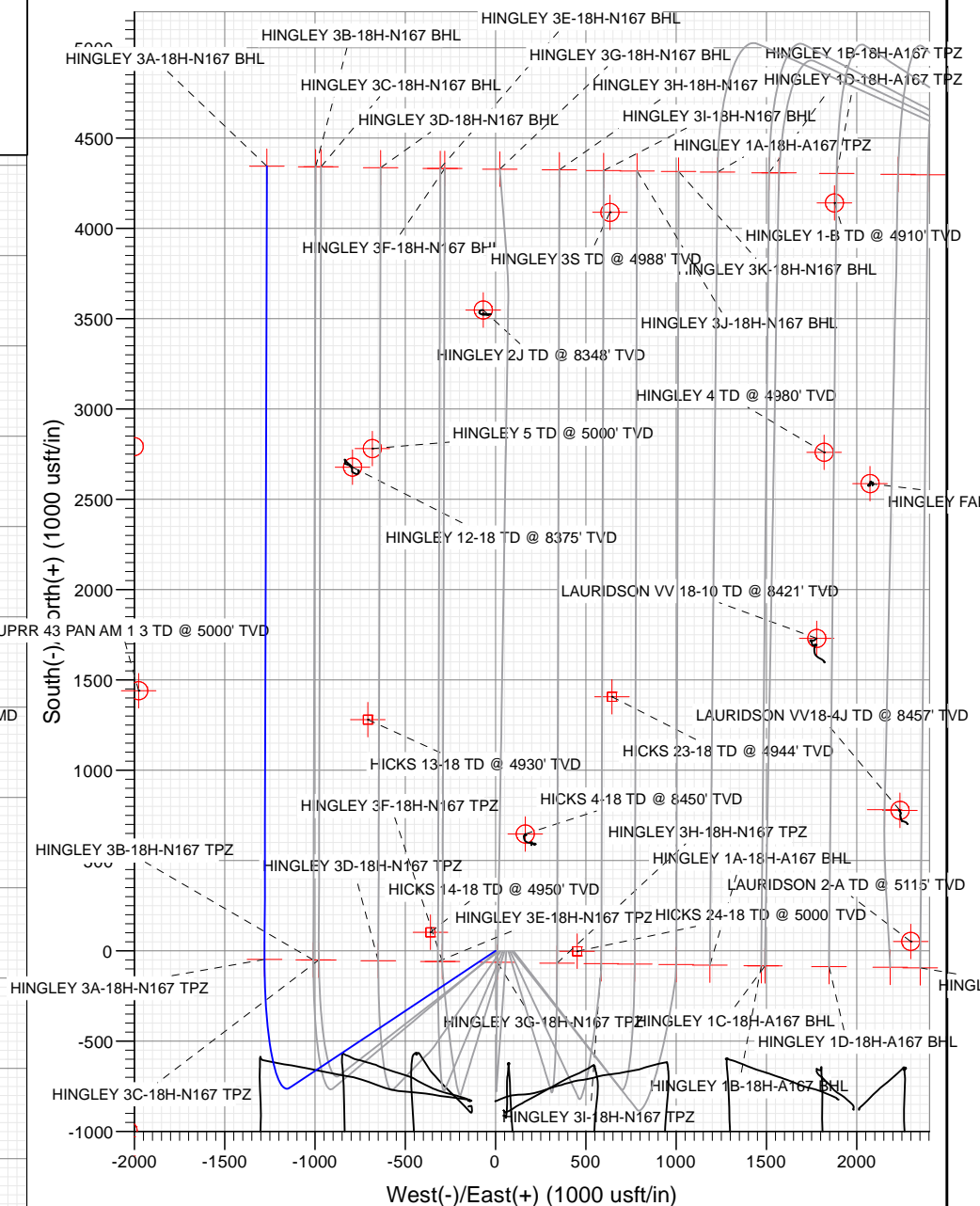
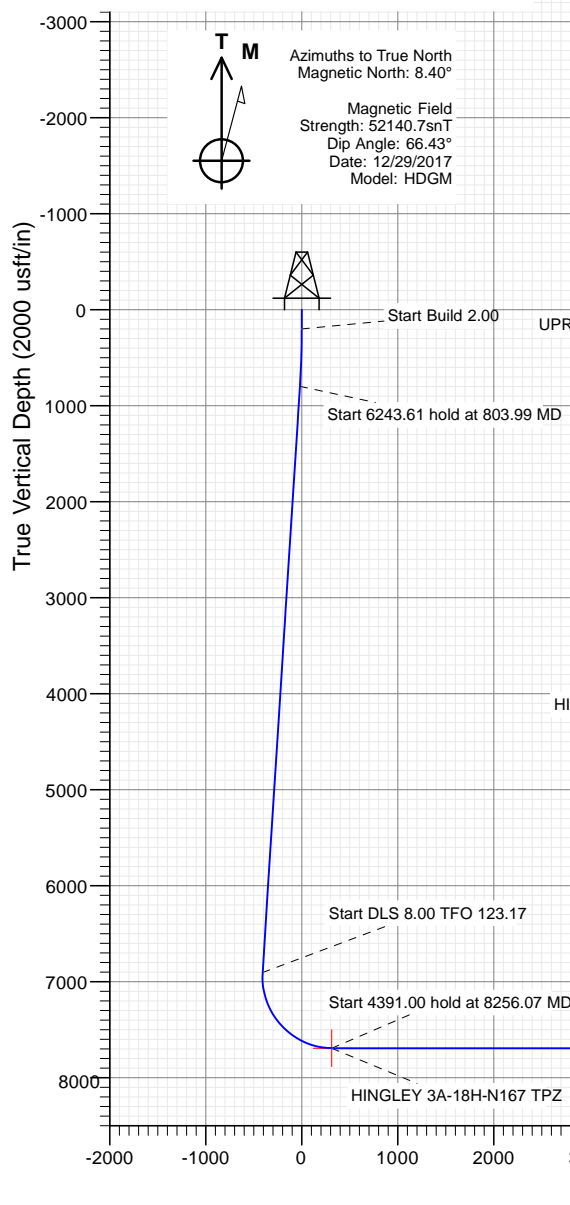




Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	803.99	12.08	236.41	799.53	-35.09	-52.84	2.00	236.41	-18.91	
4	7047.60	12.08	236.41	6904.88	-757.91	-1141.33	0.00	0.00	-408.32	
5	8256.07	90.00	0.17	7692.00	-46.16	-1279.26	8.00	123.17	313.60	HINGLEY 3A-18H-N167 TPZ
6	12647.07	90.00	0.17	7692.00	4344.82	-1266.16	0.00	0.00	4525.55	HINGLEY 3A-18H-N167 BHL

Project: DJ BASIN  
Site: S18-T1N-R67W (HINGLEY)  
Well: HINGLEY 3A-18H-N167  
Wellbore: OH  
Design: PLAN #1



Vertical Section at 343.75° (2000 usft/in)

## WELL DETAILS: HINGLEY 3A-18H-N167

		5109.00			
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1259880.05	3157439.95	40.045389	-104.887665



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well HINGLEY 3A-18H-N167 - Slot Hingley 3A-1
<b>Company:</b>	Crestone Peak Resources	<b>TVD Reference:</b>	23' KB @ 5132.00usft
<b>Project:</b>	DJ BASIN	<b>MD Reference:</b>	23' KB @ 5132.00usft
<b>Site:</b>	S18-T1N-R67W (HINGLEY)	<b>North Reference:</b>	True
<b>Well:</b>	HINGLEY 3A-18H-N167	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1		

<b>Project</b>	DJ BASIN		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 3A-18H-N167 - Slot Hingley 3A-18H-N167 SHL					
Well Position	+N/-S	0.00 usft	Northing:	1,259,880.05 usft	Latitude:	40.045389
	+E/-W	0.00 usft	Easting:	3,157,439.95 usft	Longitude:	-104.937645
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	5,109.00 usft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>	<b>Dip Angle</b>	<b>Field Strength</b>
			(°)	(°)	(nT)
	HDGM	12/29/2017	8.40	66.43	52,140.70000000

