

## AGENDA

### Meeting between the U.S. Nuclear Regulatory Commission (NRC) Staff and the Nuclear Energy Institute (NEI) to Discuss Current License Renewal Topics

**August 17, 2011**  
**9:00 to 11:00 a.m.**  
**NRC Headquarters**  
**Commission Hearing Room, O-1F16/G16**  
**Bridge Line: 888-455-1698, Pass Code: 47998**

| Agenda Item   | Lead    |
|---|---------|
| 1. Introduction and Opening Remarks   | NRC/NEI |
| 2. Updates on D-ISGs <ul style="list-style-type: none"> <li>i) GALL AMP XI.M41, "Buried and Underground Piping and Tanks"</li> <li>ii) Aging Management in Treated Borated Water</li> <li>iii) Wall Thinning Due to Mechanisms Other than Flow Accelerated Corrosion</li> <li>iv) GALL AMP XI.M19, "Steam Generators"</li> <li>v) GALL AMP XI.M16A, "PWR Vessel Internals"</li> </ul> | NRC     |
| 3. LRA Consistency with GALL Report Study Results   | NRC     |
| 4. Ongoing Review of Operating Experience   | NRC     |
| 5. License Renewal - Severe Accident Mitigation Alternative (SAMA) <ul style="list-style-type: none"> <li>i) Quality Issues with SAMA Analyses</li> <li>ii) Impact of SAMA RAIs on the Review Timing</li> </ul>   | NRC/NEI |
| 6. Emergent Issues/Public Participation/Adjourn   | All     |

# **NRC/NEI Quarterly Meeting**

**Brian Holian, Director  
Division of License Renewal  
Office of Nuclear Reactor Regulation**

**August 17, 2011, NRC Headquarters, Rockville, Maryland**

# Agenda

- Introduction and Opening Remarks
- Updates on Draft Interim Staff Guidance Documents
- LRA Consistency with the GALL Report
- On-going Review of Operating Experience
- License Renewal: Severe Accident Mitigation Alternatives
- Emergent Issues/Public Participation/Adjourn

# **Update on Draft ISGs**

**William Holston**

**John Wise**

**Jim Gavula**

**Allen Hiser**

**Jim Medoff**

**Division of License Renewal  
Office of Nuclear Reactor Regulation**

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# Introduction

- GALL AMP XI.M41 – Buried and Underground Piping and Tanks
- Aging Management in Treated Borated Water
- Wall Thinning Due to Mechanisms Other than Flow-Accelerated Corrosion (FAC)
- GALL AMP XI.M19 Steam Generators
- GALL AMP XI.M16A PWR Vessel Internals

# GALL AMP XI.M41 Buried and Underground Piping and Tanks, cont.

- Includes inspection and testing recommendations for plants that will not have a cathodic protection system in the PEO.
- Removes the recommendation to volumetrically inspect underground piping to detect internal corrosion.
- When adverse conditions are detected in the initial and subsequent doubled inspection sample size, the change recommends that further increases in inspection sample size should be based on an analysis of extent of cause and extent of condition.

# Aging Management in Treated Borated Water

- Stainless steel structures and components exposed to treated borated water
- Existing guidance inappropriately credits boron as a corrosion inhibitor for PWRs
- Loss of material, cracking and reduction of heat transfer may not be adequately managed
- Align the guidance for treated borated water with that for treated (non-borated) water
  - Add the One-Time Inspection Program to verify the effectiveness of the Water Chemistry Program in managing loss of material and cracking in systems that are not de-oxygenated
  - Add reduction of heat transfer as an aging effect for stainless steel heat exchanger tubes

# Wall Thinning Due to Mechanisms Other than FAC

- Wall thinning mechanisms also include, cavitation, droplet impingement, flashing, and solid particle erosion
- FAC is limited to systems with specific parameters
- Erosion is typically only considered for systems with solid particles and high flow rates
- ISG changes AMP XI.M17 to consider mechanisms other than FAC and will include:
  - Extent of condition if other mechanisms identified
  - Effectiveness review of corrective actions
  - Validation of monitoring frequencies



# GALL AMP XI.M19

## Steam Generators

- Reference to NEI 97-06, Steam Generator Program Guidelines, updated from Revision 2 to Revision 3
  - Revision 3 found acceptable by the staff
  - Changes mainly address technical specification inconsistencies
  - Principally administrative or corrective in nature
  - Industry protocol requires that plants implement the Revision 3 changes
- No significant impacts to applicants



# GALL AMP XI.M16A

## PWR Vessel Internals

- MRP-227-Rev. 0 provides the industry's guidelines for reactor vessel internal (RVI) components
- NRC safety evaluation (SE) on MRP-227-Rev. 0 methodology issued to EPRI MRP on June 22, 2011
- ISG to address impact of SE on:
  - Further evaluation sections for RVIs in SRP-LR
  - AMRs for RVIs in SRP-LR Table 3.1-1
  - RVI AMRs in GALL IV.B2, IV.B3, and IV.B4
  - Program Elements in GALL AMP XI.M16
  - Account for action/condition items in the SE

# Points of Contact

- AMP XI.M41 Buried and Underground Piping and Tanks– Bill Holston
- Aging Management in Treated Borated Water – John Wise
- Wall Thinning Due to Mechanisms other than FAC – Jim Gavula
- AMP XI.M19 Steam Generators – Ken Karwoski / Allen Hiser
- AMP XI.M16A PWR Vessel Internals – Jim Medoff

# License Renewal Application Consistency with GALL Report Study Results

**William Holston**  
**Division of License Renewal**  
**Office of Nuclear Reactor Regulation**

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# Introduction

- Staff reviewed four recent LRAs, Sections 3.X to
  - Determine if there is a significant gap in understanding of consistency between staff and applicants, and
  - Develop LRA preparation insights that will assist applicants in preparing their applications so as to reduce the number of RAIs and staff analysis expenditures

# AMP Data Summary

- Most exceptions were reasonable and could be analyzed without detailed AMR line item review.
- The GALL Report, Revision 2 would have resulted in 26% to 44% of the AMP-related RAIs not being required.

