

Enclosure 10 to ET 07-0022

WCNOC Procedure STARS-ENG-5000, "Engineering Configuration Management Program"

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STRATEGIC TEAMING AND RESOURCE SHARING

ENGINEERING CONFIGURATION
MANAGEMENT PROGRAM
STARS - ENG - 5000, revision 001

Approvals:

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1 SCOPE

- 1.1 This procedure provides guidance for and establishes the requirements and responsibilities for the development of changes to the facility or documentation to satisfy the requirements of ANSI N45.2.11 based upon INPO AP-929 and EPRI's Guidelines for Optimizing the Engineering Change Process for Nuclear Power Plants.

2 DISCUSSION

- 2.1 The basis for controlling design originates with 10CFR50, Appendix B, Criterion III.
- 2.2 The need for a MODIFICATION can be identified through the plants corrective action program, the MODIFICATION authorization process, or other means established by the participating STARS plant. The STARS change process begins after the need is identified and approved.
- 2.3 The STARS change process utilizes a graded approach to configuration management established in the EPRI Guidelines for Optimizing the Engineering Change Process for Nuclear Power Plants. The level of rigor given to a MODIFICATION for a structure, system, or component (SSC) is commensurate with the safety significance and complexity of the design.
- 2.4 The STARS process categorizes changes utilizing an assessment matrix. The categories of change are described below.
- 2.4.1 DESIGN CHANGES are the highest level of ENGINEERING CHANGE and require the most extensive and formalized documentation. The change is a DESIGN CHANGE if, for example, it:
- a. Adds or removes an ENGINEERING CONTROLLED SSC
 - b. Adds or changes a function or failure mode of an existing ENGINEERING CONTROLLED SSC
 - c. Alters the bounding parameters used to define the established DESIGN BASIS of the plant.
- 2.4.2 A CONFIGURATION CHANGE results in changing the configuration, either the hardware or the documentation, of an ITEM which meets the functions of both the ITEM and applicable interfaces, and does not introduce new failure modes. CONFIGURATION CHANGES include REPLACEMENT ITEM EVALUATIONS.
- 2.4.3 ADMINISTRATIVE CHANGE. If the change is categorized as administrative, it is processed with minimal review and no HAZARDS SCREENING or PROGRAMS SCREENING is required.
- 2.4.4 COMMERCIAL CHANGE. If the change has been categorized as a COMMERCIAL CHANGE, by Change Assessment Matrix screening or inclusion in the sites Commercial Control Exemption List, the

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change is processed using the STARS Commercial Change procedure. Nuclear Plant Engineering is not required for specifying equipment and performing analysis prior to making the change. However, Engineering is available, upon request, to provide input as needed. Known nuclear HAZARDS and plant impacts have been considered and determined to not apply when the SSC was categorized as “Commercial”, however, some HAZARDS such as fire protection, control room habitability, and flood HAZARD still need to be considered.

2.4.5 **ENGINEERING EVALUATION.** This is a form of communication between Engineering and other departments that clarifies existing design and licensing information. It does not require a new Engineering analysis to form the basis for the information nor does it require the generation or modification of design output documents. This information communicated remains consistent with all existing licensing and design information. Evaluations may, for example:

- a Interpret, clarify or communicate existing design requirements.
- b Identify REWORK dispositions.

2.5 The change is then processed in accordance with the category selected in the matrix.

2.6 Where required, the PROGRAMS review and HAZARDS review extends the gradation process by identifying areas requiring in depth evaluations such as fire protection or seismic II/I issues.

3 DEFINITIONS

3.1 Basis

3.1.1 Licensing Basis

The set of NRC requirements applicable to the plant, and the licensee’s written commitments for assuring compliance with and operation within applicable NRC requirements and the plant specific design basis (including all modifications and additions to such regulations, orders, license conditions, exemptions, and technical specifications). It also includes the plant specific design basis information defined in 10CFR50.2 as documented in the most recent SAR as required by 10CFR71 and the licensee’s commitments remaining in effect that were made in docketed licensing correspondence such as licensee responses to NRC bulletins, generic letters, and enforcement actions, as well as licensee commitments documented in NRC safety evaluations or licensee event reports (Taken with some minor editorial modification from the definition of Current Licensing Basis in GL 91-18, rev 1).

