	3,055.8	479.5	3,082.6	2.59	-1.97	1.69	
11,498.0	90.48	358.81	7,304.0	3,149.8	479.0	3,176.3	1.88	-0.19	-1.87	
11,592.0	90.04	1.80	7,303.6	3,243.8	479.5	3,270.0	3.22	-0.47	3.18	
11,687.0	90.04	0.74	7,303.5	3,338.7	481.6	3,364.9	1.12	0.00	-1.12	
11,782.0	89.69	359.69	7,303.8	3,433.7	481.9	3,459.7	1.17	-0.37	-1.11	
11,877.0	90.57	359.16	7,303.5	3,528.7	481.0	3,554.4	1.08	0.93	-0.56	
11,971.0	91.10	2.32	7,302.2	3,622.7	482.2	3,648.2	3.41	0.56	3.36	
12,066.0	91.36	0.74	7,300.1	3,717.6	484.7	3,743.0	1.69	0.27	-1.66	
12,161.0	91.54	0.92	7,297.7	3,812.6	486.1	3,837.8	0.27	0.19	0.19	
12,255.0	91.45	0.21	7,295.3	3,906.6	487.0	3,931.6	0.76	-0.10	-0.76	
12,350.0	91.80	359.69	7,292.6	4,001.5	486.9	4,026.3	0.66	0.37	-0.55	
12,444.0	92.07	358.28	7,289.4	4,095.4	485.3	4,119.9	1.53	0.29	-1.50	
12,538.0	91.19	359.51	7,286.7	4,189.4	483.5	4,213.5	1.61	-0.94	1.31	
12,590.7	90.41	0.49	7,286.0	4,242.1	483.5	4,266.0	2.37	-1.48	1.85	
BIGHORN 4R 4242' TGT										
12,633.0	89.78	1.27	7,285.9	4,284.4	484.1	4,308.2	2.37	-1.48	1.85	
12,727.0	89.34	0.92	7,286.7	4,378.4	485.9	4,402.1	0.60	-0.47	-0.37	
12,821.0	89.16	0.04	7,287.9	4,472.3	486.7	4,495.9	0.96	-0.19	-0.94	

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4R-17H-P267
Project:	DJ BASIN	TVD Reference:	GL 4960' & RKB 23' @ 4983.0ft (Ensign 153)
Site:	BIGHORN	MD Reference:	GL 4960' & RKB 23' @ 4983.0ft (Ensign 153)
Well:	BIGHORN 4R-17H-P267	North Reference:	True
Wellbore:	BIGHORN 4R-17H-P267 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)	
12,916.0	89.34	2.15	7,289.1	4,567.3	488.5	4,590.7	2.23	0.19	2.22	
13,010.0	89.60	1.27	7,290.0	4,661.3	491.3	4,684.7	0.98	0.28	-0.94	
13,104.0	89.43	0.74	7,290.8	4,755.3	493.0	4,778.5	0.59	-0.18	-0.56	
13,198.0	89.96	0.21	7,291.3	4,849.2	493.7	4,872.3	0.80	0.56	-0.56	
13,293.0	89.87	358.81	7,291.4	4,944.2	492.9	4,967.0	1.48	-0.09	-1.47	
13,387.0	89.96	0.92	7,291.6	5,038.2	492.7	5,060.7	2.25	0.10	2.24	
13,481.0	90.13	359.69	7,291.5	5,132.2	493.2	5,154.5	1.32	0.18	-1.31	
13,576.0	90.22	358.98	7,291.2	5,227.2	492.1	5,249.2	0.75	0.09	-0.75	
13,671.0	90.22	1.44	7,290.8	5,322.2	492.5	5,343.9	2.59	0.00	2.59	
13,765.0	90.22	0.74	7,290.5	5,416.2	494.2	5,437.8	0.74	0.00	-0.74	
13,860.0	90.66	359.86	7,289.8	5,511.2	494.7	5,532.6	1.04	0.46	-0.93	
13,955.0	90.84	359.86	7,288.5	5,606.2	494.5	5,627.3	0.19	0.19	0.00	
14,049.0	91.36	359.34	7,286.7	5,700.2	493.9	5,721.0	0.78	0.55	-0.55	
14,143.0	89.25	359.86	7,286.2	5,794.2	493.2	5,814.7	2.31	-2.24	0.55	
14,238.0	89.25	359.16	7,287.4	5,889.1	492.4	5,909.4	0.74	0.00	-0.74	
14,333.0	88.64	1.09	7,289.2	5,984.1	492.6	6,004.1	2.13	-0.64	2.03	
14,427.0	88.81	0.57	7,291.3	6,078.1	494.0	6,097.9	0.58	0.18	-0.55	
14,521.0	89.34	1.62	7,292.8	6,172.1	495.8	6,191.8	1.25	0.56	1.12	
14,615.0	89.60	0.21	7,293.7	6,266.0	497.3	6,285.6	1.53	0.28	-1.50	
14,710.0	89.52	3.20	7,294.4	6,361.0	500.1	6,380.5	3.15	-0.08	3.15	
14,805.0	89.60	2.15	7,295.1	6,455.9	504.5	6,475.5	1.11	0.08	-1.11	
14,898.0	90.40	0.92	7,295.1	6,548.8	507.0	6,568.4	1.58	0.86	-1.32	
14,993.0	90.84	1.44	7,294.1	6,643.8	509.0	6,663.2	0.72	0.46	0.55	
15,087.0	91.54	0.57	7,292.2	6,737.8	510.6	6,757.1	1.19	0.74	-0.93	
15,182.0	91.89	359.51	7,289.3	6,832.7	510.7	6,851.8	1.17	0.37	-1.12	
15,282.0	92.24	359.86	7,285.7	6,932.7	510.1	6,951.4	0.49	0.35	0.35	
Last Survey - 15,282.0 MD										
15,342.0	92.24	359.86	7,283.4	6,992.6	510.0	7,011.2	0.00	0.00	0.00	
Projected BHL - 2638'FSL, 329'FEL, Sec.8 - Bighorn 4R-17H-P267 BHL 2638'FSL & 324'FEL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Bighorn 4R-17H-P267 B	0.00	0.00	7,289.0	6,997.2	510.0	1,299,097.40	3,166,112.53	40.152889	-104.905730	
- hit/miss target										
- Shape										
- survey misses target center by 7.2ft at 15342.0ft MD (7283.4 TVD, 6992.6 N, 510.0 E)										
- Point										

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4R-17H-P267
Project:	DJ BASIN	TVD Reference:	GL 4960' & RKB 23' @ 4983.0ft (Ensign 153)
Site:	BIGHORN	MD Reference:	GL 4960' & RKB 23' @ 4983.0ft (Ensign 153)
Well:	BIGHORN 4R-17H-P267	North Reference:	True
Wellbore:	BIGHORN 4R-17H-P267 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)	
7,886.9	7,369.8	-458.6	473.1	TPZ - 460'FSL, 172'FEL, Sec.17
15,282.0	7,285.7	6,932.7	510.1	Last Survey - 15,282.0 MD
15,342.0	7,283.4	6,992.6	510.0	Projected BHL - 2638'FSL, 329'FEL, Sec.8

Checked By: _____ Approved By: _____ Date: _____