

## 11 Guidelines for Protective Apparel<sup>1</sup>

In optimizing the extent of radiation exposures that workers receive for doing specific jobs in specific environments, it is necessary to decide on the optimum protective apparel required to minimize the total effective dose equivalent (TEDE). A number of factors come into play: (a) the effect on work efficiency of various items of protective apparel, (b) the effect of work duration on the efficiency of workers, and (c) the level of contamination of the work environment.

An extensive study was carried out on the first two factors by Ontario Hydro in Canada. The simplified results of that study are given in ref. 1. However, since Canadian apparel differs in some aspects from the protective apparel used in the United States, a U.S. study was required. Fortunately, an extensive U.S. study is underway under the sponsorship of the Electric Power Research Institute. Preliminary results are given in ref. 2 and final results should soon be available (ref. 3). Other U.S. studies deal with the effects of protective apparel on worker efficiency from the communications perspective (ref. 4) and the physiological stress perspective (ref. 5).

Regarding the last factor, we inquired of a number of utilities what their practices were. Table 13.1 summarizes the consensus.

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<sup>1</sup>T. A. Khan and J. W. Baum, "Optimization of the Control of Contamination at Nuclear Power Plants", NUREG/CR-5038, 1988, Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7982.

<sup>2</sup>R. Cardarelli, "Effect of Respirator Use on Worker Performance", Proceedings of the 3rd International Workshop on Implementation of ALARA at Nuclear Power Plants, Hauppauge, New York, May 8-11, 1994, NUREG/CP-0143, 1995, Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7982.

<sup>3</sup>R. Cardarelli, et al., "Effect of Respirator Use on Worker Performance", Electric Power Research Institute, to be published.

<sup>4</sup>R. Cardarelli, et al., "Effects of Respirators on Worker Efficiency from the Communications Perspective", to be published. Information may be obtained from R. Cardarelli, Yankee Atomic Electric Company, phone (508) 779-6711.

<sup>5</sup>R. Cardarelli, et al., "Cardiovascular and Physiological Stresses from Personal Protective Equipment", to be published. For information contact R. Cardarelli, phone (508) 779-6711.