

Crestone Peak Resources

DJ BASIN

S18-T1N-R67W (HINGLEY)

HINGLEY 3D-18H-N167

OH

PLAN #2

Anticollision Summary Report

21 January, 2018

Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well HINGLEY 3D-18H-N167
Project:	DJ BASIN	TVD Reference:	23' KB @ 5133.00usft
Reference Site:	S18-T1N-R67W (HINGLEY)	MD Reference:	23' KB @ 5133.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HINGLEY 3D-18H-N167	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 1,403.64 usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	1/21/2018		
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	12,571.86	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						
S18-T1N-R67W (HINGLEY)						
22-24 - KAISER-FRANCIS OIL - NO SURVEYS						Out of range
B C HOPKINS 3 - FRITZLER WELL - NO SURVEYS						Out of range
B C HOPKINS 4 - FRITZLER WELL - NO SURVEYS						Out of range
BLANCHE C 4 - KPK WELL - NO SURVEYS						Out of range
BLANCHE C HOPKINS 1 - KPK WELL - NO SURVEYS						Out of range
BLANCHE C HOPKINS 2 - KPK WELL - NO SURVEYS						Out of range
DACONO 16-13 - KMG WELL - GYRO						Out of range
EMERY31-13(1-68) 1 - NOBLE WELL - NO SURVEYS						Out of range
FOREMAN 1 - KPK WELL - NO SURVEYS						Out of range
FOREMAN 2 - KPK WELL - NO SURVEYS						Out of range
FOREMAN 3 - KPK WELL - SURVEYS						Out of range
FOREMAN UNIT 4 - KPK WELL - SURVEYS						Out of range
GRAHAM ELIZABETH W 1 - KMG WELL - NO SURVEY						Out of range
GRIFFITHS 13C-20HZX - KMG STK - SURVEYS						Out of range
GRIFFITHS 13C-20HZX - KMG WELL - SURVEYS						Out of range
GRIFFITHS 14N-20HZ - KMG WELL - SURVEYS						Out of range
GRIFFITHS 34N-20HZ - KMG WELL - SURVEYS						Out of range
GRIFFITHS 35C-20HZ - KMG WELL - SURVEYS						Out of range
GRIFFITHS 35N-20HZ - KMG WELL - SURVEYS						Out of range
GRIFFITHS 36C-20HZ - KMG WELL - SURVEYS						Out of range
HALEY 41-13 #1 - KMG WELL - NO SURVEYS						Out of range
HART 7-42 - KMG WELL - NO SURVEYS						Out of range
HERBERS 31-20 - CPR WELL - GYRO						Out of range
HICKS 13-18 - KPK WELL - NO SURVEYS						Out of range
HICKS 14-18 - BAYSWATER WELL - NO SURVEYS	1,616.06	1,575.10	379.83	373.66	61.498	CC
HICKS 14-18 - BAYSWATER WELL - NO SURVEYS	1,700.00	1,658.02	380.06	373.54	58.351	ES
HICKS 14-18 - BAYSWATER WELL - NO SURVEYS	5,100.00	4,950.00	663.39	639.80	28.125	SF
HICKS 23-18 - STARLIGHT WELL - NO SURVEYS						Out of range
HICKS 24-18 - BAYSWATER WELL - NO SURVEYS	500.00	476.00	421.13	419.41	245.401	CC, ES
HICKS 24-18 - BAYSWATER WELL - NO SURVEYS	5,100.00	5,000.00	985.04	961.73	42.263	SF
HICKS 4-18 - CPR WELL - GYRO	100.00	72.75	616.12	615.99	4,797.000	CC
HICKS 4-18 - CPR WELL - GYRO	400.00	370.97	616.89	615.73	532.217	ES
HICKS 4-18 - CPR WELL - GYRO	9,000.00	7,666.98	820.30	777.96	19.375	SF
HINGLEY 1 - CPR WELL - GYRO						Out of range
HINGLEY 12-18 - PDC WELL - GYRO	10,950.91	7,640.91	192.62	124.61	2.832	CC, ES, SF
HINGLEY 1A-18H-A167 - OH - PLAN #2						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 HINGLEY 3D-18H-N167
Project:	DJ BASIN	TVD Reference:	23' KB @ 5133.00usft
Reference Site:	S18-T1N-R67W (HINGLEY)	MD Reference:	23' KB @ 5133.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HINGLEY 3D-18H-N167	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						
S18-T1N-R67W (HINGLEY)						
HINGLEY 1-B - VESSELS WELL - NO SURVEYS						Out of range
HINGLEY 1B-18H-A167 - OH - PLAN #2						Out of range
HINGLEY 1C-18H-A167 - OH - PLAN #2						Out of range
HINGLEY 1D-18H-A167 - OH - PLAN #2						Out of range
HINGLEY 1E-18H-A167 - OH - PLAN #2						Out of range
HINGLEY 1F-18H-A167 - OH - PLAN #2						Out of range
HINGLEY 1G-18H-A167 - OH - PLAN #2						Out of range
HINGLEY 1H-18H-A167 - OH - PLAN #2						Out of range
HINGLEY 1I-18H-A167 - OH - PLAN #2						Out of range
HINGLEY 1J-18H-A167 - OH - PLAN #2						Out of range
HINGLEY 1K-18H-A167 - OH - PLAN #2						Out of range
HINGLEY 2J - PDC WELL - GYRO	11,783.03	7,617.85	555.44	475.17	6.920	CC, ES
HINGLEY 2J - PDC WELL - GYRO	11,800.00	7,617.92	555.70	475.32	6.914	SF
HINGLEY 2S - TEXAS TEA WELL - NO SURVEYS						Out of range
HINGLEY 3A-18H-N167 - OH - PLAN #1	200.00	199.00	30.15	29.67	62.590	CC, ES
HINGLEY 3A-18H-N167 - OH - PLAN #1	12,572.48	12,641.52	630.12	472.69	4.003	SF
HINGLEY 3B-18H-N167 - OH - PLAN #2	300.00	299.00	20.15	19.32	24.254	CC, ES
HINGLEY 3B-18H-N167 - OH - PLAN #2	12,572.48	12,745.38	387.35	239.67	2.623	SF
HINGLEY 3C-18H-N167 - OH - PLAN #2	400.00	400.00	10.36	9.18	8.767	CC, ES
HINGLEY 3C-18H-N167 - OH - PLAN #2	12,572.48	12,432.91	343.16	189.12	2.228	SF
HINGLEY 3E-18H-N167 - OH - PLAN #1	346.46	346.52	9.11	7.61	6.070	CC, ES
HINGLEY 3E-18H-N167 - OH - PLAN #1	12,572.48	12,456.51	342.89	188.96	2.228	SF
HINGLEY 3F-18H-N167 - OH - PLAN #1	480.47	480.59	19.02	17.55	12.974	CC
HINGLEY 3F-18H-N167 - OH - PLAN #1	500.00	500.07	19.06	17.53	12.418	ES
HINGLEY 3F-18H-N167 - OH - PLAN #1	12,568.96	12,715.12	382.30	230.02	2.511	SF
HINGLEY 3G-18H-N167 - OH - PLAN #2	500.99	501.02	29.61	28.08	19.300	CC, ES
HINGLEY 3G-18H-N167 - OH - PLAN #2	12,572.48	12,541.56	659.83	501.57	4.169	SF
HINGLEY 3H-18H-N167 - OH - PLAN #2	200.00	200.00	39.85	39.37	82.431	CC, ES
HINGLEY 3H-18H-N167 - OH - PLAN #2	12,566.55	12,454.29	994.28	836.59	6.305	SF
HINGLEY 3I-18H-N167 - OH - PLAN #1	400.00	400.00	49.85	48.67	42.189	CC, ES
HINGLEY 3I-18H-N167 - OH - PLAN #1	12,572.48	12,737.42	1,242.74	1,085.29	7.893	SF
HINGLEY 3J-18H-N167 - OH - PLAN #1	300.00	300.00	59.85	59.02	71.890	CC, ES
HINGLEY 3J-18H-N167 - OH - PLAN #1	7,100.00	6,976.99	1,278.14	1,236.97	31.044	SF
HINGLEY 3K-18H-N167 - OH - PLAN #2	103.53	103.53	69.99	69.85	477.075	CC
HINGLEY 3K-18H-N167 - OH - PLAN #2	200.00	199.25	70.26	69.78	145.270	ES
HINGLEY 3K-18H-N167 - OH - PLAN #2	7,000.00	6,860.54	1,360.63	1,319.67	33.213	SF
HINGLEY 3S - TEXAS TEA WELL - NO SURVEYS						Out of range
HINGLEY 4 - DENVER EAST WELL - NO SURVEYS						Out of range
HINGLEY 5 - DENVER EAST WELL - NO SURVEYS						Out of range
HINGLEY FARMS 32-18 - CPR WELL - GYRO						Out of range
HOPKINS 3 - KPK WELL - NO SURVEYS						Out of range
HOPKINS 32-19 1 - FRITZLER RESOURCES - NO SUR						Out of range
HOPKINS 41C-19#2 - FRITZLER RESOURCES - NO SU						Out of range
HSR RMF 12-8 - KMG WELL - NO SURVEYS						Out of range
JELTS 15C-19HZ - KMG WELL - SURVEYS						Out of range
JELTS 16N-19HZ - KMG WELL - SURVEYS						Out of range
JELTS 36N-19HZ - KMG WELL - SURVEYS						Out of range
JELTS 37C-19HZ - KMG WELL - SURVEYS						Out of range
JELTS 37N-19HZ - KMG WELL - SURVEYS						Out of range
JELTS 39C-19HZ - KMG WELL - SURVEYS						Out of range
JOHNSON 21-24 - MGF OIL CORP WELL - NO SURVE						Out of range
LAURIDSON 18-16 - KMG WELL - GYRO						Out of range
LAURIDSON 2-A - KPK 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 HINGLEY 3D-18H-N167
Project:	DJ BASIN	TVD Reference:	23' KB @ 5133.00usft
Reference Site:	S18-T1N-R67W (HINGLEY)	MD Reference:	23' KB @ 5133.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HINGLEY 3D-18H-N167	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
S18-T1N-R67W (HINGLEY)						
LAURIDSON 31-24 - KPK WELL - NO SURVEYS						Out of range
LAURIDSON 32-24 - SRC ENERGY WELL - NO SURVE						Out of range
LAURIDSON 41-24 - STARLIGHT RES WELL - NO SUR						Out of range
LAURIDSON 42-24 - KPK WELL - NO SURVEYS						Out of range
LAURIDSON VV 18-10 - KMG WELL - GYRO						Out of range
LAURIDSON VV18-4J - KMG WELL - GYRO						Out of range
LAURIDSON-A 1 - KPK WELL - NO SURVEYS						Out of range
LINKUS 32-24 - PDC WELL - NO SURVEYS						Out of range
LINKUS 41-24 - PDC WELL - GYRO						Out of range
M B SCHWAB 2 - KMG WELL - NO SURVEYS						Out of range
MARGUERITE TOTEMS U 2 - KMG WELL - GYRO						Out of range
MARK 1-A - CHAPARRAL RES - NO SURVEYS						Out of range
NRC 11-8 - KMG WELL - SURVEYS						Out of range
NRC 12-8 - KMG WELL - SURVEYS						Out of range
NRC 13-8 - KMG WELL - SURVEYS						Out of range
NRC 14-8 - KMG WELL - SURVEYS						Out of range
NRC 15-8 - KMG WELL - SURVEYS						Out of range
NRC 22-8 - KMG WELL - SURVEYS						Out of range
NRC 23-8 - KMG WELL - SURVEYS						Out of range
NRC 28N-8HZ - KMG WELL - SURVEYS						Out of range
NRC 29N-8HZ - KMG WELL - SURVEYS						Out of range
NRC 30C-8HZ - KMG WELL - SURVEYS						Out of range
NRC 35-8 - KMG WELL - SURVEYS						Out of range
NRC 3C-8HZ - KMG WELL - SURVEYS						Out of range
NRC 4C-8HZ - KMG WELL - SURVEYS						Out of range
NRC 4N-8HZ - KMG WELL - SURVEYS						Out of range
PAUL HEINZE 1 - KPK WELL - NO SURVEYS						Out of range
RALPH 13C-19HZ - KMG WELL - SURVEYS	7,560.95	7,513.62	227.52	189.24	5.945	CC, ES, SF
RALPH 14N-19HZ - KMG WELL - SURVEYS	2,989.22	2,957.16	654.09	641.46	51.793	CC
RALPH 14N-19HZ - KMG WELL - SURVEYS	3,000.00	2,967.30	654.10	641.40	51.520	ES
RALPH 14N-19HZ - KMG WELL - SURVEYS	7,200.00	7,146.01	1,144.97	1,108.49	31.388	SF
RALPH 34C-19HZ - KMG WELL - SURVEYS	3,944.91	3,891.62	552.81	533.57	28.721	CC
RALPH 34C-19HZ - KMG WELL - SURVEYS	4,000.00	3,942.30	553.12	533.55	28.275	ES
RALPH 34C-19HZ - KMG WELL - SURVEYS	7,600.00	7,569.73	684.04	644.20	17.171	SF
RALPH 35C-19HZ - KMG WELL - SURVEYS	4,253.39	4,244.05	395.69	375.64	19.736	CC
RALPH 35C-19HZ - KMG WELL - SURVEYS	4,300.00	4,287.50	395.90	375.55	19.460	ES
RALPH 35C-19HZ - KMG WELL - SURVEYS	5,000.00	4,968.16	432.33	407.91	17.706	SF
RALPH 35N-19HZ - KMG WELL - SURVEYS	5,545.16	5,529.02	43.64	16.54	1.610	CC, ES, SF
RALPH 36C-19HZ - KMG WELL - SURVEYS	2,469.80	2,422.26	654.46	644.35	64.718	CC
RALPH 36C-19HZ - KMG WELL - SURVEYS	2,800.00	2,761.28	655.47	643.53	54.868	ES
RALPH 36C-19HZ - KMG WELL - SURVEYS	4,900.00	4,763.48	946.04	922.24	39.744	SF
ROCKY MOUNTAIN FUEL 1 - KMG WELL - NO SURVE						Out of range
SCHWAB #1-32-13 - KMG WELL - NO SURVEYS						Out of range
STONEBRAKER 24-12 - KMG WELL - SURVEYS						Out of range
STONEBRAKER 25-12 - KMG WELL - SURVEYS						Out of range
STONEBRAKER 8-12 - KMG WELL - SURVEYS						Out of range
TROUDT 44-7 - KMG WELL - GYRO						Out of range
UNDERHILL 28N-17HZ - KMG WELL - SURVEYS						Out of range
UPRR 42 PAN AM 'AL' 1 - KMG WELL - GYRO						Out of range
UPRR 42 PAN AM GAS 1 - KMG WELL - NO SURVEYS						Out of range
UPRR 42 PAN AM N #2 - KPK WELL - NO SURVEYS						Out of range
UPRR 42 PAN AM N 1 - KMG WELL - GYRO						Out of range
UPRR 42 PAN AM N 4 - KPK 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 HINGLEY 3D-18H-N167
Project:	DJ BASIN	TVD Reference:	23' KB @ 5133.00usft
Reference Site:	S18-T1N-R67W (HINGLEY)	MD Reference:	23' KB @ 5133.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HINGLEY 3D-18H-N167	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						
S18-T1N-R67W (HINGLEY)						
UPRR 42 PAN AM-AJ 1 - KPK WELL - NO SURVEYS						Out of range
UPRR 42 PAN AM-AJ 4 - KPK WELL - NO SURVEYS						Out of range
UPRR 42 PAN AM-AS 1 - KMG WELL - GYRO						Out of range
UPRR 42 PAN AM-AV 1 - KPK WELL - SURVEYS						Out of range
UPRR 42 PAN AM-J 2 - KPK WELL - NO SURVEYS						Out of range
UPRR 42 PAN AM-J 3 - KPK WELL - NO SURVEYS						Out of range
UPRR 42 PAN AM-N 3 - KPK WELL - NO SURVEYS						Out of range
UPRR 43 PAN AM 1 2 - KPK WELL - NO SURVEYS						Out of range
UPRR 43 PAN AM 1 3 - KPK WELL - NO SURVEYS						Out of range
UPRR 43 PAN AM H 10 - KPK WELL - NO SURVEYS	5,063.97	4,879.00	776.79	753.73	33.681	CC, ES
UPRR 43 PAN AM H 10 - KPK WELL - NO SURVEYS	5,100.00	4,879.00	777.67	754.42	33.449	SF
UPRR 43 PAN AM H 2 - KPK WELL - NO SURVEYS	5,102.48	5,003.08	1,190.55	1,165.92	48.323	CC, ES
UPRR 43 PAN AM H 2 - KPK WELL - NO SURVEYS	5,300.00	4,994.00	1,206.90	1,181.14	46.860	SF
UPRR 43 PAN AM I #5 - KPK WELL - NO SURVEYS						Out of range
UPRR 43 PAN AM M TRUE #1 - KMG WELL - GYRO	7,035.94	6,851.65	773.62	741.05	23.754	CC, ES
UPRR 43 PAN AM M TRUE #1 - KMG WELL - GYRO	7,100.00	6,914.79	776.42	743.49	23.574	SF
UPRR 43 PAN AM O 1 - KMG WELL - NO SURVEYS						Out of range
UPRR 43 PAN AM-H 7 - AMOCO WELL - NO SURVEYS						Out of range
UPRR 43 PAN AM-I 14 - KPK WELL - NO SURVEYS						Out of range
UPRR 43 PAN AM-I 15 - KPK WELL - NO SURVEYS						Out of range
UPRR 43 PAN AM-I 26 - KPK WELL - NO SURVEYS						Out of range
UPRR 43 PAN AM-I 31 - KPK WELL - NO SURVEYS						Out of range
UPRR 43 PAN AM-J 1 - KMG WELL - NO SURVEYS						Out of range
UPRR PAN AM H 3 - KPK WELL - NO SURVEYS						Out of range
UPRR43PANAM-I 16 - KPK WELL - NO SURVEYS						Out of range

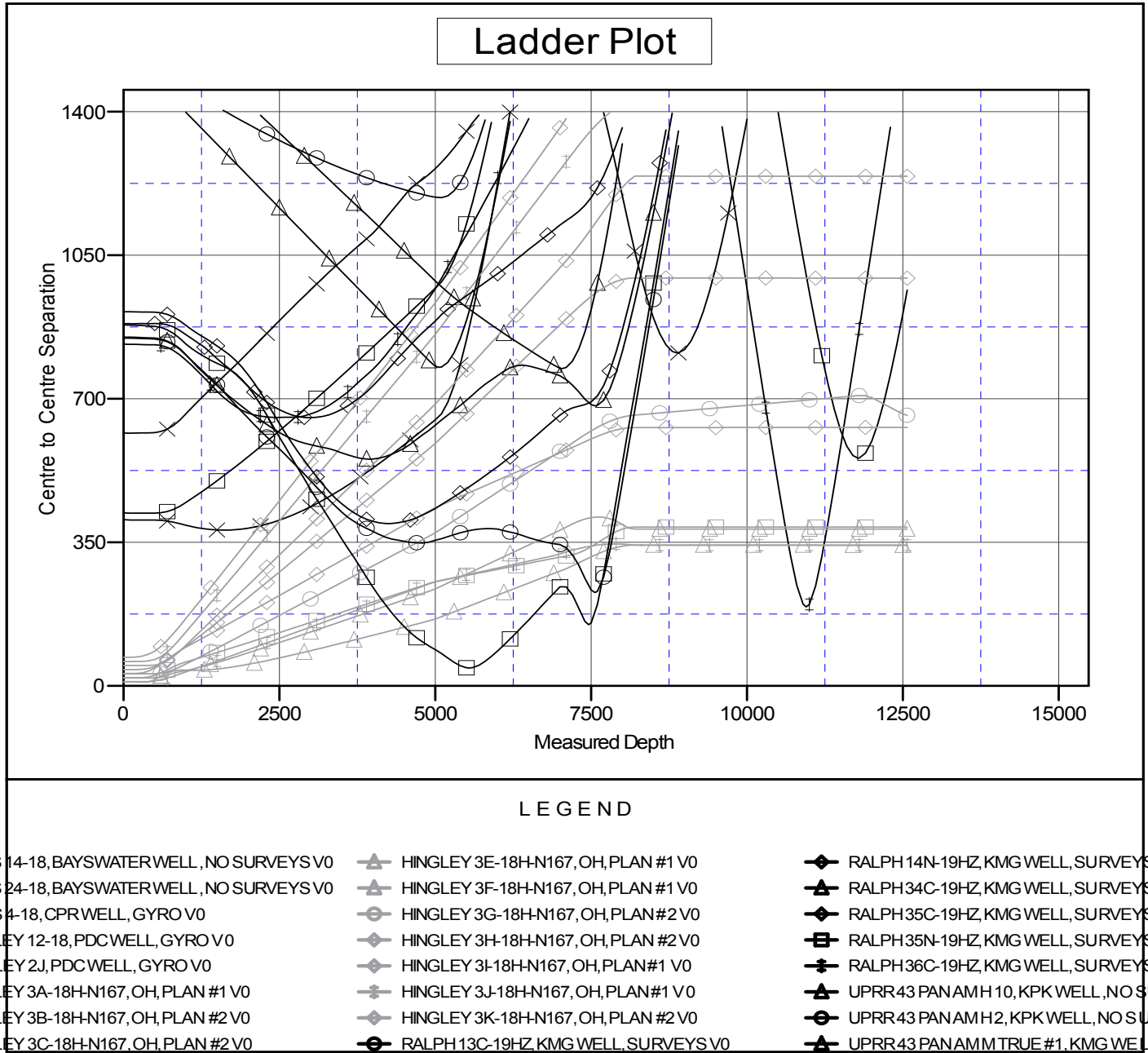
Cathedral Energy Services

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well HINGLEY 3D-18H-N167
Project:	DJ BASIN	TVD Reference:	23' KB @ 5133.00usft
Reference Site:	S18-T1N-R67W (HINGLEY)	MD Reference:	23' KB @ 5133.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HINGLEY 3D-18H-N167	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 @ 5133.00usft
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: HINGLEY 3D-18H-N167
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.36°



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 HINGLEY 3D-18H-N167
Project:	DJ BASIN	TVD Reference:	23' KB @ 5133.00usft
Reference Site:	S18-T1N-R67W (HINGLEY)	MD Reference:	23' KB @ 5133.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HINGLEY 3D-18H-N167	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 @ 5133.00usft
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000

Coordinates are relative to: HINGLEY 3D-18H-N167
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.36°

