

Regulatory Guide Number: 5.22, Revision 0

Title: ‘Assessment of the Assumption of Normality (Employing Individual Observed Values)’

Office/Division/Branch: NMSS/FCSE/MCAB

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SUBJECT: Basis for Withdrawal

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

Regulatory Guide (RG) 5.22, Revision 0, was published in April 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 licensee’s description of its material control and accounting (MC&A) procedures, did not specifically require the methodology that the guidance in RG 5.22 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 assessing the assumption of normality.

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

The staff developed RG 5.22 to provide guidance for statistical procedures related to assessing the assumption of normality in MC&A data, and for determining the statistical significance to ensure appropriate accounting of nuclear material.

(3) How was the Regulatory Guide used?

The intent of RG 5.22 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 5.22 was initially published in April 1974 and endorsed American National Standards Institute (ANSI) Standard N15.15-1973, “Assessment of the Assumption of Normality (Employing Individual Observed Values),” with qualifications. ANSI N15.15-1973 provided a common method used in assessing the assumption of normality. However, the standard has been withdrawn from active status by ANSI in coordination with the Institute of Nuclear Materials Management.

The NRC does not know if any licensee used this particular RG or the ANSI standard it endorses, since there was no requirement to assess the assumption of normality in MC&A data.

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

The requirements in 10 CFR Part 74 supersede the staff regulatory positions in RG 5.22, so that explicit guidance for written statistical control procedures is no longer needed. There are no requirements for assessing the assumption of normality 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 9.6.3, "Tests for Normality," of NUREG/CR-4604 provides guidance on assessing the assumption of normality of 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 5.22 is referenced in inspection procedure (IP) 85209, "Measurement Control and Statistics," dated 04/10/85. However, the procedure is not used. It may be used in the future as part of an MC&A inspection for a Category II fuel cycle facility. Currently, there are no operating Category II fuel cycle facilities, but there are new applicants. If IP 85209 is used for future Category II facility MC&A inspections, IP 85209 will be revised, and the reference to RG 5.22 will be deleted.

There is no current fuel cycle licensee or applicant that references RG 5.22 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 5.22 in the NUREGs that provide licensees and applicants with a standard format and content for their FNMC plans.

RG 5.22 is referenced in one other regulatory guide, RG 5.36, "Recommended Practice for Dealing with Outlying Observations." RG 5.36 has been withdrawn.

RG 5.22 is referenced in NUREG/CR-3256, "Assessment of Alternatives to Correct Inventory Difference Statistical Treatment Deficiencies." NUREG/CR-3256 was published in September 1983 and has not been revised since then. The reference to RG 5.22 is only included in the Reference section of NUREG/CR-3256 but not in the body of the NUREG. There is no ripple effect if RG 5.22 is withdrawn.

(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 assessing the assumption of normality.

(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 assessing the assumption of normality will not be needed since normality 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 assessing the assumption of normality. However, licensees choosing to assess the assumption of normality in their MC&A data 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 5.22.