



Crestone Peak Resources

Sec 10 T1N-R65W

Warner Pad

WARNER 2F-10H-E165

Wellbore #1

Plan #3 27Sep18 kjs

Anticollision Summary Report

28 September, 2018

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well WARNER 2F-10H-E165
Project:	Sec 10 T1N-R65W	TVD Reference:	WELL @ 4994.00usft (Original Well Elev)
Reference Site:	Warner Pad	MD Reference:	WELL @ 4994.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	WARNER 2F-10H-E165	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:	Plan #3 27Sep18 kjs	Offset TVD Reference:	Offset Datum

Reference	Plan #3 27Sep18 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	9/28/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	14,732.12	Plan #3 27Sep18 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
Offset Well - Wellbore - Design						
Existing Wells (Warner Pad)						
CHAPIN 43-4 - CPR - Gyro	11,857.65	7,146.48	1,863.25	1,755.76	17.333	CC, ES
CHAPIN 43-4 - CPR - Gyro	12,100.00	7,150.61	1,878.94	1,769.50	17.169	SF
CHAPIN 44-4 - CPR - Gyro	10,626.43	7,142.08	2,148.74	2,061.39	24.599	CC, ES
CHAPIN 44-4 - CPR - Gyro	11,000.00	7,144.78	2,180.97	2,090.28	24.049	SF
COLFER 13C-34HZ - KMG - MWD	14,732.12	11,790.00	1,147.65	1,010.27	8.353	CC, ES, SF
COLFER 13N-34HZ - KMG - MWD	14,732.12	11,496.00	1,407.11	1,236.78	8.261	CC, ES, SF
COLFER 14C-34HZ - KMG - MWD	14,732.12	11,779.00	1,204.74	1,073.03	9.147	CC, ES, SF
COLFER 14N-34HZ - KMG - MWD	14,732.12	11,568.00	1,049.89	957.41	11.352	CC, ES, SF
COLFER 35N-34HZ - KMG - MWD	14,732.12	11,687.00	986.80	892.19	10.431	CC, ES, SF
COLFER 36N-34HZ - KMG - MWD	14,732.12	11,617.00	1,465.82	1,300.60	8.872	CC, ES, SF
HDI KF 03-231HN - VERDAD - Proposal	6,808.47	6,684.68	3,633.78	3,584.47	73.704	CC, ES
HDI KF 03-231HN - VERDAD - Proposal	7,400.00	7,110.85	3,770.39	3,717.71	71.572	SF
HDI KF 03-232HC - VERDAD - Proposed	6,810.27	6,686.37	3,659.80	3,610.48	74.207	CC, ES
HDI KF 03-232HC - VERDAD - Proposed	7,400.00	7,110.85	3,794.91	3,742.24	72.052	SF
HDI KF 03-232HN - VERDAD - Proposal	6,809.37	6,685.53	3,646.78	3,597.47	73.956	CC, ES
HDI KF 03-232HN - VERDAD - Proposal	7,400.00	7,110.85	3,782.64	3,729.96	71.812	SF
HDI KF 10-1H - VERDAD - Proposal	6,788.90	6,666.23	3,711.74	3,662.60	75.540	CC
HDI KF 10-1H - VERDAD - Proposal	6,800.00	6,676.72	3,711.78	3,662.58	75.434	ES
HDI KF 10-1H - VERDAD - Proposal	7,400.00	7,110.85	3,864.04	3,811.24	73.191	SF
HDI KF 10-3H - VERDAD - Proposal	6,790.60	6,667.84	3,737.36	3,688.21	76.041	CC
HDI KF 10-3H - VERDAD - Proposal	6,800.00	6,676.72	3,737.39	3,688.18	75.950	ES
HDI KF 10-3H - VERDAD - Proposal	7,400.00	7,110.85	3,888.07	3,835.29	73.666	SF
JOKER 1N3-9HZ - KMG - MWD	6,852.68	9,623.07	2,012.30	1,935.74	26.285	CC
JOKER 1N3-9HZ - KMG - MWD	9,500.00	11,936.00	2,064.43	1,934.16	15.847	ES
JOKER 1N3-9HZ - KMG - MWD	9,600.00	11,936.00	2,069.60	1,938.72	15.813	SF
JOKER 26N1-9HZ - KMG - MWD	8,890.27	11,494.00	1,925.08	1,810.87	16.857	CC
JOKER 26N1-9HZ - KMG - MWD	9,000.00	11,564.82	1,926.13	1,809.66	16.538	ES
JOKER 26N1-9HZ - KMG - MWD	9,700.00	12,052.00	1,972.54	1,840.64	14.955	SF
JOKER 26N2-9HZ - KMG - MWD	9,460.63	11,975.00	1,724.04	1,593.60	13.216	CC, ES
JOKER 26N2-9HZ - KMG - MWD	9,500.00	11,975.00	1,724.49	1,593.83	13.198	SF
OLIN 41-4 - CPR - MWD	14,280.92	7,429.47	2,164.15	2,014.48	14.459	CC
OLIN 41-4 - CPR - MWD	14,300.00	7,430.80	2,164.24	2,014.27	14.431	ES
OLIN 41-4 - CPR - MWD	14,600.00	7,448.53	2,187.45	2,034.05	14.260	SF
OLIN 42-4A - CPR - MWD	13,288.73	7,474.79	2,110.00	1,972.83	15.383	CC
OLIN 42-4A - CPR - MWD	13,300.00	7,474.79	2,110.03	1,972.69	15.364	ES
OLIN 42-4A - CPR - MWD	13,500.00	7,464.94	2,120.73	1,980.87	15.163	SF
OTTESSEN 1 - VERDAD - Gyro	11,546.39	7,136.72	525.08	422.90	5.139	CC, ES, SF

