



Crestone Peak Resources

Sec 20 T1N-R67W

Herbers Pad

HERBERS 1A-20H-B167

Wellbore #1

Design #1 06Aug18 kjs

Anticollision Summary Report

15 August, 2018

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well HERBERS 1A-20H-B167
Project:	Sec 20 T1N-R67W	TVD Reference:	WELL @ 5130.35usft (Original Well Elev)
Reference Site:	Herbers Pad	MD Reference:	WELL @ 5130.35usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HERBERS 1A-20H-B167	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.15 Single User Db
Reference Design:	Design #1 06Aug18 kjs	Offset TVD Reference:	Offset Datum

Reference	Design #1 06Aug18 kjs		
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 9,999.98 usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date 8/9/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	14,995.53	Design #1 06Aug18 kjs (Wellbore #1)	MWD	OWSG MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Existing Wells (Herbers)						
BLANCHE C 4 - KAUFFMAN - No Survey	2,039.86	2,029.31	894.59	882.63	74.808	CC
BLANCHE C 4 - KAUFFMAN - No Survey	2,200.00	2,187.10	895.01	882.04	69.052	ES
BLANCHE C 4 - KAUFFMAN - No Survey	5,100.00	5,005.00	1,036.69	1,006.45	34.277	SF
BLANCHE C HOPKINS 2 - KAUFFMAN - No Survey	200.00	199.65	1,437.74	1,436.89	1,684.593	CC, ES
BLANCHE C HOPKINS 2 - KAUFFMAN - No Survey	10,900.00	4,990.00	3,000.56	2,956.21	67.653	SF
GRIFFITHS 14N-20HZ - KMG - MWD	12,359.04	17,328.00	699.14	444.84	2.749	CC, ES, SF
GRIFFITHS 36C-20HZ - KMG - MWD	7,994.90	12,420.12	368.01	282.75	4.316	CC
GRIFFITHS 36C-20HZ - KMG - MWD	8,000.00	12,424.86	368.02	282.68	4.312	ES
GRIFFITHS 36C-20HZ - KMG - MWD	12,300.00	16,665.97	548.42	351.47	2.785	SF
HEINZE 1 - PETERSON - No Survey	10,997.36	5,092.00	2,967.84	2,915.33	56.522	CC
HEINZE 1 - PETERSON - No Survey	11,000.00	5,092.00	2,967.84	2,915.30	56.486	ES
HEINZE 1 - PETERSON - No Survey	12,100.00	5,092.00	3,166.05	3,102.17	49.558	SF
HEINZE 1A - PETERSON - No Survey	200.00	156.65	2,458.29	2,457.52	3,165.768	CC, ES
HEINZE 1A - PETERSON - No Survey	11,900.00	4,980.00	2,756.17	2,707.35	56.449	SF
HEINZE 2 - DENVER EAST - No Survey	12,208.18	5,090.00	2,429.42	2,378.70	47.896	CC, ES
HEINZE 2 - DENVER EAST - No Survey	13,000.00	5,090.00	2,555.20	2,497.19	44.041	SF
HEINZE HERBER 33-20 - PDC ENERGY - Gyro	10,801.58	7,428.41	269.41	185.79	3.222	CC, ES, SF
HEINZE-HERBERS B 1 - PDC ENERGY - Gyro	11,771.52	7,422.63	1,333.00	1,234.14	13.483	CC
HEINZE-HERBERS B 1 - PDC ENERGY - Gyro	11,800.00	7,422.70	1,333.31	1,234.01	13.427	ES
HEINZE-HERBERS B 1 - PDC ENERGY - Gyro	11,900.00	7,422.94	1,339.18	1,238.59	13.313	SF
HERBERS 1 - CPR - Gyro	9,048.89	7,419.25	1,440.04	1,379.44	23.763	CC, ES
HERBERS 1 - CPR - Gyro	9,300.00	7,424.51	1,461.76	1,398.88	23.245	SF
HERBERS 2 - DENVER EAST - No Survey	200.00	172.65	1,253.30	1,252.50	1,555.913	CC, ES
HERBERS 2 - DENVER EAST - No Survey	10,800.00	5,090.00	2,739.92	2,698.06	65.451	SF
HERBERS 31-20 - KMG - Gyro	8,208.24	7,488.35	333.97	278.18	5.986	CC, ES, SF
HOWARD 10-29 - KMG - MWD	14,995.53	7,554.84	1,243.95	1,147.34	12.875	CC, ES, SF
HOWARD 10C-29HZ - KMG - MWD	14,995.53	12,351.00	1,089.78	998.47	11.934	CC, ES, SF
HOWARD 24-29 - KMG - MWD	14,995.53	7,629.72	1,254.16	1,100.63	8.169	CC, ES, SF
HOWARD 24N-29HZ - KMG - MWD	14,995.53	12,081.00	1,659.93	1,477.14	9.081	CC, ES, SF
HOWARD 28N-29HZ - KMG - MWD	13,137.65	14,925.37	299.36	83.26	1.385	Level 3, CC, ES, SF
HOWARD 30C-28HZ - KMG - MWD	14,910.96	10,796.38	2,545.01	2,359.70	13.734	CC
HOWARD 30C-28HZ - KMG - MWD	14,995.53	10,744.30	2,545.66	2,359.58	13.680	ES, SF
HOWARD 30N-21HZX - KMG - MWD	12,272.74	7,864.28	2,522.68	2,412.58	22.914	CC
HOWARD 30N-21HZX - KMG - MWD	12,400.00	7,785.31	2,524.03	2,412.20	22.571	ES
HOWARD 30N-21HZX - KMG - MWD	13,200.00	7,300.00	2,600.81	2,480.21	21.567	SF
HOWARD 30N-21HZX - KMG Wellbore#2 - MWD	11,385.50	8,763.08	2,514.84	2,413.83	24.897	CC
HOWARD 30N-21HZX - KMG Wellbore#2 - MWD	12,100.00	8,076.00	2,515.34	2,407.54	23.334	ES

