

**NUCLEAR REGULATORY COMMISSION**

**10 CFR Parts 40, 60, 63, 70, 72, 74, and 150**

**[NRC-2009-0096]**

**RIN 3150-AI61**

**Amendments to Material Control and Accounting Regulations**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) is amending its regulations to consolidate and revise the material control and accounting (MC&A) requirements for special nuclear material (SNM). The objective of this rulemaking is to update, clarify, and strengthen the MC&A requirements. Related guidance documents have been developed, or updated, as necessary to reflect the changes in this final rule.

**DATES:** *Effective Date:* This final rule is effective **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**. *Compliance Date:* Compliance with this final rule is required by **[INSERT DATE 720 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

**ADDRESSES:** Please refer to Docket ID NRC-2009-0096 when contacting the NRC about the availability of information for this action. You may obtain publicly-available information related to this action by any of the following methods:

- **Federal Rulemaking Web Site:** Go to <http://www.regulations.gov> and search for Docket ID NRC-2009-0096. Address questions about NRC dockets to Carol Gallagher; telephone: 301-415-3463; e-mail: [Carol.Gallagher@nrc.gov](mailto:Carol.Gallagher@nrc.gov). For technical questions, contact the individual listed in the FOR FURTHER INFORMATION CONTACT section of this document.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly-available documents online in the ADAMS Public Documents collection at <http://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "[ADAMS Public Documents](#)" and then select "[Begin Web-based ADAMS Search](#)." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to [pdresource@nrc.gov](mailto:pdresource@nrc.gov). For the convenience of the reader, instructions about obtaining materials referenced in this document are provided in "Availability of Documents," Section XIX of this document.

- **NRC's PDR:** You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

**FOR FURTHER INFORMATION CONTACT:** Thomas Young, Office of Nuclear Material Safety and Safeguards, telephone: 301-415-5795, e-mail: [Thomas.Young@nrc.gov](mailto:Thomas.Young@nrc.gov); U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

## **SUPPLEMENTARY INFORMATION:**

### **EXECUTIVE SUMMARY:**

#### A. Need for the Regulatory Action

The purpose of an MC&A program is to provide for the proper management of SNM, in order to prevent and detect any loss, theft, diversion, or other misuse of the material. The NRC's MC&A regulations are designed to ensure that a licensee's information about SNM is accurate, authentic, and sufficiently detailed to enable the licensee to maintain current knowledge of its SNM and manage its program for securing and protecting SNM. The requirements for MC&A, together with those for physical protection of facilities and information security, make up the primary elements of the NRC's SNM safeguards program.

The NRC is revising its MC&A regulations to consolidate, update, clarify, and strengthen them. In some areas, these revisions codify existing practices to ensure their consistent application at the appropriate facilities. Specific areas where the MC&A regulations are strengthened include more broadly applying general performance objectives (GPOs) to each licensee who is authorized to possess or use SNM in a quantity greater than 350 grams, requiring the use of item control systems at more types of facilities, formalizing use of tamper-safing procedures, and clarifying the use of material balance areas (MBAs), item control areas (ICAs), and material custodians. Overall, the revisions are needed to provide for a comprehensive MC&A framework and continue to achieve the NRC's strategic goal of ensuring the secure use of radioactive materials, including SNM.

## B. Major Provisions

Major provisions of this final rule include changes to:

- Consolidate the MC&A requirements for independent spent fuel storage installations (ISFSIs) and monitored retrievable storage installations (referred to in this final rule collectively as storage installations) from part 72 of title 10 of the *Code of Federal Regulations* (10 CFR), “Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste,” into 10 CFR part 74, “Material Control and Accounting of Special Nuclear Material”;
- Consolidate the GPOs within 10 CFR part 74 and make them applicable to all NRC licensees who are subject to 10 CFR part 74 and authorized to possess more than 350 grams of SNM;
- Modify the existing item control system requirements and exemptions, and extend the requirements to include nuclear reactor facilities and storage installations;
- Extend the requirement for use of tamper-safing procedures to include facilities that possess SNM of low strategic significance (Category III) and clarify the existing requirements for tamper-safing procedures at facilities that possess SNM of moderate strategic significance (Category II) and facilities that possess formula quantities of strategic special nuclear material (Category I); and
- Add requirements for facilities that possess Category III, II, and I quantities of SNM to designate one or more MBAs, or a combination of one or more MBAs and one or more ICAs, and to identify material custodians who are responsible for monitoring these areas.

In addition, several of the definitions in 10 CFR part 74 are revised and updated, and plain language revisions are made throughout to improve clarity and understanding.

Six related MC&A guidance documents are also revised and finalized to accompany this rulemaking.

### C. Costs and Benefits

The NRC prepared a final regulatory analysis to determine the expected quantitative costs and benefits of this final rule, as well as qualitative factors to be considered in the NRC's rulemaking decision. The costs from this final rule are in the form of implementation (one-time) and operational (recurring) costs. This final rule will result in an average one-time cost per licensee of approximately \$28,000 followed by an average annual cost per licensee of approximately \$2,700. This final rule will result in a total one-time cost to the entire industry of approximately \$3.6 million followed by total annual costs to the entire industry of approximately \$348,000. The analysis estimates the total present value of these costs over the 25-year analysis period to be between \$9.6 million and \$7.6 million at the 3-percent and the 7-percent discount rate, respectively.

The changes in this final rulemaking are limited to consolidating, updating, clarifying, and strengthening MC&A requirements in 10 CFR part 74 to reduce the risk of loss, theft, diversion, or misuse of SNM. The benefits cannot be quantified because the NRC is unable to accurately determine: 1) the frequency of attempted theft or diversion, 2) the frequency with which theft or diversion attempts may be successful, or 3) the consequences of successful theft or diversion. Notwithstanding, the NRC projects that there will be a reduction in overall risk of loss, theft, diversion, or misuse of SNM. Although the NRC cannot quantify the benefits of this rule, it did examine its benefits qualitatively. The qualitative benefits include both the direct benefits that accrue and the indirect benefits from risks that are avoided. For example, by extending the item control system requirement, the revised MC&A regulations ensure that the information about

SNM is accurate, authentic, and sufficiently detailed to enable a licensee to maintain current knowledge of its SNM and manage its program for securing and protecting SNM. In addition, this final rule increases regulatory efficiency and effectiveness by clarifying which requirements apply to different types of facilities, as well as clarifying acceptable methods for achieving the GPOs, which promote efficient licensee implementation and NRC inspection. The NRC concludes that this final rule is cost-justified because the benefits associated with preventing the risk of loss, theft, diversion, or misuse of SNM, improving knowledge, and increasing regulatory efficiency and effectiveness outweigh the estimated costs associated with this final rule.

Additional information on the benefits and costs of this final rule is included in Section VII of this document (Regulatory Analysis). Additional information on the effects of the changes is included in Section VIII of this document (Backfitting and Issue Finality). Both the regulatory analysis and backfit evaluation are available as indicated in Section XIX of this document.

## **TABLE OF CONTENTS:**

I.	Background
II.	Discussion
III.	Opportunities for Public Participation
IV.	Public Comment Analysis
V.	Discussion of Amendments by Section
VI.	Regulatory Flexibility Certification
VII.	Regulatory Analysis
VIII.	Backfitting and Issue Finality
IX.	Cumulative Effects of Regulation
X.	Plain Writing
XI.	Environmental Assessment and Final Finding of No Significant Impact
XII.	Paperwork Reduction Act
XIII.	Congressional Review Act
XIV.	Criminal Penalties
XV.	Coordination with NRC Agreement States
XVI.	Compatibility of Agreement State Regulations
XVII.	Voluntary Consensus Standards
XVIII.	Availability of Guidance
XIX.	Availability of Documents

## I. Background

The NRC's existing regulations in 10 CFR part 74 specify requirements for control and accounting of SNM that is held by a licensee. The MC&A regulations are intended to ensure that the information about SNM is accurate, authentic, and sufficiently detailed to enable a licensee to maintain current knowledge of its SNM and manage its program for securing and protecting SNM from any loss, theft, diversion or misuse. The requirements for MC&A, together with those for physical protection of facilities and information security, make up the primary elements of the NRC's SNM safeguards program. The MC&A component of the larger SNM safeguards program helps ensure that SNM is not stolen or otherwise diverted from the facility and supports the NRC's strategic goal of ensuring the secure use of radioactive materials.

The existing MC&A requirements are organized in a graded fashion. Subparts A and B provide general provisions, reporting requirements, and recordkeeping requirements. Subparts C, D, and E provide more rigorous requirements for licensees authorized to possess SNM with relatively greater attractiveness and risk associated with loss, theft, diversion, or misuse. Licensees authorized to possess SNM of "low strategic significance" (as defined in § 74.4) subject to subpart C are known as Category III. Licensees authorized to possess SNM of "moderate strategic significance" (as defined in § 74.4) subject to subpart D are known as Category II. Licensees authorized to possess a "formula quantity" (as defined in § 74.4) of strategic special nuclear material (SSNM) subject to subpart E are known as Category I.

Following the events of September 11, 2001, the Commission directed the NRC staff to undertake a comprehensive review of the NRC's safeguards and security programs, including MC&A requirements. Physical protection and MC&A programs complement each other in the safeguarding of nuclear materials. The NRC staff

reviewed the existing MC&A requirements and provided the Commission with a range of options for amending the MC&A regulations in SECY-08-0059, “Rulemaking Plan: Part 74 - Material Control and Accounting of Special Nuclear Material,” dated April 25, 2008.

In the staff requirements memorandum for SECY-08-0059, dated February 5, 2009, the Commission approved Option 4 of the rulemaking plan in SECY-08-0059, which directed the NRC staff to revise and consolidate the existing MC&A requirements in order to update, clarify, and strengthen them.

On November 8, 2013, the NRC published a notice of proposed rulemaking in the *Federal Register* (FR) seeking public comment on a proposed rule to amend its MC&A regulations (78 FR 67225). The notice of proposed rulemaking requested input from licensees, industry representatives, and interested members of the public on several specific aspects of the proposed rule. A summary of the comments and their resolution is provided in Section IV of this document and detailed responses to the comments are given in “U.S. Nuclear Regulatory Commission Staff Responses to Public Comments on Proposed Rule: ‘Amendments to Material Control and Accounting Regulations’ and Associated Draft Guidance” (comment resolution document), which is available as indicated in Section XIX of this document.

## **II. Discussion**

The NRC is consolidating, updating, clarifying, and strengthening the MC&A regulations in 10 CFR part 74 and making conforming changes to update and clarify the related regulations in 10 CFR parts 40, 60, 63, 70, 72, and 150. The NRC is also strengthening specific requirements in 10 CFR part 74 for certain types of licensees in order to ensure that licensees maintain adequate protection of SNM from any loss, theft,

diversion, or misuse. Guidance documents have been updated as necessary to reflect these changes. Concurrently with this final rule, the following draft NUREGs have been finalized: NUREG-1280, Revision 2, “Acceptable Standard Format and Content for the Material Control and Accounting (MC&A) Plan Required for Strategic Special Nuclear Material;” NUREG-2159, “Acceptable Standard Format and Content for the Material Control and Accounting (MC&A) Plan Required for Special Nuclear Material of Moderate Strategic Significance;” NUREG-1065, Revision 3, “Acceptable Standard Format and Content for the Material Control and Accounting (MC&A) Plan Required for Special Nuclear Material of Low Strategic Significance;” NUREG-2158 (formerly NUREG/CR-5734), “Acceptable Standard Format and Content for the Material Control and Accounting (MC&A) Plan Required for Low Enriched Uranium Enrichment Facilities;” and NUREG/BR-0096, Revision 2, “Instructions and Guidance for Completing Physical Inventory Summary Reports.” An additional draft guidance document, DG-5057, has been finalized and published as Revision 3 of Regulatory Guide (RG) 5.29, “Special Nuclear Material Control and Accounting System for Non-Fuel Cycle Facilities.”

Most of the revisions in this rulemaking are clarifications of existing language, consolidation of MC&A requirements into 10 CFR part 74, and conforming changes for those consolidations. Other revisions in this final rule strengthen specific sections of the requirements for some types of facilities, and fall into four categories: 1) providing GPOs for certain NRC licensees that are subject to the MC&A requirements; 2) applying the requirements for an item control system to more facilities; 3) establishing requirements for tamper-safing procedures at certain facilities; and 4) formalizing the use of MBAs, ICAs, and material custodians for those areas at certain facilities. These revised requirements apply, to different extents, to facilities licensed under 10 CFR parts 50, 52, 70, and 72.

Table 1 shows how the revised requirements in these four categories apply to the different types of licensees and the locations of the revised requirements in this final rule. The revised requirements are summarized in this section, and are more fully discussed in the answers to questions A through S, below. The following questions and answers also address other changes to the MC&A requirements, which are plain language revisions to improve clarity and provide conforming changes, or organizational or administrative revisions.

**Table 1. Applicability of Major Provisions of this Final Rule for Certain Types of Facilities**

	Location in this final rule, 10 CFR part 74, by type of facility					
	Subparts A and B			Subpart C	Subpart D	Subpart E
	Licensees authorized to possess more than 350 grams SNM			Category III	Category II	Category I
	10 CFR part 70 licensees not subject to subpart H of 10 CFR part 70	10 CFR part 50 or 52 nuclear reactor	10 CFR part 72 storage installation	10 CFR part 70 licensees subject to subpart H of 10 CFR part 70, or other licensees subject to 10 CFR parts 50 or 52 that are authorized to possess Category I, II, or III quantities of SNM		
<b>General performance objectives</b>	Added requirements in § 74.3			Modified requirements in § 74.31(a) and § 74.33(a) to refer to § 74.3  Retained unique GPOs in § 74.33(a) for an enrichment facility	Modified requirement in § 74.41(a) to refer to § 74.3 and retained unique GPO in § 74.41(a)	Modified requirement in § 74.51(a) to refer to § 74.3 and retained unique GPOs in § 74.51(a)
<b>Item control system</b>	no requirement	Added requirement in § 74.19(d)		Modified the requirements in § 74.31(c)(6) and § 74.33(c)(6)	Modified requirements in § 74.43(b)(5) and (6)	No modification of item monitoring in § 74.55
<b>Tamper-safing procedures</b>	no requirement			Added § 74.31(c)(9) Added § 74.33(c)(9)	Clarified requirement in § 74.43(c)(3)	Clarified requirement in § 74.59(f)(2)(i)
<b>MBA, ICAs, and material custodians</b>	no requirement			Added § 74.31(c)(10) Added § 74.33(c)(10)	Added § 74.43(c)(9)	Added § 74.59(h)(5)

## **General Performance Objectives**

In this final rule, most existing GPOs for licensees subject to §§ 74.31(a), 74.33(a), 74.41(a), and 74.51(a) are consolidated into four GPOs in § 74.3. These GPOs apply to NRC licensees authorized to possess more than 350 grams of SNM, including nuclear reactor facilities and storage installations. Some GPOs that are unique to Category III enrichment facilities, or to Category II or I facilities, remain in §§ 74.33(a), 74.41(a), and 74.51(a), respectively.

This final rule lists a fifth GPO in § 74.3 to require that licensees control access to MC&A information. The GPO provision in § 74.3(e) to protect MC&A information clarifies existing MC&A and other regulations regarding protection of information. The activities that licensees currently perform to protect information in accordance with the existing requirements will meet the GPO provision in § 74.3(e) of this final rule. The clarification in § 74.3(e) does not impose new requirements on any existing licensees. This GPO is consistent with existing requirements in subparts B and C of 10 CFR part 74 that licensees maintain adequate safeguards against tampering with, and loss of, their records. This GPO is also consistent with existing requirements in subparts D and E of 10 CFR part 74 that licensees train and qualify their personnel to maintain a high level of safeguards awareness. Performance objectives related to recordkeeping are also described in the MC&A plans developed by 10 CFR part 70 licensees subject to subparts C, D, and E of 10 CFR part 74.

Licensees authorized to possess 350 grams of SNM or less are not subject to the GPOs, because such licensees are not required to implement a formal MC&A program. These licensees remain subject to the reporting requirements in §§ 74.11, 74.13, and 74.15, which apply to licensees authorized to possess one gram or more of SNM. Agreement State licensees are similarly subject to the corresponding reporting requirements in §§ 150.16 and 150.17.

