EXTRACTION OIL & GAS

Broomfield County
Sec 10-T1S-R68W
INTERCHANGE A S22-30-5N

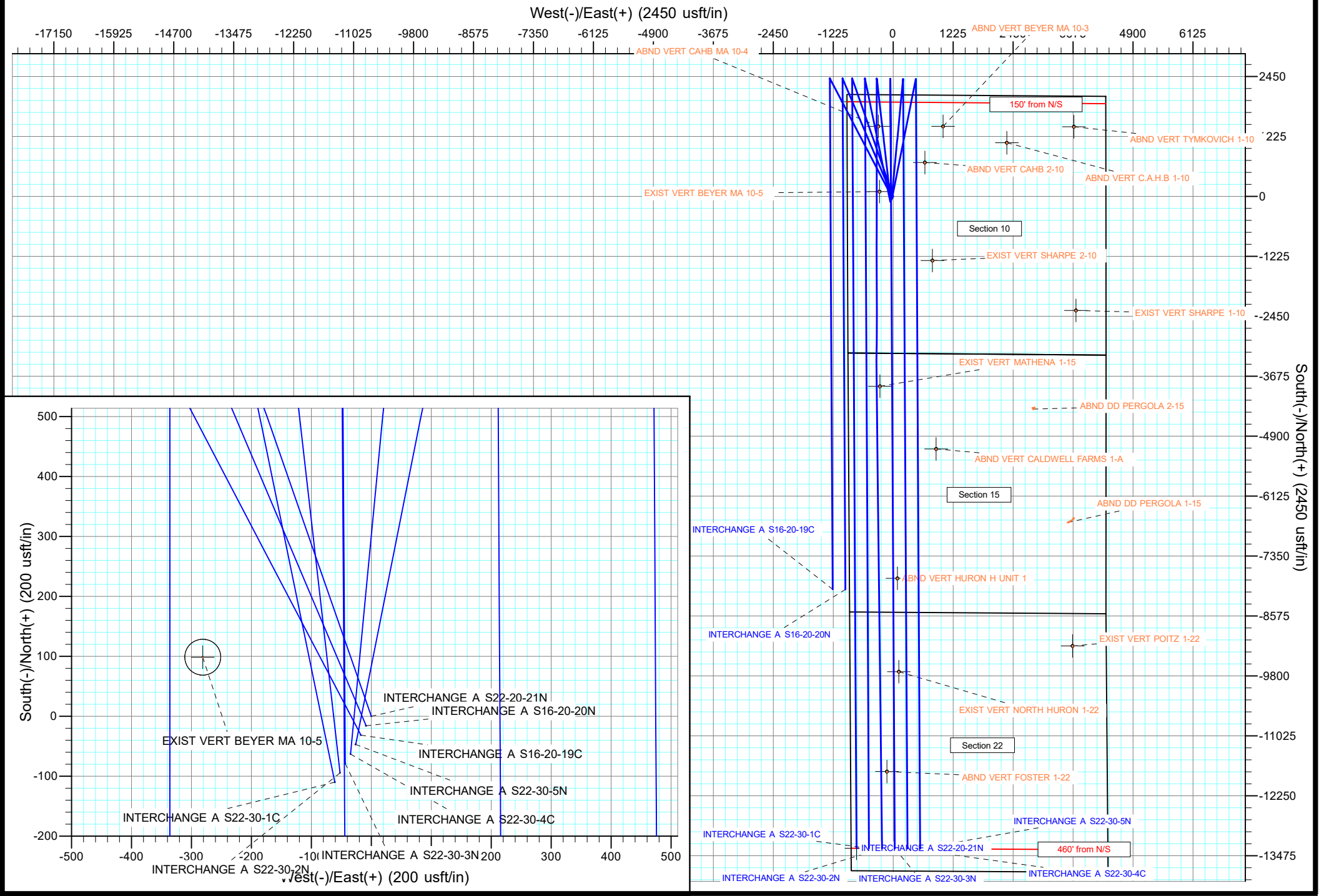
ORIGINAL WELLBORE
PROPOSAL 1

Anticollision Report

23 January, 2018

EXTRACTION Oil & Gas

Project: Broomfield County
Site: Sec 10-T1S-R68W
Well: INTERCHANGE A S22-20-21N
ORIGINAL WELLBORE
PROPOSAL 1



