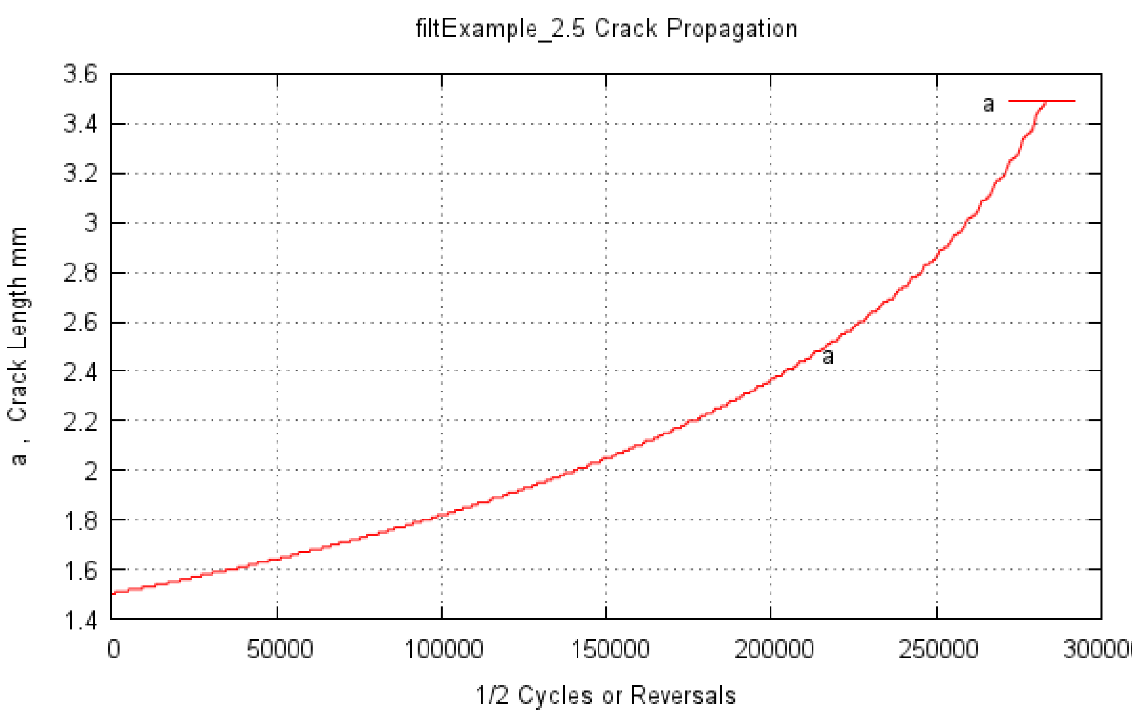
Results for filtExample_2.5 : Crack Propagation Plate Edge Flaw

Author: edit this in file makereport5
Affiliation:
Sat Nov 2 20:59:46 EDT 2013

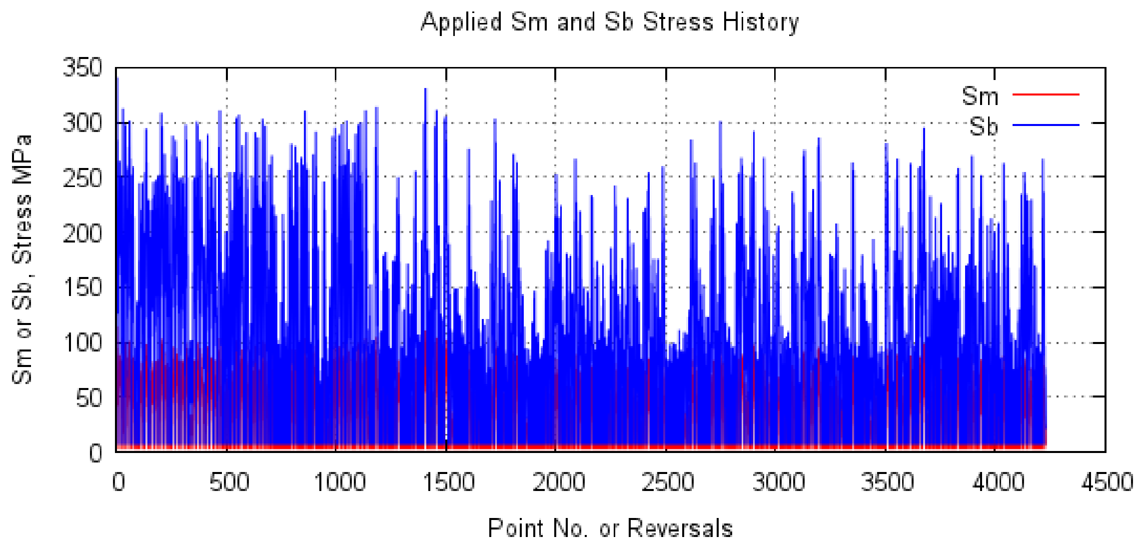
Simulation input data:
B= 10.0 mm
W= 70.0 mm
a_0= 1.5 mm
#MATERIAL= merged_a36_fitted.html
#TYPE= plate_edge_flaw
#ACTIVATE_MmMb= 1
M=Mkm=Mkb=fw=1.0

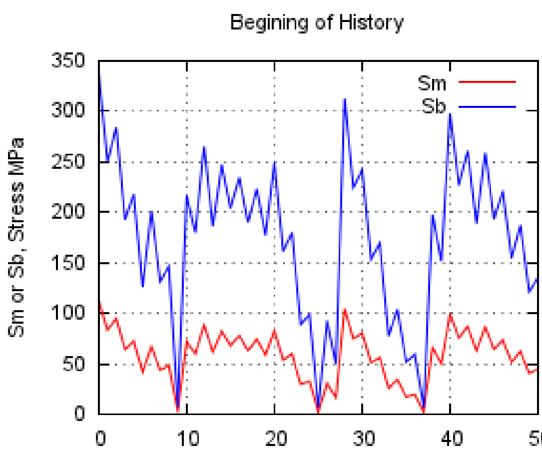
Crack Propagation Results:
(*# plateEdgeFlaw.f vers. 3.10 # makereport1 vers. 2.1*)

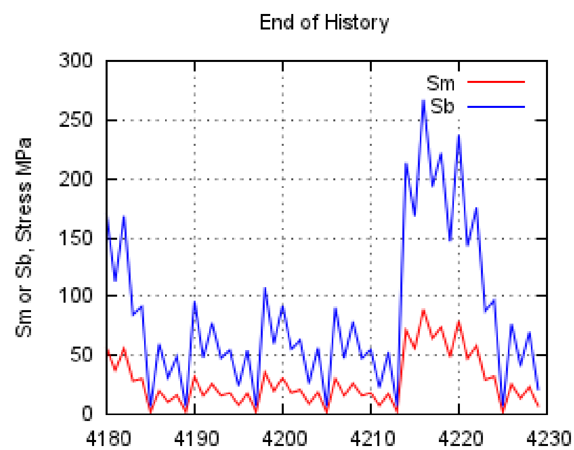
- No. of Reversals= 283148 revs. or 141574 cycles
- Final _____ **a** = 0.348E+01 mm
- No. of History Reps.= 68 reps. + 1 revs.

