

N284. Preparing for Full System Decontamination at Indian Point 2: Utility Perspective

The first U.S. full-system decontamination is scheduled for 1995 at Con Ed's Indian Point 2 plant. Radiation fields at the plant have increased to a point where they are above the industry average. Numerous efforts to address the radiation exposure have not yielded the desired results.

In 1988, Con Ed, EPRI, ESEERCO, and nine other utilities began a qualification program for the chemical decontamination of the entire RCS of a Westinghouse PWR. This qualification program was successfully completed in 1991. The LOMI and CAN-DEREM processes, with an alkaline permanganate (AP) conditioning step, were qualified for use as long as the fuel was removed.

Before and after radiation surveys will be taken at about 50 points in the plant to determine the effectiveness of the decon. The final decontamination factor (DF) will simply be the average over the individual points. A DF between 4 and 6 will meet the contractual obligations.

In the qualification program, Westinghouse tried to estimate the recontamination rates based on industry experience and computer analysis. The result indicates a full-system decontamination would achieve a DF of 5 and that the benefit would last for 5 operating cycles, or at IP2, about 10 years. Potential exposure savings were then calculated for a range of plants. The exposure that could be avoided over 5 operating cycles ranged from 1,000 rem to 3,500 rem.

The measured recontamination rates of previously decontaminated subsystems are well below what had been projected in the full-system decontamination report. Two factors could be that IP2 has maintained the higher pH values recommended for the RCS and has worked to replace cobalt sources in the equipment.

If the recontamination rates were to continue at the low levels, the radiation levels may never return to the original levels and the exposure saved could be even greater than originally estimated. At minimum, this indicates that the recontamination rates were not overly optimistic. Data will be collected and presented as they become available.

Taken from, "Preparing for Full System Decontamination at IP2 - A Utility Perspective," by Jack Parry, EPRI Radiation Control News, No. 18, August 1993, p.2. (Electric Power Research Institute, 3412 Hillview Avenue, Palo Alto, CA 94303). The author is with Consolidated Edison Co. of New York, Indian Point NPP, Broadway and Bleakley Avenue, Buchanan, NY 10511, USA