

DRAFT LICENSE RENEWAL INTERIM STAFF GUIDANCE LR-ISG-2011-05

ONGOING REVIEW OF OPERATING EXPERIENCE

INTRODUCTION

This license renewal interim staff guidance (LR-ISG) clarifies the U.S. Nuclear Regulatory Commission (NRC's) existing position in NUREG-1800, Revision 2, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants" (SRP-LR), that acceptable license renewal aging management programs (AMPs) should be informed, and enhanced when necessary, based on the ongoing review of both plant-specific and industry operating experience. Specifically, this LR-ISG revises the NRC staff's acceptance criteria and review procedures to better address the ongoing review of operating experience within the SRP-LR. This LR-ISG also better aligns NUREG-1801, Revision 2, "Generic Aging Lessons Learned (GALL) Report," with the SRP-LR by incorporating the recommendation for ongoing review of operating experience into each of the program descriptions in Chapter X, "Time-Limited Aging Analyses Evaluation of Aging Management Programs under 10 CFR 54.21(c)(1)(iii)," and Chapter XI, "Aging Management Programs (AMPs)."

DISCUSSION

Current Regulatory Framework

Pursuant to Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," Subsection 21(a)(3), of Title 10 of the *Code of Federal Regulations* (10 CFR 54.21(a)(3)), a license renewal applicant is required to demonstrate that the effects of aging on structures and components subject to an aging management review (AMR) are adequately managed so that the intended function(s) will be maintained consistent with the current licensing basis (CLB) for the period of extended operation. The NRC's guidance in SRP-LR Section 3.0.1 defines the AMR as the identification of the structure and component materials, environments, aging effects, and AMPs credited for managing the aging effects. In turn, SRP-LR Section A.1.2.3 defines an acceptable AMP as consisting of ten elements, with the description of Element 10, "Operating Experience," in SRP-LR Section A.1.2.3.10 stating that:

1. Consideration of future plant-specific and industry operating experience relating to aging management programs should be discussed. Reviews of operating experience by the applicant in the future may identify areas where aging management programs should be enhanced or new programs developed. An applicant should commit to a future review of plant-specific and industry operating experience to confirm the effectiveness of its aging management programs or indicate a need to develop new aging management programs. This information should provide objective evidence to support the conclusion that the effects of aging will be managed adequately so that the structure and component intended function(s) will be maintained during the period of extended operation.

2. Operating experience with existing programs should be discussed. The operating experience of AMPs that are existing programs, including past corrective actions resulting in program enhancements or additional programs, should be considered. A past failure would not necessarily invalidate an AMP because the feedback from operating experience should have resulted in appropriate program enhancements or new programs. This information can show where an existing program has succeeded and where it has failed (if at all) in intercepting aging degradation in a timely manner. This information should provide objective evidence to support the conclusion that the effects of aging will be managed adequately so that the structure- and component-intended function(s) will be maintained during the period of extended operation.
3. For new AMPs that have yet to be implemented at an applicant's facility, the programs have not yet generated any operating experience (OE). However, there may be other relevant plant-specific OE at the plant or generic OE in the industry that is relevant to the AMP's program elements even though the OE was not identified as a result of the implementation of the new program. Thus, for new programs, an applicant may need to consider the impact of relevant OE that results from the past implementation of its existing AMPs that are existing programs and the impact of relevant generic OE on developing the program elements. Therefore, operating experience applicable to new programs should be discussed. Additionally, an applicant should commit to a review of future plant-specific and industry operating experience for new programs to confirm their effectiveness.

In addition, 10 CFR 54.21(d) requires the LRA to contain a final safety analysis report (FSAR) supplement, which must contain a summary description of the programs and activities for managing the effects of aging and the evaluation of time-limited aging analyses (TLAAs) for the period of extended operation. For the AMR, SRP-LR Sections 3.1.2.5, 3.2.2.5, 3.3.2.5, 3.4.2.5, 3.5.2.5, and 3.6.2.5 provide the NRC staff's acceptance criteria for the FSAR supplement as follows:

The summary description of the programs and activities for managing the effects of aging for the period of extended operation in the FSAR Supplement should be sufficiently comprehensive, such that later changes can be controlled by 10 CFR 50.59. The description should contain information associated with the bases for determining that aging effects will be managed during the period of extended operation. The description should also contain any future aging management activities, including enhancements and commitments, to be completed before the period of extended operation. Table 3.0-1 of this SRP-LR provides examples of the type of information to be included in the FSAR Supplement.