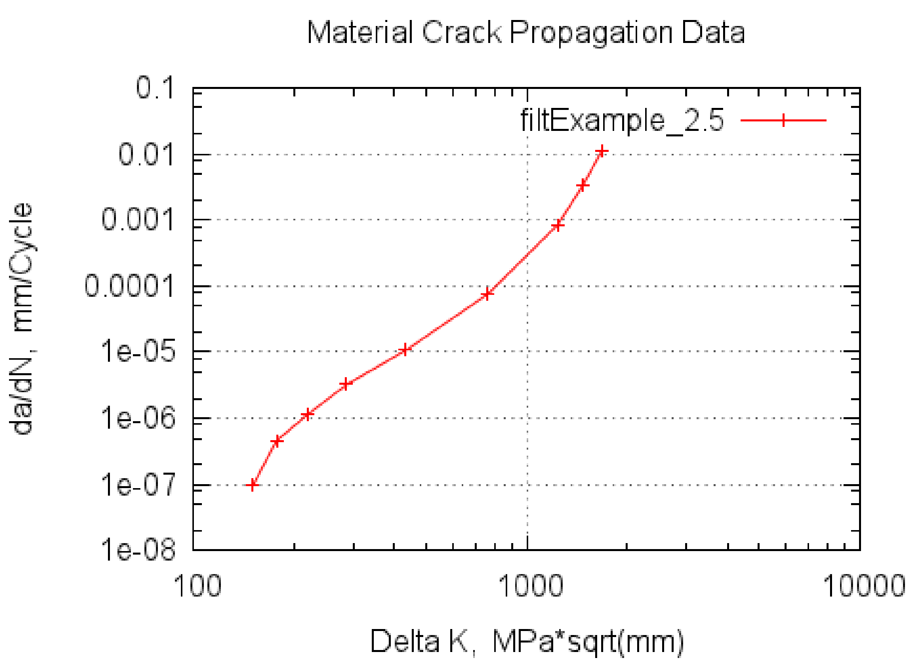


Results for filtExample_2.5 : Crack Propagation Plate Edge Flaw

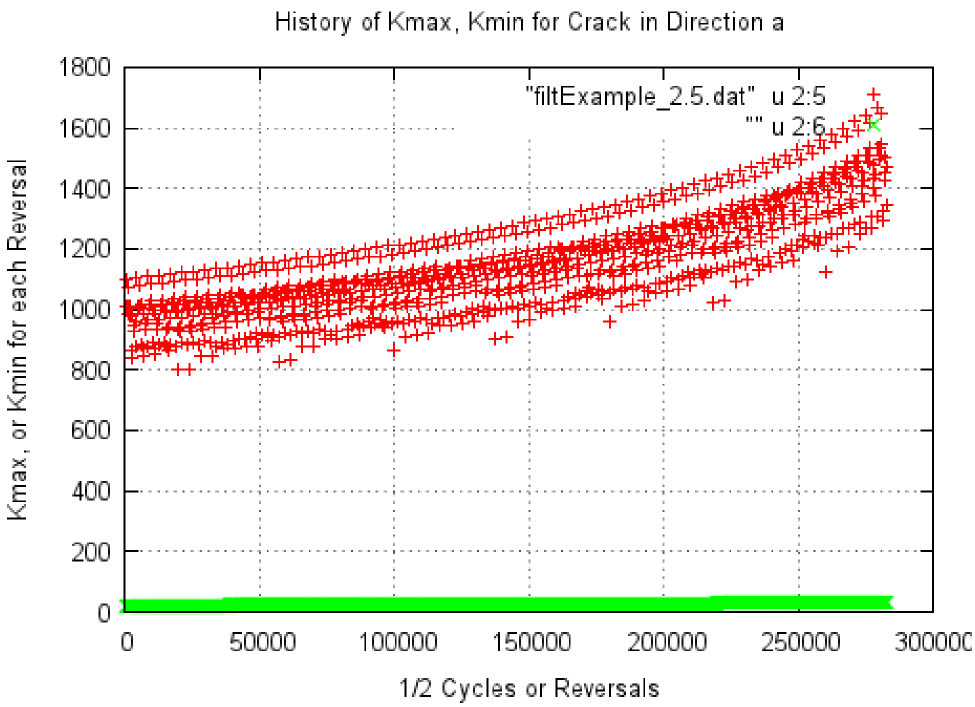




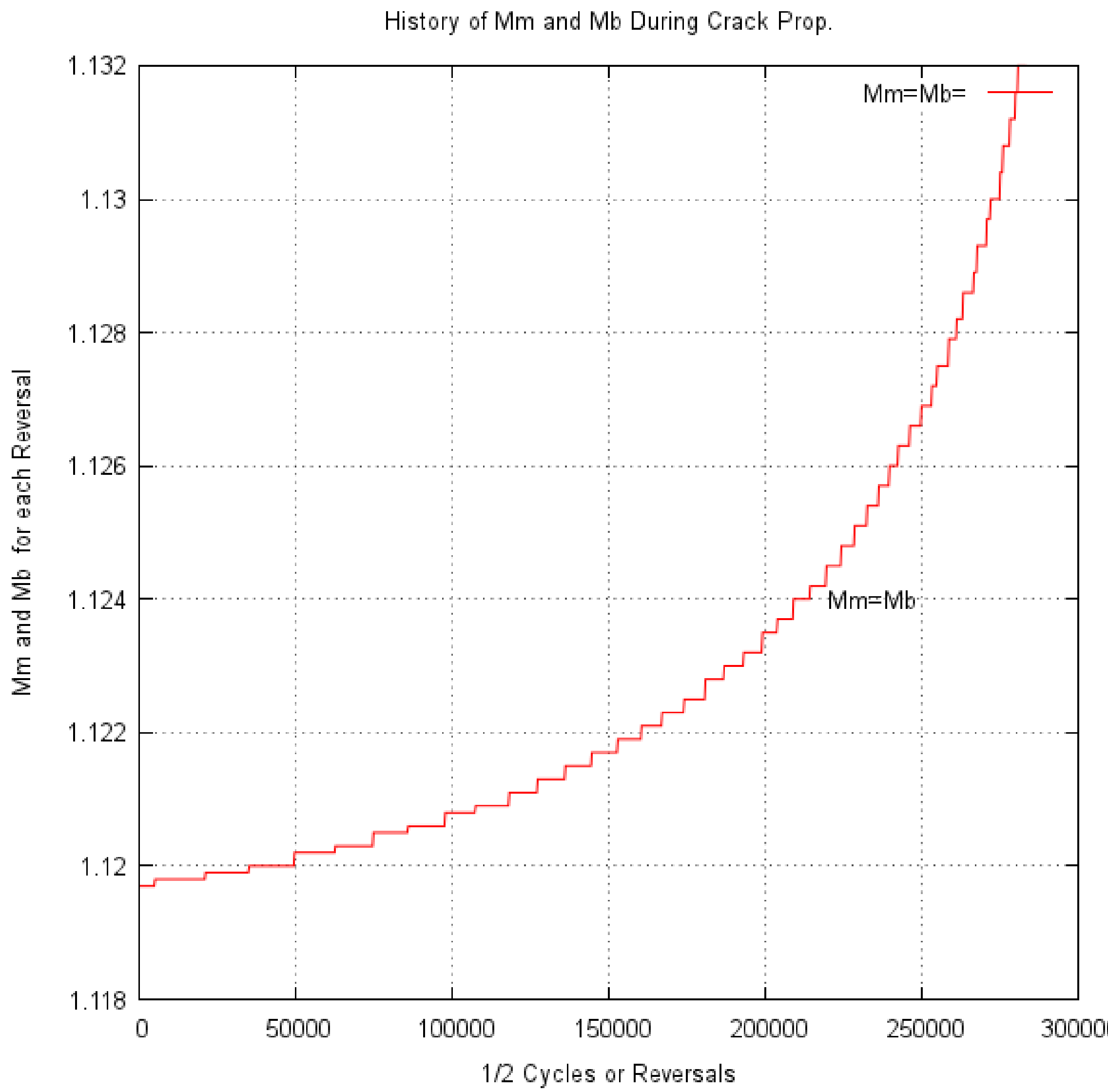




Results for filtExample_2.5 : Crack Propagation Plate Edge Flaw



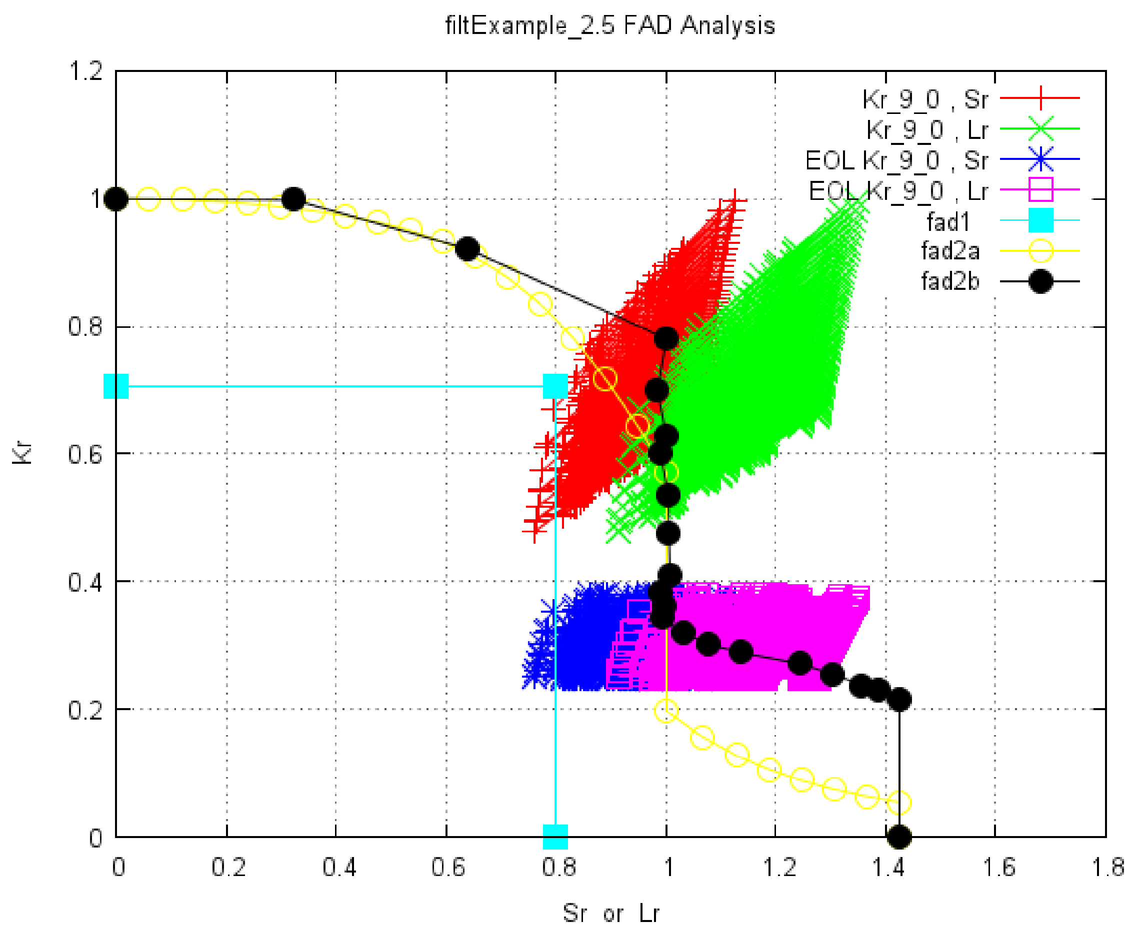
Results for filtExample_2.5 : Crack Propagation Plate Edge Flaw



FAD Results for filtExample_2.5 #TensileFile= a36_Mattos_mono_engrSS_FLAT.txt

#PmEOL= 70. #PbEOL= 100.
#Kmat= 1675.

