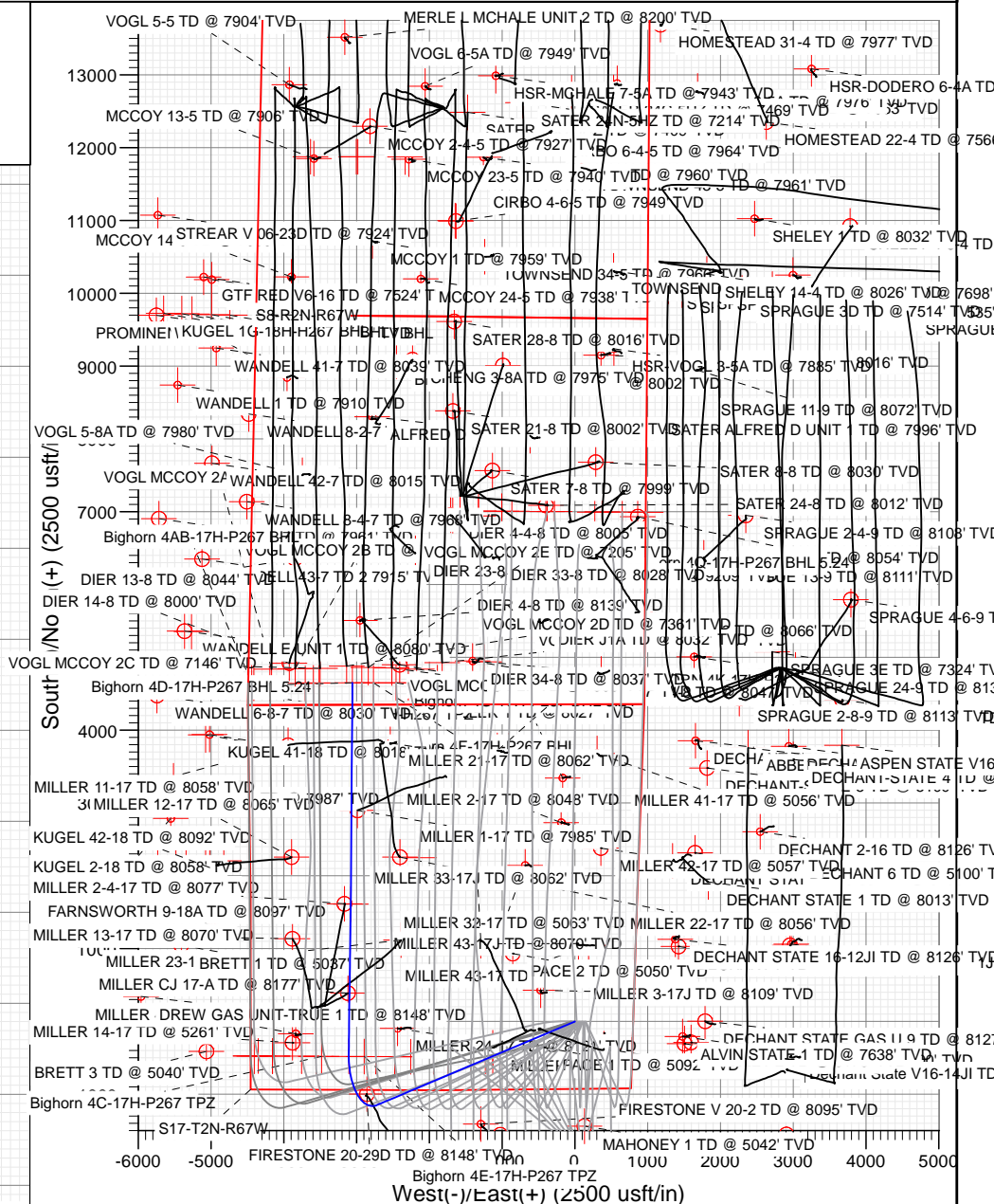
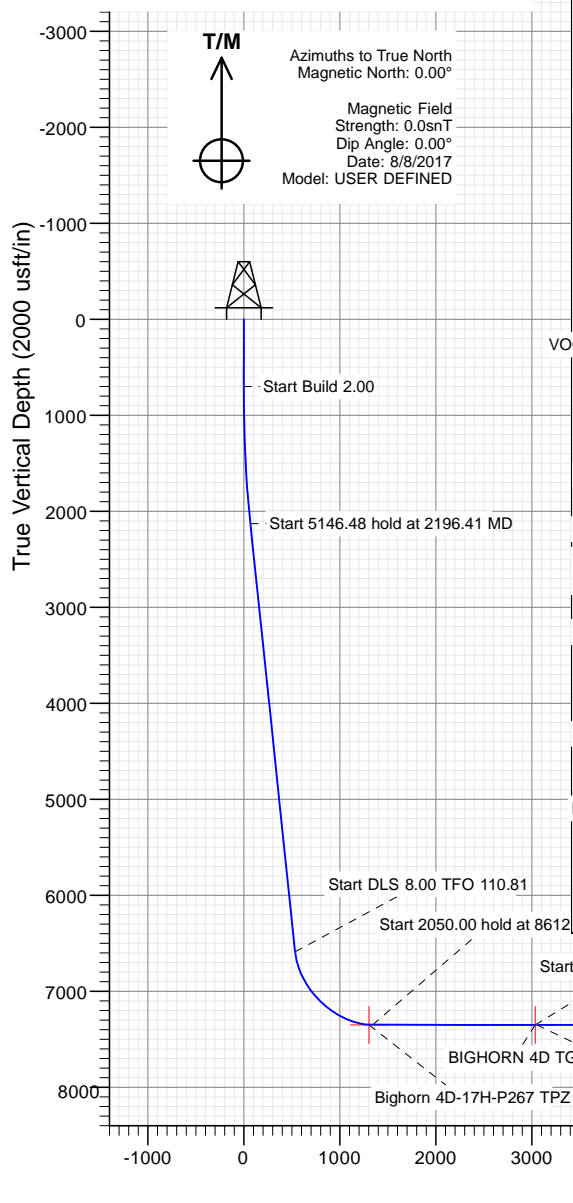




Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	
3	2196.41	29.93	247.12	2129.28	-148.55	-351.95	2.00	247.12	69.23	
4	7342.89	29.93	247.12	6589.49	-1147.00	-2717.52	0.00	0.00	534.57	
5	8612.40	90.00	0.80	7350.00	-439.80	-3108.62	8.00	110.81	1340.35	
6	10662.40	90.00	0.80	7350.00	1610.00	-3080.00	0.00	0.00	3037.37	BIGHORN 4D TGT
7	10681.26	90.00	0.42	7350.00	1628.86	-3079.80	2.00	-90.00	3053.02	
8	13702.69	90.00	0.42	7350.00	4650.21	-3057.51	0.00	0.00	5565.32	Bighorn 4D-17H-P267 BHL 5.24

Type TD	Target No Target (Freehand)	Azimuth 326.68	Origin Type	N/S 0.00	E/W 0.00	From TWD 0.00
Name	TVD	+N/S	+E/W	Latitude	Longitude	
BIGHORN 4D TGT	7350.00	1610.00	-3080.00	40.138103	-104.919071	
Bighorn 4D-17H-P267 BHL	7350.00	11876.14	-2984.19	40.166285	-104.918733	
Bighorn 4D-17H-P267 BHL 5.24	7350.00	41650.21	-3057.51	40.146449	-104.918992	
Bighorn 4D-17H-P267 BHL NEW	7350.00	7350.00	-1074.14	40.06285	-104.919805	
Bighorn 4D-17H-P267 BPH	350.00	778.87	-3105.91	40.132366	-104.919163	

Project: DJ BASIN
Site: BIGHORN
Well: BIGHORN 4D-17H-P267
Wellbore: OH
Design: PLAN #3



+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1292097.15	3165509.21	40.133684	-104.908055



CATHEDRAL



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well BIGHORN 4D-17H-P267
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4982.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4982.00usft
Site:	BIGHORN	North Reference:	True
Well:	BIGHORN 4D-17H-P267	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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		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:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.38 °

Well	BIGHORN 4D-17H-P267					
Well Position	+N/-S	0.00 usft	Northing:	1,292,097.15 usft	Latitude:	40.133684
	+E/-W	0.00 usft	Easting:	3,165,509.21 usft	Longitude:	-104.908055
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,959.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	8/8/2017	0.00	0.00	0.00000000

