NRC LICENSE RENEWAL GUIDANCE DOCUMENTS – 2010 UPDATE

June 29, 2011

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License Renewal Guidance Documents

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- Guidance documents are used to provide one approach that the NRC finds acceptable – not a required approach

- Generic Aging Lessons Learned (GALL) Report (NUREG-1801)
  - Provides guidance on items requiring aging management (combinations of materials, environment, and aging mechanism)
  - Provides guidance on effective aging management programs (AMPs)
  - Revision 1 issued 2005

- Standard Review Plan – License Renewal (NUREG-1800)
  - Provides guidance for NRC staff to use during its review of license renewal applications

General Changes to License Renewal Guidance Documents

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- Focus on aging management program (AMP) content
- Update AMPs for recent operating experience and reference documents
  - Domestic and foreign operating experience reviews (2004-2009)
- Update AMPs to reflect precedents from recent LR applications/SERs
- Update AMPs to capture Interim Staff Guidance
- Consolidated GALL Report into a single volume
- Revised SRP-LR 10 Element Template for AMPs and updated AMPs
- Considered external stakeholder comments

General Changes to License Renewal Guidance Documents - continued

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- Revised GALL for application of the ASME Code
  - AMPs are based on the 2004 Edition of the Code; other editions and addenda are allowed
  - Clarified use of Code Cases and Relief Requests
- Revised GALL to provide guidance on the use of later revisions of industry documents
- Eliminated “further evaluation” as appropriate
  - Based on augmentation of AMP content and/or better understanding of operating experience
- Eliminated AMP content not related to aging

AMP XI.E3 – Inaccessible Power Cables not Subject to 10 CFR 50.49 EQ Requirements

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Significant changes to XI.E3 are based on plant specific and industry operating experience (IN 2002-12), responses to the GL 2007-01, LR inspections and audits, and Division of Engineering and Office of Research input and include:

- *Scope of Work*
  - revised to include all inaccessible or underground power cables greater than or equal to 400 Volts (typically 480 V) within the scope of license renewal subjected to significant moisture
  - revised to include energized and de-energized cables
- *Detection of Aging Effects*
  - revised cable testing frequency not to exceed 6 years
  - revised inspection frequency of water collection is based on plant-specific operating experience, but not to exceed one year
  - event driven water accumulation inspections - such as rain or flood.

Changes to Structural AMPs

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- Relocation of high strength structural bolting provisions
- XI.S1 (IWE) – incorporate interim staff guidance (LR-ISG-2006-01) related to monitoring the MK1 drywell corrosion
- XI.S2 (IWL) – revised to include additional tendon monitoring when containment cutout made
- XI.S5 (masonry walls) – revised inspection frequency
- XI.S6 (structures monitoring) – revised inspection frequency
- XI.S8 (containment coatings) – clarified importance of coating assessments and inclusion of coatings on concrete; revised reference to RG 1.54, Revision 2

AMP XI.M35 – One-Time Inspection of ASME Code Class 1 Small Bore Piping

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- *Program Description:*
  - Socket welds are included
  - Program applicability
    - Cracking has not occurred
    - Cracking due to high cycle fatigue has been mitigated
    - Plant specific program required for other cases
- *Detection of Aging Effects:*
  - Socket Welds
    - Volumetric exam (VE) or destructive exams (DE)
  - Full penetration welds
    - Volumetric exams
  - Volumetric exams performed using demonstrated techniques
    - ASME Code qualification not required

AMP XI.M35 – One-Time Inspection of ASME Code Class 1 Small Bore Piping - continued

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Failures			No Failures
High cycle fatigue-mitigated	High cycle fatigue – not mitigated	Stress corrosion cracking or thermal fatigue	More than 30 years
10% of welds; max. of 25 welds of each type	Plant-specific periodic program	Plant-specific periodic program	≥ 3% of welds; max. of 10 welds of each type
OTI within 6 years before PEO			OTI within 6 years before PEO
1 DE = 2 VE			1 DE = 2 VE

AMP XI.M16A – PWR Vessel Internals

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- AMP is based on guidelines for examination of vessel internals in EPRI report, “Materials Reliability Program (MRP): Pressurized Water Reactor Internals Inspection and Evaluation Guidelines (MRP-227-Rev. 0)” and “MRP: Inspection Standard for PWR Internals (MRP-228)”
- MRP-227-Rev. 0 has been reviewed by the NRC staff and the final Safety Evaluation was issued last week
- Intend to issue regulatory guidance on how to implement the NRC safety evaluation and MRP-227

AMP XI.M41 – Buried and Underground Piping and Tanks

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Objective

- Managing aging of buried (in direct contact with soil or concrete) and underground (below grade, limited access, in contact with air, such as pipes in trenches or vaults) piping and tanks
  - Primary issue is external corrosion

Philosophy

- Preventive actions are the best approach to aging management
  - Some inspections still required
  - Inspections dependent upon material and preventive actions

Buried Pipe - continued

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Philosophy – continued

- Concentrate on high "risk" pipe
  - Higher probability of corrosion
  - Higher consequences of "failure"
    - Code Class or safety related
    - Hazmat
      - Radiation, diesel fuel etc.
- Excavations can damage pipe
  - Permit alternatives to excavations whenever possible
    - Hydrotests
    - Internal inspections
    - Monitor active equipment (jockey pumps)

License Renewal Guidance Document Update: Summary

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- Enhancements made to the GALL Report and SRP-LR will improve their usefulness
- Guidance documents will provide appropriate framework for applicants to develop programs that will continue to provide reasonable assurance to manage aging effects
- GALL Report and SRP-LR issued on December 16, 2010
- The companion technical basis and public comment disposition document (NUREG-1950) issued on April 30, 2011