plateEdgeFAD.f vers. 0.5



Crack Initiation Life Results for filtExample_2.5 (Assume Kt= 1.8 for welds)

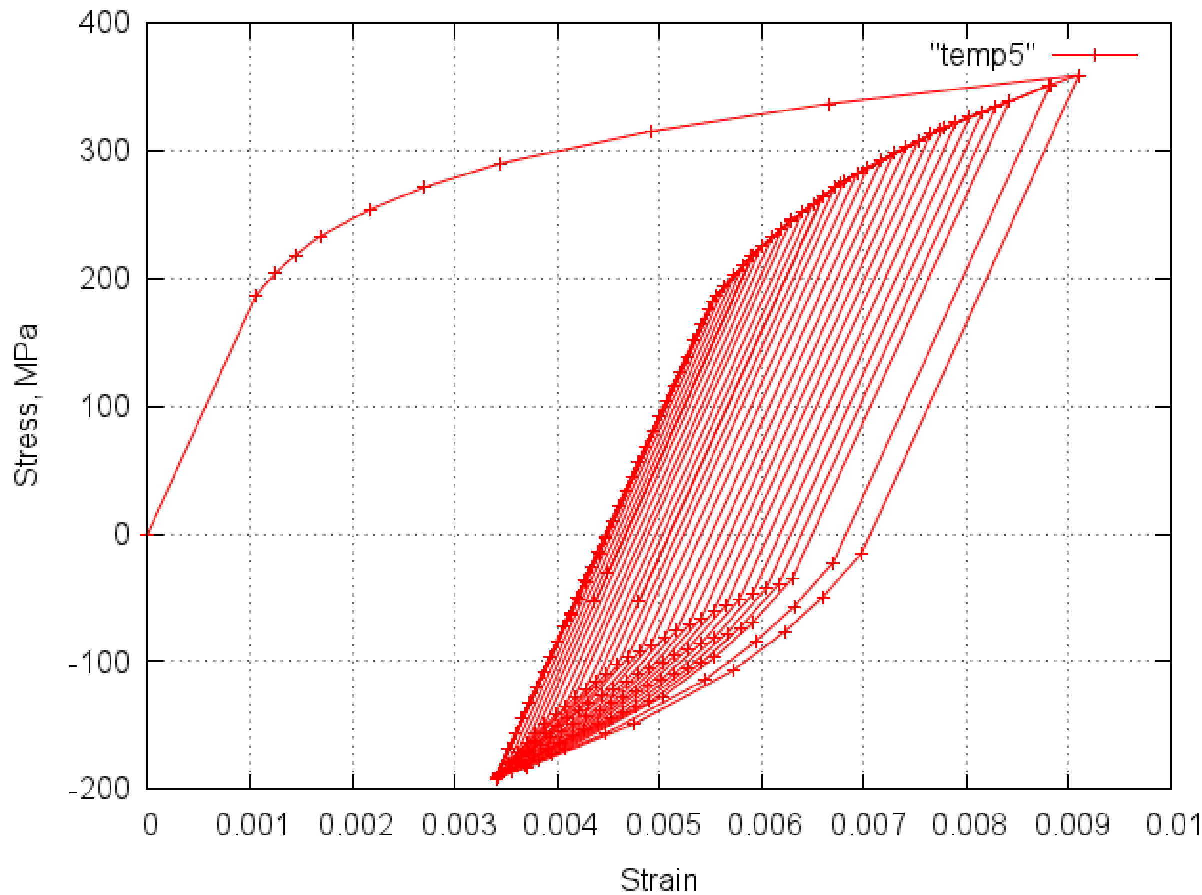
Files Used:

- Stress History (Sb+Sm)
- Rainflow File
- Material File

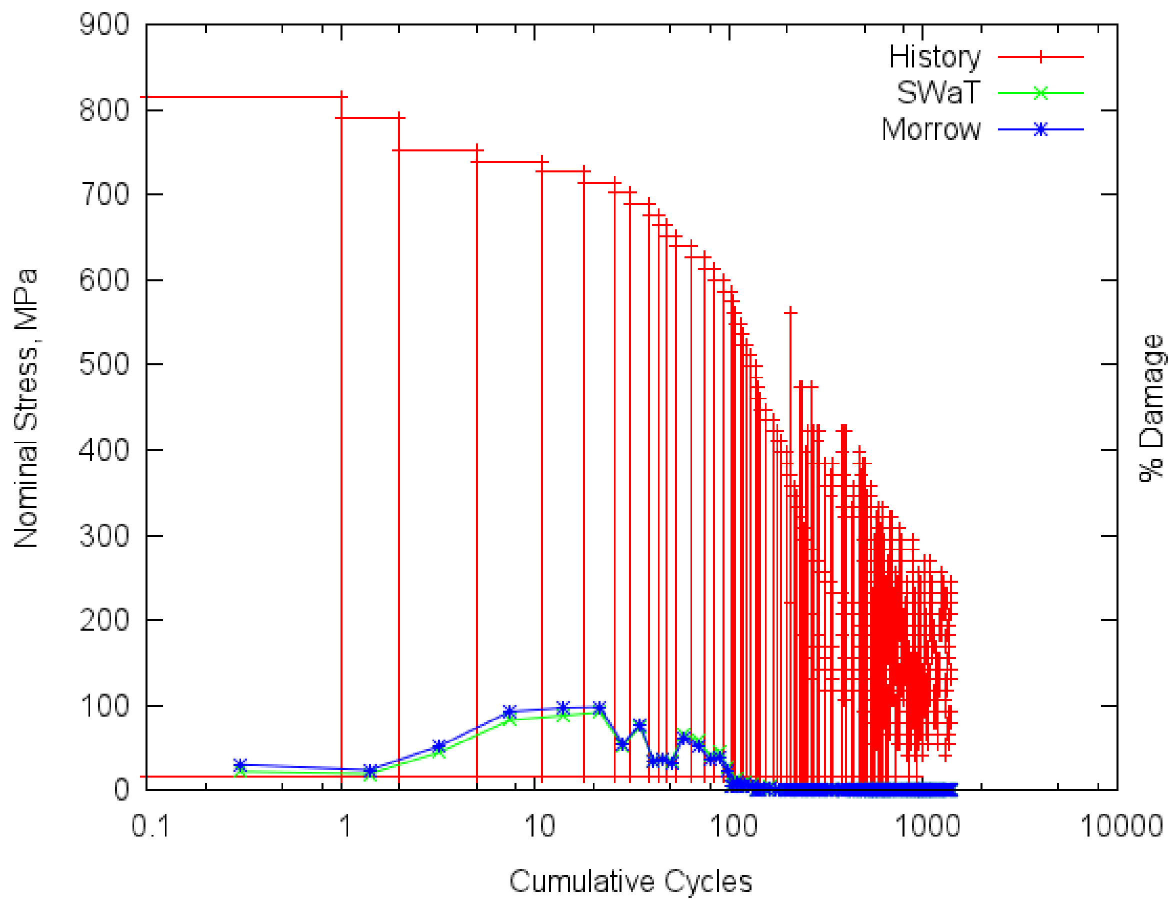
Predicted History Repetitions to Initiation:

```
StrainLife_Reps SWaT_Life_Reps StressLife_Reps   Morrow_Reps    Goodman_Reps (Reps= Repetions)
999.3           594.5           999.3           438.7           234.6
```

