

# **EXTRACTION OIL & GAS**

**Broomfield County**

**Sec 10-T1S-R68W**

**INTERCHANGE A S22-30-12N**

**ORIGINAL WELLBORE**

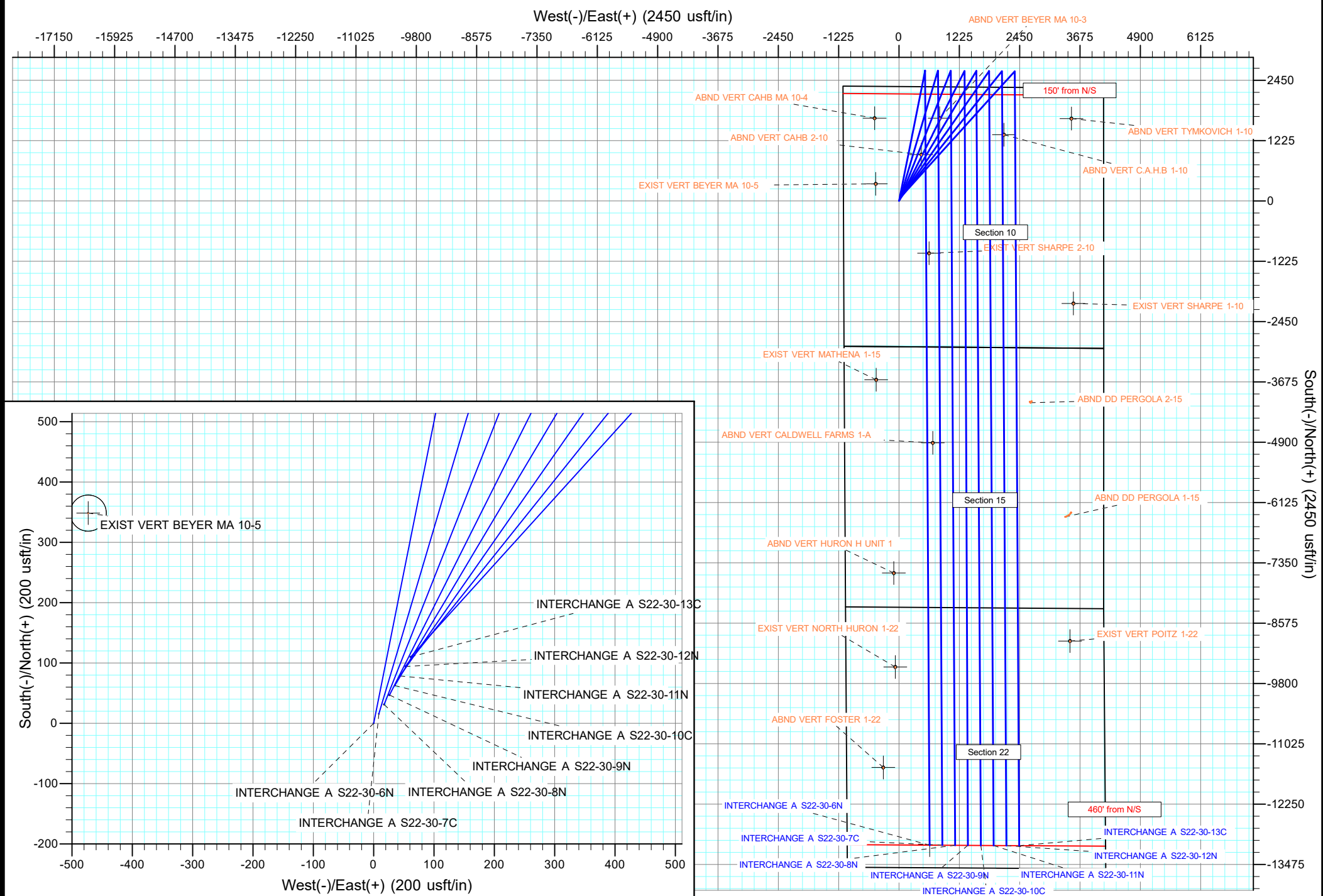
**PROPOSAL 1**

## **Anticollision Report**

**23 January, 2018**



Project: Broomfield County  
Site: Sec 10-T1S-R68W  
Well: INTERCHANGE A S22-30-6N  
ORIGINAL WELLBORE  
PROPOSAL 1



