

Crestone Peak Resources

DJ BASIN

S25-T1N-R66W (LOCHBUIE LAND)

LOCHBUIE LAND 2C-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 2C-25H-D166 - Slot LOCHBUIE LAND 2C-25H-D166 SHL
Project:	DJ BASIN	TVD Reference:	KB @ 5101.00usft
Reference Site:	S25-T1N-R66W (LOCHBUIE LAND)	MD Reference:	KB @ 5101.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	LOCHBUIE LAND 2C-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	11,863.73	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	8,714.13	12,171.49	830.00	749.23	10.277	CC, ES
AZUL 13-11HZ - KMG WELL - PLAN ONLY	9,200.00	12,171.49	961.75	852.34	8.790	SF
AZUL 13-12HZ - KMG WELL - PLAN ONLY	8,999.15	12,521.28	834.34	744.17	9.254	CC
AZUL 13-12HZ - KMG WELL - PLAN ONLY	9,000.00	12,521.28	834.34	744.17	9.253	ES
AZUL 13-12HZ - KMG WELL - PLAN ONLY	9,500.00	12,521.28	973.12	857.68	8.430	SF
AZUL 13-19HZ - KMG WELL - PLAN ONLY	10,300.00	12,512.25	825.31	690.63	6.128	SF
AZUL 13-19HZ - KMG WELL - PLAN ONLY	10,350.45	12,512.25	823.76	689.56	6.138	CC, ES
AZUL 13-1HZ - KMG WELL - PLAN ONLY	7,321.87	12,639.08	884.25	820.99	13.978	CC, ES
AZUL 13-1HZ - KMG WELL - PLAN ONLY	7,800.00	12,639.08	1,052.36	957.59	11.104	SF
AZUL 13-20HZ - KMG WELL - PLAN ONLY	10,042.93	12,681.44	858.40	737.12	7.078	CC, ES
AZUL 13-20HZ - KMG WELL - PLAN ONLY	10,300.00	12,681.44	896.07	766.63	6.923	SF
AZUL 13-21HZ - KMG WELL - PLAN ONLY	9,809.83	12,502.03	829.12	715.26	7.282	CC, ES
AZUL 13-21HZ - KMG WELL - PLAN ONLY	10,100.00	12,502.03	878.43	752.14	6.956	SF
AZUL 13-22HZ - KMG WELL - PLAN ONLY	9,580.05	12,413.56	823.58	717.83	7.788	CC
AZUL 13-22HZ - KMG WELL - PLAN ONLY	9,600.00	12,413.56	823.82	717.56	7.753	ES
AZUL 13-22HZ - KMG WELL - PLAN ONLY	9,900.00	12,413.56	883.55	760.80	7.198	SF
AZUL 13-23HZ - KMG WELL - PLAN ONLY	9,330.94	12,625.16	857.58	759.81	8.772	CC
AZUL 13-23HZ - KMG WELL - PLAN ONLY	9,400.00	12,625.16	860.35	759.73	8.550	ES
AZUL 13-23HZ - KMG WELL - PLAN ONLY	9,700.00	12,625.16	933.62	814.69	7.850	SF
AZUL 13-24HZ - KMG WELL - SURVEYS	11,863.73	13,242.00	900.72	677.31	4.032	CC, ES, SF
AZUL 13-25HZ - KMG WELL - SURVEYS	11,863.73	13,364.00	858.35	650.29	4.126	CC, ES, SF
AZUL 13-26HZ - KMG WELL - SURVEYS	11,600.00	12,966.00	823.85	628.78	4.223	SF
AZUL 13-26HZ - KMG WELL - SURVEYS	11,660.20	12,966.00	821.64	628.03	4.244	CC, ES
AZUL 13-27HZ - KMG WELL - SURVEYS	11,200.00	12,904.00	835.12	655.93	4.661	SF
AZUL 13-27HZ - KMG WELL - SURVEYS	11,300.00	12,904.00	825.83	648.63	4.661	ES
AZUL 13-27HZ - KMG WELL - SURVEYS	11,327.16	12,904.00	825.38	648.87	4.676	CC
AZUL 13-28HZ - KMG WELL - SURVEYS	11,000.00	12,857.00	857.89	698.50	5.382	ES, SF
AZUL 13-28HZ - KMG WELL - SURVEYS	11,002.51	12,857.00	857.89	698.52	5.383	CC
AZUL 13-29HZ - KMG WELL - SURVEYS	10,600.00	12,714.00	828.16	679.56	5.573	SF
AZUL 13-29HZ - KMG WELL - SURVEYS	10,686.47	12,714.00	823.63	676.21	5.587	CC, ES
AZUL 13-2HZ - KMG WELL - PLAN ONLY	7,510.63	12,395.56	889.94	829.05	14.614	CC, ES
AZUL 13-2HZ - KMG WELL - PLAN ONLY	8,000.00	12,395.56	1,054.46	960.53	11.227	SF
AZUL 13-3HZ - KMG WELL - PLAN ONLY	7,691.34	12,283.07	830.90	776.07	15.153	CC
AZUL 13-3HZ - KMG WELL - PLAN ONLY	7,700.00	12,283.07	830.95	775.70	15.041	ES