For TLAAs, SRP-LR Sections 4.2.2.2, 4.3.2.2, 4.4.2.2, 4.5.2.2, 4.6.2.2, and 4.7.2.2 provide the NRC staff's acceptance criteria for the FSAR supplement as follows:

The summary description of the evaluation of TLAAs for the period of extended operation in the FSAR supplement is appropriate such that later changes can be controlled by 10 CFR 50.59. The description should contain information

associated with the TLAAs regarding the basis for determining that the applicant has made the demonstration required by 10 CFR 54.21(c)(1).

Basis for Issuing Interim Guidance

In December 2010, the NRC issued the current revision of the SRP-LR (Revision 2) with an expanded description of the operating experience program element in Section A.1.2.3.10. In Revision 1, the SRP-LR describes two criteria for the operating experience program element: (1) for existing programs, the need to discuss operating experience to support the conclusion that the program is effective, and (2) for new programs, the potential need to provide future operating experience to confirm the effectiveness of the program. SRP-LR, Revision 2 retains the criterion on existing programs, expands the criterion on new programs, and introduces a new criterion applicable to both new and existing programs. The new criterion concerns the future review of plant-specific and industry operating experience to confirm the effectiveness of the AMPs or indicate the need to develop new AMPs. However, through implementation of SRP-LR, Revision 2, the NRC staff has determined that both the SRP-LR and GALL Report discussions need clarification to better address the criterion concerning future reviews of operating experience.

One area of clarification concerns consistency within the SRP-LR. As currently written, the review procedures in SRP-LR Chapter 3, "Aging Management Review," only direct the reviewer to address past operating experience when reviewing those AMR results compared to the GALL Report. For better alignment with SRP-LR Section A.1.2.3.10, these review procedures need revision to also address how the applicant will use the ongoing review of operating experience to ensure the effectiveness of its AMPs.

Another area of clarification concerns consistency between the SRP-LR and the GALL Report. Consistent with the operating experience description in the current SRP-LR, the effectiveness of AMPs should be ensured through the ongoing review of operating experience. However, while the current SRP-LR reflects this position, GALL Report, Revision 2, which was issued concurrently with SRP-LR, Revision 2, in December 2010, does not. The AMPs in GALL Report Chapters X and XI address the ten elements described in SRP-LR Section A.1.2.3, but they do not explicitly address the need for an ongoing assessment of operating experience in Element 10.

In addition, the NRC staff has determined that clarification is needed concerning the use of the word "commit" in SRP-LR Section A.1.2.3.10, where paragraph 1 states: "An applicant should commit to a future review of plant-specific and industry operating experience to confirm the effectiveness of its aging management programs or indicate a need to develop new aging management programs." In responses to the NRC staff's requests for additional information concerning operating experience, some applicants have proposed "regulatory commitments" as the means to address the above statement from the SRP-LR. However, the NRC staff's intent is for applicants to obligate themselves to review operating experience on an ongoing basis as part of implementing their AMPs, rather than making specific "regulatory commitments." Regulatory commitments made by applicants in the course of the license renewal review are typically appropriate for tracking the completion of certain actions, such as the implementation of a new program or the enhancement of an existing program by a certain date. Since the intent is for the review of operating experience to be an ongoing programmatic activity through the license renewal period, the NRC staff believes that the best way to capture this obligation is through a summary description in the FSAR supplement required by 10 CFR 54.21(d). As such, the applicant's ongoing operating experience review would be described and subject to certain

regulatory controls consistent with the other programs and activities relied on for managing the effects of aging. This LR-ISG provides an example of such a summary description, which the NRC staff has determined is sufficiently comprehensive such that later changes can be adequately controlled by 10 CFR 50.59 and, therefore, meets the current SRP-LR acceptance criteria.

Clarification is also needed concerning the consideration of operating experience for new programs, as discussed in SRP-LR Section A.1.2.3.10, paragraph 3: "Additionally, an applicant should commit to a review of future plant-specific and industry operating experience for new programs to confirm their effectiveness." In this LR-ISG, the NRC staff describes acceptable activities for reviewing operating experience to ensure the effectiveness of license renewal AMPs. The NRC staff intends for the ongoing review of operating experience to inform every AMP, regardless of the AMP's implementation schedule. Therefore, this LR-ISG retains the intent of the current SRP-LR guidance. A separate commitment to review operating experience for new programs is unnecessary because this obligation is captured in the example FSAR supplement summary description of the operating experience review activities.