Design	PLAN #3			
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	326.68

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	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,196.41	29.93	247.12	2,129.28	-148.55	-351.95	2.00	2.00	0.00	247.12	
7,342.89	29.93	247.12	6,589.49	-1,147.00	-2,717.52	0.00	0.00	0.00	0.00	
8,612.40	90.00	0.80	7,350.00	-439.80	-3,108.62	8.00	4.73	8.95	110.81	
10,662.40	90.00	0.80	7,350.00	1,610.00	-3,080.00	0.00	0.00	0.00	0.00	BIGHORN 4D TGT
10,681.26	90.00	0.42	7,350.00	1,628.86	-3,079.80	2.00	0.00	-2.00	-90.00	
13,702.69	90.00	0.42	7,350.00	4,650.21	-3,057.51	0.00	0.00	0.00	0.00	Bighorn 4D-17H-P267

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well BIGHORN 4D-17H-P267
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4982.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4982.00usft
Site:	BIGHORN	North Reference:	True
Well:	BIGHORN 4D-17H-P267	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	
800.00	2.00	247.12	799.98	-0.68	-1.61	0.32	2.00	2.00	
900.00	4.00	247.12	899.84	-2.71	-6.43	1.26	2.00	2.00	
1,000.00	6.00	247.12	999.45	-6.10	-14.46	2.84	2.00	2.00	
1,100.00	8.00	247.12	1,098.70	-10.84	-25.69	5.05	2.00	2.00	
1,200.00	10.00	247.12	1,197.47	-16.92	-40.10	7.89	2.00	2.00	
1,300.00	12.00	247.12	1,295.62	-24.34	-57.68	11.35	2.00	2.00	
1,400.00	14.00	247.12	1,393.06	-33.09	-78.40	15.42	2.00	2.00	
1,500.00	16.00	247.12	1,489.64	-43.15	-102.24	20.11	2.00	2.00	
1,600.00	18.00	247.12	1,585.27	-54.52	-129.18	25.41	2.00	2.00	
1,700.00	20.00	247.12	1,679.82	-67.18	-159.17	31.31	2.00	2.00	
1,800.00	22.00	247.12	1,773.17	-81.12	-192.19	37.81	2.00	2.00	
1,900.00	24.00	247.12	1,865.21	-96.31	-228.18	44.89	2.00	2.00	
2,000.00	26.00	247.12	1,955.84	-112.74	-267.12	52.54	2.00	2.00	
2,100.00	28.00	247.12	2,044.94	-130.40	-308.94	60.77	2.00	2.00	
2,196.41	29.93	247.12	2,129.28	-148.55	-351.95	69.23	2.00	2.00	
2,200.00	29.93	247.12	2,132.40	-149.25	-353.60	69.56	0.00	0.00	
2,300.00	29.93	247.12	2,219.06	-168.65	-399.57	78.60	0.00	0.00	
2,400.00	29.93	247.12	2,305.73	-188.05	-445.53	87.64	0.00	0.00	
2,500.00	29.93	247.12	2,392.39	-207.45	-491.50	96.68	0.00	0.00	
2,600.00	29.93	247.12	2,479.06	-226.85	-537.46	105.72	0.00	0.00	
2,700.00	29.93	247.12	2,565.72	-246.25	-583.42	114.77	0.00	0.00	
2,800.00	29.93	247.12	2,652.39	-265.65	-629.39	123.81	0.00	0.00	
2,900.00	29.93	247.12	2,739.05	-285.05	-675.35	132.85	0.00	0.00	
3,000.00	29.93	247.12	2,825.72	-304.45	-721.32	141.89	0.00	0.00	
3,100.00	29.93	247.12	2,912.38	-323.85	-767.28	150.93	0.00	0.00	
3,200.00	29.93	247.12	2,999.05	-343.25	-813.25	159.98	0.00	0.00	
3,300.00	29.93	247.12	3,085.71	-362.65	-859.21	169.02	0.00	0.00	
3,400.00	29.93	247.12	3,172.38	-382.05	-905.18	178.06	0.00	0.00	
3,500.00	29.93	247.12	3,259.04	-401.45	-951.14	187.10	0.00	0.00	
3,600.00	29.93	247.12	3,345.71	-420.85	-997.11	196.14	0.00	0.00	
3,700.00	29.93	247.12	3,432.37	-440.26	-1,043.07	205.19	0.00	0.00	
3,800.00	29.93	247.12	3,519.04	-459.66	-1,089.04	214.23	0.00	0.00	
3,900.00	29.93	247.12	3,605.70	-479.06	-1,135.00	223.27	0.00	0.00	
4,000.00	29.93	247.12	3,692.37	-498.46	-1,180.97	232.31	0.00	0.00	
4,100.00	29.93	247.12	3,779.03	-517.86	-1,226.93	241.35	0.00	0.00	
4,200.00	29.93	247.12	3,865.70	-537.26	-1,272.90	250.39	0.00	0.00	
4,300.00	29.93	247.12	3,952.36	-556.66	-1,318.86	259.44	0.00	0.00	
4,400.00	29.93	247.12	4,039.03	-576.06	-1,364.83	268.48	0.00	0.00	
4,500.00	29.93	247.12	4,125.69	-595.46	-1,410.79	277.52	0.00	0.00	
4,600.00	29.93	247.12	4,212.36	-614.86	-1,456.76	286.56	0.00	0.00	
4,700.00	29.93	247.12	4,299.02	-634.26	-1,502.72	295.60	0.00	0.00	
4,800.00	29.93	247.12	4,385.69	-653.66	-1,548.69	304.65	0.00	0.00	
4,900.00	29.93	247.12	4,472.36	-673.06	-1,594.65	313.69	0.00	0.00	
5,000.00	29.93	247.12	4,559.02	-692.46	-1,640.62	322.73	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well BIGHORN 4D-17H-P267
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4982.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4982.00usft
Site:	BIGHORN	North Reference:	True
Well:	BIGHORN 4D-17H-P267	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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
5,100.00	29.93	247.12	4,645.69	-711.86	-1,686.58	331.77	0.00	0.00	
5,200.00	29.93	247.12	4,732.35	-731.26	-1,732.55	340.81	0.00	0.00	
5,300.00	29.93	247.12	4,819.02	-750.66	-1,778.51	349.85	0.00	0.00	
5,400.00	29.93	247.12	4,905.68	-770.07	-1,824.48	358.90	0.00	0.00	
5,500.00	29.93	247.12	4,992.35	-789.47	-1,870.44	367.94	0.00	0.00	
5,600.00	29.93	247.12	5,079.01	-808.87	-1,916.40	376.98	0.00	0.00	
5,700.00	29.93	247.12	5,165.68	-828.27	-1,962.37	386.02	0.00	0.00	
5,800.00	29.93	247.12	5,252.34	-847.67	-2,008.33	395.06	0.00	0.00	
5,900.00	29.93	247.12	5,339.01	-867.07	-2,054.30	404.11	0.00	0.00	
6,000.00	29.93	247.12	5,425.67	-886.47	-2,100.26	413.15	0.00	0.00	
6,100.00	29.93	247.12	5,512.34	-905.87	-2,146.23	422.19	0.00	0.00	
6,200.00	29.93	247.12	5,599.00	-925.27	-2,192.19	431.23	0.00	0.00	
6,300.00	29.93	247.12	5,685.67	-944.67	-2,238.16	440.27	0.00	0.00	
6,400.00	29.93	247.12	5,772.33	-964.07	-2,284.12	449.32	0.00	0.00	
6,500.00	29.93	247.12	5,859.00	-983.47	-2,330.09	458.36	0.00	0.00	
6,600.00	29.93	247.12	5,945.66	-1,002.87	-2,376.05	467.40	0.00	0.00	
6,700.00	29.93	247.12	6,032.33	-1,022.27	-2,422.02	476.44	0.00	0.00	
6,800.00	29.93	247.12	6,118.99	-1,041.67	-2,467.98	485.48	0.00	0.00	
6,900.00	29.93	247.12	6,205.66	-1,061.07	-2,513.95	494.52	0.00	0.00	
7,000.00	29.93	247.12	6,292.32	-1,080.48	-2,559.91	503.57	0.00	0.00	
7,100.00	29.93	247.12	6,378.99	-1,099.88	-2,605.88	512.61	0.00	0.00	
7,200.00	29.93	247.12	6,465.65	-1,119.28	-2,651.84	521.65	0.00	0.00	
7,300.00	29.93	247.12	6,552.32	-1,138.68	-2,697.81	530.69	0.00	0.00	
7,342.89	29.93	247.12	6,589.49	-1,147.00	-2,717.52	534.57	0.00	0.00	
7,400.00	28.60	256.07	6,639.34	-1,155.83	-2,743.93	541.69	8.00	-2.33	
7,500.00	27.81	272.96	6,727.60	-1,160.40	-2,790.53	563.48	8.00	-0.78	
7,600.00	29.11	289.58	6,815.65	-1,151.03	-2,836.82	596.74	8.00	1.30	
7,700.00	32.23	304.06	6,901.77	-1,127.91	-2,881.90	640.83	8.00	3.12	
7,800.00	36.71	315.81	6,984.29	-1,091.48	-2,924.90	694.89	8.00	4.48	
7,900.00	42.11	325.13	7,061.58	-1,042.46	-2,964.97	757.86	8.00	5.40	
8,000.00	48.12	332.59	7,132.17	-981.80	-3,001.34	828.53	8.00	6.01	
8,100.00	54.53	338.74	7,194.66	-910.69	-3,033.29	905.50	8.00	6.41	
8,200.00	61.20	343.96	7,247.84	-830.50	-3,060.21	987.30	8.00	6.67	
8,300.00	68.05	348.54	7,290.68	-742.79	-3,081.58	1,072.32	8.00	6.85	
8,400.00	75.02	352.69	7,322.34	-649.28	-3,096.97	1,158.91	8.00	6.96	
8,500.00	82.05	356.58	7,342.21	-551.78	-3,106.08	1,245.38	8.00	7.03	
8,572.32	87.16	359.30	7,349.01	-479.85	-3,108.66	1,306.90	8.00	7.07	Bighorn 4D-17H-P267 TPZ
8,600.00	89.12	0.34	7,349.91	-452.19	-3,108.75	1,330.06	8.00	7.08	
8,612.40	90.00	0.80	7,350.00	-439.80	-3,108.62	1,340.35	8.00	7.08	
8,700.00	90.00	0.80	7,350.00	-352.20	-3,107.40	1,412.87	0.00	0.00	
8,800.00	90.00	0.80	7,350.00	-252.21	-3,106.00	1,495.65	0.00	0.00	
8,900.00	90.00	0.80	7,350.00	-152.22	-3,104.61	1,578.43	0.00	0.00	
9,000.00	90.00	0.80	7,350.00	-52.23	-3,103.21	1,661.21	0.00	0.00	
9,100.00	90.00	0.80	7,350.00	47.76	-3,101.81	1,743.99	0.00	0.00	
9,200.00	90.00	0.80	7,350.00	147.75	-3,100.42	1,826.78	0.00	0.00	
9,300.00	90.00	0.80	7,350.00	247.74	-3,099.02	1,909.56	0.00	0.00	
9,400.00	90.00	0.80	7,350.00	347.73	-3,097.63	1,992.34	0.00	0.00	
9,500.00	90.00	0.80	7,350.00	447.72	-3,096.23	2,075.12	0.00	0.00	
9,600.00	90.00	0.80	7,350.00	547.71	-3,094.83	2,157.90	0.00	0.00	
9,700.00	90.00	0.80	7,350.00	647.70	-3,093.44	2,240.69	0.00	0.00	
9,800.00	90.00	0.80	7,350.00	747.69	-3,092.04	2,323.47	0.00	0.00	
9,900.00	90.00	0.80	7,350.00	847.68	-3,090.64	2,406.25	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well BIGHORN 4D-17H-P267
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4982.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4982.00usft
Site:	BIGHORN	North Reference:	True
Well:	BIGHORN 4D-17H-P267	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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
10,000.00	90.00	0.80	7,350.00	947.67	-3,089.25	2,489.03	0.00	0.00	
10,100.00	90.00	0.80	7,350.00	1,047.66	-3,087.85	2,571.81	0.00	0.00	
10,200.00	90.00	0.80	7,350.00	1,147.65	-3,086.46	2,654.59	0.00	0.00	
10,300.00	90.00	0.80	7,350.00	1,247.64	-3,085.06	2,737.38	0.00	0.00	
10,400.00	90.00	0.80	7,350.00	1,347.63	-3,083.66	2,820.16	0.00	0.00	
10,500.00	90.00	0.80	7,350.00	1,447.62	-3,082.27	2,902.94	0.00	0.00	
10,600.00	90.00	0.80	7,350.00	1,547.61	-3,080.87	2,985.72	0.00	0.00	
10,662.40	90.00	0.80	7,350.00	1,610.00	-3,080.00	3,037.37	0.00	0.00	BIGHORN 4D TGT
10,681.26	90.00	0.42	7,350.00	1,628.86	-3,079.80	3,053.02	2.00	0.00	
10,700.00	90.00	0.42	7,350.00	1,647.60	-3,079.66	3,068.61	0.00	0.00	
10,800.00	90.00	0.42	7,350.00	1,747.60	-3,078.92	3,151.76	0.00	0.00	
10,900.00	90.00	0.42	7,350.00	1,847.60	-3,078.18	3,234.90	0.00	0.00	
11,000.00	90.00	0.42	7,350.00	1,947.59	-3,077.45	3,318.05	0.00	0.00	
11,100.00	90.00	0.42	7,350.00	2,047.59	-3,076.71	3,401.20	0.00	0.00	
11,200.00	90.00	0.42	7,350.00	2,147.59	-3,075.97	3,484.35	0.00	0.00	
11,300.00	90.00	0.42	7,350.00	2,247.59	-3,075.23	3,567.50	0.00	0.00	
11,400.00	90.00	0.42	7,350.00	2,347.58	-3,074.50	3,650.65	0.00	0.00	
11,500.00	90.00	0.42	7,350.00	2,447.58	-3,073.76	3,733.80	0.00	0.00	
11,600.00	90.00	0.42	7,350.00	2,547.58	-3,073.02	3,816.95	0.00	0.00	
11,700.00	90.00	0.42	7,350.00	2,647.58	-3,072.28	3,900.10	0.00	0.00	
11,800.00	90.00	0.42	7,350.00	2,747.57	-3,071.54	3,983.25	0.00	0.00	
11,900.00	90.00	0.42	7,350.00	2,847.57	-3,070.81	4,066.40	0.00	0.00	
12,000.00	90.00	0.42	7,350.00	2,947.57	-3,070.07	4,149.55	0.00	0.00	
12,100.00	90.00	0.42	7,350.00	3,047.56	-3,069.33	4,232.70	0.00	0.00	
12,200.00	90.00	0.42	7,350.00	3,147.56	-3,068.59	4,315.85	0.00	0.00	
12,300.00	90.00	0.42	7,350.00	3,247.56	-3,067.86	4,398.99	0.00	0.00	
12,400.00	90.00	0.42	7,350.00	3,347.56	-3,067.12	4,482.14	0.00	0.00	
12,500.00	90.00	0.42	7,350.00	3,447.55	-3,066.38	4,565.29	0.00	0.00	
12,600.00	90.00	0.42	7,350.00	3,547.55	-3,065.64	4,648.44	0.00	0.00	
12,700.00	90.00	0.42	7,350.00	3,647.55	-3,064.90	4,731.59	0.00	0.00	
12,800.00	90.00	0.42	7,350.00	3,747.55	-3,064.17	4,814.74	0.00	0.00	
12,900.00	90.00	0.42	7,350.00	3,847.54	-3,063.43	4,897.89	0.00	0.00	
13,000.00	90.00	0.42	7,350.00	3,947.54	-3,062.69	4,981.04	0.00	0.00	
13,100.00	90.00	0.42	7,350.00	4,047.54	-3,061.95	5,064.19	0.00	0.00	
13,200.00	90.00	0.42	7,350.00	4,147.53	-3,061.21	5,147.34	0.00	0.00	
13,300.00	90.00	0.42	7,350.00	4,247.53	-3,060.48	5,230.49	0.00	0.00	
13,400.00	90.00	0.42	7,350.00	4,347.53	-3,059.74	5,313.64	0.00	0.00	
13,500.00	90.00	0.42	7,350.00	4,447.53	-3,059.00	5,396.79	0.00	0.00	
13,600.00	90.00	0.42	7,350.00	4,547.52	-3,058.26	5,479.94	0.00	0.00	
13,700.00	90.00	0.42	7,350.00	4,647.52	-3,057.53	5,563.08	0.00	0.00	
13,702.69	90.00	0.42	7,350.00	4,650.21	-3,057.51	5,565.32	0.00	0.00	Bighorn 4D-17H-P267 BHL 5.24 - Bighorn 4D-1