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 WARNER 2F-10H-E165
Project:	Sec 10 T1N-R65W	TVD Reference:	WELL @ 4994.00usft (Original Well Elev)
Reference Site:	Warner Pad	MD Reference:	WELL @ 4994.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	WARNER 2F-10H-E165	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:	Plan #3 27Sep18 kjs	Offset TVD Reference:	Offset Datum

Summary

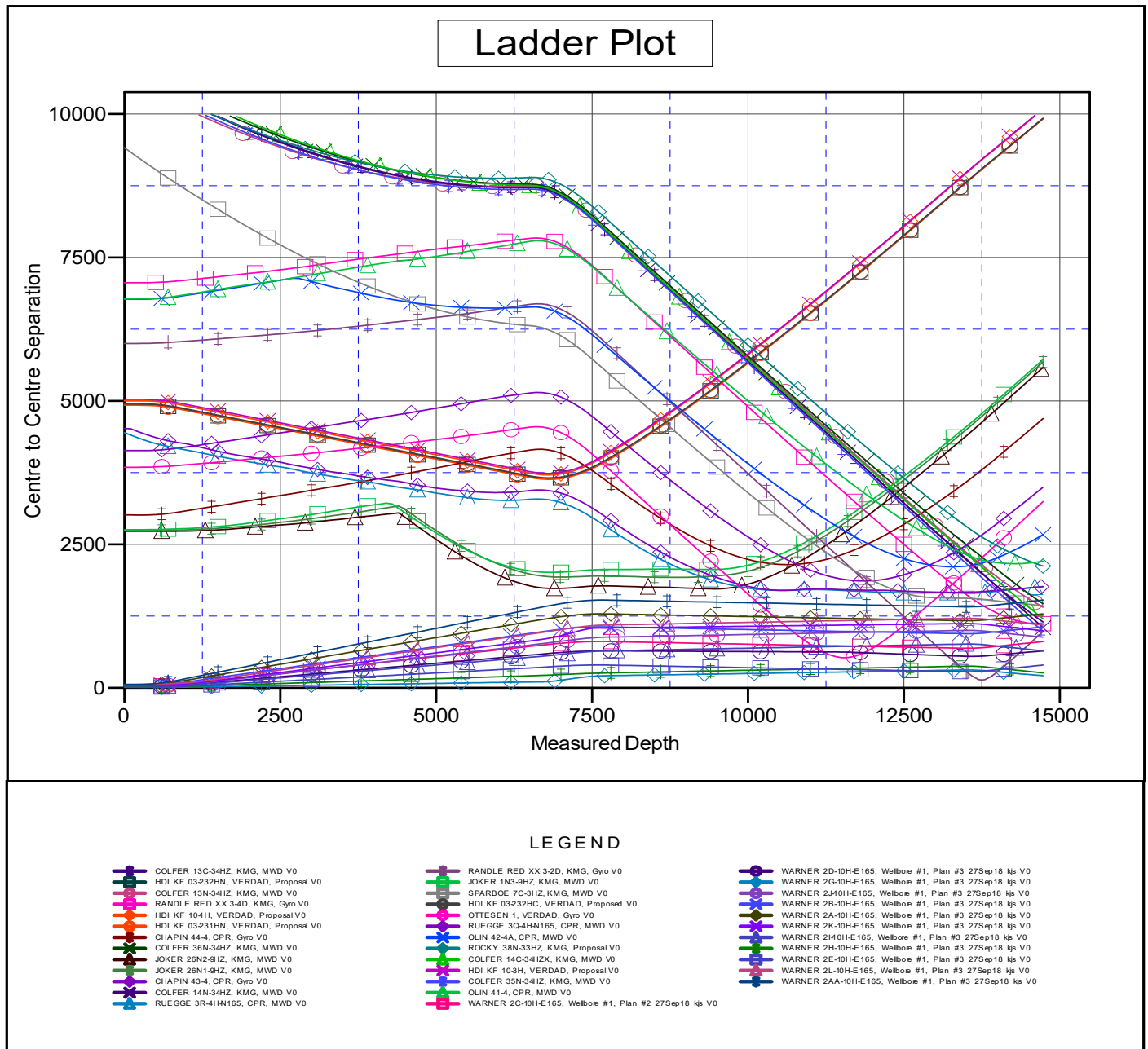
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existing Wells (Warner Pad)						
RANDLE RED XX 3-2D - KMG - Gyro	13,751.88	7,133.27	135.32	-7.76	0.946	Level 3, CC, ES, SF
RANDLE RED XX 3-4D - KMG - Gyro	14,662.08	7,117.66	1,117.65	962.22	7.191	CC, ES
RANDLE RED XX 3-4D - KMG - Gyro	14,732.12	7,118.99	1,119.84	963.36	7.156	SF
ROCKY 38N-33HZ - KMG - Proposal	14,732.12	13,373.00	2,122.69	1,912.14	10.082	CC, ES, SF
RUEGGE 3Q-4H-N165 - CPR - MWD	13,292.64	10,781.05	1,664.64	1,499.23	10.064	CC
RUEGGE 3Q-4H-N165 - CPR - MWD	13,700.00	11,253.77	1,674.70	1,493.77	9.256	ES
RUEGGE 3Q-4H-N165 - CPR - MWD	14,732.12	12,250.05	1,765.90	1,552.49	8.274	SF
RUEGGE 3R-4H-N165 - CPR - MWD	13,558.24	11,492.55	1,648.35	1,467.92	9.135	CC
RUEGGE 3R-4H-N165 - CPR - MWD	13,600.00	11,526.47	1,648.76	1,467.25	9.084	ES
RUEGGE 3R-4H-N165 - CPR - MWD	14,732.12	12,658.21	1,764.80	1,546.62	8.089	SF
SPARBOE 7C-3HZ - KMG - MWD	14,732.12	12,801.80	1,430.04	1,197.56	6.151	CC, ES, SF
