

## Information Meeting

# Meeting Between the U.S. Nuclear Regulatory Commission Staff and the Nuclear Energy Institute to Discuss License Renewal Topics

June 11, 2015

8:30 AM- 12:00 PM

OWFN 07 B4

# Agenda for Meeting



## Time

## Topic

8:30 am	Introduction and Opening Remarks
8:45 am	Action Items from March 2015 quarterly meeting (Abdul Kazi )
8:55 am	Changes to XI.M12 Thermal Aging Embrittlement of Cast Austenitic Stainless Steel (CASS) (Jeffrey Poehler)
9:10 am	Changes to XI.M36 External Surfaces Monitoring of Mechanical Components (Christopher Hovanec)
9:25 am	Changes to XI.M38 Inspection of Internal Surfaces of Miscellaneous Piping and Ducting Components (Bill Holston)
9:40 am	Effect of Operational Events on a Pending Renewal Application (Dennis Morey)
9:55 am	Discussion of RIS 2014-06 Consideration of Current Operating Issues and Licensing Actions in License Renewal (Dennis Morey)
10:10 am	Break
10:25 am	EPRI Review Project updates (NEI)

# Agenda for Meeting



<b>Time</b>	<b>Topic</b>
10:35 am	ORNL Meeting and Site Visit (NEI)
10:45 am	Status of NEI 14-12 and 14-13 (NEI)
10:55 am	Update on Lead Plant Focus Group (NEI)
11:00 am	SLR Roadmap (NEI)
11:10 am	PWROG activities supporting SLR (NEI)
11:20 am	Regulatory Process (Steve Bloom)
11:30 am	New Topics (NRC/NEI)
11:40 am	Action items
11:50 am	Public Participation
12:00 PM	Adjourn

# **Action Items from March 2015 Meeting**



- NRC hosted a public meeting to discuss structural AMPs on April 8, 2015
- NRC hosted a public meeting to discuss mechanical AMPs on May 7, 2015.
- NRC visited the EPRI Charlotte facility on April 21/22, 2015
- NRC will visit the Oak Ridge National Laboratory on July 7/8, 2015.
- NRC and NEI are planning to hold a public conference call meeting to discuss the GALL and SRP numbering and tables

# ***GALL XI.M12 - Thermal Aging Embrittlement of Cast Austenitic Stainless Steel (CASS)***



- Scope of Program: Manages loss of fracture toughness due to thermal embrittlement in reactor coolant pressure boundary components fabricated from Cast Austenitic Stainless Steel (CASS).
- Change to Program Description, Scope of Program, and Detection of Aging Effects:
  - Pump casings are no longer exempt from AMP requirements.
  - Formerly exempted pump casings assuming licensees implemented Code Case N-481 alternative.
  - In lieu of ASME Code, Sec. XI volumetric exam requirement, N-481 allowed:
    - VT-1 visual examination of the external surfaces of the weld;
    - VT-2 visual examination
    - VT-3 visual examination of internal surfaces whenever a pump is disassembled,
    - Flaw tolerance evaluation
  - N-481 has been withdrawn, and not all provisions have been incorporated into the ASME Code, Section XI.
  - Current ASME Code, Section XI requires VT-2 and VT-3 examination when disassembled but does not include VT-1 and flaw tolerance evaluation requirement of N-481.

# **GALL XI.M12 - Thermal Aging Embrittlement of Cast Austenitic Stainless Steel (CASS)**

- Change to Detection of Aging Effects:
  - Code Case N-824 now referenced for detection of aging effects for piping  $\leq 1.6$  inches in thickness
  - N-824 provides a method for UT inspection (detection and flaw sizing) for CASS piping
  - Will be incorporated in next revision to RG 1.147, probably with condition that thickness must be  $\leq 1.6$  inches
- Change to Program Description, Scope of Program, Detection of Aging Effects:
  - Generally changed “potentially susceptible” to “potentially significant,” and “susceptibility” to “significance”
  - Reflects fact that thermal embrittlement generally occurs in CASS but only sometimes is severe enough to cause a loss of intended function of the component
- Change to Program Description: Clarified that AMP XI.M12 does not cover CASS in reactor vessel internals

# ***GALL Report XI.M36: External Surfaces Monitoring of Mechanical Components***



- Program Description: Manages cracking due to SCC in aluminum and stainless steel components when applicable
- Scope of Program: Cracking managed using visual inspections or surface examinations
- Parameters Monitored or Inspected:
  - Surface examinations of representative sample
  - Alternatively - visual inspections for leakage or cracks,
    - reasonable assurance that cracks will be detected prior to challenging structural integrity or intended function of component
- Detection of Aging Effects:
  - Surface examinations performed every 10 years of operation
  - Periodic visual inspections not to exceed 1 refueling cycle
- Acceptance Criteria: Cracks not present

# ***GALL XI.M38 Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components - Overview of Changes***

- Program Description: Elastomers and flexible polymeric components exposed to open-cycle, closed-cycle cooling, and fire water are managed by this program.
- Scope of Program: Not intended for components where loss of intended function has occurred due to age-related degradation versus loss of material from corrosion.