AZUL 13-3HZ - KMG WELL - PLAN ONLY	8,300.00	12,283.07	1,032.68	932.75	10.334	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 2C-25H-D166 - Slot LOCHBUIE LAND 2C-25H-D166 SHL
Project:	DJ BASIN	TVD Reference:	KB @ 5101.00usft
Reference Site:	S25-T1N-R66W (LOCHBUIE LAND)	MD Reference:	KB @ 5101.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	LOCHBUIE LAND 2C-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 Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
S25-T1N-R66W (LOCHBUIE LAND)						
AZUL 13-4HZ - KMG WELL - PLAN ONLY	8,034.18	12,546.66	834.73	773.36	13.601	CC
AZUL 13-4HZ - KMG WELL - PLAN ONLY	8,100.00	12,546.66	837.32	772.68	12.954	ES
AZUL 13-4HZ - KMG WELL - PLAN ONLY	8,600.00	12,546.66	1,008.43	906.41	9.885	SF
AZUL 13-9HZ - KMG WELL - PLAN ONLY	8,371.00	12,663.20	864.99	793.58	12.113	CC
AZUL 13-9HZ - KMG WELL - PLAN ONLY	8,400.00	12,663.20	865.47	793.08	11.956	ES
AZUL 13-9HZ - KMG WELL - PLAN ONLY	8,900.00	12,663.20	1,013.92	909.34	9.695	SF
BEIERLE 2 - KMG WELL - SURVEYS	0.00	4.94	1,536.79			
BEIERLE 2 - KMG WELL - SURVEYS	3,100.00	2,628.13	1,919.67	1,910.07	199.959	SF
CRONIN 2 - RITTER OIL - NO SURVEYS	917.93	795.00	1,557.43	1,553.22	370.605	CC, ES
CRONIN 2 - RITTER OIL - NO SURVEYS	1,700.00	795.00	1,742.76	1,737.23	315.334	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	346.20	345.39	9.92	8.91	9.852	CC, ES
LOCHBUIE LAND 2A-25H-D166 - OH - PLAN #1	11,863.73	11,963.66	311.77	18.28	1.062	Level 2, SF
LOCHBUIE LAND 2B-25H-D166 - OH - PLAN #1	225.97	225.74	4.63	4.05	7.971	CC, ES
LOCHBUIE LAND 2B-25H-D166 - OH - PLAN #1	11,863.73	12,113.32	262.62	127.50	1.944	SF
LOCHBUIE LAND 2D-25H-D166 - OH - PLAN #1	0.00	1.00	10.00			
LOCHBUIE LAND 2D-25H-D166 - OH - PLAN #1	11,863.73	11,911.26	402.28	105.31	1.355	Level 3, SF
LOCHBUIE LAND 2E-25H-D166 - OH - PLAN #1	0.00	1.00	20.00			
LOCHBUIE LAND 2E-25H-D166 - OH - PLAN #1	11,863.73	11,847.40	660.07	359.87	2.199	SF
LOCHBUIE LAND 2F-25H-D166 - OH - PLAN #1	0.00	1.00	30.00			
LOCHBUIE LAND 2F-25H-D166 - OH - PLAN #1	11,863.73	12,086.84	767.32	480.47	2.675	SF
LOCHBUIE LAND 2G-25H-D166 - OH - PLAN #1	0.00	1.00	40.00			
LOCHBUIE LAND 2G-25H-D166 - OH - PLAN #1	11,863.73	11,755.85	1,010.14	710.35	3.369	SF
LOCHBUIE LAND 2H-25H-D166 - OH - PLAN #1	0.00	1.00	50.00			
LOCHBUIE LAND 2H-25H-D166 - OH - PLAN #1	11,863.73	11,918.36	1,058.06	757.66	3.522	SF
LOCHBUIE LAND 2I-25H-D166 - OH - PLAN #1	0.00	2.00	60.00			
LOCHBUIE LAND 2I-25H-D166 - OH - PLAN #1	11,863.73	11,875.98	1,319.77	1,018.57	4.382	SF
LOCHBUIE LAND 2J-25H-D166 - OH - PLAN #1	0.00	2.00	70.00			
LOCHBUIE LAND 2J-25H-D166 - OH - PLAN #1	11,863.73	12,138.40	1,576.65	1,278.88	5.295	SF
LOCHBUIE LAND 2K-25H-D166 - OH - PLAN #1	0.00	2.00	80.00			
LOCHBUIE LAND 2K-25H-D166 - OH - PLAN #1	11,863.73	11,989.48	1,717.24	1,416.35	5.707	SF
LOCHBUIE LAND 2L-25H-D166 - OH - PLAN #1	0.00	2.00	90.00			
LOCHBUIE LAND 2L-25H-D166 - OH - PLAN #1	7,100.00	6,828.21	1,928.39	1,891.17	51.812	SF
SAM 13-25 - CPR WELL - SURVEYS						Out of range
TEMPLIN 1 - VESSELS THOMAS G - SURVEYS	11,281.40	7,286.92	603.98	456.69	4.101	CC
TEMPLIN 1 - VESSELS THOMAS G - SURVEYS	11,300.00	7,286.85	604.26	456.51	4.090	ES, SF

