

N331. Comparing National Approaches To NDE

The 12th international conference in the series NDE (Non-Destructive Examination) in the Nuclear and Pressure Vessel Industries sponsored by ASM International, was held in Philadelphia in October. The meeting covered progress in familiar areas such as steam generator and reactor pressure vessel inspection as well as developments serving new requirements such as cracking in control rod drive mechanism (CRDM) nozzles. Several other new NDE topics were also discussed in the conference.

For top dome CRDM penetrations, the defects, which include stress corrosion cracks, occur near the vessel head. A common approach for inspecting this is to use eddy current tests to detect defects and then ultrasonics to measure their size. The performance claimed is typically that 0.5 mm deep defects can be detected and 1 mm defects can be sized. The importance of modeling ultrasonic inspection is now becoming appreciated fully through its use in inspection qualification. First, it can support the proposed procedure by predicting the response to the various defects of concern; second, it can show what results would be obtained on the real component based on results from similar but not identical test piece.

Steam generator tube inspection continues to be a major concern and developments of hardware and data analysis systems for both ultrasonic and eddy current tests were described. A significant number of the papers presented in the conference dealt with nozzle inspection developments, particularly for the inner radius, and developments related to the inspection of austenitic and dissimilar metal welds.

The difficulty in generating horizontally polarized shear (SH) waves has been overcome. Welds which would have been impossible to inspect using any of the best existing techniques can be penetrated easily using SH waves. The next conference in the series will be held in Kyoto, Japan in May 1995.

For more, "*Comparing National Approaches to NDE*," by M. J. Whittle, *Nuclear Engineering International*, pp. 25-27, January 1994.