

Crestone Peak Resources

DJ BASIN

S25-T1N-R66W (LOCHBUIE LAND)

LOCHBUIE LAND 2F-25H-D166

OH

PLAN #1

Anticollision Summary Report

25 May, 2018

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well LOCHBUIE LAND 2F-25H-D166 - Slot LOCHBUIE LAND 2F-25H-D166 SHL
Project:	DJ BASIN	TVD Reference:	KB @ 5100.00usft
Reference Site:	S25-T1N-R66W (LOCHBUIE LAND)	MD Reference:	KB @ 5100.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	LOCHBUIE LAND 2F-25H-D166	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 1,933.21 usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	5/25/2018		
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	12,086.84	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
S25-T1N-R66W (LOCHBUIE LAND)						
AZUL 13-11HZ - KMG WELL - PLAN ONLY	8,906.50	12,171.49	1,588.98	1,510.54	20.258	CC, ES
AZUL 13-11HZ - KMG WELL - PLAN ONLY	10,000.00	12,171.49	1,928.88	1,805.69	15.657	SF
AZUL 13-12HZ - KMG WELL - PLAN ONLY	9,191.50	12,521.28	1,586.38	1,497.63	17.875	CC
AZUL 13-12HZ - KMG WELL - PLAN ONLY	9,200.00	12,521.28	1,586.40	1,497.55	17.854	ES
AZUL 13-12HZ - KMG WELL - PLAN ONLY	10,200.00	12,521.28	1,879.81	1,754.00	14.942	SF
AZUL 13-19HZ - KMG WELL - PLAN ONLY	10,542.67	12,512.25	1,611.77	1,478.73	12.115	CC, ES
AZUL 13-19HZ - KMG WELL - PLAN ONLY	11,200.00	12,512.25	1,740.66	1,593.15	11.800	SF
AZUL 13-1HZ - KMG WELL - PLAN ONLY	7,392.35	12,639.08	1,559.74	1,505.54	28.775	CC
AZUL 13-1HZ - KMG WELL - PLAN ONLY	7,400.00	12,639.08	1,559.76	1,505.41	28.699	ES
AZUL 13-1HZ - KMG WELL - PLAN ONLY	8,400.00	12,639.08	1,875.71	1,777.95	19.187	SF
AZUL 13-20HZ - KMG WELL - PLAN ONLY	10,235.19	12,681.44	1,593.97	1,471.42	13.007	CC, ES
AZUL 13-20HZ - KMG WELL - PLAN ONLY	11,000.00	12,681.44	1,767.96	1,622.49	12.153	SF
AZUL 13-21HZ - KMG WELL - PLAN ONLY	10,002.14	12,502.03	1,595.65	1,482.74	14.131	CC, ES
AZUL 13-21HZ - KMG WELL - PLAN ONLY	10,800.00	12,502.03	1,784.01	1,643.57	12.703	SF
AZUL 13-22HZ - KMG WELL - PLAN ONLY	9,772.40	12,413.56	1,597.34	1,492.94	15.300	CC
AZUL 13-22HZ - KMG WELL - PLAN ONLY	9,800.00	12,413.56	1,597.58	1,492.55	15.211	ES
AZUL 13-22HZ - KMG WELL - PLAN ONLY	10,600.00	12,413.56	1,799.00	1,662.63	13.191	SF
AZUL 13-23HZ - KMG WELL - PLAN ONLY	9,523.32	12,625.16	1,580.90	1,483.24	16.187	CC
AZUL 13-23HZ - KMG WELL - PLAN ONLY	9,600.00	12,625.16	1,582.76	1,482.66	15.812	ES
AZUL 13-23HZ - KMG WELL - PLAN ONLY	10,400.00	12,625.16	1,807.71	1,672.80	13.399	SF
AZUL 13-24HZ - KMG WELL - SURVEYS	12,086.84	13,242.00	1,608.01	1,385.91	7.240	CC, ES, SF
AZUL 13-25HZ - KMG WELL - SURVEYS	12,086.84	13,364.00	1,561.23	1,350.90	7.423	CC, ES, SF
AZUL 13-26HZ - KMG WELL - SURVEYS	12,086.84	12,966.00	1,574.24	1,383.30	8.245	CC, ES, SF
AZUL 13-27HZ - KMG WELL - SURVEYS	11,500.00	12,904.00	1,638.82	1,463.63	9.355	SF
AZUL 13-27HZ - KMG WELL - SURVEYS	11,571.72	12,904.00	1,638.37	1,463.29	9.358	CC, ES
AZUL 13-28HZ - KMG WELL - SURVEYS	11,194.56	12,857.00	1,614.82	1,452.61	9.955	CC
AZUL 13-28HZ - KMG WELL - SURVEYS	11,200.00	12,857.00	1,614.83	1,452.60	9.954	ES, SF
AZUL 13-29HZ - KMG WELL - SURVEYS	10,878.67	12,714.00	1,611.97	1,465.19	10.982	CC, ES
AZUL 13-29HZ - KMG WELL - SURVEYS	11,100.00	12,714.00	1,627.10	1,478.60	10.957	SF
AZUL 13-2HZ - KMG WELL - PLAN ONLY	7,650.48	12,395.56	1,560.52	1,505.97	28.607	CC
AZUL 13-2HZ - KMG WELL - PLAN ONLY	7,700.00	12,395.56	1,561.38	1,505.42	27.901	ES
AZUL 13-2HZ - KMG WELL - PLAN ONLY	8,700.00	12,395.56	1,907.82	1,803.99	18.374	SF
AZUL 13-3HZ - KMG WELL - PLAN ONLY	7,851.44	12,283.07	1,570.94	1,519.18	30.354	CC
AZUL 13-3HZ - KMG WELL - PLAN ONLY	7,900.00	12,283.07	1,571.55	1,518.40	29.571	ES