# Anticollision Report

<b>Company:</b>	EXTRACTION OIL & GAS	<b>Local Co-ordinate Reference:</b>	Well INTERCHANGE A S22-30-12N
<b>Project:</b>	Broomfield County	<b>TVD Reference:</b>	KB 25' @ 5257.00usft
<b>Reference Site:</b>	Sec 10-T1S-R68W	<b>MD Reference:</b>	KB 25' @ 5257.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	INTERCHANGE A S22-30-12N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	EDT_32Bit_ODBC
<b>Reference Design:</b>	PROPOSAL 1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	PROPOSAL 1		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD + Stations Interval 100.00usft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 9,999.98 usft	<b>Error Surface:</b>	Pedal Curve
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	1/23/2018		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	24,171.15	PROPOSAL 1 (ORIGINAL WELLBORE)	MWD OWSG	OWSG MWD - Standard

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (usft)</b>	<b>Offset Measured Depth (usft)</b>	<b>Distance Between Centres (usft)</b>	<b>Distance Between Ellipses (usft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
Sec 10-T1S-R68W						
ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1	4,355.42	3,907.00	388.50	276.71	3.475	CC
ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1	4,400.00	3,931.51	389.15	276.49	3.454	ES
ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1	4,500.00	4,017.88	395.27	280.35	3.440	SF
ABND VERT C.A.H.B 1-10 - Wellbore #1 - Design #1	9,734.25	7,767.99	32.42	-168.71	0.161	Level 1, CC, ES, SF
ABND VERT CAHB 2-10 - Wellbore #1 - Design #1	2,747.81	2,502.45	217.01	148.69	3.176	CC, ES
ABND VERT CAHB 2-10 - Wellbore #1 - Design #1	2,800.00	2,547.52	218.60	148.99	3.140	SF
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	2,714.47	2,506.35	1,420.73	1,352.65	20.867	CC
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	2,900.00	2,653.90	1,423.80	1,351.04	19.568	ES
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	9,500.00	7,824.99	2,593.86	2,389.74	12.708	SF
ABND VERT TYMKOVICH 1-10 - Wellbore #1 - Design #1	6,344.55	5,180.00	1,867.54	1,800.28	27.765	CC, ES
ABND VERT TYMKOVICH 1-10 - Wellbore #1 - Design #1	6,500.00	5,180.00	1,874.00	1,805.81	27.485	SF
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	200.00	190.00	583.72	579.98	156.028	CC
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	500.00	489.45	587.42	576.43	53.431	ES
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	11,000.00	7,829.98	2,590.61	2,385.77	12.647	SF
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	13,169.21	7,759.97	1,424.18	1,199.15	6.329	CC
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	13,200.00	7,759.97	1,424.52	1,198.88	6.313	ES
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	13,300.00	7,759.97	1,430.18	1,202.68	6.287	SF
EXIST VERT SHARPE 2-10 - Wellbore #1 - Design #1	200.00	152.00	1,282.41	1,279.54	446.837	CC
EXIST VERT SHARPE 2-10 - Wellbore #1 - Design #1	400.00	351.84	1,285.44	1,277.61	164.231	ES
EXIST VERT SHARPE 2-10 - Wellbore #1 - Design #1	12,200.00	7,808.02	1,502.96	1,289.20	7.031	SF
INTERCHANGE A S22-30-10C - ORIGINAL WELLBORE	200.00	200.00	36.14	35.16	36.663	CC, ES
INTERCHANGE A S22-30-10C - ORIGINAL WELLBORE	24,056.97	28,102.55	581.87	50.87	1.096	Level 2, SF
INTERCHANGE A S22-30-11N - ORIGINAL WELLBORE	200.00	200.00	17.91	16.93	18.170	CC
INTERCHANGE A S22-30-11N - ORIGINAL WELLBORE	24,170.02	24,116.75	259.35	-244.66	0.515	Level 1, ES, SF
INTERCHANGE A S22-30-13C - ORIGINAL WELLBORE	100.00	75.00	17.91	17.68	76.139	CC
INTERCHANGE A S22-30-13C - ORIGINAL WELLBORE	24,108.27	26,807.85	388.01	-23.36	0.943	Level 1, ES, SF
INTERCHANGE A S22-30-6N - ORIGINAL WELLBORE	200.00	200.00	107.92	106.94	109.478	CC, ES
INTERCHANGE A S22-30-6N - ORIGINAL WELLBORE	24,171.15	23,979.14	1,559.51	1,054.54	3.088	SF
INTERCHANGE A S22-30-7C - ORIGINAL WELLBORE	200.00	200.00	90.01	89.03	91.309	CC, ES
INTERCHANGE A S22-30-7C - ORIGINAL WELLBORE	24,156.00	24,222.75	1,326.60	826.69	2.654	SF
INTERCHANGE A S22-30-8N - ORIGINAL WELLBORE	200.00	200.00	72.10	71.11	73.139	CC, ES
INTERCHANGE A S22-30-8N - ORIGINAL WELLBORE	24,163.74	24,015.74	1,040.97	535.93	2.061	SF
INTERCHANGE A S22-30-9N - ORIGINAL WELLBORE	200.00	200.00	54.05	53.07	54.832	CC, ES
INTERCHANGE A S22-30-9N - ORIGINAL WELLBORE	24,172.08	24,037.46	781.73	277.79	1.551	SF

