

## **N3420. THE POTENTIAL OF DECONTAMINATION**

With the results from project DORIS fresh in our minds, we asked ABB, on our behalf, to do a feasibility study on ultrasonic decontamination of nuclear fuel. The advantages of fuel decontamination are: removal of Co and Co-60 from the cladding surface, which reduces radiation exposure; removal of loosely adherent crud, which may reduce particle transients during reactor shutdown; and removal of tramp uranium deposited on the core following fuel failures or minor core accidents, which mitigates the negative effects of these incidents.

The objectives of the feasibility study were:

- To determine the possibilities of decontaminating nuclear fuel using ultrasonics.
- To outline how an ultrasonic decontamination could be performed.
- To determine the long-term implications for radiation protection and compare the benefits of exposure reductions with costs.

The study showed, among other things, that if two-year old fuel elements are decontaminated each year, a potential dose reduction of up to 40-50% is possible. For a typical Swedish BWR this corresponds to a reduction in collective dose from about 2 to 1-1.2 man-Sv per year. Unfortunately, the great interest at the time the study was published has more or less evaporated. None of the utilities has, so far, shown any intention of doing any tests at the site.

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