

Crestone Peak Resources

DJ BASIN

BIGHORN

BIGHORN 4F-17H-P267

OH

PLAN #1

Anticollision Summary Report

12 April, 2018

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4F-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 4F-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 #1	Offset TVD Reference:	Offset Datum

Reference	PLAN #1		
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 2,237.05 usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	4/12/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	2,000.00	PLAN #1 (OH)	VESSI_GYROFLEX	VESSI Gyroflex Gyro
2,001.00	13,737.21	PLAN #1 (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	50.05	48.52	32.698	CC, ES
BIGHORN 4A-17H-P267 - OH - PLAN #2	13,738.15	13,873.59	947.40	639.43	3.076	SF
BIGHORN 4AA-17H-P267 - OH - PLAN #1	200.00	200.00	79.97	79.48	165.409	CC, ES
BIGHORN 4AA-17H-P267 - OH - PLAN #1	13,738.15	14,397.64	1,720.35	1,409.15	5.528	SF
BIGHORN 4AB-17H-P267 - OH - PLAN #2	300.00	300.00	70.18	69.35	84.300	CC, ES
BIGHORN 4AB-17H-P267 - OH - PLAN #2	13,738.15	13,905.98	1,677.31	1,374.97	5.548	SF
BIGHORN 4AC-17H-P267 - OH - PLAN #1	400.00	400.00	60.12	58.93	50.878	CC, ES
BIGHORN 4AC-17H-P267 - OH - PLAN #1	13,738.15	14,048.35	1,437.30	1,128.58	4.656	SF
BIGHORN 4B-17H-P267 - OH - PLAN #2	600.00	600.00	39.98	38.10	21.271	CC, ES
BIGHORN 4B-17H-P267 - OH - PLAN #2	13,738.15	14,158.72	823.27	509.50	2.624	SF
BIGHORN 4C-17H-P267 - OH - PLAN #1	200.00	200.00	30.20	29.71	62.461	CC, ES
BIGHORN 4C-17H-P267 - OH - PLAN #1	13,738.15	13,435.72	777.07	479.92	2.615	SF
BIGHORN 4D-17H-P267 - OH - PLAN #2	700.00	700.00	20.13	17.90	9.033	CC, ES
BIGHORN 4D-17H-P267 - OH - PLAN #2	13,738.15	13,705.57	324.45	36.82	1.128	Level 2, SF
BIGHORN 4E-17H-P267 - OH - PLAN #1	207.68	207.68	10.07	9.56	19.725	CC, ES
BIGHORN 4E-17H-P267 - OH - PLAN #1	13,738.15	13,527.09	272.13	58.58	1.274	Level 3, SF
BIGHORN 4G-17H-P267 - OH - PLAN #3	800.00	800.00	9.79	7.21	3.798	CC, ES
BIGHORN 4G-17H-P267 - OH - PLAN #3	13,738.15	13,545.84	344.36	63.72	1.227	Level 2, SF
BIGHORN 4H-17H-P267 - OH - PLAN #1	205.10	205.10	19.85	19.35	39.610	CC
BIGHORN 4H-17H-P267 - OH - PLAN #1	300.00	299.89	20.07	19.23	24.072	ES
BIGHORN 4H-17H-P267 - OH - PLAN #1	5,100.00	5,056.53	159.09	64.27	1.678	SF
BIGHORN 4I-17H-P267 - OH - PLAN #1	617.31	618.06	28.76	26.81	14.707	CC, ES
BIGHORN 4I-17H-P267 - OH - PLAN #1	13,738.15	13,433.60	880.24	567.02	2.810	SF
BIGHORN 4J-17H-P267 - OH - PLAN #3	844.23	846.05	20.30	17.53	7.329	CC, ES
BIGHORN 4J-17H-P267 - OH - PLAN #3	13,738.15	13,231.88	1,147.95	910.13	4.827	SF
BIGHORN 4K-17H-P267 - OH - PLAN #2	954.67	957.28	35.10	31.95	11.142	CC, ES
BIGHORN 4K-17H-P267 - OH - PLAN #2	13,738.15	13,070.30	1,525.61	1,216.02	4.928	SF
BIGHORN 4L-17H-P267 - OH - PLAN #2	1,032.81	1,037.81	49.62	46.20	14.507	CC, ES
BIGHORN 4L-17H-P267 - OH - PLAN #2	13,738.15	12,980.56	1,670.89	1,365.14	5.465	SF
BIGHORN 4M-17H-P267 - OH - PLAN #1	662.82	666.24	62.83	60.70	29.453	CC, ES
BIGHORN 4M-17H-P267 - OH - PLAN #1	13,738.15	13,215.96	1,875.39	1,560.17	5.949	SF
BIGHORN 4N-17H-P267 - OH - PLAN #2	827.00	830.05	72.05	69.36	26.754	CC, ES
BIGHORN 4N-17H-P267 - OH - PLAN #2	13,738.15	13,039.71	2,181.60	1,866.12	6.915	SF
BIGHORN 4O-17H-P267 - OH - PLAN #2	735.60	738.31	83.59	81.21	35.207	CC, ES
BIGHORN 4O-17H-P267 - OH - PLAN #2	6,800.00	6,508.59	1,783.00	1,706.88	23.423	SF
BIGHORN 4P-17H-P267 - OH - PLAN #2	333.75	334.80	99.77	98.82	104.686	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 4F-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 4F-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 #1	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 4P-17H-P267 - OH - PLAN #2	400.00	400.89	99.85	98.66	84.240	ES
BIGHORN 4P-17H-P267 - OH - PLAN #2	6,800.00	6,360.92	2,218.57	2,146.93	30.968	SF
BIGHORN 4Q-17H-P267 - OH - PLAN #2	400.00	401.00	109.89	108.71	92.864	CC
BIGHORN 4Q-17H-P267 - OH - PLAN #2	500.00	500.85	109.95	108.42	71.759	ES
BIGHORN 4Q-17H-P267 - OH - PLAN #2	6,600.00	6,157.87	2,209.24	2,141.50	32.613	SF
BIGHORN 4R-17H-P267 - OH - PLAN #2	300.00	301.00	119.95	119.12	143.784	CC, ES
BIGHORN 4R-17H-P267 - OH - PLAN #2	5,900.00	5,389.43	2,233.94	2,176.77	39.071	SF
BIGHORN 4S-17H-P267 - OH - PLAN #3	200.00	201.00	130.02	129.54	267.971	CC, ES
BIGHORN 4S-17H-P267 - OH - PLAN #3	5,600.00	5,080.00	2,200.60	2,153.59	46.804	SF

