

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Morgan Hills 1B-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 1B-7H-A168	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	PLAN #4		

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 1B-7H-A168					
Well Position	+N/-S	0.00 usft	Northing:	1,269,405.93 usft	Latitude:	40.071988
	+E/-W	0.00 usft	Easting:	3,129,074.34 usft	Longitude:	-105.038784
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 #4			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,675.80	14.26	283.09	1,661.13	39.98	-171.90	1.00	1.00	0.00	283.09	
7,234.06	14.26	283.09	7,048.18	350.11	-1,505.25	0.00	0.00	0.00	0.00	
8,394.58	89.88	181.00	7,779.20	-360.41	-1,698.93	8.00	6.52	-8.80	-101.76	
11,034.58	89.88	181.00	7,784.73	-3,000.00	-1,745.00	0.00	0.00	0.00	0.00	Morgan Hills 1B-7H-A
11,317.33	89.88	178.17	7,785.32	-3,282.72	-1,742.96	1.00	0.00	-1.00	-90.00	
17,853.67	89.88	178.17	7,799.00	-9,815.72	-1,534.51	0.00	0.00	0.00	0.00	MH 1B-7H-A168 PBH

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Well:	Morgan Hills 1B-7H-A168	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	PLAN #4		

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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	KOP @ 250'
300.00	0.50	283.09	300.00	0.05	-0.21	-0.05	1.00	1.00	
400.00	1.50	283.09	399.98	0.44	-1.91	-0.44	1.00	1.00	
500.00	2.50	283.09	499.92	1.24	-5.31	-1.24	1.00	1.00	
600.00	3.50	283.09	599.78	2.42	-10.41	-2.42	1.00	1.00	
700.00	4.50	283.09	699.54	4.00	-17.20	-4.00	1.00	1.00	
800.00	5.50	283.09	799.16	5.98	-25.69	-5.98	1.00	1.00	
900.00	6.50	283.09	898.61	8.34	-35.87	-8.34	1.00	1.00	
1,000.00	7.50	283.09	997.86	11.10	-47.74	-11.10	1.00	1.00	
1,000.85	7.51	283.09	998.70	11.13	-47.85	-11.13	1.00	1.00	Fox Hills - BASE
1,100.00	8.50	283.09	1,096.89	14.26	-61.30	-14.26	1.00	1.00	
1,200.00	9.50	283.09	1,195.65	17.80	-76.54	-17.80	1.00	1.00	
1,300.00	10.50	283.09	1,294.13	21.74	-93.45	-21.74	1.00	1.00	
1,400.00	11.50	283.09	1,392.29	26.06	-112.03	-26.06	1.00	1.00	
1,500.00	12.50	283.09	1,490.11	30.77	-132.28	-30.77	1.00	1.00	
1,600.00	13.50	283.09	1,587.54	35.86	-154.19	-35.86	1.00	1.00	
1,675.80	14.26	283.09	1,661.13	39.98	-171.90	-39.98	1.00	1.00	EOB; INC=14.26°
1,700.00	14.26	283.09	1,684.58	41.33	-177.71	-41.33	0.00	0.00	
1,800.00	14.26	283.09	1,781.50	46.91	-201.70	-46.91	0.00	0.00	
1,900.00	14.26	283.09	1,878.42	52.49	-225.69	-52.49	0.00	0.00	
2,000.00	14.26	283.09	1,975.34	58.07	-249.67	-58.07	0.00	0.00	
2,100.00	14.26	283.09	2,072.26	63.65	-273.66	-63.65	0.00	0.00	
2,200.00	14.26	283.09	2,169.18	69.23	-297.65	-69.23	0.00	0.00	
2,300.00	14.26	283.09	2,266.10	74.81	-321.64	-74.81	0.00	0.00	
2,400.00	14.26	283.09	2,363.02	80.39	-345.63	-80.39	0.00	0.00	
2,500.00	14.26	283.09	2,459.94	85.97	-369.62	-85.97	0.00	0.00	
2,600.00	14.26	283.09	2,556.86	91.55	-393.60	-91.55	0.00	0.00	