## **Item Control System**

The existing regulations for licensees subject to 10 CFR part 74 subparts C, D, or E require that the MC&A program include the capabilities for controlling SNM items. This final rule broadens the applicability of the regulations, so that more types of licensees are required to have defined item control systems. The existing item control regulations in subparts C and D of 10 CFR part 74 have also been modified in this final rule as noted below.

The revised § 74.19(d) establishes a requirement for item control systems at storage installations and nuclear reactor facilities. The existing MC&A requirements for storage installations in § 72.72 include provisions that the facility's SNM records include item identification. These requirements are clarified and strengthened by consolidating the MC&A requirements for storage installations into 10 CFR part 74 and making these licensees subject to the revised requirements of § 74.19(d). While nuclear reactor facilities currently control fresh and irradiated fuel, as well as non-fuel SNM, the existing regulations do not require an item control system. In this final rule, § 74.19(d) requires that these reactor licensees establish and implement a formal system for item control. As discussed in the backfit evaluation that accompanies this final rule, requiring item control systems for tracking SNM at storage installations and nuclear reactors ensures the accounting and control of SNM at these facilities and thereby contributes to ensuring that licensees maintain adequate protection of public health and safety and is in accord with the common defense and security.

Licensed Category III fuel fabrication and uranium enrichment facilities are currently subject to item control requirements under §§ 74.31(c)(6) and 74.33(c)(6), respectively. Similarly, licensees of Category II facilities are subject to item control requirements under § 74.43(b)(6). These regulations include specific exemptions for certain types of items. In this final rule, the requirements are modified, in part, by

revising the exemption provisions for short-term items. The revision provides exemptions for items existing for less than 3 days, whereas the existing regulations exempted items existing less than 14 days. The existing exemptions for short-term items were implemented when most facilities did not have, as part of their MC&A programs, automated tracking systems and computer-based accounting systems to help track SNM items, and instead relied on hand-written ledgers. Today, licensees' electronic systems are able to track items soon after creation instead of waiting for ledgers to be updated. Given current system capabilities, these revisions strengthen the tracking of items that may contain relatively large quantities of SNM. This final rule includes exemptions for low-concentration solutions and waste destined for burial or incineration, as provided in the existing regulations, and includes a new exemption for laboratory samples and standards for Category III and II licensees.

The other notable change in item control requirements is a clarification in § 74.31(c)(6), such that the item control system for a Category III licensee (other than an enrichment facility) must be capable of detecting unauthorized removal of individual items or 500 grams or more of uranium-235 from one or more items. The existing requirement states that unauthorized removals of "substantial quantities" of material from items be detected. The revision removes the undefined term "substantial quantities" and provides the same threshold amount as in existing § 74.33(c)(6)(ii) for Category III enrichment facilities. This change provides a uniform threshold for all Category III licensees. The existing, more restrictive, threshold levels for Category II licensees are maintained in this final rule. As is the case for the GPO requirements, licensees authorized to possess 350 grams of SNM or less are not subject to item control requirements.

## **Tamper-safing Procedures**

The NRC has made changes to strengthen the MC&A requirements related to use of tamper-safing procedures for SNM. In the existing § 74.4, the term *tamper-safing* is defined as the use of devices on containers or vaults in a manner and at a time that ensures a clear indication of any violation of the integrity of previously made measurements of SNM within the container or vault. This definition is retained in this final rule.

Category I and II licensees are required to follow tamper-safing procedures in existing §§ 74.59(f)(2)(i) and 74.43(c)(3), respectively. In this final rule, the NRC has extended requirements to maintain and follow tamper-safing procedures to Category III licensees, by revising §§ 74.31(c)(9) and 74.33(c)(9). These new requirements do not prescribe the extent to which tamper-safing is to be implemented at a facility. If tamper-safing is used, Category III licensees are required to maintain and follow their tamper-safing procedures and appropriately manage unused seals and records. In this final rule, the NRC conformed the language in subparts C, D, and E of 10 CFR part 74 so that the tamper-safing requirements are similarly worded.

## **Material Balance Areas, Item Control Areas, and Material Custodians**

In this final rule, the NRC added definitions for MBAs and ICAs to § 74.4. The term *material balance area* is defined as a designated area in which the control of SNM is such that the quantity of material being moved into, out of, and within the MBA is an assigned value based on measurements of both the element content and the isotopic content. The term *item control area* is defined as a designated administrative area within the controlled access area, in which SNM is maintained in such a way that, at any time, a count of items and related material quantities can be obtained using the

accounting system. Control of items moving into, out of, and within an ICA is by the identity of an item and its assigned material quantity.

This final rule adds requirements that all licensees subject to subparts C, D, or E of 10 CFR part 74 must designate one or more MBAs, or a combination of one or more MBAs and one or more ICAs, at their facilities, and identify material custodians who are responsible for monitoring these areas. The requirements are set forth in §§ 74.31(c)(10), 74.33(c)(10), 74.43(c)(9), and 74.59(h)(5). These required areas form the basis for MC&A of all SNM within the facility's boundaries, and these new requirements are expected to enhance the capability of licensees to detect the unauthorized removal of SNM. In general, smaller accounting areas make control of SNM easier by reducing the size of the area in which detected losses of SNM can be attributed.

All existing licensees subject to subpart C or E (there are no operating facilities subject to subpart D) currently use MBAs and ICAs, and have designated material custodians assigned to them, as part of their NRC-approved MC&A plans. The new requirements in this final rule are not expected to result in significant operating changes for these licensees.

In this final rule, the NRC has made these MBA, ICA, and material custodian requirements applicable only to licensees subject to subparts C, D, or E. Licensees at other types of NRC-licensed facilities do not use complex processing operations involving large quantities of SNM in multiple forms and their operations do not involve routinely moving SNM through the facility. Although not required at these other types of NRC-licensed facilities, licensees may choose to utilize MBAs and/or ICAs as part of their MC&A programs.

The following questions and answers provide information to describe further this final rule.

*A. Who does this action affect?*

Each licensee authorized by the NRC under 10 CFR parts 50, 52, 60, 63, 70, and 72 to possess SNM in a quantity greater than 350 grams is affected by the revisions in this final rule. Licensees possessing 350 grams of SNM or less are generally unaffected, with the exception of the clarification of reporting requirements.

Agreement State licensees authorized to possess SNM are subject to the § 150.17 material status reporting requirements. This final rule provides minor plain language revisions to the reporting requirements, and conforms to the plain language revisions in the material status reporting requirements in § 74.13. These changes do not require any Agreement State action to update their regulations as this final rule is compatibility category “NRC.” No action is required by Agreement State licensees in response to this final rule, as there is no change in the substance of their reporting requirements.

In this final rule, the NRC also revised § 74.2, “Scope,” to clarify which licensees are within the scope of 10 CFR part 74. This clarification excludes facilities for land disposal of low-level radioactive waste that are licensed under 10 CFR part 61 or under Agreement State programs. Such facilities are not required to have a 10 CFR part 74 MC&A program and are excluded from the requirements of subparts C, D, and E of 10 CFR part 74.

*B. How are nuclear reactor facilities licensed under parts 50 and 52 affected by the rule changes?*

In this final rule, a nuclear reactor facility licensed under 10 CFR part 50 or 52 is subject to the item control requirement in subpart B of 10 CFR part 74. Nuclear reactors are not subject to the requirements under subparts C, D, and E of 10 CFR part 74. The term “nuclear reactor” in § 50.2, is used in this final rule for “an apparatus, other than an

atomic weapon, designed or used to sustain nuclear fission in a self-supporting chain reaction.” The requirements for nuclear reactors in this final rule for 10 CFR part 74 apply to non-power reactors as well as reactors for power production. The reporting requirements for nuclear reactor licensees in subpart B of 10 CFR part 74 remain unchanged.

*C. Why have the requirements been revised?*

The MC&A requirements are being revised to consolidate, update, clarify, and strengthen them. Many of the MC&A requirements were developed over 20 years ago and are being updated to include commonly used terms. This final rule consolidates the NRC’s MC&A regulations in 10 CFR part 74 to provide a single framework for controlling and accounting for all SNM under the NRC’s oversight. Other specific requirements for GPOs, item control systems and exemptions, tamper-safing procedures, and MBAs and ICAs have been strengthened for certain licensees to help provide reasonable assurance that licensees maintain adequate protection against loss, theft, diversion, or misuse of SNM.

*D. When do these actions become effective and fully implemented?*

This final rule is effective **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]** and full implementation is required by **[INSERT DATE 720 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

*E. How does the NRC use a graded approach for MC&A?*

The NRC’s graded approach for MC&A considers the quantity and form of material that a licensee possesses and the risk associated with the possible loss, theft,

diversion, or misuse of that material. In this graded approach, more rigorous and specific requirements apply to licensees possessing greater quantities of SNM, or types of SNM that are more attractive targets for theft, misuse, or diversion. This final rule refines the graded approach by applying uniform requirements within a given category of facility, while preserving the distinctions among the different categories. For example, in this final rule, all licensees that possess more than 350 grams of SNM are required to establish, maintain, and follow written MC&A procedures that are sufficient to enable the licensee to account for the SNM in its possession under the license. Such licensees are also required to implement and maintain an MC&A program that enables them to achieve the GPOs in § 74.3. Licensees possessing 350 grams of SNM or less, but at least one gram, do not need to meet the GPOs or have written MC&A procedures, but are subject to reporting and inventory requirements. By the same token, increasingly strict requirements apply to licensees in Categories III, II, and I, as defined by the type and quantity of SNM that they are authorized to possess. Category I licensees, authorized to possess formula quantities of strategic special nuclear material, are subject to the most stringent MC&A requirements.

*F. What are the changes to the general performance objectives?*

The existing GPOs are revised by consolidating the common provisions of the performance objectives in the existing §§ 74.31(a) and 74.33(a) (applicable to licensees of Category III facilities), 74.41(a) (applicable to licensees of Category II facilities), and 74.51(a) (applicable to licensees of Category I facilities) into a new § 74.3. In addition to being applicable to Category III, II, and I licensees, the § 74.3 GPOs now apply to nuclear reactor licensees, storage installations, and other non-fuel cycle licensees that are authorized to possess more than 350 grams of SNM, but are not Category III, II, or I licensees. The term “non-fuel cycle facility licensees” refers to those existing licensees

authorized to possess SNM under 10 CFR part 70, but are not subject to subpart H of 10 CFR part 70 or the requirements in subparts C, D, or E of 10 CFR part 74, as well as those facilities authorized to possess SNM under other parts of 10 CFR, such as nuclear reactors or storage installations. While all existing licensees subject to subparts C, D, or E are involved in fuel cycle activities, other types of facilities in the future (e.g., those that use SNM for production of isotopes for medical use) may also be subject to these subparts. The § 74.3 GPOs describe activities to deter, detect, or aid in responding to loss, theft, diversion, or misuse of SNM. The existing GPO provisions in §§ 74.31, 74.33, 74.41, and 74.51 are revised to refer to § 74.3, but GPOs that are unique to Category III uranium enrichment facilities and Category II and I facilities are retained in §§ 74.33, 74.41, and 74.51, respectively.

*G. How are sealed sources considered in the MC&A programs for different types of facilities?*

The MC&A program of any licensee authorized to possess more than 350 grams of SNM covers all SNM, regardless of whether that SNM is in sealed sources. The exclusions for sealed sources in the existing §§ 74.31 and 74.41 are relocated in this final rule to appendix A to 10 CFR part 74, Note 1, to clarify that sealed sources are not included in the material quantity calculations to determine the facility category. This revision does not change the existing requirements that exclude sealed sources from the material quantity calculations.

*H. Why have newly defined terms been added to § 74.4?*

Newly defined terms are added for certain terms that are commonly used by licensees in their internal procedures implementing their MC&A programs. These include such terms as *accounting*, *material custodian*, *material control and accounting*,

*material balance area*, and *item control area*. Other newly defined terms, such as *storage installation*, are added to clarify the applicability of the regulations to certain types of licensees. Defining these terms in the NRC's regulations clarifies the requirements and improves understanding of the regulations.

*I. Why has the term "effective kilograms of special nuclear material" been removed from 10 CFR part 74?*

Removal of this term allows quantities of SNM specified in 10 CFR part 74 to be expressed directly in gram units, which simplifies and clarifies the accounting requirements and provides consistency with the definitions of *formula quantity*, *special nuclear material of low strategic significance*, and *special nuclear material of moderate strategic significance*, which specify quantities in gram units. The reference to one effective kilogram in § 74.19(b) is replaced with a reference to a quantity of SNM greater than 350 grams in order to be consistent with the requirement in § 74.19(c) for the physical inventory provisions. References to one effective kilogram in the GPO provisions of §§ 74.31 and 74.33 are revised to reference gram units of material, and § 74.41 is revised to refer to kilograms of material. The new appendix A to 10 CFR part 74 also uses gram units. Removing the term is limited to the requirements in 10 CFR part 74 where it is not necessary for implementation of the MC&A requirements. The NRC specifically uses the effective kilogram term in 10 CFR parts 40, 70, 75, 76, and 110 to ensure consistency with the Agreement Between the United States of America and the International Atomic Energy Agency for the Application of Safeguards in the United States (referred to as the U.S./IAEA Safeguards Agreement), which uses "effective kilogram." This final rule does not affect the need to use the effective kilogram term in these portions of the regulations.

*J. Why has appendix A to 10 CFR part 74 been added?*

Appendix A to 10 CFR part 74 is added to clarify the definitions, quantities, and units of the various categories of SNM. Similar information is provided in appendix M to 10 CFR part 110 and is appended to 10 CFR part 74 as well for the convenience of licensees, the NRC staff, and members of the public. Appendix A to 10 CFR part 74 clarifies the elements, isotopic composition, and quantities of material that are used to classify Category I, Category II, and Category III. Notes are included to clarify that sealed sources are excluded from the quantity limits that are used to determine the category of a facility. An additional note is included to clarify that the requirements for spent nuclear fuel are reduced one category level (e.g., from Category I to Category II) during the period of time that the radiation exposure exceeds 1 gray (Gy) per hour (100 rad per hour) at 1 meter, unshielded. Formulas are included to calculate a quantity of material for Category I, Category II, or Category III.

*K. Why have references to the MC&A “system” been changed to the MC&A “program,” and why has “MC&A plan” replaced “Fundamental Nuclear Material Control (FNMC) plan?”*

Portions of the existing 10 CFR part 74 that refer to the MC&A “system” (e.g., §§ 74.31(c), 74.33(a), and 74.51(a)) are revised to instead refer to the MC&A “program.” The term “program” better describes the overarching, comprehensive set of methods that licensees use to control and track SNM, and using “program” avoids confusion with the required material measurement systems (e.g., §§ 74.31(c)(2), 74.33(c)(3), and 74.59(d)) that are part of the overall MC&A program. Similarly, existing references to the overall “system” capabilities are changed to “program” capabilities. The existing requirements referring to an item control program (e.g., §§ 74.31(c)(6), 74.33(c)(6), and 74.43(b)(5)) are revised to instead refer to the newly defined term “item control

system.”

The term “FNMC plan” is replaced with references to the more comprehensive term “MC&A plan.” The term “MC&A” includes the accounting aspects of the MC&A program and thus better reflects the general title of 10 CFR part 74 (“Material Control and Accounting of Special Nuclear Material”). The term “MC&A plan” is used in the regulations and guidance, but is not intended to be a term that licensees are required to use and, accordingly, licensees are not required to change the terms they use to refer to their existing plans.

*L. What has changed in the reporting requirements to the Nuclear Materials Management and Safeguards System (NMMSS), including those requirements that apply to storage installations licensed under 10 CFR part 72?*

Plain language revisions have been made to the requirements for reporting to NMMSS in order to add clarity. For example, numbered subsections are added to § 74.13(a) to make these reporting requirements easier to read and understand. The plain language revisions make no substantive changes to the existing requirements.

