

NRC INSPECTION MANUAL

NMSS

INSPECTION PROCEDURE 85408

RECORDKEEPING

PROGRAM APPLICABILITY: 2683

85408-01 INSPECTION OBJECTIVES

The objective of this inspection procedure is to verify that the licensee's¹ material control and accounting (MC&A) program, for a Category III fuel facility or uranium enrichment facility, includes a recordkeeping program that meets the appropriate regulatory requirements, for the applicable type of facility.

85408-02 INSPECTION REQUIREMENTS

The inspector should verify that the licensee has implemented a recordkeeping system that complies with the applicable regulatory requirements, as detailed in the licensee's Fundamental Nuclear Material Control (FNMC) Plan. Specifically, the inspector should verify that the licensee's recordkeeping program meets the general performance objectives established for it in 10 CFR Part 74.31(a) or 74.33(a), relative to the recordkeeping requirements of 10 CFR 74.31(d) or 74.33(d), as applicable; and that the records can be audited. The review should include the following:

02.01 MC&A-Related Plans and Procedures for Recordkeeping.

- a. SNM measurement records.
- b. SNM accounting and inventory records.
- c. Reports of incident detection and assessment, and how incidents were resolved.

¹Hereinafter, the term licensee subsumes the term "certificate holder," which applies in the case of the gaseous diffusion plants (GDPs). Likewise, all certificate-related requirements, including those in GDP compliance plans and corrective action commitments, are subsumed under the term "licensee."

- d. Training records for personnel with FNMC Plan-specified MC&A functions and responsibilities.

02.02 Record Format(s), Traceability, and Redundancy.

02.03 Program and Controls for Ensuring Accuracy and Reliability. These are controls for ensuring FNMC Plan-specified records are not tampered with, or lost.

85408-03 INSPECTION GUIDANCE

General Guidance

The applicable regulations [10 CFR Parts 74.31(d) and 74.33(d)] require the records specified in the FNMC Plan to be retained for at least 3 years, in an auditable form. In some cases, the same records are required to be retained for a 5-year period, under 10 CFR Part 75.24, for international safeguards purposes.

The regulation also specifies that records may be the original, a reproduced copy, or a microform, or they may be in electronic form. Whatever the form, the records must be:

- (1) Duly authenticated by authorized personnel,
- (2) Capable of producing a clear and legible copy after storage for the period specified by NRC regulations; and, in the case of electronic media, capable of regenerating legible, accurate, and complete records during the required retention period.

The licensee's recordkeeping system must be effectively implemented. The recordkeeping function of the material control and accounting program should support accountability of (SNM) and demonstrate that performance objectives and system capabilities have been met. The records, forms, reports, and recordkeeping procedures used in the MC&A system should be reviewed for availability, completeness, accuracy, ability to be audited, and traceability of SNM. Controls or safeguards should have been implemented to ensure that the records are highly accurate and reliable, and safe from tampering and loss.

To prepare for the inspection, the inspector should:

1. Review those portions of the FNMC Plan and the license conditions pertaining to the planned inspection activities.
2. Review the previous two MC&A inspection reports for the site.
3. Review any unresolved or follow-up items from the previous MC&A inspections that will be addressed during the current inspection.

4. Review the content of any communications (including NRC Information Notices and Bulletins), addressed to the licensee, that were issued since the last inspection.

Specific Guidance

03.01 MC&A-Related Plans and Procedures for Recordkeeping. The inspector should verify that the MC&A system maintains the records required to meet the FNMC Plan commitments. The inspector should verify that the recordkeeping system produces and retains key material accounting data, original source data, and relevant reports and documents. These reports and documents should include the following:

1. A description of the licensee's management structure.
2. MC&A policy and procedures documents.
3. Measurement data used for loss detection, alarm resolution, and material balance accounting.
4. Records of the investigation and resolution of indicators of possible SNM loss.
5. Data from the calibration of measurement systems.
6. Measurement quality control data.
7. Data and statistical analyses supporting bias adjustments.
8. Statistical analyses of the measurement control data.
9. Detection system action threshold calculations.
10. Shipper-receiver data.
11. Reports from investigations of significant shipper-receiver differences (SRDs).
12. Tamper-safe device acquisition, storage, and associated application records.
13. Inventory work sheets, physical inventory listings, and material balance reports.
14. Records of inventory differences (IDs) and calculations of the standard error of the inventory difference.
15. Reports from the investigations and resolutions of alarms (ID limits exceeded and significant SRDs).
16. Reports of periodic reviews and assessments, and of the resulting corrective actions taken by management.

