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SRNL Configuration Management

"Ensuring Precision, Control, and Integrity in Technical Operations"

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Overview

The primary objective of this presentation is to share knowledge on how Savannah River National Laboratory (SRNL) ensures that any changes to the facility's systems, structures, and components (SSCs) are managed and tracked to avoid discrepancies. This includes maintaining a comprehensive technical baseline that documents the essential attributes and operational parameters of SSCs. Configuration Management (CM) is an indispensable aspect of facility management at SRNL.

Key Attributes:

- Safety Assurance
- Operational Efficiency
- Compliance and Accountability
- Continuous Improvement

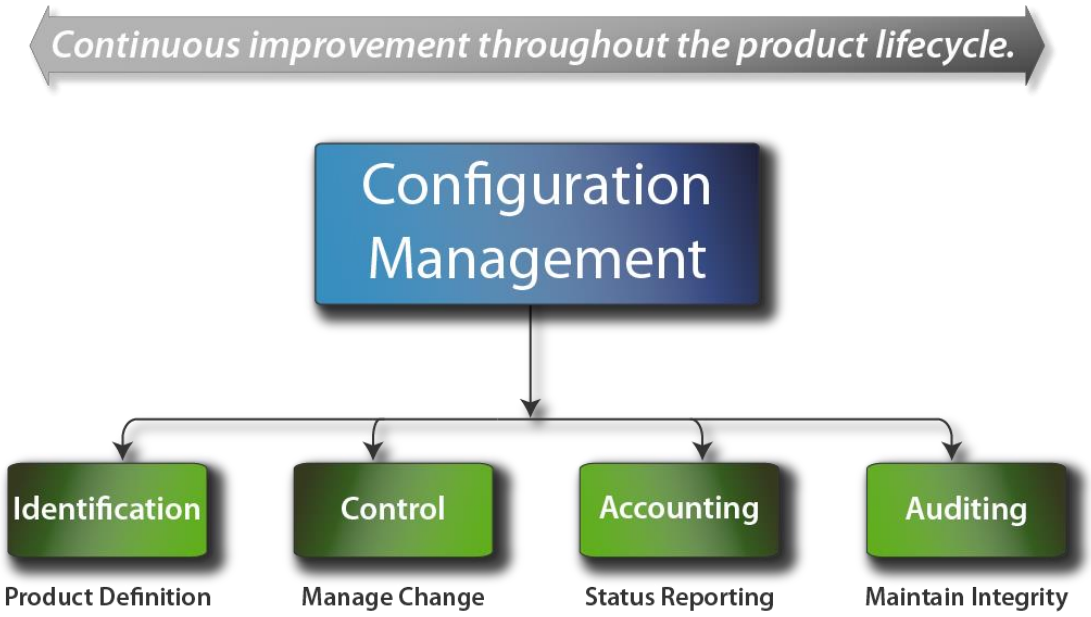
Agenda

- About Configuration Management
- Major Elements
- Document Category
- Documents + Databases
- Configuration Management Implementation Plan (CMIP)
- What is to be Configuration Controlled?
- Execution
- How is Configuration Management Maintained?
- CMIP SRNL Practices
- Conclusion
- Questions, Comments, Concerns

About- Configuration Management

What is Configuration Management?

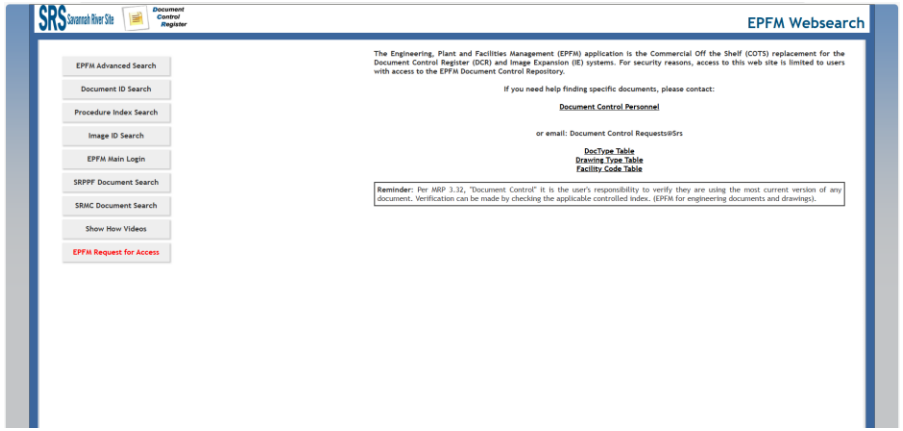
- Configuration Management (CM) ensures that ***technical baseline documents*** accurately represent the functional, physical, and operational requirements of facility Structures, Systems, and Components (SSCs) and process software. This program maintains the document accuracy throughout the facility's lifecycle.
- ***Technical baseline documents*** (drawings, procedures, records, etc.) They are listed in the Facility Configuration Baseline List (FCBL) & establish ***design requirements.***
- ***Design requirements*** are the functions, capabilities, physical sizes and dimensions, limits and set points.



