Regulatory Guide Number: **5.36, Revision 0**

Title: **Recommended Practice for Dealing with Outlying Observations**

Office/Division/Branch: **NMSS/FCSE/MCAB**
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SUBJECT: **Basis for Withdrawal**

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

RG 5.36 was published in June 1974 to provide guidance to fuel cycle facilities on meeting the requirements for statistical control procedures in Title 10 of the *Code of Federal Regulations* (10 CFR) 70.22(b), "Contents of applications." This requirement, regarding submittal of the licensees description of its material control and accounting (MC&A) procedures, did not specifically require the methodology that the guidance in RG 5.36 addressed and no longer exists in 10 CFR 70.22(b).

The MC&A requirements have all been moved to 10 CFR Part 74 and no specific requirements exist for performing outlier testing.

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

The staff developed RG 5.36 to provide guidance for statistical procedures related to statistical analyses of outlying observations in samples, and for testing their statistical significance to ensure appropriate accounting of nuclear material.

(3) How was the Regulatory Guide used?

The intent of RG 5.36 was to assist licensees in establishing written MC&A procedures as required by 10 CFR 70.22(b), specifically written procedures for statistical analyses of accounting data. RG 5.36 was initially published in June 1974 and endorsed American Society for Testing and Materials (ASTM) Standard E178-74, "Recommended Practice for Dealing with Outlying Observations," with qualifications. E178-74 provided a common method used in testing for outlying observations. The standard has been revised several times since 1974 and is now designated E178-16. However, the NRC does not know if any licensee used this particular RG or the ASTM standard it endorses, since there was no requirement to evaluate MC&A data for outlying observations.

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

The requirements in 10 CFR Part 74 supersede the staff regulatory positions in RG 5.36, so that explicit guidance for written statistical control procedures is no longer needed. There are no requirements for testing for outlying observations in the MC&A regulations in 10 CFR Part 74.

(5) What guidance is available once the Regulatory Guide is withdrawn?

The NRC has developed a reference manual of general statistical methodology, NUREG/CR-4604 (PNL-5849), "Statistical Methods for Nuclear Material Management," which is a comprehensive guidance document on statistical methods that licensees may use in evaluating MC&A data. Section 10.4, "Tests for Outliers," of NUREG/CR-4604 provides guidance on testing for, and dealing with, outlying observations in a data set.

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

RG 5.36 is not referenced in any MC&A inspection procedures or inspection manual chapters.

There is no current fuel cycle licensee or applicant that references RG 5.36 in its facility fundamental nuclear material control (FNMC) plan, which is the licensing basis for the licensee's MC&A program. There are also no references to RG 5.36 in the NUREGs that provide licensees and applicants with a standard format and content for their FNMC plans.

RG 5.36 is referenced in two regulatory guides: RG 5.53, "Qualification, Calibration, and Error Estimation Methods for Nondestructive Assay," and RG 5.38, "Nondestructive Assay of High-Enrichment Uranium Fuel Plates by Gamma Ray Spectrometry." When RG 5.53 and RG 5.38 are revised, the reference to RG 5.36 will be deleted, and both will refer directly to ASTM standard E178-16.

RG 5.36 is referenced in NUREG/CR-0829, "A Measurement Control Program for Nuclear Material Accounting." NUREG/CR-0829 was published in June 1980 and has not been revised since then, so many references are outdated. If NUREG/CR-0829 is revised in the future the reference to RG 5.36 will be deleted.

RG 5.36 is referenced in a document by Westinghouse, "Westinghouse Generic Setpoint Methodology," Westinghouse Non-Proprietary Class 3, WCAP-17504-NP Revision 0, February 2012 (ADAMS Accession No. ML12058A450). This document also references the 1980 version of ASTM standard E178. The reference to RG 5.36 is inaccurate since RG 5.36 was written for MC&A applications at fuel cycle facilities, not reactor setpoint methodologies.

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

The regulations in 10 CFR Part 74 establish the appropriate requirements for control of, and accounting for, special nuclear material. There are no regulations in Part 74 that specifically require testing for outlying observations.

(8) Will generic guidance still be needed?

The regulations in 10 CFR Part 74 establish the appropriate requirements for control of, and accounting for, special nuclear material. A specific regulatory guide for testing for outlying observations will not be needed since outlier testing is not required by NRC regulations. However, for guidance on statistical methods related to MC&A in general, licensees may use NUREG/CR-4604 if needed.

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

The regulations in 10 CFR Part 74 establish the appropriate requirements for control of, and accounting for special nuclear material, and the regulations do not require testing for outlying observations. However, licensees choosing to test for outlying observations could refer to NUREG/CR-4604 for comprehensive information on statistical methods used to analyze MC&A data.

(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 5.36.