

Crestone Peak Resources

DJ BASIN

BIGHORN

BIGHORN 4E-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 4E-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 4E-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	13,528.64	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	545.44	544.10	39.26	37.56	23.068	CC, ES
BIGHORN 4A-17H-P267 - OH - PLAN #2	13,528.64	13,878.49	778.49	472.01	2.540	SF
BIGHORN 4AA-17H-P267 - OH - PLAN #1	200.00	200.00	69.90	69.42	144.589	CC, ES
BIGHORN 4AA-17H-P267 - OH - PLAN #1	13,528.64	14,398.37	1,575.60	1,269.43	5.146	SF
BIGHORN 4AB-17H-P267 - OH - PLAN #2	200.00	200.00	60.12	59.63	124.347	CC
BIGHORN 4AB-17H-P267 - OH - PLAN #2	300.00	299.95	60.19	59.36	72.254	ES
BIGHORN 4AB-17H-P267 - OH - PLAN #2	13,528.64	13,906.71	1,512.03	1,211.37	5.029	SF
BIGHORN 4AC-17H-P267 - OH - PLAN #1	200.00	200.00	50.05	49.57	103.527	CC
BIGHORN 4AC-17H-P267 - OH - PLAN #1	500.00	497.96	50.18	48.64	32.611	ES
BIGHORN 4AC-17H-P267 - OH - PLAN #1	13,528.64	14,049.68	1,260.18	950.95	4.075	SF
BIGHORN 4B-17H-P267 - OH - PLAN #2	200.00	200.00	29.92	29.43	61.883	CC
BIGHORN 4B-17H-P267 - OH - PLAN #2	3,500.00	3,532.52	49.87	-11.66	0.810	Level 1, ES, SF
BIGHORN 4C-17H-P267 - OH - PLAN #1	200.00	200.00	20.13	19.65	41.641	CC, ES
BIGHORN 4C-17H-P267 - OH - PLAN #1	13,528.64	13,436.45	585.10	281.47	1.927	SF
BIGHORN 4D-17H-P267 - OH - PLAN #2	200.00	200.00	10.07	9.58	20.820	CC
BIGHORN 4D-17H-P267 - OH - PLAN #2	13,528.64	13,704.05	145.47	-126.34	0.535	Level 1, ES, SF
BIGHORN 4F-17H-P267 - OH - PLAN #1	207.71	207.71	10.07	9.56	19.721	CC, ES
BIGHORN 4F-17H-P267 - OH - PLAN #1	13,528.64	13,738.86	272.14	58.62	1.275	Level 3, SF
BIGHORN 4G-17H-P267 - OH - PLAN #3	233.94	233.94	19.85	19.25	32.969	CC
BIGHORN 4G-17H-P267 - OH - PLAN #3	300.00	300.05	19.99	19.15	23.983	ES
BIGHORN 4G-17H-P267 - OH - PLAN #3	13,528.64	13,553.98	475.07	162.55	1.520	SF
BIGHORN 4H-17H-P267 - OH - PLAN #1	300.00	299.98	29.92	29.09	35.890	CC, ES
BIGHORN 4H-17H-P267 - OH - PLAN #1	13,522.07	13,342.81	640.14	327.95	2.050	SF
BIGHORN 4I-17H-P267 - OH - PLAN #1	235.77	235.77	39.98	39.37	65.705	CC
BIGHORN 4I-17H-P267 - OH - PLAN #1	300.00	299.95	40.05	39.22	48.074	ES
BIGHORN 4I-17H-P267 - OH - PLAN #1	13,528.64	13,431.56	1,063.42	754.27	3.440	SF
BIGHORN 4J-17H-P267 - OH - PLAN #3	236.66	236.65	50.05	49.44	81.831	CC
