

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Morgan Hills 1G-7H-A168
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 5048.70usft (ENS 140)
Project:	DJ BASIN	MD Reference:	23' KB @ 5048.70usft (ENS 140)
Site:	S7-T1N-R68W (Woolley-Sosa/Becky/Morgan Hills)	North Reference:	True
Well:	Morgan Hills 1G-7H-A168	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	PLAN #3		

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		S7-T1N-R68W (Woolley-Sosa/Becky/Morgan Hills)			
Site Position:		Northing:	1,265,216.88 usft	Latitude:	40.060530
From:	Lat/Long	Easting:	3,126,133.02 usft	Longitude:	-105.049370
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.29 °

Well	Morgan Hills 1G-7H-A168					
Well Position	+N/-S	0.00 usft	Northing:	1,269,405.83 usft	Latitude:	40.071987
	+E/-W	0.00 usft	Easting:	3,129,124.44 usft	Longitude:	-105.038605
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,025.70 usft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	7/7/2014	8.57	66.64	52,606

Design	PLAN #3			
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	180.00

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	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
827.65	3.28	343.53	827.48	8.98	-2.65	1.00	1.00	0.00	343.53	
6,892.83	3.28	343.53	6,882.73	341.42	-100.91	0.00	0.00	0.00	0.00	
8,057.02	90.00	180.40	7,638.00	-373.59	-118.45	8.00	7.45	-14.01	-163.11	
17,518.00	90.00	180.40	7,638.00	-9,834.35	-184.50	0.00	0.00	0.00	0.00	MH 1G-7H-A168 PBI

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Well:	Morgan Hills 1G-7H-A168	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	PLAN #3		