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

# Anticollision Report

<b>Company:</b>	EXTRACTION OIL & GAS	<b>Local Co-ordinate Reference:</b>	Well INTERCHANGE A S22-30-12N
<b>Project:</b>	Broomfield County	<b>TVD Reference:</b>	KB 25' @ 5257.00usft
<b>Reference Site:</b>	Sec 10-T1S-R68W	<b>MD Reference:</b>	KB 25' @ 5257.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	INTERCHANGE A S22-30-12N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	EDT_32Bit_ODBC
<b>Reference Design:</b>	PROPOSAL 1	<b>Offset TVD Reference:</b>	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						
Sec 15-T1S-R68W						
ABND DD PERGOLA 1-15 - Wellbore #1 - Wellbore #1	17,502.53	7,500.00	1,255.19	1,091.86	7.685	CC, ES
ABND DD PERGOLA 1-15 - Wellbore #1 - Wellbore #1	17,700.00	7,500.00	1,270.63	1,102.46	7.555	SF
ABND DD PERGOLA 2-15 - Wellbore #1 - Wellbore #1	15,178.55	7,500.00	609.04	487.52	5.012	CC
ABND DD PERGOLA 2-15 - Wellbore #1 - Wellbore #1	15,200.00	7,500.00	609.42	486.95	4.976	ES
ABND DD PERGOLA 2-15 - Wellbore #1 - Wellbore #1	15,300.00	7,500.00	621.03	495.40	4.943	SF
ABND VERT CALDWELL FARMS 1-A - Wellbore #1 - De	15,983.39	7,788.96	1,447.79	1,179.30	5.392	CC, ES
ABND VERT CALDWELL FARMS 1-A - Wellbore #1 - De	16,000.00	7,788.96	1,447.89	1,179.32	5.391	SF
ABND VERT HURON H UNIT 1 - Wellbore #1 - Design #	18,623.73	7,816.97	2,254.88	1,941.77	7.201	CC, ES
ABND VERT HURON H UNIT 1 - Wellbore #1 - Design #	18,700.00	7,816.97	2,256.17	1,942.49	7.193	SF
EXIST VERT MATHENA 1-15 - Wellbore #1 - Design #1	14,696.05	7,811.97	2,589.01	2,340.55	10.420	CC
EXIST VERT MATHENA 1-15 - Wellbore #1 - Design #1	14,700.00	7,811.97	2,589.01	2,340.51	10.418	ES
EXIST VERT MATHENA 1-15 - Wellbore #1 - Design #1	14,900.00	7,811.97	2,597.03	2,346.74	10.376	SF
Sec 22-T1S-R68W						
ABND VERT FOSTER 1-22 - Wellbore #1 - Design #1	22,569.60	7,772.99	2,491.14	2,110.99	6.553	CC
ABND VERT FOSTER 1-22 - Wellbore #1 - Design #1	22,600.00	7,772.99	2,491.33	2,110.92	6.549	ES
ABND VERT FOSTER 1-22 - Wellbore #1 - Design #1	22,700.00	7,772.99	2,494.55	2,113.53	6.547	SF
EXIST VERT NORTH HURON 1-22 - Wellbore #1 - Desi	20,530.08	7,789.97	2,235.37	1,890.19	6.476	CC, ES
EXIST VERT NORTH HURON 1-22 - Wellbore #1 - Desi	20,600.00	7,789.97	2,236.46	1,890.79	6.470	SF
EXIST VERT POITZ 1-22 - Wellbore #1 - Design #1	20,024.40	7,754.97	1,315.55	979.76	3.918	CC, ES
EXIST VERT POITZ 1-22 - Wellbore #1 - Design #1	20,100.00	7,754.97	1,317.72	979.76	3.899	SF