Local Stress and Strain Response:



Cumulative Cycle Plot of History and Damage:



(Rectangles are Rainflow Cycle Sets: Sorted by Range: largest on Left)

Detailed Damage for each Rainflow Cycle Set:

Loop	Smax	Smin	N	Sigmax	Sigmin	Delta	Epsmax	Epsmin	DeltaEps	%Eps	%SWaT	%Sts	%Morr
1	815.4	16.2	1.0	359.	-191.	550.	0.00910	0.00340	0.00570	2.3	2.5	2.3	3.4
2	790.2	16.2	1.0	351.	-191.	543.	0.00882	0.00340	0.00542	2.0	2.2	2.0	2.7
3	752.4	16.2	3.0	339.	-191.	530.	0.00842	0.00340	0.00502	4.8	5.0	4.8	5.8
4	739.8	16.2	6.0	335.	-191.	526.	0.00829	0.00340	0.00489	8.8	9.2	8.8	10.3
5	727.2	16.2	7.0	331.	-191.	522.	0.00816	0.00340	0.00476	9.4	9.8	9.4	10.8
6	714.6	16.2	8.0	326.	-191.	517.	0.00803	0.00340	0.00463	9.8	10.2	9.8	10.9
7	702.0	16.2	5.0	322.	-191.	513.	0.00790	0.00340	0.00450	5.6	5.8	5.6	6.1
8	689.4	16.2	8.0	317.	-191.	509.	0.00777	0.00340	0.00438	8.2	8.4	8.2	8.6
9	676.8	16.2	4.0	313.	-191.	504.	0.00765	0.00340	0.00425	3.7	3.8	3.7	3.8
10	664.2	16.2	5.0	308.	-191.	499.	0.00753	0.00340	0.00413	4.2	4.2	4.2	4.1
11	651.6	16.2	5.0	303.	-191.	494.	0.00741	0.00340	0.00401	3.8	3.8	3.8	3.6
12	639.0	16.2	11.0	298.	-191.	489.	0.00729	0.00340	0.00390	7.4	7.4	7.4	6.8
13	626.4	16.2	11.0	293.	-191.	484.	0.00717	0.00340	0.00378	6.6	6.6	6.6	5.9
14	612.0	16.2	9.0	287.	-191.	478.	0.00704	0.00340	0.00365	4.7	4.7	4.7	4.1
15	599.4	16.2	11.0	282.	-191.	473.	0.00693	0.00340	0.00353	5.2	5.0	5.2	4.3
16	586.8	16.2	8.0	277.	-191.	468.	0.00681	0.00340	0.00342	3.3	3.1	3.3	2.7
17	574.2	16.2	2.0	271.	-191.	462.	0.00671	0.00340	0.00331	0.7	0.7	0.7	0.6
18	561.6	16.2	3.0	265.	-191.	456.	0.00660	0.00340	0.00321	1.0	0.9	1.0	0.7
19	549.0	16.2	6.0	258.	-191.	450.	0.00650	0.00340	0.00310	1.7	1.5	1.7	1.1
20	536.4	16.2	4.0	252.	-191.	443.	0.00640	0.00340	0.00300	1.0	0.8	1.0	0.6
21	523.8	16.2	6.0	246.	-191.	437.	0.00629	0.00340	0.00290	1.2	1.0	1.2	0.8

22	511.2	16.2	5.0	239.	-191.	430.	0.00620	0.00340	0.00280	0.9	0.7	0.9	0.5
23	498.6	16.2	8.0	232.	-191.	423.	0.00610	0.00340	0.00270	1.2	0.9	1.2	0.7
24	486.0	16.2	2.0	225.	-191.	416.	0.00600	0.00340	0.00261	0.2	0.2	0.2	0.1
25	473.4	16.2	2.0	218.	-191.	409.	0.00591	0.00340	0.00251	0.2	0.1	0.2	0.1
26	460.8	16.2	5.0	210.	-191.	401.	0.00582	0.00340	0.00242	0.4	0.3	0.4	0.2
27	448.2	16.2	8.0	202.	-191.	393.	0.00573	0.00340	0.00233	0.5	0.4	0.5	0.3
28	435.6	16.2	15.0	194.	-191.	385.	0.00564	0.00340	0.00224	0.8	0.5	0.8	0.4
29	423.0	16.2	10.0	186.	-191.	377.	0.00555	0.00340	0.00216	0.4	0.2	0.4	0.2
30	410.4	16.2	7.0	176.	-191.	367.	0.00548	0.00340	0.00208	0.0	0.0	0.0	0.0
31	397.8	16.2	14.0	164.	-191.	355.	0.00541	0.00340	0.00201	0.0	0.0	0.0	0.0
32	385.2	16.2	1.0	152.	-191.	343.	0.00534	0.00340	0.00195	0.0	0.0	0.0	0.0
33	370.8	16.2	7.0	139.	-191.	330.	0.00527	0.00340	0.00187	0.0	0.0	0.0	0.0
34	561.6	219.6	1.0	265.	-54.	318.	0.00660	0.00480	0.00181	0.0	0.0	0.0	0.0
35	358.2	16.2	8.0	127.	-191.	318.	0.00520	0.00340	0.00181	0.0	0.0	0.0	0.0
36	345.6	16.2	8.0	115.	-191.	307.	0.00514	0.00340	0.00174	0.0	0.0	0.0	0.0
37	333.0	16.2	6.0	104.	-191.	295.	0.00507	0.00340	0.00167	0.0	0.0	0.0	0.0
38	320.4	16.2	4.0	92.	-191.	283.	0.00500	0.00340	0.00161	0.0	0.0	0.0	0.0
39	473.4	181.8	1.0	218.	-54.	271.	0.00591	0.00437	0.00154	0.0	0.0	0.0	0.0
40	307.8	16.2	7.0	80.	-191.	271.	0.00494	0.00340	0.00154	0.0	0.0	0.0	0.0
41	295.2	16.2	9.0	68.	-191.	260.	0.00487	0.00340	0.00147	0.0	0.0	0.0	0.0
42	397.8	130.5	2.0	164.	-85.	249.	0.00541	0.00400	0.00141	0.0	0.0	0.0	0.0
43	423.0	155.9	2.0	186.	-63.	249.	0.00555	0.00414	0.00141	0.0	0.0	0.0	0.0
44	282.6	16.2	12.0	57.	-191.	248.	0.00480	0.00340	0.00141	0.0	0.0	0.0	0.0
45	473.4	207.0	1.0	218.	-30.	248.	0.00591	0.00450	0.00141	0.0	0.0	0.0	0.0
46	385.2	130.5	3.0	152.	-85.	237.	0.00534	0.00400	0.00134	0.0	0.0	0.0	0.0
47	423.0	168.5	1.0	186.	-51.	237.	0.00555	0.00421	0.00134	0.0	0.0	0.0	0.0
48	270.0	16.2	13.0	45.	-191.	236.	0.00474	0.00340	0.00134	0.0	0.0	0.0	0.0
49	385.2	143.1	2.0	152.	-73.	225.	0.00534	0.00407	0.00128	0.0	0.0	0.0	0.0
50	410.4	168.5	1.0	176.	-50.	225.	0.00548	0.00420	0.00128	0.0	0.0	0.0	0.0
51	423.0	181.8	2.0	186.	-39.	224.	0.00555	0.00428	0.00127	0.0	0.0	0.0	0.0
52	257.4	16.2	22.0	33.	-191.	224.	0.00467	0.00340	0.00127	0.0	0.0	0.0	0.0
53	358.2	117.7	1.0	127.	-97.	224.	0.00520	0.00393	0.00127	0.0	0.0	0.0	0.0
54	385.2	155.9	1.0	152.	-61.	213.	0.00534	0.00413	0.00121	0.0	0.0	0.0	0.0
55	244.8	16.2	17.0	21.	-191.	213.	0.00460	0.00340	0.00121	0.0	0.0	0.0	0.0
56	345.6	117.7	3.0	115.	-97.	212.	0.00514	0.00393	0.00120	0.0	0.0	0.0	0.0
57	370.8	143.1	3.0	139.	-73.	212.	0.00527	0.00407	0.00120	0.0	0.0	0.0	0.0
58	358.2	130.5	5.0	127.	-85.	212.	0.00520	0.00400	0.00120	0.0	0.0	0.0	0.0
59	385.2	168.5	2.0	152.	-50.	202.	0.00534	0.00420	0.00114	0.0	0.0	0.0	0.0
60	232.2	16.2	41.0	10.	-191.	201.	0.00454	0.00340	0.00114	0.0	0.0	0.0	0.0
61	423.0	207.0	1.0	186.	-15.	201.	0.00555	0.00441	0.00114	0.0	0.0	0.0	0.0
62	397.8	181.8	1.0	164.	-37.	201.	0.00541	0.00427	0.00114	0.0	0.0	0.0	0.0
63	333.0	117.7	1.0	104.	-97.	200.	0.00507	0.00393	0.00114	0.0	0.0	0.0	0.0
64	320.4	105.1	1.0	92.	-108.	200.	0.00500	0.00387	0.00114	0.0	0.0	0.0	0.0
65	358.2	143.1	4.0	127.	-73.	200.	0.00520	0.00407	0.00114	0.0	0.0	0.0	0.0
66	370.8	155.9	3.0	139.	-61.	200.	0.00527	0.00413	0.00113	0.0	0.0	0.0	0.0
67	423.0	219.6	1.0	186.	-3.	189.	0.00555	0.00448	0.00107	0.0	0.0	0.0	0.0
68	219.6	16.2	31.0	-2.	-191.	189.	0.00447	0.00340	0.00107	0.0	0.0	0.0	0.0
69	320.4	117.7	2.0	92.	-97.	189.	0.00500	0.00393	0.00107	0.0	0.0	0.0	0.0
70	333.0	130.5	5.0	104.	-85.	188.	0.00507	0.00400	0.00107	0.0	0.0	0.0	0.0
71	345.6	143.1	2.0	115.	-73.	188.	0.00514	0.00407	0.00107	0.0	0.0	0.0	0.0
72	358.2	155.9	2.0	127.	-61.	188.	0.00520	0.00413	0.00107	0.0	0.0	0.0	0.0
73	207.0	16.2	29.0	-14.	-191.	178.	0.00440	0.00340	0.00101	0.0	0.0	0.0	0.0
74	397.8	207.0	1.0	164.	-14.	178.	0.00541	0.00440	0.00101	0.0	0.0	0.0	0.0
75	385.2	194.4	2.0	152.	-25.	178.	0.00534	0.00434	0.00101	0.0	0.0	0.0	0.0
76	333.0	143.1	2.0	104.	-73.	177.	0.00507	0.00407	0.00100	0.0	0.0	0.0	0.0
77	320.4	130.5	3.0	92.	-85.	177.	0.00500	0.00400	0.00100	0.0	0.0	0.0	0.0
78	358.2	168.5	1.0	127.	-50.	177.	0.00520	0.00420	0.00100	0.0	0.0	0.0	0.0
79	370.8	181.8	1.0	139.	-37.	176.	0.00527	0.00427	0.00100	0.0	0.0	0.0	0.0
80	194.4	16.2	15.0	-25.	-191.	166.	0.00434	0.00340	0.00094	0.0	0.0	0.0	0.0
81	270.0	92.3	1.0	45.	-120.	165.	0.00474	0.00380	0.00094	0.0	0.0	0.0	0.0
82	295.2	117.7	3.0	68.	-97.	165.	0.00487	0.00393	0.00094	0.0	0.0	0.0	0.0
83	320.4	143.1	1.0	92.	-73.	165.	0.00500	0.00407	0.00094	0.0	0.0	0.0	0.0

