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STEAM GENERATOR DOSE RATES AT BABCOCK & WILCOX REACTORS

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RADIATION MONITORING; RADIATION DOSE

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Objectives: EPRI has long supported radiation field measurements at operating reactors designed by the different nuclear steam supply vendors. These data are useful in determining trends at an individual plant, in providing data for interplant comparisons, and in evaluating the effectiveness of various radiation control measures.

The objectives are

1. To collect and compare dose-rate data from seven Babcock and Wilcox reactors at five utilities, and
2. To use the data to analyze the effectiveness of various dose-reduction measures implemented at different units.

Comments: Investigators gathered dose-rate data from five sites in mid-1991. The team collected measurements from surveys performed by utility or contractor personnel during plant outages. Researchers then correlated these data with plant design features, operating features, and dose-reduction measures used at each plant. Specific areas addressed in the study included cobalt reduction programs, the cobalt content of steam generator tubing, the use of Zircaloy grid spacers in reload fuel, the number of crud bursts, hydrogen peroxide flushing, primary coolant chemistry, decontamination, and the use of microfiltration.

Remarks/Potential for dose limitation: At the seven units reviewed, upper channel head contact dose rates ranged between 6 and 21 R/hr, while lower channel head contact dose rates ranged between 4 and 20 R/hr. The two most effective techniques in reducing dose rates at these units have been the use of Zircaloy grid spacers in reload fuel and the use of elevated Li/pH primary coolant chemistry. This information should prove valuable to utility personnel assigned the responsibility for reducing occupational radiation exposure of maintenance personnel.

References: EPRI TR-100348, Final Report, July 1992, 64 pages.

Duration: from: 1990 to: 1994

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