Limerick Generating Station

Digital Modernization Project

Lessons Learned and Challenges

NRC Digital I&C Workshop
March 23, 2022

Agenda

- ISV versus MSV
- NRC Pre-submittal Plus / Minus
- NRC Review

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Integrated Systems Validation / Multi-Stage Validation

- Multi-stage Validation (MSV) introduces a degree of regulatory uncertainty:
    - Neither IEEE-2411 nor NEA Report 7466 has been endorsed by the NRC
    - There is no existing precedent or model that can be drawn upon to establish acceptable content / structure

- From NUREG-0800, Chapter 18:

    "In the case of operating reactors, the ISV must be complete prior to implementation of the proposed action or program…"

    "Where feasible, the ISV should be subjected to an inspection or audit"

- The development and execution of an MSV in addition to the ISV Implementation Plan is likely to add more burden than value

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Pre-submittal Meeting Lessons Learned + / -

- Using the pre-submittal meeting to determine LAR content is helpful since there is no one document from the NRC that lists all the content required for complex digital modernization projects.

- The interaction with the NRC staff during pre-submittal meetings is highly beneficial but determining when a topic has been covered in sufficient depth to remove it from further discussion can be difficult.

- The NRC post-meeting summaries are sometimes at a level that is high enough that a licensee cannot confirm that staff questions have been fully addressed – deeper detail would be advantageous for both the licensee and NRC staff – three-way communications is a powerful tool.

- Strictly following the ARP becomes more complicated when other NRC guidance come into play due to LAR scope – HFE is a representative example.

- The ability to get staff comments on presentation material in advance of the pre-submittal meeting has proven to be beneficial in the form of being able to assemble information in advance and provide responses to staff questions in timely fashion.

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NRC Review Plans

- The proposed LAR review cycle timeline is currently 17 months leaving little installation margin

  - 2 months for acceptance

  - 15 months for review

- It is plausible that complex LAR's may have limited populations of artifacts that may evolve or be augmented during the review cycle

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Questions?

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