The nature of operating experience is such that it can come from a variety of sources and may affect any number of areas of plant operation. Thus, potentially relevant operating experience must be screened and, if necessary, further reviewed to determine whether any subsequent actions should be taken. The NRC staff recognizes that the capture and review of operating experience may best be accomplished through generic plant operating experience review activities, such as those implemented to address Item I.C.5, "Procedures for Feedback of Operating Experience to Plant Staff," of NUREG-0737, "Clarification of TMI Action Plan Requirements." In this regard, the staff believes that guidance on the ongoing review of operating experience for license renewal should be addressed as a generic process that is used to inform each AMP and, when necessary, to develop new AMPs. This process would be used for the operating experience element of all AMPs, similar to how the 10 CFR Part 50, Appendix B, quality assurance program may be applied to the elements of corrective actions, confirmation process, and administrative controls in all AMPs. Therefore, the staff believes that the SRP-LR and the GALL Report should address the ongoing review of operating experience in the same fashion as the quality assurance program.

Notwithstanding the continued use of existing programmatic activities for the ongoing review of operating experience, there are several areas where these activities should be augmented for license renewal. These areas concern the:

- specific kind of information that is considered as operating experience
- training of plant personnel who screen, assign, evaluate, and submit operating experience
- information to consider in operating experience evaluations
- criteria for identifying and categorizing operating experience as related to aging
- criteria for considering when AMPs should be modified or new AMPs developed due to operating experience
- guidelines for reporting operating experience on age-related degradation to the industry

These augmentations are necessary to ensure that operating experience related to aging is captured and used appropriately. To ensure no gaps in the consideration of available information, the augmentations should be incorporated into the programmatic operating experience review activities no later than the date the renewed license is issued and then

implemented on an ongoing basis throughout the term of the renewed license. In this way, operating experience on age-related degradation can be used to inform the aging management activities currently being implemented or planned to be implemented in the future, and it can be used to determine when new activities are necessary.

On the kinds of information that should be considered as operating experience, it is important to include guidance documents and other publications when they contain lessons learned applicable to aging management. The primary example of such a document is a revision to the GALL Report. Generally these kinds of documents provide historical information and lessons learned in response to operating experience information over a period of time. As such, it is expected that the operating experience in these documents already will have been identified and evaluated. Nevertheless, it is also important to consider the historical lessons learned to provide a check on the adequacy of the initial responses to the operating experience.

ACTION

This LR-ISG provides interim revisions to the SRP-LR to clarify the NRC staff's acceptance criteria and review procedures with respect to the ongoing review of operating experience to ensure the effectiveness of the license renewal AMPs. In addition, this LR-ISG provides interim revisions to the GALL Report to make the AMP descriptions therein consistent with the SRP-LR guidance for acceptable AMPs. Appendix A, "Revisions to the SRP-LR and GALL Report," to this LR-ISG shows these changes. The majority of these changes result in the addition of new information to the SRP-LR and the GALL Report. However, the existing text in SRP-LR Section A.1.2.3.10 has been clarified and, to better show the changes to this section, a mark-up is in Appendix B, "Mark-Up of Changes to SRP-LR Section A.1.2.3.10," to this LR-ISG. This interim guidance supersedes the affected sections of the SRP-LR and GALL Report and is approved for use by the NRC staff and stakeholders.

NEWLY IDENTIFIED SYSTEMS, STRUCTURES, AND COMPONENTS UNDER 10 CFR 54.37(b)

The NRC is not proposing to treat the ongoing review of operating experience as a "newly identified" system, structure, or component (SSC) under 10 CFR 54.37(b). Therefore, any additional action on such reviews which the NRC may impose upon current holders of renewed operating licenses under 10 CFR Part 54 would not fall within the scope of 10 CFR 54.37(b).

BACKFITTING DISCUSSION

This LR-ISG contains guidance as to one acceptable approach for managing the effects of aging during the period of extended operation. Issuance of this LR-ISG does not constitute backfitting as defined in 10 CFR 50.109(a)(1), and the NRC staff did not prepare a backfit analysis for issuing this LR-ISG. There are several rationales for this conclusion, depending upon the status of the nuclear power plant licensee.

Licensees who are currently in the license renewal process – This LR-ISG is directed to current applicants for license renewal. However, this LR-ISG is not backfitting as defined in 10 CFR 50.109(a)(1). This guidance is non-binding and provides one approach acceptable to the NRC staff for considering operating experience on an ongoing basis as one component of the management of the effects of aging in accordance with the requirements of 10 CFR Part 54. License renewal applicants are not required to use this guidance and may elect to propose alternative approaches for managing the effects of aging during the period of extended

operation. In addition, the Backfit Rule does not protect license renewal applicants voluntarily requesting renewed licenses from changes in NRC requirements or guidance on license renewal prior to or during the pendency of their renewal application. Additional information is in the April 1, 2008, memorandum from NRC Chairman Dale E. Klein, to Hubert T. Bell, Office of the Inspector General, NRC, entitled "Response to Recommendation 8 of 9/6/07 Audit Report on NRC's License Renewal Program." Therefore, issuance of this LR-ISG does not constitute backfitting as applied to current applicants for license renewal.