BIGHORN 4J-17H-P267 - OH - PLAN #3	300.00	300.05	50.10	49.27	60.130	ES
BIGHORN 4J-17H-P267 - OH - PLAN #3	13,528.64	13,228.04	1,300.13	1,058.84	5.388	SF
BIGHORN 4K-17H-P267 - OH - PLAN #2	237.64	237.63	60.11	59.50	97.740	CC
BIGHORN 4K-17H-P267 - OH - PLAN #2	300.00	300.05	60.16	59.32	72.201	ES
BIGHORN 4K-17H-P267 - OH - PLAN #2	13,528.64	13,064.69	1,669.75	1,356.34	5.328	SF
BIGHORN 4L-17H-P267 - OH - PLAN #2	250.42	251.42	69.90	69.24	105.673	CC
BIGHORN 4L-17H-P267 - OH - PLAN #2	300.00	300.95	69.93	69.09	83.770	ES
BIGHORN 4L-17H-P267 - OH - PLAN #2	13,528.64	12,964.57	1,824.74	1,518.05	5.950	SF
BIGHORN 4M-17H-P267 - OH - PLAN #1	540.11	546.50	77.96	76.25	45.574	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 4E-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 4E-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 4M-17H-P267 - OH - PLAN #1	600.00	607.60	78.09	76.16	40.460	ES
BIGHORN 4M-17H-P267 - OH - PLAN #1	13,528.64	13,213.63	2,047.31	1,733.07	6.515	SF
BIGHORN 4N-17H-P267 - OH - PLAN #2	251.83	252.83	90.03	89.37	135.099	CC
BIGHORN 4N-17H-P267 - OH - PLAN #2	300.00	300.95	90.05	89.22	107.878	ES
BIGHORN 4N-17H-P267 - OH - PLAN #2	7,000.00	6,726.25	1,970.12	1,895.93	26.555	SF
BIGHORN 4O-17H-P267 - OH - PLAN #2	252.44	253.44	100.10	99.43	149.724	CC
BIGHORN 4O-17H-P267 - OH - PLAN #2	400.00	402.32	100.41	99.23	84.444	ES
BIGHORN 4O-17H-P267 - OH - PLAN #2	6,900.00	6,589.96	2,045.17	1,972.68	28.214	SF
BIGHORN 4P-17H-P267 - OH - PLAN #2	306.41	307.55	109.81	108.95	127.985	CC, ES
BIGHORN 4P-17H-P267 - OH - PLAN #2	6,200.00	5,780.35	2,206.55	2,147.72	37.508	SF
BIGHORN 4Q-17H-P267 - OH - PLAN #2	262.72	263.71	119.95	119.25	170.265	CC
BIGHORN 4Q-17H-P267 - OH - PLAN #2	300.00	300.95	119.96	119.13	143.707	ES
BIGHORN 4Q-17H-P267 - OH - PLAN #2	6,100.00	5,667.78	2,234.21	2,177.69	39.525	SF
BIGHORN 4R-17H-P267 - OH - PLAN #2	263.23	264.22	130.02	129.31	184.093	CC
BIGHORN 4R-17H-P267 - OH - PLAN #2	300.00	300.95	130.03	129.19	155.764	ES
BIGHORN 4R-17H-P267 - OH - PLAN #2	5,400.00	4,904.64	2,232.56	2,186.02	47.972	SF
BIGHORN 4S-17H-P267 - OH - PLAN #3	200.00	201.00	140.09	139.60	288.716	CC, ES
BIGHORN 4S-17H-P267 - OH - PLAN #3	5,100.00	4,583.92	2,191.82	2,154.34	58.484	SF

