

# **EXTRACTION OIL & GAS**

**WELD COUNTY, COLORADO (NAD 83)  
NW SE SEC. 32 T6N R65W 6th P.M.  
WAKE NORTH 24**

**ORIGINAL WELLBORE  
PROPOSAL #1**

## **Anticollision Report**

**30 June, 2016**



# Anticollision Report



<b>Company:</b>	EXTRACTION OIL & GAS	<b>Local Co-ordinate Reference:</b>	Well WAKE NORTH 24
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>TVD Reference:</b>	KB-EST @ 4665.0usft (Original Well Elev)
<b>Reference Site:</b>	NW SE SEC. 32 T6N R65W 6th P.M.	<b>MD Reference:</b>	KB-EST @ 4665.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	WAKE NORTH 24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	EDM 5000.1 Single User Db
<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 100.0usft	<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 10,000.0 us	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	30/06/2016		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	17,904.2	PROPOSAL #1 (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
NW NE SEC. 5 T5N R65W 6th P.M.						
DT-HABITAT C1-5-6 - ORIGINAL WELLBORE - PROPO	10,598.4	7,293.6	638.5	520.2	5.395	CC
DT-HABITAT C1-5-6 - ORIGINAL WELLBORE - PROPO	17,900.0	14,563.6	765.4	256.6	1.504	ES, SF
DT-LOPEZ 2-5-6 - ORIGINAL WELLBORE - PROPOSAL	10,747.4	7,292.8	485.3	367.3	4.112	CC
DT-LOPEZ 2-5-6 - ORIGINAL WELLBORE - PROPOSAL	17,900.0	14,419.8	633.7	144.8	1.296	Level 3, ES, SF
EXIST HZ DT-HABITAT 1-5-6 - Wellbore #1 - Wellbore #	10,788.8	7,441.5	795.4	672.3	6.460	CC
EXIST HZ DT-HABITAT 1-5-6 - Wellbore #1 - Wellbore #	17,800.0	14,423.4	969.5	479.1	1.977	ES
EXIST HZ DT-HABITAT 1-5-6 - Wellbore #1 - Wellbore #	17,900.0	14,475.0	974.2	480.0	1.971	SF
NW SE SEC. 32 T6N R65W 6th P.M.						
ABDN VERT MONFORT #1-31 - Wellbore #1 - Design #	13,897.4	7,086.0	4,566.7	4,252.1	14.517	CC
ABDN VERT MONFORT #1-31 - Wellbore #1 - Design #	14,000.0	7,086.0	4,567.9	4,250.5	14.395	ES
ABDN VERT MONFORT #1-31 - Wellbore #1 - Design #	15,700.0	7,086.0	4,909.6	4,546.1	13.507	SF
EXIST DD MONFORT E #31-27 - Wellbore #1 - Wellbore	14,611.3	7,358.9	5,320.1	5,111.4	25.491	CC
EXIST DD MONFORT E #31-27 - Wellbore #1 - Wellbore	14,800.0	7,358.8	5,323.5	5,109.6	24.896	ES
