

## Fretting-Wear Characteristics of Steam Generator Tubes Contacting with Foreign Object

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### Abstract

Fretting-wear characteristics of steam generator tubes contacting with foreign object has been investigated in this study. The operating steam generator shell-side flow field conditions are obtained from three-dimensional steam generator flow calculation using a well-validated steam generator thermal-hydraulic analysis computer code. Modal analyses are performed for the finite element modelings of tubes to get the natural frequency, corresponding mode shape and participation factor. The wear rate of a steam generator tube caused by foreign object is calculated using the Archard formula and the remaining life of the tube is predicted. In addition, the effects of internal pressure and flow velocity on the remaining life of the tube are discussed in this paper.