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Summary						
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Offset Well - Wellbore - Design						
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	518.72	526.73	1,572.87	1,571.24	963.483	CC
ALVIN STATE 1 - PDC WELL - GYRO	600.00	598.42	1,573.12	1,571.22	829.044	ES
ALVIN STATE 1 - PDC WELL - GYRO	3,200.00	3,094.29	2,212.52	2,197.79	150.173	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	800.00	809.00	1,742.15	1,738.14	434.672	CC, ES
DECHANT 7 - KPK WELL - NO SURVEYS	2,600.00	2,508.69	2,218.09	2,204.69	165.556	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	804.37	834.96	1,909.33	1,906.67	718.654	CC, ES
DECHANT STATE GAS U 9 - KMG WELL - GYRO	2,300.00	2,288.14	2,229.86	2,221.75	274.692	SF
DECHANT STATE V 16-11JI - KMG WELL - GYRO						Out of range
DECHANT STATE V 16-12JI - KMG WELL - GYRO	858.44	890.90	1,830.13	1,827.27	639.106	CC, ES
DECHANT STATE V 16-12JI - KMG WELL - GYRO	2,400.00	2,290.64	2,205.59	2,197.47	271.623	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	800.00	803.00	1,601.10	1,597.12	402.460	CC, ES
DECHANT-STATE 3 - KPK WELL - NO SURVEYS	3,100.00	2,972.94	2,197.73	2,178.12	112.107	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	13,738.15	6,925.06	1,654.27	1,531.87	13.516	CC, ES, SF
DIER 14-8 - CPR WELL - SURVEYS	13,738.15	7,614.35	1,047.10	875.11	6.088	CC, ES, SF
DIER 23-8 - CPR WELL - SURVEYS	13,738.15	7,599.41	1,881.85	1,754.28	14.752	CC, ES, SF
DIER 24-8 - CPR WELL - SURVEYS	13,738.15	7,568.13	547.24	377.26	3.219	CC, ES, SF
DIER 33-8 - CPR WELL - GYRO						Out of range
DIER 34-8 - CPR WELL - GYRO	13,738.15	7,476.81	1,399.84	1,230.77	8.279	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	13,738.15	7,438.24	854.73	741.80	7.569	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	8,116.59	7,435.69	209.98	163.08	4.477	CC
FIRESTONE 20-29D - KMG WELL - SURVEYS	8,200.00	7,480.63	223.80	162.30	3.639	ES
FIRESTONE 20-29D - KMG WELL - SURVEYS	8,300.00	7,524.60	273.39	188.45	3.219	SF
FIRESTONE V 20-04D - KMG WELL - SURVEYS	7,941.73	7,427.46	1,140.57	1,091.03	23.024	CC
FIRESTONE V 20-04D - KMG WELL - SURVEYS	8,000.00	7,479.15	1,142.62	1,089.87	21.659	ES
FIRESTONE V 20-04D - KMG WELL - SURVEYS	8,500.00	7,705.33	1,351.24	1,266.09	15.869	SF