Records subject to audit must be retained for at least 3 years unless a longer period is required by 10 CFR Part 75.

The inspector should verify the following:

- a. Retention requirements for all accountability records, reports, and supporting documentation are identified, documented, and implemented.
- b. SNM transactions and inventories are described in maintained records, submitted data, and issued reports.
- c. Accounting reports are produced and distributed as required by the FNMC Plan.
- d. The recordkeeping system is capable of generating SNM book inventory listings by material code type, for all internal control areas, and for the plant as a whole.
- e. The records identify inventory adjustments by internal control area.
- f. The records and reporting system facilitate localizing IDs.
- g. The records identify IDs for each internal control area.

03.02 Record Format(s), Traceability, and Redundancy. The inspector should verify that records required to be maintained pursuant to 10 CFR Part 74 are in a suitable format. They should contain sufficient detail to demonstrate that SNM control and accounting have been conducted in compliance with the FNMC Plan. The records should provide easy traceability of all SNM transactions from source data to final accounting records. Records may be the original or a reproduced copy, provided the reproduced copy is clear, legible, and duly authenticated by authorized personnel. Records may also be microforms, provided that they are also clear, legible, and duly authenticated. Records may be stored on electronic media if clear, legible, and duly authenticated copies can be produced on demand within the time frame for storage of the records. Records such as letters, drawings, and specifications, must include all pertinent information such as stamps, initials, and signatures. Electronic records of these types are most likely to be in the form of digitized images, as opposed to word-processing types of files, if the required authentication is to be included.

The inspector should verify the following:

- a. Retained records are clear and easy to read.
- b. Retained records are accessible for review.
- c. Retained records provide traceability of nuclear material data from source data to final records.
- d. Entries on material transfer forms and receipts are not made in pencil, erased, or obliterated, and are only altered according to approved procedures.

The inspector should review the licensee's submitted physical inventory report (NRC Form 327), and compare the current information with the information from the previous inventory periods, and with other facility records. The number and types of records subject to inspection will vary between facilities.

Based on the availability of inspector resources, and the number and types of records, it may not be practical to select all records for detailed inspection. If this is the case, the inspector may audit the accounting records by selecting a random sample of each type of record for an independent manual check, or by using some other recognized method for determining the correctness of the records.

It should be expected that no system of records is perfect. Errors will be found. However, in order to focus limited MC&A inspection resources where the dominant safeguards risks are likely to be found, inspectors should take a reasonable approach towards evaluating the significance of discovered errors. An error should be considered safeguards risk-significant only if involves incorrect or missing data that could affect the material balance.

When using the sampling approach to examining records, inspectors should use an intuitive approach to evaluate whether there is a safeguards risk-significant pattern of errors in the examined records that requires further attention. The inspector should notify the licensee of the need to examine any remaining records in a particular category, or to correct safeguards risk-significant records that are found defective. The results and conclusions of all records audits performed during, or as a result of, the inspection, either by the inspector or the licensee, should be documented in the inspection report.

The recordkeeping system must have sufficient redundancy to enable reconstruction of lost or missing records, so that complete knowledge of the SNM inventory is available, or can be made available within a reasonable amount of time. The capability for reconstruction of records should be provided by a subsystem, including source data for receipts, shipments, internal transfers, adjustments, and corrections to the records that are retained in a separate secure location so that a single individual, or a single event, cannot alter both accounting and source records. The recordkeeping system should be complete and sufficiently detailed to permit auditing of all parts of the MC&A system. The records and reports should be readily traceable back to source documents.

Appropriate safeguards should be implemented to prevent loss, misplacement, or accidental destruction of the inventory and item location records. The inspector should examine the licensee's method for ensuring redundancy, and evaluate the potential for both primary and secondary records being destroyed in a single event, such as fire, flood, etc., or due to a computer system failure.

The inspector should verify the following:

- a. The record system provides an audit trail for all nuclear material transactions.

- b. Redundancy provides the ability to reconstruct lost or destroyed records.
- c. Protection features outlined in the FNMC Plan prevent or deter compromise of records.

