

PDC ENERGY

**WELD COUNTY, COLORADO
SE SE SEC. 18 T5N R64W 6th P.M.
GILLHAM 18Y-312**

**ORIGINAL WELLBORE
PROPOSAL #2**

Anticollision Report

17 September, 2015



Anticollision Report



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well GILLHAM 18Y-312
Project:	WELD COUNTY, COLORADO	TVD Reference:	KB-EST @ 4638.0usft (Original Well Elev)
Reference Site:	SE SE SEC. 18 T5N R64W 6th P.M.	MD Reference:	KB-EST @ 4638.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	GILLHAM 18Y-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	EDM 5000.1 Single User Db
Reference Design:	PROPOSAL #2	Offset TVD Reference:	Offset Datum

Reference	PROPOSAL #2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 98.4usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0 us	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	17/09/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	12,290.6	PROPOSAL #2 (ORIGINAL WELLBORE)	MWD	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						
NW SW SEC. 17 T5N R64W 6th P.M.						
CECIL'S KERSEY FARM 17B-212 - ORIGINAL WELLBC	12,267.3	11,221.8	1,187.6	906.9	4.230	CC
CECIL'S KERSEY FARM 17B-212 - ORIGINAL WELLBC	12,290.6	11,239.4	1,187.6	905.7	4.213	ES, SF
CECIL'S KERSEY FARM 17B-214 - ORIGINAL WELLBC	6,850.0	8,512.5	1,274.8	1,205.0	18.259	ES
CECIL'S KERSEY FARM 17B-214 - ORIGINAL WELLBC	6,938.4	8,435.3	1,274.1	1,205.8	18.645	CC
CECIL'S KERSEY FARM 17B-214 - ORIGINAL WELLBC	9,300.0	6,500.0	1,416.3	1,330.1	16.429	SF
CECIL'S KERSEY FARM 17B-302 - ORIGINAL WELLBC	8,107.5	7,151.0	967.8	905.8	15.603	CC
CECIL'S KERSEY FARM 17B-302 - ORIGINAL WELLBC	12,290.6	11,329.9	968.0	686.0	3.433	ES, SF
CECIL'S KERSEY FARM 17B-304 - ORIGINAL WELLBC	7,247.7	8,221.8	1,064.3	999.6	16.446	CC
CECIL'S KERSEY FARM 17B-304 - ORIGINAL WELLBC	8,563.0	6,921.7	1,066.1	995.9	15.191	ES
CECIL'S KERSEY FARM 17B-304 - ORIGINAL WELLBC	9,153.5	6,585.3	1,156.0	1,073.2	13.950	SF
CECIL'S KERSEY FARM 17K-204 - ORIGINAL WELLBC	1,239.0	1,237.0	1,549.8	1,544.4	291.793	CC
CECIL'S KERSEY FARM 17K-204 - ORIGINAL WELLBC	1,279.5	1,268.2	1,549.8	1,544.4	283.235	ES
CECIL'S KERSEY FARM 17K-204 - ORIGINAL WELLBC	10,400.0	6,350.0	2,605.7	2,488.5	22.233	SF
CECIL'S KERSEY FARM 17K-232 - ORIGINAL WELLBC	1,350.0	1,348.0	1,540.4	1,534.6	265.125	CC
CECIL'S KERSEY FARM 17K-232 - ORIGINAL WELLBC	1,377.9	1,381.3	1,540.5	1,534.6	259.364	ES
CECIL'S KERSEY FARM 17K-232 - ORIGINAL WELLBC	12,290.6	11,293.7	1,946.4	1,664.2	6.896	SF
CECIL'S KERSEY FARM 17K-332 - ORIGINAL WELLBC	1,350.0	1,348.0	1,522.1	1,516.2	261.962	CC
CECIL'S KERSEY FARM 17K-332 - ORIGINAL WELLBC	12,290.6	11,352.0	1,690.1	1,407.7	5.985	ES, SF
CECIL'S KERSEY FARM 17K-334 - ORIGINAL WELLBC	1,350.0	1,348.0	1,531.2	1,525.4	263.536	CC, ES
CECIL'S KERSEY FARM 17K-334 - ORIGINAL WELLBC	9,940.9	6,419.8	2,134.7	2,029.7	20.340	SF
CECIL'S KERSEY FARM 17K-402 - ORIGINAL WELLBC	1,396.4	1,420.1	1,557.5	1,551.5	257.173	CC
CECIL'S KERSEY FARM 17K-402 - ORIGINAL WELLBC	1,400.0	1,424.0	1,557.5	1,551.4	256.489	ES
CECIL'S KERSEY FARM 17K-402 - ORIGINAL WELLBC	12,290.6	11,472.7	2,174.9	1,892.8	7.710	SF
CECIL'S KERSEY FARM 17K-404 - ORIGINAL WELLBC	1,038.9	1,036.9	1,568.7	1,564.3	355.585	CC
CECIL'S KERSEY FARM 17K-404 - ORIGINAL WELLBC	1,082.7	1,070.5	1,568.8	1,564.2	342.136	ES
CECIL'S KERSEY FARM 17K-404 - ORIGINAL WELLBC	10,800.0	6,450.0	3,013.6	2,883.5	23.161	SF
EXIST VERT B&H #1 - Wellbore #1 - Design #1	6,133.5	6,065.8	3,896.9	3,760.7	28.610	CC
EXIST VERT B&H #1 - Wellbore #1 - Design #1	6,150.0	6,082.3	3,897.1	3,758.0	28.031	ES
EXIST VERT B&H #1 - Wellbore #1 - Design #1	6,200.8	6,133.0	3,899.9	3,760.3	27.942	SF
EXIST VERT BRIGHT #2 - Wellbore #1 - Design #1	6,133.5	6,065.8	4,487.1	4,351.9	33.187	CC
EXIST VERT BRIGHT #2 - Wellbore #1 - Design #1	6,150.0	6,082.3	4,487.2	4,347.4	32.087	ES
EXIST VERT BRIGHT #2 - Wellbore #1 - Design #1	6,250.0	6,181.8	4,494.5	4,353.6	31.914	SF
EXIST VERT DUNN #22-18 - Wellbore #1 - Design #1	3,035.7	3,003.6	3,758.8	3,690.4	54.916	CC
EXIST VERT DUNN #22-18 - Wellbore #1 - Design #1	6,150.0	6,079.3	3,811.0	3,671.1	27.241	ES
EXIST VERT DUNN #22-18 - Wellbore #1 - Design #1	6,299.2	6,227.0	3,822.5	3,680.9	26.996	SF
EXIST VERT DUNN/MILLER #1 - Wellbore #1 - Design #1	8,155.7	6,768.3	1,561.3	1,383.8	8.796	CC
EXIST VERT DUNN/MILLER #1 - Wellbore #1 - Design #1	8,200.0	6,767.8	1,561.9	1,383.3	8.744	ES

