Nuclear Services/Engineering Services

Independent Review of Probabilistic Risk Assessment

Background

Westinghouse provides an independent review of probabilistic risk assessment (PRA) program studies to help customers show that their PRAs meet applicable technical-quality requirements. Per Revision 2 of Regulatory Guide 1.200, PRAs used for risk-informed regulatory applications must meet certain technical adequacy and quality requirements, as determined by the American Society of Mechanical Engineers (ASME) and the American Nuclear Society (ANS) PRA Standard (RA-S-2008). While a company may have previously undergone a comprehensive peer review of the PRA using the process outlined in Nuclear Energy Institute (NEI) 00-02, the current requirements call for:

- A self-assessment of the delta between the peer-review criteria and the current requirements.
- An independent review of any PRA model upgrades made since the peer review.
- An independent review of the utility fire PRA (note that the fire PRA portion of the standard recommends that a self-assessment be performed in advance of a full peer review of the fire PRA).

While a self-assessment does not require independence from the PRA originator, many utilities have chosen an independent assessment so that the subsequent peer reviews do not generate substantial findings.

Description

Westinghouse provides an independent review to help companies complete the mandatory self-assessment. Westinghouse's participation and leadership in such organizations as ASME, NEI and the Pressurized Water Reactors Owners Group (PWROG) keep its understanding of today's requirements current. In addition, Westinghouse's experience with PWROG-sponsored peer reviews and its association with the PWROG as a PRA model developer help it to stay up to date on PRA models and practices.

Westinghouse provides the following services:

- Self-assessment services
  - Identifies the PRA technical adequacy and quality with respect to the differences between the peer-review criteria and the most current criteria.
  - Assesses the technical adequacy of PRA updates to address peer-review findings.
- Independent review services
  - Performs independent assessments of the technical adequacy of PRA model upgrades.
  - Performs independent assessments of new PRA models (e.g., fire, seismic and shutdown PRAs).

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Benefits

Completed self-assessments and peer reviews allow utilities to use their PRA in risk-informed regulatory applications. Using Westinghouse to perform or lead these assessments helps provide a PRA that is of the highest quality possible, as it minimizes peer-review findings, questions and feedback during the regulatory review of risk-informed regulatory applications.

Experience

Westinghouse has provided self-assessment and peer review services to a number of PWR plants over the past 10 years. The Westinghouse PRA staff organized, led and participated in the PWROG peer reviews in that time. Currently, the Westinghouse PRA staff is issuing Regulatory Guide 1.200 to organize, lead and participate in the new round of PWROG peer reviews related to internally initiated events and fire-initiated events. Westinghouse PRA staff has also assisted a significant number of PWR plants with self-assessments, and focused peer reviews against the ASME PRA Standard (RA-Sb-2005).

Westinghouse has been closely involved in the development of the industry consensus standards against which these assessments and reviews are performed, thus providing additional insight into the basis for the requirements of these standards.

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