

N1. Preventing Erosion-Corrosion At Sizewell B

Materials composition, in particular chromium content, has a significant effect on erosion-corrosion damage rates in the secondary circuit. Materials with higher chromium content are more resistant to damage. A strategy for dealing with erosion-corrosion damage must therefore take into account suitable choice of construction materials and water chemistry.

The use of chromium-containing steels and an optimized water chemistry form the basis of the approach adopted to avoid erosion-corrosion in Sizewell B. Operating conditions in the entire secondary circuit have been reviewed, and recommendations implemented on material specification for different sections of the circuit. For example, Type 439 ferritic stainless steel has been chosen for both the HP feedwater and reheater tubing of the moisture separator-reheater. A benefit of the measures adopted to prevent erosion-corrosion in the secondary circuit will be a much reduced level of iron input to the steam generators.

These measures are likely to prevent costly inspections and maintenance procedures which would have been required to ensure freedom from erosion-corrosion damage and save radiation exposure. They are also likely to improve steam generator operational performance and integrity.

For more, see Airey, G. and I. Woolsey, Nucl. Eng. Intl., V.34, N.423, October 1989, p. 36.