

NRC INSPECTION MANUAL

NMSS

INSPECTION PROCEDURE 85315

ACCOUNTING AND INTERNAL CONTROL

PROGRAM APPLICABILITY: 2681

85315-01 INSPECTION OBJECTIVE

Verify that the licensee has established and maintains auditable records sufficient to demonstrate that process monitoring, item monitoring, alarm resolution, quality assurance accounting and internal control requirements are met. Internal control documentation should be provided for independent assessments of the MC&A program, evaluation and resolution of shipper/receiver differences and the scrap control program.

85315-02 INSPECTION REQUIREMENTS

The accounting and internal control systems must comply with all applicable NRC regulations and safeguards license conditions. The FNMCP contains general commitments relative to the accounting and internal control. By inspection determine whether:

02.01 Licensees authorized to possess at any one time and location special nuclear material in a quantity totaling more than 350 grams of contained uranium-235, uranium-233, or plutonium or any combination thereof, complete and submit to the Commission (on DOE/NRC Form 742 and 742C, Material Balance Report) material balance reports concerning a special nuclear material received, produced, possessed, transferred, consumed, disposed of, or lost by it. A statement of the composition of the ending inventory must be submitted to the Commission as an attachment to each material balance report. Each licensee shall compile a report as of March 31 and September 30 of each year and file it within 30 days after the end of the period covered by the report. The Commission may permit a licensee to submit such reports at other times when good cause is shown. In preparing and submitting the reports described in this paragraph, each licensee shall comply with the printed instructions for completing the particular form. [74.13(a)(1)]

02.02 Required nuclear material transfer reports are completed:

- a. Licensees who transfer and/or receive special nuclear material complete and distribute a Nuclear Material Transaction Report

on DOE/NRC Form 741. This should be done in accordance with the printed instructions for completing the form whenever the licensee transfers or receives a quantity of special nuclear material of 1 gram or more of contained uranium-235, uranium-233, or plutonium. [74.15(c)]

- b. Licensees who receive 1 gram or more of contained uranium-235, uranium-233, or plutonium from a foreign source shall:
 1. Complete both the supplier's and receiver's portion of DOE/NRC Form-741; [74.15(b)(1)]
 2. Perform the independent tests to assure the accurate identification and measurement of the material received, including its weight and enrichment; and [74.15(b)(2)]
 3. Indicate the results of these tests on the receiver's portion of the form. [74.15(b)(3)]

02.03 Licensees subject to the requirements of 74.51 submit a completed Special Nuclear Material Physical Inventory Summary Report on NRC Form 327 not later than 45 calendar days from the start of the physical inventory required by 74.59(f). The licensee shall report the inventory results by plants and total facility to the MC&A licensing unit at NRC Headquarters. [74.17(c)]

02.04 The licensee has established and maintains a system of measurements sufficient to provide the data necessary for performance of the material control tests required by 74.53. [74.59(d)(3)]

02.05 The licensee has implemented policies, practices and procedures designed to ensure the quality of physical inventories. These include:

- a. Maintenance of records of the quantities of SSNM added to and removed from process. [74.59(f)(2)(ii)]
- b. Requirements for signed documentation of all SSNM transfers between areas with different custodial responsibility that reflect all quantities of SSNM transferred. [74.59(f)(2)(iii)]
- c. Means of control of an accounting for internal transfer documents. [74.59(f)(2)(iv)]

02.06 Auditable records have been established and retained for at least three years unless a longer retention time is required by 10 CFR 75. [74.59(g)]

02.07 The licensee has established internal controls including:

- a. Procedures for shipping and receiving SSNM that provide documentation of shipper/receiver difference evaluations, investigations, and corrective actions. [74.59(h)(1)]
- b. A scrap control program that assures that:
 1. Internally generated scrap or scrap from other licensees or contractors is segregated until accountability is established. [74.59(h)(2)(i)]

2. Any scrap measured with a standard deviation greater than five percent of the measured amount is recovered so that the results are segregated by inventory period and received within six months 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). [74.59(h)(2)(ii)]

02.08 Checks and balances have been incorporated in the MC&A system sufficient to control the rate of human errors in material control and accounting information to as low as reasonably achievable. [74.59(h)(3)]

02.09 The licensee has conducted independent assessments at least every 12 months that assess the performance of the MC&A system, 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). [74.59(h)(4)]

85315-03 INSPECTION GUIDANCE

03.01 Regulations. 74.59(g), 74.59(h)

03.02 Regulatory Guides and Reports. NUREG-1280, Standard Format and Content Acceptance Criteria for the Material Control and Accounting (MC&A) Reform Amendment, Section 4.6, "Accounting," Section 4.7, "Shipments and Receipts," Section 4.8, "Scrap Control," and Section 4.10, "Independent Assessment."