2,700.00	14.26	283.09	2,653.78	97.13	-417.59	-97.13	0.00	0.00	
2,800.00	14.26	283.09	2,750.70	102.71	-441.58	-102.71	0.00	0.00	
2,900.00	14.26	283.09	2,847.62	108.29	-465.57	-108.29	0.00	0.00	
3,000.00	14.26	283.09	2,944.54	113.87	-489.56	-113.87	0.00	0.00	
3,100.00	14.26	283.09	3,041.46	119.45	-513.55	-119.45	0.00	0.00	
3,200.00	14.26	283.09	3,138.38	125.03	-537.54	-125.03	0.00	0.00	
3,300.00	14.26	283.09	3,235.30	130.61	-561.52	-130.61	0.00	0.00	
3,400.00	14.26	283.09	3,332.22	136.18	-585.51	-136.18	0.00	0.00	
3,500.00	14.26	283.09	3,429.14	141.76	-609.50	-141.76	0.00	0.00	
3,600.00	14.26	283.09	3,526.06	147.34	-633.49	-147.34	0.00	0.00	
3,700.00	14.26	283.09	3,622.98	152.92	-657.48	-152.92	0.00	0.00	
3,800.00	14.26	283.09	3,719.90	158.50	-681.47	-158.50	0.00	0.00	
3,900.00	14.26	283.09	3,816.82	164.08	-705.46	-164.08	0.00	0.00	
4,000.00	14.26	283.09	3,913.74	169.66	-729.44	-169.66	0.00	0.00	
4,100.00	14.26	283.09	4,010.66	175.24	-753.43	-175.24	0.00	0.00	
4,200.00	14.26	283.09	4,107.58	180.82	-777.42	-180.82	0.00	0.00	
4,300.00	14.26	283.09	4,204.50	186.40	-801.41	-186.40	0.00	0.00	
4,400.00	14.26	283.09	4,301.42	191.98	-825.40	-191.98	0.00	0.00	
4,500.00	14.26	283.09	4,398.33	197.56	-849.39	-197.56	0.00	0.00	
4,590.14	14.26	283.09	4,485.70	202.59	-871.01	-202.59	0.00	0.00	Sussex
4,600.00	14.26	283.09	4,495.25	203.14	-873.37	-203.14	0.00	0.00	
4,700.00	14.26	283.09	4,592.17	208.72	-897.36	-208.72	0.00	0.00	

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Well:	Morgan Hills 1B-7H-A168	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	PLAN #4		

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
4,800.00	14.26	283.09	4,689.09	214.30	-921.35	-214.30	0.00	0.00	
4,900.00	14.26	283.09	4,786.01	219.88	-945.34	-219.88	0.00	0.00	
5,000.00	14.26	283.09	4,882.93	225.46	-969.33	-225.46	0.00	0.00	
5,100.00	14.26	283.09	4,979.85	231.04	-993.32	-231.04	0.00	0.00	
5,175.16	14.26	283.09	5,052.70	235.23	-1,011.35	-235.23	0.00	0.00	Shannon
5,200.00	14.26	283.09	5,076.77	236.62	-1,017.31	-236.62	0.00	0.00	
5,300.00	14.26	283.09	5,173.69	242.20	-1,041.29	-242.20	0.00	0.00	
5,400.00	14.26	283.09	5,270.61	247.77	-1,065.28	-247.77	0.00	0.00	
5,500.00	14.26	283.09	5,367.53	253.35	-1,089.27	-253.35	0.00	0.00	
5,600.00	14.26	283.09	5,464.45	258.93	-1,113.26	-258.93	0.00	0.00	
5,700.00	14.26	283.09	5,561.37	264.51	-1,137.25	-264.51	0.00	0.00	
5,800.00	14.26	283.09	5,658.29	270.09	-1,161.24	-270.09	0.00	0.00	
5,900.00	14.26	283.09	5,755.21	275.67	-1,185.23	-275.67	0.00	0.00	
6,000.00	14.26	283.09	5,852.13	281.25	-1,209.21	-281.25	0.00	0.00	
6,100.00	14.26	283.09	5,949.05	286.83	-1,233.20	-286.83	0.00	0.00	
6,200.00	14.26	283.09	6,045.97	292.41	-1,257.19	-292.41	0.00	0.00	
6,300.00	14.26	283.09	6,142.89	297.99	-1,281.18	-297.99	0.00	0.00	