The NMMSS reporting requirements for storage installations have been consolidated into 10 CFR part 74, but the requirements themselves remain unchanged. Conforming changes have been made to 10 CFR parts 40, 60, and 63, but the reporting requirements for licensees under those parts remain unchanged.

*M. Why have requirements been added to designate MBAs, ICAs, and material custodians?*

The added requirements for use of MBAs, ICAs, and material custodians in §§ 74.31, 74.33, 74.45, and 74.59 provide consistency for the Category III, II, and I

licensees under 10 CFR part 74 subparts C, D, and E. In this final rule, licensees are required to designate one or more MBAs, or a combination of one or more MBAs and one or more ICAs, and assign custodial responsibilities for these areas to provide internal controls to deter or detect any diversion or misuse of SNM at the licensee's facility. Appropriate use of MBAs and ICAs can aid in resolving anomalies and help to determine if an actual loss, theft, diversion, or misuse of SNM has occurred.

*N. Why have calendar days been inserted into 10 CFR part 74?*

The references to due dates and reporting frequencies in 10 CFR part 74 are made more uniform by expressing most timeframes in calendar days, rather than in days or months. Using calendar days avoids uncertainty as to the required frequency of an activity. Examples of such uncertainty could include whether "30 days" refers to working days or calendar days, or whether a monthly task needs to be performed on the same day of consecutive months. The clarifications make 10 CFR part 74 internally consistent. Existing 10 CFR part 74 regulations referencing 3-month intervals are changed to "95 calendar days" and 6-month intervals are changed to "185 calendar days." This final rule retains the existing term "every 12 months" for the annual frequency of the physical inventory.

*O. Have the implementation guidance documents been updated?*

Yes. The following guidance documents for licensees subject to subpart C, D, or E of 10 CFR part 74 are revised and updated in conjunction with this final rule. The guidance documents are available as indicated in Section XIX of this document.

1. NUREG-1280, Revision 2, "Acceptable Standard Format and Content for the Material Control and Accounting (MC&A) Plan Required for Strategic Special Nuclear Material," applies to licensees subject to subpart E of 10 CFR part 74.

2. NUREG-2159, "Acceptable Standard Format and Content for the Material Control and Accounting (MC&A) Plan Required for Special Nuclear Material of Moderate Strategic Significance," applies to licensees subject to subpart D of 10 CFR part 74.

3. NUREG-1065, Revision 3, "Acceptable Standard Format and Content for the Material Control and Accounting (MC&A) Plan Required for Special Nuclear Material of Low Strategic Significance," applies to certain licensees subject to subpart C of 10 CFR part 74.

4. NUREG-2158 (formerly NUREG/CR-5734), "Acceptable Standard Format and Content for the Material Control and Accounting (MC&A) Plan Required for Low Enriched Uranium Enrichment Facilities," applies to certain licensees subject to subpart C of 10 CFR part 74.

5. NUREG/BR-0096, Revision 2, "Instructions and Guidance for Completing Physical Inventory Summary Reports," applies to licensees subject to subpart C, D, or E of 10 CFR part 74.

In addition, Revision 3 of RG 5.29, previously issued in draft form as DG-5057, has been developed and expanded as guidance for non-fuel cycle facilities. Revision 3 of RG 5.29, "Special Nuclear Material Control and Accounting System for Non-Fuel Cycle Facilities," describes an acceptable approach to meet the MC&A requirements in subpart B of 10 CFR part 74 at nuclear reactors and storage installations. The scope of Revision 3 of RG 5.29 is also expanded to cover the new requirements in subpart A of 10 CFR part 74 and to apply to all licensees not subject to subpart C, D, or E of 10 CFR part 74.

*P. Have there been changes in requirements for item controls or physical inventories?*

This final rule makes no changes in the physical inventory requirements. Several of the revisions in this final rule affect item control systems for different types of

licensees. Subpart B of 10 CFR part 74 is revised to include a new requirement in § 74.19(d) that nuclear reactors licensed under 10 CFR part 50 or 52 and storage installations licensed under 10 CFR part 72 must establish, document, implement, and maintain an item control system as defined in § 74.4.

This final rule also modifies the existing thresholds for detection of unauthorized removal of SNM from items and the specific exemptions from the item control systems given in subparts C and D of 10 CFR part 74. These changes provide greater consistency in the requirements for the licensees in a given category, while preserving the graded approach to MC&A among categories.

The reasons for the changes are explained more fully in the comment resolution document and the backfit evaluation that are summarized in Sections IV and VIII of this document, respectively, and are available as indicated in Section XIX of this document.

*Q. Why have exceptions been added to § 74.15(b)(2) for independent tests by a licensee receiving one gram or more of SNM from a foreign source?*

Two specific exceptions from performing independent tests have been added to § 74.15(b)(2). The exception for receipt of unirradiated fuel rods or unirradiated fuel assemblies is included to clarify the requirement for nuclear reactor licensees under 10 CFR part 50 or 52. Similarly, the requirement is clarified for a licensee under 10 CFR part 70 receiving SNM contained in a sealed source that will not be opened.

The NRC inspection program has indicated that licensees typically verify the contents of shipments from foreign sources by reviewing the shipping papers and completing a visual inspection of the material. The NRC recognizes that requiring independent testing (e.g., destructive analysis or sampling) adds little value for these types of shipments and is both potentially unsafe (e.g., if it degrades a fission product barrier) and impractical for determining the contents of unirradiated fuel rods,

unirradiated fuel assemblies, and sealed sources in such shipments.

*R. Are there cumulative effects of regulation associated with this rule?*

The term “cumulative effects of regulation” (CER) describes the challenges that licensees or other affected entities (such as Agreement States) face while developing and implementing new regulatory positions, programs, or requirements (e.g., rules, generic letters). These organizational effectiveness challenges result from a licensee or affected entity implementing a number of complex regulatory positions, programs, or requirements within a limited time period and available resources (which may include limited available expertise to address a specific issue). The challenges of CER can potentially distract staff of the affected licensee or entity from executing other primary duties that ensure safety or security.

The NRC specifically requested comments on implementation of this rulemaking. No specific comments about implementation were received; however, some commenters expressed concern about specific regulatory burdens from the proposed rule. The comment response document, available as indicated in Section XIX of this document, discusses the public comments related to the regulatory burden, backfitting, and regulatory analysis.

On August 28, 2018, the NRC held a public meeting with stakeholders about implementation. The purpose of the meeting was to obtain input from stakeholders on any current or potential challenges that would impact their ability to implement this final rule within 6 months after publication in the FR. Therefore, most of the discussion was on those rule changes that the meeting participants identified as potentially requiring the most effort to implement. These rule changes included GPOs, item control system and exemptions, procedures for tamper-safing, and designation of material balance areas. The meeting participants raised concerns about potential challenges to implementing the modified item control system and the modified exemptions within 6 months. These

challenges include the time needed to complete modifications to MC&A procedures and related processes. After consideration of the impacts discussed in the meeting, the staff concluded that more than 6 months would be needed by certain licensees to implement the changes. A small number of the affected licensees are required to have an NRC-approved MC&A plan. These licensees expressed that they may require a longer implementation period because they may choose to prepare revisions to their MC&A plans that would be submitted to the NRC for review and approval prior to implementation. For this reason, the staff concludes that an implementation period of 24 months (720 days) is reasonable to accommodate procedural actions by the licensees.

*S. How did the NRC, in its regulatory analysis, estimate the amount of time licensees would expend for one-time implementation and for annual operations?*

The NRC used data from subject matter experts, stakeholder comments, knowledge gained from past rulemakings, and information gained during public meetings and from correspondence to collect data used for the estimates used in the regulatory analysis. The NRC used reasonable labor hour estimates and Department of Labor rates for the cost per hour. The labor hour estimates were generally selected to avoid underestimating the hours for time and costs. The costs for individual licensees may vary depending on the complexity of the facility and the types of measures that are already in place. Licensees will only spend the amount of time necessary to implement the requirements and conduct the annual operations.

### **III. Opportunities for Public Participation**

On May 16, 2011, the NRC published in the FR the notice of availability of preliminary proposed rule language and requested the public to send written comments on the language to the NRC by June 30, 2011 (76 FR 28193). Thirteen comment submissions were received and considered during development of the proposed rule.

On November 8, 2013, the NRC published in the FR for public comment a proposed rule to amend its MC&A regulations (78 FR 67225). Two public meetings were held using a webinar and telephone conference format. The first meeting was held on January 9, 2014, and the second meeting was held on February 5, 2014. The due date for submitting written comments from the public was extended to March 10, 2014 (78 FR 79328). The NRC received 27 comment submissions about the proposed rule.

On September 25, 2014, the NRC held a public meeting to clarify the NRC staff's understanding of the public comments about the cost estimates for one-time implementation and for annual operations in the draft regulatory analysis.

On March 5, 2015, the NRC held a public meeting to share preliminary information showing the modified rule text that resulted from the NRC staff's consideration, at that time, of the public comments and the additional information obtained in the September 2014 public meeting on cost estimates. Comments from the public meeting were considered in the final regulatory analysis, as discussed in Section VII of this document.

On August 28, 2018, the NRC held a public meeting to seek input on potential cumulative effects of regulations and the implementation period for this final rule. The outcome of the meeting is discussed in Section II, Question R of this document. All of the public meeting summaries are available as indicated in Section XIX of this document.

#### **IV. Public Comment Analysis**

A 100-day comment period was originally provided in the notice of proposed rulemaking. The NRC received a request for an extension of the public comment period, granted that request, and on December 30, 2013, extended the comment period 20 days to March 10, 2014, to accommodate an additional public meeting (78 FR 79328).

The NRC received 27 comment submissions from 23 individual commenters during the comment period. Of the 27 submissions, 2 were from Agreement State organizations, 2 were from private citizens, and the others were from members of the nuclear industry representing 18 organizations. Eleven commenters specifically endorsed the comments submitted by the Nuclear Energy Institute on behalf of its members.

In the notice of proposed rulemaking, the NRC posed questions in nine topical areas. Four of these areas covered technical aspects of the proposed rule revisions: 1) GPOs; 2) item control system; 3) tamper-safing; and 4) MBAs and material custodians. The remaining five concerned programmatic areas: 5) alternatives resulting in equivalent outcome and less burden; 6) plain writing; 7) regulatory analysis; 8) paperwork reduction; and 9) regulatory flexibility and small entities impact. Some comments outside of these topical areas were also received, and they are discussed in two additional groups for other, and out-of-scope, comments.

Most of the detailed comments received addressed topics in the first four technical areas. For example, several commenters expressed concerns that meeting the GPOs would require extensive changes to existing MC&A programs, and that the GPOs were in some cases too restrictive. Commenters also spoke to the proposed removal of some thresholds and exemptions in the item control system requirements,

and their perception that requirements for tamper-safing and for MBAs and ICAs were too far-reaching.

In the NRC's responses to public comments, the NRC clarified that the GPOs represent fundamental principles of good practice that should be embodied in effective MC&A programs. Such principles are generally present in the current programs that have been reviewed by the NRC, or inspected by the NRC at existing facilities, and the NRC expects that only minor, if any, changes will be needed to existing programs to meet the GPOs in § 74.3.

In response to comments, the language in this final rule was revised to include threshold levels and specific exemptions for item control systems. The requirements for tamper-safing are limited to maintaining and following tamper-safing procedures and appropriately managing unused seals and records. The new requirements do not prescribe the extent to which tamper-safing is to be implemented at a facility. Changes also were made to this final rule to remove potentially prescriptive phrasing from the tamper-safing provisions. The requirements for MBAs and ICAs, and the designation of material custodians for those areas, are consistent with accepted practices at existing licensees. Only small changes, if any, will be needed in current programs to meet these requirements and clarifying revisions also were made to this final rule in response to comments.

Commenters also provided input on the related guidance documents for 10 CFR part 74, which also were released as drafts for comment (78 FR 67224, November 8, 2013; 80 FR 27709, May 14, 2015). These comments led to revisions that improved the clarity and utility of the guidance documents.

In addition, several commenters requested that a more complete regulatory analysis and a backfit analysis be prepared for this final rule. In response, the NRC revised the regulatory analysis and developed a backfit evaluation. The regulatory

analysis and the backfit evaluation for this final rule are discussed in Sections VII and VIII of this document, respectively.

The comment and response document, available as indicated in Section XIX of this document, contains responses to comments received on both the proposed rule and the associated draft regulatory guidance documents.

## **V. Discussion of Amendments by Section**

### *Section 40.64 Reports.*

This final rule, in paragraphs (b)(1) and (2), removes the reference to 10 CFR part 72 and also corrects an e-mail address. Paragraphs (b)(2) and (d)(3) are revised to remove the abbreviation and spell out “uranium-235.”

### *Section 60.78 Material control and accounting records and reports.*

This final rule removes the reference to §§ 72.76 and 72.78.

### *Section 63.78 Material control and accounting records and reports.*

This final rule removes the reference to §§ 72.76 and 72.78.

### *Section 70.32 Conditions of licenses.*

This final rule replaces the reference to § 74.51(c) with § 74.51(b) and makes other editorial changes.

### *Section 72.9 Information collection requirements: OMB approval*

This final rule removes §§ 72.76 and 72.78 from the list of approved information collections.

*Section 72.72 Material balance, inventory, and records requirements for stored materials.*

This final rule retitles the section to read “Material control and accounting requirements for source material and special nuclear material.” Paragraph (a) is revised to only reference requirements for source material, and to reference §§ 40.61 and 40.64 in this regard. It also removes duplicate requirements from paragraphs (a), (b), (c), and (d). This final rule also adds new paragraph (b) which refers to MC&A requirements for SNM in 10 CFR part 74.

*Section 72.74 Reports of accidental criticality or loss of special nuclear material.*

This final rule retitles the section to read “Reports of accidental criticality.” In paragraph (a), the requirement that any loss of SNM be reported within one hour of discovery is removed. Paragraph (b) is revised to state that required one-hour notifications to the NRC Headquarters Operations Center may be made via any available telephone system. The outdated reference to the Emergency Notification System is removed from this paragraph.

*Section 72.76 Material status reports.*

This final rule removes and reserves § 72.76.

*Section 72.78 Nuclear material transaction reports.*

This final rule removes and reserves § 72.78.

*Section 74.2 Scope.*

This final rule revises paragraph (a) to specify that the general reporting and recordkeeping requirements in subpart B of 10 CFR part 74 apply to each person

licensed under 10 CFR parts 50, 52, 60, 63, 70, and 72 who possesses special nuclear material in a quantity of one gram or more of contained uranium-235, uranium-233, or plutonium; or who transfers or receives a quantity of one gram or more of contained uranium-235, uranium-233, or plutonium. The exemption for those licensees whose MC&A reporting and recordkeeping requirements are covered by §§ 72.72, 72.76, and 72.78 from the requirements of subpart B of 10 CFR part 74, is removed.

*Section 74.3 General performance objectives.*

This final rule adds § 74.3 to require a licensee authorized by the NRC to possess SNM in a quantity greater than 350 grams to implement and maintain an MC&A program that achieves the GPOs listed in paragraphs (a) through (e) of this section.

*Section 74.4 Definitions.*

This section is revised to remove the definition, *Effective kilograms of special nuclear material*, which is a unit of measurement that is no longer referenced in the subpart. This section is revised to add, in alphabetical order, definitions for the following terms: *Accounting, Item control area, Item control system, Material balance area, Material control and accounting, Material custodian, and Storage installation*. The definitions of the following terms are revised to conform with the definitions of these terms in 10 CFR parts 70 and 73, and to refer to appendix A to part 74: *Formula quantity, Special nuclear material of low strategic significance, and Special nuclear material of moderate strategic significance*. The definition of storage installation is added to mean an ISFSI or monitored retrievable storage installation for spent fuel and radioactive waste, as defined under part 72 of this chapter. Previously, this rulemaking referred to ISFSIs under 10 CFR part 72 without acknowledging that monitored

retrievable storage installations are also licensed under 10 CFR part 72. The definition provides language to refer to both types of installations licensed under 10 CFR part 72.

*Section 74.11 Reports of loss or theft or attempted theft or unauthorized production of special nuclear material.*

This final rule revises paragraph (b) to state that required licensee notifications must be made to the NRC Headquarters Operations Center via any available telephone system within 1 hour of the event, and removes an outdated reference to the Emergency Notification System.