03.03 Program and Controls for Ensuring Accuracy and Reliability.
The inspector should examine internal control documentation to verify that accounting errors, significant SRDs, and excessive IDs are investigated and corrective action taken where assignable errors can be determined. The data collecting, recording, and auditing procedures should provide reasonable protection against errors in the records, and ensure their accuracy and reliability.

Licensees are required (10 CFR 74.31(d)(2) or 74.33(d)(3), as applicable) to maintain adequate safeguards against tampering with FNMC Plan-specified MC&A records. This is usually done through a system of counter-signatures. For example, the FNMC Plan may specify that all accounting forms should be controlled by serial number or by some other equivalent coding system for uniquely identifying items containing SNM. In addition, it may specify that these forms should provide for the appropriate number of signatures, or other means of authentication (e.g., for automated systems). Typical FNMC Plan provisions, for example, would be that source data forms should be signed both by the originator and the originator's supervisor; internal transfer forms should be signed by both the shipping and receiving custodians; and inventory forms should be signed by each member of the inventory team, and their respective supervisors. Supervisors' signature authority may be designated. All adjustments to source data and accounting records should be approved by signature of authorized individuals and substantiated with backup data.

Where the system of accounting forms and/or signatures has been automated, the system must provide equivalent or better information than that provided by manual accounting forms and signatures. Magnetic cards, keywords, and other such unique identifiers used to perform MC&A transactions should be controlled in a manner that protects against their use by unauthorized individuals. Passwords should be changed whenever there is a reason to suspect they have been compromised, as well as on a routine basis. The frequency with which the passwords should be routinely changed increases, depending on how often they are used, and the degree of risk of harm that could be caused by their unauthorized use. The FNMC Plan, or an associated procedure, should specify how frequently such routine password changes are made.

The inspector should verify the following:

- a. A program is documented and implemented to control personnel access to: (a) nuclear material accounting, inventory, and measurement data; (b) data generating equipment; and (c) other items and equipment, which could compromise the safeguards systems specified in the FNMC Plan, if misused or tampered with.

- b. MC&A records, specified in the FNMC Plan, are created and updated only by authorized personnel, as stipulated in the FNMC Plan.
- c. Transaction records that support entries into the recordkeeping system are uniquely numbered, and provide for the appropriate number of signatures specified in the FNMC Plan.
- d. Accounting errors that produce significant SRDs or excessive IDs are investigated, and corrective action is taken where a cause for the error was determined.
- e. Authorization for external transfers of SNM is provided by personnel designated (by position) in the FNMC Plan, in writing, or in accordance with other approved procedures.
- f. Source data forms are authenticated as specified in the FNMC Plan (e.g., signed by the originator and the originator's supervisor).
- g. Internal transfer forms are authenticated as specified in the FNMC Plan (e.g., signed by both the shipping and the receiving custodians, or their designated alternates).
- h. Inventory forms are authenticated as specified in the FNMC Plan (e.g., signed by each member of the inventory team, and upon review, by their respective supervisors).
- i. The use of computer-based techniques, that may be used to replace use of hard copy accounting forms and/or written signatures, provides equivalent or better control of FNMC Plan-specified records than a system of manual forms and signatures.
- j. Unique identifiers (e.g., passwords), used to authenticate the performance of recordkeeping functions, are changed on a frequency specified in the FNMC Plan, or whenever there is a reason to suspect that such identifier may have been compromised.
- k. Automated record systems and data processing systems are protected at the highest level of the classification or safeguards importance of the data and software that comprise them.

85408-04 REFERENCES

Regulations

10 CFR 74.31(a) and 74,31(d); 10 CFR 74.33(a) and 74.33(d).

Regulatory Guides and Reports

NUREG-1065, Rev. 2, "Acceptable Standard Format and Content for The Fundamental Nuclear Material Control Plan Required for Low-Enriched Uranium Facilities," November 1995.

NUREG/CR-5734, "Recommendations to the U.S. Nuclear Regulatory Commission on Acceptable Standard Format and Content for the Fundamental Nuclear Material Control (FNMC) Plan Required for Low-Enriched Uranium Enrichment Facilities," Chapter 12, November 1991.

NUREG/CR-1283, "Accounting Systems for Special Nuclear Material Control," Battelle Pacific Northwest Laboratories, P. A. Korstad, June 1980.

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