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

Anticollision Report



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well GILLHAM 18Y-312
Project:	WELD COUNTY, COLORADO	TVD Reference:	KB-EST @ 4638.0usft (Original Well Elev)
Reference Site:	SE SE SEC. 18 T5N R64W 6th P.M.	MD Reference:	KB-EST @ 4638.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	GILLHAM 18Y-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	EDM 5000.1 Single User Db
Reference Design:	PROPOSAL #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						
NW SW SEC. 17 T5N R64W 6th P.M.						
EXIST VERT DUNN/MILLER #1 - Wellbore #1 - Design #	8,500.0	6,764.5	1,598.8	1,412.4	8.577	SF
EXIST VERT DUNN/MILLER #17B - Wellbore #1 - Design #	8,807.6	6,754.1	1,044.1	849.6	5.368	CC
EXIST VERT DUNN/MILLER #17B - Wellbore #1 - Design #	8,858.2	6,753.6	1,045.3	849.4	5.337	ES
EXIST VERT DUNN/MILLER #17B - Wellbore #1 - Design #	8,956.7	6,752.5	1,054.6	856.2	5.313	SF
EXIST VERT DUNN/MILLER #23-17 - Wellbore #1 - Design #	9,456.6	6,745.0	1,703.5	1,491.5	8.036	CC
EXIST VERT DUNN/MILLER #23-17 - Wellbore #1 - Design #	9,500.0	6,744.6	1,704.1	1,490.9	7.994	ES
EXIST VERT DUNN/MILLER #23-17 - Wellbore #1 - Design #	9,842.5	6,740.8	1,746.7	1,524.2	7.850	SF
EXIST VERT GUNTHER #18-2 - Wellbore #1 - Design #	1,350.0	1,342.0	2,474.2	2,444.6	83.726	CC
EXIST VERT GUNTHER #18-2 - Wellbore #1 - Design #	1,476.4	1,468.3	2,475.5	2,443.2	76.576	ES
EXIST VERT GUNTHER #18-2 - Wellbore #1 - Design #	8,366.1	6,763.0	3,307.1	3,124.2	18.084	SF
EXIST VERT GUNTHER-PM B #18-7 - Wellbore #1 - Design #	1,519.4	1,523.4	2,989.0	2,984.9	728.606	CC
EXIST VERT GUNTHER-PM B #18-7 - Wellbore #1 - Design #	1,574.8	1,576.3	2,989.1	2,984.8	707.477	ES
EXIST VERT GUNTHER-PM B #18-7 - Wellbore #1 - Design #	12,290.6	6,734.6	7,431.1	7,274.1	47.328	SF
EXIST VERT H&S #1 - Wellbore #1 - Design #1	10,996.2	6,732.2	1,410.1	1,155.8	5.546	CC
EXIST VERT H&S #1 - Wellbore #1 - Design #1	11,023.6	6,731.9	1,410.3	1,155.3	5.530	ES
EXIST VERT H&S #1 - Wellbore #1 - Design #1	11,220.4	6,729.7	1,427.8	1,167.3	5.482	SF
EXIST VERT HETTINGER #1 - Wellbore #1 - Design #1	1,350.0	1,346.0	1,155.0	1,125.4	39.033	CC
EXIST VERT HETTINGER #1 - Wellbore #1 - Design #1	1,500.0	1,495.9	1,156.7	1,123.8	35.171	ES
EXIST VERT HETTINGER #1 - Wellbore #1 - Design #1	7,150.0	6,770.8	1,623.5	1,468.2	10.457	SF
EXIST VERT HETTINGER #33-18 - Wellbore #1 - Design #	3,079.0	3,040.0	1,759.3	1,690.0	25.369	CC
EXIST VERT HETTINGER #33-18 - Wellbore #1 - Design #	6,150.0	6,073.3	1,804.2	1,664.3	12.904	ES
EXIST VERT HETTINGER #33-18 - Wellbore #1 - Design #	6,250.0	6,172.8	1,809.5	1,668.2	12.809	SF
EXIST VERT HETTINGER #34-18 - Wellbore #1 - Design #	6,133.5	6,061.8	1,053.6	916.9	7.712	CC