84	385.2	219.6	1.0	152.	-2.	154.	0.00534	0.00447	0.00087	0.0	0.0	0.0	0.0
85	181.8	16.2	10.0	-37.	-191.	154.	0.00427	0.00340	0.00087	0.0	0.0	0.0	0.0
86	244.8	79.7	1.0	21.	-132.	154.	0.00460	0.00373	0.00087	0.0	0.0	0.0	0.0
87	282.6	117.7	2.0	57.	-97.	153.	0.00480	0.00393	0.00087	0.0	0.0	0.0	0.0
88	295.2	130.5	1.0	68.	-85.	153.	0.00487	0.00400	0.00087	0.0	0.0	0.0	0.0
89	333.0	168.5	1.0	104.	-50.	153.	0.00507	0.00420	0.00087	0.0	0.0	0.0	0.0
90	345.6	181.8	3.0	115.	-37.	152.	0.00514	0.00427	0.00086	0.0	0.0	0.0	0.0
91	207.0	54.4	1.0	-14.	-156.	142.	0.00440	0.00360	0.00081	0.0	0.0	0.0	0.0
92	244.8	92.3	3.0	21.	-120.	142.	0.00460	0.00380	0.00080	0.0	0.0	0.0	0.0
93	168.5	16.2	16.0	-50.	-191.	142.	0.00420	0.00340	0.00080	0.0	0.0	0.0	0.0
94	257.4	105.1	2.0	33.	-108.	142.	0.00467	0.00387	0.00080	0.0	0.0	0.0	0.0
95	333.0	181.8	2.0	104.	-37.	141.	0.00507	0.00427	0.00080	0.0	0.0	0.0	0.0
96	358.2	207.0	1.0	127.	-14.	141.	0.00520	0.00440	0.00080	0.0	0.0	0.0	0.0
97	345.6	194.4	1.0	115.	-25.	141.	0.00514	0.00434	0.00080	0.0	0.0	0.0	0.0
98	232.2	92.3	4.0	10.	-120.	130.	0.00454	0.00380	0.00074	0.0	0.0	0.0	0.0
99	155.9	16.2	18.0	-61.	-191.	130.	0.00413	0.00340	0.00074	0.0	0.0	0.0	0.0
100	244.8	105.1	2.0	21.	-108.	130.	0.00460	0.00387	0.00074	0.0	0.0	0.0	0.
101	282.6	143.1	1.0	57.	-73.	130.	0.00480	0.00407	0.00074	0.0	0.0	0.0	0.
102	270.0	130.5	1.0	45.	-85.	130.	0.00474	0.00400	0.00074	0.0	0.0	0.0	0.
103	295.2	155.9	2.0	68.	-61.	130.	0.00487	0.00413	0.00074	0.0	0.0	0.0	0.
104	320.4	181.8	3.0	92.	-37.	129.	0.00500	0.00427	0.00073	0.0	0.0	0.0	0.
105	194.4	67.0	1.0	-25.	-144.	119.	0.00434	0.00366	0.00067	0.0	0.0	0.0	0.
106	181.8	54.4	1.0	-37.	-156.	119.	0.00427	0.00360	0.00067	0.0	0.0	0.0	0.
107	207.0	79.7	2.0	-14.	-132.	118.	0.00440	0.00373	0.00067	0.0	0.0	0.0	0.
108	219.6	92.3	3.0	-2.	-120.	118.	0.00447	0.00380	0.00067	0.0	0.0	0.0	0.
109	232.2	105.1	2.0	10.	-108.	118.	0.00454	0.00387	0.00067	0.0	0.0	0.0	0.
110	244.8	117.7	1.0	21.	-97.	118.	0.00460	0.00393	0.00067	0.0	0.0	0.0	0.
111	143.1	16.2	7.0	-73.	-191.	118.	0.00407	0.00340	0.00067	0.0	0.0	0.0	0.
112	282.6	155.9	1.0	57.	-61.	118.	0.00480	0.00413	0.00067	0.0	0.0	0.0	0.
113	295.2	168.5	1.0	68.	-50.	118.	0.00487	0.00420	0.00067	0.0	0.0	0.0	0.
114	333.0	207.0	2.0	104.	-14.	117.	0.00507	0.00440	0.00067	0.0	0.0	0.0	0.
115	320.4	194.4	1.0	92.	-25.	117.	0.00500	0.00434	0.00067	0.0	0.0	0.0	0.
116	307.8	181.8	3.0	80.	-37.	117.	0.00494	0.00427	0.00067	0.0	0.0	0.0	0.
117	181.8	67.0	3.0	-37.	-144.	107.	0.00427	0.00366	0.00061	0.0	0.0	0.0	0.
118	194.4	79.7	4.0	-25.	-132.	107.	0.00434	0.00373	0.00061	0.0	0.0	0.0	0.
119	232.2	117.7	2.0	10.	-97.	107.	0.00454	0.00393	0.00060	0.0	0.0	0.0	0.
120	130.5	16.2	5.0	-85.	-191.	106.	0.00400	0.00340	0.00060	0.0	0.0	0.0	0.
121	244.8	130.5	1.0	21.	-85.	106.	0.00460	0.00400	0.00060	0.0	0.0	0.0	0.
122	282.6	168.5	3.0	57.	-50.	106.	0.00480	0.00420	0.00060	0.0	0.0	0.0	0.
123	270.0	155.9	1.0	45.	-61.	106.	0.00474	0.00413	0.00060	0.0	0.0	0.0	0.
124	333.0	219.6	3.0	104.	-2.	106.	0.00507	0.00447	0.00060	0.0	0.0	0.0	0.
125	320.4	207.0	3.0	92.	-14.	106.	0.00500	0.00440	0.00060	0.0	0.0	0.0	0.
126	307.8	194.4	1.0	80.	-25.	106.	0.00494	0.00434	0.00060	0.0	0.0	0.0	0.
127	295.2	181.8	4.0	68.	-37.	106.	0.00487	0.00427	0.00060	0.0	0.0	0.0	0.
128	194.4	92.3	2.0	-25.	-120.	95.	0.00434	0.00380	0.00054	0.0	0.0	0.0	0.
129	181.8	79.7	4.0	-37.	-132.	95.	0.00427	0.00373	0.00054	0.0	0.0	0.0	0.
130	207.0	105.1	1.0	-14.	-108.	95.	0.00440	0.00387	0.00054	0.0	0.0	0.0	0.
131	219.6	117.7	5.0	-2.	-97.	95.	0.00447	0.00393	0.00054	0.0	0.0	0.0	0.
132	244.8	143.1	5.0	21.	-73.	95.	0.00460	0.00407	0.00054	0.0	0.0	0.0	0.
133	232.2	130.5	7.0	10.	-85.	95.	0.00454	0.00400	0.00054	0.0	0.0	0.0	0.
134	117.7	16.2	6.0	-97.	-191.	94.	0.00393	0.00340	0.00054	0.0	0.0	0.0	0.
135	270.0	168.5	6.0	45.	-50.	94.	0.00474	0.00420	0.00054	0.0	0.0	0.0	0.
136	257.4	155.9	4.0	33.	-61.	94.	0.00467	0.00413	0.00054	0.0	0.0	0.0	0.
137	168.5	67.0	7.0	-50.	-144.	94.	0.00420	0.00366	0.00054	0.0	0.0	0.0	0.
138	282.6	181.8	4.0	57.	-37.	94.	0.00480	0.00427	0.00053	0.0	0.0	0.0	0.
139	320.4	219.6	7.0	92.	-2.	94.	0.00500	0.00447	0.00053	0.0	0.0	0.0	0.
140	307.8	207.0	3.0	80.	-14.	94.	0.00494	0.00440	0.00053	0.0	0.0	0.0	0.
141	207.0	117.7	5.0	-14.	-97.	83.	0.00440	0.00393	0.00047	0.0	0.0	0.0	0.
142	194.4	105.1	7.0	-25.	-108.	83.	0.00434	0.00387	0.00047	0.0	0.0	0.0	0.
143	232.2	143.1	7.0	10.	-73.	83.	0.00454	0.00407	0.00047	0.0	0.0	0.0	0.
144	219.6	130.5	8.0	-2.	-85.	83.	0.00447	0.00400	0.00047	0.0	0.0	0.0	0.
145	105.1	16.2	8.0	-108.	-191.	83.	0.00387	0.00340	0.00047	0.0	0.0	0.0	0.

