

Power Plant Simulators – NRC Perspectives

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Agenda

- Regional Perspectives
- Biennial Requalification Inspection Perspectives
- Questions

Regional Perspectives

- Wide variety in quality of post-event testing
 - 2009 ANSI standard
 - Some facilities reproduce operator actions during the event
 - Provides additional benefits to the licensee and assistance in identifying additional fidelity differences between the simulator and the plant

Regional Perspectives

- Licensee test personnel unable to explain differences between simulator and plant behavior in the test files
- Lack of thorough explanations of changes in simulator test data from the last test
- Some facilities wait to certify test results until the end of the testing cycle
- Simulator work requests have decreased from previous years

Biennial Requalification Inspection Perspectives

- IP 71111.11 can be found at <https://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/>
- This inspection evaluates various aspects of the facility's requalification program and also inspects the facility's implementation and adherence to a simulator testing program
- Facilities commit to one version of the ANS 3.5, "Nuclear Power Plant Simulators for Use in Operator Training and Examination" – 1985, 1993, 1998, 2009

Biennial Requalification Inspection Perspectives

- “Assess the adequacy of the facility licensee’s control room simulator in modeling the actual plant, and for meeting the requirements contained in 10 CFR 55.46. Assess the facility licensee’s periodic testing of the simulator, installation of simulator modifications, and for identifying and correcting simulator discrepancies.”

Biennial Requalification Inspection Perspectives

- Items reviewed – requalification operating test performance, open and closed simulator deficiencies, simulator testing, and simulator modifications
- Three questions to answer:
 - Is simulator modeling and performance satisfactory?
 - Does the facility effectively correct identified simulator deficiencies?
 - Does the facility properly perform required simulator testing (including periodicity, evaluation, documentation, and retention)?

Biennial Requalification Inspection Perspectives

- Simulator testing review
 - Performed in accordance with the committed standard
 - Does it meet the standard acceptance criteria?
 - Does the baseline data meet the order of preference?
 - Differences between the baseline data and the simulator test results? If so, are these differences explained?
 - How does the facility determine the expected alarms and automatic actions for a scenario? What happens if they differ from what was expected?

Biennial Requalification Inspection Perspectives

- Deficiencies
 - Documentation of testing performed to verify correction
- Modifications
 - Timing
 - Testing
- Steady state testing
 - Variety of testing methods

Questions

