



DRAFT REGULATORY GUIDE

Contact: B. Yip
(301) 415-7638

DRAFT REGULATORY GUIDE DG-5028

(Proposed Revision 2 of Regulatory Guide 5.29, dated June 1975)

SPECIAL NUCLEAR MATERIAL CONTROL AND ACCOUNTING SYSTEMS FOR NUCLEAR POWER PLANTS

A. INTRODUCTION

This guide describes a method that the staff of the U.S. Nuclear Regulatory Commission (NRC) considers acceptable to implement special nuclear material control and accounting system requirements for nuclear power plants. This guide applies to all nuclear power plants.

Title 10, of the *Code of Federal Regulations*, Part 74, "Material Control and Accounting of Special Nuclear Material" (10 CFR Part 74) (Ref. 1), Subpart B, "General Reporting and Recordkeeping Requirements," establishes the material control and accounting performance requirements for special nuclear material at nuclear power plants. The regulations at 10 CFR 74.11, "Reports of Loss or Theft or Attempted Theft or Unauthorized Production of Special Nuclear Material," require, in part, that nuclear power reactor licensees notify the NRC of any such events within one hour of discovery. The regulations at 10 CFR 74.13, "Material Status Reports," require nuclear power reactor licensees to submit material status reports for certain quantities of special nuclear material. The regulations at 10 CFR 74.15, "Nuclear Material Transaction Reports," require nuclear power reactor licensees to complete transaction reports when transferring, receiving, or making adjustments to specified quantities of special nuclear material. The regulations at 10 CFR 74.19, "Recordkeeping," require, in part, that nuclear power reactor licensees keep records that show the receipt, inventory (including location and unique identity), acquisition, transfer, and disposal of all special nuclear material in their possession. Additionally, 10 CFR 74.19 requires, in part, that licensees establish, maintain, and follow written material control and accounting procedures, and that they conduct physical inventories of special nuclear material at intervals not to exceed once every 12 months.

The NRC issues regulatory guides to describe to the public methods that the staff considers acceptable for use in implementing specific parts of the agency's regulations, to explain techniques that the staff uses in evaluating specific problems or postulated accidents, and to provide guidance to applicants. Regulatory guides are not substitutes for regulations and compliance with them is not required.

This regulatory guide is being issued in draft form to involve the public in the early stages of the development of a regulatory position in this area. It has not received final staff review or approval and does not represent an official NRC final staff position. Public comments are being solicited on this draft guide (including any implementation schedule) and its associated regulatory analysis or value/impact statement. Comments should be accompanied by appropriate supporting data. Written comments may be submitted to the Rules, Announcements, and Directives Branch, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; submitted through the NRC's interactive rulemaking Web page at <http://www.nrc.gov>; or faxed to (301) 492-3446. Copies of comments received may be examined at the NRC's Public Document Room, 11555 Rockville Pike, Rockville, MD. Comments will be most helpful if received by July 16, 2012.

Electronic copies of this draft regulatory guide are available through the NRC's interactive rulemaking Web page (see above); the NRC's public Web site under Draft Regulatory Guides in the Regulatory Guides document collection of the NRC Library at <http://www.nrc.gov/reading-rm/doc-collections/>; and the NRC's Agencywide Documents Access and Management System (ADAMS) at <http://www.nrc.gov/reading-rm/adams.html>, under Accession No. ML113550061. The regulatory analysis may be found in ADAMS under Accession No. ML113550062.

This regulatory guide contains information collection requirements covered by 10 CFR Part 74 that the Office of Management and Budget (OMB) approved under OMB control number 3150-0123. The NRC may neither conduct nor sponsor, and a person is not required to respond to, an information collection request or requirement unless the requesting document displays a currently valid OMB control number. This regulatory guide is a rule as designated in the Congressional Review Act (5 U.S.C. 801–808). However, OMB has not found it to be a major rule as designated in the Congressional Review Act.

B. DISCUSSION

Control and accounting for special nuclear material at a nuclear power plant are considerably less complex than at other facilities, such as fuel cycle facilities, because the material is usually maintained in the form of readily identifiable fuel assemblies that can be managed on a per-item basis. However, problems in control and accounting can arise when fuel rods become separated from the parent assembly. Maintaining proper control is necessary to ensure that licensed material is properly accounted for in a manner that provides continuity of control throughout the total fuel cycle.

The material control and accounting process is designed to use control and monitoring measures to prevent or detect loss when it occurs or soon thereafter. Additionally, statistical and accounting measures are used to maintain knowledge of the quantities of special nuclear material present in each area of a facility. Physical inventories and material balances are used to verify the presence of licensed material or to detect the loss of such material after it occurs, in particular, through theft by an insider.

The American National Standards Institute (ANSI) developed specific guidelines for the control and accounting of special nuclear material and published them in ANSI N15.8-2009, “Methods of Nuclear Material Control—Material Control Systems—Special Nuclear Material Control and Accounting Systems for Nuclear Power Plants,” dated February 18, 2009 (Ref. 2). ANSI N15.8-2009 provides guidance on the control and accounting of 1) fuel rods that are separated from their parent assemblies; and 2) pieces of irradiated material that are separated as a result of fuel damage.

C. STAFF REGULATORY GUIDANCE

The staff considers conformance with the provisions of ANSI N15.8-2009 an acceptable approach to meet the material control and accounting requirements in Subpart B of 10 CFR Part 74 at nuclear power plants.

D. IMPLEMENTATION

The purpose of this section is to provide information to applicants and licensees regarding the NRC’s plans for using this regulatory guide.

Methods or solutions that differ from those described in this regulatory guide may be deemed acceptable if they provide sufficient basis and information for the NRC staff to verify that the proposed alternative demonstrates compliance with the appropriate NRC regulations. Current licensees may continue to use guidance the NRC found acceptable for complying with the identified regulations as long as their current licensing basis remains unchanged. Backfit and issue finality considerations do not apply to licensees and applicants under 10 CFR Part 74.

REFERENCES

1. 10 CFR Part 74, “Material Control and Accounting of Special Nuclear Material,” U.S. Nuclear Regulatory Commission, Washington, DC.¹
2. ANSI N15.8-2009, “Methods of Nuclear Material Control—Material Control Systems—Special Nuclear Material Control and Accounting Systems for Nuclear Power Plants,” American National Standards Institute, New York, NY, February 18, 2009.²

¹ Publicly available NRC published documents are available electronically through the NRC Library on the NRC’s public Web site at <http://www.nrc.gov/reading-rm/doc-collections/>. The documents can also be viewed online or printed for a fee in the NRC’s Public Document Room (PDR) at 11555 Rockville Pike, Rockville, MD; the mailing address is USNRC PDR, Washington, DC 20555; telephone 301-415-4737 or (800) 397-4209; fax (301) 415-3548; and e-mail pdr.resource@nrc.gov.

² Copies of American National Standards Institute (ANSI) standards may be purchased from ANSI, 25 West 43rd St, 4th floor, New York, NY 10036; telephone (212) 642-4900 and fax (212) 398-0023. Purchase information is available at the ANSI web-based store at <http://webstore.ansi.org/>.