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well BIGHORN 4D-17H-P267
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4982.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4982.00usft
Site:	BIGHORN	North Reference:	True
Well:	BIGHORN 4D-17H-P267	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #3		

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)		
Bighorn 4D-17H-P267 B	0.00	0.00	7,350.00	4,650.21	-3,057.51	1,296,726.85	3,162,420.73	40.146449	-104.918992
- plan hits target center									
- Point									
Bighorn 4D-17H-P267 B	0.00	0.00	7,350.00	11,876.14	-2,984.19	1,303,953.10	3,162,445.81	40.166285	-104.918733
- plan misses target center by 7226.30usft at 13702.69usft MD (7350.00 TVD, 4650.21 N, -3057.51 E)									
- Point									
Bighorn 4D-17H-P267 T	0.00	0.00	7,350.00	-479.87	-3,105.91	1,291,596.55	3,162,406.57	40.132366	-104.919163
- plan misses target center by 2.93usft at 8572.30usft MD (7349.01 TVD, -479.88 N, -3108.66 E)									
- Point									
Bighorn 4D-17H-P267 B	0.00	0.00	7,350.00	11,876.14	-3,004.19	1,303,952.97	3,162,425.81	40.166285	-104.918805
- plan misses target center by 7226.13usft at 13702.69usft MD (7350.00 TVD, 4650.21 N, -3057.51 E)									
- Point									
BIGHORN 4D TGT	0.00	0.00	7,350.00	1,610.00	-3,080.00	1,293,686.55	3,162,418.53	40.138103	-104.919071
- plan hits target center									
- Point									

