

# NRC INSPECTION MANUAL

NMSS

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## INSPECTION PROCEDURE 85303

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MC&A MANAGEMENT STRUCTURE AND PERSONNEL TRAINING AND QUALIFICATION

PROGRAM APPLICABILITY: 2681

### 85303-01 INSPECTION OBJECTIVE

Verify that (1) the licensee's organizational structure has been implemented in accordance with the NRC-approved FNMCP and any applicable safeguards license conditions, and (2) the licensee has a management system for the review, approval and use of MC&A procedures, and for the training and qualification of MC&A personnel.

### 85303-02 INSPECTION REQUIREMENTS

The management structure and personnel training and qualification must comply with all applicable NRC regulations and safeguards license conditions. The FNMCP contains general commitments relative to the management structure and personnel training and qualification. By inspection determine whether:

02.01 Checks and balances have been incorporated that are sufficient to detect falsification of data and reports that could conceal diversion by:

- a. An individual, including an employee in any position; or [74.51(b)(1)].
- b. 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 systems. [74.51(b)(2)].

02.02 A management structure has been established and maintained that includes clear overall responsibility for planning, coordinating and administering of material control and accounting functions, independence of material control and accounting functions from production responsibilities, and separation of functions such that the activities of one individual or organizational unit serve as controls over and checks of the activities of others. [74.59(b)(1)].

02.03 The management structure provides for the adequate review, approval, and use of those material control and accounting procedures that are identified in the approved FNMCP as being critical to the effectiveness of the described system. [74.59(b)(2)]

02.04 Personnel who work in key positions where mistakes could directly degrade the effectiveness of the MC&A system are trained to maintain a high level of

safeguards awareness and are qualified to perform their jobs and/or responsibilities. [74.59(c)]

02.05 Custodial responsibility has been assigned in a manner that ensures that such responsibility can be effectively executed for all SSNM possessed under license. [74.59(h)(5)]

## 85303-03 INSPECTION GUIDANCE

### 03.01 Regulations. 74.59

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 4.1, "Management Structure," and Section 4.2, "Personnel Qualification and Training."

03.03 Criteria. The inspector ensures that licensees have implemented a management structure that permits effective functioning of the MC&A system. The inspector reviews the licensee's organization charts, observes training activities, reviews training records, reviews the licensee's monitoring of human error rates, and interviews a sample of personnel with MC&A responsibilities.

The management structure must separate key MC&A functions from each other in order to provide cross-checks that increase MC&A reliability and counter defeat of the system through neglect, deceit or falsification, and to free MC&A management from conflicts of interest with other major responsibilities such as production. The training and qualification of key MC&A personnel must promote the effectiveness of the MC&A system by minimizing the potential for human errors. The program should be structured to define job requirements, to establish minimum qualifications for candidates, to train and qualify the candidates, and to define requalification criteria.

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. Checks and Balances in the MC&A Management Structure. The inspector should scrutinize the functional relationships to assure proper checks and balances of safeguards systems. The MC&A organization should be separate from the SSNM production organization and any other organization that generates source data, if practical. Otherwise, controls are in place to ensure that process operations, measurements, measurement controls, accounting functions, and any other activities that influence MC&A system performance are carried out both in the

letter and spirit of approved procedures; and that decisions impacting MC&A that can conflict with production or other plant functions are under the oversight of an independent authority.

Management of the centralized accounting system should be assigned to a single position independent of all positions having responsibilities for custody of SSNM or the generation of SSNM data. The custodianship of all SSNM within an individual CAA should be assigned to one individual. Custodial responsibility must be delegated in writing. An individual may be the custodian of more than one CAA provided no single individual is authorized to sign as both shipper and receiver in transfers between participating CAAs.

The assignment of MC&A functions in the licensee organization provides a separation of functions so that the activities of one individual or organizational unit serve as controls over and checks of the activities of other individuals or organizational units.

The individuals who generate source data, such as those performing measurements, preparing transfer forms, or preparing analytical reports should not perform any accounting or record control functions unless cross-checks of the work are performed to prevent falsification.

No individual should have the sole authority to recheck, evaluate, or audit information for which that individual is responsible.

The inspector should determine that no individual has responsibility and control of both an MC&A and physical protection function unless independent cross-checks are in place to preclude defeat of the overall safeguards system. As a minimum, the cross-check must include countersigning by one other person of any SSNM transfer within an MAA and countersigning by two individuals for SSNM transfers out of an MAA. The cross checks should be supported by control to detect forged signatures.

- b. In reviewing the organizational charts, the inspector should ensure that all MC&A functions are included. In addition, the MC&A function must be appropriately located within the facility organization. As an example, control functions should be separated from operating functions, accounting functions should be separated from manufacturing and laboratory operations functions, and the audit function should be separated from those functions that are subject to audit.

Review of Management Performance History. The inspector should verify that the effectiveness of the licensee's management controls and organization have been evaluated each year. The inspector should review and analyze the MC&A system performance history to see if they have been successful in maintaining or improving the compliance and effectiveness of the system. Excessive MC&A noncompliance or failure of

management to adequately identify and/or correct MC&A system deficiencies are both probable indications of ineffectiveness within these areas. Noncompliance shall be considered excessive if their frequency and/or severity are greater than what might normally be expected for a facility of the size and complexity involved and it is reasonable to expect that the problems underlying such noncompliance should have been identified and corrected prior to the occurrence of a violation. In all cases, indications of willful management inattention to known system weaknesses shall be considered a serious problem needing prompt regulatory action.