About- Configuration Management

What information is in the FCBL?

- The ***FCBL contains documents and databases*** that constitute the technical baseline for the SRNL technical area (TA) systems. Types of documents included:
  - Engineering assignments list
  - Designated procedures
  - System design descriptions
  - Configuration-controlled drawings
  - Lighting panel and distribution panel schedules
  - Engineering Calculations
- The FCBL is created and maintained by the ***Design Authority Engineer (DAE).*** These engineers are responsible for identifying and categorizing the technical baseline documents for their assigned systems. The specific assignments and roles for these engineers are outlined in the relevant site-specific procedures and manuals.



Major Elements

- ***Technical Baseline Identification*** refers to the process of defining and categorizing documents and data. This task is undertaken by the Design Authority Engineer (DAE).
- ***Document Control*** ensures that only the most recently approved versions of documents and their amendments are used for operating, maintaining, and modifying configuration-controlled facilities. SRNL utilizes the Engineering, Plant and Facilities Management (EPFM) system for storing technical baseline documents and their amendments.
- ***Change Control*** involves tracking open amendments against technical baseline documents within the Document control system (EPFM). Depending on the document category (Essential, Support or General), base drawings are revised to incorporate field-installed amendments according to Manual E7, Procedure 1.05. Base documents can be revised any time before a trigger point at the discretion of the Design Authority.

Document Category

Table 5.1-1 Document Category Assignment

Document Category	Assignment Considerations
Essential	Consider P&IDs and Single Lines: • Required by Alarm Response, Emergency, or Abnormal Operating Procedures • Required to determine plant event compensatory actions • Required by TSR to clarify technical requirements.
Support	Consider information that provides engineering, maintenance, and operations details necessary for plant operations, (e.g., process flow sheets, instrumentation, fire protection).
General	Consider information that provides engineering details necessary for construction, (e.g., structural, architectural, civil).
Non-Technical Baseline (NTB)	Reference or legacy documents not intended to be maintained or any document that does not fit the definition of the other categories, as determined by the Design Authority.

A graded approach applies different levels of control and rigor depending on the significance of the systems, structures, and components (SSCs).

- ***Higher-Risk SSCs:*** Active gloveboxes and their associated ventilation systems are crucial for preventing the release of hazardous materials.

- ***Lower-Risk SSCs:*** For less critical systems such as non-safety-related plumbing or general facility drainage systems, configuration management controls are applied as needed to maintain efficiency and cost-effectiveness, rather than stringent, constant monitoring .

Documents & Databases

Databases:

- Engineering Plant & Facilities Management (EPFM)
- Electronic Document Workflow System (EDWS)
- Asset Suite
- Smartplant Foundation (SPF)

Governing Documents:

-Configuration Implementation Plan (CMIP)

-Facility Technical Base List (FCBL)

-SRNL Technical Area Systems List (TA)