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

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well HERBERS 1A-20H-B167
Project:	Sec 20 T1N-R67W	TVD Reference:	WELL @ 5130.35usft (Original Well Elev)
Reference Site:	Herbers Pad	MD Reference:	WELL @ 5130.35usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HERBERS 1A-20H-B167	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.15 Single User Db
Reference Design:	Design #1 06Aug18 kjs	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						
Existing Wells (Herbers)						
HOWARD 30N-21HZX - KMG Wellbore#2 - MWD	13,200.00	7,300.00	2,600.81	2,480.21	21.567	SF
HOWARD 3C-29HZ - KMG - MWD	13,855.23	14,428.90	801.87	590.32	3.790	CC
HOWARD 3C-29HZ - KMG - MWD	13,900.00	14,390.00	801.93	590.29	3.789	ES, SF
HOWARD 4C-21HZ - KMG - MWD	12,495.29	7,813.11	2,953.89	2,840.46	26.041	CC
HOWARD 4C-21HZ - KMG - MWD	12,500.00	7,811.93	2,953.90	2,840.39	26.025	ES
HOWARD 4C-21HZ - KMG - MWD	13,400.00	7,340.85	3,056.13	2,931.71	24.565	SF
HOWARD 4N-28HZ - KMG - MWD	12,850.63	12,586.00	2,981.81	2,797.82	16.206	CC
HOWARD 4N-28HZ - KMG - MWD	12,900.00	12,586.00	2,982.22	2,797.28	16.125	ES
HOWARD 4N-28HZ - KMG - MWD	13,000.00	12,558.41	2,985.42	2,799.19	16.030	SF
HOWARD 9-29 - KMG - MWD	14,995.53	7,516.00	1,993.77	1,854.54	14.320	CC, ES, SF
HOWARD 9C-29HZ - KMG - MWD	14,995.53	12,440.00	2,181.44	1,982.91	10.988	CC, ES, SF
HSR-UNDERHILL 15-17A - KMG - Gyro	6,873.88	6,779.80	802.97	750.59	15.332	CC, ES
HSR-UNDERHILL 15-17A - KMG - Gyro	7,000.00	6,905.42	809.52	756.43	15.248	SF
MARK 1 - VESSELS - No Survey	787.94	745.77	1,736.10	1,732.01	424.174	CC
MARK 1 - VESSELS - No Survey	1,200.00	1,151.78	1,737.53	1,730.90	262.256	ES
MARK 1 - VESSELS - No Survey	5,300.00	5,063.00	1,903.64	1,872.22	60.597	SF
MARK 1-A - CHAPARRAL - No Survey	1,414.42	1,375.05	419.84	411.85	52.592	CC
MARK 1-A - CHAPARRAL - No Survey	1,500.00	1,459.38	420.09	411.58	49.334	ES
MARK 1-A - CHAPARRAL - No Survey	5,000.00	4,908.00	742.22	714.01	26.306	SF
NGL C2B - NGL WATER - MWD	14,995.53	9,444.64	3,228.39	3,063.58	19.588	CC, ES, SF
PAUL HEINZE 1 - KPK - No Survey	200.00	172.65	2,459.22	2,458.41	3,053.264	CC, ES
PAUL HEINZE 1 - KPK - No Survey	11,800.00	5,000.00	2,850.43	2,799.22	55.658	SF
SCHEIDT STATE VV16-13 - KMG - Gyro	6,910.84	6,833.49	2,930.32	2,876.45	54.400	CC, ES
SCHEIDT STATE VV16-13 - KMG - Gyro	7,300.00	7,216.46	2,947.10	2,891.70	53.194	SF