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Reference Site:	BIGHORN	MD Reference:	23' KB @ 4982.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	BIGHORN 4E-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)						
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	400.00	412.67	1,582.80	1,581.57	1,288.947	CC, ES
ALVIN STATE 1 - PDC WELL - GYRO	2,500.00	2,384.28	2,196.43	2,187.02	233.407	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	200.00	209.00	1,750.27	1,749.46	2,180.704	CC, ES
DECHANT 7 - KPK WELL - NO SURVEYS	1,900.00	1,810.12	2,194.11	2,184.39	225.737	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	314.06	346.13	1,920.36	1,919.42	2,034.303	CC, ES
DECHANT STATE GAS U 9 - KMG WELL - GYRO	1,700.00	1,694.23	2,225.29	2,219.34	373.799	SF
DECHANT STATE V 16-11JI - KMG WELL - GYRO						Out of range
DECHANT STATE V 16-12JI - KMG WELL - GYRO	210.08	212.28	1,844.11	1,843.57	3,445.377	CC, ES
DECHANT STATE V 16-12JI - KMG WELL - GYRO	1,800.00	1,767.59	2,218.20	2,211.95	354.868	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	400.00	402.71	1,610.07	1,608.22	871.742	CC, ES
DECHANT-STATE 3 - KPK WELL - NO SURVEYS	2,500.00	2,359.13	2,216.00	2,202.24	161.117	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	13,528.64	6,819.16	1,517.25	1,404.62	13.471	CC, ES, SF
DIER 14-8 - CPR WELL - SURVEYS	13,528.64	7,398.37	897.53	731.08	5.392	CC, ES, SF
DIER 23-8 - CPR WELL - SURVEYS	13,528.64	7,382.00	1,946.16	1,817.29	15.102	CC, ES, SF
DIER 24-8 - CPR WELL - SURVEYS	13,528.64	7,321.46	677.56	506.31	3.956	CC, ES, SF
DIER 33-8 - CPR WELL - GYRO						Out of range
DIER 34-8 - CPR WELL - GYRO	13,528.64	7,264.86	1,559.31	1,389.76	9.196	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	13,528.64	7,218.91	863.05	749.68	7.613	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	7,853.55	7,182.33	84.80	39.00	1.851	CC
FIRESTONE 20-29D - KMG WELL - SURVEYS	7,900.00	7,210.75	93.14	23.70	1.341	Level 3, ES, SF
FIRESTONE V 20-04D - KMG WELL - SURVEYS	7,687.54	7,153.40	1,033.74	981.61	19.830	CC
FIRESTONE V 20-04D - KMG WELL - SURVEYS	7,700.00	7,162.39	1,033.84	980.94	19.543	ES
FIRESTONE V 20-04D - KMG WELL - SURVEYS	8,200.00	7,457.62	1,218.49	1,131.55	14.017	SF
FIRESTONE V 20-08D - KMG WELL - SURVEYS	2,305.17	2,029.30	1,754.18	1,744.75	185.844	CC