Crestone Peak Resources

DJ BASIN

BIGHORN

BIGHORN 4D-17H-P267

OH

PLAN #3

Anticollision Summary Report

24 May, 2018

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4D-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4982.00usft
Reference Site:	BIGHORN	MD Reference:	23' KB @ 4982.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4D-17H-P267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #3	Offset TVD Reference:	Offset Datum

Reference	PLAN #3		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.00usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,933.21 usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	5/24/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	2,000.00	PLAN #3 (OH)	VESSI_GYROFLEX	VESSI Gyroflex Gyro
2,001.00	13,702.69	PLAN #3 (OH)	MWD+HDGM	OWSG MWD + HDGM

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
BIGHORN						
BIGHORN 4A-17H-P267 - OH - PLAN #2	500.00	500.00	29.92	28.39	19.546	CC, ES
BIGHORN 4A-17H-P267 - OH - PLAN #2	13,702.69	13,823.39	647.86	339.74	2.103	SF
BIGHORN 4AA-17H-P267 - OH - PLAN #1	200.00	200.00	59.84	59.35	123.769	CC, ES
BIGHORN 4AA-17H-P267 - OH - PLAN #1	13,702.69	14,398.81	1,440.48	1,132.46	4.677	SF
BIGHORN 4AB-17H-P267 - OH - PLAN #2	300.00	300.00	50.05	49.22	60.119	CC, ES
BIGHORN 4AB-17H-P267 - OH - PLAN #2	13,702.69	13,907.15	1,382.88	1,080.96	4.580	SF
BIGHORN 4AC-17H-P267 - OH - PLAN #1	400.00	400.00	39.99	38.80	33.840	CC, ES
BIGHORN 4AC-17H-P267 - OH - PLAN #1	13,702.69	14,050.61	1,134.82	824.85	3.661	SF
BIGHORN 4B-17H-P267 - OH - PLAN #2	600.00	600.00	19.85	17.97	10.561	CC, ES
BIGHORN 4B-17H-P267 - OH - PLAN #2	13,702.69	14,159.88	556.18	256.61	1.857	SF
BIGHORN 4C-17H-P267 - OH - PLAN #1	200.00	200.00	10.07	9.58	20.820	CC, ES
BIGHORN 4C-17H-P267 - OH - PLAN #1	13,702.69	13,436.89	462.90	159.73	1.527	SF
BIGHORN 4E-17H-P267 - OH - PLAN #1	200.00	200.00	10.07	9.58	20.820	CC
BIGHORN 4E-17H-P267 - OH - PLAN #1	13,702.69	13,529.74	145.47	-126.62	0.535	Level 1, ES, SF
BIGHORN 4F-17H-P267 - OH - PLAN #1	700.00	700.00	20.13	17.90	9.033	CC, ES
BIGHORN 4F-17H-P267 - OH - PLAN #1	13,702.69	13,739.29	324.46	36.68	1.127	Level 2, SF
BIGHORN 4G-17H-P267 - OH - PLAN #4	700.00	700.00	29.92	27.69	13.424	CC, ES
BIGHORN 4G-17H-P267 - OH - PLAN #4	13,702.69	13,527.21	598.42	286.08	1.916	SF
BIGHORN 4H-17H-P267 - OH - PLAN #1	204.60	204.60	39.98	39.49	80.047	CC
BIGHORN 4H-17H-P267 - OH - PLAN #1	300.00	299.89	40.09	39.26	48.126	ES
BIGHORN 4H-17H-P267 - OH - PLAN #1	13,702.69	13,342.81	770.88	460.77	2.486	SF
BIGHORN 4I-17H-P267 - OH - PLAN #1	744.64	746.76	43.60	41.18	18.069	CC, ES
BIGHORN 4I-17H-P267 - OH - PLAN #1	13,702.69	13,429.80	1,177.52	864.99	3.768	SF
BIGHORN 4J-17H-P267 - OH - PLAN #3	1,000.23	1,004.99	32.56	29.23	9.774	CC, ES
BIGHORN 4J-17H-P267 - OH - PLAN #3	13,702.69	13,224.85	1,425.72	1,184.40	5.908	SF
BIGHORN 4K-17H-P267 - OH - PLAN #2	998.21	1,004.26	56.91	53.60	17.198	CC
BIGHORN 4K-17H-P267 - OH - PLAN #2	1,000.00	1,006.06	56.91	53.60	17.164	ES
BIGHORN 4K-17H-P267 - OH - PLAN #2	13,702.69	13,060.09	1,798.55	1,485.24	5.740	SF
BIGHORN 4L-17H-P267 - OH - PLAN #3	928.31	934.98	75.77	72.72	24.847	CC, ES
BIGHORN 4L-17H-P267 - OH - PLAN #3	13,400.00	12,644.34	1,929.26	1,637.91	6.622	SF
BIGHORN 4M-17H-P267 - OH - PLAN #1	729.01	733.95	78.88	76.51	33.211	CC, ES
BIGHORN 4M-17H-P267 - OH - PLAN #1	4,100.00	3,984.86	788.94	749.50	20.002	SF
BIGHORN 4N-17H-P267 - OH - PLAN #2	795.69	800.40	92.64	90.06	35.860	CC
BIGHORN 4N-17H-P267 - OH - PLAN #2	800.00	804.70	92.64	90.04	35.649	ES
BIGHORN 4N-17H-P267 - OH - PLAN #2	6,500.00	6,163.90	1,904.37	1,830.99	25.953	SF
BIGHORN 4O-17H-P267 - OH - PLAN #2	740.16	744.01	102.67	100.27	42.925	CC, ES

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4D-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4982.00usft
Reference Site:	BIGHORN	MD Reference:	23' KB @ 4982.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4D-17H-P267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #3	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
BIGHORN						
BIGHORN 4O-17H-P267 - OH - PLAN #2	6,300.00	5,943.21	1,925.86	1,855.98	27.559	SF
BIGHORN 4P-17H-P267 - OH - PLAN #3	348.85	349.92	119.89	118.88	119.168	CC
BIGHORN 4P-17H-P267 - OH - PLAN #3	400.00	400.95	119.93	118.74	101.179	ES
BIGHORN 4P-17H-P267 - OH - PLAN #3	5,400.00	4,984.73	1,913.02	1,860.27	36.267	SF
BIGHORN 4Q-17H-P267 - OH - PLAN #3	400.00	401.00	130.02	128.84	109.876	CC
BIGHORN 4Q-17H-P267 - OH - PLAN #3	600.00	600.42	130.40	128.52	69.300	ES
BIGHORN 4Q-17H-P267 - OH - PLAN #3	5,300.00	4,877.98	1,925.18	1,875.02	38.378	SF
BIGHORN 4R-17H-P267 - OH - PLAN #2	300.00	301.00	140.09	139.25	167.915	CC, ES
BIGHORN 4R-17H-P267 - OH - PLAN #2	4,700.00	4,232.18	1,892.59	1,851.70	46.289	SF
BIGHORN 4S-17H-P267 - OH - PLAN #3	200.00	201.00	150.15	149.67	309.462	CC, ES
BIGHORN 4S-17H-P267 - OH - PLAN #3	4,600.00	4,106.33	1,930.36	1,894.86	54.382	SF

