



Platform Change Management Process for Digital I&C

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Motivation

Digital upgrades are often a permanent installation – for the life of the plant (i.e., digital upgrade of RPS)

▶ Minor equipment and process changes will eventually be necessary. Examples:

- ◆ Changes in connectors
- ◆ Memory chip obsolescence
- ◆ Vendors change part numbers

▶ Improvements in margin or processes may be desirable

- ◆ Extending the seismic margin

▶ Need a process to identify which changes need a revision to the Digital Topical Reports and which do not.

Platform Change Management Program (PCMP)



- ▶ **Purpose: To determine if proposed use of newer hardware, software modules and development procedures have the potential to alter the conclusions of issued Topical Reports and Safety Evaluation Reports.**
 - ◆ To ensure consistency, auditability, and quality of reviews
 - ◆ To ensure changes get prior NRC review when required
 - ◆ To provide process administrative controls

The Licensing Basis

- ▶ **The bases for licensing the system:**
 1. Digital System Topical Report(s)
 2. Software Program Manual Topical report
 3. Related SERs.
- ▶ **Certain design features and principles are essential to the conclusions of the SER. Examples:**
 - ◆ Security access control process or safeguards
 - ◆ Environmental considerations (such as humidity, seismic etc.)
 - ◆ Processing features, monitoring, interrupt processes,
 - ◆ Storage media
 - ◆ Communication protocols or requirements
 - ◆ SER imposed applicability limitations/exceptions

Essential Design Features and Principles/Limitations



▶ A Platform Change Management Program (PCMP)

- ◆ Provides a description of design features and principles that are essential to the conclusions of the SER.
- ◆ Evaluate proposed changes against essential features and principles to determine if prior NRC approval is required for implementation

PCMP in Topical Report (form)

► If the PCMP is approved as a TR

- ◆ NRC and vendor/TR owner agree on the essential design features and principles.
- ◆ Evaluation criteria have been established and agreed upon regarding how to determine if the essential features and principles are maintained.
- ◆ Administrative controls of the evaluation process have been defined
 - Training for evaluators, approval authorities, etc.
 - The same level design review (as required by Appendix B of 10CFR50)
 - Other requirements could be agreed upon (**notes**)

Example of PCMP Generic Criteria

- ▶ A change does not modify features defined as:
 - ◆ key design principles
 - ◆ key processing features
 - ◆ key communication independence features,
- ▶ Change does not result in more than a minimal increase in
 - ◆ likelihood of occurrence of a malfunction
 - ◆ the consequences of a malfunction
- ▶ Change does not create a possibility for a malfunction with a different result
- ▶ Change does not reduce NRC-approved quality methods

PCMP has to give specific interpretations of these requirements as they apply to the digital design basis in the system topical report.

To Ponder . . .

- ▶ **What are potential objections or problems to a PCMP Topical?**
- ▶ **How can we overcome those issues, or is there a better alternative?**