

File from Steve Long's computer dated 05/20/02 11:53am named "PFM Flowchart for Steve Long.mlm"

From: "King, Christine" <CKing@epri.com>
To: "Beth Wetzel (E-mail)" <baw@nrc.gov>
Date: 5/18/02 4:44PM
Subject: PFM Flowchart for Steve Long

Beth

I have attached the PFM flowchart requested by Steve Long. I trust that you will get this to him

Again, thanks for all your help

Christine King, EPRI

Manager, Materials Reliability

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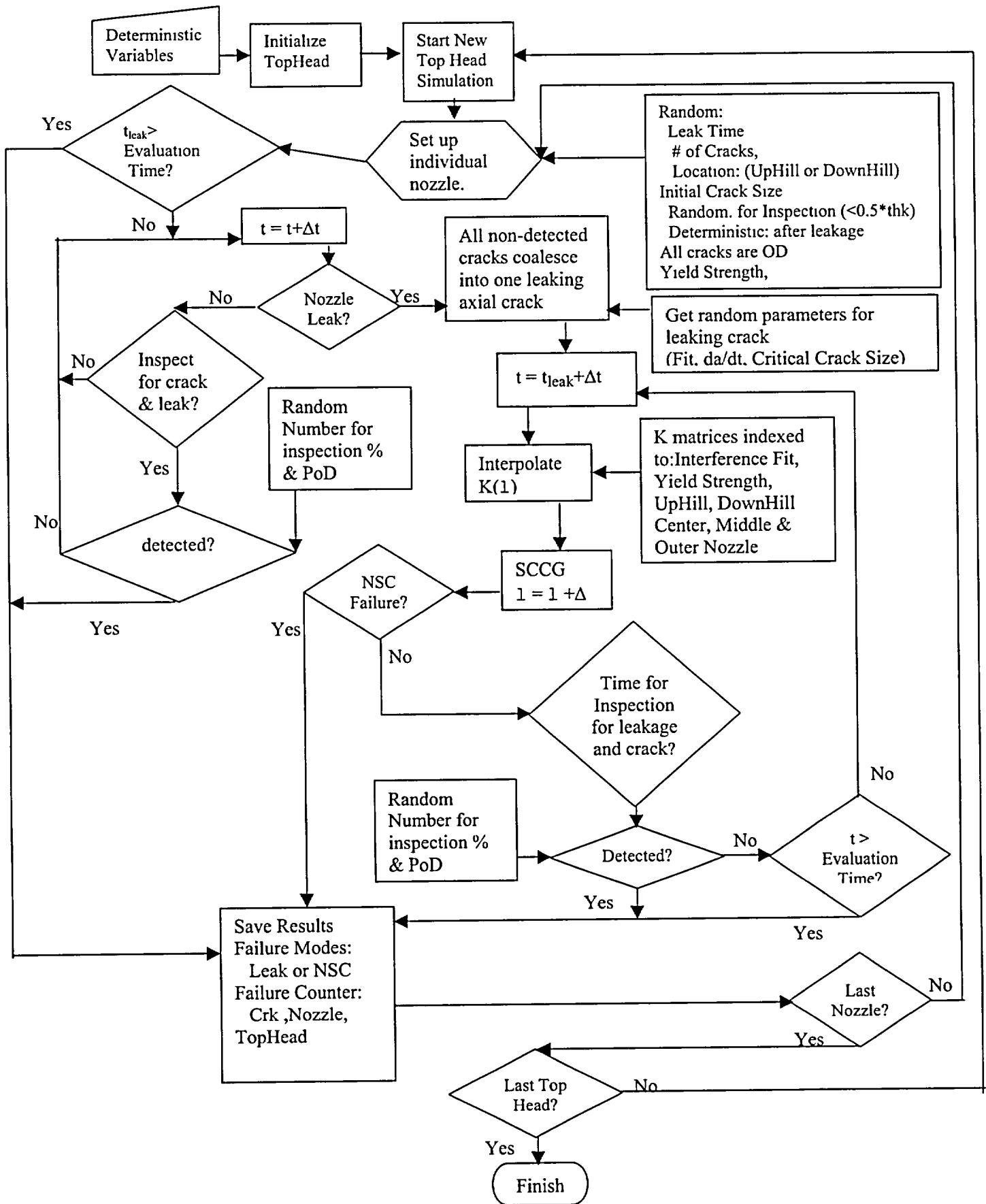
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<<MRPer Flowchart May.pdf>> <<MRPER_FICprt May page 2.pdf>>

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MRPERCRD, Rev 2



Definition of K Matrices

Crack Length	Crack Depth (a/t)									
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
L_{min}	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
L_1	--	--	--	--	XX	--	--	--	--	--
	--	--	--	--	XX	--	--	--	--	--
	--	--	--	--	XX	--	--	--	--	--
	--	--	--	--	XX	--	--	--	--	--
	--	--	--	--	XX	--	--	--	--	--
L_2	--	--	--	--	--	--	--	--	--	XX
	--	--	--	--	--	--	--	--	--	XX
	--	--	--	--	--	--	--	--	--	XX
	--	--	--	--	--	--	--	--	--	XX
	--	--	--	--	--	--	--	--	--	XX
L_{crit}	--	--	--	--	--	--	--	--	--	XX

Notes: L_1 is defined as the length of the axial crack + length of the branch crack = 20° circumferential length (This length is assumed when leakage is detected)
 L_2 is defined as the length of the axial crack + length of the branch and circumferential crack = 180° circumferential length
 L_{crit} is the length of the critical crack size from net section collapse
 L_{min} is the minimum initial crack length
 -- means no entries in the table, reserved for future use
 xx: K results at crack tip from FEM analyses for the composite crack

One matrix will be developed for each of the following situations:

- (a) Min Shrink Fit, Low Yield Strength
- (b) Min Shrink Fit, High Yield Strength
- (c) Max Shrink Fit, Low Yield Strength
- (d) Max Shrink Fit, High Yield Strength

One set of the above four matrices is formulated for each of the following nozzle category and crack location:

- (a) Center Nozzle
- (b) Middle Nozzle, Up-Hill Crack
- (c) Middle Nozzle, Down-Hill Crack
- (d) Outer Nozzle, Up-Hill Crack
- (e) Outer Nozzle, Down-Hill Crack

K is interpolated for a given crack length, shrink fit, and yield strength. The particular set of matrices used in interpolation depends on nozzle category and crack location