

## CONFIGURATION MANAGEMENT PROGRAM

### 1.0 Objective

The objective of this performance assessment is to evaluate the effectiveness of the laboratory's configuration management program as implemented in the facility. The assessment is limited to operational configuration management programs. Line management has responsibility for oversight of laboratory configuration management during design and construction of new facilities. The Facility Representative or Environmental, Safety, and Health Support Specialist examines policies, procedures, and programs implemented in the facility. Assessment activities include observations of work in progress, interviews with facility and support staff personnel, and reviews of applicable documents.

### 2.0 Definitions

Concern - A determination of a programmatic breakdown or widespread problem supported by one or more findings or observations.

Finding - An individual item which does not meet requirements.

Functional Area - A discrete group of related safety and support programs.

Lines of Inquiry - Questions that guide the assessor in planning and conducting the performance assessment.

Observation - A condition or practice that does not provide or promote effective protection of the health and safety of the public or DOE's workers or the environment.

Performance Assessment - An evaluation of a program or functional area to verify laboratory line management effectiveness in ensuring the health and safety of the public and of DOE's workers and in ensuring protection of the environment.

Performance Attributes - Key elements, functions, or activities to be assessed in a particular functional area.

### 3.0 References

- 3.1 DOE 4700.1, *Project Management System*
- 3.2 DOE-STD-1073-93, *Guide for Operational Configuration Management Program*
- 3.3 MIL-STD-937, *Configuration Management*

#### 4.0 Performance Assessment Activities

The assessor reviews applicable program documentation including guidance on configuration management provided to the laboratory by BNL line management and laboratory programs, policies and procedures. Appendix A provides a suggested list of documents that the assessor may review during preparations for the assessment.

During the assessment, the assessor evaluates selected performance attributes by developing and using lines of inquiry for each performance attribute. Appendix B provides a listing of suggested performance attributes and lines of inquiry. In pursuing each line of inquiry, the assessor may perform various activities including document reviews, interviews, observation of work in progress, and facility walkthroughs. The assessor may choose to use existing surveillance guides in completing specific portions of the assessment. Surveillance Guides for the configuration management functional area include:

|         |   |
|---------|---|
| CMS 3.1 | Control of Drawings and Safety Documents            |
| CMS 3.2 | Change Control                                      |
| CMS 3.3 | Verification of System Configuration and Operations |
| CMS 3.4 | Temporary Changes                                   |

The focus of DOE's configuration management program has historically been on design and construction. Explicit requirements regarding configuration management programs and processes during operations, deactivation, decontamination and decommissioning, and deconstruction are not included in existing DOE Orders or applicable regulations. In 1993, the Department issued a non-mandatory standard to provide guidance to contractors (the laboratory) on approaches for improving configuration management programs.

During this assessment, the assessor will focus on implementation of the operational configuration management program at the facility. In performing this assessment, the assessor must balance review of site-wide programs, facility-specific policies and procedures, and implementation. The following questions provide the general framework that should be used in planning, conducting and documenting the assessment:

- Has the scope of the configuration management program been clearly defined?
- Does a valid baseline exist to ensure agreement between the facility physical configuration, design requirements, and facility documents?
- Are effective controls in place for temporary and permanent changes to the facility?
- Are effective processes in place to maintain control of the design requirements?

**APPENDIX A**  
**POSSIBLE DOCUMENTS TO BE REVIEWED**

Configuration Management Program Plan  
Configuration Management Policy  
Implementing procedures for the configuration management program  
Procedures for preparation, review, approval, and issuance of controlled documents,  
including changes to such documents  
Procedures for controlling changes to the facility  
Procedures for performing technical baseline reviews  
Results of any configuration management assessments performed to date

## **APPENDIX B**

### **PERFORMANCE ATTRIBUTES AND LINES OF INQUIRY**

**PERFORMANCE ATTRIBUTE: I.** A comprehensive configuration management program has been initiated by the laboratory.

#### **LINES OF INQUIRY:**

1. Has a configuration management plan for the facility been developed to define the scope of the program, major milestones, and required resources?
2. Does the configuration management plan include:
  - a. The scope of systems, structures, and components?
  - b. Objectives of each program activity?
  - c. Description of each program activity?
  - d. The basis for the technical content of each program activity?
  - e. Organizational structure and staffing?
  - f. Program interfaces?
  - g. Implementation priorities and schedules?
  - h. Cost estimates?
3. Has a policy been issued by senior management endorsing configuration management principles and broadly defining the program?
4. Does the scope of the configuration management program include systems, structures, and components that (1) protect off-site personnel or the public, on-site personnel, and facility workers from nuclear and chemical hazards, (2) protect the environment from damage or support compliance with environmental regulations, and (3) are essential to fulfill the facility's mission?
5. Have concepts, standard terminology, and definitions applicable to the configuration management program been established?
6. Have controls been established for program interfaces and are roles and responsibilities clearly defined?
7. Have databases for use in identification, storage, control, and retrieval of information important to configuration management been established?
8. Have implementing procedures been developed for the configuration management program?

