

Crestone Peak Resources

DJ BASIN

BIGHORN

BIGHORN 4K-17H-P267

OH

PLAN #2

Anticollision Summary Report

12 April, 2018

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4K-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 4K-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 #2	Offset TVD Reference:	Offset Datum

Reference	PLAN #2		
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 #2 (OH)	VESSI_GYROFLEX	VESSI Gyroflex Gyro
2,001.00	15,415.33	PLAN #2 (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	100.10	98.57	65.396	CC
BIGHORN 4A-17H-P267 - OH - PLAN #2	600.00	596.79	100.41	98.53	53.497	ES
BIGHORN 4A-17H-P267 - OH - PLAN #2	6,600.00	6,308.16	1,645.45	1,557.31	18.667	SF
BIGHORN 4AA-17H-P267 - OH - PLAN #1	200.00	200.00	130.02	129.54	268.935	CC, ES
BIGHORN 4AA-17H-P267 - OH - PLAN #1	6,800.00	6,329.74	2,128.30	2,045.06	25.568	SF
BIGHORN 4AB-17H-P267 - OH - PLAN #2	300.00	300.00	120.23	119.40	144.419	CC, ES
BIGHORN 4AB-17H-P267 - OH - PLAN #2	6,700.00	6,217.92	2,115.72	2,019.35	21.953	SF
BIGHORN 4AC-17H-P267 - OH - PLAN #1	400.00	400.00	110.17	108.99	93.236	CC, ES
BIGHORN 4AC-17H-P267 - OH - PLAN #1	6,700.00	6,287.66	1,917.06	1,828.74	21.705	SF
BIGHORN 4B-17H-P267 - OH - PLAN #2	1,419.87	1,404.16	72.78	67.96	15.108	CC, ES
BIGHORN 4B-17H-P267 - OH - PLAN #2	10,300.00	11,330.93	2,233.15	2,064.70	13.257	SF
BIGHORN 4C-17H-P267 - OH - PLAN #1	200.00	200.00	80.25	79.76	165.987	CC, ES
BIGHORN 4C-17H-P267 - OH - PLAN #1	12,600.00	12,906.13	2,235.18	1,955.90	8.003	SF
BIGHORN 4D-17H-P267 - OH - PLAN #2	1,004.26	998.21	56.91	53.60	17.198	CC, ES
BIGHORN 4D-17H-P267 - OH - PLAN #2	15,415.33	16,009.81	1,716.31	1,277.54	3.912	SF
BIGHORN 4E-17H-P267 - OH - PLAN #1	237.62	237.62	60.11	59.50	97.748	CC
BIGHORN 4E-17H-P267 - OH - PLAN #1	300.00	299.93	60.16	59.32	72.216	ES
BIGHORN 4E-17H-P267 - OH - PLAN #1	13,300.00	13,528.64	1,686.25	1,365.86	5.263	SF
BIGHORN 4F-17H-P267 - OH - PLAN #1	957.28	954.67	35.10	31.95	11.142	CC, ES
BIGHORN 4F-17H-P267 - OH - PLAN #1	13,200.00	13,738.15	1,531.11	1,217.52	4.882	SF
BIGHORN 4G-17H-P267 - OH - PLAN #2	914.56	913.11	26.92	23.91	8.959	CC, ES
BIGHORN 4G-17H-P267 - OH - PLAN #2	15,415.33	15,815.33	1,136.40	697.44	2.589	SF
BIGHORN 4H-17H-P267 - OH - PLAN #1	213.85	213.85	30.20	29.67	56.775	CC
BIGHORN 4H-17H-P267 - OH - PLAN #1	300.00	299.91	30.31	29.47	36.375	ES
BIGHORN 4H-17H-P267 - OH - PLAN #1	12,200.00	12,321.99	799.91	534.62	3.015	SF
BIGHORN 4I-17H-P267 - OH - PLAN #1	311.28	311.28	20.13	19.26	23.088	CC
BIGHORN 4I-17H-P267 - OH - PLAN #1	400.00	399.91	20.30	19.11	17.167	ES
BIGHORN 4I-17H-P267 - OH - PLAN #1	13,100.00	13,429.67	667.03	368.59	2.235	SF
BIGHORN 4J-17H-P267 - OH - PLAN #3	400.00	400.00	10.07	8.88	8.519	CC
BIGHORN 4J-17H-P267 - OH - PLAN #3	15,415.33	15,556.45	265.11	-64.85	0.803	Level 1, ES, SF
BIGHORN 4L-17H-P267 - OH - PLAN #2	500.00	501.00	9.79	8.26	6.389	CC
BIGHORN 4L-17H-P267 - OH - PLAN #2	11,900.00	11,910.72	106.87	-95.09	0.529	Level 1, SF
BIGHORN 4L-17H-P267 - OH - PLAN #2	13,400.00	13,407.56	191.81	-122.12	0.611	Level 1, ES
BIGHORN 4M-17H-P267 - OH - PLAN #1	272.56	273.58	19.80	19.06	26.797	CC
BIGHORN 4M-17H-P267 - OH - PLAN #1	400.00	401.12	20.12	18.93	16.912	ES
BIGHORN 4M-17H-P267 - OH - PLAN #1	15,415.33	15,527.27	509.20	102.01	1.251	Level 3, 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 4K-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 4K-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 #2	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 4N-17H-P267 - OH - PLAN #2	585.95	587.60	28.59	26.75	15.562	CC
BIGHORN 4N-17H-P267 - OH - PLAN #2	600.00	601.68	28.60	26.72	15.162	ES
BIGHORN 4N-17H-P267 - OH - PLAN #2	14,200.00	14,084.30	685.90	309.42	1.822	SF
BIGHORN 4O-17H-P267 - OH - PLAN #2	551.61	553.30	37.56	35.84	21.847	CC, ES
BIGHORN 4O-17H-P267 - OH - PLAN #2	15,415.33	15,303.00	1,046.41	600.04	2.344	SF
BIGHORN 4P-17H-P267 - OH - PLAN #2	293.88	294.90	49.75	48.93	61.173	CC
BIGHORN 4P-17H-P267 - OH - PLAN #2	400.00	400.78	50.05	48.86	42.217	ES
BIGHORN 4P-17H-P267 - OH - PLAN #2	15,000.00	14,770.72	1,357.45	938.46	3.240	SF
BIGHORN 4Q-17H-P267 - OH - PLAN #2	400.00	401.00	59.84	58.66	50.568	CC
BIGHORN 4Q-17H-P267 - OH - PLAN #2	500.00	500.89	59.92	58.39	39.102	ES
BIGHORN 4Q-17H-P267 - OH - PLAN #2	15,415.33	15,531.47	1,714.58	1,270.67	3.862	SF
BIGHORN 4R-17H-P267 - OH - PLAN #2	300.00	301.00	69.90	69.07	83.791	CC, ES
BIGHORN 4R-17H-P267 - OH - PLAN #2	15,415.33	15,208.99	1,975.32	1,530.61	4.442	SF
BIGHORN 4S-17H-P267 - OH - PLAN #3	200.00	201.00	79.97	79.48	164.818	CC, ES
BIGHORN 4S-17H-P267 - OH - PLAN #3	13,900.00	13,716.53	2,232.20	1,952.99	7.995	SF