Warner Pad						
WARNER 2A-10H-E165 - Wellbore #1 - Plan #3 27Sep1	200.00	199.00	49.82	48.83	50.354	CC
WARNER 2A-10H-E165 - Wellbore #1 - Plan #3 27Sep1	300.00	298.89	50.14	48.45	29.694	ES
WARNER 2A-10H-E165 - Wellbore #1 - Plan #3 27Sep1	14,732.12	14,625.38	1,289.68	1,025.70	4.886	SF
WARNER 2AA-10H-E165 - Wellbore #1 - Plan #3 27Sep	200.00	199.00	59.90	58.91	60.538	CC, ES
WARNER 2AA-10H-E165 - Wellbore #1 - Plan #3 27Sep	14,732.12	14,446.24	1,530.12	1,268.42	5.847	SF
WARNER 2B-10H-E165 - Wellbore #1 - Plan #3 27Sep1	200.00	199.00	40.02	39.03	40.452	CC
WARNER 2B-10H-E165 - Wellbore #1 - Plan #3 27Sep1	300.00	299.18	40.09	38.40	23.714	ES
WARNER 2B-10H-E165 - Wellbore #1 - Plan #3 27Sep1	14,732.12	14,545.41	1,062.55	799.78	4.044	SF
WARNER 2C-10H-E165 - Wellbore #1 - Plan #2 27Sep1	300.00	299.29	29.90	28.20	17.658	CC, ES
WARNER 2C-10H-E165 - Wellbore #1 - Plan #2 27Sep1	13,800.00	13,845.88	703.39	473.63	3.061	SF
WARNER 2D-10H-E165 - Wellbore #1 - Plan #3 27Sep1	200.00	200.00	19.87	18.88	20.012	CC
WARNER 2D-10H-E165 - Wellbore #1 - Plan #3 27Sep1	300.00	300.16	19.94	18.24	11.736	ES
WARNER 2D-10H-E165 - Wellbore #1 - Plan #3 27Sep1	13,800.00	13,729.15	556.40	324.17	2.396	SF
WARNER 2E-10H-E165 - Wellbore #1 - Plan #3 27Sep1	200.00	200.00	9.80	8.80	9.865	CC
WARNER 2E-10H-E165 - Wellbore #1 - Plan #3 27Sep1	300.00	300.06	9.95	8.25	5.849	ES
WARNER 2E-10H-E165 - Wellbore #1 - Plan #3 27Sep1	13,700.00	13,562.53	287.60	68.88	1.315	Level 3, SF