UNDERHILL 1N-17HZ - KMG - MWD	4,409.72	4,310.96	1,800.61	1,764.14	49.376	CC
UNDERHILL 1N-17HZ - KMG - MWD	4,500.00	4,388.45	1,801.06	1,763.82	48.354	ES
UNDERHILL 1N-17HZ - KMG - MWD	7,400.00	7,470.00	1,949.29	1,889.51	32.610	SF
UNDERHILL 27C-17HZ - KMG - MWD	5,506.71	5,468.00	1,508.94	1,462.62	32.579	CC, ES
UNDERHILL 27C-17HZ - KMG - MWD	7,500.00	7,629.21	1,523.59	1,464.22	25.659	SF
UNDERHILL 27N-17HZ - KMG - MWD	6,102.37	6,118.08	1,115.95	1,063.72	21.365	CC
UNDERHILL 27N-17HZ - KMG - MWD	7,300.00	7,262.91	1,121.68	1,062.48	18.948	SF
UNDERHILL 27N-17HZ - KMG - MWD	7,340.72	7,287.50	1,121.24	1,062.12	18.964	ES
UNDERHILL 28N-17HZ - KMG - MWD	7,292.84	7,310.29	141.39	82.07	2.384	CC, ES, SF
UNDERHILL 2C-17HZ - KMG - MWD	7,400.00	7,345.82	522.34	462.23	8.691	SF
UNDERHILL 2C-17HZ - KMG - MWD	7,438.03	7,379.10	521.76	461.75	8.694	CC, ES
UNDERHILL STATE 26C-17HZ - KMG - MWD	3,611.85	3,456.84	2,050.60	2,021.34	70.090	CC, ES
UNDERHILL STATE 26C-17HZ - KMG - MWD	7,400.00	7,312.49	2,420.34	2,360.38	40.363	SF
UPRR 42 PAN AM AN 4 - KAUFFMAN - No Survey	200.00	121.65	3,918.96	3,918.24	5,488.429	CC, ES
UPRR 42 PAN AM AN 4 - KAUFFMAN - No Survey	12,700.00	4,961.00	4,394.49	4,316.54	56.378	SF
UPRR 42 PAN AM N 4 - KAUFFMAN - MWD	5,216.30	5,115.00	1,145.67	1,106.15	28.993	CC, ES, SF
UPRR 42 PAN AM-AN 1 - KAUFFMAN - No Survey	12,066.84	4,985.00	3,975.13	3,900.86	53.521	CC
UPRR 42 PAN AM-AN 1 - KAUFFMAN - No Survey	12,100.00	4,985.00	3,975.27	3,900.52	53.183	ES
UPRR 42 PAN AM-AN 1 - KAUFFMAN - No Survey	13,600.00	4,985.00	4,260.55	4,169.12	46.601	SF
UPRR 43 PAN AM GU K 1 - KMG - Gyro	14,416.36	7,425.17	1,395.49	1,252.08	9.731	CC, ES
UPRR 43 PAN AM GU K 1 - KMG - Gyro	14,500.00	7,423.74	1,397.99	1,253.41	9.669	SF
UPRR 43 PAN AM-G 12 - KAUFFMAN - No Survey	14,995.53	5,018.00	3,319.82	3,223.13	34.335	CC, ES, SF
UPRR 43 PAN AM-G 3 - KAUFFMAN - Gyro	14,627.00	7,440.72	928.75	780.68	6.272	CC, ES
UPRR 43 PAN AM-G 3 - KAUFFMAN - Gyro	14,700.00	7,438.56	931.61	782.65	6.254	SF
UPRR 43 PAN AM-G 6 - KAUFFMAN - No Survey	13,457.16	5,005.00	2,594.23	2,529.38	40.003	CC
UPRR 43 PAN AM-G 6 - KAUFFMAN - No Survey	13,500.00	5,005.00	2,594.58	2,529.23	39.698	ES
UPRR 43 PAN AM-G 6 - KAUFFMAN - No Survey	14,100.00	5,005.00	2,672.69	2,601.62	37.604	SF
UPRR 43 PAN AM-G 9 - KAUFFMAN - No Survey	14,995.53	4,975.00	2,756.87	2,687.50	39.738	CC, ES, SF
ZARLENGO 1 - UPRC - No Survey	14,840.63	4,960.00	3,060.08	2,963.30	31.620	CC