*Section 74.13 Material status reports.*

This final rule makes plain language revisions to paragraphs (a) and (b). It also revises paragraph (a) to include seven numbered requirements, which specify deadlines by which various sets of licensees are required to submit their material balance reports and physical inventory listing reports. This final rule redesignates existing paragraph (b) as paragraph (d). Editorial changes are made throughout this section to correct the given e-mail address to [RidsNmssFcse.Resource@nrc.gov](mailto:RidsNmssFcse.Resource@nrc.gov).

This final rule adds new paragraphs (b), (c), and (e), which were created from portions of the existing paragraph (a). Paragraph (b) contains the reporting instructions and references to the reporting forms (NUREG/BR-0007, "Instructions for the Preparation and Distribution of Material Status Reports, Final Draft (DOE [U.S. Department of Energy]/NRC Forms 742 and 742C)," and NMMSS Report D-24, "Personal Computer Data Input for NRC Licensees"). Paragraph (c) contains the provision that reports may be submitted at other times for good cause with prior NRC approval. Paragraph (e) contains the requirement to resolve any discrepancies identified during the report review.

*Section 74.15 Nuclear material transaction reports.*

This final rule revises paragraph (b)(2) by adding an exception that independent testing is not required for receipt of unirradiated fuel rods, unirradiated fuel assemblies, or sealed sources containing SNM that will not be opened.

*Section 74.19 Recordkeeping.*

This final rule revises the section title to read “Recordkeeping, procedures, item controls, and physical inventories.” Paragraph (b) is revised to replace the phrase “exceeding one effective kilogram” with the phrase “a quantity greater than 350 grams of contained uranium-235, uranium-233, or plutonium, or any combination thereof.” This final rule redesignates paragraph (d) as paragraph (e) and adds a new paragraph (d) to require nuclear reactor facilities licensed under 10 CFR parts 50 or 52 and storage installations licensed under 10 CFR part 72 to establish, document, implement, and maintain an item control system.

*Section 74.31 Nuclear material control and accounting for special nuclear material of low strategic significance.*

In § 74.31, this final rule removes the performance objectives applicable to Category III licensees from paragraph (a) that this final rule sets forth in § 74.3, and incorporates the introductory text of existing paragraph (a) into paragraph (a)(1). Paragraph (a)(2) retains elements of the exemptions in existing paragraph (a) that were applicable to nuclear reactor licensees and licensee operations involving waste disposal. Paragraph (a)(2) also adds the exemption for storage installations, thereby making it consistent with the exemption in existing § 74.31(a).

Paragraph (b) replaces the reference to an FNMC plan with a reference to an MC&A plan. The plan describes a licensee's program to achieve the GPOs in § 74.3 and meet the program capability requirements set forth in final § 74.31(c).

The introductory language of paragraph (c) is revised to state that the MC&A program must include the capabilities described in paragraphs (c)(1) through (10). Paragraph (c) is retitled and other editorial changes are made. Paragraph (c)(4) is clarified to state the standard error as the standard error of the inventory difference (SEID). The paragraph (c)(5) physical inventory timing requirements are clarified by changing "60 days" to "60 calendar days," and grammatical errors in the existing text are corrected. Paragraph (c)(6) is revised by referencing the item control system defined in § 74.4, by removing the 14-day provision and requiring the detection of "unauthorized removals of individual items or 500 grams or more of uranium-235 from one or more items." In this final rule, the existing exemption in paragraph (c)(6) for items individually containing up to 500 grams of uranium-235 is revised to exempt items that both exist less than 3 calendar days and contain less than 100 grams of uranium-235. The existing exemptions for low-concentration solutions and items of waste are retained, and an additional exemption is added for laboratory samples and reference standards. Paragraph (c)(7) is revised to clarify the requirements for conducting and documenting shipper-receiver difference comparisons. Paragraph (c)(8) is revised to abbreviate "material control and accounting" and replace the word "system" with the word "program." Paragraphs (c)(9) and (10) require that the MC&A program include, respectively, tamper-safing procedures and the designation of MBAs, ICAs, and custodial responsibilities.

*Section 74.33 Nuclear material control and accounting for uranium enrichment facilities authorized to produce special nuclear material of low strategic significance.*

In § 74.33, this final rule removes the performance objectives applicable to Category III uranium enrichment facilities from paragraph (a) that this final rule sets forth in § 74.3, revises paragraphs (a)(1) through (4) to reference only source material, and revises the remaining performance objective in paragraph (a)(5) regarding unauthorized production of enriched uranium. Paragraph (b) is retitled and revised by replacing the reference to an FNMC plan with a reference to an MC&A plan. Paragraph (c) is retitled, and the introductory language is revised to require the MC&A program to include the capabilities described in paragraphs (c)(1) through (10). Paragraph (c)(3) is revised to define the acronym SEID as “standard error of the inventory difference” and spell out “U” as uranium. Paragraph (c)(4) is revised to clarify that the days referenced are calendar days. Paragraph (c)(5) is revised by adding “resolving” before subparagraph (c)(5)(i). Paragraph (c)(6) is revised to reference the item control system defined in § 74.4 and now includes four exemptions that are internally consistent with the requirements in §§ 74.31(c)(6) and 74.43(b)(6). Paragraph (c)(7) is revised to clarify the requirements for conducting and documenting shipper-receiver difference comparisons. Paragraph (c)(8) is revised to replace the word “system” with the word “program” to describe MC&A. Paragraphs (c)(9) and (10) are added to require that the MC&A program include, respectively, tamper-safing procedures and the designation of MBAs, ICAs, and material custodians responsible for these areas. Paragraph (d)(1) is revised to replace the word “system” with the word “program” and to make other editorial changes.

*Section 74.41 Nuclear material control and accounting for special nuclear material of moderate strategic significance.*

In § 74.41, this final rule removes the performance objectives applicable to Category II licensees from paragraph (a) that this final rule sets forth in § 74.3 and incorporates the introductory text of existing paragraph (a) into paragraph (a)(1).

Paragraph (b) is retitled, and this final rule replaces the reference to an FNMC plan with a reference to an MC&A plan and consolidates existing paragraphs (b)(1) and (2) into a single paragraph. Paragraph (c) is retitled, and this final rule replaces the phrase “MC&A system” with the phrase “MC&A program,” and requires that the program include the capabilities described in §§ 74.43 and 74.45, and incorporate checks and balances that are sufficient to detect falsification of data and reports that could conceal diversion of SNM.

*Section 74.43 Internal controls, inventory, and records.*

In § 74.43, this final rule revises paragraphs (b)(3), (4), and (8) to make editorial changes. Paragraph (b)(5) is revised to remove the subparagraphs and make other editorial changes. Paragraph (b)(6) is revised to add two new exemptions from paragraph (b)(5); the new subparagraphs (b)(6)(ii) and (iii) are added, respectively, for items of uranium-235 in laboratory samples and reference standards containing less than 20 percent in the uranium-235 isotope, and for items that both exist less than 3 calendar days and contain less than 75 grams of plutonium or uranium-233 or 100 grams of uranium-235. Paragraph (b)(7) replaces the phrase “shipper-receiver comparisons” with the phrase “shipper-receiver difference comparisons.”

Paragraph (c)(3) is revised by removing the phrases “of containers or vaults containing SNM,” “for assuring the validity of prior measurements,” and “showing the date and time of seal application,” and rephrasing the remaining text. New paragraph (c)(9) is added to provide requirements that the MC&A program capabilities must include the designation of MBAs, ICAs, and material custodians for these areas.

Paragraph (d)(5) is revised to add the reference to the GPOs in § 74.3, remove the reference to § 74.41(a)(2) through (4), and replace the word “system” with the word “program.”

*Section 74.45 Measurements and measurement control.*

In § 74.45, this final rule revises paragraph (c)(4) to define the acronym SEID as “standard error of the inventory difference” and replace the word “system” with the word “program.”

*Section 74.51 Nuclear material control and accounting for strategic special nuclear material.*

In § 74.51, this final rule removes the performance objectives applicable to Category I licensees from paragraph (a) that this final rule sets forth in § 74.3, incorporates the introductory text of existing paragraph (a) into paragraph (a)(1), and consolidates existing paragraphs (a)(1) through (5) into paragraphs (a)(1)(i) through (iii). Paragraph (a)(2) retains elements of the exemptions in existing paragraph (a) that were applicable to nuclear reactor facilities licensed under 10 CFR part 50 or 52, storage installations licensed under 10 CFR part 72, and any licensee operations involving waste disposal, but removed the exemption for an irradiated fuel reprocessing plant.

Paragraph (b) is retitled and revised to contain elements of existing paragraph (c) and to make editorial changes, including replacing the phrase “FNMC plan” with the phrase “MC&A plan.” Paragraph (c) is retitled and revised to contain elements of existing paragraph (b). In addition to the MC&A plan requirements discussed in existing paragraph (b), in this final rule, paragraph (c) requires that the program incorporate checks and balances that are sufficient to detect falsification of data and reports that could conceal diversion of SNM or SSNM. Paragraph (d) is revised to express the schedule of physical inventories from bimonthly intervals to calendar days instead and to make editorial changes, including replacing the phrase “FNMC plan” with the phrase “MC&A plan.”

*Section 74.53 Process monitoring.*

In § 74.53, this final rule revises paragraph (a)(3) to replace “a consecutive three-month period” with “a period of 95 calendar days.” Paragraph (a)(4) is revised to replace “any seven-consecutive-day period” with “a period of 7 calendar days.” Paragraph (c)(1) is revised to replace “monthly” with “at intervals not to exceed 30 calendar days” and to make editorial changes.

*Section 74.57 Alarm resolution.*

In § 74.57, this final rule revises paragraph (c) to replace the phrase “fundamental nuclear material control plan” with the phrase “MC&A plan” and to state that notifications to the NRC Headquarters Operations Center may be made via any available telephone system. Paragraph (d)(3) is revised to replace the word “system” with the word “program.”

*Section 74.59 Quality assurance and accounting requirements.*

In § 74.59, this final rule revises paragraph (b)(2) to replace the acronym “FNMC” with the acronym “MC&A” and to replace the word “system” with the word “program.” Paragraph (c) is revised to replace the word “system” with the word “program.” Paragraph (e)(7) is revised to replace the phrase “a six-month period” with the phrase “a period not more than 185 calendar days.” Paragraph (f)(1) is revised to replace the phrase “every six calendar months” to the phrase “every 185 calendar days,” and “45 days” is clarified to specify “45 calendar days.” Paragraph (f)(2)(i) is revised by adding at its end the phrase “and that include control of access to, and distribution of, unused seals and records.” Paragraph (h)(2)(ii) is revised to replace the phrase “six months” with the phrase “185 calendar days.” Paragraphs (h)(3) and (4) are revised

to replace the word “system” with the word “program.” Paragraph (h)(5) is revised by adding a requirement to designate MBAs and ICAs.

*Appendix A to 10 CFR part 74 -- Categories of Special Nuclear Material.*

In this final rule, appendix A to 10 CFR part 74 is added and provides a table stating the material, form, and quantities of material within Category I, Category II, and Category III. Notes are included to: 1) state that sealed sources are excluded from the quantity limits in the table; 2) provide the formulae to calculate a quantity of SSNM for Category I, Category II, or Category III; and 3) explain that requirements for irradiated fuel are reduced one category level (e.g., from Category I to Category II) during the period of time that the radiation level from the fuel exceeds 1 Gy per hour (100 rad per hour) at 1 meter, unshielded.

*Section 150.17 Submission to Commission of nuclear material status reports.*

In § 150.17, this final rule revises paragraph (a) to clarify the requirements and designate numbered paragraphs (a)(1) through (4), to update contact information, and to make other editorial changes. The revised introductory paragraph clarifies the requirement to submit both a Material Balance Report and a Physical Inventory Listing Report to NMMSS in accordance with the instructions in paragraph (a)(1). Revised paragraph (a) also requires that both reports be submitted between January 1 and March 31 of each year.

Paragraph (a)(1) includes the reporting instructions in existing paragraph (a), and the instructions state that individual reports must be prepared and submitted for each Reporting Identification Symbol account using the information in NUREG/BR-0007 and NMMSS Report D-24, “Personal Computer Data Input for NRC Licensees.”

Paragraph (a)(2) includes the provision in existing paragraph (a) stating that the NRC may permit reports to be submitted at other times for good cause. Paragraph (a)(3) includes the statement in existing paragraph (b) regarding the submittal of reports under § 75.35 (pertaining to implementation of the U.S./IAEA Safeguards Agreement).

Paragraph (a)(4) includes the requirement in existing paragraph (a) that a licensee must resolve any discrepancies identified during the report review and reconciliation process within 30 calendar days of being notified of a discrepancy identified by the NRC.

Paragraphs (b)(1) and (b)(2) are revised to remove the references to 10 CFR part 72 and other editorial changes.

## **VI. Regulatory Flexibility Certification**

Under the Regulatory Flexibility Act (5 U.S.C. 605(b)), the NRC certifies that this rule will not, if promulgated, have a significant economic impact on a substantial number of small entities. The majority of companies that own these facilities and installations do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the size standards established by the NRC (§ 2.810).

The NRC requested public comment on the proposed rule and accompanying regulatory analysis to understand the impact of the proposed rule on small entities. The NRC received no comment submissions from a small entity.

## **VII. Regulatory Analysis**

The NRC has prepared a final regulatory analysis on this final rule. The analysis examines the costs and benefits of the alternatives considered by the NRC. This final

rule will result in an average one-time cost per licensee of approximately \$28,000 followed by an average annual cost per licensee of approximately \$2,700. This final rule will result in a total one-time cost to the entire industry of approximately \$3.6 million followed by total annual costs of approximately \$348,000. The analysis estimates the total present value of these costs over the 25-year analysis period to be between \$9.6 million and \$7.6 million at the 3-percent and the 7-percent discount rate, respectively. There are no expected future costs related to NRC activities separate from the annual costs. The regulatory analysis is available as indicated in Section XIX of this document.

### **VIII. Backfitting and Issue Finality**

This final rule affects reactor facilities licensed under 10 CFR part 50 or part 52, all materials licensees authorized to possess SNM under 10 CFR part 70, and storage installations licensed under 10 CFR part 72. In accordance with Commission direction, the objective of this rulemaking is to revise and consolidate the MC&A requirements in order to update, clarify, and strengthen them. The proposed rule addressed MC&A programs, including administrative procedures and operations to track and control SNM and related information to deter and detect any loss, theft, diversion, misuse, or unauthorized production of nuclear material. For the proposed rule, the NRC found that the backfitting provisions in §§ 50.109, 70.76, 72.62, and the issue finality provisions in 10 CFR part 52, did not apply because MC&A provisions constitute information collection and reporting requirements that are not subject to the NRC's backfitting and issue finality regulations. As stated in the proposed rule, this position was reflected in past MC&A rulemakings as well (e.g., 56 FR 55991; October 31, 1991, 67 FR 78130; December 23, 2002, and 73 FR 32453; June 9, 2008).

During the public comment period, the NRC staff held two public meetings on the proposed rule. The NRC also received numerous substantive comments, including comments that disagreed with the proposed rule's backfitting discussion. These commenters instead requested that the NRC conduct a full backfitting analysis for this final rule. While a backfit analysis meeting the criteria of § 50.109(c) is not required, the NRC staff developed a thorough backfit evaluation for this final rule. Additionally, the NRC staff has revised its backfitting and issue finality discussions in this final rule. The NRC staff's discussion further evaluates this final rule with respect to backfitting on entities subject to backfitting provisions.