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4D-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4982.00usft
Reference Site:	BIGHORN	MD Reference:	23' KB @ 4982.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4D-17H-P267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #3	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
S17-T2N-R67W (OFFSETS)						
ABBAY STATE V16-77HN - KMG WELL - SURVEYS						Out of range
ALFRED D SATER UNIT 2 - KMG WELL - GYRO						Out of range
ALVIN STATE 1 - PDC WELL - GYRO	518.81	526.81	1,592.87	1,591.24	975.559	CC
ALVIN STATE 1 - PDC WELL - GYRO	600.00	598.32	1,593.12	1,591.22	839.657	ES
ALVIN STATE 1 - PDC WELL - GYRO	2,200.00	2,159.68	1,927.90	1,920.04	245.391	SF
ASPEN STATE V16-75HN - KMG WELL - SURVEYS						Out of range
CHENG 3-8A - KMG WELL - SURVEYS						Out of range
CIRBO 4-6-5 - CPR WELL - SURVEYS						Out of range
CIRBO 6-4-5 - CPR WELL - SURVEYS						Out of range
DECHANT 2-16 - KMG WELL - GYRO						Out of range
DECHANT 6 - KPK WELL - NO SURVEYS						Out of range
DECHANT 7 - KPK WELL - NO SURVEYS	700.00	709.00	1,758.40	1,754.93	506.219	CC, ES
DECHANT 7 - KPK WELL - NO SURVEYS	1,700.00	1,670.82	1,927.13	1,918.43	221.462	SF
DECHANT 8 - GERRITY WELL - NO SURVEYS						Out of range
DECHANT STATE 1 - KPK WELL - SURVEYS						Out of range
DECHANT STATE GAS U 9 - KMG WELL - GYRO	707.06	739.41	1,929.65	1,927.33	831.949	CC, ES
DECHANT STATE GAS U 9 - KMG WELL - GYRO	800.00	830.73	1,931.06	1,928.41	730.856	SF
DECHANT STATE V 16-11JI - KMG WELL - GYRO						Out of range
DECHANT STATE V 16-12JI - KMG WELL - GYRO	752.37	780.87	1,847.50	1,845.01	743.934	CC, ES
DECHANT STATE V 16-12JI - KMG WELL - GYRO	1,400.00	1,428.74	1,916.96	1,912.19	402.140	SF
DECHANT STATE V 16-14JI - KMG WELL - GYRO						Out of range
DECHANT STATE V 16-4JI - KMG WELL - GYRO						Out of range
DECHANT STATE V 16-5JI - KMG WELL - GYRO						Out of range
DECHANT V 16-3JI - KMG WELL - GYRO						Out of range
DECHANT-STATE 2 - KPK WELL - NO SURVEYS						Out of range
DECHANT-STATE 3 - KPK WELL - NO SURVEYS	700.00	703.00	1,620.92	1,617.47	470.491	CC, ES
DECHANT-STATE 3 - KPK WELL - NO SURVEYS	2,100.00	2,047.94	1,910.60	1,899.53	172.667	SF
DECHANT-STATE 4 - KPK WELL - NO SURVEYS						Out of range
DECHANT-STATE 5 - KPK WELL - NO SURVEYS						Out of range
DIER 1 - CPR WELL - GYRO						Out of range
DIER 13-8 - CPR WELL - SURVEYS	13,702.69	6,850.76	1,541.88	1,407.23	11.451	CC, ES, SF
DIER 14-8 - CPR WELL - SURVEYS	13,702.69	7,463.32	912.98	739.69	5.269	CC, ES, SF
DIER 23-8 - CPR WELL - SURVEYS						Out of range
DIER 24-8 - CPR WELL - SURVEYS	13,702.69	7,393.73	663.35	492.75	3.888	CC, ES, SF
DIER 33-8 - CPR WELL - GYRO						Out of range
DIER 34-8 - CPR WELL - GYRO	13,702.69	7,335.18	1,684.00	1,515.48	9.992	CC, ES, SF
DIER 44-8 - CPR WELL - GYRO						Out of range
DIER 4-4-8 - CPR WELL - SURVEYS						Out of range
DIER 4-8 - CPR WELL - GYRO	13,702.69	7,288.14	860.79	729.40	6.551	CC, ES, SF
DIER 8-4-8 - CPR WELL - SURVEYS						Out of range
DIER 8-6-8 - CPR WELL - SURVEYS						Out of range
DIER J1A - CPR WELL - GYRO						Out of range
ELKHORN CO B 3 - KPK WELL - NO SURVEYS						Out of range
ELKHORN CO UNIT 2 - KMG WELL - GYRO						Out of range
ELKHORN CO-B 6 - KPK WELL - NO SURVEYS						Out of range
ELKHORN CO-B 7 - KPK WELL - NO SURVEYS						Out of range
ELKHORN COMPANY B 2 - KMG WELL - GYRO						Out of range
FIRESTONE 20-29D - KMG WELL - SURVEYS	7,700.00	6,981.62	124.30	6.05	1.051	Level 2, ES, SF
FIRESTONE 20-29D - KMG WELL - SURVEYS	7,839.81	7,097.89	107.10	39.55	1.585	CC
FIRESTONE V 20-04D - KMG WELL - SURVEYS	7,831.53	7,172.62	867.98	796.94	12.218	CC
FIRESTONE V 20-04D - KMG WELL - SURVEYS	7,900.00	7,227.85	871.55	793.83	11.214	ES
FIRESTONE V 20-04D - KMG WELL - SURVEYS	8,200.00	7,431.76	975.24	869.70	9.240	SF
FIRESTONE V 20-08D - KMG WELL - SURVEYS	2,456.20	2,143.00	1,851.75	1,839.23	147.876	CC

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4D-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4982.00usft
Reference Site:	BIGHORN	MD Reference:	23' KB @ 4982.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4D-17H-P267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #3	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
S17-T2N-R67W (OFFSETS)						
FIRESTONE V 20-08D - KMG WELL - SURVEYS	2,500.00	2,164.95	1,852.04	1,838.63	138.120	ES
FIRESTONE V 20-08D - KMG WELL - SURVEYS	3,100.00	2,486.00	1,913.11	1,886.91	73.029	SF
FIRESTONE V 20-18D - KMG WELL - SURVEYS	5,745.87	5,059.76	1,215.86	1,128.39	13.901	CC
FIRESTONE V 20-18D - KMG WELL - SURVEYS	5,800.00	5,091.91	1,216.56	1,127.52	13.662	ES
FIRESTONE V 20-18D - KMG WELL - SURVEYS	7,000.00	6,346.08	1,423.06	1,306.39	12.197	SF
FIRESTONE V 20-2 - KMG WELL - GYRO	4,986.54	4,580.95	894.86	816.22	11.378	CC
FIRESTONE V 20-2 - KMG WELL - GYRO	5,100.00	4,676.94	896.71	815.70	11.068	ES
FIRESTONE V 20-2 - KMG WELL - GYRO	5,500.00	5,020.85	931.70	844.46	10.680	SF
FIRESTONE V 20-3 - KMG WELL - GYRO	7,153.53	6,449.05	646.74	526.72	5.389	CC
FIRESTONE V 20-3 - KMG WELL - GYRO	7,200.00	6,488.75	647.17	526.16	5.348	ES
FIRESTONE V 20-3 - KMG WELL - GYRO	7,300.00	6,571.30	651.20	528.55	5.309	SF
HOMESTEAD 22-4 - KMG WELL - SURVEYS						Out of range
HOMESTEAD 29-4 - KMG WELL - SURVEYS						Out of range
HOMESTEAD 31-4 - KMG WELL - SURVEYS						Out of range
HOMESTEAD 4-4 - KMG WELL - GYRO						Out of range
HSR-DODERO 6-4A - KMG WELL - GYRO						Out of range
HSR-MCHALE 7-5A - KMG WELL - GYRO						Out of range
HSR-RHOADES 8-5A - KMG WELL - GYRO						Out of range
HSR-SATER 1-8A - KMG WELL - GYRO						Out of range
HSR-VOGL 3-5A - KMG WELL - GYRO						Out of range
MAHONEY 1 - KPK WELL - NO SURVEYS	2,312.15	2,227.59	1,376.27	1,361.90	95.731	CC
MAHONEY 1 - KPK WELL - NO SURVEYS	2,400.00	2,303.73	1,376.97	1,360.72	84.721	ES
MAHONEY 1 - KPK WELL - NO SURVEYS	5,000.00	4,557.02	1,921.57	1,859.12	30.768	SF
MAHONEY 2 - KPK WELL - NO SURVEYS						Out of range
MAHONEY-PERRIN 2 - KPK WELL - NO SURVEYS	4,535.52	4,142.48	1,034.58	966.86	15.279	CC
MAHONEY-PERRIN 2 - KPK WELL - NO SURVEYS	4,600.00	4,201.64	1,035.08	965.79	14.940	ES
MAHONEY-PERRIN 2 - KPK WELL - NO SURVEYS	5,300.00	4,805.02	1,102.64	1,020.21	13.375	SF
MCCLAY 5-4A - KMG WELL - GYRO						Out of range
MCCOY 1 - CPR WELL - GYRO						Out of range
MCCOY 13-5 - CPR WELL - GYRO						Out of range
MCCOY 14-5 - CPR WELL - GYRO						Out of range
MCCOY 23-5 - CPR WELL - GYRO						Out of range
MCCOY 24-5 - CPR WELL - GYRO						Out of range
MCCOY 2-4-5 - CPR WELL - SURVEYS						Out of range
MCHALE 2-5 - KMG WELL - GYRO						Out of range
MCHALE UNIT 1 - KMG WELL - GYRO						Out of range
MCHALE-B 1 - AMOCO WELL - NO SURVEYS						Out of range
MERLE L MCHALE UNIT 2 - KMG WELL - GYRO						Out of range
MILLER 1 - EXTRACTION WELL - GYRO						Out of range
MILLER 11-17 - CPR WELL - SURVEYS	12,846.97	7,490.53	858.96	708.76	5.719	CC, ES
MILLER 11-17 - CPR WELL - SURVEYS	13,000.00	7,483.04	872.47	718.43	5.664	SF
MILLER 1-17 - CPR WELL - SURVEYS	12,079.68	7,948.86	500.66	390.28	4.536	CC
MILLER 1-17 - CPR WELL - SURVEYS	12,100.00	7,942.49	501.03	389.17	4.479	ES
MILLER 1-17 - CPR WELL - SURVEYS	12,300.00	7,857.51	541.06	412.21	4.199	SF
MILLER 12-17 - CPR WELL - SURVEYS	11,282.63	7,596.18	871.52	762.67	8.006	CC, ES
MILLER 12-17 - CPR WELL - SURVEYS	11,400.00	7,599.06	879.38	769.16	7.978	SF
MILLER 13-17 - CPR WELL - SURVEYS	9,800.00	7,397.28	840.56	737.66	8.169	SF
MILLER 13-17 - CPR WELL - SURVEYS	10,135.68	7,457.96	772.17	683.09	8.669	CC, ES
MILLER 14-17 - EXTRACTION WELL - NO SURVEYS	6,552.93	5,261.00	1,801.68	1,715.47	20.899	CC, ES
MILLER 14-17 - EXTRACTION WELL - NO SURVEYS	6,800.00	5,261.00	1,818.54	1,730.04	20.548	SF
MILLER 21-17 - CPR WELL - GYRO	12,878.29	7,309.46	527.69	380.86	3.594	CC
MILLER 21-17 - CPR WELL - GYRO	12,900.00	7,309.49	528.13	380.79	3.584	ES, SF
MILLER 2-17 - CPR WELL - GYRO						Out of range