FIRESTONE V 20-08D - KMG WELL - SURVEYS	2,400.00	2,085.80	1,755.44	1,744.58	161.653	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 4E-17H-P267
Project:	DJ BASIN	TVD Reference:	23' KB @ 4982.00usft
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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 #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
S17-T2N-R67W (OFFSETS)						
FIRESTONE V 20-08D - KMG WELL - SURVEYS	4,300.00	3,476.94	2,219.30	2,174.76	49.825	SF
FIRESTONE V 20-18D - KMG WELL - SURVEYS	5,732.80	5,126.97	1,136.24	1,060.98	15.099	CC
FIRESTONE V 20-18D - KMG WELL - SURVEYS	5,800.00	5,184.37	1,136.96	1,059.68	14.713	ES
FIRESTONE V 20-18D - KMG WELL - SURVEYS	7,100.00	6,561.29	1,313.20	1,210.17	12.747	SF
FIRESTONE V 20-2 - KMG WELL - GYRO	4,955.49	4,583.84	807.32	739.09	11.831	CC
FIRESTONE V 20-2 - KMG WELL - GYRO	5,000.00	4,623.02	807.57	738.51	11.694	ES
FIRESTONE V 20-2 - KMG WELL - GYRO	5,400.00	4,977.06	832.28	757.33	11.105	SF
FIRESTONE V 20-3 - KMG WELL - GYRO	7,200.00	6,582.51	538.91	435.93	5.233	CC, ES
FIRESTONE V 20-3 - KMG WELL - GYRO	7,300.00	6,670.54	549.70	444.37	5.219	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	1,981.74	1,909.72	1,316.97	1,306.19	122.178	CC
MAHONEY 1 - KPK WELL - NO SURVEYS	2,000.00	1,906.62	1,317.00	1,306.17	121.680	ES
MAHONEY 1 - KPK WELL - NO SURVEYS	5,300.00	4,860.16	1,981.18	1,923.34	34.251	SF
MAHONEY 2 - KPK WELL - NO SURVEYS						Out of range
MAHONEY-PERRIN 2 - KPK WELL - NO SURVEYS	4,450.60	4,087.94	950.17	892.46	16.464	CC
MAHONEY-PERRIN 2 - KPK WELL - NO SURVEYS	4,500.00	4,132.15	950.43	891.68	16.178	ES
MAHONEY-PERRIN 2 - KPK WELL - NO SURVEYS	5,300.00	4,848.16	1,022.92	951.06	14.236	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	12,694.79	7,351.47	992.58	843.00	6.636	CC
MILLER 11-17 - CPR WELL - SURVEYS	12,700.00	7,351.24	992.59	842.83	6.628	ES
MILLER 11-17 - CPR WELL - SURVEYS	12,900.00	7,342.81	1,013.54	857.25	6.485	SF
MILLER 1-17 - CPR WELL - SURVEYS	11,949.30	7,788.84	425.82	318.01	3.950	CC
MILLER 1-17 - CPR WELL - SURVEYS	12,000.00	7,771.23	428.53	317.64	3.864	ES
MILLER 1-17 - CPR WELL - SURVEYS	12,100.00	7,734.83	449.20	332.56	3.851	SF
MILLER 12-17 - CPR WELL - SURVEYS	11,123.51	7,545.52	905.95	798.55	8.435	CC, ES
MILLER 12-17 - CPR WELL - SURVEYS	11,400.00	7,551.59	947.17	831.81	8.210	SF