AZUL 13-3HZ - KMG WELL - PLAN ONLY	9,000.00	12,283.07	1,930.79	1,823.00	17.912	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 LOCHBUIE LAND 2F-25H-D166 - Slot LOCHBUIE LAND 2F-25H-D166 SHL
Project:	DJ BASIN	TVD Reference:	KB @ 5100.00usft
Reference Site:	S25-T1N-R66W (LOCHBUIE LAND)	MD Reference:	KB @ 5100.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	LOCHBUIE LAND 2F-25H-D166	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		Separation Factor	Warning
Offset Well - Wellbore - Design			Between Centres (usft)	Between Ellipses (usft)		
S25-T1N-R66W (LOCHBUIE LAND)						
AZUL 13-4HZ - KMG WELL - PLAN ONLY	8,226.65	12,546.66	1,571.69	1,512.08	26.369	CC
AZUL 13-4HZ - KMG WELL - PLAN ONLY	8,300.00	12,546.66	1,573.40	1,511.40	25.380	ES
AZUL 13-4HZ - KMG WELL - PLAN ONLY	9,300.00	12,546.66	1,903.23	1,791.65	17.058	SF
AZUL 13-9HZ - KMG WELL - PLAN ONLY	8,563.42	12,663.20	1,569.90	1,500.36	22.574	CC
AZUL 13-9HZ - KMG WELL - PLAN ONLY	8,600.00	12,663.20	1,570.33	1,499.80	22.266	ES
AZUL 13-9HZ - KMG WELL - PLAN ONLY	9,600.00	12,663.20	1,881.24	1,764.56	16.122	SF
BEIERLE 2 - KMG WELL - SURVEYS	1,875.57	1,832.00	1,483.22	1,477.31	250.716	CC
BEIERLE 2 - KMG WELL - SURVEYS	1,900.00	1,849.20	1,483.28	1,477.28	247.211	ES
BEIERLE 2 - KMG WELL - SURVEYS	4,100.00	3,569.43	1,919.45	1,904.53	128.665	SF
CRONIN 2 - RITTER OIL - NO SURVEYS	700.00	689.00	1,638.05	1,634.63	478.111	CC, ES
CRONIN 2 - RITTER OIL - NO SURVEYS	1,700.00	795.00	1,889.06	1,883.59	345.442	SF
JOHNSON 1N-65W-30-1S - VERDAD RESOURCES LL						Out of range
JOHNSON 1N-65W-30-2S - VERDAD RESOURCES LL						Out of range
LOCHBUIE LAND 2A-25H-D166 - OH - PLAN #1	200.00	201.00	50.00	49.51	101.049	CC, ES
LOCHBUIE LAND 2A-25H-D166 - OH - PLAN #1	12,086.84	11,960.34	1,046.03	748.71	3.518	SF
LOCHBUIE LAND 2B-25H-D166 - OH - PLAN #1	300.00	301.00	40.00	39.15	47.015	CC, ES
LOCHBUIE LAND 2B-25H-D166 - OH - PLAN #1	12,086.84	12,110.00	829.82	528.90	2.758	SF
LOCHBUIE LAND 2C-25H-D166 - OH - PLAN #1	0.00	0.99	30.00			
LOCHBUIE LAND 2C-25H-D166 - OH - PLAN #1	12,086.84	11,860.41	767.31	480.56	2.676	SF
LOCHBUIE LAND 2D-25H-D166 - OH - PLAN #1	500.00	500.00	20.00	18.44	12.813	CC, ES
LOCHBUIE LAND 2D-25H-D166 - OH - PLAN #1	12,086.84	11,907.94	373.78	104.20	1.387	Level 3, SF
LOCHBUIE LAND 2E-25H-D166 - OH - PLAN #1	712.12	712.16	9.72	7.41	4.208	CC, ES
LOCHBUIE LAND 2E-25H-D166 - OH - PLAN #1	6,700.00	6,700.14	59.53	24.94	1.721	SF
LOCHBUIE LAND 2G-25H-D166 - OH - PLAN #1	200.00	200.00	10.00	9.51	20.283	CC, ES
LOCHBUIE LAND 2G-25H-D166 - OH - PLAN #1	12,086.84	11,752.53	436.83	236.20	2.177	SF
LOCHBUIE LAND 2H-25H-D166 - OH - PLAN #1	200.00	200.00	20.00	19.51	40.565	CC, ES
LOCHBUIE LAND 2H-25H-D166 - OH - PLAN #1	11,800.00	11,637.77	325.99	82.14	1.337	Level 3, SF
LOCHBUIE LAND 2I-25H-D166 - OH - PLAN #1	200.00	199.00	30.00	29.51	61.069	CC, ES
LOCHBUIE LAND 2I-25H-D166 - OH - PLAN #1	11,900.00	11,689.61	604.80	337.34	2.261	SF
LOCHBUIE LAND 2J-25H-D166 - OH - PLAN #1	200.00	199.00	40.00	39.51	81.425	CC, ES
LOCHBUIE LAND 2J-25H-D166 - OH - PLAN #1	11,900.00	11,958.99	792.59	502.97	2.737	SF
LOCHBUIE LAND 2K-25H-D166 - OH - PLAN #1	200.00	199.00	50.00	49.51	101.781	CC, ES
LOCHBUIE LAND 2K-25H-D166 - OH - PLAN #1	12,000.00	11,901.47	983.71	692.10	3.373	SF
LOCHBUIE LAND 2L-25H-D166 - OH - PLAN #1	200.00	199.00	60.00	59.51	122.137	CC, ES
LOCHBUIE LAND 2L-25H-D166 - OH - PLAN #1	12,086.84	11,963.28	1,274.64	978.44	4.303	SF
SAM 13-25 - CPR WELL - SURVEYS						Out of range
TEMPLIN 1 - VESSELS THOMAS G - SURVEYS	11,498.28	7,505.73	196.10	48.15	1.325	Level 3, CC
TEMPLIN 1 - VESSELS THOMAS G - SURVEYS	11,500.00	7,505.72	196.15	48.15	1.325	Level 3, ES, SF