EXIST DD MONFORT E #31-27 - Wellbore #1 - Wellbore	17,904.2	7,358.2	6,256.7	5,957.6	20.918	SF
EXIST DD THERMO #5-5-32 - Wellbore #1 - Wellbore #1	2,936.9	2,862.0	586.8	555.3	18.633	CC, ES
EXIST DD THERMO #5-5-32 - Wellbore #1 - Wellbore #1	3,100.0	2,976.9	597.2	564.2	18.103	SF
EXIST HZ ISALND GROVE #2-32 - Wellbore #1 - Wellbore	11,687.1	7,063.0	540.4	425.5	4.701	CC
EXIST HZ ISALND GROVE #2-32 - Wellbore #1 - Wellbore	11,700.0	7,063.0	540.6	425.3	4.691	ES, SF
EXIST VERT ADAMS #1 - Wellbore #1 - Design #1	2,332.1	2,224.7	3,490.3	3,430.5	58.320	CC
EXIST VERT ADAMS #1 - Wellbore #1 - Design #1	2,800.0	2,635.6	3,497.5	3,424.6	47.971	ES
EXIST VERT ADAMS #1 - Wellbore #1 - Design #1	7,060.4	6,376.9	4,159.2	3,977.5	22.901	SF
EXIST VERT BUCKLEN #12-31 - Wellbore #1 - Design #	17,446.3	7,076.0	1,862.2	1,450.7	4.526	CC
EXIST VERT BUCKLEN #12-31 - Wellbore #1 - Design #	17,500.0	7,076.0	1,862.9	1,450.0	4.511	ES
EXIST VERT BUCKLEN #12-31 - Wellbore #1 - Design #	17,700.0	7,076.0	1,879.4	1,460.9	4.491	SF
EXIST VERT BUCKLIN #11-31 - Wellbore #1 - Design #1	16,354.4	7,074.0	1,311.6	930.2	3.439	CC
EXIST VERT BUCKLIN #11-31 - Wellbore #1 - Design #1	16,400.0	7,074.0	1,312.4	929.8	3.430	ES
EXIST VERT BUCKLIN #11-31 - Wellbore #1 - Design #1	16,500.0	7,074.0	1,319.6	934.3	3.425	SF
EXIST VERT HARVEST #1 - Wellbore #1 - Design #1	1,851.5	1,783.7	1,889.8	1,843.6	40.896	CC
EXIST VERT HARVEST #1 - Wellbore #1 - Design #1	2,100.0	2,001.9	1,893.5	1,840.4	35.647	ES
EXIST VERT HARVEST #1 - Wellbore #1 - Design #1	9,400.0	7,108.0	3,393.0	3,185.9	16.382	SF
EXIST VERT HUNGENBERG #13-33 - Wellbore #1 - De	5,883.7	5,319.6	1,246.3	1,087.0	7.824	CC
EXIST VERT HUNGENBERG #13-33 - Wellbore #1 - De	6,000.0	5,421.7	1,247.5	1,085.1	7.678	ES
EXIST VERT HUNGENBERG #13-33 - Wellbore #1 - De	6,700.0	6,036.4	1,306.1	1,126.8	7.286	SF
EXIST VERT HUNGENBERG #14-33 - Wellbore #1 - De	7,257.5	6,525.6	540.6	358.9	2.976	CC, ES, SF
EXIST VERT JOHNSON OLY #1 - Wellbore #1 - Design	100.0	143.0	2,398.1	2,396.4	1,402.094	CC
EXIST VERT JOHNSON OLY #1 - Wellbore #1 - Design	200.0	243.0	2,399.1	2,394.9	568.951	ES