Delineation of MC&A Responsibilities. By review of the licensee's organization charts and documentation of authorities, the inspector can determine whether an individual has responsibilities and control within both the physical protection and the MC&A systems. If such an individual exists with the licensee's organization, the inspector verifies that this has been discussed in the FNMCP and determines that the independent cross-checks have been implemented.

To ensure freedom of action, the control and audit functions should be at a level of management equivalent to or higher than the management function subject to control and audit. The overall planning, coordination, and administration of the MC&A functions for SSNM is vested in a single individual at an organizational level that is sufficient to ensure independence of action and objectivity of decisions. The individual must be in a position to recommend and initiate timely action for the control and accounting of SSNM including delaying production, if necessary, and must not be enmeshed in a hierarchical framework that could inhibit or compromise independent action.

The responsibilities and authorities for each position assigned an SSNM control and accounting function are clearly defined in position descriptions that are accessible to all affected personnel and to the NRC upon request.

The individuals responsible for each MC&A function have sufficient authority to perform the function in the prescribed manner.

The overall management responsibility for the MC&A system is at a level at least comparable to the organization having responsibility for production or storage of SSNM, or a direct line of communication is provided to a management level which has the authority to implement measures essential to effective MC&A.

- c. Review of MC&A Procedures. The inspector reviews MC&A procedures for approval and tours the site to assure that only current, approved procedures are in use. The review and tour should determine that those procedures identified as critical in the FNMCP are in use.

Critical MC&A functions are documented in written procedures. The procedures and any revision thereto are reviewed and approved by appropriate management personnel prior to implementation. The individual with overall responsibility for the MC&A system will approve all procedures generated in the MC&A organization and be cognizant of all other procedures affecting MC&A.

Critical MC&A procedures should, as a minimum, address the establishment of basic MC&A system policies, detection of the loss of a goal quantity, performance of the physical inventory, determination of inventory/shipper differences, establishment of measurement control policies, and determination of measurement and nonmeasurement errors critical to MC&A.

- d. Training of MC&A Personnel. The inspector reviews records of human errors that affect the MC&A system and compares the types of errors noted with relevant training to ensure that the training program addresses those problems that degrade MC&A program effectiveness.

A list of key positions or functions is maintained that includes all those for which errors or faulty performance could directly degrade SSNM control and accounting.

The training program emphasizes the job purpose and scope; relationship to other positions, especially the MC&A positions; the role or significance with respect to MC&A; technical knowledge; understanding of duties, responsibilities and procedures; and skill development.

The responsibility for preparing and updating measurement and training procedures should be assigned to personnel who are qualified to write such procedures. All initial procedures and subsequent modifications should be reviewed and approved prior to being implemented. The inspector should review and analyze these procedures/modifications for ambiguity, unnecessary complexity, or inconsistency with generally accepted measurement and training techniques. If apparent deficiencies are found, they should be discussed with appropriate management and personnel until concerns are satisfactorily resolved.

The training plans provide for a reasonable balance of theory and practice, or oral and written instruction versus demonstration and learning-by-doing, the use of on-job training for positions that are primarily operational or clerical, and individualized instruction based on performance goals whenever feasible.

The training program provides for training of personnel already experienced and functioning in MC&A positions at the time of Plan implementation when competency tests indicate that additional training is called for. The criterion will be whether or not the individual can function at the level of proficiency called for in the qualification criteria.

Qualification of MC&A Personnel. The inspector should determine that tests for positions requiring measurements, calculations, or recording of data and information will include demonstration of correct and accurate job performance. When operating procedures or manipulative skills are required, the tests will include hands-on demonstrations of competence.

The continuing qualification of key personnel will be verified on an ongoing basis or at least every two years.

The qualification criteria for the key positions are consistent with the position descriptions and focus on minimum levels of education and experience; knowledge of the job content and its purposes; types and levels of skills or proficiency; and understanding of the safeguards role and its importance.

The criteria are defined in terms of measurable performance goals whenever possible.

- e. Review of Assignment of Custodial Responsibility. The inspector reviews the method(s) of assigning responsibility and records maintained for SSNM movements and physical inventories. By touring the facility and reviewing access authorization methods (e.g., badges), the inspector should determine whether access to SSNM is limited to only authorized personnel.

The management structure must provide for assignment of a responsibility for SSNM undergoing processing and in storage to a single individual or group. The duties of the individual(s) include maintaining appropriate inventory control over SSNM in their assigned area; authorizing and recording all movements of SSNM into and out of their assigned area; maintaining appropriate local MC&A records; participating in physical inventories as required; assisting in internal or external alarm resolution activities as required; assuring that, when SSNM is processed in bulk form, only authorized persons have hands-on access to the material; and notifying proper authorities of irregularities in material and MC&A data handling.

03.04 Inspection Activities Flowchart. Figure 1 shows a flow chart of the inspection activities for evaluation of the MC&A management structure and the personnel training and qualification program.

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Figure 1

Inspection of the Management Structure and Personnel Training  
and Qualification Program

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