146	257.4	168.5	5.0	33.	-50.	83.	0.00467	0.00420	0.00047	0.0	0.0	0.0	0.
147	244.8	155.9	3.0	21.	-61.	83.	0.00460	0.00413	0.00047	0.0	0.0	0.0	0.
148	155.9	67.0	12.0	-61.	-144.	83.	0.00413	0.00366	0.00047	0.0	0.0	0.0	0.
149	168.5	79.7	5.0	-50.	-132.	83.	0.00420	0.00373	0.00047	0.0	0.0	0.0	0.
150	143.1	54.4	8.0	-73.	-156.	83.	0.00407	0.00360	0.00047	0.0	0.0	0.0	0.
151	282.6	194.4	1.0	57.	-25.	82.	0.00480	0.00434	0.00047	0.0	0.0	0.0	0.
152	270.0	181.8	3.0	45.	-37.	82.	0.00474	0.00427	0.00047	0.0	0.0	0.0	0.
153	307.8	219.6	3.0	80.	-2.	82.	0.00494	0.00447	0.00047	0.0	0.0	0.0	0.
154	295.2	207.0	6.0	68.	-14.	82.	0.00487	0.00440	0.00047	0.0	0.0	0.0	0.
155	194.4	117.7	16.0	-25.	-97.	71.	0.00434	0.00393	0.00040	0.0	0.0	0.0	0.
156	181.8	105.1	13.0	-37.	-108.	71.	0.00427	0.00387	0.00040	0.0	0.0	0.0	0.
157	207.0	130.5	15.0	-14.	-85.	71.	0.00440	0.00400	0.00040	0.0	0.0	0.0	0.
158	219.6	143.1	11.0	-2.	-73.	71.	0.00447	0.00407	0.00040	0.0	0.0	0.0	0.
159	232.2	155.9	7.0	10.	-61.	71.	0.00454	0.00413	0.00040	0.0	0.0	0.0	0.
160	244.8	168.5	4.0	21.	-50.	71.	0.00460	0.00420	0.00040	0.0	0.0	0.0	0.
161	117.7	41.6	1.0	-97.	-168.	71.	0.00393	0.00353	0.00040	0.0	0.0	0.0	0.
162	168.5	92.3	6.0	-50.	-120.	71.	0.00420	0.00380	0.00040	0.0	0.0	0.0	0.
163	92.3	16.2	6.0	-120.	-191.	71.	0.00380	0.00340	0.00040	0.0	0.0	0.0	0.
164	130.5	54.4	13.0	-85.	-156.	71.	0.00400	0.00360	0.00040	0.0	0.0	0.0	0.
165	143.1	67.0	14.0	-73.	-144.	71.	0.00407	0.00366	0.00040	0.0	0.0	0.0	0.
166	155.9	79.7	4.0	-61.	-132.	71.	0.00413	0.00373	0.00040	0.0	0.0	0.0	0.
167	282.6	207.0	2.0	57.	-14.	70.	0.00480	0.00440	0.00040	0.0	0.0	0.0	0.
168	270.0	194.4	1.0	45.	-25.	70.	0.00474	0.00434	0.00040	0.0	0.0	0.0	0.
169	257.4	181.8	1.0	33.	-37.	70.	0.00467	0.00427	0.00040	0.0	0.0	0.0	0.
170	295.2	219.6	1.0	68.	-2.	70.	0.00487	0.00447	0.00040	0.0	0.0	0.0	0.
171	181.8	117.7	14.0	-37.	-97.	60.	0.00427	0.00393	0.00034	0.0	0.0	0.0	0.
172	207.0	143.1	5.0	-14.	-73.	59.	0.00440	0.00407	0.00034	0.0	0.0	0.0	0.
173	194.4	130.5	8.0	-25.	-85.	59.	0.00434	0.00400	0.00034	0.0	0.0	0.0	0.
174	219.6	155.9	4.0	-2.	-61.	59.	0.00447	0.00413	0.00034	0.0	0.0	0.0	0.
175	232.2	168.5	2.0	10.	-50.	59.	0.00454	0.00420	0.00034	0.0	0.0	0.0	0.
176	105.1	41.6	1.0	-108.	-168.	59.	0.00387	0.00353	0.00034	0.0	0.0	0.0	0.
177	130.5	67.0	5.0	-85.	-144.	59.	0.00400	0.00366	0.00034	0.0	0.0	0.0	0.
178	79.7	16.2	2.0	-132.	-191.	59.	0.00373	0.00340	0.00034	0.0	0.0	0.0	0.
179	155.9	92.3	6.0	-61.	-120.	59.	0.00413	0.00380	0.00034	0.0	0.0	0.0	0.
180	117.7	54.4	16.0	-97.	-156.	59.	0.00393	0.00360	0.00033	0.0	0.0	0.0	0.
181	143.1	79.7	3.0	-73.	-132.	59.	0.00407	0.00373	0.00033	0.0	0.0	0.0	0.
182	168.5	105.1	8.0	-50.	-108.	59.	0.00420	0.00387	0.00033	0.0	0.0	0.0	0.
183	257.4	194.4	2.0	33.	-25.	59.	0.00467	0.00434	0.00033	0.0	0.0	0.0	0.
184	244.8	181.8	3.0	21.	-37.	59.	0.00460	0.00427	0.00033	0.0	0.0	0.0	0.
185	181.8	130.5	4.0	-37.	-85.	48.	0.00427	0.00400	0.00027	0.0	0.0	0.0	0.
186	207.0	155.9	2.0	-14.	-61.	48.	0.00440	0.00413	0.00027	0.0	0.0	0.0	0.
187	219.6	168.5	4.0	-2.	-50.	48.	0.00447	0.00420	0.00027	0.0	0.0	0.0	0.
188	117.7	67.0	7.0	-97.	-144.	47.	0.00393	0.00366	0.00027	0.0	0.0	0.0	0.
189	130.5	79.7	8.0	-85.	-132.	47.	0.00400	0.00373	0.00027	0.0	0.0	0.0	0.
190	105.1	54.4	4.0	-108.	-156.	47.	0.00387	0.00360	0.00027	0.0	0.0	0.0	0.
191	92.3	41.6	2.0	-120.	-168.	47.	0.00380	0.00353	0.00027	0.0	0.0	0.0	0.
192	143.1	92.3	11.0	-73.	-120.	47.	0.00407	0.00380	0.00027	0.0	0.0	0.0	0.
193	168.5	117.7	3.0	-50.	-97.	47.	0.00420	0.00393	0.00027	0.0	0.0	0.0	0.
194	155.9	105.1	7.0	-61.	-108.	47.	0.00413	0.00387	0.00027	0.0	0.0	0.0	0.
195	270.0	219.6	3.0	45.	-2.	47.	0.00474	0.00447	0.00027	0.0	0.0	0.0	0.
196	232.2	181.8	1.0	10.	-37.	47.	0.00454	0.00427	0.00027	0.0	0.0	0.0	0.
197	257.4	207.0	3.0	33.	-14.	47.	0.00467	0.00440	0.00027	0.0	0.0	0.0	0.
198	244.8	194.4	2.0	21.	-25.	47.	0.00460	0.00434	0.00027	0.0	0.0	0.0	0.
199	181.8	143.1	3.0	-37.	-73.	36.	0.00427	0.00407	0.00020	0.0	0.0	0.0	0.
200	194.4	155.9	4.0	-25.	-61.	36.	0.00434	0.00413	0.00020	0.0	0.0	0.0	0.
201	207.0	168.5	9.0	-14.	-50.	36.	0.00440	0.00420	0.00020	0.0	0.0	0.0	0.
202	105.1	67.0	9.0	-108.	-144.	36.	0.00387	0.00366	0.00020	0.0	0.0	0.0	0.
203	130.5	92.3	5.0	-85.	-120.	36.	0.00400	0.00380	0.00020	0.0	0.0	0.0	0.
204	155.9	117.7	2.0	-61.	-97.	36.	0.00413	0.00393	0.00020	0.0	0.0	0.0	0.
205	117.7	79.7	15.0	-97.	-132.	35.	0.00393	0.00373	0.00020	0.0	0.0	0.0	0.
206	168.5	130.5	3.0	-50.	-85.	35.	0.00420	0.00400	0.00020	0.0	0.0	0.0	0.
207	92.3	54.4	2.0	-120.	-156.	35.	0.00380	0.00360	0.00020	0.0	0.0	0.0	0.