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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 #2	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)						
ABBNEY STATE V16-77HN - KMG WELL - SURVEYS						Out of range
ALFRED D SATER UNIT 2 - KMG WELL - GYRO	15,415.33	7,135.59	1,991.77	1,815.60	11.306	CC, ES, SF
ALVIN STATE 1 - PDC WELL - GYRO	504.57	514.17	1,523.15	1,521.56	960.189	CC, ES
ALVIN STATE 1 - PDC WELL - GYRO	4,000.00	3,930.05	2,223.63	2,203.81	112.169	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	500.00	509.00	1,702.28	1,699.87	707.644	CC, ES
DECHANT 7 - KPK WELL - NO SURVEYS	2,600.00	2,517.81	2,211.22	2,198.01	167.427	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	507.72	539.38	1,859.89	1,858.27	1,147.908	CC, ES
DECHANT STATE GAS U 9 - KMG WELL - GYRO	2,500.00	2,495.71	2,222.33	2,213.17	242.649	SF
DECHANT STATE V 16-11JI - KMG WELL - GYRO						Out of range
DECHANT STATE V 16-12JI - KMG WELL - GYRO	553.76	583.51	1,797.88	1,796.09	1,005.361	CC, ES
DECHANT STATE V 16-12JI - KMG WELL - GYRO	2,400.00	2,289.81	2,221.50	2,213.58	280.448	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	500.00	503.00	1,551.83	1,549.45	652.311	CC, ES
DECHANT-STATE 3 - KPK WELL - NO SURVEYS	3,900.00	3,766.48	2,226.67	2,200.45	84.919	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	14,767.63	7,303.86	1,536.42	1,319.74	7.091	CC
DIER 1 - CPR WELL - GYRO	14,800.00	7,304.18	1,536.76	1,319.11	7.061	ES
DIER 1 - CPR WELL - GYRO	14,900.00	7,305.17	1,542.11	1,322.03	7.007	SF
DIER 13-8 - CPR WELL - SURVEYS						Out of range
DIER 14-8 - CPR WELL - SURVEYS						Out of range
DIER 23-8 - CPR WELL - SURVEYS	14,973.78	7,404.21	936.87	713.75	4.199	CC
DIER 23-8 - CPR WELL - SURVEYS	15,000.00	7,402.19	937.24	713.59	4.191	ES, SF
DIER 24-8 - CPR WELL - SURVEYS	13,363.24	7,506.19	1,059.62	876.60	5.790	CC
DIER 24-8 - CPR WELL - SURVEYS	13,400.00	7,502.37	1,060.25	876.00	5.755	ES
DIER 24-8 - CPR WELL - SURVEYS	13,500.00	7,491.02	1,066.85	880.21	5.716	SF
DIER 33-8 - CPR WELL - GYRO	14,825.48	7,238.45	176.19	-41.90	0.808	Level 1, CC, ES, SF
DIER 34-8 - CPR WELL - GYRO	13,404.31	7,242.80	147.68	-32.59	0.819	Level 1, CC, ES, SF
DIER 44-8 - CPR WELL - GYRO	13,302.49	7,205.11	1,588.32	1,411.13	8.964	CC, ES
DIER 44-8 - CPR WELL - GYRO	13,500.00	7,195.39	1,601.96	1,421.15	8.860	SF
DIER 4-4-8 - CPR WELL - SURVEYS	15,415.33	7,301.42	374.68	134.68	1.561	CC, ES, SF
DIER 4-8 - CPR WELL - GYRO	14,038.31	7,213.47	1,538.17	1,341.26	7.812	CC, ES
DIER 4-8 - CPR WELL - GYRO	14,200.00	7,213.79	1,546.64	1,347.17	7.754	SF
DIER 8-4-8 - CPR WELL - SURVEYS	15,291.43	7,327.88	2,169.61	1,933.84	9.202	CC
DIER 8-4-8 - CPR WELL - SURVEYS	15,400.00	7,329.52	2,172.33	1,933.35	9.090	ES
DIER 8-4-8 - CPR WELL - SURVEYS	15,415.33	7,329.75	2,173.15	1,933.76	9.078	SF
DIER 8-6-8 - CPR WELL - SURVEYS	14,001.42	7,461.39	2,121.13	1,916.42	10.362	CC
DIER 8-6-8 - CPR WELL - SURVEYS	14,100.00	7,461.42	2,123.42	1,916.18	10.246	ES
DIER 8-6-8 - CPR WELL - SURVEYS	14,300.00	7,461.47	2,142.04	1,930.93	10.146	SF
DIER J1A - CPR WELL - GYRO	13,930.61	7,269.66	765.31	571.05	3.940	CC, ES