Anticollision Report

Company:	EXTRACTION OIL & GAS	**Local Co-ordinate Reference:**	Well INTERCHANGE A S22-30-5N
Project:	Broomfield County	**TVD Reference:**	KB 25' @ 5261.00usft
Reference Site:	Sec 10-T1S-R68W	**MD Reference:**	KB 25' @ 5261.00usft
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	INTERCHANGE A S22-30-5N	**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** 1/23/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	23,887.49	PROPOSAL 1 (ORIGINAL WELLBORE)	MWD OWSG	OWSG MWD - Standard

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
Sec 10-T1S-R68W						
ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1	9,100.00	7,802.99	552.02	352.46	2.766	SF
ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1	9,129.26	7,802.99	551.25	352.04	2.767	CC, ES
ABND VERT C.A.H.B 1-10 - Wellbore #1 - Design #1	9,400.00	7,763.99	1,853.78	1,656.06	9.376	SF
ABND VERT C.A.H.B 1-10 - Wellbore #1 - Design #1	9,471.55	7,763.98	1,852.40	1,654.96	9.382	CC, ES
ABND VERT CAHB 2-10 - Wellbore #1 - Design #1	9,866.67	7,800.98	174.47	-23.62	0.881	Level 1, CC, ES, SF
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	4,669.69	4,356.61	561.97	446.68	4.874	CC
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	4,700.00	4,383.97	562.13	446.05	4.843	ES
ABND VERT CAHB MA 10-4 - Wellbore #1 - Design #1	9,121.92	7,820.99	771.35	571.75	3.864	SF
ABND VERT TYMKOVICH 1-10 - Wellbore #1 - Design #	5,801.54	5,180.00	3,373.34	3,318.14	61.116	CC, ES
ABND VERT TYMKOVICH 1-10 - Wellbore #1 - Design #	6,600.00	5,180.00	3,466.55	3,406.67	57.884	SF
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	1,532.50	1,510.55	278.55	243.11	7.859	CC
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	1,600.00	1,575.64	279.12	242.06	7.532	ES
EXIST VERT BEYER MA 10-5 - Wellbore #1 - Design #1	10,454.53	7,825.97	754.97	554.35	3.763	SF
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	12,906.33	7,755.94	3,244.68	3,018.63	14.354	CC
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	13,000.00	7,755.94	3,246.03	3,018.59	14.272	ES
EXIST VERT SHARPE 1-10 - Wellbore #1 - Design #1	13,500.00	7,755.93	3,298.54	3,064.33	14.084	SF
EXIST VERT SHARPE 2-10 - Wellbore #1 - Design #1	11,870.27	7,787.95	318.89	106.01	1.498	Level 3, CC, ES, SF
INTERCHANGE A S16-20-19C - ORIGINAL WELLBORE	100.00	100.00	17.92	17.65	66.635	CC, ES
INTERCHANGE A S16-20-19C - ORIGINAL WELLBORE	18,700.00	18,885.49	1,782.30	1,455.69	5.457	SF
INTERCHANGE A S16-20-20N - ORIGINAL WELLBORE	200.00	200.00	35.82	34.84	36.339	CC, ES
INTERCHANGE A S16-20-20N - ORIGINAL WELLBORE	18,700.00	18,604.64	1,503.22	1,173.99	4.566	SF
INTERCHANGE A S22-20-21N - ORIGINAL WELLBORE	300.00	300.00	53.72	52.02	31.551	CC, ES
INTERCHANGE A S22-20-21N - ORIGINAL WELLBORE	23,887.49	23,868.06	1,300.15	788.34	2.540	SF
INTERCHANGE A S22-30-1C - ORIGINAL WELLBORE	940.55	944.98	48.48	42.08	7.570	CC, ES
INTERCHANGE A S22-30-1C - ORIGINAL WELLBORE	23,887.49	24,125.78	1,077.56	578.36	2.159	SF
INTERCHANGE A S22-30-2N - ORIGINAL WELLBORE	1,001.46	1,005.06	34.03	27.23	5.004	CC, ES
INTERCHANGE A S22-30-2N - ORIGINAL WELLBORE	23,881.05	23,877.79	777.43	266.82	1.523	SF
INTERCHANGE A S22-30-3N - ORIGINAL WELLBORE	1,069.54	1,072.14	20.80	13.53	2.863	CC
INTERCHANGE A S22-30-3N - ORIGINAL WELLBORE	23,882.40	23,868.22	518.67	8.36	1.016	Level 2, ES, SF
INTERCHANGE A S22-30-4C - ORIGINAL WELLBORE	1,137.70	1,139.09	9.61	1.88	1.243	Level 2, CC
INTERCHANGE A S22-30-4C - ORIGINAL WELLBORE	23,883.83	24,111.38	370.07	-35.54	0.912	Level 1, ES, SF