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Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well LOCHBUIE LAND 2F-25H-D166 - Slot LOCHBUIE LAND 2F-25H-D166 SHL
Project:	DJ BASIN	TVD Reference:	KB @ 5100.00usft
Reference Site:	S25-T1N-R66W (LOCHBUIE LAND)	MD Reference:	KB @ 5100.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	LOCHBUIE LAND 2F-25H-D166	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		Separation Factor	Warning
Offset Well - Wellbore - Design			Between Centres (usft)	Between Ellipses (usft)		
S25-T1N-R66W (SAM)						
SAM 3A-25H-M166 - OH - PLAN #2	11,541.20	11,461.14	1,595.12	1,330.04	6.018	CC
SAM 3A-25H-M166 - OH - PLAN #2	11,700.00	11,619.81	1,600.65	1,325.57	5.819	ES
SAM 3A-25H-M166 - OH - PLAN #2	12,086.84	12,001.52	1,660.17	1,361.18	5.553	SF
SAM 3A-25H-M166 - OH - SURVEYS						Out of range
SAM 3B-25H-M166 - OH - PLAN #2	11,541.20	11,617.51	1,720.26	1,453.31	6.444	CC
SAM 3B-25H-M166 - OH - PLAN #2	11,700.00	11,776.19	1,725.82	1,448.83	6.230	ES
SAM 3B-25H-M166 - OH - PLAN #2	12,086.84	12,147.94	1,785.69	1,485.12	5.941	SF
SAM 3B-25H-M166 - OH - SURVEYS						Out of range
SAM 3C-25H-M166 - OH - PLAN #2	11,541.39	11,364.88	1,845.75	1,581.32	6.980	CC
SAM 3C-25H-M166 - OH - PLAN #2	11,700.00	11,523.36	1,851.25	1,576.85	6.747	ES
SAM 3C-25H-M166 - OH - PLAN #2	12,086.84	11,894.54	1,910.60	1,612.67	6.413	SF
SAM 3C-25H-M166 - OH - SURVEYS						Out of range
SAM 3D-25H-M166 - OH - PLAN #2						Out of range
SAM 3E-25H-M166 - OH - PLAN #2						Out of range
SAM 3F-25H-M166 - OH - PLAN #2						Out of range
SAM 3F-25H-M166 - OH - SURVEYS						Out of range
SAM 3G-25H-M166 - OH - PLAN #1						Out of range
SAM 3H-25H-M166 - OH - PLAN #2						Out of range
SAM 3I-25H-M166 - OH - PLAN #3						Out of range
SAM 3J-25H-M166 - OH - PLAN #2						Out of range
SAM 3K-25H-M166 - OH - PLAN #2						Out of range
SAM 3L-25H-M166 - OH - PLAN #2						Out of range