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

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Summary						
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Offset Well - Wellbore - Design						
S17-T2N-R67W (OFFSETS)						
FIRESTONE V 20-08D - KMG WELL - SURVEYS	2,495.07	2,184.42	1,847.71	1,836.99	172.407	CC
FIRESTONE V 20-08D - KMG WELL - SURVEYS	2,500.00	2,186.99	1,847.71	1,836.93	171.384	ES
FIRESTONE V 20-08D - KMG WELL - SURVEYS	4,500.00	3,640.94	2,229.40	2,181.62	46.661	SF
FIRESTONE V 20-18D - KMG WELL - SURVEYS	6,028.56	5,393.48	1,203.20	1,123.86	15.164	CC
FIRESTONE V 20-18D - KMG WELL - SURVEYS	7,000.00	6,510.36	1,221.62	1,115.84	11.549	ES
FIRESTONE V 20-18D - KMG WELL - SURVEYS	7,400.00	6,892.32	1,240.70	1,128.64	11.072	SF
FIRESTONE V 20-2 - KMG WELL - GYRO	5,558.52	5,170.43	759.24	678.32	9.383	CC
FIRESTONE V 20-2 - KMG WELL - GYRO	5,600.00	5,208.58	759.45	677.73	9.294	ES
FIRESTONE V 20-2 - KMG WELL - GYRO	5,900.00	5,469.98	775.74	689.45	8.991	SF
FIRESTONE V 20-3 - KMG WELL - GYRO	7,454.83	6,847.05	512.90	409.37	4.954	CC
FIRESTONE V 20-3 - KMG WELL - GYRO	7,500.00	6,888.91	514.65	409.04	4.873	ES
FIRESTONE V 20-3 - KMG WELL - GYRO	7,600.00	6,980.53	530.68	421.20	4.848	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	2,743.97	2,648.15	1,339.14	1,319.00	66.490	CC
MAHONEY 1 - KPK WELL - NO SURVEYS	2,900.00	2,809.76	1,340.66	1,317.59	58.121	ES
MAHONEY 1 - KPK WELL - NO SURVEYS	5,300.00	4,916.50	1,781.89	1,719.65	28.630	SF
MAHONEY 2 - KPK WELL - NO SURVEYS						Out of range
MAHONEY-PERRIN 2 - KPK WELL - NO SURVEYS	5,108.63	4,735.00	931.07	859.96	13.093	CC
MAHONEY-PERRIN 2 - KPK WELL - NO SURVEYS	5,200.00	4,815.93	932.04	858.96	12.754	ES
MAHONEY-PERRIN 2 - KPK WELL - NO SURVEYS	5,500.00	5,050.00	949.16	870.62	12.085	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	12,891.37	7,652.48	1,170.06	1,019.23	7.757	CC
MILLER 11-17 - CPR WELL - SURVEYS	12,900.00	7,652.24	1,170.09	1,018.99	7.744	ES
MILLER 11-17 - CPR WELL - SURVEYS	13,100.00	7,646.63	1,188.50	1,031.74	7.582	SF
MILLER 1-17 - CPR WELL - SURVEYS	12,144.26	7,846.26	167.16	55.91	1.503	CC, ES
MILLER 1-17 - CPR WELL - SURVEYS	12,200.00	7,830.69	175.43	57.07	1.482	Level 3, SF
MILLER 12-17 - CPR WELL - SURVEYS	11,335.38	7,753.39	1,028.31	918.56	9.370	CC, ES
MILLER 12-17 - CPR WELL - SURVEYS	11,600.00	7,760.63	1,061.78	946.33	9.197	SF
MILLER 13-17 - CPR WELL - SURVEYS	10,204.41	7,619.88	1,121.82	1,032.60	12.574	CC, ES
MILLER 13-17 - CPR WELL - SURVEYS	10,600.00	7,652.45	1,189.11	1,091.58	12.192	SF
MILLER 14-17 - EXTRACTION WELL - NO SURVEYS	6,420.44	5,261.00	1,994.30	1,918.56	26.333	CC, ES
MILLER 14-17 - EXTRACTION WELL - NO SURVEYS	6,700.00	5,261.00	2,013.80	1,935.59	25.749	SF
MILLER 21-17 - CPR WELL - GYRO	12,907.84	7,459.19	228.80	81.72	1.556	CC, ES, SF
MILLER 2-17 - CPR WELL - GYRO						Out of range

