

N93. Consequences Of Reduced Limits

The number of workers receiving doses approaching the 5 rem (50 mSv) limit has decreased in the past few years. In 1989, there were no exposures in excess of 5 rem and the number of workers receiving more than 2 rem (20 mSv) decreased from 2100 to 1320, representing a reduction of 40%.

Reduced exposure limits may however:

- Restrict the use of experienced workers on high-dose jobs.
- Restrict contractors' key workers.
- Require more crews for high dose work to limit individual exposures.
- Reduce flexibility for job planning.
- Increase the number of workers needed.
- Increase health physics coverage.
- Extend outage time.

The consequences of such restrictions may be an increase in total number of workers exposed, and hence in total radiation exposure. Larger work forces are also less efficient, and although individual exposures are reduced, the inefficiencies may result in increased cumulative exposures. Increased outage time for special maintenance work may be another consequence, since more crew changes will result in delays for jobs on the critical path. These factors lead, in turn, to increased operations and maintenance costs which are already rising at more than 10% per year. Operation and maintenance costs are of particular concern to many utilities, since the economic margin of nuclear power over other generation sources has already been eroded.

Techniques to reduce out-of-core radiation fields are increasingly important in utility initiatives to control occupational exposure. In addition to enhanced outage planning, implementation of advanced radiation control is being accelerated. Examples of techniques to reduce exposure during major maintenance work include robotic devices, and the use of full system chemical decontamination technology.

Taken From: "Getting Exposures Down at U.S. Plants," Christopher J. Wood, Nuclear Engineering International, May 1991, p. 16.