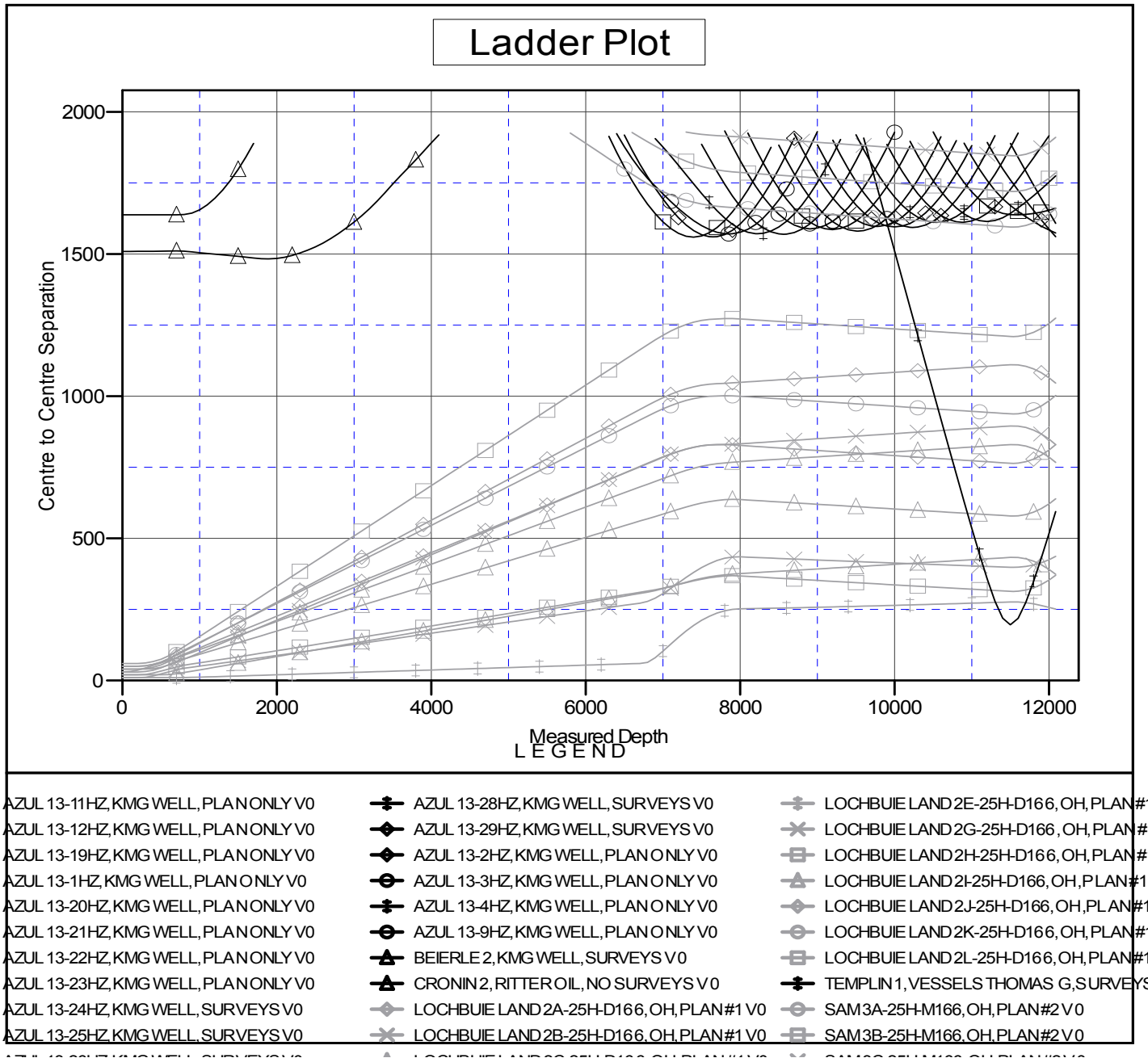
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Reference Site:	S25-T1N-R66W (LOCHBUIE LAND)	MD Reference:	KB @ 5100.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	LOCHBUIE LAND 2F-25H-D166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	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 KB @ 5100.00usft
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: LOCHBUIE LAND 2F-25H-D166 - Slot LOCHBUIE LA
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.50°



