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
3412 Hillview Avenue, Palo Alto, CA 94303
Phone: (650) 855-2605 Fax: (650) 855-2002

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

CC: "Larry Mathews (E-mail)" <lkmathew@southernco.com>, "Kurt Cozens (E-mail)" <koc@nei.org>, "Pete Riccardella (E-mail)" <priccard@structint.com>

B143

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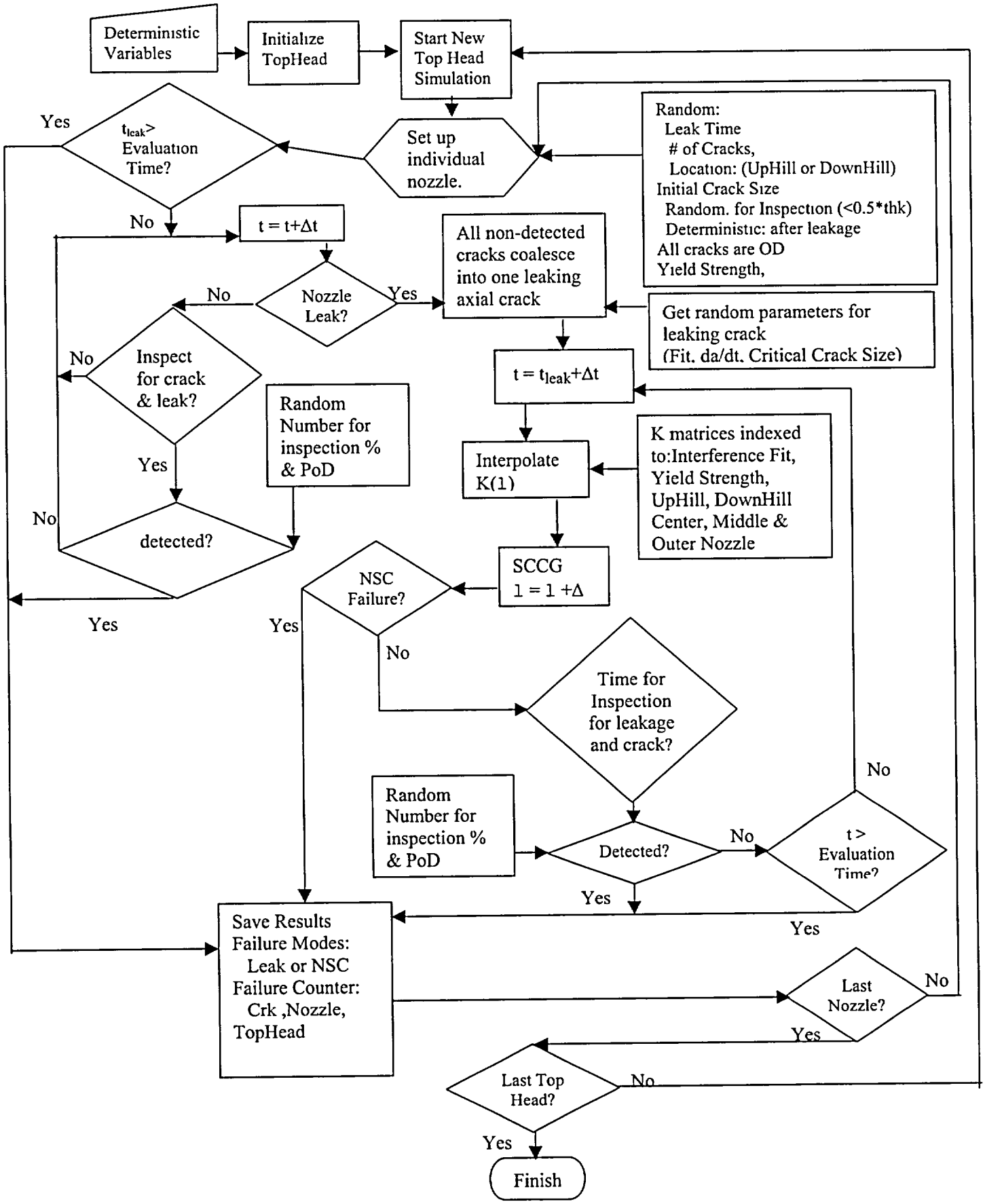
MRPERCRD, Rev 2



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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