

# **EXTRACTION OIL & GAS**

**Broomfield County**

**Sec 10-T1S-R68W**

**INTERCHANGE A S22-30-9N**

**ORIGINAL WELLBORE**

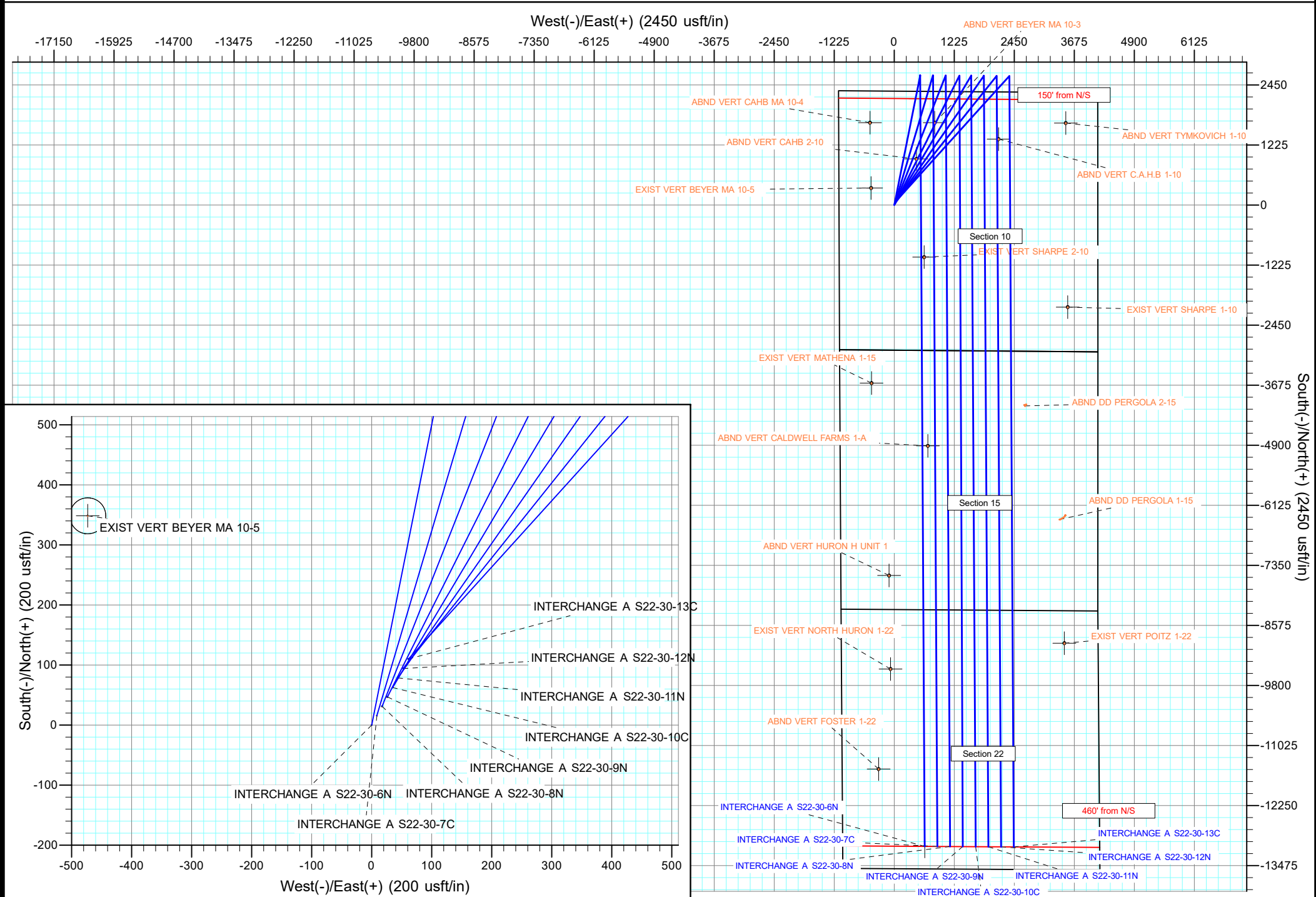
**PROPOSAL 1**

## **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 S22-30-9N
<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 S22-30-9N	<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	24,036.73	PROPOSAL 1 (ORIGINAL WELLBORE)	MWD OWSG	OWSG MWD - Standard