DIER J1A - CPR WELL - GYRO	14,000.00	7,268.73	768.45	572.35	3.919	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 4K-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4982.00usft
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Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #2	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)						
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	500.00	525.00	2,211.70	2,209.23	897.755	CC
ELKHORN CO-B 6 - KPK WELL - NO SURVEYS	900.00	923.70	2,212.57	2,207.98	481.511	ES
ELKHORN CO-B 6 - KPK WELL - NO SURVEYS	1,800.00	1,809.22	2,233.89	2,224.35	234.234	SF
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	7,200.00	6,973.38	1,502.61	1,446.97	27.007	SF
FIRESTONE 20-29D - KMG WELL - SURVEYS	7,590.00	7,243.76	1,452.39	1,401.45	28.512	CC, ES
FIRESTONE V 20-04D - KMG WELL - SURVEYS						Out of range
FIRESTONE V 20-08D - KMG WELL - SURVEYS	2,728.12	2,352.72	1,709.35	1,698.45	156.763	CC
FIRESTONE V 20-08D - KMG WELL - SURVEYS	2,800.00	2,400.00	1,709.97	1,698.41	147.812	ES
FIRESTONE V 20-08D - KMG WELL - SURVEYS	5,800.00	4,990.62	2,216.56	2,168.56	46.182	SF
FIRESTONE V 20-18D - KMG WELL - SURVEYS	6,917.89	6,748.46	1,076.09	1,026.21	21.572	CC, ES
FIRESTONE V 20-18D - KMG WELL - SURVEYS	7,100.00	6,925.28	1,098.82	1,046.39	20.958	SF
FIRESTONE V 20-2 - KMG WELL - GYRO	6,852.67	6,572.05	244.85	181.21	3.848	CC, ES
FIRESTONE V 20-2 - KMG WELL - GYRO	6,900.00	6,618.43	246.60	181.48	3.787	SF
FIRESTONE V 20-3 - KMG WELL - GYRO	7,000.00	6,740.80	1,175.18	1,140.19	33.585	SF
FIRESTONE V 20-3 - KMG WELL - GYRO	7,130.27	6,862.94	1,167.55	1,133.20	33.994	CC, ES
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	3,914.24	3,775.02	1,111.36	1,078.52	33.838	CC
MAHONEY 1 - KPK WELL - NO SURVEYS	4,100.00	3,951.73	1,112.84	1,077.50	31.493	ES
MAHONEY 1 - KPK WELL - NO SURVEYS	5,300.00	5,042.00	1,191.77	1,142.13	24.009	SF
MAHONEY 2 - KPK WELL - NO SURVEYS						Out of range
MAHONEY-PERRIN 2 - KPK WELL - NO SURVEYS	5,427.68	5,050.00	654.36	611.77	15.362	CC, ES, 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	11,852.69	7,269.37	1,149.57	1,011.18	8.306	CC
MILLER 1 - EXTRACTION WELL - GYRO	11,900.00	7,269.09	1,150.54	1,011.05	8.248	ES
MILLER 1 - EXTRACTION WELL - GYRO	12,000.00	7,268.49	1,158.97	1,017.82	8.211	SF
MILLER 11-17 - CPR WELL - SURVEYS						Out of range
MILLER 1-17 - CPR WELL - SURVEYS	11,741.77	6,790.00	853.61	733.43	7.102	CC, ES
MILLER 1-17 - CPR WELL - SURVEYS	11,800.00	6,790.00	855.60	734.18	7.047	SF
MILLER 12-17 - CPR WELL - SURVEYS						Out of range
MILLER 13-17 - CPR WELL - SURVEYS						Out of range
MILLER 14-17 - EXTRACTION WELL - NO 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 4K-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 4K-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 #2	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 21-17 - CPR WELL - GYRO	12,249.30	7,236.86	1,248.63	1,099.68	8.383	CC
MILLER 21-17 - CPR WELL - GYRO	12,300.00	7,236.93	1,249.65	1,099.36	8.315	ES
MILLER 21-17 - CPR WELL - GYRO	12,400.00	7,237.05	1,257.69	1,105.32	8.254	SF
MILLER 2-17 - CPR WELL - GYRO	11,242.63	7,250.05	1,139.69	1,017.60	9.335	CC, ES
MILLER 2-17 - CPR WELL - GYRO	11,400.00	7,247.86	1,150.50	1,025.28	9.188	SF