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	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	KOP @ 500'
600.00	1.00	343.53	599.99	0.84	-0.25	-0.84	1.00	1.00	
700.00	2.00	343.53	699.96	3.35	-0.99	-3.35	1.00	1.00	
800.00	3.00	343.53	799.86	7.53	-2.23	-7.53	1.00	1.00	
827.65	3.28	343.53	827.48	8.98	-2.65	-8.98	1.00	1.00	EOB; INC=3.28°
900.00	3.28	343.53	899.70	12.95	-3.83	-12.95	0.00	0.00	
999.16	3.28	343.53	998.70	18.38	-5.43	-18.38	0.00	0.00	Fox Hills - BASE
1,000.00	3.28	343.53	999.54	18.43	-5.45	-18.43	0.00	0.00	
1,100.00	3.28	343.53	1,099.38	23.91	-7.07	-23.91	0.00	0.00	
1,200.00	3.28	343.53	1,199.21	29.39	-8.69	-29.39	0.00	0.00	
1,300.00	3.28	343.53	1,299.05	34.87	-10.31	-34.87	0.00	0.00	
1,400.00	3.28	343.53	1,398.89	40.35	-11.93	-40.35	0.00	0.00	
1,500.00	3.28	343.53	1,498.72	45.83	-13.55	-45.83	0.00	0.00	
1,600.00	3.28	343.53	1,598.56	51.32	-15.17	-51.32	0.00	0.00	
1,700.00	3.28	343.53	1,698.40	56.80	-16.79	-56.80	0.00	0.00	
1,800.00	3.28	343.53	1,798.23	62.28	-18.41	-62.28	0.00	0.00	
1,900.00	3.28	343.53	1,898.07	67.76	-20.03	-67.76	0.00	0.00	
2,000.00	3.28	343.53	1,997.90	73.24	-21.65	-73.24	0.00	0.00	
2,100.00	3.28	343.53	2,097.74	78.72	-23.27	-78.72	0.00	0.00	
2,200.00	3.28	343.53	2,197.58	84.20	-24.89	-84.20	0.00	0.00	
2,300.00	3.28	343.53	2,297.41	89.68	-26.51	-89.68	0.00	0.00	
2,400.00	3.28	343.53	2,397.25	95.16	-28.13	-95.16	0.00	0.00	
2,500.00	3.28	343.53	2,497.09	100.65	-29.75	-100.65	0.00	0.00	
2,600.00	3.28	343.53	2,596.92	106.13	-31.37	-106.13	0.00	0.00	
2,700.00	3.28	343.53	2,696.76	111.61	-32.99	-111.61	0.00	0.00	
2,800.00	3.28	343.53	2,796.60	117.09	-34.61	-117.09	0.00	0.00	
2,900.00	3.28	343.53	2,896.43	122.57	-36.23	-122.57	0.00	0.00	
3,000.00	3.28	343.53	2,996.27	128.05	-37.85	-128.05	0.00	0.00	
3,100.00	3.28	343.53	3,096.11	133.53	-39.47	-133.53	0.00	0.00	
3,200.00	3.28	343.53	3,195.94	139.01	-41.09	-139.01	0.00	0.00	
3,300.00	3.28	343.53	3,295.78	144.50	-42.71	-144.50	0.00	0.00	
3,400.00	3.28	343.53	3,395.62	149.98	-44.33	-149.98	0.00	0.00	
3,500.00	3.28	343.53	3,495.45	155.46	-45.95	-155.46	0.00	0.00	
3,600.00	3.28	343.53	3,595.29	160.94	-47.57	-160.94	0.00	0.00	
3,700.00	3.28	343.53	3,695.13	166.42	-49.19	-166.42	0.00	0.00	
3,800.00	3.28	343.53	3,794.96	171.90	-50.81	-171.90	0.00	0.00	
3,900.00	3.28	343.53	3,894.80	177.38	-52.43	-177.38	0.00	0.00	
4,000.00	3.28	343.53	3,994.64	182.86	-54.05	-182.86	0.00	0.00	
4,100.00	3.28	343.53	4,094.47	188.34	-55.67	-188.34	0.00	0.00	
4,200.00	3.28	343.53	4,194.31	193.83	-57.29	-193.83	0.00	0.00	
4,300.00	3.28	343.53	4,294.15	199.31	-58.91	-199.31	0.00	0.00	
4,400.00	3.28	343.53	4,393.98	204.79	-60.53	-204.79	0.00	0.00	
4,491.87	3.28	343.53	4,485.70	209.82	-62.02	-209.82	0.00	0.00	Sussex
4,500.00	3.28	343.53	4,493.82	210.27	-62.15	-210.27	0.00	0.00	
4,600.00	3.28	343.53	4,593.65	215.75	-63.77	-215.75	0.00	0.00	
4,700.00	3.28	343.53	4,693.49	221.23	-65.39	-221.23	0.00	0.00	
4,800.00	3.28	343.53	4,793.33	226.71	-67.01	-226.71	0.00	0.00	

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Wellbore:	HZ		
Design:	PLAN #3		