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3.1.2 Design Bases (Design Basis)

Design bases means that information which identifies the specific functions to be performed by a structure, system, or component of a facility and the specific values or ranges of values chosen for controlling parameters as reference bounds for design.

These values may be (1) restraints derived from generally accepted "state-of-the-art" practices for achieving functional goals or (2) requirements derived from analysis (based on calculations and/or experiments) of the effects of a postulated accident for which a structure, system, or component must meet its functional goals. (From 10CFR 50.2).

3.1.3 Design Function

The operation an item is required to perform to meet the component or system design basis. [EPRI NP-6406]

3.1.4 Engineering Design Bases (Engineering Design Basis)

The entire set of design constraints that are implemented, including those that are (1) part of the current licensing bases and form the bases for the [regulator] staff's safety judgments and (2) those that are not included in the current licensing bases but are implemented to achieve certain economies of operation, maintenance, procurement, installation, or construction. (As defined in NUREG-1397).

3.1.5 Technical Requirements

These parameters define the function or performance of a given SSC in a particular application/end-use or group of applications/end-uses.

3.2 Change

3.2.1 Administrative Change

An inconsequential revision to a controlled engineering document that does not affect the design, functions or method of performing the function of a structure, system or component (SSC).

3.2.2 At-Risk Field Change Notice

The process of implementing a Field Change Notice (FCN) in the field while the corresponding engineering disposition is being prepared and reviewed. At-Risk FCN use is limited. There is a risk that the work performed may not agree with the approved disposition. At-Risk FCNs are subject to the following conditions:

- a The affected SSCs must remain out-of-service and not be declared operable until the At-Risk FCN is reviewed and approved
- b At-Risk FCNs are limited to the scope of the original Modification Package

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3.2.3 Commercial Change

A change to SSCs that have been screened out of the Engineering processes by the Design Authority. Changes are performed in accordance with commercial codes and standards. Configuration management may be needed.

3.2.4 Concurrent Change

A Concurrent Change is a hardware change that is being implemented in the field while the corresponding Modification Package is being prepared. Concurrent Changes are not often performed because there exists an inherent risk that the work performed in the field may not agree with the final approved and released Modification Package. Restrictions apply to the use of a Concurrent Change.

3.2.5 Configuration Change

A change in configuration that can be either physical or in documentation/analysis that preserves the functions and does not introduce new failure modes. This includes a change to the configuration of a replacement item which is not a like-for-like replacement of the present design.

3.2.6 Design Change

A change where a function is changed or a new failure mode is introduced.

3.2.7 Engineering Change

Any change to the design or configuration of an Engineering Controlled SSC.

3.2.8 Field Change Notice

The process of identifying and resolving, including review and approval as needed, changes to the engineering change package made after its release for implementation. Field work associated with a FCN must stop and be put in a safe condition until the FCN is approved.

3.2.9 Hardware Change

A physical change to SSCs, including instrument setpoint changes and electronic software changes.

3.2.10 Modification

A change to the configuration of a SSC. It is a change to the physical plant and/or the documentation associated with it. The term encompasses all categories of change.

3.3 Design Input

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Those criteria, parameters, bases or other design requirements upon which detailed final design is based (from ANSI N45.2.11-1974).

3.4 Design Verification

The process of reviewing, confirming or substantiating the design by one or more methods to provide assurance that the design meets the specified design inputs. Independent verification is performed by any competent individuals or groups other than those who performed the original design but who may be from the same organization. (from ANSI N45.2.11).

3.5 Documents

3.5.1 Affected Document

A document which requires revision to reflect the modification but is not required to implement the modification. Affected documents are revised prior to change package closure and can be approved and issued following implementation of the Modification Package.

