

Risk-informed Technical Specifications

Background

For the past 10 years, the nuclear industry and the U.S. Nuclear Regulatory Commission (NRC) have been working together to develop Risk-informed Technical Specifications (RITS) to enhance plant safety and improve plant operations. Of the eight initiatives set forth by the partnership, many are currently available for plant implementation. The remaining initiatives will be available in the near future.

The initiatives are:

- RITS-1: Improve Technical Specifications (TS) required action end states
- RITS-2: Revise requirement for missed surveillances, Surveillance Requirement (SR) 3.0.3
- RITS-3: Relax mode-change requirements, Limiting Condition for Operation (LCO) 3.0.4
- RITS-4: Improve individual risk-informed (RI) completion times (4a) and risk-managed TS completion times (4b)
- RITS-5: Relocate surveillance frequencies to licensee control (RITS-5b)
- RITS-6: Revise required actions and completion times, LCO 3.0.3
- RITS-7: Address non-TS support system impact on TS systems
- RITS-8: Relocate LCOs that do not satisfy Criterion 4 of Code of Federal Regulations (CFR) 10CFR50.36(c)(2)(ii)

Westinghouse is very familiar with each of these initiatives due to its essential role in developing the approach, providing the probabilistic and deterministic analysis, supporting NRC review, supporting pilot plant applications, and developing implementation guidance. Plant implementation of the currently

available initiatives varies from plant to plant. RITS-4b and RITS-5b are currently available for plant-specific implementation. These last two initiatives will provide significant plant operational improvements. RITS-4b allows utilities to determine completion times following a risk-managed approach for their plants. This will provide the plant with the ability to obtain longer times to complete activities with inoperable equipment while at-power than is currently allowed by the TSs. The allowable extension is dependent on a risk assessment and can potentially extend up to 30 days. RITS-5b enables utilities to relocate surveillance frequencies to licensee control, thus allowing utilities to change these frequencies by using an approved approach that does not require NRC review or approval.

Description

Westinghouse can provide the necessary probabilistic risk assessment (PRA), deterministic assessment and licensing resources to support utilities in implementing the above RITS initiatives. Westinghouse has been a leader in the development and application of these initiatives since their inception. A number of recognized industry experts with experience in RITS initiatives are part of Westinghouse's PRA staff, a group that has made major contributions to the development of the applications and methods, and to industry implementation documents. Westinghouse also has a team of recognized industry experts to support the licensing aspects of these initiatives.

Westinghouse can provide turnkey projects or work as part of the utility team in implementation of these initiatives. Westinghouse is experienced with assisting in modification of current plant procedures as well as developing new plant procedures for the initiatives, where required. Westinghouse can also make the required PRA model modifications and complete the PRA quantifications, address the deterministic aspect of the assessment, and support documentation for the initiatives, as well as develop License Amendment Requests (LARs). The Westinghouse

staff has vast risk-analysis experience and employs the standard software packages used in the industry.

Benefits

The benefits of implementing these changes include enhanced safety, improved operational flexibility and a more effective use of resources. These initiatives can prevent plant shutdowns due to longer times to complete maintenance activities while at power, and can provide quicker return to power after required plant shutdowns or start-ups following refueling. The RITS initiatives reduce surveillance testing requirements and costs, and lead to fewer component actuations and reduced component wear out, and in some cases reduced personnel exposure and reduced plant shutdown time. In addition, several of the initiatives provide improved plant flexibility in responding to equipment operability issues, and can also lead to fewer requests for Notice of Enforcement Discretion (NOED). RITS-4b provides the potential to eliminate NOED requests with regard to equipment operability.

Experience

Westinghouse's staff has a high level of experience in developing and implementing RITS initiatives. Westinghouse has worked with the Pressurized Water Reactor Owners Group (PWROG) in developing numerous applications, and has worked with a number of utilities in their implementation, starting in the mid-1980s and continuing today. This work has included developing the methods and risk models, completing the risk analysis, addressing deterministic requirements, supporting NRC review and approval, developing implementation guidance, and assisting utilities in LAR development and the associated NRC review. As a benefit of its extensive experience, Westinghouse can help provide consistency between plants with regard to the probabilistic and deterministic evaluations and results, and implementation.

Westinghouse has developed specialized guidance to assist utilities in implementing a number of these initiatives. It has also worked extensively with the NRC in obtaining approval for a number of these initiatives on both generic and plant-specific bases.