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
4,900.00	3.28	343.53	4,893.16	232.19	-68.63	-232.19	0.00	0.00	
5,000.00	3.28	343.53	4,993.00	237.67	-70.25	-237.67	0.00	0.00	
5,059.80	3.28	343.53	5,052.70	240.95	-71.22	-240.95	0.00	0.00	Shannon
5,100.00	3.28	343.53	5,092.84	243.16	-71.87	-243.16	0.00	0.00	
5,200.00	3.28	343.53	5,192.67	248.64	-73.49	-248.64	0.00	0.00	
5,300.00	3.28	343.53	5,292.51	254.12	-75.11	-254.12	0.00	0.00	
5,400.00	3.28	343.53	5,392.35	259.60	-76.73	-259.60	0.00	0.00	
5,500.00	3.28	343.53	5,492.18	265.08	-78.35	-265.08	0.00	0.00	
5,600.00	3.28	343.53	5,592.02	270.56	-79.97	-270.56	0.00	0.00	
5,700.00	3.28	343.53	5,691.86	276.04	-81.59	-276.04	0.00	0.00	
5,800.00	3.28	343.53	5,791.69	281.52	-83.21	-281.52	0.00	0.00	
5,900.00	3.28	343.53	5,891.53	287.01	-84.83	-287.01	0.00	0.00	
6,000.00	3.28	343.53	5,991.37	292.49	-86.45	-292.49	0.00	0.00	
6,100.00	3.28	343.53	6,091.20	297.97	-88.07	-297.97	0.00	0.00	
6,200.00	3.28	343.53	6,191.04	303.45	-89.69	-303.45	0.00	0.00	
6,300.00	3.28	343.53	6,290.88	308.93	-91.31	-308.93	0.00	0.00	
6,400.00	3.28	343.53	6,390.71	314.41	-92.93	-314.41	0.00	0.00	
6,500.00	3.28	343.53	6,490.55	319.89	-94.55	-319.89	0.00	0.00	
6,573.27	3.28	343.53	6,563.70	323.91	-95.74	-323.91	0.00	0.00	Teepee Buttes (*if present)
6,600.00	3.28	343.53	6,590.39	325.37	-96.17	-325.37	0.00	0.00	
6,700.00	3.28	343.53	6,690.22	330.85	-97.79	-330.85	0.00	0.00	
6,800.00	3.28	343.53	6,790.06	336.34	-99.41	-336.34	0.00	0.00	
6,892.83	3.28	343.53	6,882.73	341.42	-100.91	-341.42	0.00	0.00	START BUILD/TURN
6,900.00	2.73	340.04	6,889.90	341.78	-101.03	-341.78	8.00	-7.58	
7,000.00	5.52	190.30	6,989.77	339.28	-102.71	-339.28	8.00	2.79	
7,100.00	13.47	184.38	7,088.32	322.91	-104.46	-322.91	8.00	7.95	
7,200.00	21.46	182.82	7,183.64	292.98	-106.25	-292.98	8.00	7.99	
7,300.00	29.45	182.09	7,273.86	250.07	-108.05	-250.07	8.00	7.99	
7,396.83	37.19	181.65	7,354.70	196.95	-109.76	-196.95	8.00	8.00	Sharon Springs
7,400.00	37.45	181.64	7,357.22	195.02	-109.82	-195.02	8.00	8.00	
7,472.84	43.27	181.41	7,412.70	147.89	-111.07	-147.89	8.00	8.00	Niobrara
7,500.00	45.45	181.34	7,432.12	128.91	-111.52	-128.91	8.00	8.00	
7,600.00	53.44	181.11	7,497.08	53.01	-113.13	-53.01	8.00	8.00	
7,646.78	57.19	181.01	7,523.70	14.55	-113.84	-14.55	8.00	8.00	B Chalk
7,697.59	61.25	180.92	7,549.70	-29.09	-114.58	29.09	8.00	8.00	B Marl
7,700.00	61.44	180.92	7,550.85	-31.20	-114.61	31.20	8.00	8.00	
7,789.00	68.56	180.77	7,588.44	-111.80	-115.80	111.80	8.00	8.00	TPZ
7,800.00	69.44	180.76	7,592.38	-122.07	-115.94	122.07	8.00	8.00	
7,900.00	77.44	180.61	7,620.86	-217.84	-117.08	217.84	8.00	8.00	
7,969.83	83.03	180.52	7,632.70	-286.62	-117.75	286.62	8.00	8.00	C Chalk
8,000.00	85.44	180.48	7,635.73	-316.64	-118.01	316.64	8.00	8.00	
8,057.02	90.00	180.40	7,638.00	-373.59	-118.45	373.59	8.00	8.00	LP @ 7638' TVD; 90°
8,100.00	90.00	180.40	7,638.00	-416.57	-118.75	416.57	0.00	0.00	
8,200.00	90.00	180.40	7,638.00	-516.57	-119.45	516.57	0.00	0.00	
8,300.00	90.00	180.40	7,638.00	-616.57	-120.15	616.57	0.00	0.00	
8,400.00	90.00	180.40	7,638.00	-716.57	-120.84	716.57	0.00	0.00	
8,500.00	90.00	180.40	7,638.00	-816.56	-121.54	816.56	0.00	0.00	
8,600.00	90.00	180.40	7,638.00	-916.56	-122.24	916.56	0.00	0.00	
8,700.00	90.00	180.40	7,638.00	-1,016.56	-122.94	1,016.56	0.00	0.00	
8,800.00	90.00	180.40	7,638.00	-1,116.56	-123.64	1,116.56	0.00	0.00	
8,900.00	90.00	180.40	7,638.00	-1,216.56	-124.33	1,216.56	0.00	0.00	
9,000.00	90.00	180.40	7,638.00	-1,316.55	-125.03	1,316.55	0.00	0.00	