208	143.1	105.1	6.0	-73.	-108.	35.	0.00407	0.00387	0.00020	0.0	0.0	0.0	0.
209	270.0	232.2	4.0	45.	10.	35.	0.00474	0.00454	0.00020	0.0	0.0	0.0	0.
210	219.6	181.8	4.0	-2.	-37.	35.	0.00447	0.00427	0.00020	0.0	0.0	0.0	0.
211	257.4	219.6	9.0	33.	-2.	35.	0.00467	0.00447	0.00020	0.0	0.0	0.0	0.
212	232.2	194.4	10.0	10.	-25.	35.	0.00454	0.00434	0.00020	0.0	0.0	0.0	0.
213	244.8	207.0	4.0	21.	-14.	35.	0.00460	0.00440	0.00020	0.0	0.0	0.0	0.
214	181.8	155.9	12.0	-37.	-61.	24.	0.00427	0.00413	0.00014	0.0	0.0	0.0	0.
215	194.4	168.5	19.0	-25.	-50.	24.	0.00434	0.00420	0.00014	0.0	0.0	0.0	0.
216	117.7	92.3	7.0	-97.	-120.	24.	0.00393	0.00380	0.00013	0.0	0.0	0.0	0.
217	105.1	79.7	18.0	-108.	-132.	24.	0.00387	0.00373	0.00013	0.0	0.0	0.0	0.
218	168.5	143.1	10.0	-50.	-73.	24.	0.00420	0.00407	0.00013	0.0	0.0	0.0	0.
219	130.5	105.1	5.0	-85.	-108.	24.	0.00400	0.00387	0.00013	0.0	0.0	0.0	0.
220	92.3	67.0	7.0	-120.	-144.	24.	0.00380	0.00366	0.00013	0.0	0.0	0.0	0.
221	79.7	54.4	6.0	-132.	-156.	24.	0.00373	0.00360	0.00013	0.0	0.0	0.0	0.
222	155.9	130.5	13.0	-61.	-85.	24.	0.00413	0.00400	0.00013	0.0	0.0	0.0	0.
223	143.1	117.7	6.0	-73.	-97.	24.	0.00407	0.00393	0.00013	0.0	0.0	0.0	0.
224	207.0	181.8	21.0	-14.	-37.	23.	0.00440	0.00427	0.00013	0.0	0.0	0.0	0.
225	257.4	232.2	5.0	33.	10.	23.	0.00467	0.00454	0.00013	0.0	0.0	0.0	0.
226	219.6	194.4	15.0	-2.	-25.	23.	0.00447	0.00434	0.00013	0.0	0.0	0.0	0.
227	244.8	219.6	23.0	21.	-2.	23.	0.00460	0.00447	0.00013	0.0	0.0	0.0	0.
228	232.2	207.0	21.0	10.	-14.	23.	0.00454	0.00440	0.00013	0.0	0.0	0.0	0.
229	181.8	168.5	9.0	-37.	-50.	12.	0.00427	0.00420	0.00007	0.0	0.0	0.0	0.
230	105.1	92.3	1.0	-108.	-120.	12.	0.00387	0.00380	0.00007	0.0	0.0	0.0	0.
231	54.4	41.6	1.0	-156.	-168.	12.	0.00360	0.00353	0.00007	0.0	0.0	0.0	0.
232	130.5	117.7	12.0	-85.	-97.	12.	0.00400	0.00393	0.00007	0.0	0.0	0.0	0.
233	79.7	67.0	4.0	-132.	-144.	12.	0.00373	0.00366	0.00007	0.0	0.0	0.0	0.
234	155.9	143.1	8.0	-61.	-73.	12.	0.00413	0.00407	0.00007	0.0	0.0	0.0	0.
235	232.2	219.6	9.0	10.	-2.	12.	0.00454	0.00447	0.00007	0.0	0.0	0.0	0.
236	194.4	181.8	12.0	-25.	-37.	12.	0.00434	0.00427	0.00007	0.0	0.0	0.0	0.
237	168.5	155.9	11.0	-50.	-61.	12.	0.00420	0.00413	0.00007	0.0	0.0	0.0	0.
238	207.0	194.4	11.0	-14.	-25.	12.	0.00440	0.00434	0.00007	0.0	0.0	0.0	0.
239	67.0	54.4	1.0	-144.	-156.	12.	0.00366	0.00360	0.00007	0.0	0.0	0.0	0.
240	92.3	79.7	2.0	-120.	-132.	12.	0.00380	0.00373	0.00007	0.0	0.0	0.0	0.
241	143.1	130.5	7.0	-73.	-85.	12.	0.00407	0.00400	0.00007	0.0	0.0	0.0	0.
242	244.8	232.2	4.0	21.	10.	12.	0.00460	0.00454	0.00007	0.0	0.0	0.0	0.
243	219.6	207.0	4.0	-2.	-14.	12.	0.00447	0.00440	0.00007	0.0	0.0	0.0	0.