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4D-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4982.00usft
Reference Site:	BIGHORN	MD Reference:	23' KB @ 4982.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4D-17H-P267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #3	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
S17-T2N-R67W (OFFSETS)						
MILLER 22-17 - CPR WELL - SURVEYS	11,375.43	7,664.76	631.41	504.68	4.982	CC
MILLER 22-17 - CPR WELL - SURVEYS	11,400.00	7,661.47	631.88	504.30	4.953	ES
MILLER 22-17 - CPR WELL - SURVEYS	11,500.00	7,648.17	643.34	512.34	4.911	SF
MILLER 23-17 - CPR WELL - SURVEYS	10,136.07	7,584.21	663.86	568.84	6.987	CC
MILLER 23-17 - CPR WELL - SURVEYS	10,200.00	7,594.07	666.88	565.92	6.605	ES
MILLER 23-17 - CPR WELL - SURVEYS	10,500.00	7,630.98	755.69	627.48	5.894	SF
MILLER 24-17 - CPR WELL - GYRO	8,965.28	7,353.35	678.27	618.29	11.307	CC
MILLER 24-17 - CPR WELL - GYRO	9,000.00	7,353.55	679.16	615.26	10.628	ES
MILLER 24-17 - CPR WELL - GYRO	9,400.00	7,355.85	805.62	700.33	7.651	SF
MILLER 2-4-17 - CPR WELL - SURVEYS	10,670.49	7,548.50	88.38	-19.25	0.821	Level 1, CC, ES, SF
MILLER 31-17C - EXTRACTION WELL - GYRO						Out of range
MILLER 3-17J - CPR WELL - GYRO	1,786.59	1,740.69	516.62	510.53	84.898	CC
MILLER 3-17J - CPR WELL - GYRO	1,800.00	1,753.09	516.64	510.50	84.212	ES
MILLER 3-17J - CPR WELL - GYRO	3,100.00	2,897.22	806.65	786.37	39.770	SF
MILLER 32-17 - EXTRACTION WELL - GYRO						Out of range
MILLER 33-17J - CPR WELL - SURVEYS	2,783.32	2,623.92	161.16	140.32	7.734	CC
MILLER 33-17J - CPR WELL - SURVEYS	2,800.00	2,637.83	161.40	140.17	7.601	ES
MILLER 33-17J - CPR WELL - SURVEYS	2,900.00	2,723.59	172.27	149.52	7.573	SF
MILLER 34-17J - CPR WELL - SURVEYS	2,562.16	2,438.02	102.39	86.54	6.460	CC, ES
MILLER 34-17J - CPR WELL - SURVEYS	2,600.00	2,470.98	104.07	87.59	6.316	SF
MILLER 41-17 - EXTRACTION WELL - GYRO						Out of range
MILLER 4-17J - CPR WELL - GYRO	8,400.00	7,316.19	884.16	778.54	8.372	SF
MILLER 4-17J - CPR WELL - GYRO	8,800.00	7,347.64	735.99	669.68	11.099	ES
MILLER 4-17J - CPR WELL - GYRO	8,876.80	7,347.93	731.97	673.12	12.437	CC
MILLER 42-17 - EXTRACTION WELL - NO SURVEYS						Out of range
MILLER 43-17 - EXTRACTION WELL - GYRO	700.19	683.25	1,079.15	1,076.91	481.756	CC, ES
MILLER 43-17 - EXTRACTION WELL - GYRO	3,600.00	3,342.12	1,915.02	1,892.62	85.519	SF
MILLER 43-17J - EXTRACTION WELL - GYRO	716.98	709.36	1,058.60	1,056.28	457.154	CC, ES
MILLER 43-17J - EXTRACTION WELL - GYRO	3,700.00	3,432.86	1,897.41	1,873.02	77.791	SF
MILLER 44-17J - CPR WELL - SURVEYS	2,400.81	2,298.65	99.44	87.03	8.012	CC, ES, SF
MILLER CJ 17-A - CPR WELL - SURVEYS	9,400.00	7,380.84	56.83	-46.53	0.550	Level 1, ES, SF
MILLER CJ 17-A - CPR WELL - SURVEYS	9,420.92	7,381.77	52.85	-24.40	0.684	Level 1, CC
PACE 1 - GO PUMPING & CONS WELL - NO SURVEYS	2,486.07	2,368.32	165.31	147.15	9.101	CC
PACE 1 - GO PUMPING & CONS WELL - NO SURVEYS	2,500.00	2,380.39	165.46	146.99	8.956	ES
PACE 1 - GO PUMPING & CONS WELL - NO SURVEYS	2,600.00	2,467.06	174.81	154.55	8.628	SF
PACE 2 - TEXAS TEA WELL - NO SURVEYS	2,281.21	2,178.77	1,191.27	1,177.58	87.068	CC
PACE 2 - TEXAS TEA WELL - NO SURVEYS	2,400.00	2,281.73	1,192.74	1,176.57	73.779	ES
PACE 2 - TEXAS TEA WELL - NO SURVEYS	4,500.00	4,101.69	1,626.20	1,572.75	30.422	SF
PACE 3 - DENVER EAST MACHINERY WELL - NO SUR	700.00	709.00	432.09	428.63	124.814	CC, ES
PACE 3 - DENVER EAST MACHINERY WELL - NO SUR	3,200.00	3,009.95	1,228.18	1,208.72	63.104	SF
PERRIN GU 1 - KMG WELL - GYRO	3,307.31	3,163.18	1,747.62	1,715.30	54.083	CC
PERRIN GU 1 - KMG WELL - GYRO	3,500.00	3,334.42	1,749.91	1,713.36	47.875	ES
PERRIN GU 1 - KMG WELL - GYRO	4,800.00	4,404.02	1,914.25	1,853.57	31.545	SF
PERRIN GU 2-20 - KMG WELL - GYRO	7,484.29	6,731.09	1,408.55	1,288.75	11.757	CC
PERRIN GU 2-20 - KMG WELL - GYRO	7,500.00	6,744.14	1,408.75	1,288.40	11.706	ES
PERRIN GU 2-20 - KMG WELL - GYRO	7,700.00	6,916.77	1,444.46	1,317.96	11.419	SF
PERRIN V 20-5D - KMG WELL - GYRO	7,695.83	6,893.34	1,911.02	1,828.66	23.203	CC
PERRIN V 20-5D - KMG WELL - GYRO	7,700.00	6,896.40	1,911.03	1,828.48	23.148	ES
PERRIN V 20-5D - KMG WELL - GYRO	7,800.00	6,970.38	1,918.79	1,831.37	21.949	SF
PERRIN V 20-7DI - KMG WELL - GYRO						Out of range
PERRIN-MAHONEY 1 - KPK WELL - NO SURVEYS						Out of range
PROMINENCE 4-8 - KMG WELL - GYRO						Out of range
RHOADES 1-5A - KMG WELL - GYRO						Out of range