MILLER 22-17 - CPR WELL - SURVEYS	10,740.42	7,729.04	1,106.83	980.26	8.744	CC
MILLER 22-17 - CPR WELL - SURVEYS	10,800.00	7,721.11	1,108.41	980.25	8.649	ES
MILLER 22-17 - CPR WELL - SURVEYS	10,900.00	7,707.72	1,118.07	987.88	8.588	SF
MILLER 23-17 - CPR WELL - SURVEYS	9,515.51	7,666.11	1,045.82	950.81	11.008	CC, ES
MILLER 23-17 - CPR WELL - SURVEYS	9,600.00	7,671.68	1,049.20	953.49	10.961	SF
MILLER 24-17 - CPR WELL - GYRO	8,300.00	7,263.56	1,009.31	954.92	18.556	SF
MILLER 24-17 - CPR WELL - GYRO	8,336.33	7,263.72	1,008.66	954.31	18.560	CC, ES
MILLER 2-4-17 - CPR WELL - SURVEYS	10,026.62	7,461.28	1,808.15	1,701.06	16.884	CC
MILLER 2-4-17 - CPR WELL - SURVEYS	10,100.00	7,461.52	1,809.64	1,700.97	16.653	ES
MILLER 2-4-17 - CPR WELL - SURVEYS	10,400.00	7,462.49	1,846.30	1,732.30	16.196	SF
MILLER 31-17C - EXTRACTION WELL - GYRO	12,192.13	7,245.48	260.03	112.53	1.763	CC, ES
MILLER 31-17C - EXTRACTION WELL - GYRO	12,200.00	7,245.49	260.14	112.56	1.763	SF
MILLER 3-17J - CPR WELL - GYRO	1,185.62	1,161.57	601.95	598.00	152.347	CC
MILLER 3-17J - CPR WELL - GYRO	1,200.00	1,175.40	601.96	597.96	150.401	ES
MILLER 3-17J - CPR WELL - GYRO	9,200.00	7,261.20	966.23	894.15	13.405	SF
MILLER 32-17 - EXTRACTION WELL - GYRO	100.00	49.86	2,230.79	2,230.68	10,000.000	CC, ES
MILLER 32-17 - EXTRACTION WELL - GYRO	700.00	651.01	2,235.82	2,233.64	1,025.529	SF
MILLER 33-17J - CPR WELL - SURVEYS	9,560.92	7,570.89	122.68	27.33	1.287	Level 3, CC, ES, SF
MILLER 34-17J - CPR WELL - SURVEYS	2,760.97	2,673.14	325.74	312.56	24.717	CC
MILLER 34-17J - CPR WELL - SURVEYS	8,136.27	7,392.53	335.73	281.07	6.142	ES
MILLER 34-17J - CPR WELL - SURVEYS	8,200.00	7,389.02	341.71	282.51	5.773	SF
MILLER 41-17 - EXTRACTION WELL - GYRO						Out of range
MILLER 4-17J - CPR WELL - GYRO						Out of range
MILLER 42-17 - EXTRACTION WELL - NO SURVEYS						Out of range
MILLER 43-17 - EXTRACTION WELL - GYRO	490.41	473.42	1,064.38	1,062.87	708.694	CC
MILLER 43-17 - EXTRACTION WELL - GYRO	500.00	482.20	1,064.38	1,062.85	693.744	ES
MILLER 43-17 - EXTRACTION WELL - GYRO	5,200.00	4,996.79	2,214.09	2,189.33	89.447	SF
MILLER 43-17J - EXTRACTION WELL - GYRO	515.65	510.18	1,050.47	1,048.87	652.862	CC, ES
MILLER 43-17J - EXTRACTION WELL - GYRO	10,000.00	7,238.15	1,471.17	1,382.38	16.570	SF
MILLER 44-17J - CPR WELL - SURVEYS	2,505.40	2,430.38	296.94	286.41	28.197	CC, ES
MILLER 44-17J - CPR WELL - SURVEYS	3,100.00	3,000.01	350.84	335.20	22.431	SF
MILLER CJ 17-A - CPR WELL - SURVEYS	8,785.05	7,419.84	1,601.64	1,527.45	21.591	CC
MILLER CJ 17-A - CPR WELL - SURVEYS	8,800.00	7,420.35	1,601.70	1,527.34	21.540	ES
MILLER CJ 17-A - CPR WELL - SURVEYS	9,300.00	7,436.11	1,682.28	1,601.00	20.698	SF
PACE 1 - GO PUMPING & CONS WELL - NO SURVEYS	2,903.23	2,803.27	62.00	42.59	3.195	CC, ES, SF
PACE 2 - TEXAS TEA WELL - NO SURVEYS	1,115.70	1,086.97	1,311.62	1,306.06	235.699	CC
PACE 2 - TEXAS TEA WELL - NO SURVEYS	1,200.00	1,169.06	1,311.76	1,305.75	218.046	ES
PACE 2 - TEXAS TEA WELL - NO SURVEYS	5,300.00	5,050.00	1,830.54	1,786.99	42.027	SF
PACE 3 - DENVER EAST MACHINERY WELL - NO SUR	500.00	509.00	367.67	365.28	153.474	CC, ES
PACE 3 - DENVER EAST MACHINERY WELL - NO SUR	5,200.00	4,991.14	1,490.94	1,458.19	45.525	SF
