N43. ELECTROPOLISHING STEAM GENERATOR CHANNEL HEADS: THE FRENCH EXPERIENCE

Some factors that led Electricité de France (EdF) to consider electropolishing were:

- Abnormal contamination of some CVCS exchanges, where "poor" surface finish was suspected.
- Technical visits to Loviisa 1, where the inside of tubes were electropolished.
- Discovery of the effect of the manufacturing process for steam generator tubes on corrosion product release and deposition rate at Dampierre 1.
- Wide use of electropolishing in boiling water reactor (BWR) piping showed a reduction in dose rate.

Tests of electropolishing were conducted and various surface finishings were tried, including mechanical polishing and electropolishing, with the following results:

- A reduction in contamination was indeed achieved by surface polishing.
- Reduction factors of deposited activity were higher on the cold leg than on the hot one.
- The reduction factor for the combination of mechanical and electropolishing decreased after 3 cycles.
- A reduction factor of 3 was observed for electropolishing, with a slight variation over three cycles.

On the basis of these results and taking into account cost, it was decided to electropolish the steam generator channel head bowls and the dividing plates in some new EdF reactors. The technique is now routinely used on new steam generators.

For more, see the paper by Saurin, P., C. Weber, A. Brissaud, and G. Gouillardon presented in the BNES Water Chemistry Conference, Bournemouth, U.K., 1989. Further information can be obtained from C. Weber at Framatome, Tour Fiat, Cedex 16, 92084 Paris La Defense, France.