3.5.2 Controlled Document

A document, whose release, distribution and maintenance are verified, recorded and authorized by an assigned organization.

3.5.3 Design Document

A controlled document that specifies technical and/or quality requirements for the design, fabrication, installation, test, or operation of a structure, system, or component and that is verified as required by 10 CFR50 Appendix B, Criterion III.

3.5.4 Modification Document

An interim or as-built change to an existing or new document that is included in and released with a change package. Modification documents are utilized when required to implement or support the implementation of a change package and/or to update engineering documents to reflect as-built conditions

3.5.5 Work Document

A generic term used to identify the forms and associated documents used by site-specific work control organizations.

3.6 Engineering Evaluation

This is a form of communication between Engineering and other departments that clarifies existing design and licensing information. It does not require a new Engineering analysis to form the basis for the information nor does it require the generation or modification of design output documents. This information communicated remains consistent with all existing licensing and design information.

3.7 Margin

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3.7.1 Design Margin

The range of plant operation above the operating limit and below the analyzed design limit. Design Margin is controlled by Engineering. The analyzed design limit is documented in engineering calculations. Tech Spec and Regulatory limits fall within the Design Margin.

3.7.2 Operating Margin

The range of plant operation above the normal operating range and below the operating limit. Operating Margin is controlled by Operations, and is specified in design documents. LO, LO-LO, HI and HI-HI alarms fall within the Operating Margin.

3.8 Repair

The process of restoring a nonconforming characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired, even though that item still may not conform to the original requirements [ANSI N45.2.10-1973].

3.9 Rework

The process by which a nonconforming item is made to conform to a prior specified requirement by completion, re-machining, reassembling or other corrective means [ANSI N45.2.10-1973].

3.10 Replacement Item Equivalency (RIE)

A technical evaluation performed to confirm that an alternate replacement item (not like-for-like to the original) will satisfactorily perform its (engineering) design function. This term is synonymous with an "equal-to-or-better-than" evaluation. [Definition from EPRI NP-6406, Guidelines for the Technical Evaluation of Replacement Items in Nuclear Power Plants (NCIG-11)]

3.10.1 Item

Any level of unit assembly, including structures, systems, subsystems, subassembly, component, part, or material. [ANSI N45.2.10-1973]

3.10.2 Replacement Item

An item which replaces an original or installed item (either like-for-like or alternate) for which an equivalency evaluation is performed to assure that interfaces, interchangeability, safety, fit and function are not adversely affected or contrary to regulatory requirements.

3.10.3 Alternate Replacement

A replacement item not identical to the original. These replacement items require an equivalency evaluation to assure that the design function will be maintained. [EPRI NP-6406]

3.10.4 Critical Characteristics for Design

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- 5.5.3 Modification Packages, regardless of source, are processed by each implementing site using the site's STARS Configuration Management procedures. This ensures a full and current accounting of configuration management issues, and licensing reviews.
- 5.5.4 Modification Packages use the site's document control system and Modification Package numbering convention.
- 5.5.5 Each Modification Package is closed out by each site after site implementation is complete.

6 RECORDS

- 6.1 Record retention will be as defined in the utility-specific procedures.

7 REFERENCES

- 7.1 ANSI N 45.2.11
- 7.2 10CFR50, Appendix B, Criterion III
- 7.3 EPRI TR-103586-R1, Guidelines for Optimizing the Engineering Change Process for Nuclear Power Plants, October 1998.
- 7.4 INPO AP-929, Configuration Control Process Description
- 7.5 STARS Procedure Policy
- 7.6 STARS – ENG – 5001, STARS Engineering Change Packages procedure
- 7.7 STARS Engineering Change Resource Manual
- 7.8 STARS – ENG – 5003, STARS Commercial Change procedure

