



Crestone Peak Resources

Sec 10 T1N-R65W

Warner Pad

WARNER 2E-10H-E165

Wellbore #1

Plan #3 27Sep18 kjs

Anticollision Summary Report

28 September, 2018

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well WARNER 2E-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 2E-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	14,595.63	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	11,680.37	7,062.95	1,559.17	1,452.74	14.650	CC
CHAPIN 43-4 - CPR - Gyro	11,700.00	7,063.44	1,559.29	1,452.63	14.620	ES
CHAPIN 43-4 - CPR - Gyro	11,800.00	7,065.91	1,563.75	1,456.11	14.529	SF
CHAPIN 44-4 - CPR - Gyro	10,444.92	7,057.54	1,818.78	1,732.57	21.096	CC, ES
CHAPIN 44-4 - CPR - Gyro	10,700.00	7,058.54	1,836.58	1,747.81	20.688	SF
COLFER 13C-34HZ - KMG - MWD	14,595.63	11,790.00	990.12	906.00	11.771	CC, ES, SF
COLFER 13N-34HZ - KMG - MWD	14,595.63	11,496.00	1,141.78	1,005.74	8.393	CC, ES, SF
COLFER 14C-34HZX - KMG - MWD	14,595.63	11,779.00	1,480.26	1,315.22	8.969	CC, ES, SF
COLFER 14N-34HZ - KMG - MWD	14,595.63	11,568.00	1,255.15	1,114.38	8.917	CC, ES, SF
COLFER 35N-34HZ - KMG - MWD	14,595.63	11,687.00	928.54	868.92	15.574	CC, ES, SF
COLFER 36N-34HZ - KMG - MWD	14,595.63	11,617.00	1,776.34	1,591.19	9.594	CC, ES, SF
HDI KF 03-231HN - VERDAD - Proposal	6,632.12	6,563.48	3,968.98	3,920.69	82.192	CC, ES
HDI KF 03-231HN - VERDAD - Proposal	7,100.00	6,945.72	4,042.00	3,991.59	80.176	SF
HDI KF 03-232HC - VERDAD - Proposed	6,633.54	6,564.83	3,995.65	3,947.35	82.713	CC, ES
HDI KF 03-232HC - VERDAD - Proposed	7,100.00	6,945.72	4,067.84	4,017.42	80.680	SF
HDI KF 03-232HN - VERDAD - Proposal	6,632.83	6,564.15	3,982.31	3,934.01	82.452	CC, ES
HDI KF 03-232HN - VERDAD - Proposal	7,100.00	6,945.72	4,054.91	4,004.50	80.428	SF
HDI KF 10-1H - VERDAD - Proposal	6,615.13	6,547.09	4,038.72	3,990.66	84.028	CC, ES
HDI KF 10-1H - VERDAD - Proposal	7,100.00	6,945.72	4,121.94	4,071.57	81.841	SF
HDI KF 10-3H - VERDAD - Proposal	6,616.44	6,548.36	4,065.08	4,017.00	84.546	CC, ES
HDI KF 10-3H - VERDAD - Proposal	7,100.00	6,945.72	4,147.40	4,097.03	82.340	SF
JOKER 1N3-9HZ - KMG - MWD	6,954.38	9,698.00	1,644.40	1,567.46	21.372	CC, ES
JOKER 1N3-9HZ - KMG - MWD	9,400.00	11,936.00	1,710.43	1,579.89	13.103	SF
JOKER 26N1-9HZ - KMG - MWD	8,321.51	11,101.46	1,557.31	1,454.39	15.132	CC
JOKER 26N1-9HZ - KMG - MWD	8,800.00	11,532.02	1,562.83	1,447.84	13.590	ES
JOKER 26N1-9HZ - KMG - MWD	9,500.00	12,052.00	1,619.87	1,488.66	12.346	SF
JOKER 26N2-9HZ - KMG - MWD	7,012.01	9,692.95	1,366.78	1,290.08	17.820	CC
JOKER 26N2-9HZ - KMG - MWD	9,300.00	11,975.00	1,368.73	1,238.41	10.502	ES, SF
OLIN 41-4 - CPR - MWD	14,381.39	7,349.56	1,818.11	1,665.80	11.937	CC
OLIN 41-4 - CPR - MWD	14,400.00	7,352.02	1,818.20	1,665.70	11.922	ES
OLIN 41-4 - CPR - MWD	14,500.00	7,357.71	1,821.96	1,668.62	11.882	SF
OLIN 42-4A - CPR - MWD	13,111.75	7,397.42	1,838.99	1,703.13	13.536	CC, ES
OLIN 42-4A - CPR - MWD	13,300.00	7,390.61	1,848.58	1,710.01	13.341	SF
OTTESSEN 1 - VERDAD - Gyro	11,396.67	7,058.33	213.25	111.63	2.099	CC, ES, SF
RANDLE RED XX 3-2D - KMG - Gyro	13,599.45	7,060.98	417.06	275.07	2.937	CC
RANDLE RED XX 3-2D - KMG - Gyro	13,600.00	7,061.01	417.06	275.06	2.937	ES, SF
RANDLE RED XX 3-4D - KMG - Gyro	14,595.63	7,037.37	729.54	573.25	4.668	CC, ES, SF