PERRIN GU 1 - KMG WELL - GYRO	5,622.39	5,423.51	1,299.07	1,252.81	28.082	CC
PERRIN GU 1 - KMG WELL - GYRO	5,800.00	5,590.92	1,300.28	1,251.96	26.910	ES
PERRIN GU 1 - KMG WELL - GYRO	6,800.00	6,572.76	1,344.28	1,285.67	22.935	SF
PERRIN GU 2-20 - KMG WELL - GYRO	7,020.35	6,741.31	1,986.98	1,954.86	61.867	CC, ES
PERRIN GU 2-20 - KMG WELL - GYRO	7,600.00	7,184.65	2,172.27	2,134.22	57.089	SF
PERRIN V 20-5D - KMG WELL - GYRO						Out of range
PERRIN V 20-7DI - KMG WELL - GYRO	6,852.28	6,643.12	1,945.92	1,891.40	35.697	CC, ES
PERRIN V 20-7DI - KMG WELL - GYRO	7,000.00	6,783.12	1,960.94	1,905.05	35.083	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 4K-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 4K-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 #2	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-MAHONEY 1 - KPK WELL - NO SURVEYS	5,668.38	5,100.00	2,022.82	1,972.54	40.232	CC, ES
PERRIN-MAHONEY 1 - KPK WELL - NO SURVEYS	6,000.00	5,100.00	2,049.82	1,997.62	39.268	SF
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	7,809.62	7,859.42	278.12	206.53	3.885	CC, ES, SF
RUCA 20-2HZ - KMG - PLAN ONLY	7,985.22	7,712.39	35.36	-36.83	0.490	Level 1, CC, ES, SF
RUCA 20-3HZ - KMG - PLAN ONLY	4,284.27	4,365.87	193.29	153.18	4.819	CC
RUCA 20-3HZ - KMG - PLAN ONLY	4,300.00	4,379.28	193.46	153.08	4.790	ES
RUCA 20-3HZ - KMG - PLAN ONLY	7,824.08	7,727.41	239.04	169.41	3.433	SF
RUCA 20-4HZ - KMG - PLAN ONLY	4,201.14	4,303.94	36.57	-3.07	0.923	Level 1, CC, ES, SF
RUCA 20-5HZ - KMG - PLAN ONLY	4,090.46	4,202.89	127.50	88.86	3.300	CC, ES, SF
RUCA 20-6HZ - KMG - PLAN ONLY	4,127.95	4,243.86	301.65	262.97	7.798	CC, ES, SF
RUCA 20-7HZ - KMG - PLAN ONLY	3,728.63	3,851.44	580.10	545.50	16.764	CC, ES
RUCA 20-7HZ - KMG - PLAN ONLY	3,900.00	4,005.80	587.80	551.45	16.169	SF
RUCA 20-8HZ - KMG - PLAN ONLY	3,414.91	3,553.73	765.03	733.88	24.558	CC, ES
RUCA 20-8HZ - KMG - PLAN ONLY	8,700.00	7,300.00	1,764.81	1,683.13	21.607	SF
RUCA 20-9HZ - KMG - PLAN ONLY	3,225.39	3,355.59	913.85	885.10	31.786	CC, ES
RUCA 20-9HZ - KMG - PLAN ONLY	8,900.00	7,216.90	2,077.31	1,992.39	24.463	SF
SATER 21-8 - KMG WELL - SURVEYS	15,415.33	7,368.81	1,472.40	1,391.87	18.284	CC, ES, SF
SATER 24-8 - KMG WELL - SURVEYS	15,415.33	7,401.44	955.00	718.11	4.032	CC, ES, SF
SATER 24C-5HZ - KMG WELL - SURVEYS	15,415.33	7,388.20	1,252.13	1,013.89	5.256	CC, ES, SF
SATER 24N-5HZ - KMG WELL - SURVEYS	15,415.33	7,233.14	665.47	433.37	2.867	CC, ES, SF
SATER 25C-5HZ - KMG WELL - SURVEYS	15,415.33	7,220.11	192.13	-20.96	0.902	Level 1, CC, ES, SF
SATER 2-8 - KMG WELL - SURVEYS	15,415.33	7,639.31	2,090.06	2,013.69	27.367	CC, ES, SF
SATER 28-8 - KMG WELL - SURVEYS						Out of range
SATER 40N-5HZ - KMG WELL - SURVEYS	15,415.33	7,266.81	1,709.95	1,472.99	7.216	CC, ES, SF
SATER 7-8 - KMG WELL - SURVEYS	15,415.33	7,274.93	640.76	550.31	7.084	CC, ES, SF
SATER 8-8 - KMG WELL - SURVEYS	15,415.33	7,699.88	1,794.50	1,570.86	8.024	CC, ES, SF
SATER ALFRED D UNIT 1 (P&A) - KMG WELL - GYRO	15,415.33	7,214.47	1,307.38	1,164.90	9.176	CC, ES, SF
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
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