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Reference Design:	PLAN #1	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)						
MILLER 22-17 - CPR WELL - SURVEYS	11,379.68	7,843.30	322.67	196.11	2.550	CC, ES
MILLER 22-17 - CPR WELL - SURVEYS	11,400.00	7,841.01	323.30	196.37	2.547	SF
MILLER 23-17 - CPR WELL - SURVEYS	10,175.21	7,782.95	335.31	239.95	3.516	CC
MILLER 23-17 - CPR WELL - SURVEYS	10,200.00	7,784.09	336.22	238.00	3.423	ES
MILLER 23-17 - CPR WELL - SURVEYS	10,300.00	7,788.50	357.73	246.87	3.227	SF
MILLER 24-17 - CPR WELL - GYRO	8,989.41	7,499.94	311.45	253.09	5.336	CC
MILLER 24-17 - CPR WELL - GYRO	9,100.00	7,500.40	330.50	251.14	4.164	ES
MILLER 24-17 - CPR WELL - GYRO	9,200.00	7,500.82	375.96	281.77	3.992	SF
MILLER 2-4-17 - CPR WELL - SURVEYS	10,700.00	7,700.22	418.34	310.98	3.897	ES, SF
MILLER 2-4-17 - CPR WELL - SURVEYS	10,708.52	7,700.19	418.26	310.99	3.899	CC
MILLER 31-17C - EXTRACTION WELL - GYRO	12,793.32	7,539.41	1,722.01	1,577.53	11.919	CC
MILLER 31-17C - EXTRACTION WELL - GYRO	12,800.00	7,539.48	1,722.02	1,577.39	11.906	ES
MILLER 31-17C - EXTRACTION WELL - GYRO	13,100.00	7,542.35	1,749.11	1,598.81	11.638	SF
MILLER 3-17J - CPR WELL - GYRO	1,847.59	1,803.63	536.97	530.69	85.534	CC, ES
MILLER 3-17J - CPR WELL - GYRO	3,400.00	3,223.80	829.14	808.08	39.372	SF
MILLER 32-17 - EXTRACTION WELL - GYRO	100.00	49.85	2,215.94	2,215.83	10,000.000	CC
MILLER 32-17 - EXTRACTION WELL - GYRO	800.00	753.26	2,218.37	2,215.82	870.153	ES
MILLER 32-17 - EXTRACTION WELL - GYRO	1,400.00	1,317.74	2,236.69	2,232.09	486.836	SF
MILLER 33-17J - CPR WELL - SURVEYS	3,062.14	2,922.52	219.99	198.38	10.180	CC
MILLER 33-17J - CPR WELL - SURVEYS	3,100.00	2,956.28	220.69	198.33	9.866	ES
MILLER 33-17J - CPR WELL - SURVEYS	3,200.00	3,044.62	229.22	205.32	9.589	SF
MILLER 34-17J - CPR WELL - SURVEYS	2,842.76	2,732.51	141.91	124.54	8.172	CC, ES
MILLER 34-17J - CPR WELL - SURVEYS	2,900.00	2,784.02	144.04	125.87	7.926	SF
MILLER 41-17 - EXTRACTION WELL - GYRO						Out of range
MILLER 4-17J - CPR WELL - GYRO	8,400.00	7,476.37	1,095.89	1,006.18	12.217	SF
MILLER 4-17J - CPR WELL - GYRO	8,900.00	7,502.88	949.35	890.60	16.161	ES
MILLER 4-17J - CPR WELL - GYRO	8,928.28	7,502.87	948.93	891.49	16.521	CC
MILLER 42-17 - EXTRACTION WELL - NO SURVEYS						Out of range
MILLER 43-17 - EXTRACTION WELL - GYRO	694.47	677.49	1,074.41	1,072.19	484.014	CC
MILLER 43-17 - EXTRACTION WELL - GYRO	800.00	782.52	1,074.45	1,071.86	414.814	ES
MILLER 43-17 - EXTRACTION WELL - GYRO	4,700.00	4,402.25	2,235.74	2,207.23	78.414	SF
MILLER 43-17J - EXTRACTION WELL - GYRO	826.22	820.72	1,055.13	1,052.43	390.241	CC, ES
MILLER 43-17J - EXTRACTION WELL - GYRO	4,800.00	4,524.56	2,200.34	2,169.54	71.433	SF
MILLER 44-17J - CPR WELL - SURVEYS	2,623.96	2,531.27	135.53	121.62	9.745	CC, ES
MILLER 44-17J - CPR WELL - SURVEYS	2,700.00	2,600.40	139.06	124.18	9.347	SF
MILLER CJ 17-A - CPR WELL - SURVEYS	9,300.00	7,535.74	298.90	192.91	2.820	SF
MILLER CJ 17-A - CPR WELL - SURVEYS	9,400.00	7,538.85	258.08	169.95	2.928	ES
MILLER CJ 17-A - CPR WELL - SURVEYS	9,463.78	7,540.82	250.08	173.12	3.249	CC
PACE 1 - GO PUMPING & CONS WELL - NO SURVEYS	2,782.13	2,673.11	125.17	104.40	6.027	CC