<b>Design</b>	PLAN #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	343.75

<b>Plan Sections</b>										
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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
803.99	12.08	236.41	799.53	-35.09	-52.84	2.00	2.00	0.00	236.41	
7,047.60	12.08	236.41	6,904.88	-757.91	-1,141.33	0.00	0.00	0.00	0.00	
8,256.07	90.00	0.17	7,692.00	-46.16	-1,279.26	8.00	6.45	10.24	123.17	HINGLEY 3A-18H-N1
12,647.07	90.00	0.17	7,692.00	4,344.82	-1,266.16	0.00	0.00	0.00	0.00	HINGLEY 3A-18H-N1

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well HINGLEY 3A-18H-N167 - Slot Hingley 3A-1
<b>Company:</b>	Crestone Peak Resources	<b>TVD Reference:</b>	23' KB @ 5132.00usft
<b>Project:</b>	DJ BASIN	<b>MD Reference:</b>	23' KB @ 5132.00usft
<b>Site:</b>	S18-T1N-R67W (HINGLEY)	<b>North Reference:</b>	True
<b>Well:</b>	HINGLEY 3A-18H-N167	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1		

### 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	2.00	236.41	299.98	-0.97	-1.45	-0.52	2.00	2.00	
400.00	4.00	236.41	399.84	-3.86	-5.81	-2.08	2.00	2.00	
500.00	6.00	236.41	499.45	-8.68	-13.07	-4.68	2.00	2.00	
600.00	8.00	236.41	598.70	-15.42	-23.23	-8.31	2.00	2.00	
700.00	10.00	236.41	697.47	-24.08	-36.26	-12.97	2.00	2.00	
800.00	12.00	236.41	795.62	-34.63	-52.15	-18.66	2.00	2.00	
803.99	12.08	236.41	799.53	-35.09	-52.84	-18.91	2.00	2.00	
900.00	12.08	236.41	893.41	-46.21	-69.58	-24.89	0.00	0.00	
1,000.00	12.08	236.41	991.20	-57.78	-87.02	-31.13	0.00	0.00	
1,100.00	12.08	236.41	1,088.98	-69.36	-104.45	-37.37	0.00	0.00	
1,200.00	12.08	236.41	1,186.77	-80.94	-121.88	-43.61	0.00	0.00	
1,300.00	12.08	236.41	1,284.55	-92.51	-139.32	-49.84	0.00	0.00	
1,400.00	12.08	236.41	1,382.34	-104.09	-156.75	-56.08	0.00	0.00	
1,500.00	12.08	236.41	1,480.12	-115.67	-174.18	-62.32	0.00	0.00	
1,600.00	12.08	236.41	1,577.91	-127.25	-191.62	-68.55	0.00	0.00	
1,700.00	12.08	236.41	1,675.70	-138.82	-209.05	-74.79	0.00	0.00	
1,800.00	12.08	236.41	1,773.48	-150.40	-226.48	-81.03	0.00	0.00	
1,900.00	12.08	236.41	1,871.27	-161.98	-243.92	-87.26	0.00	0.00	
2,000.00	12.08	236.41	1,969.05	-173.55	-261.35	-93.50	0.00	0.00	
2,100.00	12.08	236.41	2,066.84	-185.13	-278.79	-99.74	0.00	0.00	
2,200.00	12.08	236.41	2,164.62	-196.71	-296.22	-105.98	0.00	0.00	
