

EXTRACTION OIL & GAS

Broomfield County

Sec 7-T1S-R68W

LIVINGSTON S19-25-11C

ORIGINAL WELLBORE

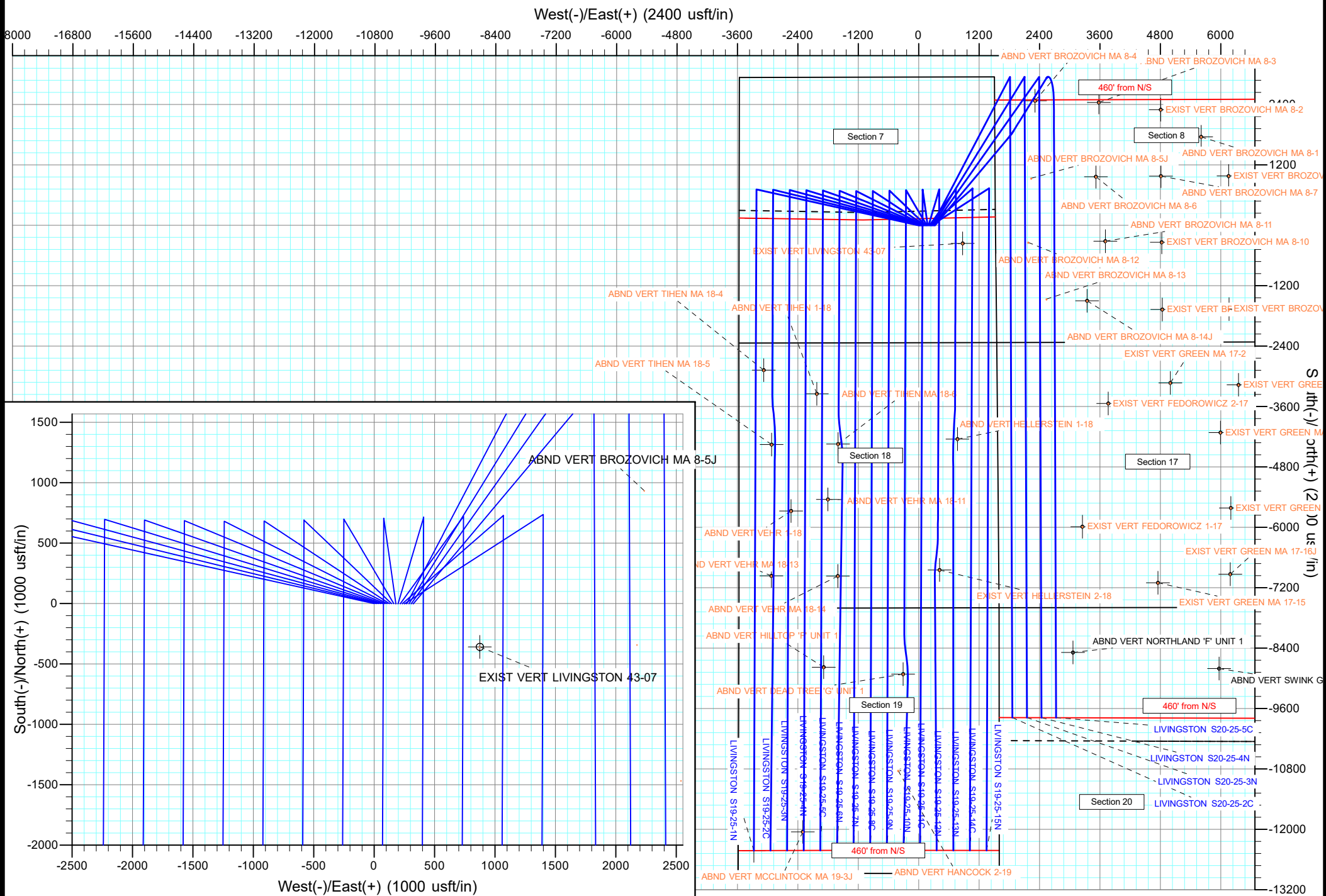
PROPOSAL 1

Anticollision Report

11 January, 2018



Project: Broomfield County
Site: Sec 7-T1S-R68W
Well: LIVINGSTON S19-25-1N
ORIGINAL WELLBORE
PROPOSAL 1