Appendix 1: Print of "pdprop.env" Simulation Control file

```
# This file contains the starting filenames, variables etc
# for the Crack Propagation  programs.   It should be edited by the
# user before each simulation run. It can also be generated from web
# page at:  to be determined
#

#TYPE= plate_edge_flaw     #with or without weld using ACTIVATEs:
#ACTIVATE_MmMb=    1   #  Deactivate  = 0
#ACTIVATE_MkmMkb=  0   #  Note used in plate_edge_flaw
#ACTIVATE_fw=      0   #  Note used in plate_edge_flaw
#                            #Other      #TYPE=  options:
#                            # plate_surface_flaw
#                            # plate_tru_flaw
#                            # plate_embedded_flaw
#                            # plate_long_surface_flaw
#                            #
#                            # pipe_inside_flaw
#                            # pipe_full_inside_flaw
#                            # pipe_full_outside_flaw
#                            #
#                            # rod_surface_flaw
#                            # rod_full_outside_flaw
```

```
#                               # These problem types are used to activate
#                               # appropriate Fw, Mm, Mb, files etc.

# The factors described in this section may be ignored if not applicable to
# the particular problem type described above.
# (All dimensions in mm)
#B= 10.0   # plate (or pipe wall) thickness
#W= 70.0   # plate width
#ri=  00.    # Internal diameter if pipe problem. Ignored if not pipe
#azero= 1.5  # initial crack depth
#czero= 0.0  # initial 1/2 crack width at surface
#L= 00.      # Weld Feature width.  Ignored  if ACTIVATE_MkmMkb= 0 (above)

#HISTORYFILE=  load1.txt    # historyFileName
#           # Adjustments to load file variables:
#           # Note that the MEANADD (below) is added AFTER the MAGFACTOR is applied.
#MAGFACTOR_m= 1.0     # Multiply factor on membrane load. Result should be MPa
#MAGFACTOR_b= 1.0     # Multiply factor on bending load term. Result should be MPa
#MEANADD_m=   0.0     # Mean shift in MPa added to membrane stress.
#MEANADD_b=   0.0     # Mean shift in MPa added to bending stress.

#MAXREPS=  1000000    # Max no. history repeats in simulation.
#                     # One repetition or application of the load history is
#                     # also called a "block" of cycles.
#
#
#MATERIAL=  merged_a36_fitted.html   #File name of material fitted data
#                                 This file is used to define the cyclic
#                                 stress-strain curve, and the Neuber Product curve.
#
#DADN= table                          # Can be "table" or "Paris"
#DADN_PARIS= 0.0 0.0 0.0 0.0 none     # Kth  a  m  Kc units   (ignored if #DADN= table )
#DADN_TABLE= a36+1015.dadn    # da/dN digitized da/dN curve for material,
#                                 including the threshold, and KIc.
#                                 If a threshold exists, put in a vertical line
#                                 (with two identical X-axis points).
#                                 If the threshold needs to be "turned off" then
#                                 do NOT put in a vertical line at low da/dN.
#                                 (Ignored when #DADN= PARIS )
#
#FAD Stuff:
#TensileFile=  a36_Mattos_mono_engrSS_FLAT.txt     #enter "none"  if no FAD
#PmEOL= 70.             #Set these so that Pm+Pb= 0.82*Syield for default.
#PbEOL= 100.
#Kmat= 1675.
#PinJoint= 0            # not used for plateEdgeFlaw.f
#
#BLOCKSKIP=   1.0 percent       # At the end of each block check if the previous
#                                 two blocks of cycles had similar damage (crack
#                                 extension) within this percentage.  If TRUE then
#                                 simply skip the simulation of the next block,
#                                 but just add the expected damage.  Continue by
#                                 simulating the block after the skip.
#                                 A value of 0.0 will disallow skipping blocks.
#SAVELEVEL=  0              #Amount of output saved to disk:
#                           #   3=lots  2=medium  1=minimal
#                           #   0= save #crk=  data into binary direct access file only
#                           #      No #crk= data will be written into the text logfile.
#                           #      Use for large output files with lots of cycles.
```

Appendix 2: Print of da/dn vs DeltaK Table in file filtExample_2.5

Delta_K	da/dN					
0.1502160E+03	0.9620540E-07	0.2176716E+01	-0.7016800E+01	0.0000000E+00	0.0000000E+00	1
0.1769830E+03	0.4562300E-06	0.2247931E+01	-0.6340816E+01	0.7121539E-01	0.6759844E+00	2
0.2202350E+03	0.1160170E-05	0.2342886E+01	-0.5935478E+01	0.9495497E-01	0.4053378E+00	3
0.2874840E+03	0.3224090E-05	0.2458614E+01	-0.5491593E+01	0.1157272E+00	0.4438853E+00	4
0.4331670E+03	0.1069760E-04	0.2636655E+01	-0.4970714E+01	0.1780417E+00	0.5208793E+00	5
0.7637410E+03	0.7556810E-04	0.2882946E+01	-0.4121662E+01	0.2462907E+00	0.8490520E+00	6
0.1240590E+04	0.8520410E-03	0.3093628E+01	-0.3069540E+01	0.2106822E+00	0.1052122E+01	7
0.1471680E+04	0.3307300E-02	0.3167813E+01	-0.2480526E+01	0.7418513E-01	0.5890131E+00	8
0.1675690E+04	0.1074680E-01	0.3224194E+01	-0.1968721E+01	0.5638027E-01	0.5118057E+00	9

Appendix 3: Print of Stress-Strain-Init.Life file: "matfile"

```
#SAE Standard Fatigue Data File format
```

```
# #
```

```
Pick one: #FDE_plot #FDE_fit # #
```

```
#
#Copyright (C) 2012  F.D.E. Committee
#This data file is free software - you can redistribute it and/or
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#Foundation, Inc., 59 Temple Place - Suite 330, Boston, MA 02111-1307, USA
#Try also their web site: http://www.gnu.org/copyleft/gpl.html
#
# NOTE:  Fitted Data !!
# A36 Steel Merged Data Sets from Refs. 1 and 2:
# Ref.1: P.Dindinger report to Fat.Des.+Eval. Comm. Apr.2012
# Ref.2: G.A.Miller and H.S.Reemsnyder, "Strain-Cycle Fatigue of Sheet and
# Plate Steels I:  Test Method Development and Data Presentation,"
# SAE Paper 830175, Detroit MI, Feb28-Mar.4, 1983
#
# NOTE that original test data ends at  2Nf = 1.3million.
#
#FileType= strain_life
#DataType= fitted
#TIMEcol= 0
#NAME=  ASTM-A36
#NAME=  Structural
#NAME=  Steel
#Stress_units= ksi
#Strain_units= strain
#Sy=    38.4 0.2pc offset, 265  mpa
#Su=  69.  ksi from Miller/Reemsnyder = 475 mpa
#eu=       0   #strain at Su not reported
```

```
#E= 29528. ksi  = 203600 mpa
#FractureStrain=  0 not reported
#FractureStress=  0. not reported
#monotonic_K= 0  not reported
#monotonic_n= 0  not reported
#BHN= 138.
#%RA= 0. %  not reported
#
#saedigcurve_v2.2.f starts.
# NOTE!! The Following Points are FITTED DATA:#NOTE!! Fitted Stress computed using Experm.
# Total Strain   2Nf  Stress  Mean   Plastic Strain   Initial
#    Amp               Amp   Stress      Amp        Elastic Mod.
   0.88485          1   115.3      0.   0.88095     29528. #Fitted_point
   0.00914       5000    52.1      0.   0.00737     29528. #Fitted_point
   0.00665      10000    48.8      0.   0.00499     29528. #Fitted_point
   0.00493      20000    45.7      0.   0.00338     29528. #Fitted_point
   0.00344      50000    42.0      0.   0.00202     29528. #Fitted_point
   0.00270     100000    39.3      0.   0.00136     29528. #Fitted_point
   0.00217     200000    36.8      0.   0.00092     29528. #Fitted_point
   0.00169     500000    33.8      0.   0.00055     29528. #Fitted_point
   0.00144    1000000    31.6      0.   0.00037     29528. #Fitted_point
#Original test data ends at  2Nf = 1.3million.
#Points below are extrapolation:
   0.00125    2000000    29.6      0.   0.00025     29528. #Fitted_point
   0.00106    5000000    27.1      0.   0.00014     29528. #Fitted_point
#
#
```