<b>Summary</b>						
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 10-T1S-R68W						
ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1	5,026.47	4,563.88	18.85	-107.75	0.149	Level 1, CC, ES, SF
ABND VERT C.A.H.B 1-10 - Wellbore #1 - Design #1	9,600.00	7,767.99	793.62	593.53	3.966	ES, SF
ABND VERT C.A.H.B 1-10 - Wellbore #1 - Design #1	9,608.79	7,767.99	793.58	593.64	3.969	CC
ABND VERT CAHB 2-10 - Wellbore #1 - Design #1	3,281.68	3,026.11	20.06	-60.49	0.249	Level 1, CC, ES, SF
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	3,775.94	3,481.16	1,200.82	1,106.86	12.780	CC
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	3,900.00	3,609.64	1,202.26	1,104.67	12.319	ES
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	9,300.00	7,824.99	1,830.97	1,628.43	9.040	SF
ABND VERT TYMKOVICH 1-10 - Wellbore #1 - Design #	6,173.84	5,180.00	2,485.13	2,423.07	40.048	CC
ABND VERT TYMKOVICH 1-10 - Wellbore #1 - Design #	6,200.00	5,180.00	2,485.27	2,423.02	39.924	ES
ABND VERT TYMKOVICH 1-10 - Wellbore #1 - Design #	6,589.74	5,180.00	2,519.69	2,455.26	39.108	SF
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	1,011.10	1,001.61	581.62	558.41	25.057	CC
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	1,300.00	1,279.64	585.30	555.20	19.446	ES
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	10,700.00	7,829.97	1,815.67	1,613.07	8.962	SF
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	13,041.86	7,759.93	2,189.95	1,965.07	9.738	CC
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	13,100.00	7,759.93	2,190.72	1,964.91	9.702	ES
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	13,300.00	7,759.93	2,205.11	1,976.27	9.636	SF
EXIST VERT SHARPE 2-10 - Wellbore #1 - Design #1	12,009.31	7,808.05	737.08	524.28	3.464	CC, ES, SF
INTERCHANGE A S22-30-10C - ORIGINAL WELLBORE	400.00	400.00	17.91	15.49	7.402	CC
INTERCHANGE A S22-30-10C - ORIGINAL WELLBORE	24,037.62	24,299.77	372.62	-23.35	0.941	Level 1, ES, SF
INTERCHANGE A S22-30-11N - ORIGINAL WELLBORE	300.00	300.00	36.14	34.44	21.226	CC
INTERCHANGE A S22-30-11N - ORIGINAL WELLBORE	24,037.62	24,108.99	522.30	17.79	1.035	Level 2, ES, SF
INTERCHANGE A S22-30-12N - ORIGINAL WELLBORE	200.00	200.00	54.05	53.07	54.832	CC, ES
INTERCHANGE A S22-30-12N - ORIGINAL WELLBORE	24,037.62	24,161.91	781.67	277.40	1.550	SF
INTERCHANGE A S22-30-13C - ORIGINAL WELLBORE	100.00	75.00	71.96	71.73	305.911	CC, ES
INTERCHANGE A S22-30-13C - ORIGINAL WELLBORE	24,037.62	24,451.27	1,080.14	592.89	2.217	SF
INTERCHANGE A S22-30-6N - ORIGINAL WELLBORE	500.00	500.00	53.87	50.73	17.175	CC, ES
INTERCHANGE A S22-30-6N - ORIGINAL WELLBORE	24,037.62	23,979.14	777.79	272.48	1.539	SF
INTERCHANGE A S22-30-7C - ORIGINAL WELLBORE	500.00	500.00	35.96	32.82	11.464	CC, ES
INTERCHANGE A S22-30-7C - ORIGINAL WELLBORE	24,037.62	24,222.75	581.78	112.09	1.239	Level 2, SF
INTERCHANGE A S22-30-8N - ORIGINAL WELLBORE	500.00	500.00	18.05	14.91	5.754	CC
INTERCHANGE A S22-30-8N - ORIGINAL WELLBORE	24,037.62	24,009.89	259.32	-245.94	0.513	Level 1, ES, SF

# Anticollision Report

<b>Company:</b>	EXTRACTION OIL & GAS	<b>Local Co-ordinate Reference:</b>	Well INTERCHANGE A S22-30-9N
<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 S22-30-9N	<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	17,375.40	7,500.00	2,017.27	1,853.43	12.313	CC
ABND DD PERGOLA 1-15 - Wellbore #1 - Wellbore #1	17,400.00	7,500.00	2,017.42	1,853.03	12.272	ES
ABND DD PERGOLA 1-15 - Wellbore #1 - Wellbore #1	17,700.00	7,500.00	2,043.22	1,873.65	12.049	SF
ABND DD PERGOLA 2-15 - Wellbore #1 - Wellbore #1	15,052.39	7,500.00	1,339.04	1,213.83	10.694	CC
ABND DD PERGOLA 2-15 - Wellbore #1 - Wellbore #1	15,100.00	7,500.00	1,339.89	1,213.57	10.607	ES
ABND DD PERGOLA 2-15 - Wellbore #1 - Wellbore #1	15,300.00	7,500.00	1,361.74	1,231.97	10.493	SF
ABND VERT CALDWELL FARMS 1-A - Wellbore #1 - De	15,859.97	7,788.88	678.17	409.42	2.523	CC, ES, SF
ABND VERT HURON H UNIT 1 - Wellbore #1 - Design #	18,501.47	7,816.84	1,481.57	1,168.04	4.725	CC, ES, SF
EXIST VERT MATHENA 1-15 - Wellbore #1 - Design #1	14,574.18	7,811.90	1,821.15	1,572.53	7.325	CC
EXIST VERT MATHENA 1-15 - Wellbore #1 - Design #1	14,600.00	7,811.90	1,821.34	1,572.44	7.318	ES
EXIST VERT MATHENA 1-15 - Wellbore #1 - Design #1	14,700.00	7,811.90	1,825.49	1,575.69	7.308	SF
Sec 22-T1S-R68W						
ABND VERT FOSTER 1-22 - Wellbore #1 - Design #1	22,447.75	7,772.77	1,712.22	1,331.56	4.498	CC, ES
ABND VERT FOSTER 1-22 - Wellbore #1 - Design #1	22,500.00	7,772.77	1,713.02	1,331.94	4.495	SF
EXIST VERT NORTH HURON 1-22 - Wellbore #1 - Desi	20,407.83	7,789.81	1,459.37	1,113.72	4.222	CC, ES, SF
EXIST VERT POITZ 1-22 - Wellbore #1 - Design #1	19,897.11	7,754.82	2,090.83	1,754.67	6.220	CC
EXIST VERT POITZ 1-22 - Wellbore #1 - Design #1	19,900.00	7,754.82	2,090.83	1,754.61	6.219	ES
EXIST VERT POITZ 1-22 - Wellbore #1 - Design #1	20,100.00	7,754.81	2,100.65	1,760.63	6.178	SF