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 4K-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 4K-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 #2	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 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	500.00	537.00	1,466.89	1,464.39	587.365	CC, ES
STANLEY #2 - GERRITY WELL - NO SURVEYS	4,200.00	4,085.86	2,212.69	2,183.68	76.272	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	5,794.13	5,100.00	1,523.41	1,486.82	41.630	CC
TEETS-PERRIN 2 - KPK WELL - NO SURVEYS	5,800.00	5,100.00	1,523.42	1,486.81	41.617	ES
TEETS-PERRIN 2 - KPK WELL - NO SURVEYS	5,900.00	5,100.00	1,527.08	1,490.35	41.571	SF
TEETS-PERRIN 3 - KPK WELL - NO SURVEYS						Out of range
TEETS-PERRIN 4 - KPK WELL - NO SURVEYS						Out of range
TEETS-PERRIN 5 - KPK WELL - NO SURVEYS	5,377.55	4,711.00	1,471.20	1,439.23	46.024	CC, ES
TEETS-PERRIN 5 - KPK WELL - NO SURVEYS	5,400.00	4,711.00	1,471.37	1,439.37	45.981	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						Out of range
VOGL MCCOY 2B-5H-E267 - CPR WELL - SURVEYS						Out of range
VOGL MCCOY 2C-5H-E267 - CPR WELL - SURVEYS	15,415.33	12,612.43	2,223.33	1,898.60	6.847	CC, ES, SF
VOGL MCCOY 2D-5H-E267 - CPR WELL - SURVEYS	15,415.33	12,966.89	1,843.24	1,521.70	5.733	CC, ES, SF
VOGL MCCOY 2E-5H-F267 - CPR WELL - SURVEYS	15,415.33	12,607.69	1,559.05	1,236.81	4.838	CC, ES, SF
VOGL MCCOY 2F-5H-F267 - CPR WELL - SURVEYS	15,415.33	13,075.60	1,194.78	877.13	3.761	CC, ES, SF
VOGL MCCOY 2G-5H-F267 - CPR WELL - SURVEYS	15,415.33	12,641.38	760.79	440.41	2.375	CC, ES, SF
VOGL MCCOY 2H-5H-F267 - CPR WELL - SURVEYS	15,415.33	12,972.50	496.98	198.30	1.664	CC, ES, SF