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 WAKE NORTH 24
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>TVD Reference:</b>	KB-EST @ 4665.0usft (Original Well Elev)
<b>Reference Site:</b>	NW SE SEC. 32 T6N R65W 6th P.M.	<b>MD Reference:</b>	KB-EST @ 4665.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	WAKE NORTH 24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	PROPOSAL #1	<b>Offset TVD Reference:</b>	Offset Datum

## Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
NW SE SEC. 32 T6N R65W 6th P.M.						
EXIST VERT JOHNSON OLY #1 - Wellbore #1 - Design	12,400.0	7,121.0	5,083.6	4,808.2	18.460	SF
EXIST VERT JOZ A #5-7-32 - Wellbore #1 - Design #1	9,607.9	7,069.0	594.6	384.4	2.828	CC, ES, SF
EXIST VERT STRONG #6-31 - Wellbore #1 - Design #1	16,525.4	7,080.0	3,197.0	2,810.9	8.280	CC
EXIST VERT STRONG #6-31 - Wellbore #1 - Design #1	16,600.0	7,080.0	3,197.9	2,809.8	8.239	ES
EXIST VERT STRONG #6-31 - Wellbore #1 - Design #1	17,300.0	7,080.0	3,289.5	2,882.1	8.073	SF
WAKE NORTH 1 - ORIGINAL WELLBORE - PROPOSAL	0.0	1.0	368.0			
WAKE NORTH 1 - ORIGINAL WELLBORE - PROPOSAL	100.0	100.0	368.0	367.8	1,948.994	ES
WAKE NORTH 1 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,524.1	5,095.5	4,542.6	9.216	SF
WAKE NORTH 10 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	225.9	225.7	1,182.362	CC, ES
WAKE NORTH 10 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,311.2	3,116.6	2,557.2	5.571	SF
WAKE NORTH 11 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	207.7	207.5	1,087.025	CC, ES
WAKE NORTH 11 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,317.7	2,790.0	2,229.6	4.978	SF
WAKE NORTH 12 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	193.1	192.9	1,010.757	CC, ES
WAKE NORTH 12 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,488.8	2,617.1	2,055.3	4.659	SF
WAKE NORTH 13 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	178.5	178.3	934.490	CC, ES
WAKE NORTH 13 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,351.9	2,459.9	1,898.2	4.380	SF
WAKE NORTH 14 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	160.3	160.1	839.158	CC, ES
WAKE NORTH 14 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,348.5	2,130.3	1,569.2	3.797	SF
WAKE NORTH 15 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	145.7	145.5	762.756	CC, ES
WAKE NORTH 15 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,519.2	1,959.2	1,396.5	3.482	SF
WAKE NORTH 16 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	127.5	127.3	667.412	CC, ES
WAKE NORTH 16 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,373.0	1,800.9	1,240.4	3.213	SF
WAKE NORTH 17 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	112.9	112.7	591.136	CC, ES
WAKE NORTH 17 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,417.8	1,475.7	916.3	2.638	SF
WAKE NORTH 18 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	98.4	98.2	514.861	CC, ES
WAKE NORTH 18 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,618.1	1,232.3	668.8	2.187	SF
WAKE NORTH 19 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	80.1	80.0	419.516	CC, ES
WAKE NORTH 19 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,482.5	1,083.5	527.4	1.948	SF
WAKE NORTH 2 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	353.4	353.2	1,849.742	CC, ES
WAKE NORTH 2 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,452.2	4,764.8	4,211.0	8.603	SF