6,400.00	14.26	283.09	6,239.81	303.57	-1,305.17	-303.57	0.00	0.00	
6,500.00	14.26	283.09	6,336.73	309.15	-1,329.16	-309.15	0.00	0.00	
6,600.00	14.26	283.09	6,433.65	314.73	-1,353.15	-314.73	0.00	0.00	
6,700.00	14.26	283.09	6,530.57	320.31	-1,377.13	-320.31	0.00	0.00	
6,734.19	14.26	283.09	6,563.70	322.22	-1,385.33	-322.22	0.00	0.00	Teepee Buttes (*if present)
6,800.00	14.26	283.09	6,627.49	325.89	-1,401.12	-325.89	0.00	0.00	
6,900.00	14.26	283.09	6,724.41	331.47	-1,425.11	-331.47	0.00	0.00	
7,000.00	14.26	283.09	6,821.33	337.05	-1,449.10	-337.05	0.00	0.00	
7,100.00	14.26	283.09	6,918.25	342.63	-1,473.09	-342.63	0.00	0.00	
7,200.00	14.26	283.09	7,015.17	348.21	-1,497.08	-348.21	0.00	0.00	
7,234.06	14.26	283.09	7,048.18	350.11	-1,505.25	-350.11	0.00	0.00	START BUILD/TURN
7,300.00	14.14	261.47	7,112.15	350.75	-1,521.13	-350.75	8.00	-0.18	
7,400.00	17.29	233.94	7,208.53	340.18	-1,545.26	-340.18	8.00	3.15	
7,500.00	22.87	217.05	7,302.49	315.88	-1,569.02	-315.88	8.00	5.59	
7,557.49	26.63	210.68	7,354.70	295.87	-1,582.33	-295.87	8.00	6.53	Sharon Springs
7,600.00	29.55	206.97	7,392.20	278.33	-1,591.95	-278.33	8.00	6.87	
7,623.76	31.22	205.17	7,412.70	267.54	-1,597.22	-267.54	8.00	7.03	Niobrara
7,700.00	36.71	200.43	7,475.92	228.26	-1,613.60	-228.26	8.00	7.21	
7,761.48	41.26	197.42	7,523.70	191.68	-1,626.09	-191.68	8.00	7.39	B Chalk
7,796.79	43.89	195.93	7,549.70	168.80	-1,632.94	-168.80	8.00	7.47	B Marl
7,800.00	44.14	195.81	7,552.01	166.65	-1,633.55	-166.65	8.00	7.50	
7,900.00	51.70	192.29	7,618.99	94.69	-1,651.41	-94.69	8.00	7.56	
7,922.55	53.42	191.60	7,632.70	77.18	-1,655.11	-77.18	8.00	7.62	C Chalk
7,968.06	56.90	190.29	7,658.70	40.51	-1,662.20	-40.51	8.00	7.65	C Marl
8,000.00	59.35	189.44	7,675.57	13.79	-1,666.84	-13.79	8.00	7.67	
8,028.66	61.55	188.71	7,689.70	-10.83	-1,670.77	10.83	8.00	7.69	D Chalk
8,100.00	67.05	187.01	7,720.63	-74.48	-1,679.53	74.48	8.00	7.71	
8,140.56	70.18	186.11	7,735.41	-112.00	-1,683.84	112.00	8.00	7.73	TPZ
8,176.25	72.95	185.34	7,746.70	-145.69	-1,687.21	145.69	8.00	7.74	Fort Hayes
8,200.00	74.78	184.84	7,753.30	-168.41	-1,689.24	168.41	8.00	7.74	
8,260.10	79.44	183.62	7,766.70	-226.82	-1,693.56	226.82	8.00	7.75	Codell
8,300.00	82.54	182.83	7,772.95	-266.16	-1,695.78	266.16	8.00	7.76	
8,394.58	89.88	181.00	7,779.20	-360.41	-1,698.93	360.41	8.00	7.76	LP @ 7779' TVD; 89.88°
8,400.00	89.88	181.00	7,779.21	-365.83	-1,699.02	365.83	0.00	0.00	
8,500.00	89.88	181.00	7,779.42	-465.81	-1,700.77	465.81	0.00	0.00	

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Wellbore:	HZ		
Design:	PLAN #4		

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
8,600.00	89.88	181.00	7,779.63	-565.80	-1,702.51	565.80	0.00	0.00	
8,700.00	89.88	181.00	7,779.84	-665.78	-1,704.26	665.78	0.00	0.00	
8,800.00	89.88	181.00	7,780.05	-765.77	-1,706.00	765.77	0.00	0.00	
8,900.00	89.88	181.00	7,780.25	-865.75	-1,707.75	865.75	0.00	0.00	
