

REGULATORY ANALYSIS

REGULATORY GUIDERG-5.51 INDEPENDENT ASSESSMENT OF NUCLEAR MATERIAL CONTROL AND ACCOUNTING SYSTEMS

(Revision 1 of Regulatory Guide 5.51, issued as DG-5049 dated September 15, 2015)

1. Statement of the Problem

The U.S. Nuclear Regulatory Commission (NRC) published Regulatory Guide 5.51 , “Independent Assessment of Nuclear Material Control and Accounting Systems,” in June 1975 to provide licensees and applicants with agency-approved guidance for complying with the then-current version of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 70, “Special Nuclear Materials,” particularly 10 CFR 70.58(c). This DG provides guidance that conforms with revisions to 10 CFR Part 74, “Material Control and Accounting of Special Nuclear Material,” as well as incorporating experience gained since the RG was initially published in June 1975. In particular, the guidance for performing independent assessments has been expanded to include process monitoring and item monitoring for Category I fuel cycle facilities, and to include guidance for uranium enrichment facilities. In addition, this revision addresses changes in MC&A terminology since the RG was published in 1975; for example, the term “management review” has been replaced by “independent assessment,” and “material unaccounted for” by “inventory difference.”

The control of and accounting for special nuclear material (SNM) has expanded in scope and importance since Regulatory Guide 5.51 was issued in 1975. The addition of uranium enrichment production facilities, and the potential addition of other facilities have broadened the scope of NRC regulation. The importance of the MC&A function has grown as a consequence of the increase in seriousness of the threat of theft or diversion of SNM for malevolent activity. The increased interest in controlling the actions of colluding persons in theft scenarios has resulted from the necessity of ensuring that the MC&A program is performing effectively in the execution of its activities.

2. Objective

The objective of this regulatory action is to assess the need for updating the NRC guidance, and provide applicants with a method to demonstrate compliance with the 10 CFR Part 74 requirements for independent assessment of material control and accounting systems.

3. Alternative Approaches

The NRC staff considered the following alternative approaches:

1. Do not revise Regulatory Guide 5.51.
2. Withdraw Regulatory Guide 5.51.
3. Revise Regulatory Guide 5.51 to reflect the current review guidelines in agreement with Part 74 and other NRC guidance documents.

Alternative 1: Do not revise Regulatory Guide 5.51

Under this alternative, the NRC would not revise guidance, and the current guidance would be retained. If the NRC does not take action, there would not be any changes in costs or benefit to the public, licensees, or the NRC. However, the “no-action” alternative would not address identified concerns with the current version of the regulatory guide. The NRC would continue to review each application on a case-by-case basis. This alternative is considered the “no-action” alternative and provides a baseline condition from which any other alternatives will be assessed.

This alternative is maintaining the regulatory guide as written in 1975 along with the drawbacks of using outdated and, in some instances, incomplete guidance. The basis for the previous version is 10 CFR Part 70, which was designed to aid in the review of MC&A based on the technologies of that period. There is no added value in this alternative.

Alternative 2: Withdraw Regulatory Guide 5.51

Under this alternative the NRC would withdraw this regulatory guide. This would eliminate the current conflict that exists between the current regulatory guide and the newer regulations. It would also eliminate the only readily available description of the methods the NRC staff considers acceptable for demonstrating compliance with the superseded 10 CFR Part 70 requirements related to independent assessment of MC&A systems. Although this alternative would be less costly than the proposed alternative, it would impede the public from having access to the most current guidance information.

The values and impacts of withdrawal of the regulatory guide from active status would be similar to those in Alternative 1 but would have greater negative consequences. Withdrawal could create the impression that facility independent reviews have been reduced in importance. If that impression were to be inferred by the licensees, safeguards risks could increase because independent reviews might not be of sufficient quality to identify operational weaknesses and identify ways in which improvements could be implemented.

Alternative 3: Revise Regulatory Guide 5.51

Under this alternative, the NRC would revise Regulatory Guide 5.51. This revision would incorporate the latest information in the regulations, supporting guidance, and review practices. By doing so, the NRC would ensure that the guidance available in this area is current and accurately reflects the staff's position. Improved guidance would serve to assist the facilities in implementing the requirements that apply to the independent assessments of MC&A systems. Without this guidance, preventable MC&A risks could result and lead to failure to detect loss or diversion of material.

The value of the revision will be realized in better focused and therefore more meaningful reviews. The guide will provide to the applicant or licensee an NRC perspective on preparing for, reviewing, and reporting on the performance of the licensee. The reviews would help identify any weaknesses in need of correction and could identify ways in which MC&A tasks could be performed in a more efficient and more effective manner.

The impact to the NRC would be the costs associated with preparing and issuing the regulatory guide revision. The impact to the public would be the voluntary costs associated with reviewing and providing comments to the NRC during the public comment period.

The value to NRC staff and its applicants would be the benefits associated with enhanced efficiency and effectiveness in using a common guidance document as the technical basis for license applications and other interactions between the NRC and its regulated entities.

4. Conclusion

Based on this regulatory analysis, the NRC staff has concluded that revision of Regulatory Guide 5.51 is warranted. The staff concludes that the proposed action will enhance facility MC&A program effectiveness by providing more focused (and, therefore, more meaningful) reviews, and increase the likelihood of consequent improved performance of MC&A at the facility reviewed.