



**U.S.NRC**

UNITED STATES NUCLEAR REGULATORY COMMISSION

*Protecting People and the Environment*

**SUBSEQUENT LICENSE RENEWAL  
GUIDANCE AND PROCESS**

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# Overview

- SLR Regulatory and Technical Developments
- Significant Technical Changes from Initial License Renewal
- Review Process Changes

# SLR Regulatory and Technical Developments

- 2008 and 2011
  - International workshops on long-term operations defined major issues for SLR:
    - reactor pressure vessel neutron embrittlement at high fluence;
    - irradiation-assisted stress corrosion cracking of reactor internals and primary system components;
    - concrete and containment degradation, and
    - electrical cable qualification and condition assessment

# SLR Regulatory and Technical Developments (cont.)

- 2011 – 2014 NRC defines potential regulatory changes
  - Working group of program managers, technical experts, and senior level advisors
  - Public meetings to solicit stakeholder input

# SLR Regulatory and Technical Developments (cont.)

- SECY 14-0016 – proposed a rule change for a more efficient process
- SRM to SECY 14-0016 – Did not approve the staff's recommendation
  - Revise guidance
  - Keep the Commission informed on the progress in resolving the major technical issues

# SLR Regulatory and Technical Developments (cont.)

- 2011-2014 – Collected proposed changes to technical guidance
  - Aging Management Program (AMP) Effectiveness Audits
  - Review of the draft Expanded Materials Degradation Assessment
  - Input from industry and staff on needed changes
- 2014 – Began expert panel meetings to disposition proposed changes
- 2015 – Draft guidance documents published for public comment

# SLR Regulatory and Technical Developments (cont.)

- February 2017 – Engaged ACRS on draft guidance documents
- July 2017 – Final GALL-SLR (NUREG-2191, Vols. 1 and 2) and SRP-SLR (NUREG-2192) published
- December 2017 – Published companion documents
  - NUREG-2221 (Technical Bases for Changes in the Subsequent License Renewal Guidance Documents, NUREG-2191 and NUREG-2192), and
  - NUREG-2222 (Disposition of Public Comments on the Draft Subsequent License Renewal Guidance Documents, NUREG-2191 and NUREG-2192)

# SLR Regulatory and Technical Developments (cont.)

- December 2017 – NRC issues interim endorsement letter for NEI guidance
  - NEI 17-01, “Industry Guidance for Implementing the Requirements of 10 CFR Part 54 for Subsequent License Renewal,” Rev. 0
  - NEI 17-04, “ Model SLR New and Significant Assessment Approach for SAMA,” Rev. 0
- NRC currently revising regulatory guidance to endorse NEI guidance
  - RG 1.188 to endorse NEI 17-01
  - RG 4.2 to endorse NEI 17-04



# Significant Technical Changes

- New GALL-SLR AMPs
  - Fluence Monitoring
  - High Voltage Insulators
- Deleted AMPs
  - Feedwater nozzle and control rod drive return line nozzle
- Withdrawal and testing of at least one reactor vessel surveillance capsule addressing the subsequent PEO (if specified criteria not already met)

# Significant Technical Changes (cont.)

- A plant-specific data gap analysis for inspection of PWR reactor vessel
  - to address differences from first license renewal period to subsequent license renewal period
- Expanded Electrical Insulation of Cables AMP from one AMP to three AMPs
  - to address aging of submerged cables at different voltages
- Aging management of concrete
  - Updated for alkali-silica reaction
  - Added further evaluation for irradiation of concrete
- Added over 1035 new items to GALL-SLR tables

# Review Process Changes

- SLR Application (SLRA) review optimization effort identified several changes
- Piloted on River Bend license renewal review
- Pre-Submittal Meetings
  - Environmental at least 12 months prior to submittal
  - Safety at least 6 months prior to submittal
- SLRA acceptance review performed by technical staff assigned to review v. tiger team approach
- 18 month schedule begins upon SLRA acceptance for docketing

# Review Process Changes

- Applicant provides access to electronic portal (no later than acceptance of the SLRA in order to support the review schedule)
- Aging Management Audits (Safety)
  - Offsite Aging Management Program Operating Experience Audit
  - In-Office Aging Management Audit via telecom/webinar breakout sessions
  - On-Site Aging Management Audit with regional participation to walk down specific material conditions and plant configurations

# Review Process Changes

- Documents and meetings
  - Draft SEIS public meeting if necessary (environmental)
  - SER with No Open Items
  - Advisory Committee on Reactor Safeguards (ACRS) meetings on safety review – only one ACRS Subcommittee meeting
  - ACRS Full Committee meeting scheduled within two months following SC meeting