



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001**

November 17, 2010

Mr. R. W. Borchardt
Executive Director for Operations
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: DRAFT FINAL REVISIONS TO GENERIC LICENSE RENEWAL GUIDANCE DOCUMENTS

Dear Mr. Borchardt:

During the 577th meeting of the Advisory Committee on Reactor Safeguards, November 4-6, 2010, we completed our review of draft final Revision 2 of NUREG-1800, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants" (SRP-LR), and draft final Revision 2 of NUREG-1801, "Generic Aging Lessons Learned (GALL) Report." Our Plant License Renewal Subcommittee also reviewed these documents during its meeting on October 22, 2010. During our reviews, we had the benefit of discussions with representatives of the NRC staff. We also had the benefit of the documents referenced.

RECOMMENDATIONS

1. The draft final revisions to the generic license renewal guidance documents should be issued.
2. The staff should continue to evaluate the need for revisions to the guidance documents in order to maintain them current.

BACKGROUND

The generic license renewal documents, NUREG-1800 (SRP-LR) and NUREG-1801 (GALL Report), were first issued in 2001. Since then, they have provided the bases for staff acceptance of aging management reviews (AMRs) and aging management programs (AMPs) for license renewal. NUREG-1801 is referenced as a technical basis document in NUREG-1800. The GALL Report lists generic AMRs of systems, structures, and components (SSCs) that may be in the scope of license renewal applications (LRAs) and identifies AMPs that are acceptable for managing aging effects of SSCs in the scope of license renewal. If a license renewal applicant references the GALL Report as the approach used to manage aging effects, the NRC staff will use it as a basis for the LRA assessment, consistent with the guidance provided in SRP-LR.

Based on lessons learned from the review of LRAs, operating experience, and stakeholder input, the staff first revised the license renewal guidance documents in 2005.

DISCUSSION

To incorporate lessons learned from the review of recent LRAs, associated Safety Evaluation Reports (SERs), and domestic and foreign operating experience, the staff has again revised the GALL Report and SRP-LR. These revisions also incorporate License Renewal Interim Staff Guidances issued since 2005. The two volumes of the GALL Report Revision 1 have been consolidated into a single volume. AMPs have been revised to reference the 2004 edition of ASME Code Section XI, and flexibility to accommodate future changes to the code has been provided. Definitions and terminology have also been clarified.

Revision 2 of the GALL Report includes many changes to AMPs in the mechanical, structural, and electrical areas. In the mechanical area, Revision 2 includes three new AMPs:

XI.M16A, "PWR Vessel Internals"

EPRI's Material Reliability Program (MRP-227 and 228) was used to develop, XI.M16A, "PWR Vessel Internals." This program provides guidelines for inspections that are used to manage the effect of age-related degradation mechanisms of PWR reactor vessel internal components. This is a significant enhancement to the GALL Report.

XI.M40, "Monitoring of Neutron-Absorbing Materials Other Than Boraflex"

Neutron-absorbing materials other than Boraflex may be susceptible to degradation and/or deformation in spent fuel pools of operating reactors. NRC Information Notice 2009-26, "Degradation of Neutron-Absorbing Materials in the Spent Fuel Pool," was issued on October 28, 2009, to report instances of such degradation observed in Boral and Carborundum neutron absorbers. Revision 2 of the GALL Report includes a new AMP, XI.M40, which manages the aging effects of these non-Boraflex materials. This is a necessary addition to the GALL Report.

XI.M41, "Buried and Underground Piping and Tanks"

Based on recent operating experience, the staff has concluded that current programs to manage aging of buried and underground piping and tanks are insufficient. We agree with this conclusion. Revision 2 of the GALL Report includes a new AMP, XI.M41, "Buried and Underground Piping and Tanks," which prescribes a more proactive approach to prevent degradation and leakage. The scope of XI.M41 includes not only steel components, but also metallic, cementitious, and polymeric materials. This AMP directs the licensee to identify high "risk" components, where risk is assessed based on vulnerability to corrosion, safety categorization of the component, and on hazardous materials considerations. Preventive actions are the best approach to aging management; this AMP includes recommendations for coating, backfill, and cathodic protection. Nevertheless, inspections are still required. This AMP prescribes a graded approach to inspections based on the extent of preventive actions applied. It also accounts for the merits and the risk of excavations. We agree that this is a timely and appropriate expansion of initiatives to deal with this challenging issue. The inclusion of a structured framework to assess the combination of preventive actions and follow-up inspections should ensure a more consistent application of initiatives at all plants.