Configuration Management Implementation Plan

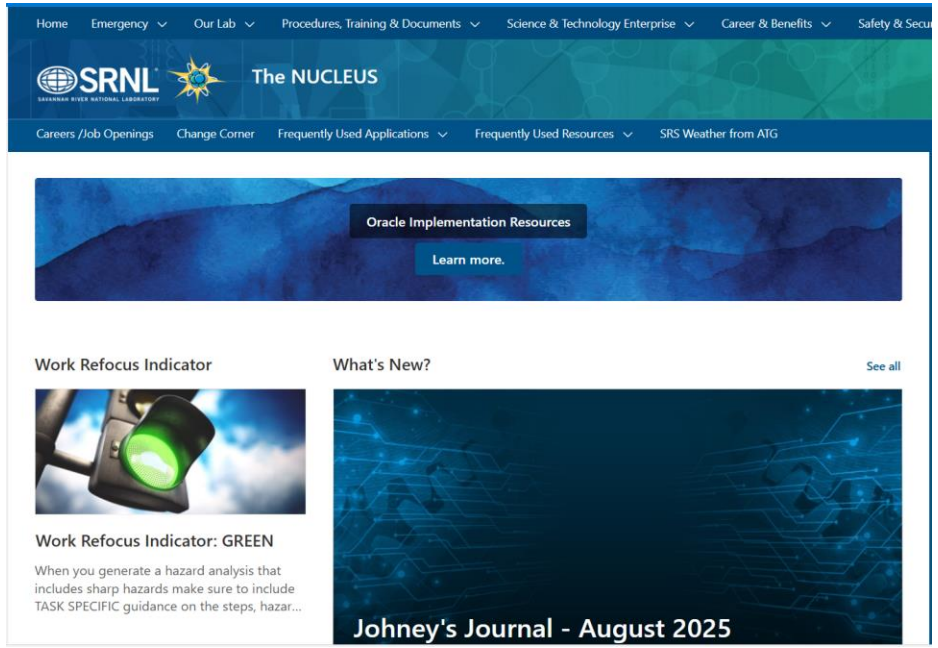
The ***Configuration Management Implementation Plan*** (CMIP) describes implementation of Configuration Management (CM) within the SRNL Technical Area and Outside Facilities.

- CM is to be performed using a graded approach which should be reflected in the CMIP.
- The CMIP provides the specific objectives, overall strategy, and specific tasks involved with CM.
- The CMIP will be reviewed at least every 2 years and updated as required (Ref. E7-1.05)

What is to be Configuration Controlled?

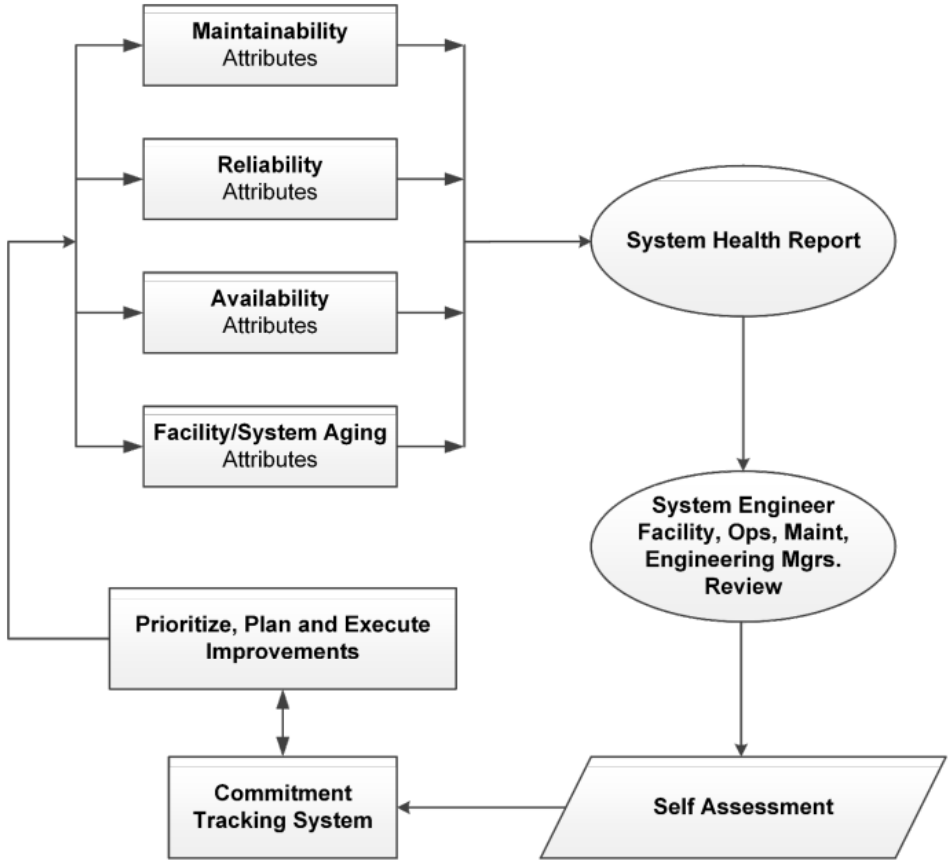
Configuration control is an element within configuration management that involves controlling changes to the baseline, ensuring all modifications are properly assessed, approved, and documented to maintain alignment with the design requirements.