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

Anticollision Summary Report

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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						
Existing Wells (Herbers)						
ZARLENGO 1 - UPRC - No Survey	14,900.00	4,960.00	3,060.65	2,963.10	31.374	ES
ZARLENGO 1 - UPRC - No Survey	14,995.53	4,960.00	3,064.00	2,965.26	31.031	SF
ZARLENGO 3 - ANADARKO - No Survey	14,834.52	4,990.00	2,498.70	2,426.94	34.820	CC, ES
ZARLENGO 3 - ANADARKO - No Survey	14,995.53	4,990.00	2,503.88	2,430.40	34.073	SF
ZARLENGO 31-29 2 - CHAMPLIN - No Survey	13,541.34	4,990.00	2,514.04	2,452.98	41.173	CC, ES
ZARLENGO 31-29 2 - CHAMPLIN - No Survey	14,200.00	4,990.00	2,598.89	2,531.86	38.771	SF
ZARLENGO 4 - ANADARKO - No Survey	13,521.96	4,965.00	3,070.85	2,989.89	37.928	CC
ZARLENGO 4 - ANADARKO - No Survey	13,600.00	4,965.00	3,071.84	2,989.87	37.473	ES
ZARLENGO 4 - ANADARKO - No Survey	14,300.00	4,965.00	3,167.88	3,078.83	35.572	SF
Herbers Pad						
HERBERS 1B-20H-B167 - Wellbore #1 - Design #1 06Au	200.00	199.93	10.00	9.01	10.073	CC
HERBERS 1B-20H-B167 - Wellbore #1 - Design #1 06Au	300.00	299.89	10.33	8.62	6.042	ES
HERBERS 1B-20H-B167 - Wellbore #1 - Design #1 06Au	14,995.53	15,108.64	357.29	112.09	1.457	Level 3, SF
HERBERS 1C-20H-B167 - Wellbore #1 - Design #1 06Au	200.00	199.72	20.00	19.01	20.161	CC
HERBERS 1C-20H-B167 - Wellbore #1 - Design #1 06Au	300.00	299.70	20.22	18.51	11.833	ES
HERBERS 1C-20H-B167 - Wellbore #1 - Design #1 06Au	14,995.53	14,975.38	606.54	372.63	2.593	SF
HERBERS 1D-20H-B167 - Wellbore #1 - Design #1 06Au	200.00	199.47	30.00	29.01	30.270	CC
HERBERS 1D-20H-B167 - Wellbore #1 - Design #1 06Au	300.00	299.28	30.33	28.63	17.773	ES
HERBERS 1D-20H-B167 - Wellbore #1 - Design #1 06Au	14,995.53	15,007.64	629.84	374.92	2.471	SF
HERBERS 1E-20H-B167 - Wellbore #1 - Design #1 06Au	200.00	199.32	40.00	39.01	40.382	CC
HERBERS 1E-20H-B167 - Wellbore #1 - Design #1 06Au	300.00	299.30	40.18	38.47	23.537	ES
HERBERS 1E-20H-B167 - Wellbore #1 - Design #1 06Au	14,995.53	15,147.48	1,005.85	752.58	3.971	SF
HERBERS 1F-20H-B167 - Wellbore #1 - Design #1 06Au	200.00	199.17	50.00	49.01	50.506	CC
HERBERS 1F-20H-B167 - Wellbore #1 - Design #1 06Au	300.00	299.15	50.17	48.47	29.400	ES
HERBERS 1F-20H-B167 - Wellbore #1 - Design #1 06Au	14,995.53	15,094.29	1,259.67	1,005.09	4.948	SF
HERBERS 1G-20H-B167 - Wellbore #1 - Design #1 06A	200.00	198.96	60.00	59.01	60.653	CC
HERBERS 1G-20H-B167 - Wellbore #1 - Design #1 06A	300.00	298.94	60.17	58.46	35.272	ES
HERBERS 1G-20H-B167 - Wellbore #1 - Design #1 06A	14,995.53	15,201.45	1,367.85	1,120.37	5.527	SF
HERBERS 1H-20H-B167 - Wellbore #1 - Design #1 06Au	200.00	198.83	70.00	69.01	70.795	CC
HERBERS 1H-20H-B167 - Wellbore #1 - Design #1 06Au	300.00	298.81	70.17	68.46	41.144	ES
HERBERS 1H-20H-B167 - Wellbore #1 - Design #1 06Au	14,995.53	15,246.59	1,663.28	1,409.56	6.555	SF
HERBERS 1I-20H-B167 - Wellbore #1 - Design #1 06Au	200.00	198.76	80.00	79.01	80.929	CC
HERBERS 1I-20H-B167 - Wellbore #1 - Design #1 06Au	300.00	298.74	80.16	78.46	47.013	ES
HERBERS 1I-20H-B167 - Wellbore #1 - Design #1 06Au	14,995.53	15,172.83	1,889.45	1,634.98	7.425	SF
HERBERS 1J-20H-B167 - Wellbore #1 - Design #1 06Au	200.00	198.30	90.00	89.01	91.197	CC
HERBERS 1J-20H-B167 - Wellbore #1 - Design #1 06Au	300.00	296.96	90.51	88.81	53.319	ES
HERBERS 1J-20H-B167 - Wellbore #1 - Design #1 06Au	14,995.53	15,494.47	2,171.26	1,919.04	8.608	SF
HERBERS 1K-20H-B167 - Wellbore #1 - Design #1 06Au	200.00	198.23	100.00	99.01	101.356	CC, ES
HERBERS 1K-20H-B167 - Wellbore #1 - Design #1 06Au	14,995.53	15,390.69	2,322.08	2,068.25	9.148	SF