WARNER 2G-10H-E165 - Wellbore #1 - Plan #3 27Sep1	604.85	603.95	9.24	5.39	2.399	CC
WARNER 2G-10H-E165 - Wellbore #1 - Plan #3 27Sep1	900.00	898.46	10.23	3.94	1.627	ES
WARNER 2G-10H-E165 - Wellbore #1 - Plan #3 27Sep1	14,732.12	14,882.63	212.48	4.36	1.021	Level 3, SF
WARNER 2H-10H-E165 - Wellbore #1 - Plan #3 27Sep1	294.88	294.67	19.81	18.15	11.912	CC
WARNER 2H-10H-E165 - Wellbore #1 - Plan #3 27Sep1	14,732.12	14,762.09	260.05	-2.93	0.989	Level 3, ES, SF
WARNER 2I-10H-E165 - Wellbore #1 - Plan #3 27Sep18	200.00	200.00	29.95	28.95	30.159	CC
WARNER 2I-10H-E165 - Wellbore #1 - Plan #3 27Sep18	400.00	398.56	30.65	28.27	12.870	ES
WARNER 2I-10H-E165 - Wellbore #1 - Plan #3 27Sep18	14,732.12	14,842.36	644.93	381.99	2.453	SF
WARNER 2J-10H-E165 - Wellbore #1 - Plan #3 27Sep18	200.00	200.00	40.02	39.03	40.306	CC
WARNER 2J-10H-E165 - Wellbore #1 - Plan #3 27Sep18	300.00	299.09	40.58	38.88	23.934	ES
WARNER 2J-10H-E165 - Wellbore #1 - Plan #3 27Sep18	14,732.12	14,823.77	883.42	620.11	3.355	SF
WARNER 2K-10H-E165 - Wellbore #1 - Plan #3 27Sep1	200.00	200.00	50.10	49.11	50.454	CC, ES
WARNER 2K-10H-E165 - Wellbore #1 - Plan #3 27Sep1	14,732.12	15,184.65	994.63	734.51	3.824	SF
WARNER 2L-10H-E165 - Wellbore #1 - Plan #3 27Sep18	200.00	200.00	60.17	59.18	60.601	CC, ES
WARNER 2L-10H-E165 - Wellbore #1 - Plan #3 27Sep18	14,732.12	14,779.75	1,094.83	832.34	4.171	SF