Cathedral Energy Services

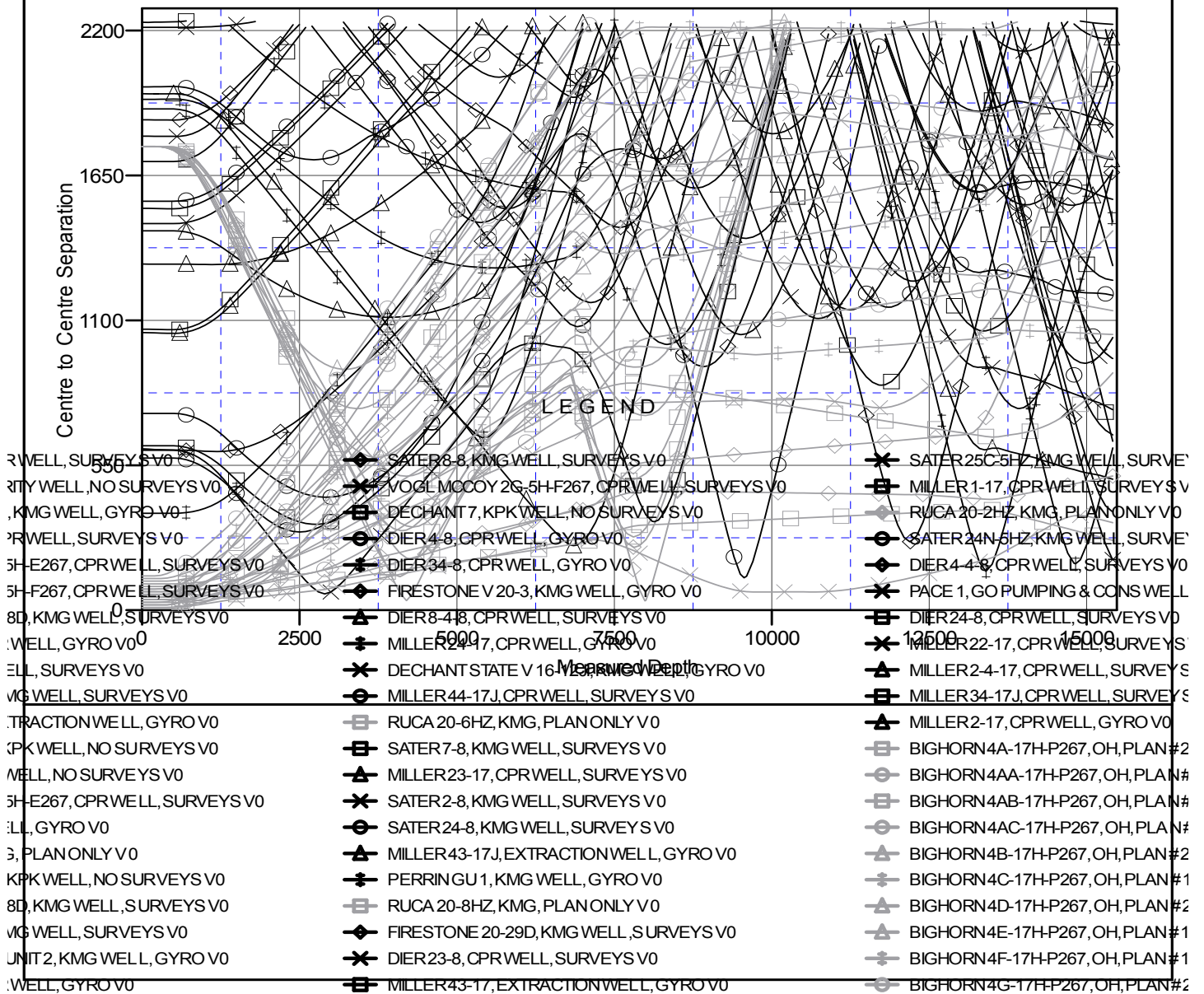
Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4K-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 4K-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 #2	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 4K-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