Licensees who already hold a renewed license – While applicable to holders of renewed licenses, this guidance is non-binding and this LR-ISG does not require current holders of renewed licenses to take any action (i.e., programmatic or plant hardware changes for managing the aging of SSCs within the scope of license renewal). Nevertheless, renewed license holders should review the information in this LR-ISG and consider actions consistent with this guidance, as appropriate, to ensure continued compliance with maintaining effective AMPs. If, in the future, the NRC decides to take additional action and impose requirements for the review of operating experience related to aging management, then the NRC will follow the requirements of the Backfit Rule.

REFERENCES

10 CFR Part 50, *Domestic Licensing of Production and Utilization Facilities*, Office of the Federal Register, National Archives and Records Administration, 2011.

10 CFR Part 54, *Requirements for Renewal of Operating Licenses for Nuclear Power Plants*, Office of the Federal Register, National Archives and Records Administration, 2011.

Energy Northwest. Letter from David A. Swank, Acting Vice President, Engineering, to the U.S. Nuclear Regulatory Commission, "Columbia Generating Station, Docket No. 50-397 Response to Request for Additional Information License Renewal Application." (June 23, 2011). ADAMS Accession No. ML11180A013.

FirstEnergy Nuclear Operating Company. Letter from Kendall W. Byrd, Director, Site Performance Improvement, Davis-Besse Nuclear Power Station, to the Document Control Desk, U.S. Nuclear Regulatory Commission, "Davis-Besse Nuclear Power Station, Unit No. 1 Docket No. 50-346, License Number NPF-3 Reply to Request for Additional Information for the Review of the Davis-Besse Nuclear Power Station, Batch 4 (TAC No. ME4640), and License Renewal Application Amendment No. 11." (June 24, 2011). ADAMS Accession No. ML11180A060.

NextEra Energy Seabrook, LLC. Letter from Paul O. Freeman, Site Vice President, to the U.S. Nuclear Regulatory Commission, "Seabrook Station Response to Request for Additional Information NextEra Energy Seabrook License Renewal Application Request for Additional Information – Set 14 RAI B.1.4-1." (June 24, 2011). ADAMS Accession No. ML11178A236.

STP Nuclear Operating Company. Letter from G. T. Powell, Vice President, Technical Support & Oversight, South Texas Project Electric Generating Station, to the U.S. Nuclear Regulatory Commission, "South Texas Project Units 1 and 2 Docket Nos. STN 50-498, STN 50-499 Response to Request for Additional Information for the South Texas Project License Renewal Application (TAC Nos. ME4936 and ME4937)." (June 23, 2011). ADAMS Accession No. ML11181A037.

U.S. NRC. *Clarification of TMI Action Plan Requirements*. Washington, D.C. NUREG-0737. (November 1980). ADAMS Accession No. ML051400209.

U.S. NRC. *Generic Aging Lessons Learned (GALL) Report*. Washington, D.C. NUREG-1801, Revision 2. (December 2010). ADAMS Accession No. ML103490041.

U.S. NRC. Memorandum from Dale E. Klein, Chairman, to Hubert T. Bell, Office of the Inspector General, "Response to Recommendation 8 of 9/6/07 Audit Report on NRC's License Renewal Program." (April 1, 2008). ADAMS Accession No. ML080870286.

U.S. NRC. *Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants*. Washington, D.C. NUREG-1800, Revision 2. (December 2010). ADAMS Accession No. ML103490036.

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APPENDIX A

REVISIONS TO THE SRP-LR AND GALL REPORT

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Itemized Changes

(1) Add a new row to SRP-LR Table 3.0-1, “FSAR Supplement for Aging Management of Applicable Systems,” after the row for “GALL Appendix A,” to read:

Table 3.0-1 FSAR Supplement for Aging Management of Applicable Systems				
GALL Chapter	GALL Program	Description of Program	Implementation Schedule*	Applicable GALL Report and SRP-LR Chapter References
GALL Appendix B	Operating Experience	The operating experience review activities ensure, through the ongoing review of both plant-specific and industry operating experience, that the license renewal aging management programs are effective to manage the aging effects for which they are credited. The programs are either enhanced or new programs are developed when the review of operating experience indicates that the programs may not be fully effective or can be improved.	Existing Program	GALL II-III / SRP 3.5 GALL IV / SRP 3.1 GALL V / SRP 3.2 GALL VI / SRP 3.6 GALL VII / SRP 3.3 GALL VIII / SRP 3.4

- (2) Add new acceptance criteria as SRP-LR Sections 3.1.2.2.16, 3.2.2.2.8, 3.3.2.2.7, 3.4.2.2.5, 3.5.2.2.4, and 3.6.2.2.5 entitled, "Ongoing Review of Operating Experience," to read:

Acceptance criteria are described in Appendix A.4, "Operating Experience for Aging Management Programs."