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Reference Site:	Sec 10-T1S-R68W	**MD Reference:**	KB 25' @ 5261.00usft
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	INTERCHANGE A S22-30-5N	**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 Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Sec 15-T1S-R68W						
ABND DD PERGOLA 1-15 - Wellbore #1 - Wellbore #1	17,239.71	7,500.00	3,061.07	2,894.92	18.423	CC
ABND DD PERGOLA 1-15 - Wellbore #1 - Wellbore #1	17,300.00	7,500.00	3,061.66	2,894.42	18.307	ES
ABND DD PERGOLA 1-15 - Wellbore #1 - Wellbore #1	17,800.00	7,500.00	3,111.92	2,937.70	17.861	SF
ABND DD PERGOLA 2-15 - Wellbore #1 - Wellbore #1	14,915.83	7,500.00	2,377.85	2,250.56	18.680	CC, ES
ABND DD PERGOLA 2-15 - Wellbore #1 - Wellbore #1	15,400.00	7,500.00	2,426.64	2,292.50	18.090	SF
ABND VERT CALDWELL FARMS 1-A - Wellbore #1 - De	15,721.00	7,784.92	373.15	102.37	1.378	Level 3, CC, ES, SF
ABND VERT HURON H UNIT 1 - Wellbore #1 - Design #	18,361.52	7,812.93	433.49	117.61	1.372	Level 3, CC, ES, SF
EXIST VERT MATHENA 1-15 - Wellbore #1 - Design #1	14,433.82	7,807.93	768.27	517.94	3.069	CC, ES, SF
Sec 22-T1S-R68W						
ABND VERT FOSTER 1-22 - Wellbore #1 - Design #1	22,307.50	7,768.97	669.05	285.79	1.746	CC, ES, SF
EXIST VERT NORTH HURON 1-22 - Wellbore #1 - Desi	20,267.89	7,785.94	413.64	65.50	1.188	Level 2, CC, ES, SF
EXIST VERT POITZ 1-22 - Wellbore #1 - Design #1	19,761.58	7,750.94	3,137.19	2,798.49	9.263	CC
EXIST VERT POITZ 1-22 - Wellbore #1 - Design #1	19,800.00	7,750.94	3,137.42	2,798.02	9.244	ES
EXIST VERT POITZ 1-22 - Wellbore #1 - Design #1	20,100.00	7,750.94	3,155.39	2,811.40	9.173	SF

Offset Design Sec 10-T1S-R68W - ABND VERT BEYER MA 10-3 - Wellbore #1 - Design #1