PACE 1 - GO PUMPING & CONS WELL - NO SURVEYS	2,800.00	2,689.62	125.36	104.29	5.950	ES, SF
PACE 2 - TEXAS TEA WELL - NO SURVEYS	2,318.38	2,234.45	1,223.06	1,209.87	92.671	CC
PACE 2 - TEXAS TEA WELL - NO SURVEYS	2,400.00	2,309.59	1,223.48	1,209.09	85.034	ES
PACE 2 - TEXAS TEA WELL - NO SURVEYS	5,000.00	4,628.78	1,717.95	1,663.38	31.478	SF
PACE 3 - DENVER EAST MACHINERY WELL - NO SUR	800.00	809.00	413.45	409.45	103.474	CC, ES
PACE 3 - DENVER EAST MACHINERY WELL - NO SUR	3,200.00	3,049.51	1,058.66	1,039.69	55.830	SF
PERRIN GU 1 - KMG WELL - GYRO	3,825.05	3,662.70	1,667.54	1,631.02	45.663	CC
PERRIN GU 1 - KMG WELL - GYRO	4,000.00	3,808.71	1,669.87	1,629.92	41.799	ES
PERRIN GU 1 - KMG WELL - GYRO	6,300.00	5,836.02	2,047.62	1,974.45	27.983	SF
PERRIN GU 2-20 - KMG WELL - GYRO	7,555.19	6,930.10	1,405.03	1,312.91	15.252	CC
PERRIN GU 2-20 - KMG WELL - GYRO	7,600.00	6,971.69	1,406.52	1,312.80	15.007	ES
PERRIN GU 2-20 - KMG WELL - GYRO	7,800.00	7,137.76	1,450.13	1,349.62	14.428	SF
PERRIN V 20-5D - KMG WELL - GYRO	7,742.77	7,080.40	2,109.29	2,050.19	35.692	CC
PERRIN V 20-5D - KMG WELL - GYRO	7,800.00	7,126.80	2,111.36	2,049.99	34.403	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 4F-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 4F-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 #1	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)						
PERRIN V 20-5D - KMG WELL - GYRO	8,100.00	7,333.09	2,191.30	2,117.22	29.581	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
ROBERT E BALDWIN 2 - KMG WELL - GYRO						Out of range
RUCA 20-1HZ - KMG - PLAN ONLY	4,753.10	4,812.94	71.30	20.43	1.402	Level 3, CC
RUCA 20-1HZ - KMG - PLAN ONLY	4,800.00	4,853.59	75.04	18.70	1.332	Level 3, ES, SF
RUCA 20-2HZ - KMG - PLAN ONLY	4,600.00	4,683.75	140.18	88.95	2.736	ES, SF
RUCA 20-2HZ - KMG - PLAN ONLY	4,604.50	4,687.63	140.16	89.10	2.745	CC
RUCA 20-3HZ - KMG - PLAN ONLY	4,400.00	4,524.57	252.75	202.67	5.047	SF
RUCA 20-3HZ - KMG - PLAN ONLY	4,458.09	4,573.80	250.87	201.35	5.066	CC, ES
RUCA 20-4HZ - KMG - PLAN ONLY	4,204.52	4,337.60	383.73	336.50	8.124	CC, ES, SF
RUCA 20-5HZ - KMG - PLAN ONLY	3,962.24	4,121.41	517.23	473.01	11.698	CC, ES
RUCA 20-5HZ - KMG - PLAN ONLY	4,100.00	4,234.44	523.19	478.14	11.615	SF
RUCA 20-6HZ - KMG - PLAN ONLY	3,868.03	4,040.98	687.38	644.57	16.054	CC
RUCA 20-6HZ - KMG - PLAN ONLY	3,900.00	4,066.87	687.64	644.46	15.924	ES
RUCA 20-6HZ - KMG - PLAN ONLY	4,100.00	4,228.84	700.72	655.87	15.621	SF
RUCA 20-7HZ - KMG - PLAN ONLY	3,360.24	3,553.19	881.96	847.02	25.238	CC
RUCA 20-7HZ - KMG - PLAN ONLY	3,400.00	3,584.15	882.32	846.68	24.759	ES
RUCA 20-7HZ - KMG - PLAN ONLY	3,800.00	3,904.39	924.12	883.12	22.540	SF
RUCA 20-8HZ - KMG - PLAN ONLY	3,052.24	3,276.62	1,012.91	983.25	34.145	CC
RUCA 20-8HZ - KMG - PLAN ONLY	3,100.00	3,311.94	1,013.42	982.83	33.125	ES
RUCA 20-8HZ - KMG - PLAN ONLY	3,700.00	3,755.54	1,102.83	1,063.53	28.067	SF
RUCA 20-9HZ - KMG - PLAN ONLY	2,886.10	3,102.15	1,131.42	1,104.72	42.387	CC
RUCA 20-9HZ - KMG - PLAN ONLY	2,900.00	3,112.41	1,131.47	1,104.52	41.988	ES
RUCA 20-9HZ - KMG - PLAN ONLY	3,700.00	3,687.62	1,273.92	1,234.82	32.584	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