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

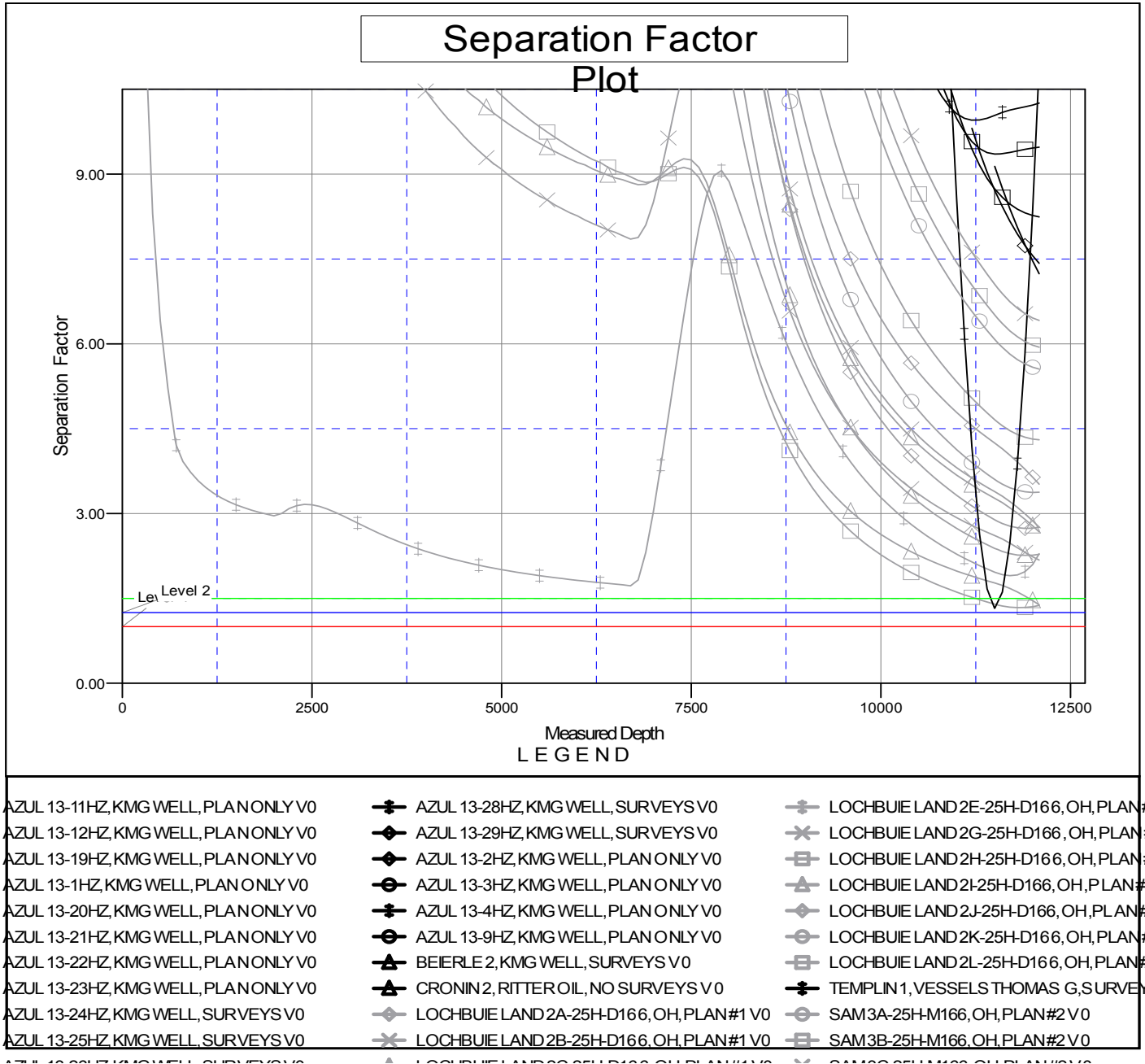
Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well LOCHBUIE LAND 2F-25H-D166 - Slot LOCHBUIE LAND 2F-25H-D166 SHL
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Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 5100.00usft
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: LOCHBUIE LAND 2F-25H-D166 - Slot LOCHBUIE LA
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.50°



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