Survey Program: 0-INC

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +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	35.23	1,478.24	1,043.80	1,810.00				
100.00	100.00	63.00	63.00	0.13	0.75	35.23	1,478.24	1,043.80	1,809.62	1,808.74	0.88	2,054.241	
200.00	200.00	163.00	163.00	0.49	2.63	35.23	1,478.24	1,043.80	1,809.62	1,806.50	3.12	579.608	
300.00	300.00	263.00	263.00	0.85	4.79	35.23	1,478.24	1,043.80	1,809.62	1,803.98	5.64	320.947	
400.00	400.00	363.00	363.00	1.21	6.84	35.23	1,478.24	1,043.80	1,809.62	1,801.57	8.05	224.727	
500.00	500.00	463.00	463.00	1.57	8.88	35.23	1,478.24	1,043.80	1,809.62	1,799.18	10.44	173.253	
600.00	600.00	563.00	563.00	1.93	10.90	35.23	1,478.24	1,043.80	1,809.62	1,796.79	12.83	141.062	
700.00	700.00	663.00	663.00	2.29	12.92	35.23	1,478.24	1,043.80	1,809.62	1,794.41	15.21	118.995	
800.00	800.00	763.00	763.00	2.64	14.94	35.23	1,478.24	1,043.80	1,809.62	1,792.04	17.58	102.913	
900.00	899.98	862.98	862.98	3.00	16.96	24.01	1,478.24	1,043.80	1,808.03	1,788.07	19.96	90.590	
1,000.00	999.84	962.84	962.84	3.36	18.97	24.11	1,478.24	1,043.80	1,803.25	1,780.92	22.33	80.754	
1,100.00	1,099.45	1,062.45	1,062.45	3.72	20.97	24.29	1,478.24	1,043.80	1,795.29	1,770.59	24.70	72.691	
1,200.00	1,198.70	1,161.70	1,161.70	4.09	22.97	24.55	1,478.24	1,043.80	1,784.18	1,757.12	27.06	65.937	
1,300.00	1,297.47	1,260.47	1,260.47	4.47	24.96	24.88	1,478.24	1,043.80	1,769.94	1,740.53	29.41	60.176	
1,400.00	1,395.62	1,358.62	1,358.62	4.87	26.94	25.29	1,478.24	1,043.80	1,752.60	1,720.84	31.76	55.186	
1,500.00	1,493.06	1,456.06	1,456.06	5.30	28.90	25.78	1,478.24	1,043.80	1,732.21	1,698.11	34.09	50.806	
1,600.00	1,589.64	1,552.64	1,552.64	5.75	30.84	26.37	1,478.24	1,043.80	1,708.81	1,672.39	36.42	46.917	
1,700.00	1,685.27	1,648.27	1,648.27	6.24	32.77	27.06	1,478.24	1,043.80	1,682.47	1,643.73	38.74	43.431	
1,800.00	1,779.82	1,742.82	1,742.82	6.77	34.67	27.85	1,478.24	1,043.80	1,653.24	1,612.20	41.05	40.279	
1,900.00	1,873.17	1,836.17	1,836.17	7.33	36.55	28.76	1,478.24	1,043.80	1,621.23	1,577.88	43.34	37.406	
2,000.00	1,965.21	1,928.21	1,928.21	7.94	38.40	29.79	1,478.24	1,043.80	1,586.50	1,540.87	45.63	34.770	
2,074.09	2,032.50	2,004.50	1,995.50	8.42	39.93	30.64	1,478.24	1,043.80	1,559.09	1,511.59	47.50	32.823	
2,100.00	2,055.89	2,018.89	2,018.89	8.60	40.22	30.85	1,478.24	1,043.80	1,549.27	1,501.36	47.91	32.337	
2,200.00	2,146.16	2,109.16	2,109.16	9.28	42.04	31.66	1,478.24	1,043.80	1,511.54	1,461.35	50.19	30.115	
2,300.00	2,236.44	2,200.56	2,199.44	9.98	43.88	32.51	1,478.24	1,043.80	1,474.10	1,421.58	52.52	28.069	
2,400.00	2,326.71	2,289.71	2,289.71	10.69	45.67	33.41	1,478.24	1,043.80	1,436.97	1,382.15	54.82	26.214	
2,500.00	2,416.98	2,379.98	2,379.98	11.41	47.49	34.35	1,478.24	1,043.80	1,400.18	1,343.02	57.16	24.498	
2,600.00	2,507.25	2,470.25	2,470.25	12.15	49.30	35.34	1,478.24	1,043.80	1,363.75	1,304.23	59.51	22.915	
2,700.00	2,597.52	2,560.52	2,560.52	12.88	51.12	36.38	1,478.24	1,043.80	1,327.72	1,265.82	61.89	21.452	

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