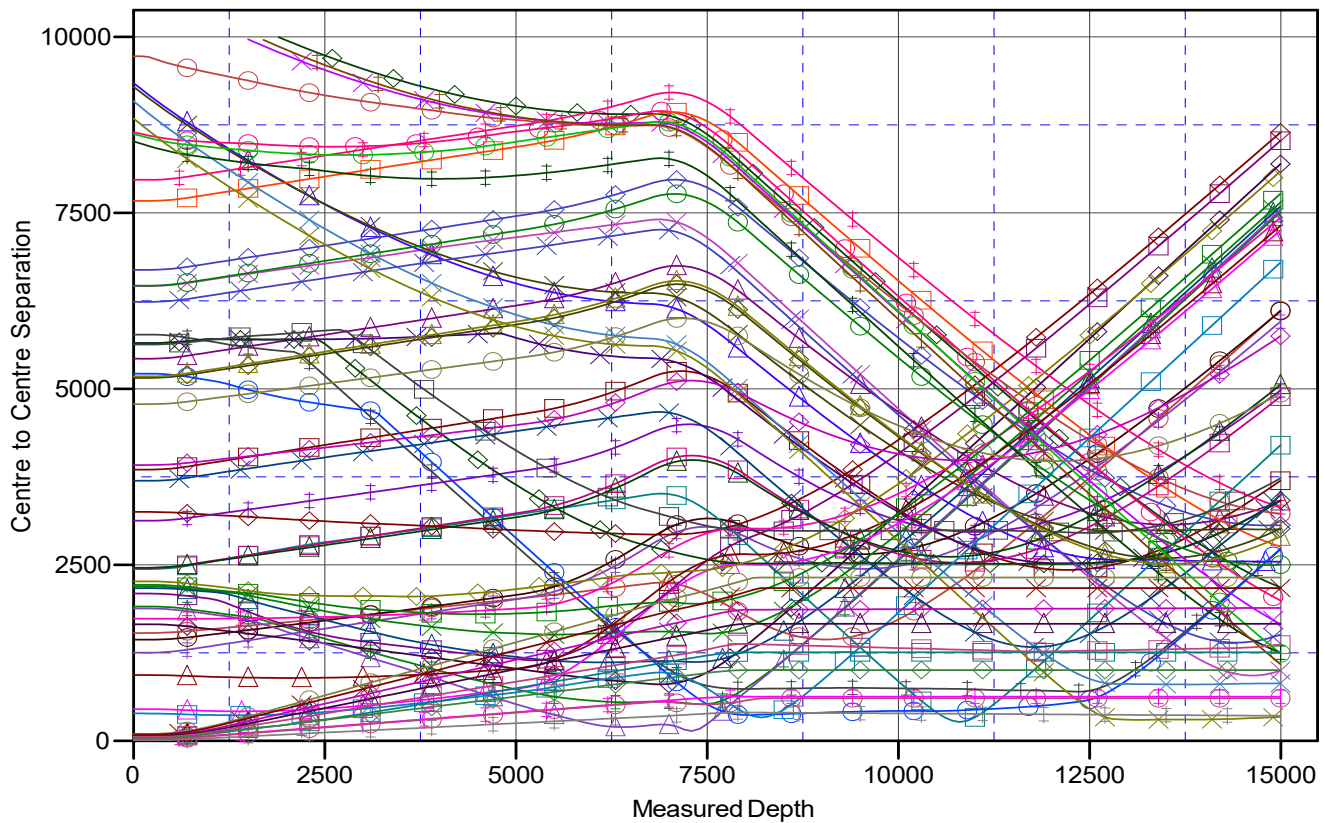
Company: Crestone Peak Resources
Project: Sec 20 T1N-R67W
Reference Site: Herbers Pad
Site Error: 0.00 usft
Reference Well: HERBERS 1A-20H-B167
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Design #1 06Aug18 kjs