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 4F-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 4F-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 #1	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 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
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	800.00	837.00	1,515.95	1,511.86	370.033	CC, ES
STANLEY #2 - GERRITY WELL - NO SURVEYS	3,400.00	3,272.65	2,233.33	2,210.41	97.420	SF
STANLEY 3 - GERRITY WELL - NO SURVEYS						Out of range
TEETS PERRIN 1 - KPK WELL - NO SURVEYS	7,681.47	7,041.06	2,105.34	2,023.51	25.727	CC
TEETS PERRIN 1 - KPK WELL - NO SURVEYS	7,700.00	7,057.11	2,105.57	2,023.03	25.511	ES
TEETS PERRIN 1 - KPK WELL - NO SURVEYS	8,100.00	7,354.89	2,221.70	2,123.55	22.636	SF
TEETS-PERRIN 2 - KPK WELL - NO SURVEYS	6,000.90	5,100.00	988.90	940.16	20.290	CC, ES, SF
TEETS-PERRIN 3 - KPK WELL - NO SURVEYS	6,502.97	5,060.00	1,996.88	1,957.33	50.491	CC, ES
TEETS-PERRIN 3 - KPK WELL - NO SURVEYS	6,600.00	5,060.00	1,999.24	1,959.57	50.393	SF
TEETS-PERRIN 4 - KPK WELL - NO SURVEYS	6,212.97	5,050.00	2,138.22	2,064.64	29.059	CC, ES
TEETS-PERRIN 4 - KPK WELL - NO SURVEYS	6,600.00	5,050.00	2,172.97	2,095.87	28.185	SF
TEETS-PERRIN 5 - KPK WELL - NO SURVEYS	5,572.88	4,711.00	1,046.78	999.67	22.217	CC, ES
TEETS-PERRIN 5 - KPK WELL - NO SURVEYS	5,600.00	4,711.00	1,047.13	999.93	22.183	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	13,738.15	14,819.00	1,428.37	1,138.16	4.922	CC, ES, SF
VOGL MCCOY 2B-5H-E267 - CPR WELL - SURVEYS	13,738.15	14,846.00	1,091.26	802.30	3.777	CC, ES, SF
VOGL MCCOY 2C-5H-E267 - CPR WELL - SURVEYS	13,738.15	14,648.00	794.94	521.08	2.903	CC, ES, SF
VOGL MCCOY 2D-5H-E267 - CPR WELL - SURVEYS	13,738.15	15,056.00	432.29	183.72	1.739	CC, ES, SF
VOGL MCCOY 2E-5H-F267 - CPR WELL - SURVEYS	13,738.15	14,740.00	297.00	142.20	1.919	CC, ES, SF
VOGL MCCOY 2F-5H-F267 - CPR WELL - SURVEYS	13,738.15	15,187.00	325.93	73.03	1.289	Level 3, CC, ES, SF
VOGL MCCOY 2G-5H-F267 - CPR WELL - SURVEYS	13,738.15	14,805.00	671.66	397.02	2.446	CC, ES, SF
VOGL MCCOY 2H-5H-F267 - CPR WELL - SURVEYS	13,738.15	15,000.00	986.85	692.77	3.356	CC, ES, SF