MILLER 13-17 - CPR WELL - SURVEYS	9,967.34	7,347.83	964.71	878.75	11.223	CC
MILLER 13-17 - CPR WELL - SURVEYS	10,000.00	7,353.92	965.24	878.70	11.153	ES
MILLER 13-17 - CPR WELL - SURVEYS	10,400.00	7,425.14	1,054.58	955.70	10.665	SF
MILLER 14-17 - EXTRACTION WELL - NO SURVEYS	6,351.06	5,261.00	1,800.29	1,723.98	23.589	CC, ES
MILLER 14-17 - EXTRACTION WELL - NO SURVEYS	6,600.00	5,261.00	1,817.42	1,739.03	23.185	SF
MILLER 21-17 - CPR WELL - GYRO	12,695.25	7,240.77	384.24	238.13	2.630	CC, ES, SF
MILLER 2-17 - CPR WELL - GYRO						Out of range
MILLER 22-17 - CPR WELL - SURVEYS	11,199.37	7,609.33	454.42	329.02	3.624	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 4E-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 4E-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)						
MILLER 22-17 - CPR WELL - SURVEYS	11,200.00	7,609.22	454.42	329.02	3.624	ES, SF
MILLER 23-17 - CPR WELL - SURVEYS	9,938.75	7,519.68	457.02	366.26	5.035	CC
MILLER 23-17 - CPR WELL - SURVEYS	10,000.00	7,530.26	461.01	365.46	4.825	ES
MILLER 23-17 - CPR WELL - SURVEYS	10,100.00	7,546.28	484.02	379.91	4.649	SF
MILLER 24-17 - CPR WELL - GYRO	8,775.54	7,281.43	448.92	394.74	8.286	CC
MILLER 24-17 - CPR WELL - GYRO	8,800.00	7,281.56	449.59	392.80	7.916	ES
MILLER 24-17 - CPR WELL - GYRO	9,100.00	7,283.11	553.90	464.85	6.220	SF
MILLER 2-4-17 - CPR WELL - SURVEYS	10,499.85	7,476.19	274.15	168.54	2.596	CC
MILLER 2-4-17 - CPR WELL - SURVEYS	10,500.00	7,476.19	274.15	168.54	2.596	ES, SF
MILLER 31-17C - EXTRACTION WELL - GYRO	12,571.07	7,321.21	1,887.53	1,744.38	13.185	CC
MILLER 31-17C - EXTRACTION WELL - GYRO	12,600.00	7,321.48	1,887.75	1,744.01	13.133	ES
MILLER 31-17C - EXTRACTION WELL - GYRO	12,900.00	7,324.44	1,915.97	1,767.24	12.882	SF
MILLER 3-17J - CPR WELL - GYRO	221.15	206.61	565.75	565.20	1,023.729	CC
MILLER 3-17J - CPR WELL - GYRO	1,300.00	1,258.56	568.04	563.62	128.521	ES
MILLER 3-17J - CPR WELL - GYRO	3,700.00	3,428.26	1,175.93	1,153.74	52.991	SF
MILLER 32-17 - EXTRACTION WELL - GYRO	100.00	49.85	2,213.13	2,213.01	10,000.000	CC, ES
MILLER 32-17 - EXTRACTION WELL - GYRO	500.00	453.72	2,230.52	2,229.03	1,502.044	SF
MILLER 33-17J - CPR WELL - SURVEYS	2,414.26	2,264.58	217.99	205.97	18.140	CC, ES
MILLER 33-17J - CPR WELL - SURVEYS	2,600.00	2,433.70	231.95	217.07	15.582	SF
MILLER 34-17J - CPR WELL - SURVEYS	2,174.94	2,055.36	164.41	155.80	19.101	CC, ES
