

N72. LOW DOSES IN ABB ATOM BWRS

Average collective dose per plant has been about 1 person-Sv/yr (100 person-rem/yr) at plants designed by ABB Atom from 1973 through 1989. This remarkable achievement is attributed to several factors including both design and operational. It is well-known that stringent cobalt specifications on materials used in valve seats and in-core components such as fuel spacers, pins, and rollers are extremely important. Control of iron and copper in feedwater, optimization of condensate polishing, and use of high-flow (2 to 4% of feedwater) deep-bed ion exchangers in the reactor water cleanup system are also cited as important, as are shielding design, adequate working space, separation of components, and internal recirculation pumps.

Data on dose rates throughout the plants have been obtained at 200-250 measurement points over several years. Over 120 complete dose rate surveys had been made up to 1990. These have been supplemented by special gamma spectrometric measurements at 10-15 points starting in 1977. These data and other data on fuel crud oxide thickness and water chemistry have been used to form a special radiological surveillance database system -- KEMRAD.

For more, see "Occupational Doses in ABB Atom BWRs: Keeping Up the Good Work," Nuclear Engineering International, pp. 23-24, Feb. 1991.