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Reference Site:	S25-T1N-R66W (LOCHBUIE LAND)	MD Reference:	KB @ 5101.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	LOCHBUIE LAND 2C-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						
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S25-T1N-R66W (SAM)						
SAM 3A-25H-M166 - OH - PLAN #2						Out of range
SAM 3A-25H-M166 - OH - SURVEYS						Out of range
SAM 3B-25H-M166 - OH - PLAN #2						Out of range
SAM 3B-25H-M166 - OH - SURVEYS						Out of range
SAM 3C-25H-M166 - OH - PLAN #2						Out of range
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

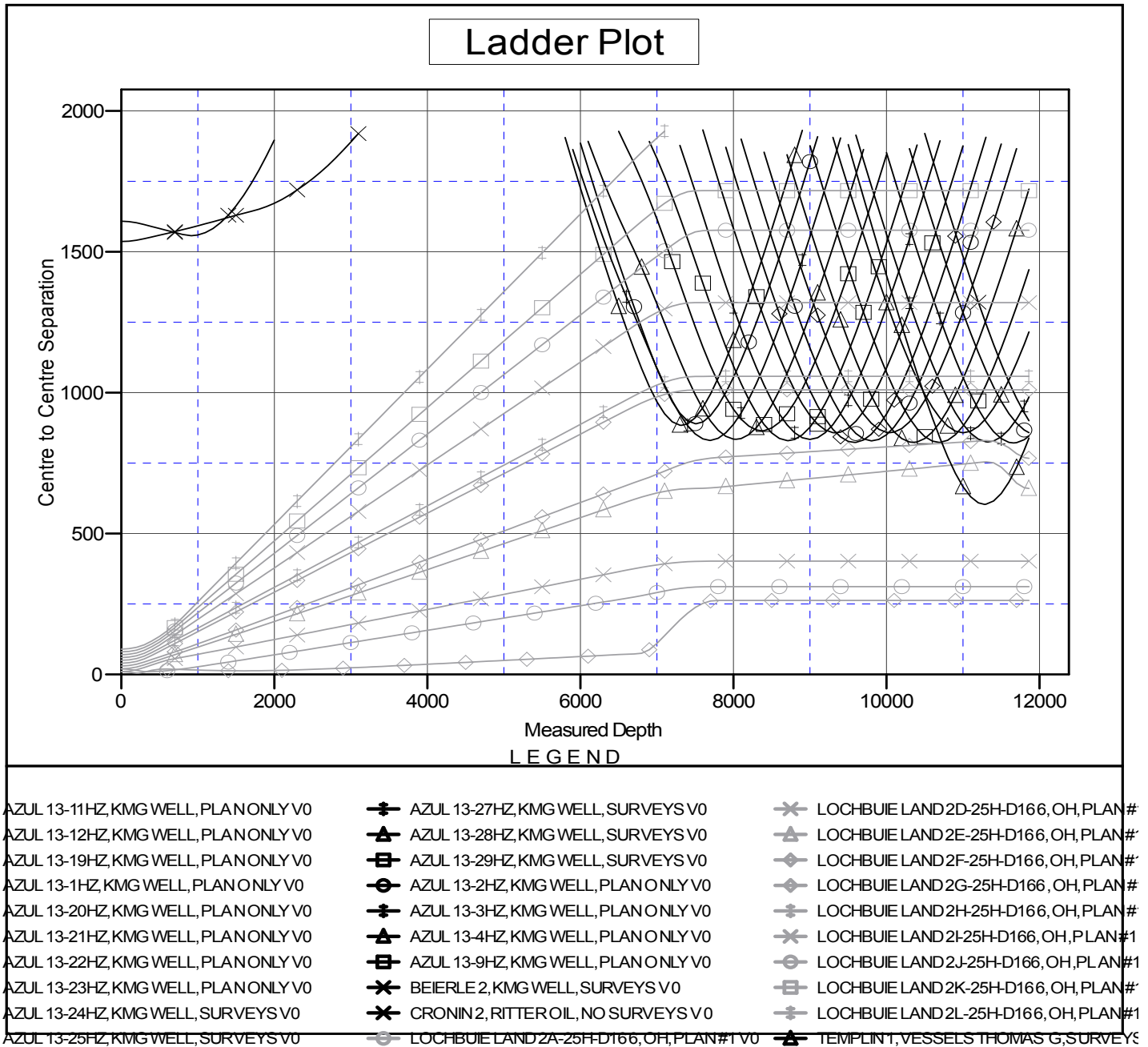
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Site Error:	0.00 usft	North Reference:	True
Reference Well:	LOCHBUIE LAND 2C-25H-D166	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	PLAN #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 5101.00usft
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: LOCHBUIE LAND 2C-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