<b>Offset Design</b>												Offset Site Error:	0.00 usft
Survey Program: 0-INC												Offset Well Error:	0.00 usft
Sec 10-T1S-R68W - ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1													
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	25.98	1,586.79	773.40	1,765.54				
100.00	100.00	67.00	67.00	0.13	0.79	25.98	1,586.79	773.40	1,765.23	1,764.30	0.93	1,901.539	
200.00	200.00	167.00	167.00	0.49	2.72	25.98	1,586.79	773.40	1,765.23	1,762.01	3.21	549.256	
300.00	299.98	266.98	266.98	0.85	4.87	-12.73	1,586.79	773.40	1,763.53	1,757.80	5.72	308.237	
400.00	399.84	366.84	366.84	1.22	6.92	-12.79	1,586.79	773.40	1,758.42	1,750.28	8.14	216.102	
500.00	499.45	466.45	466.45	1.58	8.95	-12.90	1,586.79	773.40	1,749.92	1,739.39	10.53	166.187	
600.00	598.70	565.70	565.70	1.97	10.96	-13.04	1,586.79	773.40	1,738.04	1,725.13	12.91	134.630	
700.00	697.47	664.47	664.47	2.38	12.95	-13.23	1,586.79	773.40	1,722.80	1,707.52	15.28	112.754	
800.00	795.62	762.62	762.62	2.82	14.93	-13.46	1,586.79	773.40	1,704.22	1,686.58	17.64	96.619	
900.00	893.06	860.06	860.06	3.29	16.90	-13.75	1,586.79	773.40	1,682.32	1,662.34	19.99	84.171	
1,000.00	989.64	956.64	956.64	3.81	18.84	-14.08	1,586.79	773.40	1,657.15	1,634.83	22.32	74.233	
1,100.00	1,085.27	1,052.27	1,052.27	4.36	20.77	-14.48	1,586.79	773.40	1,628.75	1,604.10	24.65	66.082	
1,200.00	1,179.82	1,146.82	1,146.82	4.96	22.67	-14.94	1,586.79	773.40	1,597.15	1,570.19	26.96	59.248	
1,300.00	1,273.17	1,240.17	1,240.17	5.60	24.55	-15.48	1,586.79	773.40	1,562.41	1,533.16	29.25	53.414	
1,400.00	1,365.21	1,332.21	1,332.21	6.30	26.41	-16.09	1,586.79	773.40	1,524.60	1,493.07	31.53	48.355	
1,500.00	1,455.84	1,422.84	1,422.84	7.04	28.23	-16.80	1,586.79	773.40	1,483.78	1,449.99	33.79	43.912	
1,600.00	1,544.94	1,511.94	1,511.94	7.84	30.02	-17.61	1,586.79	773.40	1,440.01	1,403.98	36.03	39.964	
1,700.00	1,632.39	1,600.61	1,599.39	8.70	31.81	-18.53	1,586.79	773.40	1,393.39	1,355.11	38.28	36.398	
1,713.04	1,643.67	1,610.67	1,610.67	8.81	32.01	-18.66	1,586.79	773.40	1,387.11	1,348.56	38.55	35.980	
1,800.00	1,718.78	1,685.78	1,685.78	9.59	33.52	-19.25	1,586.79	773.40	1,345.10	1,304.62	40.47	33.234	
1,900.00	1,805.16	1,772.16	1,772.16	10.49	35.26	-19.98	1,586.79	773.40	1,296.93	1,254.23	42.70	30.374	
2,000.00	1,891.53	1,858.53	1,858.53	11.41	37.00	-20.75	1,586.79	773.40	1,248.94	1,204.00	44.94	27.790	
2,100.00	1,977.91	1,944.91	1,944.91	12.33	38.74	-21.59	1,586.79	773.40	1,201.15	1,153.95	47.20	25.446	

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