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UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, DC 20555-0001

July 21, 2011

NRC REGULATORY ISSUE SUMMARY 2011-07 LICENSE RENEWAL SUBMITTAL INFORMATION FOR PRESSURIZED WATER REACTOR INTERNALS AGING MANAGEMENT

ADDRESSEES

All holders of and applicants for a pressurized water power reactor operating license or construction permit under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," except those that have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

INTENT

The U.S. Nuclear Regulatory Commission (NRC) is issuing this regulatory issue summary (RIS) to inform addressees of updated NRC procedures for license renewal application (LRA) reviews or the review of certain licensee submittals related to commitments made in the process of receiving a renewed license. LRAs for pressurized water reactor (PWR) plants have identified that an aging management program (AMP) is needed to manage the effects of aging for reactor vessel internal (RVI) components that are within the scope of license renewal, in accordance with 10 CFR Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants." This RIS requires no action or written response on the part of addressees. This RIS also provides information to licensees with respect to how to meet their existing license renewal commitments related to reactor vessel internals aging management programs, and on acceptable changes to existing license renewal commitments in order to account for the recent issue of the staff's final Safety Evaluation (SE) of MRP-227, Rev.0, and the forthcoming issue of the approved version of MRP-227.

The purpose of this RIS is to facilitate a predictable and consistent method for reviewing the AMPs of commercial PWR LRAs and the AMPs and inspection plans for PWR plants that have received renewed operating licenses. This RIS does not transmit or imply any new or changed requirements or staff positions. Although no specific action or written response is required, the information contained in this RIS will enable licensees to plan effectively for anticipated LRAs and inspection activities.

This RIS is part of the NRC's ongoing oversight of license renewal and is unrelated to the agency's response to the March 11, 2011, earthquake in Japan.

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BACKGROUND INFORMATION

In 10 CFR Part 54, the NRC addresses the requirements for plant LRAs. The regulation in 10 CFR 54.21, "Contents of Application—Technical Information," requires that each LRA contain an integrated plant assessment and an evaluation of time-limited aging analyses. The integrated plant assessment must identify and list those structures and components subject to an aging management review (AMR) and must demonstrate that the effects of aging (such as cracking, loss of material, loss of fracture toughness, dimensional changes, and loss of preload) will be adequately managed so that the intended functions of the structures and components will be maintained consistent with the current licensing basis for the period of extended operation as required by 10 CFR 54.29(a). Structures and components subject to an AMR shall encompass those structures and components (1) that perform an intended function, as described in 10 CFR 54.4, "Scope," without moving parts or without a change in configuration or properties, and (2) that are not subject to replacement based on a qualified life or specified time period. These structures and components are referred to as "passive" and "long-lived," respectively.

On April 26, 2001, the NRC issued NUREG-1801, "Generic Aging Lessons Learned (GALL) Report," (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML011080185 and ML011080393). On September 30, 2005, the NRC issued NUREG-1801, Revision 1, "Generic Aging Lessons Learned (GALL) Report," (ADAMS Accession Nos. ML052770419 and ML052780376). On December 31, 2010, the NRC issued NUREG-1801, Revision 2, "Generic Aging Lessons Learned (GALL) Report," (ADAMS Accession No. ML103490041). The GALL Report provides generic AMRs of systems, structures, and components that are within the scope of license renewal, as described in 10 CFR 54.4, and provides generic AMPs that the staff has found acceptable to manage the effects of aging identified in the AMR. As described in NUREG-1800, Revision 2, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants" (ADAMS Accession No. ML103490036) (LR-SRP), treatment of the GALL Report as an approved topical report improves the efficiency of the license renewal process.

An applicant may reference in its LRA that its AMPs are consistent with those in the GALL Report. If an applicant takes credit for an AMP in the GALL Report, it is incumbent on the applicant to ensure that the conditions and operating experience at the plant are bounded by those for which the AMP in the GALL Report was evaluated and found acceptable. In such a case, the NRC staff's review of the AMP is limited to verifying that the applicant's AMP is consistent with that provided in the GALL Report, including the conditions and operating experience provided in the GALL Report.