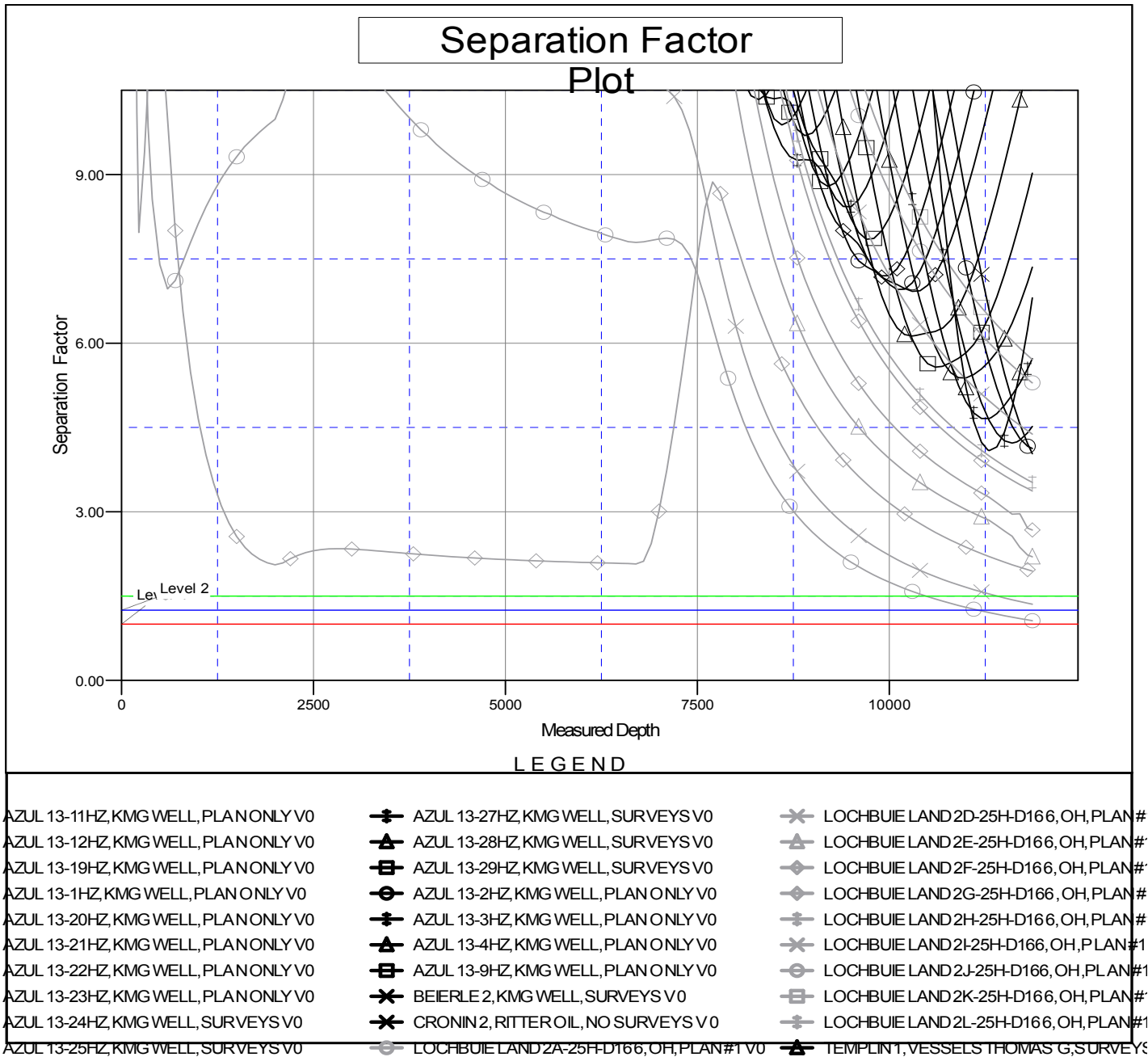
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Coordinates are relative to: LOCHBUIE LAND 2C-25H-D166 - Slot LOCHBUIE LA
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.50°



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