9,000.00	89.88	181.00	7,780.46	-965.74	-1,709.49	965.74	0.00	0.00	
9,100.00	89.88	181.00	7,780.67	-1,065.72	-1,711.24	1,065.72	0.00	0.00	
9,200.00	89.88	181.00	7,780.88	-1,165.71	-1,712.98	1,165.71	0.00	0.00	
9,300.00	89.88	181.00	7,781.09	-1,265.69	-1,714.73	1,265.69	0.00	0.00	
9,400.00	89.88	181.00	7,781.30	-1,365.67	-1,716.47	1,365.67	0.00	0.00	
9,500.00	89.88	181.00	7,781.51	-1,465.66	-1,718.22	1,465.66	0.00	0.00	
9,600.00	89.88	181.00	7,781.72	-1,565.64	-1,719.96	1,565.64	0.00	0.00	
9,700.00	89.88	181.00	7,781.93	-1,665.63	-1,721.71	1,665.63	0.00	0.00	
9,800.00	89.88	181.00	7,782.14	-1,765.61	-1,723.45	1,765.61	0.00	0.00	
9,900.00	89.88	181.00	7,782.35	-1,865.60	-1,725.20	1,865.60	0.00	0.00	
10,000.00	89.88	181.00	7,782.56	-1,965.58	-1,726.94	1,965.58	0.00	0.00	
10,100.00	89.88	181.00	7,782.77	-2,065.57	-1,728.69	2,065.57	0.00	0.00	
10,200.00	89.88	181.00	7,782.98	-2,165.55	-1,730.43	2,165.55	0.00	0.00	
10,300.00	89.88	181.00	7,783.19	-2,265.54	-1,732.18	2,265.54	0.00	0.00	
10,400.00	89.88	181.00	7,783.40	-2,365.52	-1,733.93	2,365.52	0.00	0.00	
10,500.00	89.88	181.00	7,783.61	-2,465.50	-1,735.67	2,465.50	0.00	0.00	
10,600.00	89.88	181.00	7,783.81	-2,565.49	-1,737.42	2,565.49	0.00	0.00	
10,700.00	89.88	181.00	7,784.02	-2,665.47	-1,739.16	2,665.47	0.00	0.00	
10,800.00	89.88	181.00	7,784.23	-2,765.46	-1,740.91	2,765.46	0.00	0.00	
10,900.00	89.88	181.00	7,784.44	-2,865.44	-1,742.65	2,865.44	0.00	0.00	
11,000.00	89.88	181.00	7,784.65	-2,965.43	-1,744.40	2,965.43	0.00	0.00	
11,034.58	89.88	181.00	7,784.73	-3,000.00	-1,745.00	3,000.00	0.00	0.00	START TURN
11,100.00	89.88	180.35	7,784.86	-3,065.42	-1,745.77	3,065.42	1.00	0.00	
11,200.00	89.88	179.35	7,785.07	-3,165.42	-1,745.50	3,165.42	1.00	0.00	
11,300.00	89.88	178.35	7,785.28	-3,265.39	-1,743.48	3,265.39	1.00	0.00	
11,317.33	89.88	178.17	7,785.32	-3,282.72	-1,742.96	3,282.72	1.00	0.00	END OF TURN
11,400.00	89.88	178.17	7,785.49	-3,365.34	-1,740.32	3,365.34	0.00	0.00	
11,500.00	89.88	178.17	7,785.70	-3,465.29	-1,737.13	3,465.29	0.00	0.00	
11,600.00	89.88	178.17	7,785.91	-3,565.24	-1,733.94	3,565.24	0.00	0.00	
11,700.00	89.88	178.17	7,786.12	-3,665.19	-1,730.75	3,665.19	0.00	0.00	
11,800.00	89.88	178.17	7,786.33	-3,765.14	-1,727.57	3,765.14	0.00	0.00	
11,900.00	89.88	178.17	7,786.54	-3,865.09	-1,724.38	3,865.09	0.00	0.00	
11,977.84	89.88	178.17	7,786.70	-3,942.89	-1,721.89	3,942.89	0.00	0.00	Fairport
12,000.00	89.88	178.17	7,786.75	-3,965.04	-1,721.19	3,965.04	0.00	0.00	
12,100.00	89.88	178.17	7,786.96	-4,064.99	-1,718.00	4,064.99	0.00	0.00	
12,200.00	89.88	178.17	7,787.17	-4,164.93	-1,714.81	4,164.93	0.00	0.00	
12,300.00	89.88	178.17	7,787.37	-4,264.88	-1,711.62	4,264.88	0.00	0.00	
12,400.00	89.88	178.17	7,787.58	-4,364.83	-1,708.43	4,364.83	0.00	0.00	
12,500.00	89.88	178.17	7,787.79	-4,464.78	-1,705.24	4,464.78	0.00	0.00	