MILLER 34-17J - CPR WELL - SURVEYS	2,300.00	2,168.25	173.18	163.22	17.381	SF
MILLER 41-17 - EXTRACTION WELL - GYRO						Out of range
MILLER 4-17J - CPR WELL - GYRO	8,200.00	7,243.57	976.03	889.48	11.278	SF
MILLER 4-17J - CPR WELL - GYRO	8,700.00	7,273.61	815.66	761.45	15.045	ES
MILLER 4-17J - CPR WELL - GYRO	8,721.78	7,273.76	815.37	762.04	15.289	CC
MILLER 42-17 - EXTRACTION WELL - NO SURVEYS						Out of range
MILLER 43-17 - EXTRACTION WELL - GYRO	204.92	190.62	1,078.15	1,077.65	2,164.472	CC, ES
MILLER 43-17 - EXTRACTION WELL - GYRO	4,000.00	3,726.83	2,204.14	2,180.91	94.883	SF
MILLER 43-17J - EXTRACTION WELL - GYRO	215.18	212.50	1,059.57	1,059.02	1,919.632	CC, ES
MILLER 43-17J - EXTRACTION WELL - GYRO	4,200.00	3,948.21	2,212.53	2,186.60	85.316	SF
MILLER 44-17J - CPR WELL - SURVEYS	2,021.22	1,919.11	163.88	156.24	21.450	CC, ES
MILLER 44-17J - CPR WELL - SURVEYS	2,100.00	1,991.34	167.37	159.42	21.057	SF
MILLER CJ 17-A - CPR WELL - SURVEYS	9,200.00	7,314.97	135.35	48.86	1.565	ES, SF
MILLER CJ 17-A - CPR WELL - SURVEYS	9,245.12	7,317.74	127.64	54.99	1.757	CC
PACE 1 - GO PUMPING & CONS WELL - NO SURVEYS	2,114.58	2,000.83	104.35	92.85	9.072	CC, ES
PACE 1 - GO PUMPING & CONS WELL - NO SURVEYS	2,200.00	2,075.62	111.09	98.84	9.071	SF
PACE 2 - TEXAS TEA WELL - NO SURVEYS	1,816.42	1,720.32	1,249.56	1,239.95	130.084	CC, ES
PACE 2 - TEXAS TEA WELL - NO SURVEYS	5,100.00	4,659.15	1,925.23	1,871.84	36.057	SF
PACE 3 - DENVER EAST MACHINERY WELL - NO SUR	422.37	413.00	419.85	417.94	219.001	CC, ES
PACE 3 - DENVER EAST MACHINERY WELL - NO SUR	5,200.00	4,763.66	2,222.18	2,189.44	67.873	SF
PERRIN GU 1 - KMG WELL - GYRO	3,124.45	2,980.56	1,686.09	1,661.28	67.957	CC
PERRIN GU 1 - KMG WELL - GYRO	3,300.00	3,140.64	1,687.76	1,659.68	60.102	ES
PERRIN GU 1 - KMG WELL - GYRO	6,100.00	5,609.68	2,175.84	2,109.64	32.864	SF
PERRIN GU 2-20 - KMG WELL - GYRO	7,321.36	6,689.76	1,387.52	1,294.13	14.857	CC, ES
PERRIN GU 2-20 - KMG WELL - GYRO	7,600.00	6,930.28	1,446.16	1,344.79	14.266	SF
PERRIN V 20-5D - KMG WELL - GYRO	7,515.16	6,852.50	2,021.94	1,960.23	32.762	CC, ES
PERRIN V 20-5D - KMG WELL - GYRO	8,000.00	7,164.47	2,175.51	2,094.77	26.942	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	4,400.00	4,511.72	182.30	133.70	3.751	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 4E-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 4E-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)						