- (3) Add new review procedures as SRP-LR Sections 3.1.3.2.16, 3.2.3.2.8, 3.3.3.2.7, 3.4.3.2.5, 3.5.3.2.4, and 3.6.3.2.5 entitled, "Ongoing Review of Operating Experience," to read:

The applicant's AMPs should contain the element of operating experience. The reviewer verifies that the applicant has appropriate programs or processes for an ongoing review of both plant-specific and industry operating experience related to aging management. Such reviews are used to ensure that the AMPs are effective to manage the aging effects for which they are credited. When these reviews indicate that the programs may not be fully effective or can be improved, the AMPs are enhanced or new AMPs are developed and implemented, as appropriate. Additional information is in Appendix A.4, "Operating Experience for Aging Management Programs."

In addition, the reviewer confirms that the applicant has provided an appropriate summary description of these activities in the FSAR supplement. An example description is under "Operating Experience" in Table 3.0-1, "FSAR Supplement for Aging Management of Applicable Systems."

- (4) In these SRP-LR tables:

- Table 3.1-2, "Aging Management Programs Recommended for Reactor Vessel, Internals, and Reactor Coolant System"
- Table 3.2-2, "Aging Management Programs Recommended for Engineered Safety Features"
- Table 3.3-2, "Aging Management Programs Recommended for Aging Management of Auxiliary Systems"
- Table 3.4-2, "Aging Management Programs Recommended for Aging Management of Steam and Power Conversion System"
- Table 3.5-2, "Aging Management Programs Recommended for Containments, Structures, and Component Supports"
- Table 3.6-2, "Aging Management Programs Recommended for Electrical and Instrumentation and Control Systems"

Add new rows after each of the rows for “Appendix for GALL,” to read:

GALL Report Chapter/AMP	Program Name
GALL Report Appendix B	Operating Experience for Aging Management Programs

(5) Change SRP-LR Section A.1.2.3.10, “Operating Experience,” to read:

A.1.2.3.10 Operating Experience

1. Consideration of future plant-specific and industry operating experience relating to AMPs should be discussed. The ongoing review of operating experience may identify areas where AMPs should be enhanced or new AMPs developed. As such, an applicant should ensure that it has adequate processes to monitor and evaluate plant-specific and industry operating experience related to aging management to ensure that the AMPs are effective in managing the aging effects for which they are credited. The AMPs are informed by this review of operating experience on an ongoing basis, regardless of the AMP’s implementation schedule. The ongoing review of operating experience information should provide objective evidence to support the conclusion that the effects of aging are managed adequately so that the structure- and component- intended function(s) will be maintained during the period of extended operation.
2. Currently available operating experience with existing programs should be discussed. The operating experience of existing programs, including past corrective actions resulting in program enhancements or additional programs, should be considered. A past failure would not necessarily invalidate an AMP because the feedback from operating experience should have resulted in appropriate program enhancements or new programs. This information can show where an existing program has succeeded and where it has not been fully effective in intercepting aging degradation in a timely manner. This information should provide objective evidence to support the conclusion that the effects of aging will be managed adequately so that the structure- and component-intended function(s) will be maintained during the period of extended operation.
3. Currently available operating experience applicable to new programs should also be discussed. For new AMPs that have yet to be implemented at an applicant’s facility, the programs have not yet generated any operating experience. However, there may be other relevant plant-specific or generic industry operating experience that is relevant to the program elements, even though the operating experience was not identified through implementation of the new program. Thus, when developing the elements for new programs, an applicant should consider the impact of relevant operating experience from implementation of its existing AMPs and from generic industry operating experience.

- (6) Change the last row in SRP-LR Table A.1-1, “Elements of an Aging Management Program for License Renewal,” to read:

Element	Description
10. Operating Experience	<p>Operating experience applicable to the AMP, including past corrective actions resulting in program enhancements or additional programs, should provide objective evidence to support the conclusion that the effects of aging will be managed adequately so that the structure- and component-intended function(s) will be maintained during the period of extended operation.</p> <p>In addition, the ongoing review of both plant-specific and industry operating experience ensures that the AMP is effective in managing the aging effects for which it is credited. The AMP is either enhanced or new AMPs are developed when the review of operating experience indicates that the AMP may not be fully effective or can be improved.</p>

- (7) Insert in the SRP-LR a new Appendix A.4, “Operating Experience for Aging Management Programs,” after page A.3-3, to read:

A.4 OPERATING EXPERIENCE FOR AGING MANAGEMENT PROGRAMS

A.4.1 Background

Operating experience is a very important element of an effective aging management program (AMP). Operating experience should provide objective evidence to support the conclusion that the effects of aging are managed adequately so that the structure- and component-intended function(s) will be maintained during the period of extended operation. Under their current licensing bases, applicants implement programs for the ongoing review of operating experience, such as those implemented in accordance with Item I.C.5, “Procedures for Feedback of Operating Experience to Plant Staff,” of NUREG-0737, “Clarification of TMI Action Plan Requirements.”

