S/G REPLACEMENT AT BEZNAU 1: EXPERIENCE AND RESULTS IN RADIOLOGICAL PROTECTION

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Objectives: Describe the preparation, implementation, and results of the steam generator replacement at the Swiss Beznau 1 364 MW Westinghouse reactor in the context of radiological protection.

Comments: The two steam generators and sections of the reactor coolant lines were replaced at Beznau 1 in Spring 1993. This replacement qualifies as a new record in two areas: the time required to complete the principal operation took only 44 days and the radiation exposure was not higher than 1100 mSv (110 man-rem).

This low dose was achieved by using proven techniques and methodology in radiological protection. Some of the most important techniques were:

- Detailed planning of the radiation protection measures and procedures
- Intensive personal training (mock-up training)
- Shielding (a total of 80 t of lead had been installed)
- Installation of special "radiation islands" in the containment by means of shielding to allow a low dose area for workers to discuss problems
- Mechanical decontamination of the piping ends

Remarks/Potential for dose limitation: The effective total radiation exposure was below the projected dose. Some reasons for this were: 1) fewer man-hr than expected for some tasks, 2) unexpected good results about the continuous modifications at the shielding during the replacement operations, 3) the installed "radiation islands" were often used, especially in the first phase of the replacement operation

References: Weidmann, U., "S/G Replacement at Beznau 1: Experience and Results in Radiological Protection," *1993 Radiation Exposure Management Seminar*, Westinghouse, Pittsburgh, Pennsylvania, 1993.

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