EXIST VERT HETTINGER #34-18 - Wellbore #1 - Design #	6,150.0	6,078.3	1,053.7	915.2	7.604	ES
EXIST VERT HETTINGER #34-18 - Wellbore #1 - Design #	6,200.0	6,128.2	1,056.6	917.5	7.596	SF
EXIST VERT HETTINGER #44-18 - Wellbore #1 - Design #	2,919.1	2,884.5	34.8	-30.9	0.529	Level 1, CC, SF
EXIST VERT HETTINGER #44-18 - Wellbore #1 - Design #	2,950.0	2,914.8	35.4	-31.0	0.533	Level 1, ES
EXIST VERT HOSHIKO #32-17 - Wellbore #1 - Design #	10,787.9	6,732.5	2,927.8	2,679.3	11.782	CC
EXIST VERT HOSHIKO #32-17 - Wellbore #1 - Design #	10,900.0	6,731.2	2,929.9	2,678.3	11.646	ES
EXIST VERT HOSHIKO #32-17 - Wellbore #1 - Design #	11,712.6	6,722.3	3,070.3	2,796.2	11.204	SF
EXIST VERT HOSHIKO #42-17 - Wellbore #1 - Design #	12,116.6	6,717.9	2,938.9	2,653.6	10.304	CC
EXIST VERT HOSHIKO #42-17 - Wellbore #1 - Design #	12,200.0	6,717.0	2,940.0	2,652.5	10.225	ES
EXIST VERT HOSHIKO #42-17 - Wellbore #1 - Design #	12,290.6	6,716.0	2,944.0	2,654.0	10.150	SF
EXIST VERT HOSHIKO/SOLIS #1 - Wellbore #1 - Design #	10,799.7	6,736.0	42.8	-73.0	0.369	Level 1, CC
EXIST VERT HOSHIKO/SOLIS #1 - Wellbore #1 - Design #	10,800.0	6,736.0	42.8	-73.0	0.369	Level 1, ES, SF
EXIST VERT HOWARD #14-18 - Wellbore #1 - Design #	6,133.5	6,063.8	3,704.5	3,567.0	26.939	CC
EXIST VERT HOWARD #14-18 - Wellbore #1 - Design #	6,150.0	6,080.3	3,704.7	3,566.9	26.891	ES
EXIST VERT HOWARD #14-18 - Wellbore #1 - Design #	6,200.0	6,130.2	3,707.6	3,569.4	26.821	SF
EXIST VERT HOWARD #24-18 - Wellbore #1 - Design #	6,133.5	6,065.8	2,157.8	2,020.3	15.693	CC
EXIST VERT HOWARD #24-18 - Wellbore #1 - Design #	6,150.0	6,082.3	2,158.0	2,020.2	15.659	ES
EXIST VERT HOWARD #24-18 - Wellbore #1 - Design #	6,200.0	6,132.2	2,160.9	2,022.6	15.627	SF
EXIST VERT MASON #1 - Wellbore #1 - Design #1	6,133.5	6,062.8	2,713.4	2,577.9	20.022	CC
EXIST VERT MASON #1 - Wellbore #1 - Design #1	6,150.0	6,079.3	2,713.6	2,574.0	19.447	ES
EXIST VERT MASON #1 - Wellbore #1 - Design #1	6,200.8	6,130.0	2,716.1	2,576.0	19.377	SF
EXIST VERT MILLER #1 - Wellbore #1 - Wellbore #1	8,109.3	6,771.5	222.7	180.5	5.273	CC, ES
EXIST VERT MILLER #1 - Wellbore #1 - Wellbore #1	8,169.3	6,771.0	230.6	186.9	5.270	SF
EXIST VERT MILLER #2 - Wellbore #1 - Wellbore #1	9,476.5	6,754.1	213.9	134.9	2.707	CC, ES
EXIST VERT MILLER #2 - Wellbore #1 - Wellbore #1	9,500.0	6,754.2	215.2	135.5	2.701	SF
EXIST VERT SCHAUMBERG #12-17 - Wellbore #1 - Design #	1,350.0	1,340.0	2,738.0	2,708.5	92.719	CC
EXIST VERT SCHAUMBERG #12-17 - Wellbore #1 - Design #	8,366.1	6,761.0	2,888.3	2,705.4	15.795	ES
EXIST VERT SCHAUMBERG #12-17 - Wellbore #1 - Design #	9,547.2	6,748.1	3,147.3	2,932.8	14.674	SF
EXIST VERT SOLIS #43-17 - Wellbore #1 - Design #1	12,111.3	6,730.0	1,441.5	1,156.4	5.055	CC, ES
EXIST VERT SOLIS #43-17 - Wellbore #1 - Design #1	12,290.6	6,728.0	1,452.7	1,162.5	5.006	SF