03.03 Criteria. The inspector verifies that the licensee has established an auditable records system that contains sufficient information to facilitate future reviews, audits, and inspections to demonstrate that all Plan commitments have been met.

Pre-inspection Activities. To prepare for the inspection, the inspector should review the specific portions of the FNMCP and the safeguards license conditions for the planned inspection activities; review the previous inspection report for the site; review any unresolved or followup items to be addressed during the inspection; and review any communications (including information notices and bulletins) with the facility since the last inspection.

Post Inspection Activities. Followup is conducted as described in Manual Chapter 92701 and the Inspection Report is generated as described in Manual Chapter 0610.

- a. Accounting Record Retention Periods. The inspector should verify that the records system provides for retention of key material accounting and original source data and relevant reports and documents including management structure; MC&A policies and procedures; measurement data used for loss detection, alarm resolution and material balance accounting;

records of the investigation and resolution of alarms; calibrations of measurement systems, measurement quality control data, bias adjustments and their backup data, and the statistical analyses of the measurement control data; calculations of action thresholds for the detection system; shipper/receiver data and investigations of significant shipper/receiver differences; tamper-safing records; physical inventory listings and inventory work sheets; records of inventory differences (IDs) and calculations of standard error of the inventory differences (SEIDs); reports of investigations and resolution of alarms, excessive ID estimates, and shipper/receiver differences; and reports of periodic reviews and assessments and the resultant corrective actions taken by management. Auditable records must be retained for at least three years unless a longer period is required by 10 CFR 75.

- b. The inspector should determine that verification for SSNM receipts of container identity and integrity, seal identity and integrity, and bulk container gross weights has been accomplished within the time limits approved in the FNMCP. Shipper/receiver differences should be evaluated for significance for both element and isotope. Any statistically significant shipper/receiver difference (whether for element only, isotope only, or both) must be investigated and resolved unless the U-235, U-233 or Pu difference associated with a particular line item or the total shipment, as the case may be is less than 50 grams. Packaging of SSNM shipments should be observed by appropriate licensee personnel to assure compliance with all required local, state, and federal regulations. Shipping information should also be carefully checked and seal integrity examined prior to the shipment of any container.

All transfers of SSNM between any two CAAs must be properly documented and measured. The measurement of SSNM may occur at either the point of transfer or the point of receipt. Transfer documents must contain appropriate descriptive information such as date, material type, enrichment, weight, item or container number, and must be uniquely identified and controlled. Once a material transfer document has been used, the SSNM custodian should immediately forward a copy to the accounting office. All material transfer documents must be accounted for.

- c. The inspector should review the licensee's submitted NRC Form 327 at the MC&A licensing unit at NRC Headquarters and compare the current form with the form from the previous period. During the onsite inspection, the inspector can compare the submittal with the plant records.
- d. The inspector should review records and reports to verify that they contain sufficient detail to demonstrate that SSNM control and accounting has been conducted in compliance with 74.53, 74.55, 74.57, and 74.59.

Records may be retained in hard copy, magnetic tapes or disks, microfiche, or other suitable forms.

- e. Review Internal Control Documentation. The inspector should examine internal control documentation to determine that accounting errors, shipper/receiver differences and inventory differences (ID) 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.

All accounting forms should be controlled by serial number or by some other equivalent coding system. In addition, these forms should provide for the appropriate number of signatures. Source data forms should be signed by the originator and his/her supervisor. The supervisor may delegate his/her signature authority. Internal transfer forms should be signed by both the shipping and receiving custodians or their designated alternates. Inventory forms should be signed by the inventory team and their supervisor. All adjustments to source data and accounting records should be approved by signature of authorized individuals and substantiated with backup data.

Where accounting forms and/or signatures are replaced using computer-based techniques, such use 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 must be controlled in a manner which protects against their use by unauthorized individuals. Identifiers must be changed whenever there is a reason to suspect that they have been compromised. In addition, as an added precautionary measure, they should usually be changed in accordance with some predetermined frequency. The FNMCP or an associated procedure should specify how frequently such routine changes are made.