A.4.2 Position

The systematic review of operating experience related to aging management should ensure that the license renewal AMPs are and will continue to be effective in managing the aging effects for which they are credited. When the evaluation of operating experience information

indicates that the AMPs may not be fully effective or can be improved, the AMPs are either enhanced or new AMPs are developed, as appropriate. The AMPs are informed by the review of operating experience on an ongoing basis, regardless of the AMP's implementation schedule.

As such, the applicant should ensure that its existing processes and procedures for the review of operating experience are adequate to capture information related to aging management. To this end, the applicant should ensure that its processes adequately address the following points:

- The review processes are adequate so as to not preclude the consideration of operating experience related to aging management. For example, the processes appropriately gather information on all the license renewal structures and components identified in the integrated plant assessment, and their materials, environments, aging effects, and aging mechanisms. In addition, the processes include the AMPs credited for managing the effects of aging, and the activities under these AMPs (e.g., inspection methods, preventive actions, evaluation techniques, etc.).
- While the programs and procedures may specify reviews of certain sources of information, such as NRC generic communications and Institute of Nuclear Power Operations reports, they include any potential source of relevant plant-specific or industry operating experience information.
- When it is determined that a formal evaluation of operating experience is necessary, it is completed and prioritized commensurate with the potential significance of the issue. Such evaluations are documented and retained in an auditable and retrievable form.
- When it is determined that enhancements are necessary to adequately manage the effects of aging, the enhancements are entered into and implemented consistent with the plant corrective action program. Enhancements can include, as appropriate, modifications to AMPs or the creation and implementation of new AMPs. The threshold of the corrective action program should be at a level where it can be used to affect changes to the AMPs.
- The programs and procedures are administratively controlled, to include a formal review and approval process and periodic audits.

Further, the applicant should implement, as necessary, the following enhancements to ensure that its programmatic activities for the ongoing review of operating experience can appropriately capture and evaluate operating experience related to aging management.

- A specific system or identification code, such as in the plant corrective action program, is used to broadly identify and trend issues concerning age-related degradation. An adequate definition is provided so that this code can be assigned consistently by plant personnel.
- Guidance documents and other publications, when they contain lessons learned applicable to aging management, are considered as operating experience and evaluated accordingly. There are written plans and expectations for finding this type of document and processing it as operating experience. An example of such documents is a revision to NUREG-1801, "Generic Aging Lessons Learned (GALL) Report."
- Evaluations of all plant-specific and industry operating experience include assessments of potential aging management impacts. These evaluations should consider, specifically, the (a) systems, structures, or components, (b) materials, (c) environments, (d) aging effects, (e) aging mechanisms, and (f) aging management programs that are affected by the plant-specific and industry operating experience. There are criteria for considering when aging management programs should be modified or new aging management programs developed due to operating experience.
- Results of inspections, tests, analyses, etc. conducted through implementation of the aging management programs are considered as operating experience on an ongoing basis. For example, when applicable acceptance criteria are not met, corrective actions are initiated in accordance with the plant quality assurance program, consistent with Appendix A.1, "Aging Management Review – Generic (Branch Technical Position RLSB-1)" and Appendix A.2, "Quality Assurance for Aging Management Programs (Branch Technical Position IQMB-1);" when applicable acceptance criteria are met, results are retained for future use and evaluation to determine whether it is necessary to adjust the frequency of future inspections, establish new inspections, and ensure an adequate depth and breadth of component, material, environment, and aging effect combinations.
- Training on aging management is provided to those plant personnel who screen, assign, evaluate, and submit plant-specific and industry operating experience information. The training is provided so that these individuals can appropriately identify when operating experience has the potential to involve age-related degradation. The training also includes an overview of the plant

aging management programs and how they manage the effects of aging applicable to the plant, conditions under which aging degradation is likely to occur, and the difference between an evaluation for operability and an evaluation for age-related degradation. When a committee or panel is used to screen operating experience, at least one member should have received this training on aging management.