WAKE NORTH 20 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	65.6	65.4	343.240	CC, ES
WAKE NORTH 20 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,514.1	919.1	365.8	1.661	SF
WAKE NORTH 21 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	47.4	47.2	247.896	CC
WAKE NORTH 21 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,756.0	574.3	10.2	1.018	Level 2, ES, SF
WAKE NORTH 22 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	32.8	32.6	171.620	CC
WAKE NORTH 22 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,635.1	444.8	-74.2	0.857	Level 1, ES, SF
WAKE NORTH 23 - ORIGINAL WELLBORE - PROPOSAL	100.0	100.0	18.2	18.0	96.480	CC
WAKE NORTH 23 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,704.4	244.2	-157.6	0.608	Level 1, ES, SF
WAKE NORTH 3 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	335.2	335.0	1,754.400	CC, ES
WAKE NORTH 3 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,586.7	4,598.0	4,043.6	8.294	SF
WAKE NORTH 4 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	320.6	320.4	1,678.127	CC, ES
WAKE NORTH 4 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,408.0	4,434.4	3,879.5	7.991	SF
WAKE NORTH 5 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	306.0	305.8	1,601.855	CC, ES
WAKE NORTH 5 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,356.4	4,107.5	3,551.6	7.389	SF
WAKE NORTH 6 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	287.8	287.6	1,506.514	CC, ES
WAKE NORTH 6 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,500.8	3,936.6	3,380.0	7.073	SF
WAKE NORTH 7 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	273.2	273.1	1,430.242	CC, ES
WAKE NORTH 7 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,331.5	3,777.1	3,220.0	6.780	SF
WAKE NORTH 8 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	255.0	254.8	1,334.903	CC, ES
WAKE NORTH 8 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,310.3	3,446.9	2,888.7	6.175	SF
WAKE NORTH 9 - ORIGINAL WELLBORE - PROPOSAL	100.0	101.0	240.5	240.3	1,258.632	CC, ES
WAKE NORTH 9 - ORIGINAL WELLBORE - PROPOSAL	17,904.2	17,464.2	3,278.5	2,719.5	5.865	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 WAKE NORTH 24
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>TVD Reference:</b>	KB-EST @ 4665.0usft (Original Well Elev)
<b>Reference Site:</b>	NW SE SEC. 32 T6N R65W 6th P.M.	<b>MD Reference:</b>	KB-EST @ 4665.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	WAKE NORTH 24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	EDM 5000.1 Single User Db
<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. 36 T6N R66W 6th P.M.						
HINER 36C-17W - ORIGINAL WELLBORE - ORIGINAL	17,904.2	6,845.0	5,136.3	4,831.4	16.850	CC, ES, SF
HINER 36C-20W - ORIGINAL WELLBORE - ORIGINAL	17,904.2	6,870.4	4,013.3	3,709.3	13.203	CC, ES, SF
HINER 36C-22W - ORIGINAL WELLBORE - ORIGINAL	17,904.2	6,935.3	3,367.9	3,063.3	11.057	CC, ES, SF
HINER 36C-24W - ORIGINAL WELLBORE - ORIGINAL	17,904.2	7,199.0	2,549.3	2,245.4	8.388	CC, ES, SF
HINER 36NB-19W - ORIGINAL WELLBORE - ORIGINAL	17,904.2	7,087.0	4,341.7	4,037.8	14.289	CC, ES, SF
HINER 36NB-21W - ORIGINAL WELLBORE - ORIGINAL	17,904.2	6,904.0	3,713.1	3,409.9	12.246	CC, ES, SF
HINER 36NB-23W - ORIGINAL WELLBORE - ORIGINAL	17,904.2	6,962.5	3,148.5	2,847.2	10.450	CC, ES, SF
HINER 36NC-18W - ORIGINAL WELLBORE - ORIGINAL	17,904.2	7,030.0	4,652.2	4,348.2	15.302	CC, ES, SF