Local Co-ordinate Reference: Well HERBERS 1A-20H-B167
TVD Reference: WELL @ 5130.35usft (Original Well Elev)
MD Reference: WELL @ 5130.35usft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.15 Single User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to WELL @ 5130.35usft (Original Well E
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: HERBERS 1A-20H-B167
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.38°

Ladder Plot



LEGEND

UPRR 43 PAN AM-G 3, KAUFFMAN, Gyro V0
HOWARD 30C28HZ, KMG, MWD V0
UNDERHILL 2C17HZ, KMG, MWD V0
HEINZE 2, DENVER EAST, No Survey V0
HERBERS 1, CPR, Gyro V0
HOWARD 9C20HZ, KMG, MWD V0
HERBERS 2, DENVER EAST, No Survey V0
BLANCHE C HOPKINS 2, KAUFFMAN, No Survey V0
ZARLENGO 1, UPRR, No Survey V0
HSR-UNDERHILL 15-17A, KMG, Gyro V0
HOWARD 4N28HZ, KMG, MWD V0
UNDERHILL 27C17HZ, KMG, MWD V0
ZARLENGO 4, ANADARKO, No Survey V0
UNDERHILL 28N47HZ, KMG, MWD V0
UPRR 43 PAN AM-G 12, KAUFFMAN, No Survey V0
GRIFFITHS 14N20HZ, KMG, MWD V0
HEINZE HERBER 33-20, PDC ENERGY, Gyro V0
HOWARD 9-29, KMG, MWD V0
UPRR 43 PAN AM-G 9, KAUFFMAN, No Survey V0
HOWARD 30N21HZ, KMG, MWD V0

HEINZE 1A, PETERSON, No Survey V0
GRIFFITHS 36C20HZ, KMG, MWD V0
SCHEIDT STATE VV16-13, KMG, Gyro V0
HOWARD 3C28HZ, KMG, MWD V0
UNDERHILL 27N47HZ, KMG, MWD V0
HEINZE 1, PETERSON, No Survey V0
MARK 1-A, CHAPARRAL, No Survey V0
UPRR 42 PAN AM N 4, KAUFFMAN, MWD V0
N2, C28, NGL WATER, MWD V0
MARK 1, VESSELS, No Survey V0
HOWARD 30N21HZ, KMG Wellbore#2, MWD V0
UPRR 43 PAN AM-G 6, KAUFFMAN, No Survey V0
ZARLENGO 3, ANADARKO, No Survey V0
HOWARD 24N28HZ, KMG, MWD V0
UNDERHILL STATE 28C17HZ, KMG, MWD V0
HEINZE-HERBERS B 1, PDC ENERGY, Gyro V0
PAUL HEINZE 1, KPK, No Survey V0
UPRR 42 PAN AM AN 4, KAUFFMAN, No Survey V0
UPRR 43 PAN AM GU K 1, KMG, Gyro V0
HOWARD 10-29, KMG, MWD V0