2,300.00	12.08	236.41	2,262.41	-208.28	-313.65	-112.21	0.00	0.00	
2,400.00	12.08	236.41	2,360.19	-219.86	-331.09	-118.45	0.00	0.00	
2,500.00	12.08	236.41	2,457.98	-231.44	-348.52	-124.69	0.00	0.00	
2,600.00	12.08	236.41	2,555.77	-243.02	-365.95	-130.92	0.00	0.00	
2,700.00	12.08	236.41	2,653.55	-254.59	-383.39	-137.16	0.00	0.00	
2,800.00	12.08	236.41	2,751.34	-266.17	-400.82	-143.40	0.00	0.00	
2,900.00	12.08	236.41	2,849.12	-277.75	-418.25	-149.64	0.00	0.00	
3,000.00	12.08	236.41	2,946.91	-289.32	-435.69	-155.87	0.00	0.00	
3,100.00	12.08	236.41	3,044.69	-300.90	-453.12	-162.11	0.00	0.00	
3,200.00	12.08	236.41	3,142.48	-312.48	-470.56	-168.35	0.00	0.00	
3,300.00	12.08	236.41	3,240.27	-324.05	-487.99	-174.58	0.00	0.00	
3,400.00	12.08	236.41	3,338.05	-335.63	-505.42	-180.82	0.00	0.00	
3,500.00	12.08	236.41	3,435.84	-347.21	-522.86	-187.06	0.00	0.00	
3,600.00	12.08	236.41	3,533.62	-358.78	-540.29	-193.29	0.00	0.00	
3,700.00	12.08	236.41	3,631.41	-370.36	-557.72	-199.53	0.00	0.00	
3,800.00	12.08	236.41	3,729.19	-381.94	-575.16	-205.77	0.00	0.00	
3,900.00	12.08	236.41	3,826.98	-393.52	-592.59	-212.01	0.00	0.00	
4,000.00	12.08	236.41	3,924.77	-405.09	-610.02	-218.24	0.00	0.00	
4,100.00	12.08	236.41	4,022.55	-416.67	-627.46	-224.48	0.00	0.00	
4,200.00	12.08	236.41	4,120.34	-428.25	-644.89	-230.72	0.00	0.00	
4,300.00	12.08	236.41	4,218.12	-439.82	-662.33	-236.95	0.00	0.00	
4,400.00	12.08	236.41	4,315.91	-451.40	-679.76	-243.19	0.00	0.00	
4,500.00	12.08	236.41	4,413.69	-462.98	-697.19	-249.43	0.00	0.00	
4,600.00	12.08	236.41	4,511.48	-474.55	-714.63	-255.66	0.00	0.00	
4,700.00	12.08	236.41	4,609.27	-486.13	-732.06	-261.90	0.00	0.00	
4,800.00	12.08	236.41	4,707.05	-497.71	-749.49	-268.14	0.00	0.00	
4,900.00	12.08	236.41	4,804.84	-509.29	-766.93	-274.38	0.00	0.00	
5,000.00	12.08	236.41	4,902.62	-520.86	-784.36	-280.61	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well HINGLEY 3A-18H-N167 - Slot Hingley 3A-1
<b>Company:</b>	Crestone Peak Resources	<b>TVD Reference:</b>	23' KB @ 5132.00usft
<b>Project:</b>	DJ BASIN	<b>MD Reference:</b>	23' KB @ 5132.00usft
<b>Site:</b>	S18-T1N-R67W (HINGLEY)	<b>North Reference:</b>	True
<b>Well:</b>	HINGLEY 3A-18H-N167	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1		

