

## 4.0 QUALITY ASSURANCE

### 4.1 Management Structure [§74.59(b)]

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**Requirement** Establish and maintain a management structure that includes clearly defined responsibility for the planning, coordination, and administration of MC&A functions; independence of MC&A 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.

Provide for the adequate review and use of those MC&A procedures that are identified in the approved FNMC plan as being critical to the effectiveness of the described system.

**Intent and Scope** The intent of this section is to require licensees to implement a management structure that permits effective functioning of the MC&A system. Documentation, review, and approval of the procedures and the assignment of the key functions to specific positions eliminates ambiguities about what is to be done by whom. The management structure is meant to separate key MC&A functions from each other in order to provide cross-checks that increase MC&A system 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.

#### 4.1.1 Organization

Describe the organization for MC&A including the functional responsibilities for each organizational unit and show how the MC&A organization is independent of responsibilities that have potentially conflicting goals.

**Affirmations:** The overall responsibility for the MC&A system is assigned to a management position that provides separation from production responsibilities or any other responsibilities that may give rise to a conflict of interest.

The responsibility for each MC&A function is assigned to a specific position in the organization in a way that key functions are cross-checked.

**Acceptance Criteria:** The MC&A organization is separate from the SSNM production (operations) organization and any other organization that generates source data. 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, which can conflict with production or other plant functions, are under the oversight of an independent authority.

The management structure exhibits at least the following attributes:

- 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 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 critical MC&A functions and activities 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 (1) the establishment of basic MC&A system policies; (2) measurement requirements and methodologies; (3) detecting the loss of a goal quantity; (4) alarm resolution activities; (5) performance of the physical inventories; (6) determination of inventory and shipper-receiver differences; (7) establishment of measurement control policies; and (8) determination of measurement uncertainties and the standard error of inventory difference.

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 the management level which has the authority to implement measures essential to effective MC&A.

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

- Review of measurement data and calculations by another individual,
- Maintenance of a duplicate copy of all source data and transfer forms under controls separate from the accounting function,
- Performance of independent audits, and
- Separation of computer program maintenance from the program user function.

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

No individual may have responsibility and control of both MC&A and physical protection functions 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 management structure provides 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 but are not limited to:

- 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 or ensuring that other records, such as production records, contain necessary MC&A information,
- Participating in physical inventories as required,
- Assisting in internal or external alarm resolution activities as required,
- Ensuring 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.

#### 4.1.2 Policies and Procedures

Describe the policies, procedures, duties, responsibilities, and authorities associated with each position involved with an MC&A function in sufficient detail to demonstrate the cross-checks built into the MC&A system.

In the plan provide a listing (by title and procedure number) of the procedures deemed to be critical to the effectiveness of the MC&A system.

**Affirmations:** The management structure and the critical MC&A policies and procedures are documented and provisions are made for review and approval prior to implementation.

**Acceptance Criteria:** Policies have been developed and documented to direct MC&A activities, including generation of procedures. Plant policies are periodically reviewed and revised as appropriate.

Procedures have been developed as specified in Section 4.9.1 (*MC&A Procedures*).

- Questions and Answers:**
- Q** At what level of understanding should MC&A procedures be written?
- A** Procedures such as those used in MC&A should be written so that any person performing the work should be able to understand the content and meaning of the actions to be taken, the warning statements, and all other messages. Generally, a twelfth grade level of vocabulary should be used in writing procedures. This restriction does not apply to the technical terminology included in the procedures, although these terms must then be included in any specific training that involved personnel are required to take.

**Q** What is a systematic task analysis, and how will it help to define the content of procedures?

**A** A task analysis breaks down and systematically evaluates a human function in terms of the abilities, skills, knowledge, and attitudes required for performance of the function. These analyses may be performed to differing degrees of depth, depending on the information requirement and its specific application.

A task analysis will assist the procedure developer by systematically outlining the steps to be performed to complete a task, the personnel needed to complete each step, and the requirements of each person.

Procedures usually do not require an in-depth task analysis, but consideration of the needs of personnel will usually make procedures better.

**Q** Why should procedures be reviewed and verified before being accepted for regular usage?

**A** Procedures that contain inaccurate or incomplete information are misleading and can be detrimental to MC&A information error rates. Personnel who have previously performed similar tasks or are familiar with the process to be performed will frequently discover omissions of required information, misleading information, or mistakes.

Verification of the procedures involves field testing by the personnel who will be using the procedures to determine problems not found during the review phase.

## 4.2 Personnel Qualification and Training [§74.59(c)]

<b>Requirement</b>	The rule requires that each licensee ensure that key personnel, who work in positions involving tasks where mistakes could directly degrade the safeguards capabilities of the MC&A system, are trained to maintain a high level of safeguards awareness and are qualified to perform their jobs.
<b>Intent and Scope</b>	The intent of this section is to ensure that the effectiveness of the MC&A system is maintained by the qualification and training of key personnel. A training and qualification program can help ensure that these individuals are adequately prepared to perform their functions correctly with a minimum of errors. The program should be structured to define job requirements, to