Anticollision Report

Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-11C
Project:	Broomfield County	TVD Reference:	KB 25' @ 5336.00usft
Reference Site:	Sec 7-T1S-R68W	MD Reference:	KB 25' @ 5336.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	LIVINGSTON S19-25-11C	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	EDT_32Bit_ODBC
Reference Design:	PROPOSAL 1	Offset TVD Reference:	Offset Datum

Reference	PROPOSAL 1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations 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	1/11/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	21,219.34	PROPOSAL 1 (ORIGINAL WELLBORE)	MWD OWSG	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						
Sec 18-T1S-R68W						
ABND VERT HELLERSTEIN 1-18 - Wellbore #1 - Design	13,045.87	8,365.96	711.92	459.29	2.818	CC, ES, SF
ABND VERT TIHEN 1-18 - Wellbore #1 - Design #1	12,156.95	8,327.97	2,086.26	1,848.85	8.788	CC
ABND VERT TIHEN 1-18 - Wellbore #1 - Design #1	12,200.00	8,327.97	2,086.71	1,848.61	8.764	ES
ABND VERT TIHEN 1-18 - Wellbore #1 - Design #1	12,400.00	8,327.97	2,100.37	1,859.37	8.715	SF
ABND VERT TIHEN MA 18-4 - Wellbore #1 - Design #1	11,691.04	8,260.98	3,141.88	2,913.15	13.736	CC
ABND VERT TIHEN MA 18-4 - Wellbore #1 - Design #1	11,700.00	8,260.98	3,141.89	2,913.03	13.728	ES
ABND VERT TIHEN MA 18-4 - Wellbore #1 - Design #1	12,200.00	8,260.97	3,182.84	2,946.69	13.478	SF
ABND VERT TIHEN MA 18-5 - Wellbore #1 - Design #1	13,169.38	8,307.04	2,979.34	2,725.85	11.753	CC
ABND VERT TIHEN MA 18-5 - Wellbore #1 - Design #1	13,200.00	8,307.04	2,979.49	2,725.49	11.730	ES
ABND VERT TIHEN MA 18-5 - Wellbore #1 - Design #1	13,600.00	8,307.04	3,010.29	2,750.35	11.581	SF
ABND VERT TIHEN MA 18-6 - Wellbore #1 - Design #1	13,153.43	8,358.96	1,659.22	1,404.95	6.525	CC
ABND VERT TIHEN MA 18-6 - Wellbore #1 - Design #1	13,200.00	8,358.96	1,659.87	1,404.83	6.508	ES
ABND VERT TIHEN MA 18-6 - Wellbore #1 - Design #1	13,300.00	8,358.96	1,665.68	1,409.20	6.494	SF
ABND VERT VEHR 1-18 - Wellbore #1 - Design #1	14,486.58	8,328.95	2,587.53	2,448.94	18.670	CC
ABND VERT VEHR 1-18 - Wellbore #1 - Design #1	14,500.00	8,328.95	2,587.57	2,448.74	18.639	ES
ABND VERT VEHR 1-18 - Wellbore #1 - Design #1	15,000.00	8,328.95	2,637.98	2,492.52	18.135	SF
ABND VERT VEHR MA 18-11 - Wellbore #1 - Design #1	14,254.30	8,351.95	1,856.82	1,584.23	6.812	CC
ABND VERT VEHR MA 18-11 - Wellbore #1 - Design #1	14,300.00	8,351.95	1,857.38	1,584.02	6.795	ES
ABND VERT VEHR MA 18-11 - Wellbore #1 - Design #1	14,400.00	8,351.95	1,862.52	1,587.69	6.777	SF
ABND VERT VEHR MA 18-13 - Wellbore #1 - Design #1	15,777.58	8,383.94	2,975.08	2,814.20	18.493	CC
ABND VERT VEHR MA 18-13 - Wellbore #1 - Design #1	15,800.00	8,383.94	2,975.17	2,813.90	18.448	ES
ABND VERT VEHR MA 18-13 - Wellbore #1 - Design #1	16,300.00	8,383.94	3,020.60	2,852.53	17.972	SF
ABND VERT VEHR MA 18-14 - Wellbore #1 - Design #1	15,776.20	8,363.94	1,654.49	1,355.66	5.537	CC
ABND VERT VEHR MA 18-14 - Wellbore #1 - Design #1	15,800.00	8,363.94	1,654.66	1,355.42	5.529	ES
ABND VERT VEHR MA 18-14 - Wellbore #1 - Design #1	15,900.00	8,363.94	1,659.11	1,358.42	5.518	SF
EXIST VERT HELLERSTEIN 2-18 - Wellbore #1 - Design	15,647.43	8,306.06	365.01	69.56	1.235	Level 2, CC, ES, SF
Sec 19-T1S-R68W						
ABND VERT DEAD TREE 'G' UNIT 1 - Wellbore #1 - De	17,719.31	8,303.07	350.17	18.93	1.057	Level 2, CC, ES, SF
ABND VERT HANCOCK 2-19 - Wellbore #1 - Design #1	19,635.74	8,272.91	440.85	76.80	1.211	Level 2, CC, ES, SF
ABND VERT HILLTOP 'F' UNIT 1 - Wellbore #1 - Design	17,587.69	8,308.93	1,927.89	1,598.83	5.859	CC
ABND VERT HILLTOP 'F' UNIT 1 - Wellbore #1 - Design	17,600.00	8,308.93	1,927.93	1,598.65	5.855	ES
ABND VERT HILLTOP 'F' UNIT 1 - Wellbore #1 - Design	17,700.00	8,308.93	1,931.16	1,600.35	5.838	SF
ABND VERT MCCLINTOCK MA 19-3J - Wellbore #1 - De	20,860.41	8,301.90	2,330.34	1,944.27	6.036	CC
ABND VERT MCCLINTOCK MA 19-3J - Wellbore #1 - De	20,900.00	8,301.90	2,330.68	1,943.93	6.026	ES
ABND VERT MCCLINTOCK MA 19-3J - Wellbore #1 - De	21,000.00	8,301.90	2,334.52	1,946.32	6.014	SF