### 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
5,100.00	12.08	236.41	5,000.41	-532.44	-801.79	-286.85	0.00	0.00	
5,200.00	12.08	236.41	5,098.19	-544.02	-819.23	-293.09	0.00	0.00	
5,300.00	12.08	236.41	5,195.98	-555.59	-836.66	-299.32	0.00	0.00	
5,400.00	12.08	236.41	5,293.77	-567.17	-854.09	-305.56	0.00	0.00	
5,500.00	12.08	236.41	5,391.55	-578.75	-871.53	-311.80	0.00	0.00	
5,600.00	12.08	236.41	5,489.34	-590.32	-888.96	-318.04	0.00	0.00	
5,700.00	12.08	236.41	5,587.12	-601.90	-906.40	-324.27	0.00	0.00	
5,800.00	12.08	236.41	5,684.91	-613.48	-923.83	-330.51	0.00	0.00	
5,900.00	12.08	236.41	5,782.69	-625.05	-941.26	-336.75	0.00	0.00	
6,000.00	12.08	236.41	5,880.48	-636.63	-958.70	-342.98	0.00	0.00	
6,100.00	12.08	236.41	5,978.27	-648.21	-976.13	-349.22	0.00	0.00	
6,200.00	12.08	236.41	6,076.05	-659.79	-993.56	-355.46	0.00	0.00	
6,300.00	12.08	236.41	6,173.84	-671.36	-1,011.00	-361.69	0.00	0.00	
6,400.00	12.08	236.41	6,271.62	-682.94	-1,028.43	-367.93	0.00	0.00	
6,500.00	12.08	236.41	6,369.41	-694.52	-1,045.86	-374.17	0.00	0.00	
6,600.00	12.08	236.41	6,467.19	-706.09	-1,063.30	-380.41	0.00	0.00	
6,700.00	12.08	236.41	6,564.98	-717.67	-1,080.73	-386.64	0.00	0.00	
6,800.00	12.08	236.41	6,662.77	-729.25	-1,098.17	-392.88	0.00	0.00	
6,900.00	12.08	236.41	6,760.55	-740.82	-1,115.60	-399.12	0.00	0.00	
7,000.00	12.08	236.41	6,858.34	-752.40	-1,133.03	-405.35	0.00	0.00	
7,047.60	12.08	236.41	6,904.88	-757.91	-1,141.33	-408.32	0.00	0.00	
7,100.00	10.39	256.25	6,956.30	-762.07	-1,150.49	-409.75	8.00	-3.23	
7,200.00	11.48	299.03	7,054.64	-759.38	-1,167.98	-402.27	8.00	1.10	
7,300.00	16.81	324.08	7,151.66	-742.81	-1,185.19	-381.55	8.00	5.32	
7,400.00	23.66	336.21	7,245.47	-712.69	-1,201.80	-347.99	8.00	6.85	
7,500.00	31.04	342.98	7,334.25	-669.60	-1,217.46	-302.24	8.00	7.38	
7,600.00	38.65	347.32	7,416.27	-614.39	-1,231.89	-245.20	8.00	7.61	
7,700.00	46.38	350.41	7,489.93	-548.13	-1,244.80	-177.97	8.00	7.72	
7,800.00	54.17	352.79	7,553.80	-472.10	-1,255.94	-101.86	8.00	7.79	
7,900.00	61.99	354.74	7,606.64	-387.78	-1,265.09	-18.35	8.00	7.83	
8,000.00	69.84	356.43	7,647.41	-296.83	-1,272.07	70.92	8.00	7.85	
8,100.00	77.71	357.95	7,675.32	-201.01	-1,276.75	164.23	8.00	7.87	
8,200.00	85.58	359.38	7,689.84	-102.17	-1,279.04	259.76	8.00	7.87	
8,256.07	90.00	0.17	7,692.00	-46.16	-1,279.26	313.60	8.00	7.88	
8,300.00	90.00	0.17	7,692.00	-2.23	-1,279.13	355.73	0.00	0.00	
8,400.00	90.00	0.17	7,692.00	97.77	-1,278.83	451.66	0.00	0.00	
8,500.00	90.00	0.17	7,692.00	197.77	-1,278.53	547.58	0.00	0.00	
8,600.00	90.00	0.17	7,692.00	297.77	-1,278.23	643.50	0.00	0.00	
8,700.00	90.00	0.17	7,692.00	397.77	-1,277.93	739.42	0.00	0.00	
8,800.00	90.00	0.17	7,692.00	497.77	-1,277.64	835.35	0.00	0.00	
8,900.00	90.00	0.17	7,692.00	597.77	-1,277.34	931.27	0.00	0.00	
9,000.00	90.00	0.17	7,692.00	697.77	-1,277.04	1,027.19	0.00	0.00	
9,100.00	90.00	0.17	7,692.00	797.77	-1,276.74	1,123.11	0.00	0.00	
9,200.00	90.00	0.17	7,692.00	897.77	-1,276.44	1,219.04	0.00	0.00	
9,300.00	90.00	0.17	7,692.00	997.77	-1,276.14	1,314.96	0.00	0.00	
9,400.00	90.00	0.17	7,692.00	1,097.77	-1,275.85	1,410.88	0.00	0.00	
9,500.00	90.00	0.17	7,692.00	1,197.76	-1,275.55	1,506.80	0.00	0.00	
9,600.00	90.00	0.17	7,692.00	1,297.76	-1,275.25	1,602.73	0.00	0.00	
9,700.00	90.00	0.17	7,692.00	1,397.76	-1,274.95	1,698.65	0.00	0.00	
9,800.00	90.00	0.17	7,692.00	1,497.76	-1,274.65	1,794.57	0.00	0.00	
9,900.00	90.00	0.17	7,692.00	1,597.76	-1,274.35	1,890.49	0.00	0.00	
10,000.00	90.00	0.17	7,692.00	1,697.76	-1,274.06	1,986.42	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well HINGLEY 3A-18H-N167 - Slot Hingley 3A-1
<b>Company:</b>	Crestone Peak Resources	<b>TVD Reference:</b>	23' KB @ 5132.00usft
<b>Project:</b>	DJ BASIN	<b>MD Reference:</b>	23' KB @ 5132.00usft
<b>Site:</b>	S18-T1N-R67W (HINGLEY)	<b>North Reference:</b>	True
<b>Well:</b>	HINGLEY 3A-18H-N167	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1		