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Project:	DJ BASIN	MD Reference:	23' KB @ 5048.70usft (ENS 140)
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Well:	Morgan Hills 1G-7H-A168	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	PLAN #3		

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
9,100.00	90.00	180.40	7,638.00	-1,416.55	-125.73	1,416.55	0.00	0.00	
9,200.00	90.00	180.40	7,638.00	-1,516.55	-126.43	1,516.55	0.00	0.00	
9,300.00	90.00	180.40	7,638.00	-1,616.55	-127.13	1,616.55	0.00	0.00	
9,400.00	90.00	180.40	7,638.00	-1,716.54	-127.83	1,716.54	0.00	0.00	
9,500.00	90.00	180.40	7,638.00	-1,816.54	-128.52	1,816.54	0.00	0.00	
9,600.00	90.00	180.40	7,638.00	-1,916.54	-129.22	1,916.54	0.00	0.00	
9,700.00	90.00	180.40	7,638.00	-2,016.54	-129.92	2,016.54	0.00	0.00	
9,800.00	90.00	180.40	7,638.00	-2,116.53	-130.62	2,116.53	0.00	0.00	
9,900.00	90.00	180.40	7,638.00	-2,216.53	-131.32	2,216.53	0.00	0.00	
10,000.00	90.00	180.40	7,638.00	-2,316.53	-132.01	2,316.53	0.00	0.00	
10,100.00	90.00	180.40	7,638.00	-2,416.53	-132.71	2,416.53	0.00	0.00	
10,200.00	90.00	180.40	7,638.00	-2,516.52	-133.41	2,516.52	0.00	0.00	
10,300.00	90.00	180.40	7,638.00	-2,616.52	-134.11	2,616.52	0.00	0.00	
10,400.00	90.00	180.40	7,638.00	-2,716.52	-134.81	2,716.52	0.00	0.00	
10,500.00	90.00	180.40	7,638.00	-2,816.52	-135.50	2,816.52	0.00	0.00	
10,600.00	90.00	180.40	7,638.00	-2,916.51	-136.20	2,916.51	0.00	0.00	
10,700.00	90.00	180.40	7,638.00	-3,016.51	-136.90	3,016.51	0.00	0.00	
10,800.00	90.00	180.40	7,638.00	-3,116.51	-137.60	3,116.51	0.00	0.00	
10,900.00	90.00	180.40	7,638.00	-3,216.51	-138.30	3,216.51	0.00	0.00	
11,000.00	90.00	180.40	7,638.00	-3,316.50	-139.00	3,316.50	0.00	0.00	
11,100.00	90.00	180.40	7,638.00	-3,416.50	-139.69	3,416.50	0.00	0.00	
11,200.00	90.00	180.40	7,638.00	-3,516.50	-140.39	3,516.50	0.00	0.00	
11,300.00	90.00	180.40	7,638.00	-3,616.50	-141.09	3,616.50	0.00	0.00	
11,400.00	90.00	180.40	7,638.00	-3,716.49	-141.79	3,716.49	0.00	0.00	
11,500.00	90.00	180.40	7,638.00	-3,816.49	-142.49	3,816.49	0.00	0.00	
11,600.00	90.00	180.40	7,638.00	-3,916.49	-143.18	3,916.49	0.00	0.00	
11,700.00	90.00	180.40	7,638.00	-4,016.49	-143.88	4,016.49	0.00	0.00	
11,800.00	90.00	180.40	7,638.00	-4,116.48	-144.58	4,116.48	0.00	0.00	
11,900.00	90.00	180.40	7,638.00	-4,216.48	-145.28	4,216.48	0.00	0.00	
12,000.00	90.00	180.40	7,638.00	-4,316.48	-145.98	4,316.48	0.00	0.00	
12,100.00	90.00	180.40	7,638.00	-4,416.48	-146.67	4,416.48	0.00	0.00	
12,200.00	90.00	180.40	7,638.00	-4,516.47	-147.37	4,516.47	0.00	0.00	
12,300.00	90.00	180.40	7,638.00	-4,616.47	-148.07	4,616.47	0.00	0.00	
12,400.00	90.00	180.40	7,638.00	-4,716.47	-148.77	4,716.47	0.00	0.00	
12,500.00	90.00	180.40	7,638.00	-4,816.47	-149.47	4,816.47	0.00	0.00	
12,600.00	90.00	180.40	7,638.00	-4,916.47	-150.17	4,916.47	0.00	0.00	
12,700.00	90.00	180.40	7,638.00	-5,016.46	-150.86	5,016.46	0.00	0.00	
12,800.00	90.00	180.40	7,638.00	-5,116.46	-151.56	5,116.46	0.00	0.00	
12,900.00	90.00	180.40	7,638.00	-5,216.46	-152.26	5,216.46	0.00	0.00	
13,000.00	90.00	180.40	7,638.00	-5,316.46	-152.96	5,316.46	0.00	0.00	
13,100.00	90.00	180.40	7,638.00	-5,416.45	-153.66	5,416.45	0.00	0.00	
13,200.00	90.00	180.40	7,638.00	-5,516.45	-154.35	5,516.45	0.00	0.00	
13,300.00	90.00	180.40	7,638.00	-5,616.45	-155.05	5,616.45	0.00	0.00	
13,400.00	90.00	180.40	7,638.00	-5,716.45	-155.75	5,716.45	0.00	0.00	
13,500.00	90.00	180.40	7,638.00	-5,816.44	-156.45	5,816.44	0.00	0.00	
13,600.00	90.00	180.40	7,638.00	-5,916.44	-157.15	5,916.44	0.00	0.00	
13,700.00	90.00	180.40	7,638.00	-6,016.44	-157.84	6,016.44	0.00	0.00	
13,800.00	90.00	180.40	7,638.00	-6,116.44	-158.54	6,116.44	0.00	0.00	
13,900.00	90.00	180.40	7,638.00	-6,216.43	-159.24	6,216.43	0.00	0.00	
14,000.00	90.00	180.40	7,638.00	-6,316.43	-159.94	6,316.43	0.00	0.00	
14,100.00	90.00	180.40	7,638.00	-6,416.43	-160.64	6,416.43	0.00	0.00	
14,200.00	90.00	180.40	7,638.00	-6,516.43	-161.34	6,516.43	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Morgan Hills 1G-7H-A168
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 5048.70usft (ENS 140)
Project:	DJ BASIN	MD Reference:	23' KB @ 5048.70usft (ENS 140)
Site:	S7-T1N-R68W (Woolley-Sosa/Becky/Morgan Hills)	North Reference:	True
Well:	Morgan Hills 1G-7H-A168	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	PLAN #3		