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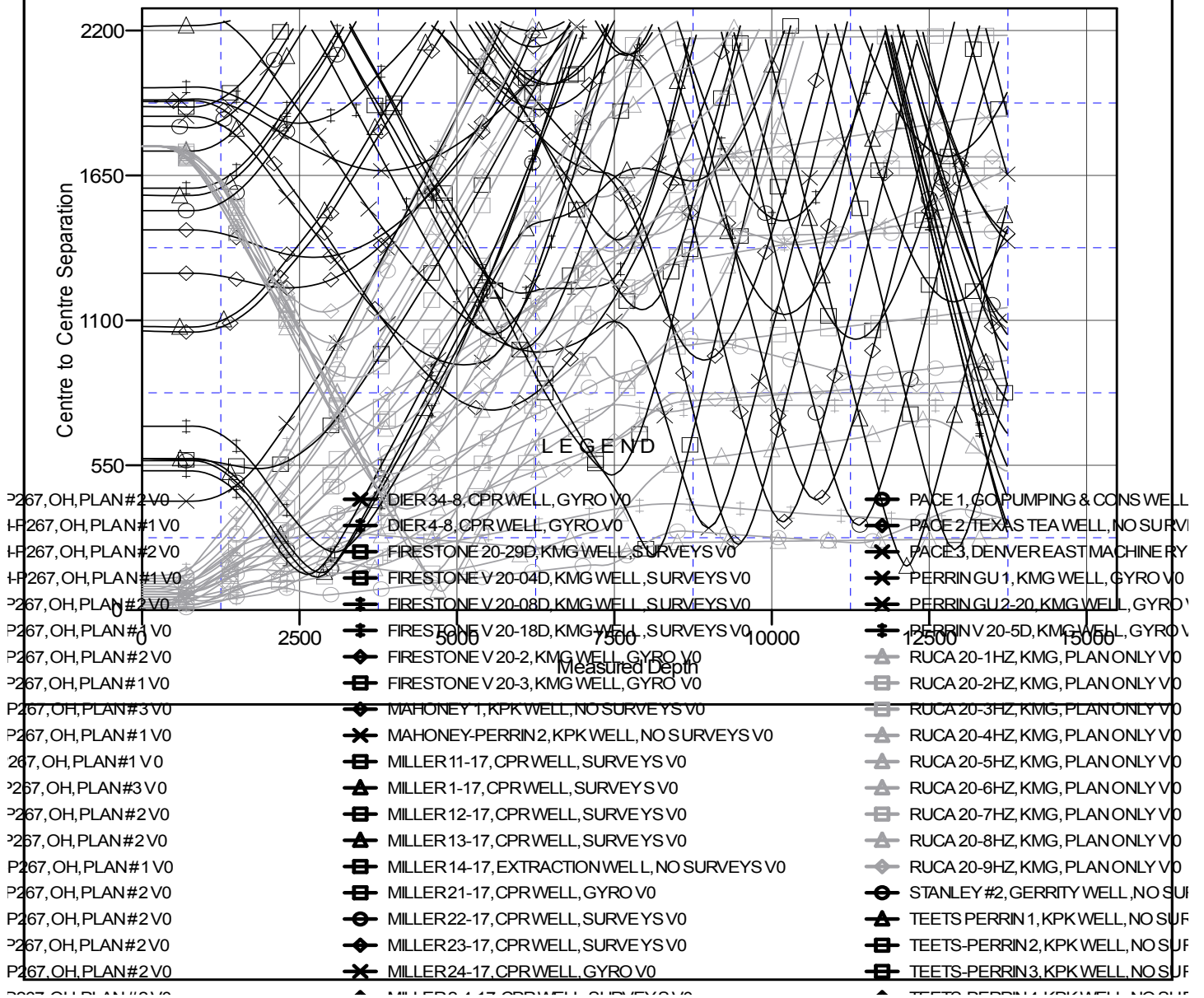
Cathedral Energy Services
Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4F-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 4F-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 #1	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 4F-17H-P267
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.38°