If the applicant's conditions and operating experience are not bounded by those of the GALL Report AMP, it is incumbent on the applicant to address the additional effects of aging that may apply to the applicant's facility and supplement the GALL Report AMR line items and AMPs as necessary. The staff's review then addresses the acceptability of the AMR and the AMPs to be used by the applicant.

Revision 1 of the GALL Report provides AMP XI.M16, "PWR Vessel Internals," which refers to the aging management guidance of the AMR line items for RVI components. Within the context

June 13, 2011, the NRC posted a draft version of this RIS on its public website for a 10-day public comment period. Comments were received from the industry's Materials Reliability Program (ADAMS Accession No. ML11188A162) and considered.

CONGRESSIONAL REVIEW ACT

The NRC has determined that this action is not a rule as designated by the Congressional Review Act (5 U.S.C. §§ 801–808) and, therefore, is not subject to the Act.

PAPERWORK REDUCTION ACT STATEMENT

This RIS does not contain new or amended information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget (OMB), approval number 3150-0011 and 3150-0155.

PUBLIC PROTECTION NOTIFICATION

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid OMB control number.

CONTACT

Please direct any questions about this matter to the technical contact listed below.

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Note: NRC generic communications may be found on the NRC public Web site, http://www.nrc.gov, under NRC Library/Document Collections.

C	Plants that have an LRA currently under review.	Applicants will be expected to revise their commitment for aging management of PWR vessel internals such that the submittal information identified in the SE for MRP-227 would be submitted to the NRC for review and approval not later than two years after issuance of the renewed license and not later than two years before the plant enters the period of extended operation, whichever comes first.
D	Plants that will apply for an LR in the future based on the GALL Report, Revision 2.	Applicants will be expected to submit an AMP for vessel internals that is consistent with MRP-227-A for NRC staff review and approval.

BACKFIT DISCUSSION

This RIS is being issued to inform stakeholders of the implementation of updated internal NRC guidance for staff in performing reviews of LRAs with AMPs. The backfit rule applies to procedures necessary to operate a nuclear power plant. The NRC's regulatory review process is not a licensee procedure required for operating the plant.

This RIS requires no action or written response. The intent is to provide licensees sufficient time to modify their AMPs to be consistent with MRP-227-A. This RIS provides information to licensees regarding (1) updated NRC procedures for LRA reviews or the review of certain licensee submittals related to commitments made in the process of receiving a renewed license and (2) the potential for licensees to modify the original commitment date for the submittal of a RVI AMP for their facilities. The technical position of GALL Rev. 2 has not changed. Compliance with the guidelines specified in MRP-227-A would satisfy a licensee's license renewal commitment. For those applicants following GALL Rev. 1, which provided no definition on the RVI AMP, other than following the industry's future program, this RIS provides clarification as to what an acceptable RVI AMP would be in light of the issuance of the staff SE of MRP-227. Any action on the part of addressees to submit a request for a licensing action or to adhere to the industry guidance contained in the EPRI's MRP-227-A guidance document is strictly voluntary. Any changes to a licensees' AMP/inspection plan to adhere to MRP 227-A, ensures compliance with a license commitment. Therefore, this RIS does not constitute a backfit under 10 CFR 50.109, "Backfitting," and a backfit analysis is not required.