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

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well WARNER 2E-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 2E-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)						
ROCKY 38N-33HZ - KMG - Proposal	14,595.63	13,373.00	1,782.77	1,583.76	8.958	CC, ES, SF
RUEGGE 3Q-4H-N165 - CPR - MWD	10,350.80	8,024.50	1,361.02	1,270.00	14.953	CC
RUEGGE 3Q-4H-N165 - CPR - MWD	14,595.63	12,256.94	1,373.44	1,158.58	6.392	ES, SF
RUEGGE 3R-4H-N165 - CPR - MWD	10,318.77	8,368.39	1,376.23	1,280.76	14.414	CC
RUEGGE 3R-4H-N165 - CPR - MWD	14,595.63	12,660.00	1,384.72	1,166.36	6.341	ES, SF
SPARBOE 7C-3HZ - KMG - MWD	14,065.77	13,329.84	1,824.98	1,592.51	7.850	CC
SPARBOE 7C-3HZ - KMG - MWD	14,100.00	13,296.36	1,824.99	1,592.50	7.850	ES
SPARBOE 7C-3HZ - KMG - MWD	14,400.00	13,016.46	1,825.81	1,592.78	7.835	SF
Warner Pad						
WARNER 2A-10H-E165 - Wellbore #1 - Plan #3 27Sep1	200.00	199.00	40.02	39.03	40.454	CC
WARNER 2A-10H-E165 - Wellbore #1 - Plan #3 27Sep1	300.00	298.91	40.19	38.50	23.781	ES
WARNER 2A-10H-E165 - Wellbore #1 - Plan #3 27Sep1	14,595.63	14,631.71	903.45	639.60	3.424	SF
WARNER 2AA-10H-E165 - Wellbore #1 - Plan #3 27Sep	200.00	199.00	50.10	49.11	50.637	CC
WARNER 2AA-10H-E165 - Wellbore #1 - Plan #3 27Sep	300.00	298.39	50.76	49.08	30.087	ES
WARNER 2AA-10H-E165 - Wellbore #1 - Plan #3 27Sep	14,595.63	14,454.30	1,134.11	871.06	4.311	SF
WARNER 2B-10H-E165 - Wellbore #1 - Plan #3 27Sep1	300.00	299.13	30.15	28.45	17.817	CC, ES
WARNER 2B-10H-E165 - Wellbore #1 - Plan #3 27Sep1	14,595.63	14,552.05	669.74	405.55	2.535	SF
WARNER 2C-10H-E165 - Wellbore #1 - Plan #2 27Sep1	333.40	332.68	19.89	17.97	10.350	CC
WARNER 2C-10H-E165 - Wellbore #1 - Plan #2 27Sep1	400.00	399.47	20.12	17.74	8.468	ES
WARNER 2C-10H-E165 - Wellbore #1 - Plan #2 27Sep1	14,595.63	14,779.76	461.35	219.84	1.910	SF
WARNER 2D-10H-E165 - Wellbore #1 - Plan #3 27Sep1	338.87	339.03	9.95	7.99	5.066	CC
WARNER 2D-10H-E165 - Wellbore #1 - Plan #3 27Sep1	500.00	500.43	10.66	7.57	3.452	ES
WARNER 2D-10H-E165 - Wellbore #1 - Plan #3 27Sep1	14,595.63	14,657.06	267.25	10.98	1.043	Level 3, SF
WARNER 2F-10H-E165 - Wellbore #1 - Plan #3 27Sep1	272.39	272.36	9.66	8.15	6.405	CC, ES
WARNER 2F-10H-E165 - Wellbore #1 - Plan #3 27Sep1	13,500.00	13,627.54	284.38	67.62	1.312	Level 3, SF
WARNER 2G-10H-E165 - Wellbore #1 - Plan #3 27Sep1	295.02	294.90	19.65	17.98	11.784	CC
WARNER 2G-10H-E165 - Wellbore #1 - Plan #3 27Sep1	400.00	399.26	20.27	17.89	8.512	ES
WARNER 2G-10H-E165 - Wellbore #1 - Plan #3 27Sep1	14,595.63	14,882.63	592.14	346.58	2.411	SF
WARNER 2H-10H-E165 - Wellbore #1 - Plan #3 27Sep1	274.85	274.72	29.81	28.28	19.550	CC, ES
WARNER 2H-10H-E165 - Wellbore #1 - Plan #3 27Sep1	14,595.63	14,762.09	654.87	394.33	2.513	SF
WARNER 2I-10H-E165 - Wellbore #1 - Plan #3 27Sep18	251.56	251.54	39.66	38.30	29.153	CC, ES
WARNER 2I-10H-E165 - Wellbore #1 - Plan #3 27Sep18	14,595.63	14,842.36	1,037.94	776.20	3.966	SF
WARNER 2J-10H-E165 - Wellbore #1 - Plan #3 27Sep18	200.00	200.00	49.82	48.83	50.171	CC, ES
WARNER 2J-10H-E165 - Wellbore #1 - Plan #3 27Sep18	14,595.63	14,823.77	1,269.71	1,006.55	4.825	SF
WARNER 2K-10H-E165 - Wellbore #1 - Plan #3 27Sep1	200.00	200.00	59.89	58.90	60.319	CC, ES
WARNER 2K-10H-E165 - Wellbore #1 - Plan #3 27Sep1	14,595.63	15,184.65	1,392.15	1,132.31	5.358	SF
WARNER 2L-10H-E165 - Wellbore #1 - Plan #3 27Sep18	200.00	200.00	69.97	68.98	70.466	CC, ES
WARNER 2L-10H-E165 - Wellbore #1 - Plan #3 27Sep18	14,595.63	14,779.75	1,473.25	1,209.73	5.591	SF

