

**Meeting
U.S. Nuclear Regulatory Commission
Nuclear Energy Institute
Electric Power Research Institute
Westinghouse Owners Group**

**Risk-informed Inservice Inspection
(ISI)**

May 22, 2001



Agenda

- Introduction and Opening Remarks
- High Energy Line Break / Break Exclusion Requirements
 - NRC letter to WOG
 - Recent EPRI submittal
 - Licensing strategy and regulatory approval process
- Minimum 10% sample size for Class 1 piping exams
- Program Update Process Philosophy / Communication of changes to program to NRC
- Plans for Future Meetings



Introduction

■ Introduction and Opening Remarks

- NEI
 - ◆ To discuss and to obtain NRC feedback and direction on issues related to risk-informing ISI and extension of this successful application
- NRC



High Energy Line Break / Break Exclusion Requirements



High Energy Line Break / Break Exclusion Requirements

- Augmented ISI has been permitted to provide assurance of protection in specific instances where the installation of restraints or shields is not practical
- Augmented ISI for HELB requirements set forth in SRP 3.6.1, 3.6.2 and 6.6 and plant specific SAR commitments
 - Provision for applicant to propose acceptable alternative method for complying with specified portions of the NRC regulations (SRP 3.6.1 V)
- Individual Plant Requirements vary greatly:
 - No requirements for augmented examinations
 - Small number of augmented examinations
 - Meet or exceed SRP requirements
- Terminology includes BER, NBZ, HELB, AE...
- Requirements predate augmented inspection programs for FAC Thermal Fatigue



High Energy Line Break / Break Exclusion Requirements

- Augmented inspections generally comply with the requirements of the applicable edition of ASME Section XI, including location selection
- Frequency of these inspections can be increased over that required by Section XI such that some plants inspect these locations three times during each 10-year inspection interval
- The number of locations associated with these augmented programs can reach 500 locations depending on plant-specific requirements



High Energy Line Break / Break Exclusion Requirements

■ Technical Issues

- Consequence analysis performed as part of the calculations of change in risk
- Safety margins
- Defense-in-depth



High Energy Line Break / Break Exclusion Requirements

■ Licensing Strategy/Regulatory Approval Process

- ◆ High energy programs typically defined in UFSARs
- ◆ Intend to implement under 50.59
- ◆ Notification via periodic 50.59 summary report and SAR update per 50.71(e)
- ◆ Approved revisions to EPRI and WOG Topical Reports, reviewed against NEI-96-07, will provide technical basis for changes to be completed through existing regulatory framework
- ◆ No exemption to GDC-4 or rulemaking is required



High Energy Line Break / Break Exclusion Requirements

- **Demonstration Plant Status**
 - Requirement for demonstration plant to show feasibility of generic approach
 - Review fees
 - ◆ Review fees are waived for Topical Report effort
 - ◆ No review fees for applicants since work is performed under 50.59
 - Schedule for review



Minimum 10% Sample Size for Class 1 Piping Exams



Minimum 10% Sample Size for Class 1 Piping Exams

- Alternatives to the minimum sample size
 - Several discussions held with NRC
 - ◆ 10% criterion was an approach NRC reviewers were using in lieu of looking at detail in order to get a comfort level with the analyses so that approvals would be efficiently provided
 - ◆ Discuss potential additional information in template submittals
 - NRC needs
 - NEI action



RI-ISI Program Update Process Philosophy



RI-ISI Program Update Process Philosophy

- Monitoring encompasses many facets of feedback or corrective action which includes periodic updates based on inputs and changes resulting from:
 - plant design features
 - plant procedures
 - equipment performance
 - examination results
 - individual plant and industry failure information
- Each nuclear power plant has a corrective action program under the provisions of 10 CFR 50, Appendix B



RG-1.178 and Updates

- The staff reviews the licensee's proposed RI-ISI program to determine if it appropriately describes the types of changes that the licensee can make without prior NRC approval and the types of changes that require NRC approval before implementation ... Some general guidance on determining which future changes are appropriate is given below:
 - Changes to segment groupings, inspection intervals, and inspection methods that do not involve a change to the overall RI-ISI approach where the overall RI-ISI approach was reviewed and approved by the NRC do not require specific review and approval prior to implementation provided that the effect of the changes on plant risk increase is insignificant.
 - Segment inspection method changes which involve the implementation of an NRC-endorsed ASME Code, NRC-endorsed Code Case, or published NRC guidance approved as part of the RI-ISI program do not require prior NRC approval.
 - Inspection method changes that involve deviation from the NRC-endorsed Code requirements require NRC approval prior to implementation.
 - Changes to the RI-ISI program that involve programmatic changes (e.g., changes to the categorization criteria or figure of merit used to categorize components, and changes in the Acceptance Guidelines used for the licensee's integrated decision-making process) require NRC approval prior to implementation.



Updates

- Generic WOG and EPRI SERs do not address 10-year submittal requirement
- Plant-specific SERs state that:
 - “...in accordance with 10CFR50.55a requirements, such changes, if needed should be documented and submitted to NRC for review and approval.”



RI-ISI Program Update Process Philosophy

- Updates to a RI-ISI program are performed at least on a period basis to coincide with the inspection program requirements contained in ASME Section XI under Inspection Program B
 - These updates are required following the completion of all scheduled examinations in each inspection period.
- Changes arising from the program updates will be evaluated using the change mechanisms described in existing applicable regulations (e.g., 10CFR50.55a, 10CFR50.59, and 10CFR50 Appendix B) to determine if the change to the RI-ISI program should be reported to the NRC



Plans for Future Meetings