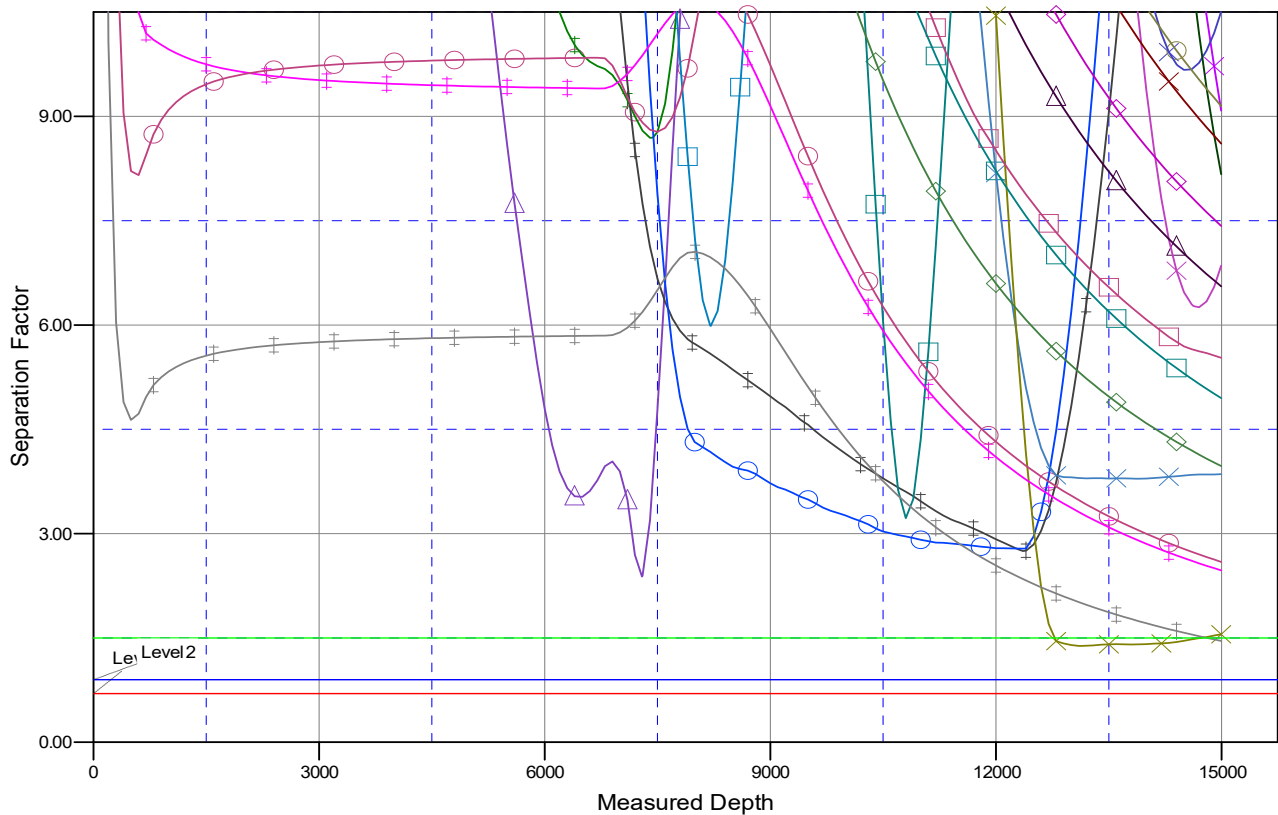
BLANCHE C 4, KAUFFMAN, No Survey V0
HOWARD 24-29, KMG, MWD V0
HOWARD 4C21HZ, KMG, MWD V0
HOWARD 28N29HZ, KMG, MWD V0
ZARLENGO 31-29 2, CHAMPLIN, No Survey V0
HOWARD 10C29HZ, KMG, MWD V0
HERBERS 31-20, KMG, Gyro V0
UPRR 42 PAN AM-AN 1, KAUFFMAN, No Survey V0
UNDERHILL 1N47HZ, KMG, MWD V0
HERBERS 1B-20H-B167, Wellbore #1, Design #1 06Aug18 kjs V0
HERBERS 1F-20H-B167, Wellbore #1, Design #1 06Aug18 kjs V0
HERBERS 1K-20H-B167, Wellbore #1, Design #1 06Aug18 kjs V0
HERBERS 1J-20H-B167, Wellbore #1, Design #1 06Aug18 kjs V0
HERBERS 1H-20H-B167, Wellbore #1, Design #1 06Aug18 kjs V0
HERBERS 1D-20H-B167, Wellbore #1, Design #1 06Aug18 kjs V0
HERBERS 1G-20H-B167, Wellbore #1, Design #1 06Aug18 kjs V0
HERBERS 1C-20H-B167, Wellbore #1, Design #1 06Aug18 kjs V0
HERBERS 1E-20H-B167, Wellbore #1, Design #1 06Aug18 kjs V0