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

Local Co-ordinate Reference: Well WARNER 2E-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

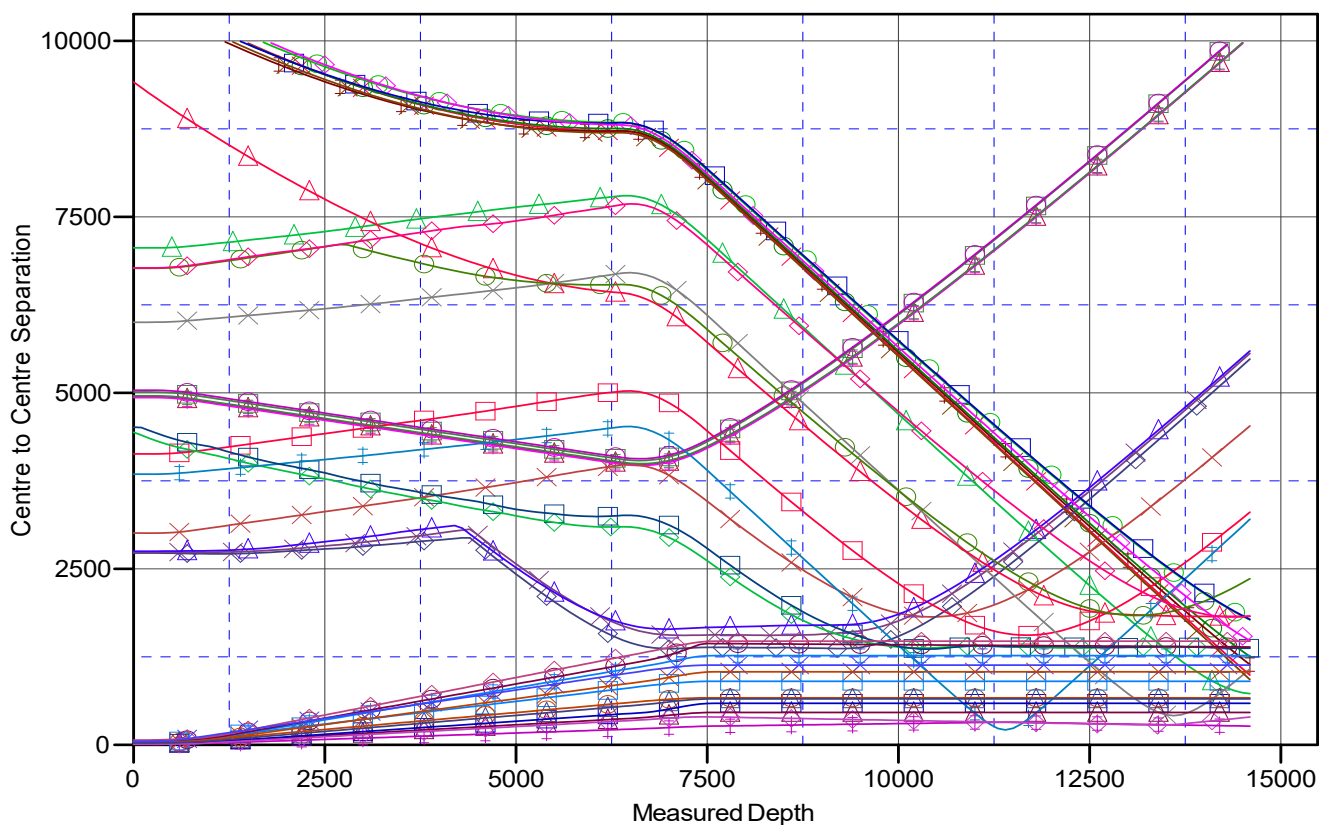
Central Meridian is -105.500000

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

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.54°

Ladder Plot



