



Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
3	750.10	7.00	184.10	749.23	-21.31	-1.53	2.00	184.10	-21.30	
4	6935.65	7.00	184.10	6888.65	-773.43	-55.43	0.00	0.00	-772.94	
5	8148.04	90.00	0.93	7692.00	-62.56	-49.27	8.00	176.81	-62.15	HINGLEY 3G-18H-N167 TPZ
6	11781.08	90.00	0.93	7692.00	3570.00	10.00	0.00	0.00	3569.79	
7	12048.81	90.00	355.58	7692.00	3837.51	1.86	2.00	-90.00	3837.36	
8	12541.56	90.00	355.58	7692.00	4328.79	-36.11	0.00	0.00	4328.94	HINGLEY 3G-18H-N167 BHL

[illegible]

Vertical Section at 359.52° (2000 usft/in)

		5110.00			
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1259880.04	3157499.78	40.045388	-104.937430



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well HINGLEY 3G-18H-N167
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 5133.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 5133.00usft
Site:	S18-T1N-R67W (HINGLEY)	North Reference:	True
Well:	HINGLEY 3G-18H-N167	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #2		

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		S18-T1N-R67W (HINGLEY)			
Site Position:		Northing:	1,257,176.93 usft	Latitude:	40.038044
From:	Lat/Long	Easting:	3,153,030.55 usft	Longitude:	-104.953454
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.35 °

Well	HINGLEY 3G-18H-N167					
Well Position	+N/-S	0.00 usft	Northing:	1,259,880.04 usft	Latitude:	40.045388
	+E/-W	0.00 usft	Easting:	3,157,499.78 usft	Longitude:	-104.937430
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	5,110.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	HDGM	12/29/2017	8.40	66.43	52,141.00000000

Design	PLAN #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	359.52

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
750.10	7.00	184.10	749.23	-21.31	-1.53	2.00	2.00	0.00	184.10	
6,935.65	7.00	184.10	6,888.65	-773.43	-55.43	0.00	0.00	0.00	0.00	
8,148.04	90.00	0.93	7,692.00	-62.56	-49.27	8.00	6.85	14.59	176.81	HINGLEY 3G-18H-N1
11,781.08	90.00	0.93	7,692.00	3,570.00	10.00	0.00	0.00	0.00	0.00	
12,048.81	90.00	355.58	7,692.00	3,837.51	1.86	2.00	0.00	-2.00	-90.00	
12,541.56	90.00	355.58	7,692.00	4,328.79	-36.11	0.00	0.00	0.00	0.00	HINGLEY 3G-18H-N1