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well HERBERS 1A-20H-B167
Project:	Sec 20 T1N-R67W	TVD Reference:	WELL @ 5130.35usft (Original Well Elev)
Reference Site:	Herbers Pad	MD Reference:	WELL @ 5130.35usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	HERBERS 1A-20H-B167	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.15 Single User Db
Reference Design:	Design #1 06Aug18 kjs	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5130.35usft (Original Well E
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: HERBERS 1A-20H-B167
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.38°

Separation Factor Plot



LEGEND

UPRR 43 PAN AM-G 3, KAUFFMAN, Gyro V0	HEINZE 1A, PETERSON, No Survey V0	BLANCHE C 4, KAUFFMAN, No Survey V0
HOWARD 30C28HZ, KMG, MWD V0	GRIFFITHS 3C-20HZ, KMG, MWD V0	HOWARD 24-28, KMG, MWD V0
UNDERHILL 2C47HZ, KMG, MWD V0	SCHEIDT STATE VV16-13, KMG, Gyro V0	HOWARD 4C21HZ, KMG, MWD V0
HEINZE 2, DENVER EAST, No Survey V0	HOWARD 3C28HZ, KMG, MWD V0	HOWARD 28N29HZ, KMG, MWD V0
HERBERS 1, CPR, Gyro V0	UNDERHILL 27N47HZ, KMG, MWD V0	ZARLENGO 31-29 2, CHAMPLIN, No Survey V0
HOWARD 9C20HZ, KMG, MWD V0	HEINZE 1, PETERSON, No Survey V0	HOWARD 10C29HZ, KMG, MWD V0
HERBERS 2, DENVER EAST, No Survey V0	MARK 1-A, CHAPARRAL, No Survey V0	HERBERS 31-20, KMG, Gyro V0
BLANCHE C HOPKINS 2, KAUFFMAN, No Survey V0	UPRR 42 PAN AM N 4, KAUFFMAN, MWD V0	UPRR 42 PAN AM-N 1, KAUFFMAN, No Survey V0
ZARLENGO 1, UPRC, No Survey V0	NCL C28, NGL WATER, MWD V0	UNDERHILL 1N47HZ, KMG, MWD V0
HSR-UNDERHILL 15-17A, KMG, Gyro V0	MARK 1, VESSELS, No Survey V0	HERBERS 1B-20H167, Wellbore #1, Design #1 06Aug18 kjs V0
HOWARD 4N28HZ, KMG, MWD V0	HOWARD 30N21HZX, KMG Wellbore#2, MWD V0	HERBERS 1F-20H167, Wellbore #1, Design #1 06Aug18 kjs V0
UNDERHILL 27C47HZ, KMG, MWD V0	UPRR 43 PAN AM-G 6, KAUFFMAN, No Survey V0	HERBERS 1K-20H167, Wellbore #1, Design #1 06Aug18 kjs V0
ZARLENGO 4, ANADARKO, No Survey V0	ZARLENGO 3, ANADARKO, No Survey V0	HERBERS 1J-20H167, Wellbore #1, Design #1 06Aug18 kjs V0
UNDERHILL 28N47HZ, KMG, MWD V0	HOWARD 24N29HZ, KMG, MWD V0	HERBERS 1A-20H167, Wellbore #1, Design #1 06Aug19 kjs V0
UPRR 43 PAN AM-G 12, KAUFFMAN, No Survey V0	UNDERHILL STATE 28C-17HZ, KMG, MWD V0	HERBERS 1D-20H167, Wellbore #1, Design #1 06Aug18 kjs V0
GRIFFITHS 14N-20HZ, KMG, MWD V0	HEINZE-HERBERS B 1, PDC ENERGY, Gyro V0	HERBERS 1G-20H167, Wellbore #1, Design #1 06Aug18 kjs V0
HEINZE HERBER 33-20, PDC ENERGY, Gyro V0	PAUL HEINZE 1, KPC, No Survey V0	HERBERS 1C-20H167, Wellbore #1, Design #1 06Aug18 kjs V0
HOWARD 9-29, KMG, MWD V0	UPRR 42 PAN AM AN 4, KAUFFMAN, No Survey V0	HERBERS 1E-20H167, Wellbore #1, Design #1 06Aug18 kjs V0
UPRR 43 PAN AM-G 9, KAUFFMAN, No Survey V0	UPRR 43 PAN AM GU K 1, KMG, Gyro V0	
HOWARD 30N21HZX, KMG, MWD V0	HOWARD 10-29, KMG, MWD V0	