RUCA 20-1HZ - KMG - PLAN ONLY	4,500.00	4,600.41	174.91	128.38	3.759	ES
RUCA 20-1HZ - KMG - PLAN ONLY	4,507.91	4,606.54	174.87	128.52	3.773	CC
RUCA 20-2HZ - KMG - PLAN ONLY	4,300.00	4,411.57	371.80	326.09	8.133	ES, SF
RUCA 20-2HZ - KMG - PLAN ONLY	4,305.81	4,416.64	371.79	326.10	8.137	CC
RUCA 20-3HZ - KMG - PLAN ONLY	4,154.52	4,307.51	478.52	434.29	10.820	CC, ES, SF
RUCA 20-4HZ - KMG - PLAN ONLY	3,862.41	4,007.79	595.88	554.53	14.412	CC, ES
RUCA 20-4HZ - KMG - PLAN ONLY	4,000.00	4,124.89	600.25	558.11	14.245	SF
RUCA 20-5HZ - KMG - PLAN ONLY	3,602.00	3,764.24	715.77	677.64	18.772	CC, ES
RUCA 20-5HZ - KMG - PLAN ONLY	3,900.00	4,013.21	734.27	693.71	18.104	SF
RUCA 20-6HZ - KMG - PLAN ONLY	3,495.21	3,665.08	872.92	836.41	23.908	CC
RUCA 20-6HZ - KMG - PLAN ONLY	3,500.00	3,669.03	872.93	836.35	23.868	ES
RUCA 20-6HZ - KMG - PLAN ONLY	3,900.00	4,000.88	902.37	861.91	22.303	SF
RUCA 20-7HZ - KMG - PLAN ONLY	2,957.74	3,129.85	1,029.85	1,001.49	36.306	CC
RUCA 20-7HZ - KMG - PLAN ONLY	3,000.00	3,163.45	1,030.17	1,001.09	35.422	ES
RUCA 20-7HZ - KMG - PLAN ONLY	3,700.00	3,719.91	1,124.00	1,086.28	29.795	SF
RUCA 20-8HZ - KMG - PLAN ONLY	2,663.65	2,853.20	1,140.83	1,117.33	48.533	CC
RUCA 20-8HZ - KMG - PLAN ONLY	2,700.00	2,880.70	1,141.08	1,116.91	47.213	ES
RUCA 20-8HZ - KMG - PLAN ONLY	3,600.00	3,561.68	1,294.72	1,258.43	35.677	SF
RUCA 20-9HZ - KMG - PLAN ONLY	2,467.67	2,649.68	1,237.45	1,217.40	61.716	CC
RUCA 20-9HZ - KMG - PLAN ONLY	2,500.00	2,673.46	1,237.65	1,217.01	59.977	ES
RUCA 20-9HZ - KMG - PLAN ONLY	3,600.00	3,482.68	1,455.87	1,419.77	40.325	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
SPRAGUE 3D-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 4E-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 4E-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 3E-9H-N267 - CPR WELL - SURVEYS						Out of range
SPRAGUE 3E-9H-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	400.00	436.71	1,524.67	1,522.71	775.809	CC, ES
STANLEY #2 - GERRITY WELL - NO SURVEYS	2,700.00	2,572.13	2,207.82	2,192.16	140.940	SF
STANLEY 3 - GERRITY WELL - NO SURVEYS						Out of range
