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

November 17, 2010

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United States Nuclear Regulatory Commission
Protecting People and the Environment

Agenda (1 of 2)

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- Introduction and Opening Remarks
- Status Update on Issuance of NUREG-1801, "Generic Aging Lessons Learned (GALL) Report," Revision 2
- Clarifications of Staff Position on Volumetric Examination of Socket Welds
- License Renewal Applicant Identification and Disposition of Time-Limited Aging Analyses (TLAAs)
- Issues Concerning Steam Generator Divider Plates and Tube-to-Tubesheet Welds

Agenda (2 of 2)

- International Atomic Energy Agency's Integrated Regulatory Review Service (IRRS) and Periodic Safety Reviews
- Commission Briefing on Reactor Materials Issues Including Issues Related to License Renewal
- Draft Agenda for the 2011 Regulatory Information Conference
- Generic Communication on Issuance of GALL Report, Revision 2
- Schedule for 2011 License Renewal Meetings
- New Topics
- Public Participation

Status Update on Issuance of GALL Report, Revision 2

- Advisory Committee on Reactor Safeguards (ACRS) Briefings
  - Sub-committee briefing on October 22, 2010
  - Full-committee briefing on November 4, 2010
  - ACRS letter
- On-track to publish in December of 2010 GALL Report, Revision 2 and NUREG-1800, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants" (SRP-LR)
- Preparing companion report NUREG-1950
  - Technical bases
  - Disposition of public comments

Clarifications of Staff Position on Volumetric Examination of Socket Welds (1 of 2)

- Use of Materials Reliability Program 146, "Management of Thermal Fatigue in Normally Stagnant Non-Isolable Reactor Coolant System Branch Lines" (MRP-146)
  - MRP-146 provides guidelines to manage thermal fatigue in pressurized water reactor coolant system branch piping. It augments the small bore piping inspection program on very specific thermal fatigue issues but does not replace inspection in the aging management program in GALL Report, Revision 2, Section XI.M35, "One-Time Inspection of ASME Code Class 1 Small-Bore Piping" (AMP XI.M35).
  - Ultrasonic test of inspection volume in MRP-146 is limited to the base metal. In comparison, AMP XI.M35 manages cracking which is mostly in the weld metal.

Clarifications of Staff Position on Volumetric Examination of Socket Welds (2 of 2)

- Scope of AMP XI.M35 regarding 1 inch nominal pipe size (NPS)
  - "less than NPS 4, greater than or equal to NPS 1" No change in GALL Report, Revision 2. NPS 1 is included.

License Renewal Applicant Identification & Disposition of TLAAs (1 of 10)

- Types of issues:
  - License renewal application (LRA), current licensing basis (CLB), or design basis inconsistencies
  - When to use fatigue monitoring programs (10 CFR 54.21(c)(1)(iii) disposition bases)
  - Environmentally-assisted fatigue calculations

License Renewal Applicant Identification & Disposition of TLAAs (2 of 10)

- Examples of inconsistency issues:
  - Accuracy and completeness of LRAs required by 10 CFR 54.13. Relationship of CLB to the LRA established in 10 CFR 54.29.
  - Information in one part of the LRA appears to be contradicted by information in another relevant part of the LRA
  - Information in LRA is not consistent with relevant information in the CLB or design basis that the TLAA is based upon
  - Applicant states that an NRC safety evaluation permitted it to implement a specific alternative activity or program relative to a TLAA's safety basis, and the staff's review of the CLB and safety evaluation indicates that the safety evaluation pertained to a technical and regulatory matter different from the one claimed by the applicant in its LRA

License Renewal Applicant Identification & Disposition of TLAAs (3 of 10)

- Examples of inconsistency issues continued:
  - Informing the staff that a given transient does not need to be monitored based on a given technical position, where the transient is still required to be monitored under the plant's cycle counting technical specification (TS) requirement, or under the monitoring requirements of the 10 CFR Part 50, Appendix B, cycle counting procedure (if the transient is not within the scope of TS)
- When to use fatigue monitoring programs
  - Basis is established in GALL Report AMP X.M1, "Metal Fatigue of Reactor Coolant Pressure Boundary "
  - Scope of AMP X.M1 is limited only to cycle counting activities against design CUF-type fatigue TLAAs

License Renewal Applicant Identification & Disposition of TLAAs (4 of 10)

- When to use fatigue monitoring programs continued
  - Scope of AMP X.M1 does not include counting activities against fatigue flaw growth analysis for non-CUF based TLAAs
  - Some applicants are proposing to use AMP X.M1 for 10 CFR 54.21(c)(1)(iii) disposition of their specific non-CUF-related fatigue TLAAs, including leak-before-break, American Society of Mechanical Engineers (ASME) Code Case N-481, and ASME Section XI fatigue flaw growth or transient-dependent fracture mechanics assessments
  - Applicant's are not including appropriate exceptions or enhancements to AMP X.M1 to justify this type of basis, including those for program elements one, three, four, five, six, and seven

License Renewal Applicant Identification & Disposition of TLAAs (5 of 10)

- When to use fatigue monitoring programs continued
  - Proposals to use this type of basis may be technically valid but may not be within the scope of an applicant's CLB. The following documents should be checked:
    - relevant cycle counting TS
    - applicable NRC-endorsed ASME Section XI Code edition of record
    - final safety analysis report (FSAR)
    - quality transient counting procedure
    - technical requirements manual
    - TS bases document

License Renewal Applicant Identification & Disposition of TLAAs (6 of 10)