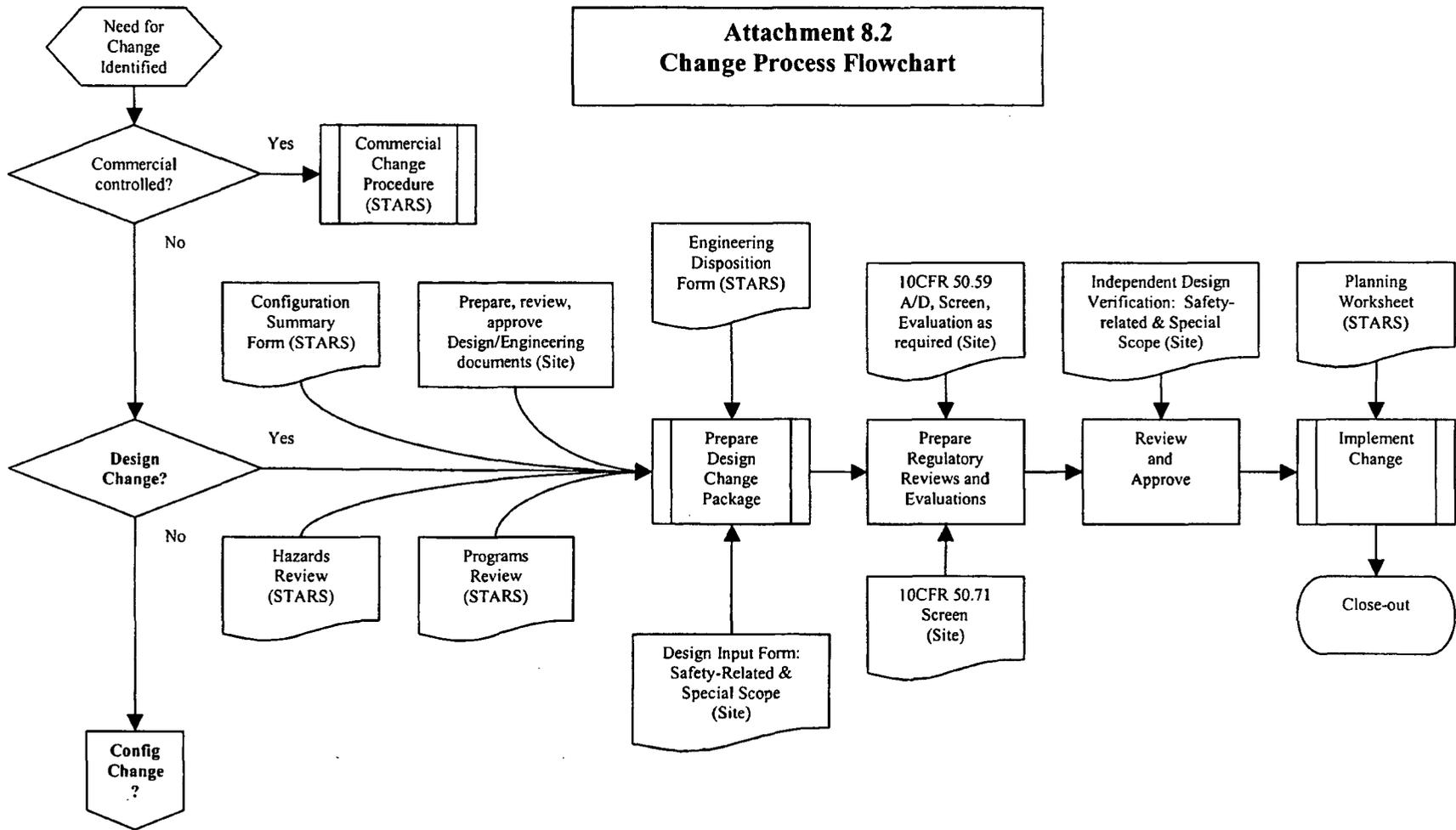
8 ATTACHMENTS

- 8.1 Change Assessment Matrix
- 8.2 Change Process Flowchart

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Attachment 8.2
Change Process Flowchart



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