As documented in the backfit evaluation for this final rule, the NRC staff determined that many of the provisions in this final rule do not constitute backfitting on entities subject to backfitting provisions because they do not affect any existing licensed entities or they fall into one or more of the following categories: administrative matters, information collection and reporting requirements, clarifications of existing requirements, or permissive relaxations or alternatives to existing requirements. Additionally, the NRC staff identified certain provisions in this final rule that, while they constitute backfitting for entities subject to backfitting provisions, are necessary to ensure adequate protection of the health and safety of the public and are in accord with the common defense and security. The provisions in this final rule that constitute backfitting are as follows: 1) a new provision requiring an item control system that is applicable to nuclear reactor facilities licensed under 10 CFR part 50 or part 52 and to storage installations licensed under 10 CFR part 72; 2) revised provisions regarding item control of SNM at Category III facilities; 3) new provisions regarding the use of tamper-safing procedures at Category III facilities; and 4) new provisions for designating MBAs, ICAs, and material custodians having responsibility for the SNM possessed under license at Category I and III facilities. As discussed in the documented evaluation, these new or revised

provisions are necessary extensions and clarifications of existing requirements for the control and accounting of nuclear material at licensed facilities. These provisions clarify and enhance the existing MC&A regulations and promote an effective MC&A program, ensuring that nuclear materials are properly accounted for and controlled at licensed facilities. By ensuring the accounting and control of nuclear materials, these regulatory revisions are necessary to ensure that the affected facilities provide adequate protection of public health and safety and are in accord with the common defense and security.

The backfit evaluation is available as indicated in Section XIX of this document.

## **IX. Cumulative Effects of Regulation**

One commenter (Nuclear Energy Institute) included statements on “enhancements to rulemaking process to address cumulative effects of regulation” (CER). The commenter’s concerns in this area involved the need for a regulatory basis for the proposed rule. The resolution of this comment is included in the comment and response document, available as indicated in Section XIX of this document.

As discussed in Question R in Section II, CER can include organizational effectiveness challenges that result from a licensee or affected entity implementing a number of complex regulatory positions, programs, or requirements within a limited implementation period and with available resources. The challenges of CER can potentially distract staff of the affected licensee or entity from executing other primary duties that ensure safety or security.

The NRC specifically requested comments on implementation of this rulemaking but received no specific comments in this area. The NRC also engaged the public specifically on CER in a public meeting on August 28, 2018. A summary of the meeting is provided in Section III.

## **X. Plain Writing**

The Plain Writing Act of 2010 (Pub. L. 111-274) requires Federal agencies to write documents in a clear, concise, and well-organized manner. The NRC has written this document to be consistent with the Plain Writing Act as well as the Presidential Memorandum, "Plain Language in Government Writing," published June 10, 1998 (63 FR 31883).

## **XI. Environmental Assessment and Final Finding of No Significant Impact**

The NRC has determined under the National Environmental Policy Act and the NRC's regulations in subpart A of 10 CFR part 51, that this final rule, if adopted, would not have any significant environmental impacts. Therefore, this action does not warrant the preparation of an environmental impact statement. The amendments in this rulemaking pertain to certain MC&A programmatic activities relating to safeguards or security, in addition to information collection and reporting requirements, and adopting them would have no significant impact on the quality of the human environment.

The NRC requested the views of the States on the environmental assessment for this rule. No comment on the environmental assessment was received from the States.

The determination of this environmental assessment is that there will be no significant offsite impact to the public from this action. The environmental assessment is available as indicated in Section XIX of this document.

## **XII. Paperwork Reduction Act**

This final rule contains amended collections of information subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501-3521). The collections of information were approved by the Office of Management and Budget, approval number 3150-0123.

The burden to the public for the information collection(s) is estimated to average 428 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection.

The information collection is being conducted to track nuclear material transactions, balances, and physical inventories. The NRC regulations require licensees who ship, receive, or adjust their physical inventory of SNM to document and report such activities. The reports are submitted using DOE/NRC Form 741. Licensees may need to provide additional information on imports or exports of SNM. The NRC regulations require each licensee who is authorized to possess SNM to prepare and submit, in computer-readable format, reports concerning SNM received, produced, possessed, transferred, consumed, disposed of, or lost. The reports are submitted using NRC Forms 742 and 742C. Responses to this collection of information are required under §§ 74.13, 74.15, and 74.17 to validate the information at each facility. Confidential and proprietary information submitted to the NRC is protected in accordance with NRC regulations at § 9.17(a) and § 2.390(b).

You may submit comments on any aspect of the information collections, including suggestions for reducing the burden, by the following methods:

- **Federal rulemaking Web site:** Go to <http://www.regulations.gov> and search for Docket ID NRC-2009-0096.
- **Mail comments to:** Information Services Branch, Office of the Chief Information Officer, Mail Stop: T-2F43, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or to: OMB Office of Information and Regulatory Affairs

(3150-0123), Attn: Desk Officer for the U.S. Nuclear Regulatory Commission,  
725 17<sup>th</sup> Street, NW, Washington, DC 20503; e-mail: [oir\\_submission@omb.eop.gov](mailto:oir_submission@omb.eop.gov).

### **Public Protection Notification**

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid OMB control number.

### **XIII. Congressional Review Act**

This final rule is a rule as defined in the Congressional Review Act (5 U.S.C. 801-808). However, the Office of Management and Budget has not found it to be a major rule as defined in the Congressional Review Act.

### **XIV. Criminal Penalties**

For the purposes of Section 223 of the Atomic Energy Act of 1954, as amended (AEA), the NRC is issuing this final rule that amends 10 CFR parts 40, 60, 63, 70, 72, 74, and 150 under one or more of Sections 161b, 161i, or 161o of the AEA. Willful violations of this final rule are subject to criminal enforcement.

### **XV. Coordination with NRC Agreement States**

On November 20, 2013, the NRC issued a letter, FSME-13-119, to notify all Agreement State Radiation Control Program Directors of the opportunity to comment on the proposed rule to amend the regulations for MC&A of SNM.

Agreement State licensees are authorized to possess SNM in quantities of 350 grams or less. In §§ 150.16 and 150.17 these licensees are subject to requirements for reporting to the NRC that are similar to the reporting requirements for an NRC licensee in §§ 74.11, 74.13, and 74.15, which are applicable to licensees authorized to possess one gram or more of SNM. The changes to § 150.17 are plain language revisions and conform to the plain language revisions to material status reporting requirements in § 74.13. The changes do not require any action by the Agreement State licensees.

Letter FSME-13-119 indicated that, in the notice of proposed rulemaking, the NRC sought specific input whether the regulatory threshold should be higher or lower than 350 grams. A letter dated March 6, 2014, from the Organization of Agreement States Executive Board (Board) replied to letter FSME-13-119 and stated:

The Board believes that the 350 gram regulatory threshold is appropriate and should not be lowered. The current regulatory structure for these levels of special nuclear material is protective. Any decision to lower the regulatory threshold would have to be based on technical analysis that demonstrates the need for such change. The Board is unaware of such a technical analysis.

The NRC agrees with the comment. No other comment submissions were received in response to letter FSME-13-119. The NRC retained the threshold as 350 grams of SNM.

## **XVI. Compatibility of Agreement State Regulations**

Under the Commission's Agreement State Program Policy Statement, effective on October 6, 2017 (82 FR 48535; October 18, 2017), this rule is classified as compatibility "NRC." Compatibility is not required for Category "NRC" regulations. The NRC program elements in this category are those that relate directly to areas of regulation reserved to the NRC by the AEA or the regulations of 10 CFR and, although an Agreement State may not adopt program elements reserved to the NRC, it may wish to inform its licensees of certain requirements via a mechanism that is consistent with a particular State's administrative procedure laws, but does not confer regulatory authority on the State.

#### **XVII. Voluntary Consensus Standards**

The National Technology Transfer and Advancement Act of 1995 (Pub. L. 104-113) requires that Federal agencies use technical standards that are developed or adopted by voluntary consensus standards bodies unless the use of such a standard is inconsistent with applicable law or otherwise impractical. In this final rule, the NRC revised and consolidated requirements for MC&A in 10 CFR part 74. This action does not constitute the establishment of a standard that contains generally applicable requirements.

#### **XVIII. Availability of Guidance**

The NRC is issuing new and revised guidance for the implementation of the requirements in this final rule. The documents will be available at <http://www.regulations.gov> by searching on Docket ID NRC-2013-0195, and as indicated in Section XIX of this document.

## XIX. Availability of Documents

The documents identified in the following table are available to interested persons through one or more of the following methods, as indicated.

DOCUMENT	ADAMS ACCESSION NO. / WEB LINK / FEDERAL REGISTER CITATION
SRM-SECY-18-0xxx, "Staff Requirements – SECY-18-00xx – Draft Final Rule: Amendments To Material Control and Accounting Regulations (RIN 3150-AI61; NRC-2009-0096), Month Day, Year	ADAMS Accession No. MLxxxxxxxxxx
SECY-18-0xxx, "Draft Final Rule: Amendments To Material Control and Accounting Regulations (RIN 3150-AI61; NRC-2009-0096)," Month Day, Year	ADAMS Accession No. ML18061A056
Backfit Evaluation for Final Rule: Amendments to Material Control and Accounting Regulations (10 CFR Part 74)	ADAMS Accession No. ML18061A058
Final Environmental Assessment and Finding of No Significant Impact for the Final Rule Amending 10 CFR Parts 40, 60, 63, 70, 72, 74, and 150, Amendments To Material Control And Accounting Regulations	ADAMS Accession No. ML18061A048
Regulatory Analysis for Final Rule: Amendments to Material Control and Accounting Regulations (10 CFR Part 74)	ADAMS Accession No. ML18061A055
U.S. Nuclear Regulatory Commission Staff Responses to Public Comments on Proposed Rule, "Amendments to Material Control and Accounting Regulations," and Associated Draft Guidance	ADAMS Accession No. ML18061A050
Amendments to Material Control and Accounting Regulations ACTION: Availability of preliminary proposed rule language	76 FR 28193; May 16, 2011
Proposed Guidance for Fuel Cycle Facility; Material Control and Accounting Plans and Completing NRC Form 327	78 FR 67224, November 8, 2013
Selection of Material Balance Areas and Item Control Areas; Draft Regulatory Guide for Comment	80 FR 27709, May 14, 2015

NUREG-1280, Revision 2, "Acceptable Standard Format and Content for the Material Control and Accounting (MC&A) Plan Required for Strategic Special Nuclear Material"	ADAMS Accession No. ML18234A097
NUREG-2159, "Acceptable Standard Format and Content for the Material Control and Accounting (MC&A) Plan Required for Special Nuclear Material of Moderate Strategic Significance"	ADAMS Accession No. ML18236A394
NUREG-1065, Revision 3, "Acceptable Standard Format and Content for the Material Control and Accounting (MC&A) Plan Required for Special Nuclear Material of Low Strategic Significance"	ADAMS Accession No. ML18233A375
NUREG-2158 (formerly NUREG/CR-5734), "Acceptable Standard Format and Content for the Material Control and Accounting (MC&A) Plan Required for Low Enriched Uranium Enrichment Facilities"	ADAMS Accession No. ML18234A098
NUREG/BR-0096, Revision 2, "Instructions and Guidance for Completing Physical Inventory Summary Reports"	ADAMS Accession No. ML18235A240
RG 5.29, Revision 3, "Special Nuclear Material Control and Accounting System for Non-Fuel Cycle Facilities,"	ADAMS Accession No. ML18234A096
RG 5.29, Revision 2, "Special Nuclear Material Control and Accounting Systems for Nuclear Power Plants," dated June 2013	ADAMS Accession No. ML13051A421
SECY-08-0059, "Rulemaking Plan: Part 74 - Material Control and Accounting of Special Nuclear Material," dated April 25, 2008	ADAMS Accession No. ML080580307
SRM-SECY-08-0059, "Staff Requirements – SECY-08-0059 – Rulemaking Plan: Part 74 - Material Control and Accounting of Special Nuclear Material," dated February 5, 2009	ADAMS Accession No. ML090360473
SRM-COMSECY-12-0026, "Staff Requirements – COMSECY-12-0026 – Revisions to Proposed Rule: Amendments to Material Control and Accounting Regulations (RIN 3150-A161)," dated May 10, 2013	ADAMS Accession No. ML13130A077
Notice of rescheduled public meeting and extension of comment period	78 FR 79328; December 30, 2013
NUREG/BR-0007, Revision 7, "Instructions for the Preparation and Distribution of Material Status Reports, Final Draft (DOE/NRC Forms 742 and 742C)"	ADAMS Accession No. ML17026A076
SECY-09-0082, "Update on Reprocessing Regulatory Framework – Summary of Gap Analysis," dated May 28, 2009	ADAMS Accession No. ML091520280

Summary of the Public Meeting on January 9, 2014	ADAMS Accession No. ML14031A355
Summary of the Public Meeting on February 5, 2014	ADAMS Accession No. ML14041A032
Summary of the Public Meeting on September 25, 2014	ADAMS Accession No. ML14297A382
Summary of the Public Meeting on August 28, 2018	ADAMS Accession No. ML18242A060
Agreement State Program Policy Statement, effective on October 6, 2017	82 FR 48535; October 18, 2017

### **List of Subjects**

#### **10 CFR Part 40**

Criminal penalties, Exports, Government contracts, Hazardous materials transportation, Hazardous waste, Nuclear energy, Nuclear materials, Penalties, Reporting and recordkeeping requirements, Source material, Uranium, Whistleblowing.

#### **10 CFR Part 60**

Criminal penalties, Hazardous waste, Indians, High-level waste, Intergovernmental relations, Nuclear energy, Nuclear materials, Nuclear power plants and reactors, Penalties, Radiation protection, Reporting and recordkeeping requirements, Waste treatment and disposal, Whistleblowing.

#### **10 CFR Part 63**

Criminal penalties, Hazardous waste, High-level waste, Indians, Intergovernmental relations, Nuclear energy, Nuclear power plants and reactors, Penalties, Radiation protection, Reporting and recordkeeping requirements, Waste treatment and disposal.

### **10 CFR Part 70**

Classified information, Criminal penalties, Emergency medical services, Hazardous materials transportation, Material control and accounting, Nuclear energy, Nuclear materials, Packaging and containers, Penalties, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Special nuclear material, Whistleblowing.

### **10 CFR Part 72**

Administrative practice and procedure, Hazardous waste, Indians, Intergovernmental relations, Nuclear energy, Penalties, Radiation protection, Reporting and recordkeeping requirements, Security measures, Spent fuel, Whistleblowing.

### **10 CFR Part 74**

Accounting, Criminal penalties, Hazardous materials transportation, Material control and accounting, Nuclear energy, Nuclear materials, Packaging and containers, Penalties, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Special nuclear material.

### **10 CFR Part 150**

Criminal penalties, Hazardous materials transportation, Intergovernmental relations, Nuclear energy, Nuclear materials, Penalties, Reporting and recordkeeping requirements, Security measures, Source material, Special nuclear material.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended;

and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR parts 40, 60, 63, 70, 72, 74, and 150:

**PART 40 -- DOMESTIC LICENSING OF SOURCE MATERIAL**

1. The authority citation for part 40 continues to read as follows:

**Authority:** Atomic Energy Act of 1954, secs. 62, 63, 64, 65, 69, 81, 83, 84, 122, 161, 181, 182, 183, 184, 186, 187, 193, 223, 234, 274, 275 (42 U.S.C. 2092, 2093, 2094, 2095, 2099, 2111, 2113, 2114, 2152, 2201, 2231, 2232, 2233, 2234, 2236, 2237, 2243, 2273, 2282, 2021, 2022); Energy Reorganization Act of 1974, secs. 201, 202, 206, 211 (42 U.S.C. 5841, 5842, 5846, 5851); Uranium Mill Tailings Radiation Control Act of 1978, sec. 104 (42 U.S.C. 7914); 44 U.S.C. 3504 note.

2. In § 40.64, revise paragraphs (b)(1), b(2), and d(3) to read as follows:

**§ 40.64 Reports.**

\* \* \* \* \*

(b) \* \* \*

(1) Possesses, or had possessed in the previous reporting period, at any one time and location, one kilogram or more of uranium or thorium source material with foreign obligations as defined in this part, shall document holdings as of September 30 of each year and submit to the Commission within 30 days, a statement of its source material inventory with foreign obligations as defined in this part. Alternatively, this information may be submitted with the licensee’s material status reports on special nuclear material filed under part 74 of this chapter, as a statement of its source material inventory with foreign obligations as defined in this part. This statement must be submitted to the address specified in the reporting instructions in NUREG/BR–0007, Instructions for the Preparation and Distribution of Material Status Reports, Final Draft (DOE [U.S. Department of Energy]/NRC Forms 742 and 742C), and include the Reporting Identification Symbol (RIS) assigned by the Commission to the licensee.