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

Anticollision Report



Company:	PDC ENERGY	Local Co-ordinate Reference:	Well GILLHAM 18Y-312
Project:	WELD COUNTY, COLORADO	TVD Reference:	KB-EST @ 4638.0usft (Original Well Elev)
Reference Site:	SE SE SEC. 18 T5N R64W 6th P.M.	MD Reference:	KB-EST @ 4638.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	GILLHAM 18Y-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	EDM 5000.1 Single User Db
Reference Design:	PROPOSAL #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						
NW SW SEC. 17 T5N R64W 6th P.M.						
EXIST VERT SOLIS #44-17 - Wellbore #1 - Wellbore #1	12,290.6	6,700.0	477.9	321.2	3.049	CC, ES, SF
EXIST VERT STEINMETZ #1 - Wellbore #1 - Design #1	9,456.7	6,750.0	2,906.1	2,694.1	13.706	CC
EXIST VERT STEINMETZ #1 - Wellbore #1 - Design #1	9,547.2	6,749.1	2,907.5	2,693.0	13.555	ES
EXIST VERT STEINMETZ #1 - Wellbore #1 - Design #1	10,531.5	6,738.3	3,098.4	2,857.0	12.832	SF
SE SE SEC. 18 T5N R64W 6th P.M.						
GILLHAM 18X-102 - ORIGINAL WELLBORE - PROPOS	1,237.4	1,237.4	15.0	9.7	2.833	CC
GILLHAM 18X-102 - ORIGINAL WELLBORE - PROPOS	1,279.5	1,279.4	15.2	9.7	2.761	ES
GILLHAM 18X-102 - ORIGINAL WELLBORE - PROPOS	12,290.6	12,093.6	769.9	465.7	2.531	SF
GILLHAM 18X-104 - ORIGINAL WELLBORE - PROPOS	1,237.4	1,237.4	60.2	54.9	11.335	CC
GILLHAM 18X-104 - ORIGINAL WELLBORE - PROPOS	1,279.5	1,279.0	60.3	54.8	10.976	ES
GILLHAM 18X-104 - ORIGINAL WELLBORE - PROPOS	1,377.9	1,375.5	62.8	56.9	10.624	SF
GILLHAM 18X-232 - ORIGINAL WELLBORE - PROPOS	1,037.1	1,037.1	44.8	40.4	10.174	CC
GILLHAM 18X-232 - ORIGINAL WELLBORE - PROPOS	12,290.6	12,183.8	324.6	21.2	1.070	Level 2, ES, SF
GILLHAM 18X-234 - ORIGINAL WELLBORE - PROPOS	1,038.0	1,037.0	90.0	85.6	20.403	CC
GILLHAM 18X-234 - ORIGINAL WELLBORE - PROPOS	1,082.7	1,080.7	90.1	85.5	19.579	ES
GILLHAM 18X-234 - ORIGINAL WELLBORE - PROPOS	6,791.3	7,610.1	432.8	386.4	9.321	SF
GILLHAM 18X-332 - ORIGINAL WELLBORE - PROPOS	1,137.3	1,137.3	30.1	25.2	6.192	CC
GILLHAM 18X-332 - ORIGINAL WELLBORE - PROPOS	1,181.1	1,180.8	30.3	25.2	5.989	ES
GILLHAM 18X-332 - ORIGINAL WELLBORE - PROPOS	12,290.6	12,271.2	533.0	221.5	1.711	SF
GILLHAM 18X-334 - ORIGINAL WELLBORE - PROPOS	1,138.1	1,137.1	74.9	70.1	15.418	CC
GILLHAM 18X-334 - ORIGINAL WELLBORE - PROPOS	1,181.1	1,179.4	75.1	70.0	14.873	ES
GILLHAM 18X-334 - ORIGINAL WELLBORE - PROPOS	7,874.0	6,756.5	683.8	631.0	12.942	SF
GILLHAM 18Y-202 - ORIGINAL WELLBORE - PROPOS	1,350.0	1,350.0	15.0	9.2	2.588	CC
GILLHAM 18Y-202 - ORIGINAL WELLBORE - PROPOS	12,290.6	12,219.1	221.1	-72.8	0.752	Level 1, ES, SF
GILLHAM 18Y-214 - ORIGINAL WELLBORE - PROPOS	1,350.0	1,350.0	30.1	24.3	5.174	CC
GILLHAM 18Y-214 - ORIGINAL WELLBORE - PROPOS	1,377.9	1,377.9	30.2	24.3	5.089	ES
GILLHAM 18Y-214 - ORIGINAL WELLBORE - PROPOS	6,938.5	7,541.4	106.2	60.4	2.320	SF
GILLHAM 18Y-314 - ORIGINAL WELLBORE - PROPOS	1,350.0	1,350.0	45.1	39.3	7.761	CC, ES
GILLHAM 18Y-314 - ORIGINAL WELLBORE - PROPOS	7,400.0	7,142.3	94.0	48.2	2.054	SF