# ***GALL XI.M38 Overview of Changes, cont.***

- Parameters Monitored or Inspected: Added reduction of heat transfer due to fouling.
- Detection of Aging Effects: inspections follow site procedures that include inspection parameters for items such as lighting, distance offset, surface coverage, presence of protective coatings, and cleaning processes that ensure an adequate examination.
  - Extent of inspections, following slides.
- Acceptance Criteria: Qualitative acceptance criteria - clear enough to reasonably ensure that a singular decision is derived based on the observed condition of the SSC.

## ***GALL XI.M38 – Extent of Inspections***



- Detection of Aging Effects - 20 percent of the population with a maximum of 25 components for each unit

### Multi-unit sites

- Two-unit site: 20 percent of the population with a maximum of 19 components per unit
- Three unit site: 20 percent of the population with a maximum of 17 components per unit

### To use the multi unit site alternative

- LRA provides basis for why the units are similar enough.

# ***Extent of Inspections - Applicable to Site-wide Inspections***



## AMP XI.M33, “Selective Leaching”

- 3 percent of population or maximum of 10 components plus 2 destructive per unit
- Two unit site: 8 visual/mechanical plus 2 destructive per unit
- Three unit site: 7 visual/mechanical plus 1 destructive per unit

## AMP XI.M42, “Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks

- 50 percent of population with maximum of 73 components for each unit (20/25 – manufacturer recommendations and industry consensus documents used)
- Two unit site: 55/19
- Three unit site: 49/17

# ***Extent of Inspections – Non-applicable to Site-wide Inspections***

## AMP XI.M27, “Fire Water System”

- Table 4a, “Fire Water System Inspection and Testing Recommendations,” is appropriate for both units.

## AMP XI.M29, “Aboveground Metallic Tanks”

- Limited number of tanks to inspect.

## AMP XI.M32, “One-Time Inspection”

- Not a periodic program.

## AMP XI.M35, “ASME Code Class 1 Small Bore Piping”

- Periodic inspections only conducted if plant-specific operating experience demonstrates need.

# ***Recent Operating Experience Loose Parts***

- Discovered 4/15
  - Two surveillance capsules lost
  - Capsules broke apart
  - Large number of parts in lower vessel
  - Issue detected early in operating cycle

# ***Impact on LR Review***

- RV Surveillance AMP
  - Two capsules lost – one needed for calculation per App. H and LR commitment (RAI)
  - Applicant to revise App. H program
  - Applicant to revise LR Commitment

# ***Impact on LR Review***

- RV Internals AMP
  - Indications of scratches, dents, wear, and materials loss on RVI components
  - Applicant evaluating consistency of AMP with MRP-227A assumptions

# **RIS 2014-06**

## **Consideration of Current Operating Issues and Licensing Actions in License Renewal**



- Current operating issues or separate licensing actions have caused additional reviews and delays 10 CFR 54.29(a) finding for LRAs
- Categories of issues
  - 1) Significant and unique changes to the CLB which affect the scope of license renewal
  - 2) Current operating issues that affect the applicant's ability to define an AMP
- Common examples provided



# ***RIS 2014-06 – Scope of Renewal***

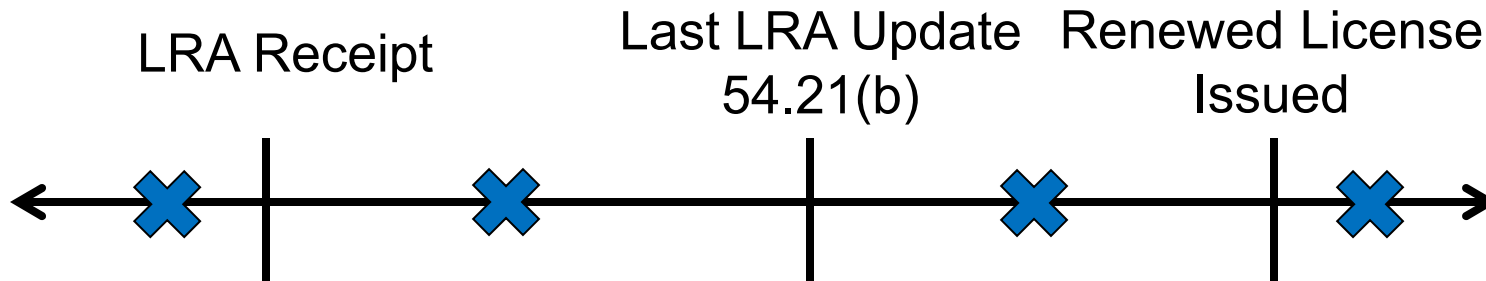


- Significant and unique CLB changes affecting the scope of license renewal
  - LRA reviews concurrent with other major licensing actions
  - Examples include EPU applications and NFPA 805 license amendment applications

# ***RIS 2014-06 -Timing of CLB Changes***



- Effect dependent on LRA review schedule



# ***RIS 2014-06 – AMP Effectiveness***

- Current operating issues that affect the applicant's AMP
  - Aging mechanisms for which GALL AMP elements may not be prescriptive (e.g., aggregate reactions in concrete)
  - Design basis changes to in-scope structures and components (e.g., new containment structure)
  - Adequacy of AMPs to consider degraded conditions (e.g., degraded reactor vessel closure studs)