

# REGULATORY ANALYSIS

## DRAFT REGULATORY GUIDE DG-5056

### PHYSICAL INVENTORIES AND MATERIAL BALANCES AT FUEL CYCLE FACILITIES

(Proposed New Regulatory Guide)

#### 1. Statement of the Problem

The U.S. Nuclear Regulatory Commission (NRC) is considering the issuance of a new regulatory guide (RG) for the performance, evaluation, and reporting of physical inventories and material balances at fuel cycle facilities. When issued in final form, DG-5056, "Physical Inventories and Material Balances at Fuel Cycle Facilities," would be a new RG that would provide implementing guidance for material control and accounting (MC&A) requirements in NRC regulations related to conducting and reporting physical inventories of special nuclear material, and determining material balances at fuel cycle facilities.

This new RG is being issued to provide implementing guidance for requirements in NRC regulations related to physical inventories and material balances at fuel cycle facilities. It updates terminology related to physical inventories and material balances, corrects outdated citations to the regulations, and provides guidance on safeguards and security requirements intended to prevent loss or diversion of source and special nuclear material at fuel cycle facilities. The RG replaces two NRC regulatory guides:

- RG 5.13, "Conduct of Nuclear Material Physical Inventories," issued in November 1973;
- RG 5.33, "Statistical Evaluation of Material Unaccounted For," issued in June 1974.

Both RG 5.13 and RG 5.33 will be withdrawn concurrent with issuance of this RG in final form.

#### 2. Objective

The objective of this regulatory action is to issue new NRC guidance and provide applicants with a method to demonstrate compliance with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 74, "Material Control and Accounting of Special Nuclear Material," specifically, requirements regarding the performance, evaluation, and reporting physical inventories of special nuclear material and material balances at fuel cycle facilities.

#### 3. Alternative Approaches

The NRC staff considered the following alternative approaches:

- (1) Take no action.
- (2) Withdraw RGs 5.13 and 5.33 without issuing a new RG.
- (3) Develop a new RG.

Alternative 1: Take no action.

Under this alternative, the NRC would not develop a new RG, and the 1973-74 regulatory guides would be retained. This alternative provides a baseline condition from which any other alternatives will be assessed. If the NRC does not take action, there would not be any changes in costs or benefits to the public, licensees, or the NRC. However, this alternative would not address identified concerns in the absence of updated NRC guidance. The NRC would continue to review each application on a case-by-case basis.

Alternative 2: Withdraw RGs 5.13 and 5.33 without issuing a new RG.

Under this alternative, the NRC would withdraw these regulatory guides, and would not issue a new RG. This would eliminate any conflicts that exist between the 1973-74 guidance and the MC&A regulations that have since been revised and consolidated in 10 CFR Part 74. Although this alternative would be less costly than the proposed alternative, it would impede the public's accessibility to the most current guidance information.

Alternative 3: Develop a new RG

Under this alternative, the NRC would develop – and publish for comment as DG-5056 -- a new RG titled “Physical Inventories and Material Balances at Fuel Cycle Facilities.” Upon its issuance, RGs 5.13 and 5.33 would be withdrawn. The new RG would contain guidance that is consistent with the existing 10 CFR Part 74 MC&A regulations, and with current inventory practices. By doing so, the NRC would ensure that the guidance available in this area is current, consistent with 10 CFR Part 74, and accurately reflects the staff's positions.

The impact to the NRC would be the costs associated with preparing and issuing the new regulatory guide. 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 concludes that the issuance of a new regulatory guide is warranted. The action will enhance material control and accounting for the performance, evaluation, and reporting of physical inventories and material balances at fuel cycle facilities. Concurrent with the issuance of DG-5056 in final form, regulatory guides 5.13 and 5.33 would be withdrawn. The staff concludes that the proposed action would enhance MC&A program effectiveness at fuel cycle facilities by providing current information and updated guidance related to physical inventories and material balances, and increases the likelihood of consequent improved MC&A performance at these facilities.