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

Anticollision Report

Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-11C
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Reference Site:	Sec 7-T1S-R68W	MD Reference:	KB 25' @ 5336.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	LIVINGSTON S19-25-11C	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	EDT_32Bit_ODBC
Reference Design:	PROPOSAL 1	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						
Sec 7-T1S-R68W						
EXIST VERT LIVINGSTON 43-07 - Wellbore #1 - Design	1,100.00	1,112.00	781.49	755.81	30.430	CC
EXIST VERT LIVINGSTON 43-07 - Wellbore #1 - Design	9,157.98	8,314.00	799.21	600.32	4.018	ES, SF
LIVINGSTON S19-25-10N - ORIGINAL WELLBORE - PR	1,000.00	1,000.00	17.94	11.22	2.669	CC, ES
LIVINGSTON S19-25-10N - ORIGINAL WELLBORE - PR	21,219.34	20,977.27	410.35	26.14	1.068	Level 2, SF
LIVINGSTON S19-25-12N - ORIGINAL WELLBORE - PR	1,100.00	1,100.00	17.94	10.50	2.411	CC
LIVINGSTON S19-25-12N - ORIGINAL WELLBORE - PR	1,200.00	1,199.98	18.26	10.11	2.239	ES
LIVINGSTON S19-25-12N - ORIGINAL WELLBORE - PR	21,219.34	20,989.99	410.63	26.80	1.070	Level 2, SF
LIVINGSTON S19-25-13N - ORIGINAL WELLBORE - PR	1,100.00	1,100.00	36.15	28.71	4.860	CC
LIVINGSTON S19-25-13N - ORIGINAL WELLBORE - PR	1,200.00	1,200.02	36.44	28.28	4.468	ES
LIVINGSTON S19-25-13N - ORIGINAL WELLBORE - PR	21,219.34	21,020.25	703.94	273.81	1.637	SF
LIVINGSTON S19-25-14C - ORIGINAL WELLBORE - PR	1,100.00	1,100.00	54.09	46.65	7.271	CC
LIVINGSTON S19-25-14C - ORIGINAL WELLBORE - PR	1,200.00	1,200.02	54.36	46.20	6.666	ES
LIVINGSTON S19-25-14C - ORIGINAL WELLBORE - PR	21,219.34	21,309.46	990.59	539.20	2.195	SF
LIVINGSTON S19-25-15N - ORIGINAL WELLBORE - PR	1,100.00	1,100.00	72.02	64.58	9.683	CC
LIVINGSTON S19-25-15N - ORIGINAL WELLBORE - PR	1,200.00	1,200.02	72.30	64.14	8.866	ES
LIVINGSTON S19-25-15N - ORIGINAL WELLBORE - PR	21,219.34	21,136.91	1,342.95	896.99	3.011	SF
LIVINGSTON S19-25-1N - ORIGINAL WELLBORE - PR	0.00	25.00	179.92			
LIVINGSTON S19-25-1N - ORIGINAL WELLBORE - PR	100.00	123.55	180.02	179.66	507.416	ES
LIVINGSTON S19-25-1N - ORIGINAL WELLBORE - PR	21,219.34	21,727.42	3,312.38	2,859.90	7.320	SF
LIVINGSTON S19-25-2C - ORIGINAL WELLBORE - PR	105.56	130.56	161.98	161.59	406.683	CC
LIVINGSTON S19-25-2C - ORIGINAL WELLBORE - PR	200.00	223.70	162.08	161.01	151.430	ES