***FEDERAL REGISTER* NOTIFICATION**

This RIS is informational and does not represent a departure from current regulatory requirements. The NRC did not publish a notice of opportunity for public comment on this RIS in the *Federal Register* because the RIS pertains to an administrative aspect of the regulatory process that involves the voluntary use of industry guidance by addressees. However, on

of this RIS, NRC license renewals, the SE for MRP-227 and other NRC licensing actions, "RVI" refers to reactor vessel internals. In recognition that the industry was conducting programs to investigate aging of RVI components and to develop aging management guidelines for RVI components, the AMR line items for RVI components state that:

> No further aging management review is necessary if the applicant provides a commitment in the FSAR [final safety analysis report] supplement to (1) participate in the industry programs for investigating and managing aging effects on reactor internals; (2) evaluate and implement the results of the industry programs as applicable to the reactor internals; and (3) upon completion of these programs, but not less than 24 months before entering the period of extended operation, submit an inspection plan for reactor internals to the NRC for review and approval.

Each licensee that made a commitment to conform to GALL AMP XI.M16, or an equivalent commitment under the 2001 GALL Report, also made a commitment in its FSAR supplement that it will implement a plant-specific AMP for its RVI components based on the industry-developed guidance.

On January 12, 2009, the Electric Power Research Institute (EPRI) submitted for NRC staff review and approval the Materials Reliability Program (MRP) Report 1016596 (MRP-227), Revision 0, "Pressurized Water Reactor Internals Inspection and Evaluation Guidelines" (ADAMS Accession No. ML090160204). MRP-227 is the industry-developed guidance that licensees will use to develop their plant-specific AMP for RVI components. MRP-227, Revision 0 contains a discussion of the technical basis for the development of plant-specific AMPs for RVI components in PWR vessels. MRP-227, Revision 0 also provides inspection and evaluation guidelines for PWR licensees to use in their plant-specific AMPs. Once approved by the NRC, MRP-227 will provide the basis for renewed license holders to develop plant-specific inspection plans to manage aging effects on RVI components, as described by their FSAR commitment.

The scope of components considered for inspection under the guidance of MRP-227, Revision 0 includes core support structures (typically denoted as Examination Category B-N-3 by Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code), and those RVI components that serve an intended safety function consistent with the criteria in 10 CFR 54.4(a)(1). The scope of the program does not include consumable items such as fuel assemblies, reactivity control assemblies, and nuclear instrumentation because these components are not subject to an AMR, as defined in 10 CFR 54.21(a)(1).

On June 22, 2011, the NRC issued its final SE regarding topical report MRP-227, Revision 0 (ADAMS Accession No. ML111600498), which license renewal applicants and renewed license holders will use to develop their plant-specific AMPs for RVI components. This SE contains specific conditions on the use of the topical report and applicant/licensee action items that must be addressed by those utilizing the topical report as the basis for a submittal to the NRC. The NRC approved version of the topical report is designated as MRP-227-A.

Subsequent to the submittal of MRP-227 and prior to the issuance of the SE on MRP-227, GALL Report, Revision 2 was issued, providing new AMR line items and aging management

guidance in AMP XI.M16A, "PWR Vessel Internals." This AMP was based on staff expectations for the guidance to be provided in MRP-227-A. After December 21, 2010, any licensees submitting an LRA were encouraged to reference and utilize GALL Report, Revision 2 to manage the effects of aging identified in the AMR. With the issuance of the SE for MRP-227, the NRC will issue License Renewal Interim Staff Guidance (LR-ISG) to revise the GALL Report AMR line items and AMP XI.M.16A for consistency with the SE and to reflect acceptability of the MRP-227-A report for use in license renewal applications.

SUMMARY OF ISSUE

The NRC granted renewed licenses to some owners of PWR units based on a commitment in the FSAR supplement to, in part, submit an inspection plan for RVI components to the NRC for review and approval. This plan was to be based on aging management guidelines for RVI components developed by the industry and approved by the NRC. This commitment in the FSAR would require those licensees to review and update their aging management inspection plans for RVI components based on the guidance provided in MRP-227-A.

With the issuance of the staff SE for MRP-227, the NRC has updated internal guidance on implementation of this RVI component AMP guidance relative to license renewal for PWR plants on a plant-specific basis, as indicated in the following table for the plants in Categories "A" through "D." The different plant categories reflect the licensee's status relative to license renewal approval (i.e., licensee has received a renewed license, has submitted an LRA, or has not), and, for those plants with renewed licenses, whether the licensee has or has not submitted its inspection plan to the NRC for review and approval.