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well WARNER 2F-10H-E165
Project:	Sec 10 T1N-R65W	TVD Reference:	WELL @ 4994.00usft (Original Well Elev)
Reference Site:	Warner Pad	MD Reference:	WELL @ 4994.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	WARNER 2F-10H-E165	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:	Plan #3 27Sep18 kjs	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4994.00usft (Original Well E
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: WARNER 2F-10H-E165
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.54°



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

Company: Crestone Peak Resources
Project: Sec 10 T1N-R65W
Reference Site: Warner Pad
Site Error: 0.00 usft
Reference Well: WARNER 2F-10H-E165
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #3 27Sep18 kjs

Local Co-ordinate Reference: Well WARNER 2F-10H-E165
TVD Reference: WELL @ 4994.00usft (Original Well Elev)
MD Reference: WELL @ 4994.00usft (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 @ 4994.00usft (Original Well E

Offset Depths are relative to Offset Datum

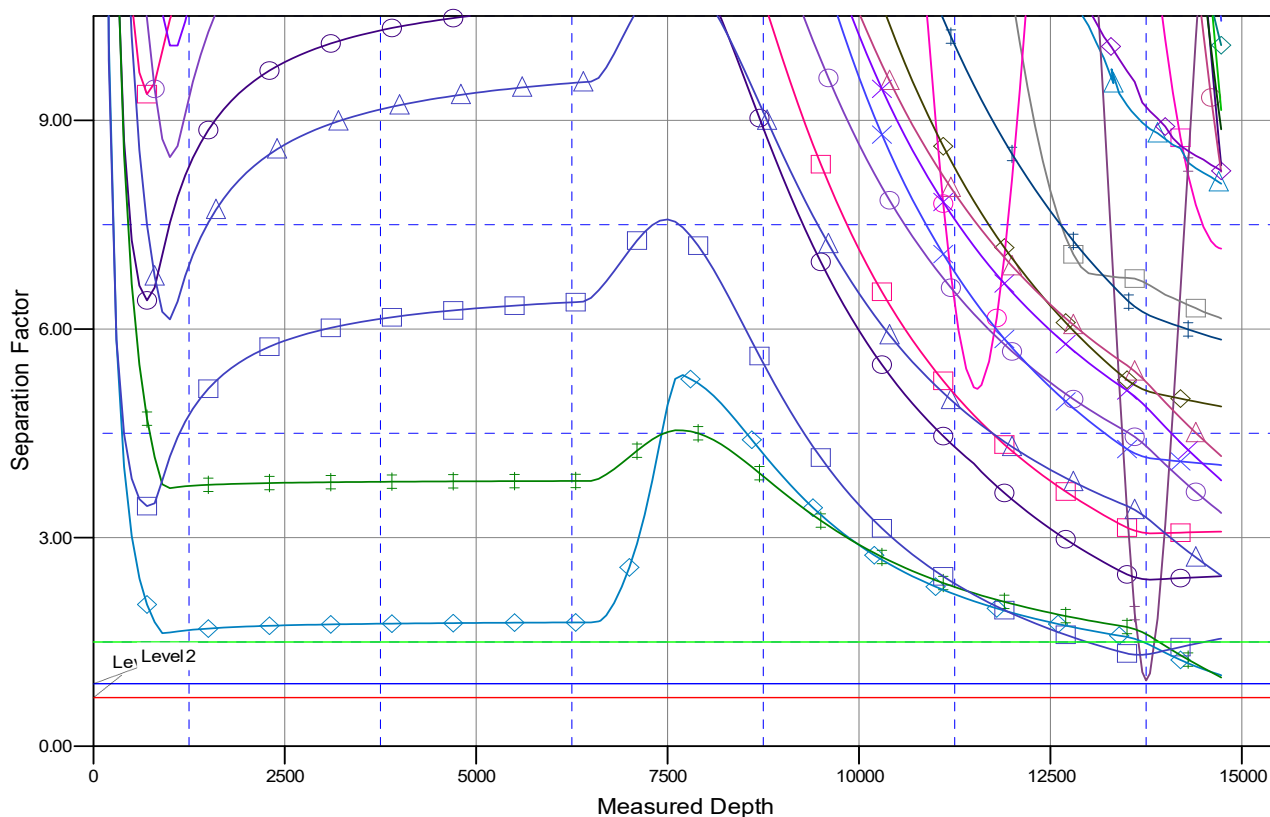
Central Meridian is -105.500000

Coordinates are relative to: WARNER 2F-10H-E165

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.54°

Separation Factor Plot



LEGEND

- | | | |
|-------------------------------------|---|--|