(2) Possesses, or had possessed in the previous reporting period, one kilogram or more of uranium or thorium source material pursuant to the operation of enrichment services, downblending uranium that has an initial enrichment of uranium-235 of 10 percent or more, or in the fabrication of mixed-oxide fuels shall complete and submit, in computer-readable format, Material Balance and Physical Inventory Listing Reports concerning all source material that the licensee has received, produced, possessed, transferred, consumed, disposed of, or lost. Reports must be submitted for each RIS account including all holding accounts. Each licensee shall prepare and submit these reports as specified in the instructions in NUREG/BR-0007 and NMMSS Report D-24, "Personal Computer Data Input for NRC Licensees." These reports must document holdings as of September 30 of each year and must be submitted to the Commission within 30 days. Alternatively, these reports may be submitted with the licensee's material status reports on special nuclear material filed under part 74 of this chapter. Copies of the reporting instructions may be obtained either by writing to the U.S. Nuclear Regulatory Commission, Division of Fuel Cycle Safety, Safeguards, and Environmental Review, Washington, DC 20555-0001, or by e-mail to [RidsNmssFcse.Resource@nrc.gov](mailto:RidsNmssFcse.Resource@nrc.gov). Each licensee required to report material balance, inventory, and/or foreign obligation information, as detailed in this part, shall resolve any discrepancies identified during the report review and reconciliation process within 30 calendar days of notification of a discrepancy identified by the NRC.

\* \* \* \* \*

(d) \* \* \*

(3) Chemical catalysts containing uranium depleted in uranium-235 to 0.4 percent or less, if the uranium content of the catalyst does not exceed 15 percent by weight; or

\* \* \* \* \*

## **PART 60 -- DISPOSAL OF HIGH-LEVEL RADIOACTIVE WASTES IN GEOLOGIC REPOSITORIES**

3. The authority citation for part 60 continues to read as follows:

**Authority:** Atomic Energy Act of 1954, secs. 51, 53, 62, 63, 65, 81, 161, 182, 183, 223, 234 (42 U.S.C. 2071, 2073, 2092, 2093, 2095, 2111, 2201, 2232, 2233, 2273, 2282); Energy Reorganization Act of 1974, secs. 201, 202, 206, 211 (42 U.S.C. 5841, 5842, 5846, 5851); 42 U.S.C. 2021a; National Environmental Policy Act of 1969 (42 U.S.C. 4332); Nuclear Waste Policy Act of 1982, secs. 114, 117, 121 (42 U.S.C. 10134, 10137, 10141), 44 U.S.C. 3504 note.

### **§ 60.78 [Amended]**

4. In § 60.78, remove the reference “, 72.74, 72.76, and 72.78” and add in its place the reference “and 72.74”.

## **PART 63 -- DISPOSAL OF HIGH-LEVEL RADIOACTIVE WASTES IN A GEOLOGIC REPOSITORY AT YUCCA MOUNTAIN, NEVADA**

5. The authority citation for part 63 continues to read as follows:

**Authority:** Atomic Energy Act of 1954, secs. 51, 53, 62, 63, 65, 81, 161, 182, 183, 223, 234 (42 U.S.C. 2071, 2073, 2092, 2093, 2095, 2111, 2201, 2232, 2233, 2273, 2282); Energy Reorganization Act of 1974, secs. 201, 202, 206, 211 (42 U.S.C. 5841, 5842, 5846, 5851); 42 U.S.C. 2021a; National Environmental Policy Act of 1969 (42 U.S.C. 4332); Nuclear Waste Policy Act of 1982, secs. 114, 117, 121 (42 U.S.C. 10134, 10137, 10141); 44 U.S.C. 3504 note.

### **§ 63.78 [Amended]**

6. In § 63.78, remove the reference “, 72.74, 72.76, and 72.78” and add in its place the reference “and 72.74”.

## **PART 70 -- DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL**

7. The authority citation for part 70 continues to read as follows:

**Authority:** Atomic Energy Act of 1954, secs. 51, 53, 57(d), 108, 122, 161, 182, 183, 184, 186, 187, 193, 223, 234, 274, 1701 (42 U.S.C. 2071, 2073, 2077(d), 2138, 2152, 2201, 2232, 2233, 2234, 2236, 2237, 2243, 2273, 2282, 2021, 2297f); Energy Reorganization Act of 1974, secs. 201, 202, 206, 211 (42 U.S.C. 5841, 5842, 5846, 5851); Nuclear Waste Policy Act of 1982, secs. 135, 141 (42 U.S.C. 10155, 10161); 44 U.S.C. 3504 note.

8. In § 70.32, revise paragraphs (c)(1)(i) through (iii) to read as follows:

**§ 70.32 Conditions of licenses.**

\* \* \* \* \*

(c)(1) \* \* \*

(i) The program for control and accounting of uranium source material at a uranium enrichment facility and special nuclear material at all applicable facilities as implemented pursuant to § 70.22(b), or §§ 74.31(b), 74.33(b), 74.41(b), or 74.51(b) of this chapter, as appropriate;

(ii) The measurement control program for uranium source material at a uranium enrichment facility and for special nuclear material at all applicable facilities as implemented pursuant to §§ 74.31(b), 74.33(b), 74.45(c), or 74.59(e) of this chapter, as appropriate; and

(iii) Other material control procedures as the Commission determines to be essential for the safeguarding of uranium source material at a uranium enrichment facility or of special nuclear material and providing that the licensee shall make no change that would decrease the effectiveness of the material control and accounting program implemented pursuant to § 70.22(b), or §§ 74.31(b), 74.33(b), 74.41(b), or 74.51(b) of this chapter, and the measurement control program implemented pursuant to §§ 74.31(b), 74.33(b), 74.41(b), or 74.59(e) of this chapter without the prior approval of the Commission. A licensee desiring to make changes that would decrease the

effectiveness of its material control and accounting program or its measurement control program shall submit an application for amendment to its license pursuant to § 70.34.

\* \* \* \* \*

**PART 72 -- LICENSING REQUIREMENTS FOR THE INDEPENDENT STORAGE OF SPENT NUCLEAR FUEL, HIGH-LEVEL RADIOACTIVE WASTE, AND REACTOR-RELATED GREATER THAN CLASS C WASTE**

9. The authority citation for part 72 continues to read as follows:

**Authority:** Atomic Energy Act of 1954, secs. 51, 53, 57, 62, 63, 65, 69, 81, 161, 182, 183, 184, 186, 187, 189, 223, 234, 274 (42 U.S.C. 2071, 2073, 2077, 2092, 2093, 2095, 2099, 2111, 2201, 2210e, 2232, 2233, 2234, 2236, 2237, 2238, 2273, 2282, 2021); Energy Reorganization Act of 1974, secs. 201, 202, 206, 211 (42 U.S.C. 5841, 5842, 5846, 5851); National Environmental Policy Act of 1969 (42 U.S.C. 4332); Nuclear Waste Policy Act of 1982, secs. 117(a), 132, 133, 134, 135, 137, 141, 145(g), 148, 218(a) (42 U.S.C. 10137(a), 10152, 10153, 10154, 10155, 10157, 10161, 10165(g), 10168, 10198(a)); 44 U.S.C. 3504 note.

**§ 72.9 [Amended]**

10. In § 72.9(b), remove the numbers “72.76” and “72.78”.

11. Revise § 72.72 to read as follows:

**§ 72.72 Material control and accounting requirements for source material and special nuclear material.**

(a) Each licensee shall follow the requirements of §§ 40.61 and 40.64 of this chapter for source material.

(b) Each licensee shall follow the requirements of 10 CFR part 74, subparts A and B, for special nuclear material.

12. Revise § 72.74 to read as follows:

**§ 72.74 Reports of accidental criticality.**

(a) Each licensee shall notify the NRC Headquarters Operations Center within one hour of discovery of accidental criticality. The commercial telephone number of the NRC Operations Center is (301) 816-5100.

(b) Each licensee shall make the notifications required by paragraph (a) of this section to the NRC Headquarters Operations Center via any available telephone system to ensure that a report is received within one hour.

(c) Reports required under § 73.71 of this chapter need not be duplicated under the requirements of this section.

**§ 72.76 [Removed and Reserved]**

**§ 72.78 [Removed and Reserved]**

13. Remove and reserve §§ 72.76 and 72.78.

**PART 74 -- MATERIAL CONTROL AND ACCOUNTING OF SPECIAL NUCLEAR MATERIAL**

14. The authority citation for part 74 continues to read as follows:

**Authority:** Atomic Energy Act of 1954, secs. 53, 57, 161, 182, 223, 234, 1701 (42 U.S.C. 2073, 2077, 2201, 2232, 2273, 2282, 2297f); Energy Reorganization Act of 1974, secs. 201, 202 (42 U.S.C. 5841, 5842); 44 U.S.C. 3504 note.

15. In § 74.2, revise paragraph (a) to read as follows:

**§ 74.2 Scope.**

(a) The general reporting and recordkeeping requirements of subpart B of this part apply to each person licensed under parts 50, 52, 60, 63, 70, and 72 of this chapter who possesses special nuclear material in a quantity of one gram or more of contained uranium-235, uranium-233, or plutonium; or who transfers or receives a quantity of one gram or more of contained uranium-235, uranium-233, or plutonium.

\* \* \* \* \*

16. Add new § 74.3 to read as follows:

**§ 74.3 General performance objectives.**

In addition to any other requirements in this part, each licensee who is authorized to possess or use SNM in a quantity greater than 350 grams of contained uranium-235, uranium-233, or plutonium, or any combination thereof, shall implement and maintain a material control and accounting program that enables the licensee to achieve the following general performance objectives in a timely manner:

(a) Maintain accurate, current, and reliable information on, and confirm the quantities and locations of, SNM in its possession;

(b) Detect, respond to, and resolve an anomaly indicating a possible loss, theft, diversion, or misuse of SNM;

(c) Permit rapid determination of whether an actual loss, theft, diversion, or misuse of SNM has occurred;

(d) Provide information to aid in the investigation and recovery of missing SNM in the event of an actual loss, theft, diversion, or misuse; and

(e) Control access to MC&A information to preclude loss, theft, diversion, or misuse of SNM.

17. In § 74.4:

- a. Remove the definition for *Effective kilograms of special nuclear material*;
- b. Add the definitions for *Accounting*, *Item control area*, *Item control system*, *Material balance area*, *Material control and accounting*, *Material custodian*, and *Storage installation* in alphabetical order; and
- c. Revise the definitions for *Formula quantity*, *Special nuclear material of low strategic significance*, and *Special nuclear material of moderate strategic significance*.

The additions and revisions read as follows:

**§ 74.4 Definitions.**

\* \* \* \* \*

*Accounting* means a system that documents the quantities of special nuclear material (SNM) held on current inventory by the licensee and includes tracking of receipts, shipments, and measured discards, and transfers of SNM.

\* \* \* \* \*

*Formula quantity* means strategic special nuclear material in any combination in a quantity of 5,000 grams or more computed by the formula, grams = (grams contained U-235) + 2.5 (grams U-233 + grams plutonium). This class of material is also referred to as a Category I quantity of material as shown in appendix A to this part.

\* \* \* \* \*

*Item control area* (ICA) means a designated administrative area within the controlled access area, in which SNM is maintained in such a way that, at any time, a

count of the items and the related material quantities can be obtained using the accounting system. Control of items moving into, out of, and within an ICA is by the identity of an item and its assigned material quantity.

*Item control system* means a system tracking the creation, identity, element and isotopic content, location, and disposition of all items, which enables the licensee to maintain current knowledge of each item.

\* \* \* \* \*

*Material balance area (MBA)* means a designated area in which the control of SNM is such that the quantity of material being moved into, out of, and within the MBA is an assigned value based on measurements of both the element content and the isotopic content.

*Material control and accounting (MC&A)* means a program to control and account for certain types of nuclear material used at a licensed facility, including SNM and source material. The MC&A program serves to deter and detect any loss, theft, diversion, misuse, or unauthorized removal, production, or enrichment of nuclear material.

\* \* \* \* \*

*Material custodian* means an individual authorized and qualified by the licensee who is responsible for controlling the movement of all SNM into, out of, and within a material balance area.

\* \* \* \* \*

*Special nuclear material of low strategic significance means:*

(1)(i) Less than an amount of SNM of moderate strategic significance, but more than 15 grams of uranium-235 (contained in uranium enriched to 20 percent or more in uranium-235) or 15 grams of uranium-233 or 15 grams of plutonium or the combination of 15 grams when computed by the equation, grams = grams contained U-235 + grams plutonium + grams U-233; or

(ii) Less than 10,000 grams but more than 1,000 grams of uranium-235 (contained in uranium enriched to 10 percent or more, but less than 20 percent in uranium-235); or

(iii) 10,000 grams or more of uranium-235 contained in uranium enriched above natural, but less than 10 percent in the uranium-235.

(2) This class of material is also referred to as a Category III quantity of material as shown in appendix A to this part.

*Special nuclear material of moderate strategic significance means:*

(1)(i) Less than a formula quantity of SSNM but more than 1,000 grams of uranium-235 (contained in uranium enriched to 20 percent or more in uranium-235) or more than 500 grams of uranium-233 or plutonium or in a combined quantity of more than 1,000 grams when computed by the equation, grams = (grams contained U-235) + 2 (grams U-233 + grams plutonium); or

(ii) 10,000 grams or more of uranium-235 (contained in uranium enriched to 10 percent or more but less than 20 percent in uranium-235).

(2) This class of material is also referred to as a Category II quantity of material as shown in appendix A to this part.

\* \* \* \* \*

*Storage installation means* an independent spent fuel storage installation or monitored retrievable storage installation for spent fuel and radioactive waste, as defined under part 72 of this chapter.

\* \* \* \* \*

18. In § 74.11, revise paragraph (b) to read as follows:

**§ 74.11 Reports of loss or theft or attempted theft or unauthorized production of special nuclear material.**

\* \* \* \* \*

(b) Each licensee shall make the notifications required by paragraph (a) of this section to the NRC Headquarters Operations Center via any available telephone system to ensure that a report is received within 1 hour.

\* \* \* \* \*

19. Revise § 74.13 to read as follows:

**§ 74.13 Material status reports.**

(a) All licensees who possess, or who had possessed in the previous reporting period, one gram or more of irradiated or non-irradiated SNM are required to submit both a Material Balance Report and a Physical Inventory Listing Report of these materials to the Nuclear Materials Management and Safeguards System (NMMSS) in accordance with the instructions in paragraph (b) of this section and according to the following schedule:

(1) Nuclear reactor licensees, authorized under part 50 or part 52 of this chapter, shall submit both reports within 60 calendar days of the start of the inventory covered by the reports;

(2) Storage installation licensees, authorized under part 72 of this chapter, shall submit both reports within 60 calendar days of the start of the inventory covered by the reports;

(3) Licensees subject to § 74.31 shall submit both reports within 60 calendar days of the start of the inventory covered by the reports;

(4) Licensees operating uranium enrichment facilities shall submit both reports within 60 calendar days of the start of the inventory providing a total plant material balance as described in § 74.33(c)(4)(i);

(5) Licensees subject to subpart D of this part shall submit both reports within 60 calendar days of the start of the inventory covered by the reports;

(6) Licensees subject to subpart E of this part shall submit both reports within 30 calendar days of the start of the inventory covered by the reports; and

(7) All other licensees who possess, or had possessed in the previous reporting period, one gram or more of irradiated or non-irradiated SNM shall submit both reports between January 1 and March 31 of each year.

(b) Each licensee shall prepare and submit the reports described in paragraph (a) of this section as follows:

(1) Reports must be submitted for each Reporting Identification Symbol (RIS) account, including all holding accounts, concerning SNM that the licensee has received, produced, possessed, transferred, consumed, disposed, or lost.

(2) Each licensee shall prepare and submit the reports described in this section as specified in the instructions in both NUREG/BR-0007, Instructions for the Preparation and Distribution of Material Status Reports, Final Draft (DOE [U.S. Department of Energy]/NRC Forms 742 and 742C),” and NMMSS Report D-24, “Personal Computer Data Input for NRC Licensees.”