Category "A" facilities address licensees that previously submitted an RVI inspection plan based on the draft Revision 0 of MRP-227. Licensees of Category "A" facilities, those that made a commitment in the FSAR supplement to comply with the industry-developed guidance and choose to withdraw their inspection plans to conform to their commitments, must do so in writing and should include a commitment to resubmit the required information based on MRP-227-A, no later than October 1, 2012. Licensees of Category "A" facilities who propose in their resubmittal to deviate from provisions of MRP-227-A based upon having completed specific inspections, will need to provide a justification for each deviation from the MRP-227-A guidelines. The NRC will evaluate proposed deviations from the MRP-227-A guidelines to ensure that licensee programs will still provide an acceptable approach for managing the effects of aging in RVI components. This will ensure compliance with the commitment in the FSAR supplement.

Licensees of Category "B" facilities that have committed to follow the industry-developed guidance, will be expected to make the submittal of their RVI AMP based on the guidance of MRP-227-A, consistent with their commitment. Licensees of Category "B" facilities who are required by their commitments to submit their RVI inspection plan prior to one year after the issuance of this RIS may modify their commitments to submit their RVI inspection plan no later than October 1, 2012. All other Category "B" facility licensees will be expected to make the submittal of their RVI AMP in accordance with their existing commitments. This will ensure compliance with the commitment in the FSAR supplement.

For those PWR plants that have an LRA currently under review (as addressed in Category "C") with a commitment to follow the industry-developed guidance, the NRC staff expects the applicant to revise the commitment for aging management of PWR vessel internals such that the plant-specific action items identified in the SE for MRP-227 would be submitted to the NRC for review and approval not later than two years after issuance of the renewed license and not later than two years before the plant enters the period of extended operation, whichever comes first. It is expected that Category C licensees will follow the guidance of MRP-227-A, consistent with their commitment.

For those PWR plant licensees that have not submitted their LRAs (as addressed in Category "D") but plan to submit an LRA in the future, the NRC staff encourages these future license renewal applicants to, and anticipates that the applicant will, provide an AMP for vessel internals in their LRA that is consistent with MRP-227-A. As described previously, the NRC will issue an LR-ISG to revise the GALL Report to ensure that GALL AMP XI.M16A, "PWR Vessel Internals," and associated AMR line items are consistent with the SE on MRP-227 and reflect acceptability of the MRP-227-A report for use in license renewal applications. It is expected that all Category D LRAs will meet GALL Revision 2 as updated by the LR-ISG.

If a license renewal applicant confirms that it will implement an AMP consistent with MRP-227-A, Licensee/Applicant Action Item 8 from the NRC staff SE (Section 3.5.1) indicates that the LRA shall include, in part, an AMP that addresses the 10 program elements as defined in AMP XI.M16A, and an inspection plan. The NRC review of an AMP which is consistent with GALL AMP XI.M16A would include those items specifically identified in Section 4.0 of the SE.

Category	Description	NRC Expectations
A	Plants with renewed licenses that have already submitted an AMP/inspection plan based on MRP-227, Revision 0 to comply with an existing commitment.	Licensees may withdraw their current AMP/inspection plan submittals and provide new/revised commitments to resubmit AMPs/inspection plans in accordance with MRP-227-A no later than October 1, 2012. Future submittals should address all information required by MRP-227-A.
B	Plants with renewed licenses that have a commitment to submit an AMP/inspection plan based on MRP-227, but that have not yet been required to do so by their commitment.	Licensees will be expected to submit AMPs/inspection plans in accordance with MRP-227-A, consistent with the timing requirements reflected in their LR commitments. Licensees who would be required by their commitments to make their submittal prior to one year after the issuance of this RIS may modify their commitments to reflect a requirement to submit their AMPs/inspection plans no later than October 1, 2012.