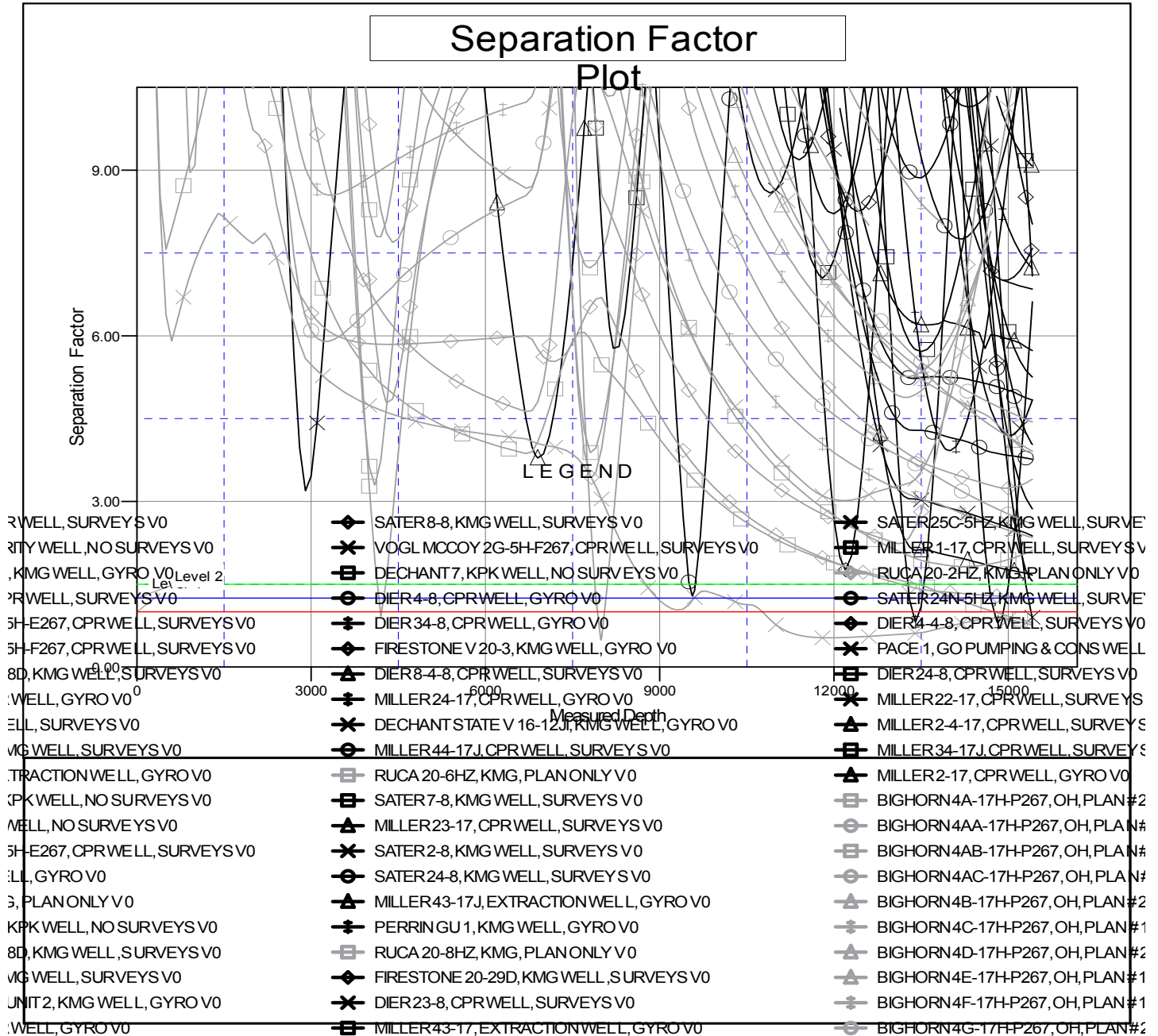
Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4K-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 4K-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 #2	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 4K-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