(i) This prescribed computer-readable report replaces DOE/NRC Form 742, Material Balance Report, and DOE/NRC Form 742C, Physical Inventory Listing Report, which have been previously submitted in paper form.

(ii) Copies of these instructions may be obtained from the U.S. Nuclear Regulatory Commission, Division of Fuel Cycle Safety, Safeguards, and Environmental Review, Washington, DC 20555-0001 or by e-mail to

[RidsNmssFcse.Resource@nrc.gov](mailto:RidsNmssFcse.Resource@nrc.gov).

(c) The Commission may permit a licensee to submit the reports at other times for good cause. Such requests must be submitted in writing to Chief, Material Control and Accounting Branch, Division of Fuel Cycle Safety, Safeguards, and Environmental Review, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555. The licensee must continue to report as required until such request is granted.

(d) Any licensee who is required to submit routine Material Status Reports under § 75.35 of this chapter (pertaining to implementation of the U.S./IAEA Safeguards Agreement) shall prepare and submit these reports only as provided in that section (instead of as provided in paragraphs (a) through (b) of this section).

(e) Each licensee subject to the requirements of this section shall resolve any discrepancies identified during the report review and reconciliation process within 30 calendar days of notification of a discrepancy identified by the NRC.

20. In § 74.15, revise paragraph (b)(2) to read as follows:

**§ 74.15 Nuclear material transaction reports.**

\* \* \* \* \*

(b) \* \* \*

(2) Perform independent tests to assure the accurate identification and measurement of the material received, including its weight and enrichment; except that a licensee authorized under part 50 or part 52 of this chapter receiving unirradiated fuel rods or unirradiated fuel assemblies or a licensee authorized under part 70 of this chapter receiving SNM contained in a sealed source that will not be opened need not perform such tests; and

\* \* \* \* \*

21. In § 74.19, revise paragraph (b), redesignate paragraph (d) as paragraph (e), and add a new paragraph (d) to read as follows:

**§ 74.19 Recordkeeping, procedures, item controls, and physical inventories.**

\* \* \* \* \*

(b) Each licensee authorized to possess SNM, at any one time, in a quantity greater than 350 grams of contained uranium-235, uranium-233, or plutonium, or any combination thereof, shall establish, maintain, and follow written material control and accounting procedures that are sufficient to enable the licensee to account for the SNM in its possession under the license. The licensee shall retain these procedures until the Commission terminates the license that authorizes possession of the SNM and retain any superseded portion of the procedures for 3 years after the portion is superseded.

\* \* \* \* \*

(d) Nuclear reactor facilities licensed under part 50 or part 52 of this chapter and storage installations licensed under part 72 of this chapter shall establish, document, implement, and maintain an item control system as defined in § 74.4.

\* \* \* \* \*

22. In § 74.31, revise paragraphs (a), (b), and (c) to read as follows:

**§ 74.31 Nuclear material control and accounting for special nuclear material of low strategic significance.**

(a) *General performance objectives.* (1) Each licensee who is authorized to possess and use SNM of low strategic significance (as defined in § 74.4 and shown in

appendix A to this part), or a quantity greater than 350 grams of contained uranium-235, uranium-233, or plutonium, or any combination thereof, at any site or contiguous sites subject to control by the licensee is subject to the performance objective requirements stated in § 74.3.

(2) Nuclear reactor facilities licensed under part 50 or part 52 of this chapter, storage installations licensed under part 72 of this chapter, and operations involving waste disposal are not subject to the requirements of subpart C of this part.

(b) *Implementation.* Each applicant for a license, and each licensee that, upon application for modification of its license, would become newly subject to paragraph (a) of this section shall submit for approval an MC&A plan describing how the performance objectives of § 74.3 and the requirements of paragraph (c) of this section will be met. The MC&A plan shall be implemented when a license is issued or modified to authorize the activities being addressed in paragraph (a) of this section, or by the date specified in a license condition.

(c) *Program capabilities.* To achieve the § 74.3 performance objectives, the MC&A program must include the capabilities described in paragraphs (c)(1) through (10) of this section, and require the licensee to:

(1) Establish, document, and maintain a management structure that assures clear overall responsibility for material control and accounting functions, independence from production responsibilities, separation of key responsibilities, and adequate review and use of critical material control and accounting procedures;

(2) Establish and maintain a measurement program, which assures that all quantities in the material accounting records are based on measured values;

(3) Follow a measurement control program, which assures that measurement bias is estimated and significant biases are eliminated from inventory difference values of record;

(4) In each inventory period, control total material control and accounting measurement uncertainty so that twice its standard error of the inventory difference (SEID) is less than the greater of 9,000 grams of uranium-235 or 0.25 percent of the active inventory, and assure that any measurement performed under contract is controlled so that the licensee can satisfy this requirement;

(5) Unless otherwise required to satisfy part 75 of this chapter, perform a physical inventory at least every 12 months and, within 60 calendar days after the start of the inventory, reconcile and adjust the book inventory to the results of the physical inventory, and resolve, or report an inability to resolve, any inventory difference that is rejected by a statistical test that has a 90-percent power of detecting a discrepancy of a quantity of uranium-235 established by the NRC on a site-specific basis;

(6) Establish, document, implement, and maintain an item control system as defined in § 74.4. Store and handle or subsequently measure items (as defined in § 74.4) in a manner such that unauthorized removals of individual items or 500 grams or more of uranium-235 from one or more items will be detected. Exempted from this requirement are:

(i) Solutions with a concentration of less than 5 grams per liter of plutonium or uranium-233 or uranium-235 or a combined concentration thereof of less than 5 grams per liter;

(ii) Laboratory samples and reference standards maintained in the laboratory material management system and containing uranium enriched to less than 10 percent in uranium-235;

(iii) Items existing less than 3 calendar days and containing less than 100 grams of uranium-235; or

(iv) Items of waste destined for burial or incineration.

(7) Conduct and document shipper-receiver difference comparisons for all SNM

receipts on a total shipment basis, and on an individual batch basis when required by part 75 of this chapter, and ensure that any shipper-receiver difference that is statistically significant and exceeds twice the estimated standard deviation of the difference estimator and 500 grams of uranium-235 is investigated and resolved;

(8) Independently assess the effectiveness of the MC&A program at least every 24 months, and document management's action on prior assessment recommendations;

(9) If tamper-safe seals are to be used, maintain and follow procedures for tamper-safing (as defined in § 74.4), which include control of access to, and distribution of, unused seals and records; and

(10) Designate one or more material balance areas, or a combination of one or more material balance areas and one or more item control areas, and assign custodial responsibility in a manner that ensures that such responsibility can be effectively executed for all SNM possessed under license.

\* \* \* \* \*

23. Revise § 74.33 to read as follows:

**§ 74.33 Nuclear material control and accounting for uranium enrichment facilities authorized to produce special nuclear material of low strategic significance.**

(a) *General performance objectives.* Each licensee who is authorized to possess equipment capable of enriching uranium or operate an enrichment facility, and produce, possess, or use SNM of low strategic significance (as defined in § 74.4 and shown in appendix A to this part) or a quantity greater than 350 grams of contained uranium-235, uranium-233, or plutonium, or any combination thereof, at any site or contiguous sites, subject to control by the licensee, is subject to the performance objective requirements stated in § 74.3 and to the following performance objectives:

- (1) Maintain accurate, current, and reliable information on, and confirm the quantities and locations of source material (SM) in its possession;
- (2) Detect, respond to, and resolve an anomaly indicating a possible loss, theft, diversion, or misuse of SM;
- (3) Permit rapid determination of whether an actual loss, theft, diversion, or misuse of SM has occurred;
- (4) Provide information to aid in the investigation and recovery of missing SM in the event of an actual loss, theft, diversion, or misuse; and
- (5) Provide information to aid in the investigation of any unauthorized production of uranium, including unauthorized production of uranium enriched to 10 percent or more in uranium-235. (For centrifuge enrichment facilities, this requirement does not apply to each cascade during its start-up process, not to exceed the first 24 hours.)

(b) *Implementation.* Each applicant for a license who would, upon issuance of a license under any part of this chapter, be subject to the requirements of paragraph (a) of this section shall:

- (1) Submit for approval an MC&A plan describing how the performance objectives of §§ 74.3 and 74.33(a), the program capabilities of § 74.33(c), and the recordkeeping requirements of § 74.33(d) will be met; and
- (2) Implement the NRC-approved MC&A plan submitted under paragraph (b)(1) of this section prior to:
  - (i) The cumulative receipt of 5,000 grams of uranium-235 contained in any combination of natural, depleted, or enriched uranium; or
  - (ii) The NRC's issuance of a license to test or operate the enrichment facility, whichever occurs first.

(c) *Program capabilities.* To achieve the general performance objectives stated and referenced in paragraph (a) of this section, the MC&A program must include the

capabilities described in paragraphs (c)(1) through (10) of this section. The licensee shall establish, document, implement, and maintain:

(1) A management structure that ensures:

(i) Clear overall responsibility for MC&A functions;

(ii) Independence of MC&A management from production responsibilities;

(iii) Separation of key MC&A responsibilities from each other; and

(iv) Use of approved written MC&A procedures and periodic review of those procedures;

(2) A measurement program that ensures that all quantities of SM and SNM in the accounting records are based on measured values;

(3) A measurement control program that ensures that:

(i) Measurement bias is estimated and minimized through the measurement control program, and any significant biases are eliminated from inventory difference values of record;

(ii) All MC&A measurement systems are controlled so that twice the standard error of the inventory difference (SEID), based on all measurement error contributions, is less than the greater of 5,000 grams of uranium-235 or 0.25 percent of the uranium-235 of the active inventory for each total plant material balance; and

(iii) Any measurements performed under contract are controlled so that the licensee can satisfy the requirements of paragraphs (c)(3)(i) and (ii) of this section;

(4) A physical inventory program that provides for:

(i) Performing, unless otherwise required to satisfy part 75 of this chapter, a dynamic (non-shutdown) physical inventory of in-process (e.g., in the enrichment equipment) uranium and uranium-235 at least every 65 calendar days, and performing a static physical inventory of all other uranium and total uranium-235 contained in natural, depleted, and enriched uranium located outside of the enrichment processing equipment

at least every 370 calendar days, with static physical inventories being conducted in conjunction with a dynamic physical inventory of in-process uranium and uranium-235 so as to provide a total plant material balance at least every 370 calendar days; and

(ii) Reconciling and adjusting the book inventory to the results of the static physical inventory and resolving, or reporting an inability to resolve, any inventory difference that is rejected by a statistical test that has a 90-percent power of detecting a discrepancy of a quantity of uranium-235, established by the NRC on a site-specific basis, within 60 calendar days after the start of each static physical inventory;

(5) A detection program, independent of production, that provides high assurance of detecting and resolving:

(i) Production of uranium enriched to 10 percent or more in uranium-235, to the extent that SNM of moderate strategic significance (as defined in § 74.4) could be produced within any 370 calendar day period;

(ii) Production of uranium enriched to 20 percent or more in uranium-235; and

(iii) Unauthorized production of uranium of low strategic significance (as defined in § 74.4);

(6) An item control system (as defined in § 74.4). The system must ensure that items (as defined in § 74.4) are stored and handled or subsequently measured in a manner such that unauthorized removal of individual items or 500 grams or more of uranium-235 from one or more items will be detected. Exempted from this requirement are:

(i) Solutions with a concentration of less than 5 grams per liter of plutonium or uranium-233 or uranium-235 or a combined concentration thereof of less than 5 grams per liter;

(ii) Laboratory samples and reference standards maintained in the laboratory material management system and containing uranium enriched to less than 10 percent

in uranium-235;

(iii) Items existing less than 3 calendar days and containing less than 100 grams of uranium-235; or

(iv) Items of waste destined for burial or incineration;

(7) A system for conducting and documenting shipper-receiver difference comparisons for all SM and SNM receipts on a total shipment basis, and on an individual batch basis when required by part 75 of this chapter, to ensure that any shipper-receiver difference that is statistically significant and exceeds twice the estimated standard deviation of the difference estimator and 500 grams of uranium-235 is investigated and resolved;

(8) An assessment program that:

(i) Independently assesses the effectiveness of the MC&A program at least every 24 months;

(ii) Documents the results of the above assessment;

(iii) Documents management's findings on whether the MC&A program is currently effective; and

(iv) Documents any actions taken on recommendations from prior assessments;

(9) Procedures for tamper-safing (as defined in § 74.4), which include control of access to and distribution of unused seals and records, if tamper-safe seals are used;

(10) One or more material balance areas, or a combination of one or more material balance areas and one or more item control areas, and assign custodial responsibility in a manner that ensures that such responsibility can be effectively executed for all SM and SNM possessed under license.

(d) Recordkeeping.

(1) Each licensee shall establish records that will demonstrate that the performance objectives stated and referenced in paragraph (a) of this section and the

program capabilities of paragraph (c) of this section have been met and maintain these records in an auditable form, available for inspection, for at least 3 years, unless a longer retention time is required by part 75 of this chapter.

(2) Records that must be maintained pursuant to this part may be the original or a reproduced copy or a microform if such reproduced copy or microform is duly authenticated by authorized personnel and the microform is capable of producing a clear and legible copy after storage for the period specified by Commission regulations. The record may also be stored in electronic media with the capability for producing, on demand, legible, accurate, and complete records during the required retention period. Records such as letters, drawings, and specifications must include all pertinent information such as stamps, initials, and signatures.

(3) The licensee shall maintain adequate safeguards against tampering with and loss of records.

24. Revise § 74.41 to read as follows:

**§ 74.41 Nuclear material control and accounting for special nuclear material of moderate strategic significance.**

(a) *General performance objectives.* (1) Each licensee who is authorized to possess and use SNM of moderate strategic significance (as defined in § 74.4 and shown in appendix A of this part), or SSNM in a quantity of more than 1 kilogram but less than 5 kilograms in irradiated fuel reprocessing operations, at any site or contiguous sites subject to control by the licensee, is subject to:

(i) The performance objective requirements stated in § 74.3; and

(ii) The performance objective requirement to permit rapid determination of whether an actual loss of a significant quantity of SNM has occurred, with significant quantity being either more than one formula kilogram of SSNM, or 10,000 grams or more

of uranium-235 contained in uranium enriched up to 20 percent.

(2) Nuclear reactor facilities licensed under part 50 or part 52 of this chapter; storage installations licensed under part 72 of this chapter; licensees using reactor irradiated fuels involved in research, development, and evaluation programs in facilities other than irradiated fuel reprocessing plants; and operations involving waste disposal are not subject to the requirements of subpart D of this part.

(b) *Implementation.* Each applicant for a license, and each licensee that, upon application for modification of its license, would become newly subject to paragraph (a) of this section shall submit for approval an MC&A plan describing how the performance objectives of § 74.3 and paragraph (a) of this section will be achieved, and how the requirements of paragraph (c) of this section will be met. The MC&A plan shall be implemented when a license is issued or modified to authorize the activities being addressed in paragraph (a) of this section, or by the date specified in a license condition.

(c) *Program capabilities.* To achieve the general performance objectives specified in § 74.3 and paragraph (a) of this section, the MC&A program must include the capabilities described in §§ 74.43 and 74.45, and must incorporate checks and balances that are sufficient to detect falsification of data and reports that could conceal diversion of SNM by:

- (1) A single individual, including an employee in any position; or
- (2) Collusion between two individuals, one or both of whom have authorized access to SNM.

25. In § 74.43, revise paragraphs (b)(3) through (8), (c)(3) and (d)(5); and add paragraph (c)(9) to read as follows:

**§ 74.43 Internal controls, inventory, and records.**

\* \* \* \* \*

(b) \* \* \*

(3) The licensee shall provide for the adequate review, approval, and use of written MC&A procedures that are identified in the approved MC&A plan as being critical to the effectiveness of the described program.

(4) The licensee shall assure that personnel who work in key positions where mistakes could degrade the effectiveness of the MC&A program are trained to maintain a high level of safeguards awareness and are qualified to perform their duties and/or responsibilities.