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4D-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4982.00usft
Reference Site:	BIGHORN	MD Reference:	23' KB @ 4982.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4D-17H-P267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #3	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S17-T2N-R67W (OFFSETS)						
ROBERT E BALDWIN 2 - KMG WELL - GYRO						Out of range
RUCA 20-1HZ - KMG - PLAN ONLY	4,600.00	4,708.49	182.84	125.10	3.166	SF
RUCA 20-1HZ - KMG - PLAN ONLY	4,681.52	4,762.44	178.37	124.22	3.294	CC, ES
RUCA 20-2HZ - KMG - PLAN ONLY	4,400.00	4,506.36	376.08	322.09	6.966	SF
RUCA 20-2HZ - KMG - PLAN ONLY	4,441.22	4,541.84	375.49	321.90	7.007	CC, ES
RUCA 20-3HZ - KMG - PLAN ONLY	4,274.01	4,407.28	476.68	425.20	9.258	CC, ES, SF
RUCA 20-4HZ - KMG - PLAN ONLY	3,979.16	4,126.28	589.17	540.80	12.181	CC, ES
RUCA 20-4HZ - KMG - PLAN ONLY	4,100.00	4,227.02	592.94	544.13	12.148	SF
RUCA 20-5HZ - KMG - PLAN ONLY	3,717.26	3,888.62	704.29	659.64	15.773	CC, ES
RUCA 20-5HZ - KMG - PLAN ONLY	3,900.00	4,037.57	712.20	666.01	15.418	SF
RUCA 20-6HZ - KMG - PLAN ONLY	3,598.76	3,783.94	863.54	820.82	20.210	CC
RUCA 20-6HZ - KMG - PLAN ONLY	3,600.00	3,784.94	863.54	820.80	20.202	ES
RUCA 20-6HZ - KMG - PLAN ONLY	3,900.00	4,025.73	882.04	836.12	19.209	SF
RUCA 20-7HZ - KMG - PLAN ONLY	3,086.26	3,286.79	1,018.12	984.29	30.094	CC
RUCA 20-7HZ - KMG - PLAN ONLY	3,100.00	3,302.67	1,018.16	984.04	29.836	ES
RUCA 20-7HZ - KMG - PLAN ONLY	3,700.00	3,757.25	1,091.75	1,049.17	25.642	SF
RUCA 20-8HZ - KMG - PLAN ONLY	2,798.17	3,028.10	1,128.07	1,099.78	39.871	CC
RUCA 20-8HZ - KMG - PLAN ONLY	2,800.00	3,029.43	1,128.07	1,099.74	39.816	ES
RUCA 20-8HZ - KMG - PLAN ONLY	3,600.00	3,608.92	1,256.23	1,215.43	30.787	SF
RUCA 20-9HZ - KMG - PLAN ONLY	2,608.45	2,838.17	1,229.31	1,204.95	50.451	CC
RUCA 20-9HZ - KMG - PLAN ONLY	2,700.00	2,902.30	1,231.05	1,204.66	46.654	ES
RUCA 20-9HZ - KMG - PLAN ONLY	3,600.00	3,532.79	1,418.41	1,377.81	34.937	SF
SATER 21-8 - KMG WELL - SURVEYS						Out of range
SATER 24-8 - KMG WELL - SURVEYS						Out of range
SATER 24C-5HZ - KMG WELL - SURVEYS						Out of range
SATER 24N-5HZ - KMG WELL - SURVEYS						Out of range
SATER 25C-5HZ - KMG WELL - SURVEYS						Out of range
SATER 2-8 - KMG WELL - SURVEYS						Out of range
SATER 28-8 - KMG WELL - SURVEYS						Out of range
SATER 40N-5HZ - KMG WELL - SURVEYS						Out of range
SATER 7-8 - KMG WELL - SURVEYS						Out of range
SATER 8-8 - KMG WELL - SURVEYS						Out of range
SATER ALFRED D UNIT 1 (P&A) - KMG WELL - GYRO						Out of range
SCOTT 1C-32HZ - KMG WELL - SURVEYS						Out of range
SCOTT 26N-32HZ - KMG WELL - SURVEYS						Out of range
SCOTT 27N-32HZ - KMG WELL - SURVEYS						Out of range
SCOTT 28C-32HZ - KMG WELL - SURVEYS						Out of range
SHELEY 1 - CPR WELL - GYRO						Out of range
SHELEY 14-4 - CPR WELL - GYRO						Out of range
SHELEY 24-4 - MACHII-ROSS WELL - GYRO						Out of range
SHELEY 3A-4H - CPR WELL - SURVEYS						Out of range
SHELEY 3B-4H - CPR WELL - SURVEYS						Out of range
SHELEY 4-6-4 - CPR WELL - SURVEYS						Out of range
SPRAGUE 11-9 - CPR WELL - GYRO						Out of range
SPRAGUE 13-9 - CPR WELL - GYRO						Out of range
SPRAGUE 14-9 - CPR WELL - GYRO						Out of range
SPRAGUE 24-9 - CPR WELL - GYRO						Out of range
SPRAGUE 2-4-9 - CPR WELL - SURVEYS						Out of range
SPRAGUE 2-8-9 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3A-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3AA-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3B-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3C-9H-N267 - CPR WELL - SURVEYS						Out of range

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4D-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4982.00usft
Reference Site:	BIGHORN	MD Reference:	23' KB @ 4982.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4D-17H-P267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #3	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S17-T2N-R67W (OFFSETS)						
SPRAGUE 3D-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3E-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3E-9HX1-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3F-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3G-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3H-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3I-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3J-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 4-6-9 - CPR WELL - SURVEYS						Out of range
SPRAGUE 4-8-9 - CPR WELL - SURVEYS						Out of range
STANLEY #2 - GERRITY WELL - NO SURVEYS	700.00	737.00	1,535.69	1,532.12	430.933	CC, ES
STANLEY #2 - GERRITY WELL - NO SURVEYS	2,300.00	2,256.06	1,909.56	1,896.97	151.745	SF
STANLEY 3 - GERRITY WELL - NO SURVEYS						Out of range
TEETS PERRIN 1 - KPK WELL - NO SURVEYS						Out of range
TEETS-PERRIN 2 - KPK WELL - NO SURVEYS	5,992.33	5,100.00	825.03	749.71	10.953	CC
TEETS-PERRIN 2 - KPK WELL - NO SURVEYS	6,000.00	5,100.00	825.07	749.68	10.944	ES, SF
TEETS-PERRIN 3 - KPK WELL - NO SURVEYS	6,601.06	5,060.00	1,773.06	1,733.96	45.342	CC, ES, SF
TEETS-PERRIN 4 - KPK WELL - NO SURVEYS						Out of range
TEETS-PERRIN 5 - KPK WELL - NO SURVEYS	5,563.08	4,711.00	904.32	834.77	13.003	CC, ES
TEETS-PERRIN 5 - KPK WELL - NO SURVEYS	5,600.00	4,711.00	905.07	835.21	12.954	SF
TOWNSEND 33-5 - CPR WELL - GYRO						Out of range
TOWNSEND 34-5 - CPR WELL - GYRO						Out of range
TOWNSEND 43-5 - CPR WELL - GYRO						Out of range
TOWNSEND 44-5 - CPR WELL - GYRO						Out of range
VOGL 21-5 - KMG WELL - SURVEYS						Out of range
VOGL 21-5X - KMG WELL - SURVEYS						Out of range
VOGL 5-5 - KMG WELL - GYRO						Out of range
VOGL 5-8A - KMG WELL - GYRO						Out of range
VOGL 6-5A - KMG WELL - GYRO						Out of range
VOGL GEIST 2A-5H-E267 - CPR WELL - SURVEYS						Out of range
VOGL GEIST 2B-5H-E267 - CPR WELL - SURVEYS						Out of range
VOGL GEIST 2C-5H-E267 - CPR WELL - SURVEYS						Out of range
VOGL GEIST 2D-5H-F267 - CPR WELL - SURVEYS						Out of range
VOGL GEIST 2E-5H-F267 - CPR WELL - SURVEYS						Out of range
VOGL GEIST 2F-5H-F267 - CPR WELL - SURVEYS						Out of range
VOGL MCCOY 2A-5H-E267 - CPR WELL - SURVEYS	13,702.69	14,819.00	1,129.86	837.81	3.869	CC, ES, SF
VOGL MCCOY 2B-5H-E267 - CPR WELL - SURVEYS	13,702.69	14,846.00	821.21	538.16	2.901	CC, ES, SF
VOGL MCCOY 2C-5H-E267 - CPR WELL - SURVEYS	13,702.69	14,648.00	494.89	223.91	1.826	CC, ES, SF
VOGL MCCOY 2D-5H-E267 - CPR WELL - SURVEYS	13,702.69	15,056.00	274.74	119.91	1.774	CC, ES, SF
VOGL MCCOY 2E-5H-F267 - CPR WELL - SURVEYS	13,702.69	14,740.00	307.40	70.51	1.298	Level 3, CC, ES, SF
VOGL MCCOY 2F-5H-F267 - CPR WELL - SURVEYS	13,702.69	15,187.00	595.97	314.89	2.120	CC, ES, SF
VOGL MCCOY 2G-5H-F267 - CPR WELL - SURVEYS	13,702.69	14,805.00	907.88	613.10	3.080	CC, ES, SF
VOGL MCCOY 2H-5H-F267 - CPR WELL - SURVEYS	13,702.69	15,000.00	1,273.21	978.63	4.322	CC, ES, SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