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well HINGLEY 3G-18H-N167
Company:	Crestone Peak Resources	TVD Reference:	KB @ 5133.00usft
Project:	DJ BASIN	MD Reference:	KB @ 5133.00usft
Site:	S18-T1N-R67W (HINGLEY)	North Reference:	True
Well:	HINGLEY 3G-18H-N167	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
500.00	2.00	184.10	499.98	-1.74	-0.12	-1.74	2.00	2.00	
600.00	4.00	184.10	599.84	-6.96	-0.50	-6.96	2.00	2.00	
700.00	6.00	184.10	699.45	-15.65	-1.12	-15.64	2.00	2.00	
750.10	7.00	184.10	749.23	-21.31	-1.53	-21.30	2.00	2.00	
800.00	7.00	184.10	798.76	-27.38	-1.96	-27.36	0.00	0.00	
900.00	7.00	184.10	898.01	-39.54	-2.83	-39.51	0.00	0.00	
1,000.00	7.00	184.10	997.26	-51.70	-3.70	-51.66	0.00	0.00	
1,100.00	7.00	184.10	1,096.52	-63.86	-4.58	-63.82	0.00	0.00	
1,200.00	7.00	184.10	1,195.77	-76.02	-5.45	-75.97	0.00	0.00	
1,300.00	7.00	184.10	1,295.03	-88.17	-6.32	-88.12	0.00	0.00	
1,400.00	7.00	184.10	1,394.28	-100.33	-7.19	-100.27	0.00	0.00	
1,500.00	7.00	184.10	1,493.53	-112.49	-8.06	-112.42	0.00	0.00	
1,600.00	7.00	184.10	1,592.79	-124.65	-8.93	-124.57	0.00	0.00	
1,700.00	7.00	184.10	1,692.04	-136.81	-9.80	-136.72	0.00	0.00	
1,800.00	7.00	184.10	1,791.30	-148.97	-10.68	-148.88	0.00	0.00	
1,900.00	7.00	184.10	1,890.55	-161.13	-11.55	-161.03	0.00	0.00	
2,000.00	7.00	184.10	1,989.80	-173.29	-12.42	-173.18	0.00	0.00	
2,100.00	7.00	184.10	2,089.06	-185.45	-13.29	-185.33	0.00	0.00	
2,200.00	7.00	184.10	2,188.31	-197.61	-14.16	-197.48	0.00	0.00	
2,300.00	7.00	184.10	2,287.57	-209.77	-15.03	-209.63	0.00	0.00	
2,400.00	7.00	184.10	2,386.82	-221.93	-15.90	-221.79	0.00	0.00	
2,500.00	7.00	184.10	2,486.07	-234.08	-16.78	-233.94	0.00	0.00	
2,599.99	7.00	184.10	2,585.33	-246.24	-17.65	-246.09	0.00	0.00	
2,699.99	7.00	184.10	2,684.58	-258.40	-18.52	-258.24	0.00	0.00	
2,799.99	7.00	184.10	2,783.84	-270.56	-19.39	-270.39	0.00	0.00	
2,899.99	7.00	184.10	2,883.09	-282.72	-20.26	-282.54	0.00	0.00	
2,999.99	7.00	184.10	2,982.34	-294.88	-21.13	-294.69	0.00	0.00	
3,099.99	7.00	184.10	3,081.60	-307.04	-22.00	-306.85	0.00	0.00	
3,199.99	7.00	184.10	3,180.85	-319.20	-22.88	-319.00	0.00	0.00	
3,299.99	7.00	184.10	3,280.11	-331.36	-23.75	-331.15	0.00	0.00	
3,399.99	7.00	184.10	3,379.36	-343.52	-24.62	-343.30	0.00	0.00	
3,499.99	7.00	184.10	3,478.61	-355.68	-25.49	-355.45	0.00	0.00	
3,599.99	7.00	184.10	3,577.87	-367.84	-26.36	-367.60	0.00	0.00	
3,699.99	7.00	184.10	3,677.12	-380.00	-27.23	-379.75	0.00	0.00	
3,799.99	7.00	184.10	3,776.38	-392.15	-28.10	-391.91	0.00	0.00	
3,899.99	7.00	184.10	3,875.63	-404.31	-28.97	-404.06	0.00	0.00	
3,999.99	7.00	184.10	3,974.88	-416.47	-29.85	-416.21	0.00	0.00	
4,099.99	7.00	184.10	4,074.14	-428.63	-30.72	-428.36	0.00	0.00	
4,199.99	7.00	184.10	4,173.39	-440.79	-31.59	-440.51	0.00	0.00	
4,299.99	7.00	184.10	4,272.65	-452.95	-32.46	-452.66	0.00	0.00	
4,399.99	7.00	184.10	4,371.90	-465.11	-33.33	-464.82	0.00	0.00	
4,499.99	7.00	184.10	4,471.15	-477.27	-34.20	-476.97	0.00	0.00	
4,599.99	7.00	184.10	4,570.41	-489.43	-35.07	-489.12	0.00	0.00	
4,699.99	7.00	184.10	4,669.66	-501.59	-35.95	-501.27	0.00	0.00	
4,799.99	7.00	184.10	4,768.92	-513.75	-36.82	-513.42	0.00	0.00	