LEGEND

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

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

Local Co-ordinate Reference: Well WARNER 2E-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

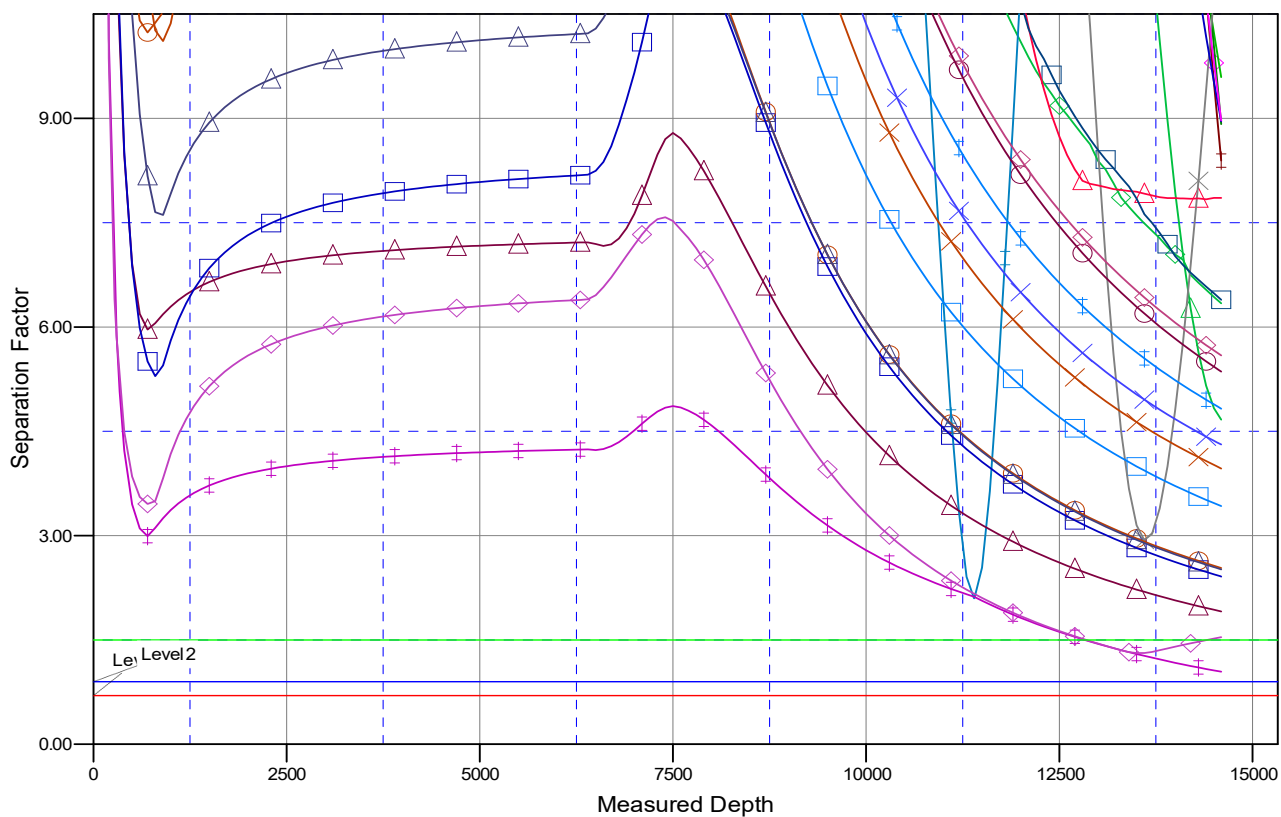
Central Meridian is -105.500000

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