

Regulatory Guide Periodic Review

Regulatory Guide Number: **8.34, Revision 0**

Title: **Monitoring Criteria and Methods to Calculate Occupational Radiation Doses**

Office/division/branch: **NRR/DRA/ARCB**
Technical Lead: **Steven Garry**

Recommended Staff Action: **Revise**

1. **What are the known technical or regulatory issues with the current version of the Regulatory Guide (RG)?**

RG 8.34, Revision 0, was issued in 1992 to provide guidance for monitoring an individual's radiation exposure. This guide provides criteria acceptable to the NRC staff for use by licensees in determining when monitoring of individuals is required by licensees, and it describes methods acceptable to the NRC staff for calculating occupational doses when the intake exposure is known.

RG 8.34, Revision 0, does not include guidance based on the revised definition of the Total Effective Dose Equivalent (TEDE). On December 4, 2007, the NRC revised the definition of the TEDE in 10 CFR 20.1003, "Definitions," and 10 CFR 50.2, "Definitions" (as published in the Federal Register (72 FR 68043)). Previously, the definition of the TEDE was the sum of the Deep Dose Equivalent (DDE) (to account for external exposure) and the Committed Effective Dose Equivalent (CEDE) (to account for internal exposure). Under the revised rule in 10 CFR 20.1003, the TEDE was redefined by replacing the DDE with the effective dose equivalent for external exposure (EDEX), as shown below.

Old definition: $TEDE = DDE + CEDE$

New definition: $TEDE = EDEX + CEDE$

In addition, the guidance on the evaluation of Likely Annual Occupational Dose (i.e., performing prospective evaluations in order to determine the need for monitoring) in accordance with 10 CFR 20.1502, "Conditions requiring individual monitoring of external and internal occupational dose," needs further clarification with respect to monitoring doses that individuals are likely to receive and those doses they are not likely to receive. The staff developed guidance for specific licensees (see Technical Interface Agreement 2014-09, available in ADAMS at ML15187A388 and ML16137A098).

Finally, the RG does not currently include guidance regarding assessing an external dose under 10 CFR 20.1502 when the monitoring device is inconsistent with other radiological measurements (e.g., surveys or active electronic dosimeters).

2. What is the impact on internal and external stakeholders of not updating the RG for the known issues, in terms of anticipated numbers of licensing and inspection activities over the next several years?

RG 8.34 has no impact on licensing activities since the NRC staff is not expecting any new or renewal applications in the next several years. There are approximately 35 inspection activities per year over the next several years conducted under Inspection Procedure (IP) 71124.01, "Radiological Hazard Assessment and Exposure Controls" and 18 inspection activities under IP 71124.04, "Occupational Dose Assessment." The NRC staff expects minimal impact on the inspection activities regarding the issues discussed in item 1 above.

However, revising the RG will assist licensees in developing procedures needed for their facility to perform occupational radiation dose calculations, and will assist inspectors in determining if regulatory requirements are being adequately implemented.

3. What is an estimate of the level of effort needed to address identified issues in terms of full-time equivalent (FTE) and contractor resources?

An estimate of the effort needed to correct the identified issues is between 0.1 FTE and 0.3 FTE.

4. Based on the answers to the questions above, what is the staff action for this guide (Reviewed with no issues identified, Reviewed with issues identified for future consideration, Revise, or Withdraw)?

Revise.

5. Provide a conceptual plan and timeframe to address the issues identified during the review.

The staff developed a proposed Revision 1 to RG 8.34, which was published in the *Federal Register* (78 FR 6403) on October 25, 2013, for public comment as draft guide (DG) 8031 (ADAMS ML13168A095). Due to several public comments on the proposed revision, the staff is planning to reissue the proposed Revision 1 as a draft version again for public comment. The staff has estimated that the proposed Revision 1 will be published for public comment by the 2nd quarter of 2018.

NOTE: This review was conducted in October 2017 and reflects the staff's plans as of that date. These plans are tentative and subject to change.