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
14,300.00	90.00	180.40	7,638.00	-6,616.42	-162.03	6,616.42	0.00	0.00	
14,400.00	90.00	180.40	7,638.00	-6,716.42	-162.73	6,716.42	0.00	0.00	
14,500.00	90.00	180.40	7,638.00	-6,816.42	-163.43	6,816.42	0.00	0.00	
14,600.00	90.00	180.40	7,638.00	-6,916.42	-164.13	6,916.42	0.00	0.00	
14,700.00	90.00	180.40	7,638.00	-7,016.41	-164.83	7,016.41	0.00	0.00	
14,800.00	90.00	180.40	7,638.00	-7,116.41	-165.52	7,116.41	0.00	0.00	
14,900.00	90.00	180.40	7,638.00	-7,216.41	-166.22	7,216.41	0.00	0.00	
15,000.00	90.00	180.40	7,638.00	-7,316.41	-166.92	7,316.41	0.00	0.00	
15,100.00	90.00	180.40	7,638.00	-7,416.40	-167.62	7,416.40	0.00	0.00	
15,200.00	90.00	180.40	7,638.00	-7,516.40	-168.32	7,516.40	0.00	0.00	
15,300.00	90.00	180.40	7,638.00	-7,616.40	-169.01	7,616.40	0.00	0.00	
15,400.00	90.00	180.40	7,638.00	-7,716.40	-169.71	7,716.40	0.00	0.00	
15,500.00	90.00	180.40	7,638.00	-7,816.39	-170.41	7,816.39	0.00	0.00	
15,600.00	90.00	180.40	7,638.00	-7,916.39	-171.11	7,916.39	0.00	0.00	
15,700.00	90.00	180.40	7,638.00	-8,016.39	-171.81	8,016.39	0.00	0.00	
15,800.00	90.00	180.40	7,638.00	-8,116.39	-172.51	8,116.39	0.00	0.00	
15,900.00	90.00	180.40	7,638.00	-8,216.38	-173.20	8,216.38	0.00	0.00	
16,000.00	90.00	180.40	7,638.00	-8,316.38	-173.90	8,316.38	0.00	0.00	
16,100.00	90.00	180.40	7,638.00	-8,416.38	-174.60	8,416.38	0.00	0.00	
16,200.00	90.00	180.40	7,638.00	-8,516.38	-175.30	8,516.38	0.00	0.00	
16,300.00	90.00	180.40	7,638.00	-8,616.37	-176.00	8,616.37	0.00	0.00	
16,400.00	90.00	180.40	7,638.00	-8,716.37	-176.69	8,716.37	0.00	0.00	
16,500.00	90.00	180.40	7,638.00	-8,816.37	-177.39	8,816.37	0.00	0.00	
16,600.00	90.00	180.40	7,638.00	-8,916.37	-178.09	8,916.37	0.00	0.00	
16,700.00	90.00	180.40	7,638.00	-9,016.37	-178.79	9,016.37	0.00	0.00	
16,800.00	90.00	180.40	7,638.00	-9,116.36	-179.49	9,116.36	0.00	0.00	
16,900.00	90.00	180.40	7,638.00	-9,216.36	-180.19	9,216.36	0.00	0.00	
17,000.00	90.00	180.40	7,638.00	-9,316.36	-180.88	9,316.36	0.00	0.00	
17,100.00	90.00	180.40	7,638.00	-9,416.36	-181.58	9,416.36	0.00	0.00	
17,200.00	90.00	180.40	7,638.00	-9,516.35	-182.28	9,516.35	0.00	0.00	
17,300.00	90.00	180.40	7,638.00	-9,616.35	-182.98	9,616.35	0.00	0.00	
17,400.00	90.00	180.40	7,638.00	-9,716.35	-183.68	9,716.35	0.00	0.00	
17,500.00	90.00	180.40	7,638.00	-9,816.35	-184.37	9,816.35	0.00	0.00	
17,518.00	90.00	180.40	7,638.00	-9,834.35	-184.50	9,834.35	0.00	0.00	TD at 17518.00