Ladder Plot



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

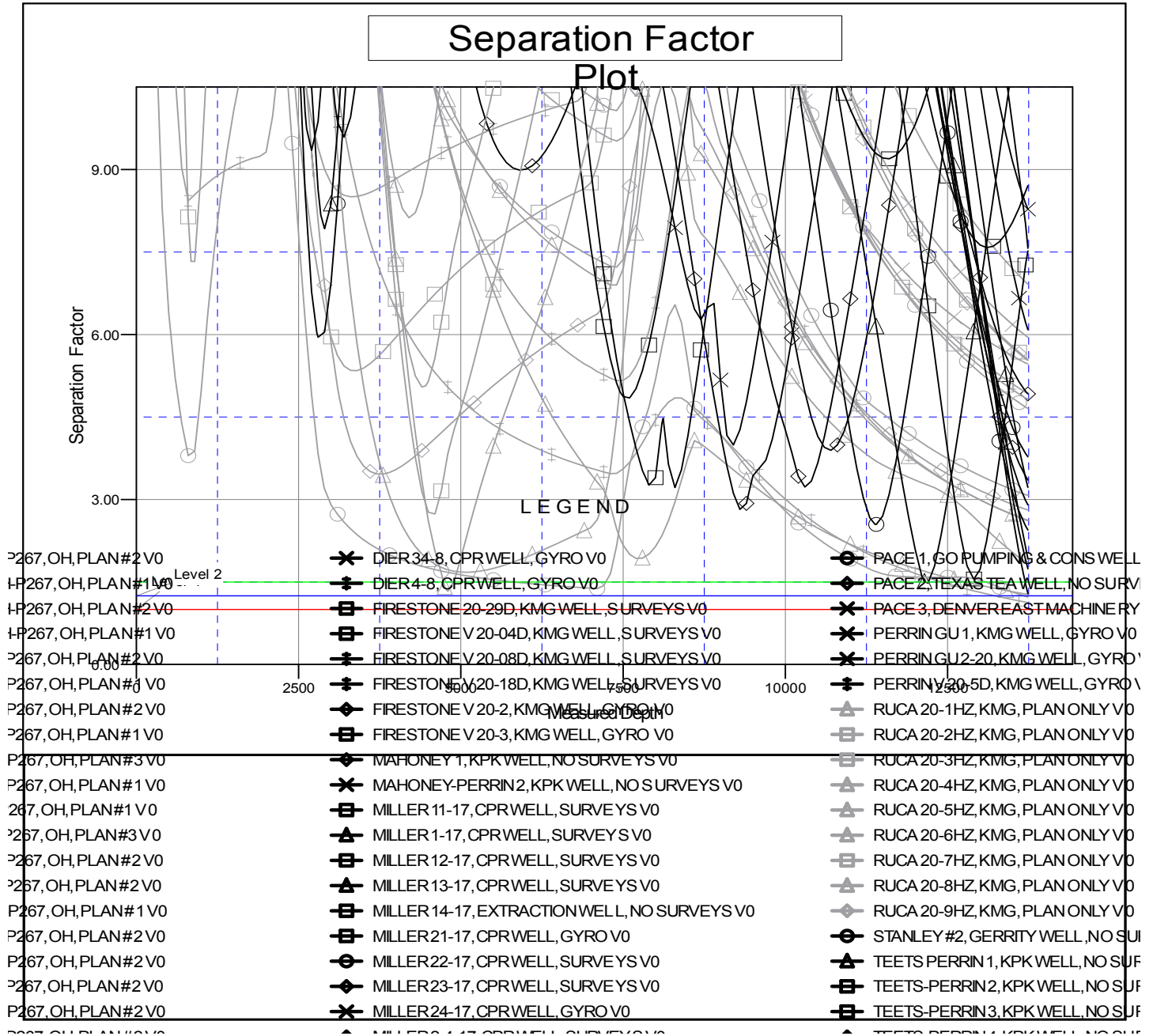
Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4F-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 4F-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 #1	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 4F-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