| COLFER 13C-34HZ, KMG, MWD V0 | RANDLE RED XX 3-2D, KMG, Gyo V0 | WARNER 2D-10H-E165, Wellbore #1, Plan #3 27Sep18 kjs V0 |
| HDI KF 03232HN, VERDAD, Proposal V0 | JOKER 1N3-9HZ, KMG, MWD V0 | WARNER 2G-10H-E165, Wellbore #1, Plan #3 27Sep18 kjs V0 |
| COLFER 13N-34HZ, KMG, MWD V0 | SPARBOE 7C-3HZ, KMG, MWD V0 | WARNER 2H-10H-E165, Wellbore #1, Plan #3 27Sep18 kjs V0 |
| RANDLE RED XX 3-4D, KMG, Gyo V0 | HDI KF 03232HC, VERDAD, Proposal V0 | WARNER 2A-10H-E165, Wellbore #1, Plan #3 27Sep18 kjs V0 |
| HDI KF 10-4H, VERDAD, Proposal V0 | OTTESEN 1, VERDAD, Gyo V0 | WARNER 2K-10H-E165, Wellbore #1, Plan #3 27Sep18 kjs V0 |
| HDI KF 03231HN, VERDAD, Proposal V0 | RUEGGE 3Q-4HN165, CPR, MWD V0 | WARNER 2I-10H-E165, Wellbore #1, Plan #3 27Sep18 kjs V0 |
| CHAPIN 44-4, CPR, Gyo V0 | OLIN 42-4A, CPR, MWD V0 | WARNER 2H-10H-E165, Wellbore #1, Plan #3 27Sep18 kjs V0 |
| COLFER 36N-34HZ, KMG, MWD V0 | ROCKY 38N-33HZ, KMG, Proposal V0 | WARNER 2E-10H-E165, Wellbore #1, Plan #3 27Sep18 kjs V0 |
| JOKER 26N2-9HZ, KMG, MWD V0 | COLFER 14C-34HZ, KMG, MWD V0 | WARNER 2L-10H-E165, Wellbore #1, Plan #3 27Sep18 kjs V0 |
| JOKER 26N1-9HZ, KMG, MWD V0 | HDI KF 10-3H, VERDAD, Proposal V0 | WARNER 2AA-10H-E165, Wellbore #1, Plan #3 27Sep18 kjs V0 |
| CHAPIN 43-4, CPR, Gyo V0 | COLFER 35N-34HZ, KMG, MWD V0 | |
| COLFER 14N-34HZ, KMG, MWD V0 | OLIN 41-4, CPR, MWD V0 | |
| RUEGGE 3R-4HN165, CPR, MWD V0 | WARNER 2C-10H-E165, Wellbore #1, Plan #2 27Sep18 kjs V0 | |