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									
MH 1G-7H-A168 PBHL	0.00	0.00	7,638.00	-9,834.35	-184.50	1,259,570.66	3,128,991.11	40.044990	-105.039264
- plan hits target center									
- Point									

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Morgan Hills 1G-7H-A168
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 5048.70usft (ENS 140)
Project:	DJ BASIN	MD Reference:	23' KB @ 5048.70usft (ENS 140)
Site:	S7-T1N-R68W (Woolley-Sosa/Becky/Morgan Hills)	North Reference:	True
Well:	Morgan Hills 1G-7H-A168	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	PLAN #3		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
999.16	998.70	Fox Hills - BASE				
4,491.87	4,485.70	Sussex				
5,059.80	5,052.70	Shannon				
6,573.27	6,563.70	Teepee Buttes (*if present)				
7,396.83	7,354.70	Sharon Springs				
7,472.84	7,412.70	Niobrara				
7,646.78	7,523.70	B Chalk				
7,697.59	7,549.70	B Marl				
7,969.83	7,632.70	C Chalk				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
500.00	500.00	0.00	0.00	KOP @ 500'	
827.65	827.48	8.98	-2.65	EOB; INC=3.28°	
6,892.83	6,882.73	341.42	-100.91	START BUILD/TURN	
7,789.00	7,588.44	-111.80	-115.80	TPZ	
8,057.02	7,638.00	-373.59	-118.45	LP @ 7638' TVD; 90°	
17,518.00	7,638.00	-9,834.35	-184.50	TD at 17518.00	