4,899.99	7.00	184.10	4,868.17	-525.91	-37.69	-525.57	0.00	0.00	
4,999.99	7.00	184.10	4,967.42	-538.06	-38.56	-537.72	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well HINGLEY 3G-18H-N167
Company:	Crestone Peak Resources	TVD Reference:	KB @ 5133.00usft
Project:	DJ BASIN	MD Reference:	KB @ 5133.00usft
Site:	S18-T1N-R67W (HINGLEY)	North Reference:	True
Well:	HINGLEY 3G-18H-N167	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
5,099.99	7.00	184.10	5,066.68	-550.22	-39.43	-549.88	0.00	0.00	
5,199.99	7.00	184.10	5,165.93	-562.38	-40.30	-562.03	0.00	0.00	
5,299.99	7.00	184.10	5,265.19	-574.54	-41.17	-574.18	0.00	0.00	
5,399.99	7.00	184.10	5,364.44	-586.70	-42.05	-586.33	0.00	0.00	
5,499.99	7.00	184.10	5,463.69	-598.86	-42.92	-598.48	0.00	0.00	
5,599.99	7.00	184.10	5,562.95	-611.02	-43.79	-610.63	0.00	0.00	
5,699.99	7.00	184.10	5,662.20	-623.18	-44.66	-622.78	0.00	0.00	
5,799.99	7.00	184.10	5,761.46	-635.34	-45.53	-634.94	0.00	0.00	
5,899.99	7.00	184.10	5,860.71	-647.50	-46.40	-647.09	0.00	0.00	
5,999.99	7.00	184.10	5,959.96	-659.66	-47.27	-659.24	0.00	0.00	
6,099.99	7.00	184.10	6,059.22	-671.82	-48.15	-671.39	0.00	0.00	
6,199.99	7.00	184.10	6,158.47	-683.97	-49.02	-683.54	0.00	0.00	
6,299.99	7.00	184.10	6,257.72	-696.13	-49.89	-695.69	0.00	0.00	
6,399.99	7.00	184.10	6,356.98	-708.29	-50.76	-707.85	0.00	0.00	
6,499.99	7.00	184.10	6,456.23	-720.45	-51.63	-720.00	0.00	0.00	
6,599.99	7.00	184.10	6,555.49	-732.61	-52.50	-732.15	0.00	0.00	
6,699.99	7.00	184.10	6,654.74	-744.77	-53.37	-744.30	0.00	0.00	
6,799.99	7.00	184.10	6,753.99	-756.93	-54.24	-756.45	0.00	0.00	
6,899.99	7.00	184.10	6,853.25	-769.09	-55.12	-768.60	0.00	0.00	
6,935.65	7.00	184.10	6,888.65	-773.43	-55.43	-772.94	0.00	0.00	
6,999.99	1.88	192.82	6,952.77	-778.37	-55.94	-777.88	8.00	-7.95	
7,099.99	6.17	357.34	7,052.61	-774.60	-56.56	-774.10	8.00	4.28	
7,199.99	14.16	359.40	7,150.96	-756.98	-56.94	-756.48	8.00	7.99	
7,299.99	22.16	359.98	7,245.91	-725.84	-57.07	-725.33	8.00	8.00	
7,399.99	30.16	0.27	7,335.59	-681.79	-56.96	-681.29	8.00	8.00	
7,499.99	38.16	0.44	7,418.27	-625.69	-56.61	-625.19	8.00	8.00	
7,599.98	46.16	0.56	7,492.34	-558.63	-56.02	-558.14	8.00	8.00	
7,699.98	54.16	0.65	7,556.36	-481.91	-55.20	-481.44	8.00	8.00	
7,799.98	62.16	0.73	7,609.08	-397.04	-54.17	-396.58	8.00	8.00	
7,899.98	70.16	0.79	7,649.47	-305.66	-52.95	-305.21	8.00	8.00	
7,999.98	78.16	0.85	7,676.75	-209.55	-51.57	-209.11	8.00	8.00	
8,099.98	86.16	0.91	7,690.39	-110.57	-50.05	-110.15	8.00	8.00	
8,148.04	90.00	0.93	7,692.00	-62.56	-49.27	-62.15	8.00	8.00	HINGLEY 3G-18H-N167 TPZ
8,199.98	90.00	0.93	7,692.00	-10.62	-48.43	-10.22	0.00	0.00	
8,299.98	90.00	0.93	7,692.00	89.36	-46.80	89.75	0.00	0.00	
8,399.98	90.00	0.93	7,692.00	189.35	-45.16	189.72	0.00	0.00	
8,499.98	90.00	0.93	7,692.00	289.34	-43.53	289.69	0.00	0.00	
8,599.98	90.00	0.93	7,692.00	389.32	-41.90	389.66	0.00	0.00	
8,699.98	90.00	0.93	7,692.00	489.31	-40.27	489.63	0.00	0.00	
8,799.98	90.00	0.93	7,692.00	589.30	-38.64	589.60	0.00	0.00	
8,899.98	90.00	0.93	7,692.00	689.28	-37.01	689.57	0.00	0.00	
8,999.98	90.00	0.93	7,692.00	789.27	-35.37	789.54	0.00	0.00	