- SSCs listed in the Technical Area Systems List that are identified as CM Controlled.
- It does not apply to General Service (GS) SSCs that do not have a significant production, process support, financial, or environmental impact, and that do not impact the technical baseline.
- In addition, any system which performs a safety function that is credited in the Documented Safety Analysis (DSA) as well as Electrical, Steam, Ventilation, and Fire Protection systems are to be configuration controlled.



Execution

- System boundaries are developed, and their components are captured via SPF and depicted on system P&IDs
- Perform walk-downs and assign component location identifiers (CLIs) to components as required
- Develop and/or update associated technical baseline drawings to support Safety and reduce re-work of design & associated work packages attributed to incorrect technical baseline documents.
- Ensure technical baseline documents are readily retrievable. (EPFM/EDWS)
- Conduct System Performance Monitoring to help maintain the technical baseline documents. (System Health Reports + System Notebooks)



How is Configuration Management Maintained

- Know what systems are configuration controlled (refer to the Technical Area Systems List)
- Know what documents for these systems are configuration controlled (listed in the FCBL). The FCBL is in EPFM.
- For any physical change made to SRNL facilities, the FCBL must be reviewed to determine if any technical baseline documents for SRNL are affected. Change Control is further driven by the document category (Essential, Support, General, Non-Technical Baseline).
- For any system change affecting the drawing, only that portion of the drawing that is affected must be updated, not the whole drawing.
- If field conditions are found not to match the drawing and it is determined that the field conditions are the correct system configuration, then that portion of the drawing that is affected is to be 'as-built' to show the field conditions. Otherwise, field conditions are to match the drawings.

APPENDIX A

FACILITY CONFIGURATION BASELINE LIST FOR SRNL TECHNICAL AREA FACILITIES

The current revision of each of these documents can be found in the Document Control Register (DCR).

Heading Explanation:

- Document Identifier — Document number or other identifier that uniquely identifies thisdocument.
- Document Title — The title of the document
- Category Code (Cat) — Per Manual E7, 1.05: E = ESSENTIAL; S = SUPPORT; G = GENERAL NTB = NON-TECHNICAL BASELINE; (BK means 'blank' in EPFM)
- System — The associated system(s) as applicable

CMIP SRNL Practices

To remain accountable SRNL utilizes the following:

Assessments:

The objective of assessing CM is to detect, document, determine the cause of and initiate correction of inconsistencies among design requirements, documentation and physical configuration. SRNL uses the Site Tracking, Analysis & Reporting (STAR) database to capture assessment results and track action items derived from any findings and opportunities for improvement to completion.

- Construction
- Physical configuration
- Design
- Post-Construction
- Periodic performance

Conclusion

- **Technical Baseline Management**: The plan emphasizes establishing and maintaining technical baseline documentation for SRNL facilities to ensure alignment with design and safety requirements .
- **Graded Approach**: Configuration Management (CM) is implemented focusing on safety and business efficiency, with documents categorized as essential, support, or general.
- **Document Control**: The CM program includes procedures for document control, ensuring only approved versions are used.
- **Change Control:** managing amendments and revisions to technical baseline documents.
- **Assessments**: Regular assessments are conducted to identify inconsistencies and ensure that design documents reflect physical configurations accurately, enhancing safety and operational reliability.
- **Implementation and Continuous Improvement**: The CMIP is reviewed biennially ensuring continuous improvement and adaptation to changes in facility operations and missions.

Questions, Comments, Concerns

- For the sake of time and accuracy, I have curated a form for all questions, comments, or concerns regarding this presentation. I have listed my contact information within the form, as well as on the slide, for any future collaboration efforts.

- https://forms.office.com/g/W7tQjnpr1T

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