(5) The licensee shall establish, document, implement, and maintain an item control system as defined in § 74.4. The system must ensure that items are stored and handled, or subsequently measured, in a manner such that unauthorized removal of individual items or 200 grams or more of plutonium or uranium-233, or 300 grams or more of uranium-235, from one or more items will be detected.

(6) Exempted from the requirements of paragraph (b)(5) of this section are:

(i) Solutions with a concentration of less than 5 grams per liter of plutonium or uranium-233 or uranium-235 or a combined concentration thereof of less than 5 grams per liter;

(ii) Laboratory samples and reference standards maintained in the laboratory material management system and containing uranium enriched to less than 20 percent in uranium-235;

(iii) Items existing less than 3 calendar days and containing less than 75 grams of plutonium or uranium-233 or 100 grams of uranium-235; or

(iv) Items of waste destined for burial or incineration.

(7) Conduct and document shipper-receiver difference comparisons for all SNM receipts.

(8) Perform independent assessments of the total MC&A program, at intervals not to exceed 18 months that assess the performance of the program, review its effectiveness, and document management's action on prior assessment recommendations and identify deficiencies. These assessments must include a review and evaluation of any contractor who performs SNM accountability measurements for the licensee.

(c) \* \* \*

(3) If tamper-safe seals are to be used, maintain and follow procedures for tamper-safing (as defined in § 74.4), which include control of access to, and distribution of, unused seals and records;

\* \* \* \* \*

(9) Designate one or more material balance areas, or a combination of one or more material balance areas and one or more item control areas, and assign custodial responsibility in a manner that ensures that such responsibility can be effectively executed for all SNM possessed under license.

\* \* \* \* \*

(d) \* \* \*

(5) Establish records that will demonstrate that the performance objectives of § 74.3 and § 74.41(a)(1), the program capabilities of paragraphs (b) and (c) of this section, and § 74.45(b) and (c) have been met, and maintain these records in an auditable form, available for inspection, for at least 3 years, unless a longer retention time is specified by § 74.19(b), part 75 of this chapter, or by a specific license condition.

26. In § 74.45, revise paragraph (c)(4) to read as follows:

**§ 74.45 Measurements and measurement control.**

\* \* \* \* \*

(c) \* \* \*

(4) Establish and maintain a measurement control program so that for each inventory period the standard error of the inventory difference (SEID) is less than 0.125 percent of the active inventory, and assure that any MC&A measurements performed under contract are controlled so that the licensee can satisfy this requirement.

\* \* \* \* \*

27. Revise § 74.51 to read as follows:

**§ 74.51 Nuclear material control and accounting for strategic special nuclear material.**

(a) *General performance objectives.* (1) Each licensee who is authorized to possess and use five or more formula kilograms of strategic special nuclear material (SSNM), as defined in § 74.4 and shown in appendix A to this part, at any site or contiguous sites subject to control by the licensee is subject to the performance objective requirements stated in § 74.3, and to the following performance objectives:

(i) Ongoing confirmation of the presence of SSNM in assigned locations;

(ii) Timely detection of the possible abrupt loss of five or more formula kilograms of SSNM from an individual unit process; and

(iii) Rapid determination of whether an actual loss of five or more formula kilograms of SSNM occurred.

(2) Nuclear reactor facilities licensed under part 50 or part 52 of this chapter, storage installations licensed under part 72 of this chapter, and any licensee operations involving waste disposal are not subject to the requirements of subpart E of this part.

(b) *Implementation.* Each applicant for a license, and each licensee that, upon

application for modification of its license, would become newly subject to paragraph (a) of this section shall submit for approval an MC&A plan describing how the performance objectives of § 74.3 and paragraph (a) of this section will be achieved, and how the requirements of paragraph (c) of this section will be met. The MC&A plan shall be implemented when a license is issued or modified to authorize the activities being addressed in paragraph (a) of this section, or by the date specified in a license condition.

(c) *Program capabilities.* To achieve the general performance objectives specified in § 74.3 and paragraph (a) of this section, the MC&A program must provide the capabilities described in §§ 74.53, 74.55, 74.57, and 74.59 and must incorporate checks and balances that are sufficient to detect falsification of data and reports that could conceal diversion of SNM or SSNM by:

- (1) An individual, including an employee in any position; or
- (2) Collusion between an individual with MC&A responsibilities and another individual who has responsibility or control within both the physical protection and the MC&A programs.

(d) *Inventories.* Notwithstanding § 74.59(f)(1), licensees shall perform at least 3 physical inventories at intervals not to exceed 65 calendar days after implementation of the NRC-approved MC&A plan and shall continue to perform such inventories at intervals not to exceed 65 calendar days until performance acceptable to the NRC has been demonstrated and the Commission has issued formal approval to perform physical inventories at intervals not to exceed 185 calendar days. Licensees who have prior experience with process monitoring and/or can demonstrate acceptable performance against all MC&A plan commitments may request authorization to perform inventories at intervals not to exceed 185 calendar days at an earlier date.

28. In § 74.53, revise paragraphs (a) introductory text, (a)(3), (a)(4), and (c)(1) to

read as follows:

**§ 74.53 Process monitoring.**

(a) Licensees subject to § 74.51 shall monitor internal transfers, storage, and processing of SSNM. The process monitoring must achieve the detection capabilities described in paragraph (b) of this section for all SSNM except:

\* \* \* \* \*

(3) SSNM with an estimated measurement standard deviation greater than 5 percent that is either input or output material associated with a unit that processes less than five formula kilograms over a period of 95 calendar days; and

(4) SSNM involved in research and development operations that process less than five formula kilograms during a period of 7 calendar days.

\* \* \* \* \*

(c) \* \* \*

(1) Perform material balance tests on a lot or a batch basis, as appropriate, or at intervals not to exceed 30 calendar days, whichever is sooner, and investigate any difference greater than 200 grams of plutonium or uranium-233 or 300 grams of uranium-235 that exceeds three times the estimated standard error of the inventory difference estimator;

\* \* \* \* \*

29. In § 74.57,

a. Revise paragraph (c) introductory text to read as follows; and

b. In paragraph (d)(3), remove the word “system” and add in its place the word “program”.

**§ 74.57 Alarm resolution.**

\* \* \* \* \*

(c) Each licensee shall notify the NRC Headquarters Operations Center by any available telephone system of any MC&A alarm that remains unresolved beyond the time period specified for its resolution in the licensee's MC&A plan. Notification must occur within 24 hours except when a holiday or weekend intervenes in which case the notification must occur on the next scheduled workday. The licensee may consider an alarm to be resolved if:

\* \* \* \* \*

30. In § 74.59, revise paragraphs (b)(2), (c), (e)(7), (f)(1) introductory text, (f)(2)(i), (h)(2)(ii), and (h)(3) through (5) to read as follows:

**§ 74.59 Quality assurance and accounting requirements.**

\* \* \* \* \*

(b) \* \* \*

(2) Provide for the adequate review, approval, and use of those material control and accounting procedures that are identified in the approved MC&A plan as being critical to the effectiveness of the described program.

(c) *Personnel qualification and training.* The licensee shall assure that personnel who work in key positions where mistakes could degrade the effectiveness of the material control and accounting program are trained to maintain a high level of safeguards awareness and are qualified to perform their duties and/or responsibilities.

\* \* \* \* \*

(e) \* \* \*

(7) Investigate and take corrective action, as appropriate, to identify and reduce

associated measurement biases when, for like material types (i.e., measured by the same measurement system), the net cumulative shipper-receiver differences accumulated over a period not more than 185 calendar days exceed the greater of one formula kilogram or 0.1 percent of the total amount received.

\* \* \* \* \*

(f) \* \* \*

(1) Except as required by part 75 of this chapter, perform a physical inventory at least every 185 calendar days and within 45 calendar days after the start of the ending inventory:

\* \* \* \* \*

(2) \* \* \*

(i) Development of procedures for tamper-safing of containers or vaults containing SSNM not in process that include adequate controls to assure the validity of assigned SSNM values and that include control of access to, and distribution of, unused seals and records;

\* \* \* \* \*

(h) \* \* \*

(2) \* \* \*

(ii) Any scrap measured with a standard deviation greater than 5 percent of the measured amount is recovered so that the results are segregated by inventory period and recovered within 185 calendar days of the end of the inventory period in which the scrap was generated except where it can be demonstrated that the scrap measurement uncertainty will not cause noncompliance with § 74.59(e)(5).

\* \* \* \* \*

(3) Incorporate checks and balances in the MC&A program sufficient to control the rate of human errors and material control and accounting information.

(4) Perform independent assessments at least every 12 months that assess the performance of the MC&A program, review its effectiveness, and document management's action on prior assessment recommendations. Assessments must include an evaluation of the measurement control program of any outside contractor laboratory performing MC&A measurements for a licensee, unless the contractor is also subject to the requirements of § 74.59(e).

(5) Designate one or more material balance areas, or a combination of one or more material balance areas and one or more item control areas, and assign custodial responsibility in a manner that ensures that such responsibility can be effectively executed for all SNM possessed under license.

30. Add appendix A to part 74 to read as follows:

**Appendix A to Part 74 -- Categories of Special Nuclear Material.**

<b>Material</b>	<b>Form</b>	<b>Category I (Subpart E)</b>	<b>Category II (Subpart D)</b>	<b>Category III (Subpart C)</b>
Plutonium	Unirradiated	2,000 grams or more	Less than 2,000 grams, but more than 500 grams	500 grams or less, but more than 15 grams
Uranium-233	Unirradiated	2,000 grams or more	Less than 2,000 grams, but more than 500 grams	500 grams or less, but more than 15 grams
Uranium-235	Unirradiated Uranium enriched to 20% or more in isotope U-235	5,000 grams or more	Less than 5,000 grams, but more than 1,000 grams	1,000 grams or less, but more than 15 grams
	Unirradiated Uranium enriched to 10%, but less than 20%, in isotope U-235		10,000 grams or more	Less than 10,000 grams, but more than 1,000 grams

	Unirradiated Uranium enriched above 0.711%, but less than 10%, in isotope U-235			10,000 grams or more
--	---	--	--	----------------------

Notes:

1. The quantities in the table are applied on a facility-wide basis and are the total quantities at the facility except for sealed sources. Sealed sources as defined in § 74.4 are excluded from the quantities in the table.

2. The formulae to calculate a quantity of SSNM as defined in § 74.4 are as follows:

- Category I, 5,000 grams or more of SSNM
  - grams = grams contained U-235 + 2.5 (grams U-233 + grams Pu)
- Category II, less than 5,000 grams but more than 1,000 grams of SSNM
  - grams = grams contained U-235 + 2 (grams U-233 + grams Pu)
- Category III, 1,000 grams or less but more than 15 grams of SSNM
  - grams = grams contained U-235 + grams U-233 + grams Pu.

3. Irradiated fuel, which by virtue of its original fissile material content is included as Category I or II before irradiation, is reduced one category level (e.g., from Category I to Category II) during the period of time that the radiation level from the fuel exceeds 1 gray per hour (100 rad per hour) at 1 meter, unshielded.

**PART 150 -- EXEMPTIONS AND CONTINUED REGULATORY AUTHORITY IN AGREEMENT STATES AND IN OFFSHORE WATERS UNDER SECTION 274**

31. The authority citation for part 150 continues to read as follows:

**Authority:** Atomic Energy Act of 1954, secs. 11, 53, 81, 83, 84, 122, 161, 181, 223, 234, 274 (42 U.S.C. 2014, 2201, 2231, 2273, 2282, 2021); Energy Reorganization Act of 1974, sec. 201 (42 U.S.C. 5841); Nuclear Waste Policy Act of 1982, secs. 135, 141 (42 U.S.C. 10155, 10161); 44 U.S.C. 3504 note.

32. In § 150.17, revise paragraphs (a) and (b) to read as follows:

**§ 150.17 Submission to Commission of nuclear material status reports.**

(a) Except as specified in paragraph (d) of this section and § 150.17a of this chapter, all licensees who possess or who had possessed in the previous reporting period, under an Agreement State license, one gram or more of irradiated or non-irradiated special nuclear material are required to submit both a Material Balance Report and a Physical Inventory Listing Report of these materials to NMMSS in accordance with the instructions in paragraph (a)(1) of this section. Both reports shall be submitted between January 1 and March 31 of each year.

(1) Each licensee shall prepare and submit the reports described in this section as follows:

(i) Reports must be submitted for each Reporting Identification Symbol (RIS) account, including all special nuclear material that the licensee has received, produced, possessed, transferred, consumed, disposed, or lost.

(ii) Each licensee shall prepare and submit the reports described in this section as specified in the instructions in both NUREG/BR-0007, Instructions for the Preparation and Distribution of Material Status Reports, Final Draft (DOE [U.S. Department of Energy]/NRC Forms 742 and 742C), and NMMSS Report D-24, "Personal Computer Data Input for NRC Licensees."

(iii) This prescribed computer-readable report replaces DOE/NRC Form 742, Material Balance Report, and DOE/NRC Form 742C, Physical Inventory Listing Report, which have been previously submitted in paper form.

(iv) Copies of these instructions may be obtained from the U.S. Nuclear Regulatory Commission, Division of Fuel Cycle Safety, Safeguards, and Environmental Review, Washington, DC 20555-0001 or by e-mail to

[RidsNmssFcse.Resource@nrc.gov](mailto:RidsNmssFcse.Resource@nrc.gov).

(2) The Commission may permit a licensee to submit the reports at other times for good cause. Such requests must be submitted in writing to Chief, Material Control and Accounting Branch, Division of Fuel Cycle Safety, Safeguards, and Environmental Review, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555. The licensee must continue to report as required until such request is granted.

(3) Any licensee who is required to submit routine Material Status Reports under § 75.35 of this chapter (pertaining to implementation of the U.S./IAEA Safeguards Agreement) shall prepare and submit these reports only as provided in that section (instead of as provided in paragraphs (a) through (b) of this section).

(4) Each licensee subject to the requirements of this section shall resolve any discrepancies identified during the report review and reconciliation process within 30 calendar days of notification of a discrepancy identified by the NRC.

(b) Except as specified in paragraph (d) of this section and § 150.17a of this chapter, each person possessing, or who had possessed in the previous reporting period, at any one time and location, under an Agreement State license:

(1) Uranium or thorium source material in quantities of 1 kilogram or more with foreign obligations, shall document holdings as of September 30 of each year and submit the material status reports to the Commission within 30 days. Alternatively, these reports may be submitted with the licensee's material status reports on SNM filed under part 74 of this chapter. This statement must be submitted to the address specified in the reporting instructions in NUREG/BR-0007, and include the RIS assigned by the Commission.

(2) Uranium or thorium source material in quantities of 1 kilogram or more used in the operation of enrichment services, down blending uranium that has an initial

enrichment of uranium-235 of 10 percent or more, or in the fabrication of mixed-oxide fuels shall complete and submit, in computer-readable format, Material Balance and Physical Inventory Listing Reports concerning source material that the licensee has received, produced, possessed, transferred, consumed, disposed, or lost. Reports must be submitted for each RIS account including all holding accounts. Each licensee shall prepare and submit these reports as specified in the instructions in NUREG/BR-0007 and NMMSS Report D-24, "Personal Computer Data Input for NRC Licensees." These reports must document holdings as of September 30 of each year and be submitted to the Commission within 30 days. Alternatively, these reports may be submitted with the licensee's material status reports on special nuclear material filed under part 74 of this chapter. Copies of the reporting instructions may be obtained by writing to the U.S. Nuclear Regulatory Commission, Division of Fuel Cycle Safety, Safeguards, and Environmental Review, Washington, DC 20555-0001, or by e-mail to [RidsNmssFcse.Resource@nrc.gov](mailto:RidsNmssFcse.Resource@nrc.gov). Each licensee required to report material balance, and inventory information, as described in this part, shall resolve any discrepancies identified during the report review and reconciliation process within 30 calendar days of the notification of a discrepancy identified by the NRC.

\* \* \* \* \*

Dated at Rockville, Maryland, this \_\_\_ day of \_\_\_\_, 2018.

For the Nuclear Regulatory Commission.

Annette Vietti-Cook  
Secretary of the Commission