- f. The inspector examine the licensee's method for ensuring redundancy and evaluates the potential for primary and secondary records both being destroyed in a single event such as fire, flood, etc.

Audit of Accounting Records. The number and types of records subject to inspection will vary from facility to facility. Based on the availability of manpower resources and the number and types of records, some records may be selected for 100 percent inspection. For records not selected for 100 percent inspection, the inspector shall audit the accounting records by either selecting a random sample of each type of record for an independent manual check or by using some other recognized method of analyzing the correctness of licensee records. A record shall be considered defective only if it contains an error involving incorrect or missing data that could affect the material balance. Sample sizes shall be determined using an appropriate attribute sampling plan that has at least a 90 percent power of detecting if more than one percent of the records are defective and a 90 percent or higher probability of accepting records that are less than 0.2 percent defective. If this audit rejects a record type, the inspector shall notify the licensee of the need to examine any remaining

records in this category and to correct all records that are defective. The results and conclusions of all records audits must be documented in an inspection report.

The record system must have sufficient redundancy to enable reconstruction of lost or missing records so that a complete knowledge of the SSNM inventory is available. The capability for reconstruction of records will 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.

Appropriate safeguards are implemented to prevent loss, misplacement or accidental destruction of the inventory and item location records. The record system will be complete and sufficiently detailed to permit auditing of all parts of the MC&A system. The records and reports will be readily traceable back to source documents.

- g. The element and isotopic content of SSNM shipments are based on measurements obtained from measurement systems subject to the measurement control program. Receipts of SSNM are checked and measured to confirm that the quantity received is consistent with the supporting documentation. Item checks and seal integrity inspections are completed within 24 hours of receipt. Receipt measurements are completed within 30 days of receipt except in the case of scrap.

Scrap control procedures provide for segregation of any scrap that originates from off-site from scrap generated on-site until accountability has been established and recovery of scrap within six months after the inventory period in which it was generated when such scrap has a standard deviation of its measurement estimator greater than five percent of the measured amount unless it can be shown that the total scrap measurement error will not cause noncompliance with 74.59(e)(5)

- h. Review of Accounting Checks and Balances. The inspector reviews procedures and job performance aids to determine whether they contribute to minimizing the rate of human errors in MC&A information. The record maintained of the frequency of the human errors should be reviewed to determine whether the licensee is monitoring human error rates and using this information to identify procedures and tasks for modification or additional checks and balances. Cross-checks or other controls are provided to prevent or detect errors in the records that would affect IDs or item location records.

MC&A procedures assure that the frequency and consequences of human errors are minimized. These procedures include job performance aids where applicable and are formatted in a manner that facilitates a reduction of human errors and helps to make errors easier to identify. MC&A activities associated with collecting and processing data, record-keeping, and

auditing are automated where it is practical and advantageous to do so. The quality control system monitors the frequency of human errors and permits categorization of the types of errors encountered.

- i. Review Independent Assessments. An independent assessment is a comprehensive evaluation of the MC&A system to independently assess the system design, to evaluate its capabilities to achieve the general safeguards objectives and to detect deficiencies or weaknesses in either the system design or implementation. The assessment encompasses the entire MC&A system with particular emphasis on abrupt loss detection, item control, and alarm resolution. The assessment is a judgement based on audits and reviews. Audits review the accuracy of accounting and measurement records to determine that human errors have been controlled. Audits should include the timeliness, completeness and accuracy of the written accounting records. Reviews are conducted to determine that the MC&A program is doing the right things. Reviews focus on the scope and intent of the MC&A program. The assessment examines the results of both audits and reviews in light of the MC&A performance history to make a judgement of MC&A program effectiveness. The inspector should review the independent assessments to ensure that they are in fact independent, to look for indications of potential MC&A system inadequacies, and to determine what actions are being taken to resolve issues raised.

Assessments, audits and reviews must be performed at least annually. Safeguards management must document their response to the findings of each audit, review and assessment, and correct identified deficiencies in a timely and effective manner.

The inspector should determine whether the contractor measurement programs complies with applicable NRC requirements by analyzing the results of the licensee's annual reviews and audits of its contractor laboratory. An occasional visit by inspectors to contractor labs (perhaps every 2 to 3 years) might also be employed as an overcheck of the effectiveness and compliance of these labs.

03.04 Inspection Activities Flowchart. Figure 1 shows a flow chart of the accounting and internal control inspection activities.

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FIGURE 1

ACCOUNTING AND INTERNAL CONTROL INSPECTION

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