

## **N223. Chemical Decontamination of a PWR RHR System**

During the 1993 refueling outage, the first chemical decontamination of a PWR residual heat remover (RHR) system was performed. The RHR decontamination took 100 hours to perform. During that time, a five-step Can-Derem/Alkaline Permanganate chemical decontamination was performed. The order of the steps was CD-AP-CD-AP-CD. The RHR system is approximately 5,500 gallons and 8,500 square feet.

### **Decontamination Factors**

Contact dose rates were measured with a shielded probe before and after the decon at 14 points on the RHR line. Radiation exposure rates went from an average of 103 mr/hr to 7.1 mr/hr for an average decontamination factor of approximately 15.

### **Radiation Exposure**

The total exposure received on this task was 4.4 rem. The setup and preparation required 1.9 rem, while the decon, filter changes, and resin sluicing required the remaining 2.5 rem. The total exposure that will be avoided by this decontamination cannot be determined until after the outage. However, preliminary estimates indicate the RHR decontamination will avoid 50-100 rem to workers.

### **Radioactive Waste**

The RHR decontamination generate 170 cubic feet of resin. The resin was placed in a high-integrity container (HIC). The waste will be de-watered, then shipped for burial. The radiation exposure required to sluice the resin was 190 mrem, or 4.3% of the total. The total activity removed was 4.3 curies. Eighty-five percent of the activity was from Sb-124, Co-60, Co-58, and Cr-51.

If there are any questions, please contact John O. Parry at (914) 526-5038.

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