A significant change in scope has been made in AMP XI.M35, "One-Time Inspection of ASME Code Class 1 Small-Bore Piping." This AMP allows one-time inspection for systems that have

not experienced cracking of ASME Code Class 1 small-bore piping. However, for systems that have experienced cracking, plant-specific periodic inspections may be required. This AMP has also been modified to explicitly include socket welds. Since operating experience has shown relatively frequent instances of socket weld cracking, it is likely that fewer plants will be able to use only a one-time inspection. In addition, in response to our questions, the staff has committed to augment AMP XI.M35 to include quantitative sampling criteria. We view this expansion of scope and the addition of sampling criteria as necessary and appropriate to provide consistent application of these guidelines to all plants.

Another significant change in scope motivated by operating experience has been made in AMP XI.E3, "Inaccessible Power Cables not Subject to 10 CFR 50.49 Environmental Qualification Requirements." This program, formerly applied only to medium voltage cables, has been expanded to include all energized and de-energized cables operated at 400 volts or above. The frequencies of inspections and testing to detect aging effects have also been increased.

The AMP X.M1, "Fatigue Monitoring," has been enhanced to refer to the most current guidance for environmental effects on the fatigue of reactor coolant boundary materials. It clarifies that the locations identified in NUREG/CR-6260 are a minimum set of locations to be examined for environmental effects and that additional plant-specific locations should be considered if they are more limiting.

Five programs have been eliminated, either because they are no longer necessary or are now subsumed by new or enhanced programs.

The proposed revisions significantly enhance the guidance available to the staff and the licensees for the management of aging during the period of extended operation. The clarifications provided in the text and the detailed expectations now provided in the guidance documents should ensure a more consistent application of aging management initiatives at plants licensed for extended operation. The staff should continue to evaluate the need for revisions to the guidance documents in order to maintain them current.

The draft final revisions to the generic license renewal guidance documents should be issued. The contribution of the staff, the industry, and the public to this revision should be recognized.

Sincerely,

/RA/

Said Abdel-Khalik
Chairman

References:

1. Memorandum to Edwin M. Hackett, "Advisory Committee on Reactor Safeguards Review of the Draft Standard Review Plan for License Renewal Applications and the Generic Aging Lessons Learned Report (Revision 2)," 09/23/2010 (ML102590683)
2. U.S. Nuclear Regulatory Commission, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants, NUREG-1800, Revision 2," December 2010 (ML102660227)
3. U.S. Nuclear Regulatory Commission, "Generic Aging Lessons Learned (GALL) Report NUREG-1801, Revision 2," December 2010 (ML102660219)
4. SECY-99-148, "Credit for Existing Programs for License Renewal," 06/03/1999 (ML992770130)
5. Memorandum to William D. Travers, "Staff Requirements - SECY-99-148, Credit for Existing Programs for License Renewal," 08/27/1999 (ML003751930)

References:

1. Memorandum to Edwin M. Hackett, "Advisory Committee on Reactor Safeguards Review of the Draft Standard Review Plan for License Renewal Applications and the Generic Aging Lessons Learned Report (Revision 2)," 09/23/2010 (ML102590683)
2. U.S. Nuclear Regulatory Commission, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants, NUREG-1800, Revision 2," December 2010 (ML102660227)
3. U.S. Nuclear Regulatory Commission, "Generic Aging Lessons Learned (GALL) Report NUREG-1801, Revision 2," December 2010 (ML102660219)
4. SECY-99-148, "Credit for Existing Programs for License Renewal," 06/03/1999 (ML992770130)
5. Memorandum to William D. Travers, "Staff Requirements - SECY-99-148, Credit for Existing Programs for License Renewal," 08/27/1999 (ML003751930)

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Letter to Mr. R. W. Borchardt, EDO, NRC, from Said Abdel-Khalik, Chairman, ACRS, dated November 17, 2010

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