Additional training is necessary for those personnel who oversee and implement the aging management activities. In general, the level of training should be commensurate with the overall responsibilities for implementing the aging management activities. For example, a supervisor should receive additional training on the aging management activities which he or she oversees, whereas a subject matter expert (i.e., an aging management program owner) should receive more in-depth training so that he or she is completely familiar with all aspects of the aging management activities for which he or she is responsible. In all cases, the training is provided on a periodic basis and includes provisions to accommodate the turnover of plant personnel.

- Appropriate guidelines are available for reporting plant-specific operating experience on age-related degradation to the industry.

These enhancements should be incorporated into the programmatic operating experience review activities no later than the date the renewed license is issued and then implemented on an ongoing basis throughout the term of the renewed license. Alternate approaches for the ongoing review of plant-specific and industry operating experience for license renewal are subject to NRC review on a case-by-case basis.

The license renewal application should describe the programmatic activities for the ongoing review of operating experience related to aging management, including any necessary enhancements. In addition, the applicant should provide an appropriate summary description of these activities in the FSAR supplement.

A.4.3 References

1. NUREG-1801, Generic Aging Lessons Learned (GALL) Report," U.S. Nuclear Regulatory Commission.
2. NUREG-0737, "Clarification of TMI Action Plan Requirements," U.S. Nuclear Regulatory Commission.

(8) In the table on GALL Report page 6, change the last row to read:

AMP Element	Description
10. Operating Experience	<p>Operating experience applicable to the AMP, including past corrective actions resulting in program enhancements or additional programs, should provide objective evidence to support the conclusion that the effects of aging will be managed adequately so that the structure- and component-intended function(s) will be maintained during the period of extended operation.</p> <p>In addition, the ongoing review of both plant-specific and industry operating experience ensures that the AMP is effective in managing the aging effects for which it is credited. The AMP is either enhanced or new AMPs are developed when the review of operating experience indicates that the AMP may not be fully effective or can be improved.</p>

(9) In each of the programs in GALL Report Chapters X, "Time-Limited Aging Analyses Evaluation of Aging Management Programs under 10 CFR 54.21(c)(1)(iii)," and XI, "Aging Management Programs (AMPs)," insert under element 10, "Operating Experience," this statement:

As discussed in Appendix B of the GALL Report, the ongoing effectiveness of the program is ensured through the systematic review of both plant-specific and industry operating experience.

(10) Insert in the GALL Report a new Appendix B, "Operating Experience for Aging Management Programs," after page A-1, to read:

OPERATING EXPERIENCE FOR AGING MANAGEMENT PROGRAMS

The systematic review of operating experience related to aging management should ensure that the license renewal AMPs are and will continue to be effective in managing the aging effects for which they are credited. When the evaluation of operating experience information indicates that the AMPs may not be fully effective or can be improved, the AMPs are either enhanced or new AMPs are developed, as appropriate. The AMPs are informed by the review of operating experience on an ongoing basis, regardless of the AMP's implementation schedule.

As such, the applicant should ensure that its existing processes and procedures for the review of operating experience are adequate to capture information related to aging management. To this end, the

applicant should ensure that its processes adequately address the following points:

- The review processes are adequate so as to not preclude the consideration of operating experience related to aging management. For example, the processes appropriately gather information on all the license renewal structures and components identified in the integrated plant assessment, and their materials, environments, aging effects, and aging mechanisms. In addition, the processes include the AMPs credited for managing the effects of aging, and the activities under these AMPs (e.g., inspection methods, preventive actions, evaluation techniques, etc.).
- While the programs and procedures may specify reviews of certain sources of information, such as NRC generic communications and Institute of Nuclear Power Operations reports, they include any potential source of relevant plant-specific or industry operating experience information.
- When it is determined that a formal evaluation of operating experience is necessary, it is completed and prioritized commensurate with the potential significance of the issue. Such evaluations are documented and retained in an auditable and retrievable form.
- When it is determined that enhancements are necessary to adequately manage the effects of aging, the enhancements are entered into and implemented consistent with the plant corrective action program. Enhancements can include, as appropriate, modifications to AMPs or the creation and implementation of new AMPs. The threshold of the corrective action program should be at a level where it can be used to affect changes to the AMPs.
- The programs and procedures are administratively controlled, to include a formal review and approval process and periodic audits.

Further, the applicant should implement, as necessary, the following enhancements to ensure that its programmatic activities for the ongoing review of operating experience can appropriately capture and evaluate operating experience related to aging management.

- A specific system or identification code, such as in the plant corrective action program, is used to broadly identify and trend issues concerning age-related degradation. An adequate definition is provided so that this code can be assigned consistently by plant personnel.
- Guidance documents and other publications, when they contain lessons learned applicable to aging management, are considered as operating experience and evaluated accordingly. There are

written plans and expectations for finding this type of document and processing it as operating experience. An example of such documents is a revision to NUREG-1801, "Generic Aging Lessons Learned (GALL) Report."