TEETS PERRIN 1 - KPK WELL - NO SURVEYS	7,450.23	6,801.21	2,034.93	1,951.07	24.266	CC
TEETS PERRIN 1 - KPK WELL - NO SURVEYS	7,500.00	6,842.25	2,036.59	1,950.94	23.778	ES
TEETS PERRIN 1 - KPK WELL - NO SURVEYS	7,900.00	7,139.19	2,170.37	2,070.29	21.686	SF
TEETS-PERRIN 2 - KPK WELL - NO SURVEYS	5,912.07	5,100.00	796.19	737.86	13.648	CC, ES, SF
TEETS-PERRIN 3 - KPK WELL - NO SURVEYS	6,401.63	5,060.00	1,765.14	1,727.11	46.415	CC, ES, SF
TEETS-PERRIN 4 - KPK WELL - NO SURVEYS	6,092.82	5,050.00	2,023.41	1,945.85	26.090	CC
TEETS-PERRIN 4 - KPK WELL - NO SURVEYS	6,100.00	5,050.00	2,023.42	1,945.77	26.058	ES
TEETS-PERRIN 4 - KPK WELL - NO SURVEYS	6,400.00	5,050.00	2,046.59	1,965.87	25.354	SF
TEETS-PERRIN 5 - KPK WELL - NO SURVEYS	5,482.24	4,711.00	853.54	797.88	15.333	CC, ES
TEETS-PERRIN 5 - KPK WELL - NO SURVEYS	5,500.00	4,711.00	853.73	797.96	15.310	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	13,528.64	14,819.00	1,254.03	963.82	4.321	CC, ES, SF
VOGL MCCOY 2B-5H-E267 - CPR WELL - SURVEYS	13,528.64	14,846.00	956.44	677.47	3.428	CC, ES, SF
VOGL MCCOY 2C-5H-E267 - CPR WELL - SURVEYS	13,528.64	14,648.00	605.89	330.61	2.201	CC, ES, SF
VOGL MCCOY 2D-5H-E267 - CPR WELL - SURVEYS	13,528.64	15,056.00	366.41	187.34	2.046	CC, ES, SF
VOGL MCCOY 2E-5H-F267 - CPR WELL - SURVEYS	13,528.64	14,740.00	230.61	63.29	1.378	Level 3, CC, ES, SF
VOGL MCCOY 2F-5H-F267 - CPR WELL - SURVEYS	13,528.64	15,187.00	508.31	248.40	1.956	CC, ES, SF
VOGL MCCOY 2G-5H-F267 - CPR WELL - SURVEYS	13,528.64	14,805.00	778.64	482.28	2.627	CC, ES, SF
VOGL MCCOY 2H-5H-F267 - CPR WELL - SURVEYS	13,528.64	15,000.00	1,160.33	867.97	3.969	CC, ES, SF

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

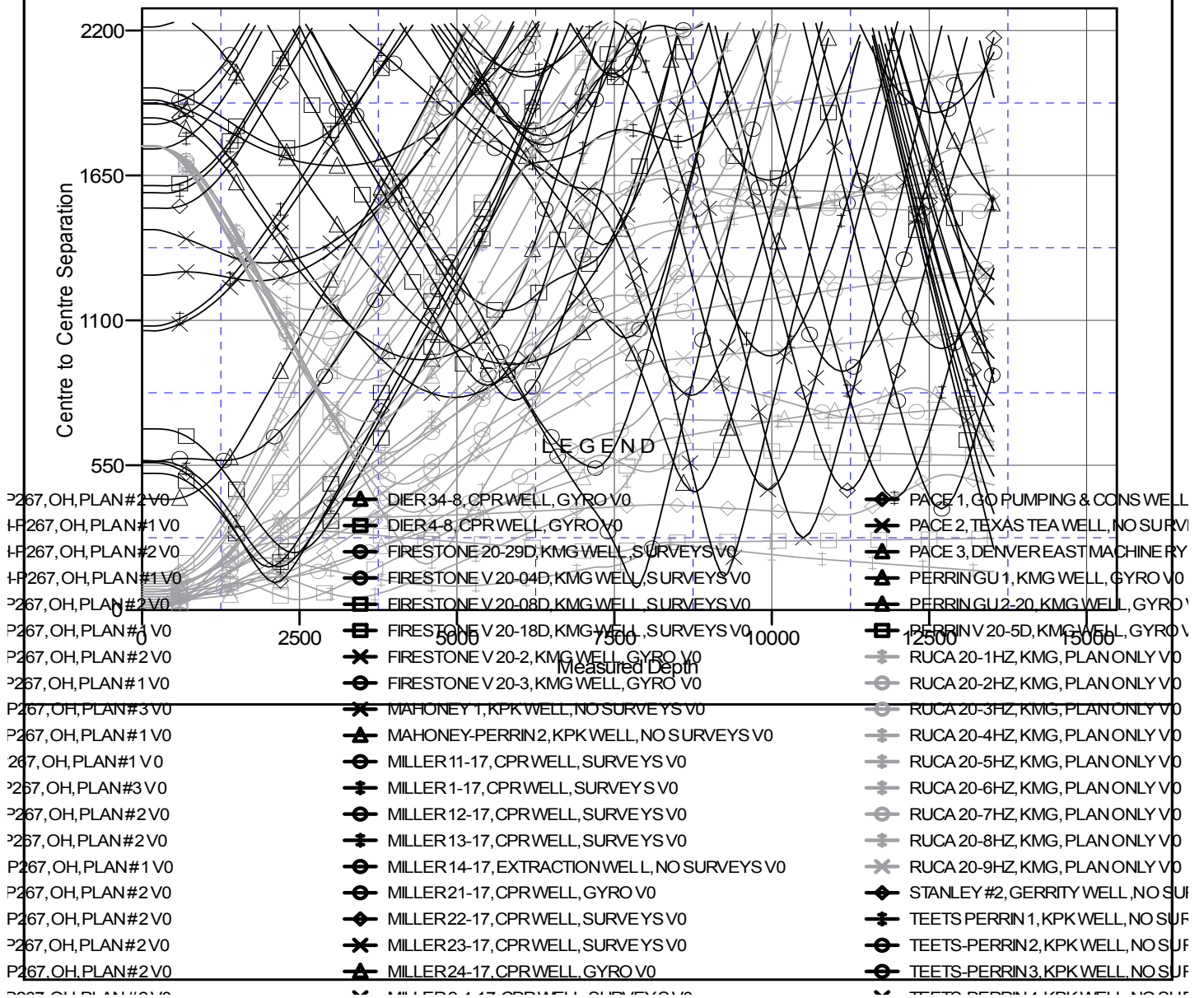
Cathedral Energy Services
Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4E-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 4E-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 4E-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

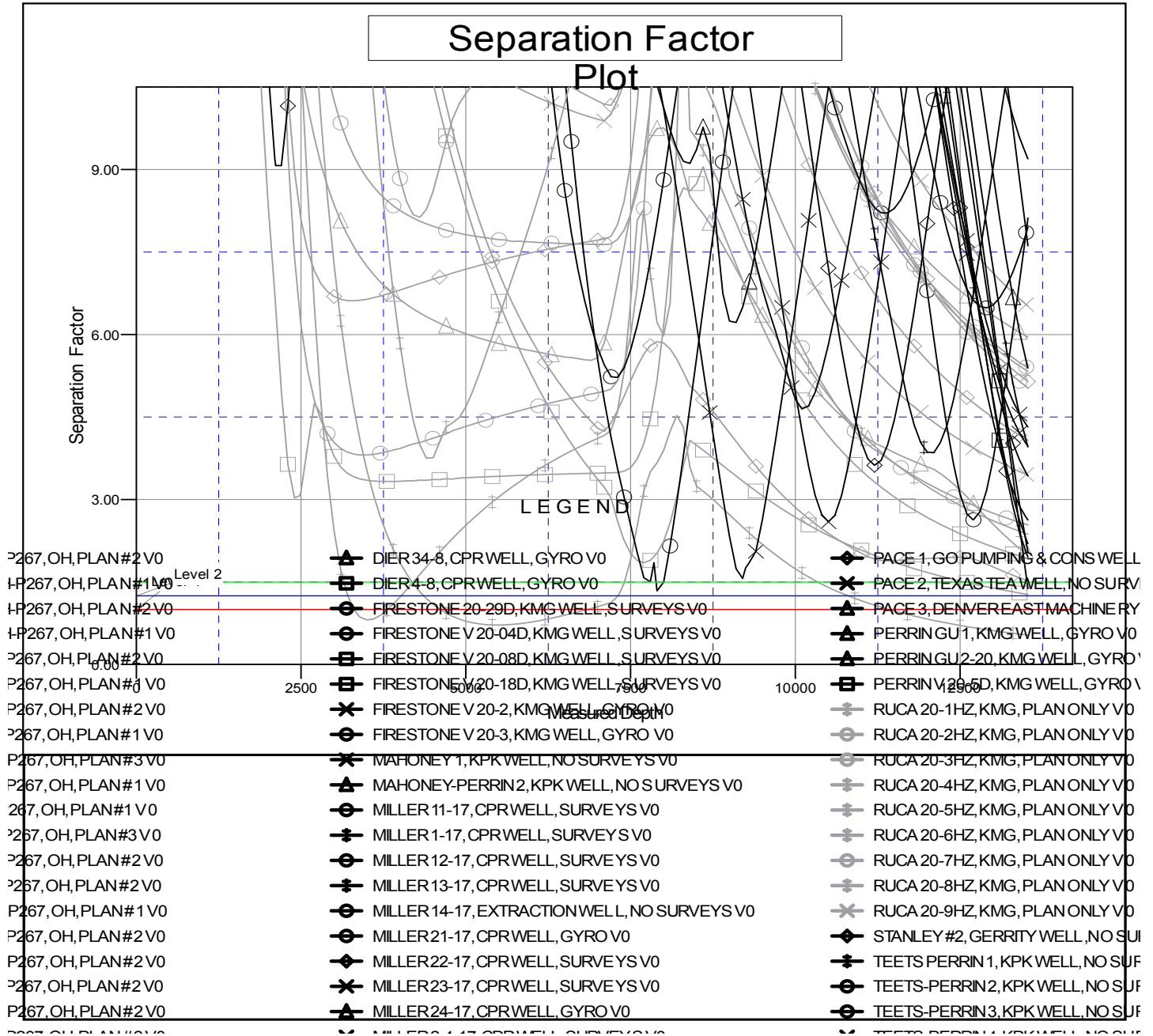
Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well BIGHORN 4E-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 4E-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 4E-17H-P267
Coordinate System is US State Plane 1983, Colorado Northern Zone
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