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ERRATA SHEET

Report Number: NUREG/CR-6227
PNNL-9433

Report Title: Performance Demonstration Tests for Eddy
Current Inspection of Steam Generator Tubing

Prepared by: Pacific Northwest National Laboratory

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Instructions: Please replace page 8 of the above NUREG with the
attached revised page 8. Figure 5 on this page has been
replotted to correct an error in the curve denoted
"EDM Slots." The wrong value for the inner radius
was used in Equation 4 on page 7 when generating the
data for this particular curve.

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3.0 ET System Performance Thresholds

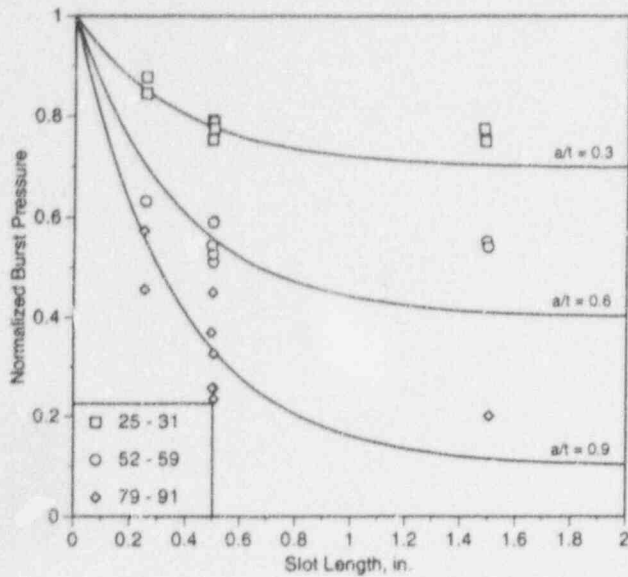


Figure 3. Normalized Burst Pressure vs. Slot Length for 0.875 in. OD x 0.050 in. Wall Thickness Steam Generator Tubing Tested at 600°F. Lines are plot of Equation 4.

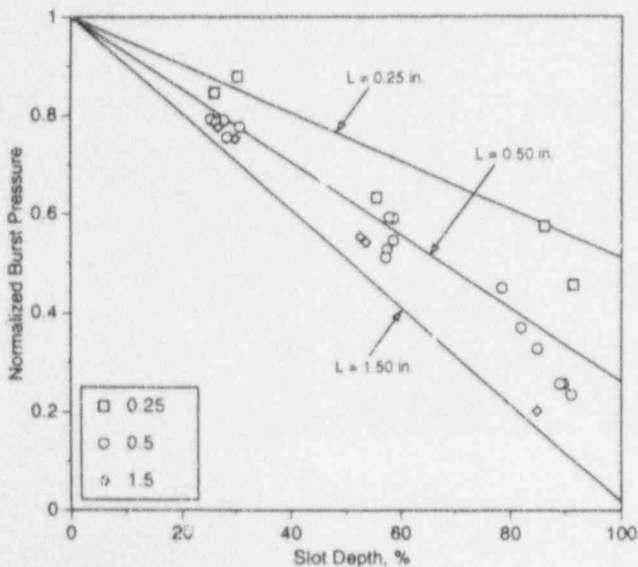


Figure 4. Normalized Burst Pressure vs. Slot Depth for 0.875 in. OD x 0.050 in. Wall Thickness Steam Generator Tubing Tested at 600°F. Lines are plot of Equation 4.

but then appears to fall off more rapidly with increasing depth for slots greater than about 80% through-wall.

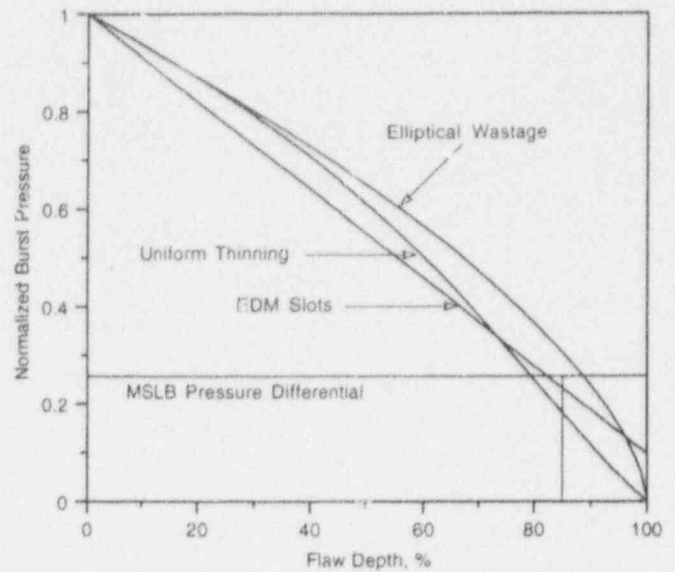


Figure 5. Plots of Equations 4, 5, and 6, for 0.875 in. OD x 0.050 in. Wall Thickness Tube. Flaw Length \geq 0.875 in.

The burst test constitutive equations were used to develop a definition of an unacceptable flaw which was used in the development and evaluation of ISI sampling plans and performance demonstration qualification criteria. Figure 5 shows a plot of Equations 4, 5, and 6 for an 0.875 x 0.050 tube with a flaw 0.875 in. long. Note the length of all elliptical wastage flaws was always \approx 1.5 in. It is evident from this plot that an 85% TW flaw represents an average depth for all flaw types that would fail under main-steam-line-break loading conditions (\approx 2600 psi pressure differential). If a flaw growth rate of 10% per operating cycle is assumed, then a tube with an actual flaw \geq 75% TW flaw could fail under main-steam-line-break loading conditions by the end of the next operating period. This level of degradation was used to define an unacceptable (i.e., defective) tube condition requiring tube plugging or repair.

3.2 Information on ET Inspection Reliability

To guide the selection of POD and flaw sizing performance thresholds, prior research results (Kurtz et al. 1990), on the reliability of ET inspection techniques to detect and size flaws in laboratory and service-degraded