# Staff Insights from AMP Review

- Applicant included materials in the scope of the LRA AMP, beyond GALL AMP recommendations, without including appropriate inspection techniques:
  - Copper >15% Zn added to a program which does not include hardness testing
  - Adding elastomers to two programs, and only including physical manipulation of the material in one of the two programs

# Staff Insights from AMP Review, cont.

- GALL Report condition monitoring programs are based on periodic, one-time, or opportunistic inspections.
- Applicants have used an AMP that results in fewer inspections (e.g., LRA used a one-time instead of a periodic program) than those recommended by the MEAP of the GALL Report.



# Staff Insights from AMR Review

- Applicant did not fully address all aspects of GALL Report definitions of environment:
  - Outdoor air environment – not addressing the station's location to:
    - Arid land,
    - Agriculture,
    - Industrial plant emissions,
    - Road salt compound, and
    - Cooling tower vapor, trace compounds (e.g., chlorides)

# Staff Insights from AMR Review, cont.

- Applicant included material or component types not within the scope of the AMR Table 1 item description:
  - CASS vs. stainless steel
  - Heat exchangers or vessels vs. piping (e.g., HXs/vessels can be more susceptible to stagnant flow conditions, reduction in heat transfer affects heat exchangers but not piping)

# Staff Insights from AMR Review, cont.

- Outdoor insulation items:
  - Provide plant-specific notes related to leaching testing of the insulation (e.g., insulated stainless steel),
  - Provide description of how water will not penetrate the insulation jacketing (e.g., gap on bottom, overlapping joints)

# Staff Insights from AMR Review, cont.

- Where possible (i.e., components have similar configuration, systems have similar operating parameters), use existing GALL items in lieu of generic note F – J, even though the GALL Table is for a different system.
- Using generic note A – D items, where appropriate, reduces staff review time for evaluating the LRA.

# Next Steps

- Develop a RIS to address the insights from the staff analysis. The RIS will include at least five more examples than this presentation.
- Expected issue date is Spring 2012.

# Ongoing Review of Operating Experience

**Matthew Homiack  
Division of License Renewal  
Office of Nuclear Reactor Regulation**

**NRC/NEI Quarterly Meeting  
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# Ongoing Review of Operating Experience

## ➤ Summary of NRC Activities to Date

- December 2010: Issued in NUREG-1800, Rev. 2, “Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants” (SRP-LR), revised criteria for the operating experience program element
- March and May 2011: Expectations for the ongoing review of operating experience discussed in public meetings
- May and June 2011: Issued requests for additional information (RAIs) to assess applicant plans for the ongoing review of operating experience

# Ongoing Review of Operating Experience, cont.

## ➤ Summary of Applicant Responses to RAIs

- In general, applicants credit activities under two existing programs: (1) the corrective action program and (2) the operating experience program
- Applicants have provided commitments to review operating experience on an ongoing basis

## ➤ NRC Issues with Commitments

- Commitments are appropriate for activities associated with a specific completion date; however, the review of operating experience is an ongoing activity
- Applicants should instead provide a summary description of the ongoing operating experience review activities for the final safety analysis report (FSAR) supplement



# Ongoing Review of Operating Experience, cont.

- NRC Recommendations for Current and Future Applicants
  - In LRA Section B.1.4, provide a description of how operating experience will be reviewed on an ongoing basis and how it will be used to enhance the aging management activities, as necessary
  - In LRA Appendix A, after the description of the quality assurance program, provide a summary description of the ongoing operating experience review activities

# Ongoing Review of Operating Experience, cont.

## ➤ Draft LR-ISG Currently Under Development

- Proposes to make all the GALL Report programs consistent with the SRP-LR expectation on the ongoing review of operating experience
- Proposes to revise the SRP-LR review procedures and acceptance criteria to better address the ongoing review of operating experience for aging management review results compared to the GALL Report
- Proposes that applicants should provide an FSAR supplement entry to commit themselves to the ongoing review of operating experience, and provides an example of an acceptable entry
- Proposes to allow applicants to credit their existing operating experience review activities, provided they ensure that these activities are adequate for reviewing operating experience related to aging management

# **License Renewal – Severe Accident Mitigation Alternatives**

**Travis Tate, Chief  
Accident Dose Branch  
Division of Risk Assessment  
Office of Nuclear Reactor Regulation**

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# Overview

- Review Process
- Review Challenges
- Future Improvements
- Communications

# Review Process

- NEI -05-01, Severe Accident Mitigation Alternatives (SAMA) Analysis Guidance Document
  - Developed through experience gained from past SAMA analyses
  - Incorporates insights gained from review of SAMA analyses and associated requests for additional information (RAIs)

# Review Challenges

## ➤ Schedule

- Initial RAIs address common issues
- Additional RAIs challenge Draft Supplemental Environmental Impact Statement schedule

## ➤ SAMA RAI topics

- New information related to seismic and fire protection

# Future Improvements

- Applications
  - Consider SAMA's identified by other applicants.
  - Consider latest information available (i.e., USGS)
- Review process
  - Consider adequacy of SAMA candidates in acceptance review

# Communications

- NEI Quarterly Meetings
- NRC Regulatory Issue Summary – 2012



# Emergent Issues/Public Participation/Adjourn

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