2012 RETS/REMP Workshop
June 25-27, 2012, Orlando, FL

Overview of Proposed Update of the Dosimetry Basis to 10 CFR Part 50, Appendix I Design Objectives

Jean-Claude Dehmel and Michael McCoppin
U.S. Nuclear Regulatory Commission, Washington, DC 20555

ABSTRACT

In 1975, the U.S. Nuclear Regulatory Commission (NRC) adopted the ALARA principle in regulating radioactive gaseous and liquid effluents from nuclear power plants. The requirements and numerical guidance are contained in 10 CFR Part 50 and its Appendix I. The dose criteria of Appendix I are based on ICRP 2 whole body and critical organ dose concepts. This approach was consistent with that used with the prior version of 10 CFR Part 20 up to 1991. The current Part 20 applies the dosimetry concepts of ICRP 26 and ICRP 30 in deriving doses to individuals. At that time, the dose criteria of Appendix I were not changed and they still incorporate ICRP 2 dosimetry concepts and dose calculation methodology.

Over the past decades there have been discussions with stakeholders about updating the basis of Appendix I design objectives and its supporting guidance for consistency with the dose methodology of 10 CFR Part 20. The concern is that the use of an outdated dose calculation methodology, in expressing separate doses for the whole body and critical organs, is inefficient for licensees and NRC and is inconsistent with the current globalization of the nuclear power industry. In SECY-08-0197, the NRC examines the current regulatory framework, and recognizes that a number of different areas should be updated, including specific aspects of 10 CFR Part 50, Appendix I, implementing guidance and supporting codes used for dose calculations.

This presentation focuses on currently considered revisions to Appendix I design objectives, dosimetry basis of dose criteria, and regulatory guidance in making them consistent with a parallel revision of 10 CFR Part 20 aligned to ICRP 103 recommendations. The presentation identifies other aspects of 10 CFR Part 50 requirements that are being considered for possible revision. No changes are contemplated to 10 CFR 50.34a and 50.36a regulations as these requirements do not invoke dose criteria. The presentation also offers an opportunity for the industry to provide comments and suggestions to the NRC in planning this work, should it be approved by the Commission. Finally, the presentation provides an overview of NRC plans and schedule in revising the regulations.