Offset Design													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		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
				Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.00	0.00	0.00	0.00	0.00	0.00	26.07	1,634.14	799.46	1,819.52					
100.00	100.00	67.00	67.00	0.13	0.79	26.07	1,634.14	799.46	1,819.22	1,818.29	0.93	1,959.697		
200.00	200.00	167.00	167.00	0.49	2.72	26.07	1,634.14	799.46	1,819.22	1,816.00	3.21	566.055		
300.00	300.00	267.00	267.00	0.85	4.87	26.07	1,634.14	799.46	1,819.22	1,813.50	5.72	317.961		
400.00	400.00	367.00	367.00	1.21	6.92	26.07	1,634.14	799.46	1,819.22	1,811.08	8.13	223.650		
500.00	500.00	467.00	467.00	1.57	8.96	26.07	1,634.14	799.46	1,819.22	1,808.69	10.53	172.829		
600.00	599.98	566.98	566.98	1.93	10.98	-0.59	1,634.14	799.46	1,817.47	1,804.56	12.91	140.793		
700.00	699.84	666.84	666.84	2.29	13.00	-0.60	1,634.14	799.46	1,812.24	1,796.95	15.29	118.547		
800.00	799.45	766.45	766.45	2.65	15.01	-0.60	1,634.14	799.46	1,803.52	1,785.86	17.66	102.127		
900.00	898.70	865.70	865.70	3.02	17.01	-0.61	1,634.14	799.46	1,791.34	1,771.31	20.02	89.458		
1,000.00	997.47	964.47	964.47	3.42	19.00	-0.62	1,634.14	799.46	1,775.70	1,753.32	22.38	79.343		
1,100.00	1,095.62	1,062.62	1,062.62	3.83	20.98	-0.63	1,634.14	799.46	1,756.62	1,731.89	24.72	71.047		
1,200.00	1,193.06	1,160.06	1,160.06	4.28	22.94	-0.64	1,634.14	799.46	1,734.13	1,707.07	27.06	64.093		
1,300.00	1,289.64	1,256.64	1,256.64	4.76	24.88	-0.66	1,634.14	799.46	1,708.25	1,678.87	29.37	58.157		
1,400.00	1,385.27	1,352.27	1,352.27	5.27	26.81	-0.68	1,634.14	799.46	1,679.01	1,647.34	31.67	53.010		
1,500.00	1,479.82	1,446.82	1,446.82	5.83	28.71	-0.70	1,634.14	799.46	1,646.46	1,612.50	33.95	48.490		
1,600.00	1,573.17	1,540.17	1,540.17	6.43	30.59	-0.72	1,634.14	799.46	1,610.63	1,574.41	36.21	44.474		
1,700.00	1,665.21	1,632.21	1,632.21	7.08	32.44	-0.75	1,634.14	799.46	1,571.56	1,533.11	38.45	40.871		
1,800.00	1,755.84	1,722.84	1,722.84	7.78	34.27	-0.79	1,634.14	799.46	1,529.30	1,488.64	40.66	37.609		
1,900.00	1,844.94	1,811.94	1,811.94	8.53	36.06	-0.82	1,634.14	799.46	1,483.91	1,441.06	42.85	34.634		
1,916.67	1,859.63	1,826.63	1,826.63	8.66	36.36	-0.83	1,634.14	799.46	1,476.04	1,432.83	43.21	34.159		
2,000.00	1,932.98	1,900.02	1,899.98	9.31	37.83	-0.85	1,634.14	799.46	1,436.49	1,391.49	45.01	31.916		
2,100.00	2,021.00	1,988.00	1,988.00	10.11	39.60	-0.88	1,634.14	799.46	1,389.04	1,341.87	47.17	29.450		
2,200.00	2,109.02	2,076.02	2,076.02	10.93	41.37	-0.91	1,634.14	799.46	1,341.58	1,292.25	49.33	27.196		
2,300.00	2,197.04	2,164.04	2,164.04	11.75	43.14	-0.95	1,634.14	799.46	1,294.13	1,242.63	51.50	25.129		

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