REGULATORY ANALYSIS

DRAFT GUIDE (DG)-8060
MONITORING CRITERIA AND METHODS
TO CALCULATE OCCUPATIONAL RADIATION DOSES

(Proposed Revision 1 of Regulatory Guide 8.34, Dated July 1992)

1. Introduction

This document presents the results of a regulatory analysis of the U.S. Nuclear Regulatory Commission's (NRC's) determination of whether to revise Regulatory Guide (RG) 8.34, "Monitoring Criteria and Methods to Calculate Occupational Radiation Doses." The analysis provides the public with insight regarding how the NRC arrived at its proposed conclusion to revise the RG.

2. Statement of the Problem

The NRC published the initial version of RG 8.34 (Rev. 0) in July 1992 to provide agency-approved guidance for complying with 10 CFR Part 20, "Standards for Protection Against Radiation," Section 10 CFR Part 20.1502, "Conditions requiring individual monitoring of external and internal occupational dose." Since 1992, NRC regulations in 10 CFR 20 have been revised several times, resulting in RG 8.34 having outdated regulatory guidance.

3. Objective

The objective of this regulatory action would be to update regulatory guidance on acceptable methods to monitor and calculate occupational radiation doses to demonstrate compliance with 10 CFR 20.

RG 8.34, Rev. 1 is revised to provide the following guidance:

- to revise the definition of the total effective dose equivalent (TEDE) as the sum of the effective dose equivalent (for external exposure) (EDEX) and the committed effective dose equivalent (CEDE),

- to provide guidance on performing prospective dose evaluations to determine the need for required monitoring to meet the occupational dose monitoring requirements of 10 CFR 20.1502,

- to provide guidance on monitoring of unplanned, unintended doses when monitoring was not performed,

- to provide guidance on monitoring dose from hot particles or contamination on or near the skin,

- to define the term "dosimetry processing" and explain when there are requirements for processing by an accredited National Voluntary Laboratory Accreditation Program (NVLAP) processor,

- to provide guidance on assessing dose from intakes of radioactive material by wound injuries, and

- to provide guidance on calculating soluble uranium intakes.

4. Identification and Analysis of Alternative Approaches

The NRC staff considered the following alternative approaches:

1. Do not revise RG 8.34

2. Withdraw RG 8.34

3. Revise RG 8.34

Alternative 1: Do not revise RG 8.34

Under this alternative, the current guidance would be retained. If NRC did not revise the guidance, there would be no financial impact to applicants and licensees or to the NRC. However, applicants and licensees would not have current guidance on updated dosimetry and calculational methods, resulting in potential inconsistencies with the regulatory requirements in 10 CFR Part 20.

Alternative 2: Withdraw RG 8.34

Under this alternative, the NRC would withdraw RG 8.34. This would result in applicants and licensees not having any regulatory guidance on acceptable methods of monitoring and calculating occupational radiation doses. Although this alternative would be less costly in the short-term, it would result in a lack of up-to-date regulatory guidance based on current (revised) regulations and updated monitoring methods.

Alternative 3: Revise RG 8.34

Under this alternative, the NRC would revise RG 8.34 based on the revised versions of 10 CFR Part 20 and updated monitoring methods.

The financial impact to the NRC would be the costs associated with preparing and issuing the revised RG. The financial impact to the public applicants and licensees would be the voluntary costs associated with reviewing and providing comments to NRC. Applicants and licensees may also need to revise portions of their radiation protection programs to be consistent with acceptable methods of achieving compliance with the regulations.

5. Comparison of Alternatives

The three alternatives were evaluated with respect to safety and cost/benefit as follows:

Taking into consideration safety, Alternative 1 (no revision) would not improve the level of safety in that applicants and licensees and the public would not have current, updated information on acceptable methods of implementing regulatory requirements. Alternative 2 (withdraw current guidance) would reduce the level of safety to applicants and licensees and the public since regulatory guidance would not be available. Alternative 3 (revise guidance) would

improve safety since updated methods of monitoring and calculating occupational doses would be provided and available to applicants and licensees.

Regarding NRC financial resources, Alternatives 1 and 2 are less costly. Alternative 3 would incur an initial cost to the NRC attributable to the costs associated with preparing and issuing the RG. While this alternative has a short-term financial impact to NRC, the long-term benefit would be reducing inconsistencies between regulations and regulatory guidance.

Regarding licensees' financial resources, Alternatives 1 and 2 would not impact short-term costs, but would increase long-term costs associated with maintaining regulatory compliance due to discrepancies between the regulations and the guidance used by applicants and licensees. Alternative 3 would reduce discrepancies and increase safety at a reasonable cost as compared to Alternatives 1 and 2, and therefore, it would be more beneficial to applicants and licensees.

6. Decision Rationale

The proposed action would provide for improved safety and regulatory compliance because the outdated guidance would be updated to describe currently acceptable methods to the NRC staff for determining occupational dose and would reduce applicant and licensee cost in the long-term. Thus, the benefits would outweigh the costs incurred by revising this RG for both the NRC applicants and licensees. Based on this regulatory analysis, the NRC staff concludes that revising the RG would be the best cost/benefit alternative.