LIVINGSTON S19-25-2C - ORIGINAL WELLBORE - PR	21,219.34	21,792.07	2,971.08	2,518.67	6.567	SF
LIVINGSTON S19-25-3N - ORIGINAL WELLBORE - PR	300.00	300.00	143.77	142.07	84.433	CC, ES
LIVINGSTON S19-25-3N - ORIGINAL WELLBORE - PR	21,219.34	21,465.66	2,652.41	2,200.81	5.873	SF
LIVINGSTON S19-25-4N - ORIGINAL WELLBORE - PR	400.00	400.00	125.83	123.41	52.003	CC, ES
LIVINGSTON S19-25-4N - ORIGINAL WELLBORE - PR	21,219.34	21,361.65	2,323.75	1,872.78	5.153	SF
LIVINGSTON S19-25-5C - ORIGINAL WELLBORE - PR	500.00	500.00	107.90	104.76	34.399	CC, ES
LIVINGSTON S19-25-5C - ORIGINAL WELLBORE - PR	21,219.34	21,485.14	1,980.89	1,529.06	4.384	SF
LIVINGSTON S19-25-6N - ORIGINAL WELLBORE - PR	600.00	600.00	89.96	86.11	23.345	CC, ES
LIVINGSTON S19-25-6N - ORIGINAL WELLBORE - PR	21,219.34	21,147.10	1,668.38	1,219.94	3.720	SF
LIVINGSTON S19-25-7N - ORIGINAL WELLBORE - PR	700.00	700.00	72.02	67.45	15.758	CC, ES
LIVINGSTON S19-25-7N - ORIGINAL WELLBORE - PR	21,134.60	25,725.11	1,342.27	816.98	2.555	SF
LIVINGSTON S19-25-8C - ORIGINAL WELLBORE - PR	800.00	800.00	53.81	48.52	10.176	CC, ES
LIVINGSTON S19-25-8C - ORIGINAL WELLBORE - PR	21,149.94	24,365.69	989.63	485.12	1.962	SF
LIVINGSTON S19-25-9N - ORIGINAL WELLBORE - PR	900.00	900.00	35.87	29.87	5.974	CC, ES
LIVINGSTON S19-25-9N - ORIGINAL WELLBORE - PR	21,115.81	27,163.39	703.29	171.85	1.323	Level 3, SF
LIVINGSTON S20-25-2C - ORIGINAL WELLBORE - PR	400.00	400.00	89.96	87.54	37.178	CC, ES
LIVINGSTON S20-25-2C - ORIGINAL WELLBORE - PR	18,700.00	21,633.46	1,825.99	1,447.02	4.818	SF
LIVINGSTON S20-25-3N - ORIGINAL WELLBORE - PR	300.00	300.00	108.17	106.47	63.529	CC, ES
LIVINGSTON S20-25-3N - ORIGINAL WELLBORE - PR	18,700.00	21,479.55	2,129.61	1,751.68	5.635	SF
LIVINGSTON S20-25-4N - ORIGINAL WELLBORE - PR	200.00	200.00	126.11	125.12	127.926	CC, ES
LIVINGSTON S20-25-4N - ORIGINAL WELLBORE - PR	18,800.00	21,546.10	2,424.90	2,045.15	6.386	SF
LIVINGSTON S20-25-5C - ORIGINAL WELLBORE - PR	100.00	100.00	144.05	143.78	535.778	CC, ES
LIVINGSTON S20-25-5C - ORIGINAL WELLBORE - PR	18,800.00	21,756.63	2,701.67	2,321.04	7.098	SF

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-INC												Offset Well Error:	0.00 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

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