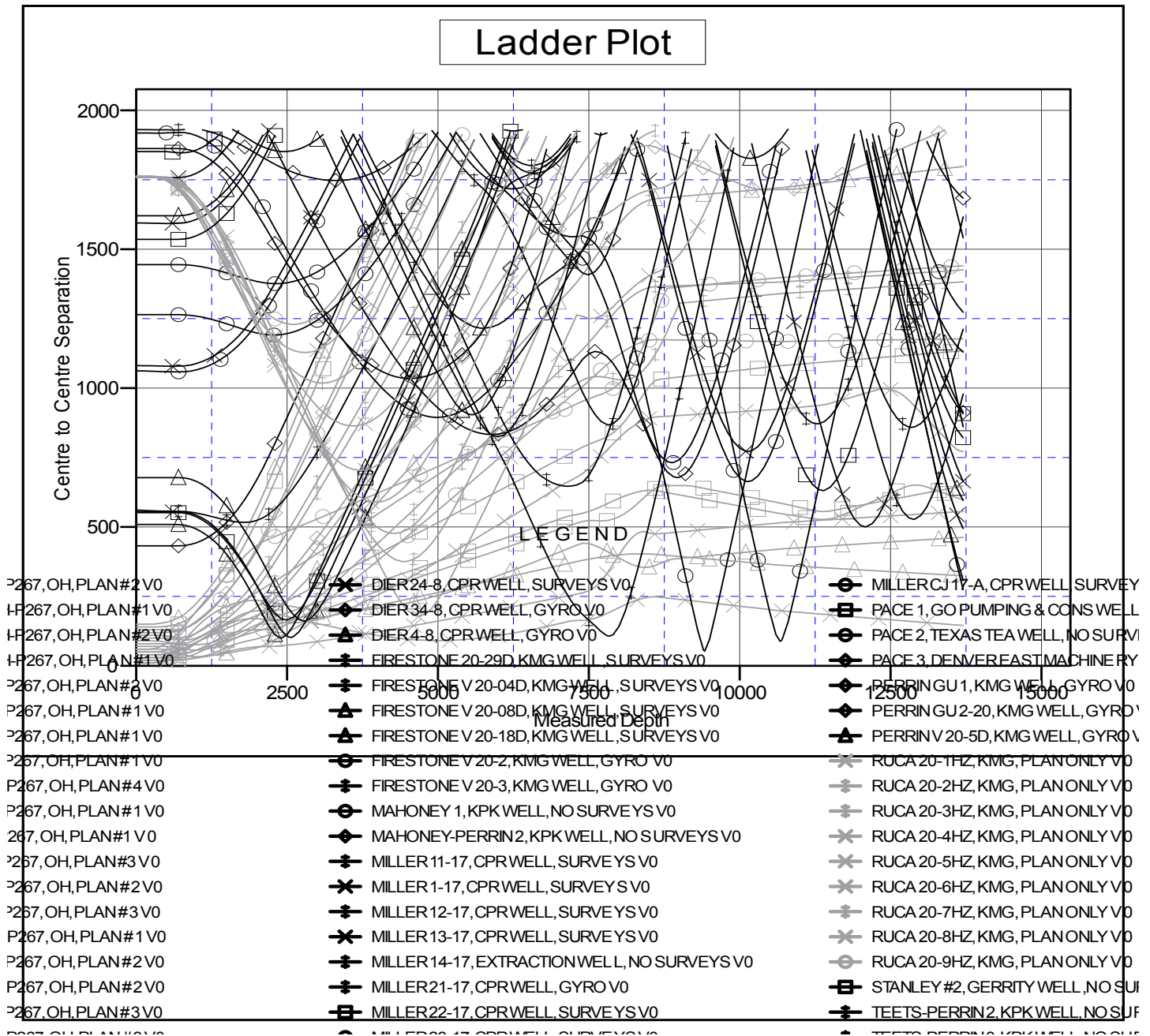
Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4D-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4982.00usft
Reference Site:	BIGHORN	MD Reference:	23' KB @ 4982.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4D-17H-P267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #3	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 23' KB @ 4982.00usft
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: BIGHORN 4D-17H-P267
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.38°



CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

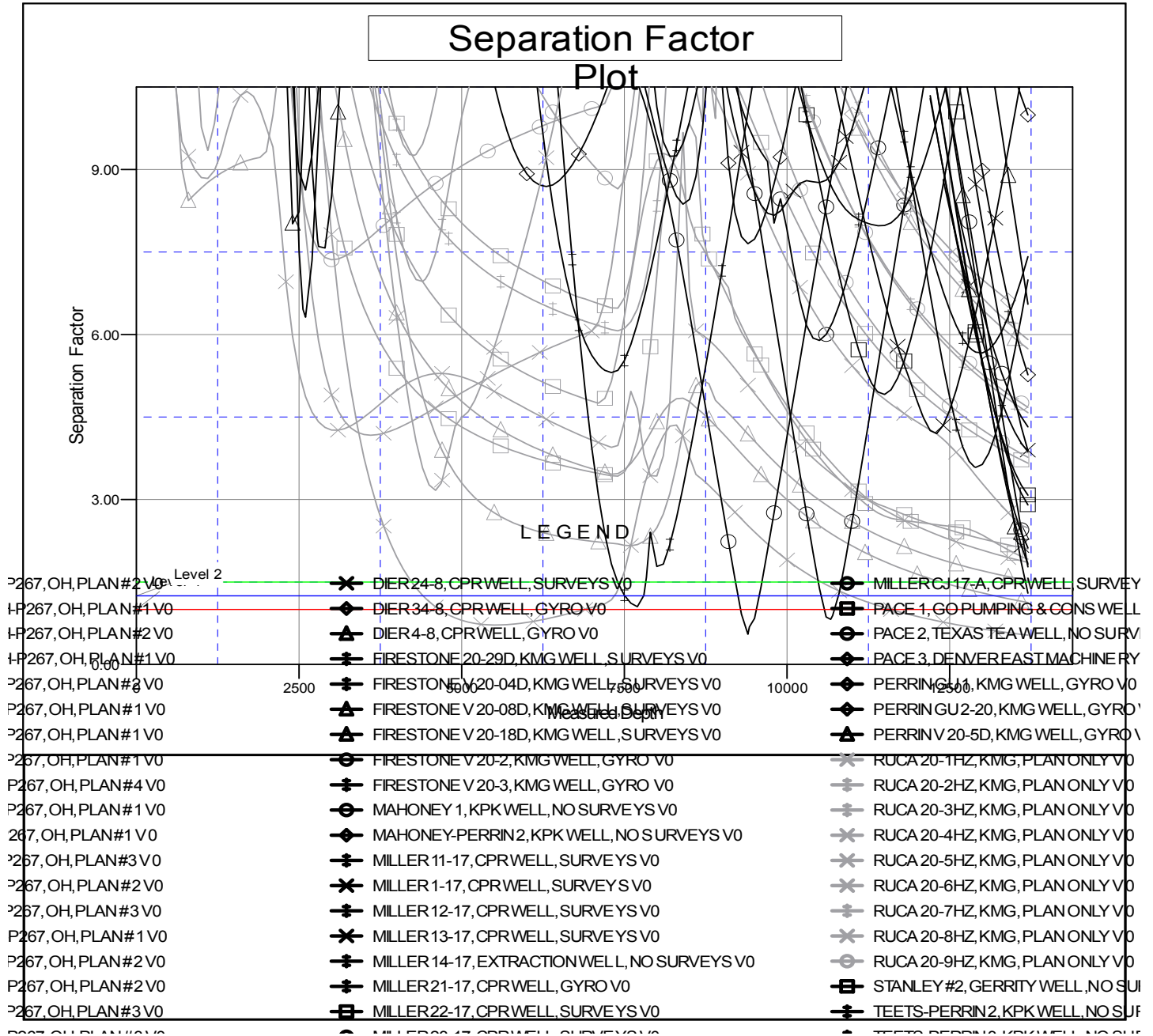
Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4D-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4982.00usft
Reference Site:	BIGHORN	MD Reference:	23' KB @ 4982.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4D-17H-P267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #3	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 23' KB @ 4982.00usft
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: BIGHORN 4D-17H-P267
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.38°



CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation