

Crestone Peak Resources

DJ BASIN

S18-T1N-R67W (HINGLEY)

HINGLEY 3H-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 3H-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 3H-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	12,449.81	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	200.00	169.00	443.16	442.67	887.475	CC, ES
HICKS 14-18 - BAYSWATER WELL - NO SURVEYS	5,100.00	4,950.00	907.74	884.58	39.198	SF
HICKS 23-18 - STARLIGHT WELL - NO SURVEYS						Out of range
HICKS 24-18 - BAYSWATER WELL - NO SURVEYS	1,277.40	1,246.76	364.21	359.36	75.190	CC
HICKS 24-18 - BAYSWATER WELL - NO SURVEYS	1,400.00	1,368.38	364.53	359.20	68.324	ES
HICKS 24-18 - BAYSWATER WELL - NO SURVEYS	5,100.00	5,000.00	604.39	580.98	25.812	SF
HICKS 4-18 - CPR WELL - GYRO	8,771.41	7,573.98	177.82	136.41	4.294	CC, ES, SF
HINGLEY 1 - CPR WELL - GYRO						Out of range
HINGLEY 12-18 - PDC WELL - GYRO	10,840.75	7,565.99	1,185.20	1,116.69	17.300	CC, ES
HINGLEY 12-18 - PDC WELL - GYRO	11,000.00	7,560.48	1,195.84	1,125.62	17.031	SF
HINGLEY 1A-18H-A167 - OH - PLAN #2	8,053.46	12,754.68	1,056.01	954.66	10.420	CC, ES, SF
HINGLEY 1-B - VESSELS WELL - NO SURVEYS						Out of range

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

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Reference Well:	HINGLEY 3H-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						
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Offset Well - Wellbore - Design						
S18-T1N-R67W (HINGLEY)						
HINGLEY 1B-18H-A167 - OH - PLAN #2	8,067.94	12,829.30	1,312.78	1,212.39	13.076	CC, ES
HINGLEY 1B-18H-A167 - OH - PLAN #2	12,449.81	8,447.45	1,342.60	1,239.75	13.054	SF
HINGLEY 1C-18H-A167 - OH - PLAN #2	8,046.68	12,510.97	1,301.59	1,201.47	13.000	CC, ES
HINGLEY 1C-18H-A167 - OH - PLAN #2	12,449.81	8,134.41	1,332.73	1,230.03	12.977	SF
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	11,670.51	7,537.10	435.57	354.88	5.398	CC, ES
HINGLEY 2J - PDC WELL - GYRO	11,700.00	7,537.16	436.57	355.66	5.396	SF
HINGLEY 2S - TEXAS TEA WELL - NO SURVEYS						Out of range
HINGLEY 3A-18H-N167 - OH - PLAN #1	200.00	199.00	70.00	69.52	145.319	CC, ES
HINGLEY 3A-18H-N167 - OH - PLAN #1	6,800.00	6,643.94	1,399.46	1,360.35	35.786	SF
HINGLEY 3B-18H-N167 - OH - PLAN #2	200.00	201.00	60.00	59.51	123.660	CC, ES
HINGLEY 3B-18H-N167 - OH - PLAN #2	12,449.81	12,735.02	1,370.46	1,214.65	8.795	SF
HINGLEY 3C-18H-N167 - OH - PLAN #2	200.00	200.00	50.21	49.73	103.858	CC, ES
HINGLEY 3C-18H-N167 - OH - PLAN #2	12,449.81	12,422.55	1,319.86	1,162.89	8.408	SF
HINGLEY 3D-18H-N167 - OH - PLAN #2	200.00	200.00	39.85	39.37	82.431	CC, ES
HINGLEY 3D-18H-N167 - OH - PLAN #2	12,449.81	12,562.11	994.28	836.72	6.311	SF
HINGLEY 3E-18H-N167 - OH - PLAN #1	200.00	200.00	30.00	29.26	40.642	CC, ES
HINGLEY 3E-18H-N167 - OH - PLAN #1	12,449.81	12,446.06	660.07	500.39	4.134	SF
HINGLEY 3F-18H-N167 - OH - PLAN #1	200.00	200.00	20.00	19.52	41.374	CC, ES
HINGLEY 3F-18H-N167 - OH - PLAN #1	12,449.81	12,708.25	677.32	525.01	4.447	SF
HINGLEY 3G-18H-N167 - OH - PLAN #2	200.00	200.00	10.18	9.69	21.049	CC, ES
HINGLEY 3G-18H-N167 - OH - PLAN #2	11,900.00	11,971.43	300.91	164.46	2.205	SF
HINGLEY 3I-18H-N167 - OH - PLAN #1	326.23	326.19	9.61	8.68	10.374	CC, ES
HINGLEY 3I-18H-N167 - OH - PLAN #1	12,449.81	12,739.97	338.75	212.22	2.677	SF
HINGLEY 3J-18H-N167 - OH - PLAN #1	339.14	338.95	19.43	18.45	20.012	CC, ES
HINGLEY 3J-18H-N167 - OH - PLAN #1	12,449.81	12,553.03	440.12	285.33	2.843	SF
HINGLEY 3K-18H-N167 - OH - PLAN #2	103.80	103.80	30.14	29.99	204.152	CC
HINGLEY 3K-18H-N167 - OH - PLAN #2	200.00	199.67	30.41	29.93	62.779	ES
HINGLEY 3K-18H-N167 - OH - PLAN #2	12,449.81	12,611.02	660.11	501.44	4.160	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	7,351.97	7,329.97	956.64	918.79	25.277	CC, ES
JELTS 36N-19HZ - KMG WELL - SURVEYS	7,400.00	7,345.51	957.67	919.73	25.241	SF
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

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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						
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Offset Well - Wellbore - Design						
S18-T1N-R67W (HINGLEY)						
LAURIDSON 2-A - KPK WELL - NO SURVEYS						Out of range
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	2,472.34	2,421.44	683.62	674.23	72.803	CC
RALPH 13C-19HZ - KMG WELL - SURVEYS	2,500.00	2,447.09	683.68	674.17	71.874	ES
RALPH 13C-19HZ - KMG WELL - SURVEYS	7,600.00	7,600.00	1,190.83	1,152.66	31.202	SF
RALPH 14N-19HZ - KMG WELL - SURVEYS	7,297.26	7,268.26	234.29	197.63	6.391	CC
RALPH 14N-19HZ - KMG WELL - SURVEYS	7,300.00	7,269.91	234.30	197.63	6.389	ES, SF
RALPH 34C-19HZ - KMG WELL - SURVEYS	1,910.10	1,842.92	724.91	717.49	97.753	CC, ES
RALPH 34C-19HZ - KMG WELL - SURVEYS	5,500.00	5,258.88	1,344.09	1,316.94	49.511	SF
RALPH 35C-19HZ - KMG WELL - SURVEYS	5,158.26	5,145.00	179.18	154.39	7.227	CC
RALPH 35C-19HZ - KMG WELL - SURVEYS	5,200.00	5,185.89	179.32	154.26	7.157	ES
RALPH 35C-19HZ - KMG WELL - SURVEYS	5,600.00	5,583.33	188.22	160.88	6.886	SF
RALPH 35N-19HZ - KMG WELL - SURVEYS	3,519.11	3,504.52	608.51	593.17	39.655	CC, ES
RALPH 35N-19HZ - KMG WELL - SURVEYS	7,400.00	7,345.04	793.02	756.16	21.517	SF
RALPH 36C-19HZ - KMG WELL - SURVEYS	4,163.95	4,134.77	374.61	354.34	18.483	CC
RALPH 36C-19HZ - KMG WELL - SURVEYS	4,200.00	4,169.01	374.73	354.27	18.313	ES
RALPH 36C-19HZ - KMG WELL - SURVEYS	7,500.00	7,443.86	623.67	585.12	16.178	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

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Reference Well:	HINGLEY 3H-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)						
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
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	4,972.90	4,879.00	1,191.31	1,168.05	51.219	CC, ES
UPRR 43 PAN AM H 10 - KPK WELL - NO SURVEYS	5,200.00	4,879.00	1,212.76	1,188.42	49.839	SF
UPRR 43 PAN AM H 2 - KPK WELL - NO SURVEYS	5,188.63	4,994.00	875.52	851.94	37.120	CC, ES
UPRR 43 PAN AM H 2 - KPK WELL - NO SURVEYS	5,300.00	4,994.00	882.58	858.49	36.637	SF
UPRR 43 PAN AM I #5 - KPK WELL - NO SURVEYS						Out of range
UPRR 43 PAN AM M TRUE #1 - KMG WELL - GYRO	6,906.48	6,743.28	1,001.74	970.51	32.077	CC, ES
UPRR 43 PAN AM M TRUE #1 - KMG WELL - GYRO	7,000.00	6,837.61	1,006.15	974.47	31.759	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

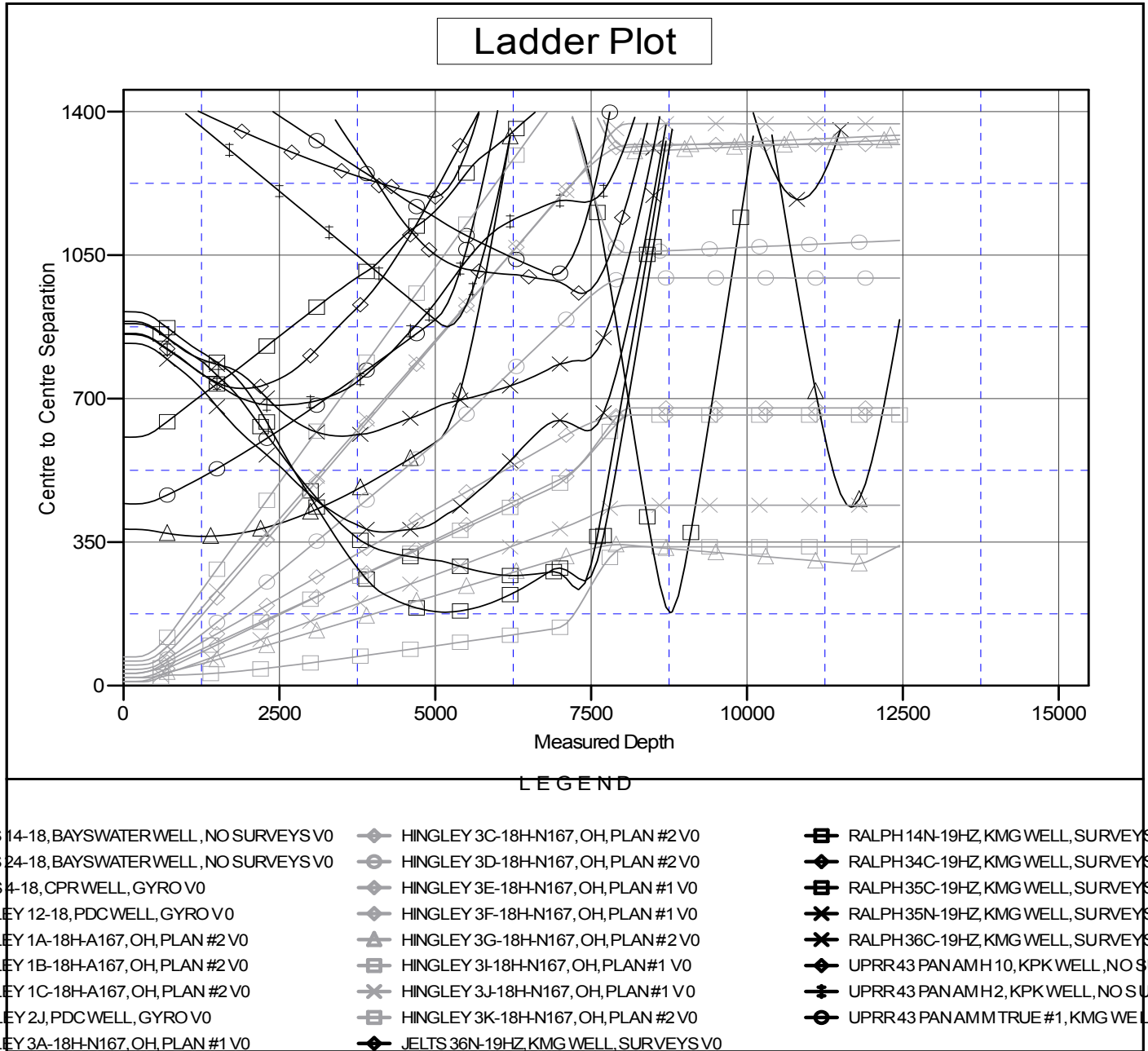
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Reference Design:	PLAN #2	Offset TVD Reference:	Offset Datum

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 3H-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

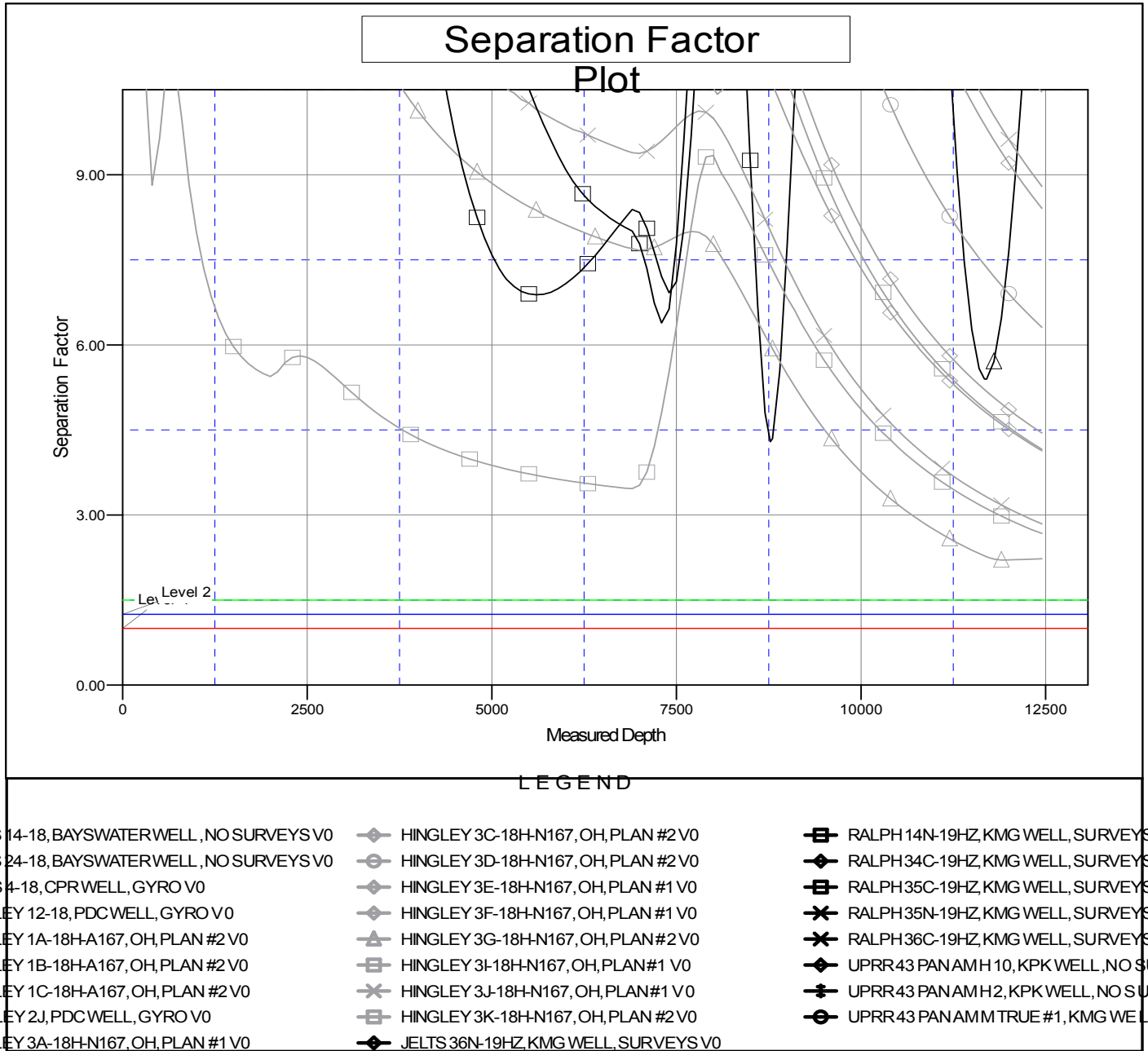
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Offset Depths are relative to Offset Datum
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