12,600.00	89.88	178.17	7,788.00	-4,564.73	-1,702.05	4,564.73	0.00	0.00	
12,700.00	89.88	178.17	7,788.21	-4,664.68	-1,698.86	4,664.68	0.00	0.00	
12,800.00	89.88	178.17	7,788.42	-4,764.63	-1,695.67	4,764.63	0.00	0.00	
12,900.00	89.88	178.17	7,788.63	-4,864.58	-1,692.49	4,864.58	0.00	0.00	
13,000.00	89.88	178.17	7,788.84	-4,964.53	-1,689.30	4,964.53	0.00	0.00	
13,100.00	89.88	178.17	7,789.05	-5,064.47	-1,686.11	5,064.47	0.00	0.00	
13,200.00	89.88	178.17	7,789.26	-5,164.42	-1,682.92	5,164.42	0.00	0.00	
13,300.00	89.88	178.17	7,789.47	-5,264.37	-1,679.73	5,264.37	0.00	0.00	
13,400.00	89.88	178.17	7,789.68	-5,364.32	-1,676.54	5,364.32	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Morgan Hills 1B-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 1B-7H-A168	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	PLAN #4		

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
13,500.00	89.88	178.17	7,789.89	-5,464.27	-1,673.35	5,464.27	0.00	0.00	
13,600.00	89.88	178.17	7,790.10	-5,564.22	-1,670.16	5,564.22	0.00	0.00	
13,700.00	89.88	178.17	7,790.31	-5,664.17	-1,666.97	5,664.17	0.00	0.00	
13,800.00	89.88	178.17	7,790.51	-5,764.12	-1,663.78	5,764.12	0.00	0.00	
13,900.00	89.88	178.17	7,790.72	-5,864.07	-1,660.59	5,864.07	0.00	0.00	
14,000.00	89.88	178.17	7,790.93	-5,964.01	-1,657.41	5,964.01	0.00	0.00	
14,100.00	89.88	178.17	7,791.14	-6,063.96	-1,654.22	6,063.96	0.00	0.00	
14,200.00	89.88	178.17	7,791.35	-6,163.91	-1,651.03	6,163.91	0.00	0.00	
14,300.00	89.88	178.17	7,791.56	-6,263.86	-1,647.84	6,263.86	0.00	0.00	
14,400.00	89.88	178.17	7,791.77	-6,363.81	-1,644.65	6,363.81	0.00	0.00	
14,500.00	89.88	178.17	7,791.98	-6,463.76	-1,641.46	6,463.76	0.00	0.00	
14,600.00	89.88	178.17	7,792.19	-6,563.71	-1,638.27	6,563.71	0.00	0.00	
14,700.00	89.88	178.17	7,792.40	-6,663.66	-1,635.08	6,663.66	0.00	0.00	
14,800.00	89.88	178.17	7,792.61	-6,763.61	-1,631.89	6,763.61	0.00	0.00	
14,900.00	89.88	178.17	7,792.82	-6,863.56	-1,628.70	6,863.56	0.00	0.00	
15,000.00	89.88	178.17	7,793.03	-6,963.50	-1,625.51	6,963.50	0.00	0.00	
15,100.00	89.88	178.17	7,793.24	-7,063.45	-1,622.33	7,063.45	0.00	0.00	
15,200.00	89.88	178.17	7,793.45	-7,163.40	-1,619.14	7,163.40	0.00	0.00	
15,300.00	89.88	178.17	7,793.65	-7,263.35	-1,615.95	7,263.35	0.00	0.00	
15,400.00	89.88	178.17	7,793.86	-7,363.30	-1,612.76	7,363.30	0.00	0.00	
15,500.00	89.88	178.17	7,794.07	-7,463.25	-1,609.57	7,463.25	0.00	0.00	
15,600.00	89.88	178.17	7,794.28	-7,563.20	-1,606.38	7,563.20	0.00	0.00	
15,700.00	89.88	178.17	7,794.49	-7,663.15	-1,603.19	7,663.15	0.00	0.00	
15,800.00	89.88	178.17	7,794.70	-7,763.10	-1,600.00	7,763.10	0.00	0.00	
15,900.00	89.88	178.17	7,794.91	-7,863.04	-1,596.81	7,863.04	0.00	0.00	
16,000.00	89.88	178.17	7,795.12	-7,962.99	-1,593.62	7,962.99	0.00	0.00	
16,100.00	89.88	178.17	7,795.33	-8,062.94	-1,590.43	8,062.94	0.00	0.00	