- When to use fatigue monitoring programs continued
  - Proposed update of CLB or design basis for the FSAR should be docketed for the LRA if cycle counting against non-CUF fatigue assessments is outside of the CLB or design basis. This approach is consistent with the requirement in 10 CFR 54.29.
  - Care must be taken to ensure the AMP delineates acceptance criteria as made relative to the transient basis in these non-CUF analyses and not in the FSAR for CUF design transients
  - Care must also be taken to ensure that corrective actions for cycle counting against these non-CUF analyses are made relative to the safety basis for the given analysis because the safety bases for non-CUF fatigue analyses differ from those for the CUF calculations

License Renewal Applicant Identification & Disposition of TLAAs (7 of 10)

- When to use fatigue monitoring programs continued
  - Corrective actions may need to involve re-performance of the analysis and submittal of the analysis back to the staff for review and approval if the non-CUF analysis was required to receive NRC staff approval (such as leak-before-break analysis or analysis in support of ASME Code Case N-481 alternative examinations bases for pump casings)

License Renewal Applicant Identification & Disposition of TLAAs (8 of 10)

- Fatigue monitoring program – cycle counting
  - Transients within scope of TS requirements
    - Administrative TS call out transients in specified FSAR sections
    - Design TS list transients and their limits
    - These transients must be tracked unless an appropriate license amendment is made to the TS (design-type TS) or an appropriate change, in accordance with 10 CFR 50.59 and 10 CFR 50.71(e), is made to the transient basis in the FSAR (administrative-type TS) to give the basis for not tracking a given TS or TS invoked transient

License Renewal Applicant Identification & Disposition of TLAAs (9 of 10)

- Fatigue monitoring program – cycle counting continued
  - Regarding transients that need to be monitored that are outside the scope of applicable TS cycle counting requirements, it is not evident to the staff which NRC requirement would mandate tracking of these transients
  - Regarding transients outside of the TS and FSAR that need to be monitored, it is not evident why the FSAR would not need to be updated to include them under 10 CFR 50.71(e)

License Renewal Applicant Identification & Disposition of TLAAs (10 of 10)

- Environmentally-assisted fatigue analyses
  - Included in LRA to address staff concerns in Generic Safety Issue 190, "Fatigue Evaluation of Metal Components for 60-Year Plant Life." Applicable guidance is given in SRP-LR Section 4.3 and AMP X.M1.
  - Most issues fall into four topical areas:
    - Selection of component locations for Fen adjustment of CUF
    - Basis for dissolved oxygen level assumptions used in the Fen adjustment factor derivations
    - Basis for strain rate assumptions used in the Fen adjustment factor derivations
    - Bases for calculating Fen adjustment factors for nickel alloy components

International Atomic Energy Agency's IRRS and Periodic Safety Reviews

- Background
  - Assessment of U.S. programs against international safety standards and good regulatory practices
  - Mission completed on October 29, 2010. IRRS team made suggestions and recommendations.
  - Next steps:
    - NRC prepares and implements an action plan to address the IRRS team's recommendations
    - In approximately two years, the IRRS team will return to evaluate the NRC's progress
- NRC is considering how the Operating Experience Program and Generic Issues Program could more systematically review findings from other regulators' periodic safety reviews

Commission Briefing on Reactor Materials Issues Including Issues Related to License Renewal

- Provides the Commission a progress update on reactor materials aging issues, including materials degradation and aging management for plant operation beyond 60 years
- Scheduled for February of 2011
- External panel expected to include presenters from the industry, Electric Power Research Institute (EPRI), Department of Energy (DOE), and ASME
- NRC staff panel will include presenters from the NRC's Office of Nuclear Regulatory Research and the Office of Nuclear Reactor Regulation
- Includes discussion on GALL Report, Revision 2

Draft Agenda for the 2011 Regulatory Information Conference (1 of 2)

- License Renewal Today (1 hour 30 min.)

Speaker	Topic (minutes)
NRC	Introductions and Opening Remarks (15)
NRC	License Renewal Safety Guidance Documents Update (10)
NRC	License Renewal Environmental Guidance Documents Update (10)
NRC	Inspection Insights Related to Inspection Procedure 71003 (10)
NEI / Industry	NEI License Renewal Perspectives (10)
International	International Perspective (10)
NRC	Questions and Answers and Conclusion (25)

- Break (30 min)

Draft Agenda for the 2011 Regulatory Information Conference (2 of 2)

- Potential Second Subsequent License Renewal (1 hour 30 min.)

Speaker	Topic (minutes)
NRC	Introductions and Opening Remarks (10)
NRC	Regulatory Perspectives (10)
NRC	Research (10)
ORNL	NRC/DOE Collaboration on Aging Management Research (10)
DOE	Light Water Reactor Sustainability Program (10)
EPRI	Long Term Operation (10)
NEI / Industry	DOE/EPRI/Constellation Pilot Study (10)
NRC	Questions and Answers and Conclusion (20)

Generic Communication on Issuance of GALL Report, Revision 2

- Communicates the significant changes from GALL Report, Revision 1, such as:
  - Inspection of buried and underground piping and tanks
  - Inspection of inaccessible low-voltage cables
  - Steam generator divider plates and tube-to-tubesheet welds
  - Small-bore piping and socket welds
- Primarily targeted towards holders of renewed licenses, but will also apply to current license renewal applicants
- Plan to issue in 2011

Schedule for 2011 License Renewal Meetings

- Meetings are planned for the following dates and times:
  - March 2011, at the Regulatory Information Conference
  - April 20, 2011, 10 a.m. to noon
  - August 17, 2011, 10 a.m. to noon
  - November 16, 2011, 10 a.m. to noon