**Regulatory Guide Periodic Review**

Regulatory Guide Number:      **5.8**

Revision:      **1**

Title:      **Design Considerations for Minimizing Residual Holdup of Special Nuclear Material in Drying and Fluidized Bed Operations (May 1974)**

Office/Division/Branch:      **NMSS/FCSE/MCAB**

Technical Lead:      **Tom Pham**

Recommended Staff Action:      **Reviewed with issues identified for future consideration**

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

This RG was last revised in May 1974 (Revision 1) to describe acceptable design features and characteristics for minimizing special nuclear material (SNM) holdup in equipment for drying and fluidized bed process operations in order to facilitate material balance, physical inventory, and records requirements, as required by 10 CFR 70.51, "Domestic Licensing of Special Nuclear Material."

However, in 2002, the material control and accounting (MC&A) requirements of 10 CFR 70.51 were transferred to 10 CFR Part 74, "Material Control and Accounting of Special Nuclear Material," and 10 CFR 70.51 no longer exists. As a result, RG 5.8 is not cross-referencing to the correct regulatory citations.

In addition, there are technical issues regarding the terminology used in the RG related to inventories and their evaluation. For example, the terms used in the guide such as "material unaccounted for" (MUF) and "limits of error of the material unaccounted for" (LEMUF) are outdated. The current relevant terms, used in the regulations and other guidance documents, are "inventory difference" (ID) and "standard error of the inventory difference" (SEID).

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?**

The guidance in the RG remains valid and useful for current licensees. Licensees routinely account for material holdup in process equipment during their physical inventory measurements. Licensees are also familiar with the terms ID and SEID, since they have been using these terms since the 1980s. Additionally, current MC&A guidance in NUREG documents (e.g., NUREG-1280, "Acceptable Standard Format and Content for the Material Control and Accounting Plan Required for Strategic Special

Nuclear Material," and NUREG-1065, "Acceptable Standard Format and Content for the Material Control and Accounting Plan Required for Special Nuclear Material of Low Strategic Significance," for Category I, "High Enriched Uranium" fuel cycle facilities, and Category III, "Low Enriched Uranium," fuel cycle facilities, respectively) include additional information on process holdup.

As no significant technical issues were identified, there is no impact to internal or external stakeholders resulting from the revision of the regulations.  However, new applicants should be aware of the administrative change in numbering of the CFR and current terminology.

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 0.10 full-time equivalent (FTE) and 0.20 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)?**

    Reviewed with issues identified for future consideration.

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

    As discussed in Management Directive (MD) 6.6, "Regulatory Guides," the NRC staff reviews RGs approximately every 5 years to ensure that these guides continue to provide useful guidance.  The staff will consider the regulatory citation issues and any other technical information that may need to be updated during the next periodic review of the guide.

**NOTE: This review was conducted in July 2016, and reflects the staff's plans as of that date.  These plans are tentative and subject to change.**