16,200.00	89.88	178.17	7,795.54	-8,162.89	-1,587.25	8,162.89	0.00	0.00	
16,300.00	89.88	178.17	7,795.75	-8,262.84	-1,584.06	8,262.84	0.00	0.00	
16,400.00	89.88	178.17	7,795.96	-8,362.79	-1,580.87	8,362.79	0.00	0.00	
16,500.00	89.88	178.17	7,796.17	-8,462.74	-1,577.68	8,462.74	0.00	0.00	
16,600.00	89.88	178.17	7,796.38	-8,562.69	-1,574.49	8,562.69	0.00	0.00	
16,700.00	89.88	178.17	7,796.58	-8,662.64	-1,571.30	8,662.64	0.00	0.00	
16,800.00	89.88	178.17	7,796.79	-8,762.58	-1,568.11	8,762.58	0.00	0.00	
16,900.00	89.88	178.17	7,797.00	-8,862.53	-1,564.92	8,862.53	0.00	0.00	
17,000.00	89.88	178.17	7,797.21	-8,962.48	-1,561.73	8,962.48	0.00	0.00	
17,100.00	89.88	178.17	7,797.42	-9,062.43	-1,558.54	9,062.43	0.00	0.00	
17,200.00	89.88	178.17	7,797.63	-9,162.38	-1,555.35	9,162.38	0.00	0.00	
17,300.00	89.88	178.17	7,797.84	-9,262.33	-1,552.16	9,262.33	0.00	0.00	
17,400.00	89.88	178.17	7,798.05	-9,362.28	-1,548.98	9,362.28	0.00	0.00	
17,500.00	89.88	178.17	7,798.26	-9,462.23	-1,545.79	9,462.23	0.00	0.00	
17,600.00	89.88	178.17	7,798.47	-9,562.18	-1,542.60	9,562.18	0.00	0.00	
17,700.00	89.88	178.17	7,798.68	-9,662.12	-1,539.41	9,662.12	0.00	0.00	
17,800.00	89.88	178.17	7,798.89	-9,762.07	-1,536.22	9,762.07	0.00	0.00	
17,853.67	89.88	178.17	7,799.00	-9,815.72	-1,534.51	9,815.72	0.00	0.00	TD at 17853.67

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Morgan Hills 1B-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 1B-7H-A168	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	PLAN #4		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
MH 1B-7H-A168 PBHL	0.00	0.00	7,799.00	-9,815.72	-1,534.51	1,259,582.36	3,127,590.91	40.045042	-105.044265
- plan hits target center									
- Point									
Morgan Hills 1B-7H-A16	0.00	0.00	7,784.73	-3,000.00	-1,745.00	1,266,396.90	3,127,344.97	40.063752	-105.045019
- plan hits target center									
- Point									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,000.85	998.70	Fox Hills - BASE				
4,590.14	4,485.70	Sussex				
5,175.16	5,052.70	Shannon				
6,734.19	6,563.70	Teepee Buttes (*if present)				
7,557.49	7,354.70	Sharon Springs				
7,623.76	7,412.70	Niobrara				
7,761.48	7,523.70	B Chalk				
7,796.79	7,549.70	B Marl				
7,922.55	7,632.70	C Chalk				
7,968.06	7,658.70	C Marl				
8,028.66	7,689.70	D Chalk				
8,176.25	7,746.70	Fort Hayes				
8,260.10	7,766.70	Codell				
11,977.84	7,786.70	Fairport				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
250.00	250.00	0.00	0.00	KOP @ 250'
1,675.80	1,661.13	39.98	-171.90	EOB; INC=14.26°
7,234.06	7,048.18	350.11	-1,505.25	START BUILD/TURN
8,140.56	7,735.41	-112.00	-1,683.84	TPZ
8,394.58	7,779.20	-360.41	-1,698.93	LP @ 7779' TVD; 89.88°
11,034.58	7,784.73	-3,000.00	-1,745.00	START TURN
11,317.33	7,785.32	-3,282.72	-1,742.96	END OF TURN
17,853.67	7,799.00	-9,815.72	-1,534.51	TD at 17853.67