9,099.98	90.00	0.93	7,692.00	889.25	-33.74	889.51	0.00	0.00	
9,199.98	90.00	0.93	7,692.00	989.24	-32.11	989.47	0.00	0.00	
9,299.98	90.00	0.93	7,692.00	1,089.23	-30.48	1,089.44	0.00	0.00	
9,399.98	90.00	0.93	7,692.00	1,189.21	-28.85	1,189.41	0.00	0.00	
9,499.98	90.00	0.93	7,692.00	1,289.20	-27.22	1,289.38	0.00	0.00	
9,599.98	90.00	0.93	7,692.00	1,389.19	-25.59	1,389.35	0.00	0.00	
9,699.98	90.00	0.93	7,692.00	1,489.17	-23.95	1,489.32	0.00	0.00	
9,799.98	90.00	0.93	7,692.00	1,589.16	-22.32	1,589.29	0.00	0.00	
9,899.98	90.00	0.93	7,692.00	1,689.15	-20.69	1,689.26	0.00	0.00	
9,999.98	90.00	0.93	7,692.00	1,789.13	-19.06	1,789.23	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well HINGLEY 3G-18H-N167
Company:	Crestone Peak Resources	TVD Reference:	KB @ 5133.00usft
Project:	DJ BASIN	MD Reference:	KB @ 5133.00usft
Site:	S18-T1N-R67W (HINGLEY)	North Reference:	True
Well:	HINGLEY 3G-18H-N167	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
10,099.98	90.00	0.93	7,692.00	1,889.12	-17.43	1,889.20	0.00	0.00	
10,199.98	90.00	0.93	7,692.00	1,989.11	-15.80	1,989.17	0.00	0.00	
10,299.98	90.00	0.93	7,692.00	2,089.09	-14.16	2,089.14	0.00	0.00	
10,399.98	90.00	0.93	7,692.00	2,189.08	-12.53	2,189.11	0.00	0.00	
10,499.98	90.00	0.93	7,692.00	2,289.07	-10.90	2,289.08	0.00	0.00	
10,599.98	90.00	0.93	7,692.00	2,389.05	-9.27	2,389.05	0.00	0.00	
10,699.98	90.00	0.93	7,692.00	2,489.04	-7.64	2,489.02	0.00	0.00	
10,799.98	90.00	0.93	7,692.00	2,589.03	-6.01	2,588.99	0.00	0.00	
10,899.98	90.00	0.93	7,692.00	2,689.01	-4.38	2,688.95	0.00	0.00	
10,999.98	90.00	0.93	7,692.00	2,789.00	-2.74	2,788.92	0.00	0.00	
11,099.98	90.00	0.93	7,692.00	2,888.98	-1.11	2,888.89	0.00	0.00	
11,199.98	90.00	0.93	7,692.00	2,988.97	0.52	2,988.86	0.00	0.00	
11,299.98	90.00	0.93	7,692.00	3,088.96	2.15	3,088.83	0.00	0.00	
11,399.98	90.00	0.93	7,692.00	3,188.94	3.78	3,188.80	0.00	0.00	
11,499.98	90.00	0.93	7,692.00	3,288.93	5.41	3,288.77	0.00	0.00	
11,599.98	90.00	0.93	7,692.00	3,388.92	7.05	3,388.74	0.00	0.00	
11,699.98	90.00	0.93	7,692.00	3,488.90	8.68	3,488.71	0.00	0.00	
11,781.08	90.00	0.93	7,692.00	3,570.00	10.00	3,569.79	0.00	0.00	
11,799.98	90.00	0.56	7,692.00	3,588.89	10.25	3,588.68	2.00	0.00	
11,899.98	90.00	358.56	7,692.00	3,688.88	9.47	3,688.68	2.00	0.00	
11,999.98	90.00	356.56	7,692.00	3,788.79	5.21	3,788.61	2.00	0.00	
12,048.81	90.00	355.58	7,692.00	3,837.51	1.86	3,837.36	2.00	0.00	
12,099.98	90.00	355.58	7,692.00	3,888.52	-2.08	3,888.40	0.00	0.00	
12,199.98	90.00	355.58	7,692.00	3,988.22	-9.79	3,988.16	0.00	0.00	
12,299.98	90.00	355.58	7,692.00	4,087.92	-17.49	4,087.93	0.00	0.00	
12,399.98	90.00	355.58	7,692.00	4,187.63	-25.20	4,187.69	0.00	0.00	
12,499.98	90.00	355.58	7,692.00	4,287.33	-32.91	4,287.45	0.00	0.00	
12,541.56	90.00	355.58	7,692.00	4,328.79	-36.11	4,328.94	0.00	0.00	HINGLEY 3G-18H-N167 BHL

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
HINGLEY 3G-18H-N167 - plan hits target center - Point	0.00	0.00	7,692.00	4,328.79	-36.11	1,264,208.51	3,157,436.21	40.057271	-104.937560
HINGLEY 3G-18H-N167 - plan hits target center - Point	0.00	0.00	7,692.00	-62.56	-49.27	1,259,817.17	3,157,450.90	40.045216	-104.937607