### 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
10,100.00	90.00	0.17	7,692.00	1,797.76	-1,273.76	2,082.34	0.00	0.00	
10,200.00	90.00	0.17	7,692.00	1,897.76	-1,273.46	2,178.26	0.00	0.00	
10,300.00	90.00	0.17	7,692.00	1,997.76	-1,273.16	2,274.18	0.00	0.00	
10,400.00	90.00	0.17	7,692.00	2,097.76	-1,272.86	2,370.11	0.00	0.00	
10,500.00	90.00	0.17	7,692.00	2,197.76	-1,272.56	2,466.03	0.00	0.00	
10,600.00	90.00	0.17	7,692.00	2,297.76	-1,272.27	2,561.95	0.00	0.00	
10,700.00	90.00	0.17	7,692.00	2,397.76	-1,271.97	2,657.87	0.00	0.00	
10,800.00	90.00	0.17	7,692.00	2,497.76	-1,271.67	2,753.80	0.00	0.00	
10,900.00	90.00	0.17	7,692.00	2,597.76	-1,271.37	2,849.72	0.00	0.00	
11,000.00	90.00	0.17	7,692.00	2,697.76	-1,271.07	2,945.64	0.00	0.00	
11,100.00	90.00	0.17	7,692.00	2,797.76	-1,270.77	3,041.56	0.00	0.00	
11,200.00	90.00	0.17	7,692.00	2,897.76	-1,270.47	3,137.49	0.00	0.00	
11,300.00	90.00	0.17	7,692.00	2,997.76	-1,270.18	3,233.41	0.00	0.00	
11,400.00	90.00	0.17	7,692.00	3,097.76	-1,269.88	3,329.33	0.00	0.00	
11,500.00	90.00	0.17	7,692.00	3,197.76	-1,269.58	3,425.25	0.00	0.00	
11,600.00	90.00	0.17	7,692.00	3,297.76	-1,269.28	3,521.18	0.00	0.00	
11,700.00	90.00	0.17	7,692.00	3,397.76	-1,268.98	3,617.10	0.00	0.00	
11,800.00	90.00	0.17	7,692.00	3,497.75	-1,268.68	3,713.02	0.00	0.00	
11,900.00	90.00	0.17	7,692.00	3,597.75	-1,268.39	3,808.94	0.00	0.00	
12,000.00	90.00	0.17	7,692.00	3,697.75	-1,268.09	3,904.87	0.00	0.00	
12,100.00	90.00	0.17	7,692.00	3,797.75	-1,267.79	4,000.79	0.00	0.00	
12,200.00	90.00	0.17	7,692.00	3,897.75	-1,267.49	4,096.71	0.00	0.00	
12,300.00	90.00	0.17	7,692.00	3,997.75	-1,267.19	4,192.63	0.00	0.00	
12,400.00	90.00	0.17	7,692.00	4,097.75	-1,266.89	4,288.56	0.00	0.00	
12,500.00	90.00	0.17	7,692.00	4,197.75	-1,266.60	4,384.48	0.00	0.00	
12,600.00	90.00	0.17	7,692.00	4,297.75	-1,266.30	4,480.40	0.00	0.00	
12,647.07	90.00	0.17	7,692.00	4,344.82	-1,266.16	4,525.55	0.00	0.00	

### Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
HINGLEY 3A-18H-N167	0.00	0.00	7,692.00	4,344.82	-1,266.16	1,264,216.75	3,156,146.27	40.057316	-104.942168
- plan hits target center									
- Point									
HINGLEY 3A-18H-N167	0.00	0.00	7,692.00	-46.16	-1,279.26	1,259,825.78	3,156,161.01	40.045262	-104.942214
- plan hits target center									
- Point									