

**Regulatory Guide Number:** 5.33, Revision 0

**Title:** Statistical Evaluation of Material Unaccounted For

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

**Technical Lead:** Glenn Tuttle

**SUBJECT:** Basis for Withdrawal

**(1) What regulation(s) did the Regulatory Guide support?**

Regulatory Guide (RG) 5.33 was published in June 1974 to provide guidance on meeting the material control and accounting (MC&A) requirements in Title 10 of the *Code of Federal Regulations* (10 CFR), specifically Sections 70.51(e) and 10 CFR 70.53(b) related to the statistical evaluation of material unaccounted for (MUF). These Sections have been deleted from the CFR. The requirements related to the evaluation of MUF are now found in 10 CFR 74.31(c)(5), 10 CFR 74.33(c)(4), 10 CFR 74.43(c)(8), and 10 CFR 74.59(f)(1), where the term MUF has been replaced with the term inventory difference (ID).

**(2) What was the purpose of the Regulatory Guide?**

RG 5.33 provided guidance to licensees on concepts, principles, and methods acceptable to the NRC staff for the statistical evaluation of MUF. Calculating MUF quantities and their associated limits of error are performed by licensees to ensure that nuclear material in their possession is accounted for. Individual MUF values that are statistically significant and exceed certain minimum quantities are required to be investigated and reported to the NRC.

**(3) How was the Regulatory Guide used?**

RG 5.33 was used to assist licensees in establishing procedures for the statistical evaluation of MUF.

**(4) Why is the Regulatory Guide no longer needed?**

A new regulatory guide has been developed that combines and updates the guidance found in RG 5.33 and RG 5.13, "Conduct of Nuclear Material Physical Inventories." This new guide has been designated RG 5.88 and titled "Physical Inventories and Material Balances at Fuel Cycle Facilities."

**(5) What guidance is available once the Regulatory Guide is withdrawn?**

The guidance in RG 5.33 has been updated and incorporated into the new guide designated RG 5.88. Additional guidance on conducting physical inventories can be found in NUREG-1065, "Acceptable Standard Format and Content for the Fundamental Nuclear Material Control (FNMC) Plan Required for Low-Enriched Uranium Facilities," NUREG/CR-5734, "Recommendations to the NRC on Acceptable Standard Format and

Content for the Fundamental Nuclear Material Control (FNMC) Plan Required for Low-Enriched Uranium Enrichment Facilities,” and NUREG-1280, “Standard Format and Content Acceptance Criteria for the Material Control and Accounting (MC&A) Reform Amendment.”

**(6) Is the Regulatory Guide referenced in other documents and what are the “ripple effects” on these documents if it is withdrawn?**

RG 5.33 is referenced in inspection procedure (IP) 85209, “Measurement Control and Statistics,” dated 04/10/85. However, the procedure is for inspection of Category II fuel cycle facilities, and there are currently no operating Category II fuel cycle facilities, so the IP is not used. If IP 85209 is used for future Category II facility MC&A inspections, the IP will be revised, and the reference to RG 5.33 will be revised as well.

RG 5.33 is referenced in NUREG/CR-3256, “Assessment of Alternatives to Correct Inventory Difference Statistical Treatment Deficiencies.” NUREG/CR-3256 was issued in 1983 to present an analysis of alternatives to correct deficiencies in the statistical treatment of inventory differences in NRC guidance documents and licensee practice. RG 5.33 is not referenced in the body of the NUREG, and is only mentioned in the list of references. There is no ripple effect since RG 5.33 is only listed as a reference in the NUREG and the NUREG is a historical report that will not be revised.

**(7) What is the basis for believing that no guidance similar to that in the Regulatory Guide will ever be needed?**

RG 5.33 is being withdrawn because it is outdated and refers to requirements in 10 CFR part 70 that have been moved to 10 CFR part 74. Similar guidance will still be needed for the requirements in 10 CFR part 74 related to the statistical evaluation of IDs. The guidance in RG 5.33 has been updated and incorporated into a new regulatory guide designated RG 5.88. RG 5.88, along with NUREG-1065, NUREG/CR-5734, and NUREG-1280 provide the necessary guidance for licensees and NRC staff on the statistical evaluation of IDs.

**(8) Will generic guidance still be needed?**

Guidance will still be needed for the ID evaluation requirements in 10 CFR part 74. The guidance in RG 5.33 has been updated and incorporated into a new regulatory guide designated RG 5.88. RG 5.88, along with NUREG-1065, NUREG/CR-5734, and NUREG-1280 provide the necessary guidance for licensees and NRC staff on the statistical evaluation of IDs.

**(9) What is the rationale for withdrawing this Regulatory Guide instead of revising it?**

RG 5.33 is being withdrawn because it is outdated and refers to requirements in 10 CFR part 70 that have been moved to 10 CFR part 74. Similar guidance will still be needed for the requirements in 10 CFR part 74 related to the statistical evaluations of IDs. The guidance in RG 5.33 has been updated and incorporated into a new regulatory guide designated RG 5.88.

**(10) Do other agencies rely upon the Regulatory Guide, e.g., the Agreement States, National Aeronautical and Space Administration, Department of Energy?**

The staff is not aware of any other agency that uses or relies on the guidance in RG 5.33.