9. Have personnel been trained on the configuration management program plan, procedures, concepts, standard terminology, and definitions?
10. Have the boundaries for systems and process equipment that are included in the configuration management program been clearly defined?
11. Has an equipment list been prepared identifying all systems, structures, and components within the bounds of this configuration management program?

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**PERFORMANCE ATTRIBUTE:** II. The configuration management program provides for establishing and maintaining design requirements and demonstrating that these requirements were met.

### LINES OF INQUIRY:

1. Have design requirements been established and documented for all systems, structures, and components included in the configuration management program?
2. Has a technical management review been performed to verify the adequacy of the design requirements?
3. Have design requirements been incorporated into an equipment database?
4. Are design requirements for new facilities, systems, or components or modifications to existing facilities, systems, or components reviewed, approved, and incorporated into the configuration management database?
5. Has the design basis for each of the design requirements been established?
6. Have processes been established to ensure that the design basis is clearly established for all design modifications and new systems or facilities?

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**PERFORMANCE ATTRIBUTE:** III. An effective document control system has been established to preserve, maintain, and ensure access to documents relating to configuration management.

### LINES OF INQUIRY:

1. Have the types of documents to be included in the configuration management document control system been identified?
2. Have document owners responsible for the technical content of each document type been assigned?
3. Have specific documents for inclusion in the configuration management document control system relating to each system, structure, or component been identified?
4. Are originals or master copies of documents within the configuration management program stored and protected?
5. Have retention times been specified for documents in the document control system?
6. Are only currently-approved revisions of documents in the configuration management document control system in use?
7. Are documents in the configuration management document control system revised in a timely manner to incorporate pending changes?
8. Are administrative controls established over the number of allowable changes pending before revisions to documents are prepared?
9. Can personnel readily retrieve the revision level, current status, document owner, pending changes, storage location, and document identification number for each document in the configuration management document control system?
10. Are documents retrieved for users from the configuration management document control system in a timely fashion?
11. Are all pending changes identified when a document is issued from the configuration management document control system?

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**PERFORMANCE ATTRIBUTE:** IV. Effective processes have been established to maintain consistency among design requirements, facility physical configuration, and facility documentation as changes are made.

### LINES OF INQUIRY:

1. Have all mechanisms that can lead to temporary or permanent changes in design requirements, facility configuration, or controlled documents been identified?
2. Have all change mechanisms been evaluated to determine adequacy?
3. Have corrective actions been initiated or implemented to improve, consolidate, or terminate change mechanisms to ensure effective control over all change mechanisms?
4. Are all proposed temporary or permanent changes reviewed by appropriate organizations before approval and implementation?
5. Does management review proposed changes to ensure required technical reviews have been performed and that any necessary external approvals have been obtained?
6. Are changes implemented in accordance with the approved change packages?
7. Are field change requests subject to the same levels of technical review and approval as the original change package?
8. Are documents establishing as-built conditions and verifying conformance with design requirements prepared, reviewed, and approved?



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**PERFORMANCE ATTRIBUTE:** V. Configuration management assessments are conducted to define the overall need for configuration management and to monitor progress in establishing and maintaining configuration management program documents.

### **LINES OF INQUIRY:**

1. Have initial assessments been conducted to determine strengths and weaknesses of existing programs during planning for the configuration management program?
2. Have horizontal slice assessments been performed to determine the effectiveness of each element of the configuration management program following program implementation?
3. Has a program of periodic assessments been established to measure the overall effectiveness of the configuration management program?
4. Does the program of periodic assessments include both horizontal and vertical assessments?
5. Are results from all assessments of the configuration management program reported to appropriate levels of management?
6. Does management act promptly on results from configuration management assessments to correct recognized deficiencies?
7. Have walkdowns been performed for a representative sample of systems, structures, and components to determine if the physical configuration of the facility conforms to facility documentation?
8. If discrepancies between the physical configuration and the configuration documentation are identified, is a technical evaluation performed to determine whether the physical configuration or the documentation should be changed?
9. If discrepancies between the physical configuration and the configuration documentation are identified, are steps initiated promptly to eliminate these discrepancies?
10. Are systems, structures, and components in the configuration management program tested periodically to verify that they are still capable of meeting their design requirements?

11. Are systems, structures, and components in the configuration management program subjected to thorough testing following modifications to verify that they will still meet design requirements?
12. Are any discrepancies identified during periodic or post-modification testing promptly dispositioned to ensure continued safety of the facility?

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**PERFORMANCE ATTRIBUTE:** VI. A graded approach has been appropriately applied to establish the required resources and priority for the configuration management program.

### **LINES OF INQUIRY:**

1. Has the application of the graded approach considered the mission of the facility and the nature of hazards associated with the facility?
2. Has the application of the graded approach considered the facility's remaining operational life?
3. Has the application of the graded approach adequately considered the operational status of the facility?
4. Has the priority for implementation of a configuration management program been objectively evaluated against other ongoing initiatives?
5. Have unique programmatic or technical issues associated with the facility's mission or existing design vulnerabilities been considered in establishing the graded approach?
6. Is the basis for the application of the graded approach fully documented?