Offset Design

NW SW SEC. 17 T5N R64W 6th P.M. - CECIL'S KERSEY FARM 17B-212 - ORIGINAL WELLBORE - P												Offset Site Error:	0.0 usft
Survey Program: 0-MW/D												Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	58.91	776.8	1,288.0	1,504.1				
98.4	98.4	96.4	96.4	0.1	0.1	58.91	776.8	1,288.0	1,504.1	1,503.9	0.19	7,904.357	
100.0	100.0	98.0	98.0	0.1	0.1	58.91	776.8	1,288.0	1,504.1	1,503.9	0.19	7,769.210	
196.8	196.8	194.8	194.8	0.3	0.3	58.91	776.8	1,288.0	1,504.1	1,503.4	0.63	2,401.014	
200.0	200.0	198.0	198.0	0.3	0.3	58.91	776.8	1,288.0	1,504.1	1,503.4	0.64	2,347.939	
295.3	295.3	293.3	293.3	0.5	0.5	58.91	776.8	1,288.0	1,504.1	1,503.0	1.07	1,407.134	
300.0	300.0	298.0	298.0	0.5	0.5	58.91	776.8	1,288.0	1,504.1	1,503.0	1.09	1,379.717	
393.7	393.7	391.7	391.7	0.8	0.8	58.91	776.8	1,288.0	1,504.1	1,502.5	1.51	995.186	
400.0	400.0	398.0	398.0	0.8	0.8	58.91	776.8	1,288.0	1,504.1	1,502.5	1.54	976.880	
492.1	492.1	490.1	490.1	1.0	1.0	58.91	776.8	1,288.0	1,504.1	1,502.1	1.95	769.816	
500.0	500.0	498.0	498.0	1.0	1.0	58.91	776.8	1,288.0	1,504.1	1,502.1	1.99	756.116	
590.5	590.5	588.5	588.5	1.2	1.2	58.91	776.8	1,288.0	1,504.1	1,501.7	2.40	627.674	
600.0	600.0	598.0	598.0	1.2	1.2	58.91	776.8	1,288.0	1,504.1	1,501.6	2.44	616.740	
689.0	689.0	687.0	687.0	1.4	1.4	58.91	776.8	1,288.0	1,504.1	1,501.2	2.84	529.841	

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