## Offset Design

Survey Program: 0-MWD										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)	Offset Wellbore Centre +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	168.70	-2,590.3	517.8	2,641.5					
100.0	100.0	92.9	92.9	0.1	0.1	168.70	-2,590.3	517.8	2,641.5	2,641.3	0.18	N/A		
200.0	200.0	192.9	192.9	0.3	0.3	38.43	-2,590.3	517.8	2,640.1	2,639.5	0.62	4,280.682		
300.0	299.8	292.7	292.7	0.5	0.5	38.55	-2,590.3	517.8	2,636.1	2,635.0	1.07	2,462.502		
400.0	399.5	392.4	392.4	0.8	0.8	38.76	-2,590.3	517.8	2,629.2	2,627.7	1.54	1,706.457		
500.0	498.7	491.6	491.6	1.1	1.0	39.04	-2,590.3	517.8	2,619.7	2,617.7	2.03	1,291.004		
600.0	597.5	590.4	590.4	1.5	1.2	39.42	-2,590.3	517.8	2,607.5	2,605.0	2.54	1,026.427		
700.0	695.6	688.5	688.5	1.9	1.4	39.87	-2,590.3	517.8	2,592.7	2,589.7	3.08	841.951		
800.0	793.1	786.0	786.0	2.3	1.6	40.42	-2,590.3	517.8	2,575.4	2,571.7	3.65	705.281		
900.0	889.6	882.5	882.5	2.9	1.9	41.05	-2,590.3	517.8	2,555.5	2,551.2	4.26	599.594		
1,000.0	985.3	978.2	978.2	3.5	2.1	41.79	-2,590.3	517.8	2,533.1	2,528.2	4.92	515.258		
1,100.0	1,079.8	1,072.7	1,072.7	4.1	2.3	42.61	-2,590.3	517.8	2,508.4	2,502.8	5.62	446.350		
1,200.0	1,173.2	1,166.1	1,166.1	4.9	2.5	43.54	-2,590.3	517.8	2,481.4	2,475.0	6.38	389.017		
1,300.0	1,265.2	1,258.1	1,258.1	5.7	2.7	44.57	-2,590.3	517.8	2,452.2	2,445.0	7.20	340.639		
1,400.0	1,355.8	1,348.7	1,348.7	6.5	2.9	45.71	-2,590.3	517.8	2,421.0	2,412.9	8.09	299.366		
1,500.0	1,444.9	1,437.8	1,437.8	7.5	3.1	46.96	-2,590.3	517.8	2,387.8	2,378.7	9.05	263.851		
1,529.0	1,470.4	1,463.3	1,463.3	7.8	3.2	47.34	-2,590.3	517.8	2,377.8	2,368.5	9.34	254.490		
1,600.0	1,532.8	1,525.7	1,525.7	8.5	3.3	47.91	-2,590.3	517.8	2,353.4	2,343.3	10.07	233.788		
1,700.0	1,620.6	1,613.5	1,613.5	9.5	3.5	48.73	-2,590.3	517.8	2,319.3	2,308.2	11.10	208.852		
1,800.0	1,708.5	1,701.4	1,701.4	10.5	3.7	49.57	-2,590.3	517.8	2,285.7	2,273.6	12.17	187.857		
1,900.0	1,796.3	1,789.2	1,789.2	11.6	3.9	50.43	-2,590.3	517.8	2,252.7	2,239.4	13.25	169.985		
2,000.0	1,884.1	1,877.0	1,877.0	12.6	4.1	51.31	-2,590.3	517.8	2,220.2	2,205.8	14.36	154.622		
2,100.0	1,971.9	1,964.8	1,964.8	13.6	4.3	52.22	-2,590.3	517.8	2,188.2	2,172.7	15.49	141.301		
2,200.0	2,059.7	2,052.6	2,052.6	14.6	4.5	53.14	-2,590.3	517.8	2,156.9	2,140.2	16.63	129.662		
2,300.0	2,147.5	2,140.4	2,140.4	15.7	4.7	54.10	-2,590.3	517.8	2,126.1	2,108.3	17.80	119.425		
2,400.0	2,235.3	2,228.2	2,228.2	16.7	4.9	55.07	-2,590.3	517.8	2,096.0	2,077.0	18.99	110.367		
2,500.0	2,323.2	2,316.1	2,316.1	17.8	5.1	56.07	-2,590.3	517.8	2,066.6	2,046.4	20.20	102.310		
2,600.0	2,411.0	2,403.9	2,403.9	18.8	5.3	57.09	-2,590.3	517.8	2,037.8	2,016.4	21.43	95.109		
2,700.0	2,498.8	2,491.7	2,491.7	19.8	5.5	58.14	-2,590.3	517.8	2,009.8	1,987.1	22.67	88.648		
2,800.0	2,586.6	2,579.5	2,579.5	20.9	5.7	59.21	-2,590.3	517.8	1,982.6	1,958.6	23.94	82.829		
2,900.0	2,674.4	2,667.3	2,667.3	21.9	5.9	60.30	-2,590.3	517.8	1,956.1	1,930.9	25.22	77.571		
3,000.0	2,762.2	2,755.1	2,755.1	22.9	6.1	61.42	-2,590.3	517.8	1,930.5	1,903.9	26.51	72.807		
3,100.0	2,850.1	2,843.0	2,843.0	24.0	6.3	62.56	-2,590.3	517.8	1,905.7	1,877.9	27.83	68.479		
3,200.0	2,937.9	2,930.8	2,930.8	25.0	6.5	63.73	-2,590.3	517.8	1,881.8	1,852.6	29.16	64.539		
3,300.0	3,025.7	3,015.5	3,015.5	26.1	6.6	64.88	-2,590.3	517.7	1,858.8	1,828.4	30.48	60.979		

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