- Evaluations of all plant-specific and industry operating experience include assessments of potential aging management impacts. These evaluations should consider, specifically, the (a) systems, structures, or components, (b) materials, (c) environments, (d) aging effects, (e) aging mechanisms, and (f) aging management programs that are affected by the plant-specific and industry operating experience. There are criteria for considering when aging management programs should be modified or new aging management programs developed due to operating experience.
- Results of inspections, tests, analyses, etc. conducted through implementation of the aging management programs are considered as operating experience on an ongoing basis. For example, when applicable acceptance criteria are not met, corrective actions are initiated in accordance with the plant quality assurance program, consistent with Appendix A.1, "Aging Management Review – Generic (Branch Technical Position RLSB-1)" and Appendix A.2, "Quality Assurance for Aging Management Programs (Branch Technical Position IQMB-1);" when applicable acceptance criteria are met, results are retained for future use and evaluation to determine whether it is necessary to adjust the frequency of future inspections, establish new inspections, and ensure an adequate depth and breadth of component, material, environment, and aging effect combinations.
- Training on aging management is provided to those plant personnel who screen, assign, evaluate, and submit plant-specific and industry operating experience information. The training is provided so that these individuals can appropriately identify when operating experience has the potential to involve age-related degradation. The training also includes an overview of the plant aging management programs and how they manage the effects of aging applicable to the plant, conditions under which aging degradation is likely to occur, and the difference between an evaluation for operability and an evaluation for age-related degradation. When a committee or panel is used to screen operating experience, at least one member should have received this training on aging management.

Additional training is necessary for those personnel who oversee and implement the aging management activities. In general, the level of training should be commensurate with the overall responsibilities for implementing the aging management activities. For example, a supervisor should receive additional training on the aging management activities which he or she oversees, whereas a subject matter expert (i.e., an aging management

program owner) should receive more in-depth training so that he or she is completely familiar with all aspects of the aging management activities for which he or she is responsible. In all cases, the training is provided on a periodic basis and includes provisions to accommodate the turnover of plant personnel.

- Appropriate guidelines are available for reporting plant-specific operating experience on age-related degradation to the industry.

These enhancements should be incorporated into the programmatic operating experience review activities no later than the date the renewed license is issued and then implemented on an ongoing basis throughout the term of the renewed license. Alternate approaches for the ongoing review of plant-specific and industry operating experience for license renewal are subject to NRC review on a case-by-case basis.

The license renewal application should describe the programmatic activities for the ongoing review of operating experience related to aging management, including any necessary enhancements. In addition, the applicant should provide an appropriate summary description of these activities in the FSAR supplement.

APPENDIX B

MARK-UP OF CHANGES TO SRP-LR SECTION A.1.2.3.10

Mark-Up¹ of Changes to SRP-LR Section A.1.2.3.10

A.1.2.3.10 Operating Experience

1. Consideration of future plant-specific and industry operating experience relating to ~~aging management programs~~ AMPs should be discussed. ~~The ongoing R~~ reviews of operating experience ~~by the applicant in the future~~ may identify areas where ~~aging management programs~~ AMPs should be enhanced or new ~~programs~~ AMPs developed. ~~As such, A~~ an applicant should ~~ensure that it has adequate processes to monitor and evaluate~~ commit to a future review of plant-specific and industry operating experience ~~related to aging management~~ to ensure that the AMPs are effective in managing the aging effects for which they are credited, ~~confirm the effectiveness of its aging management programs or indicate a need to develop new aging management programs~~ The AMPs are informed by this review of operating experience on an ongoing basis, regardless of the AMP's implementation schedule. ~~This~~ The ongoing review of operating experience information should provide objective evidence to support the conclusion that the effects of aging ~~will be~~ are managed adequately so that the structure- and component-intended function(s) will be maintained during the period of extended operation.
2. Currently available ~~O~~ operating experience with existing programs should be discussed. The operating experience of ~~AMPs that are~~ existing programs, including past corrective actions resulting in program enhancements or additional programs, should be considered. A past failure would not necessarily invalidate an AMP because the feedback from operating experience should have resulted in appropriate program enhancements or new programs. This information can show where an existing program has succeeded and where it has ~~failed (if at all)~~ not been fully effective in intercepting aging degradation in a timely manner. This information should provide objective evidence to support the conclusion that the effects of aging will be managed adequately so that the structure- and component-intended function(s) will be maintained during the period of extended operation.
3. Currently available ~~Therefore, operating experience applicable to new programs should also be discussed.~~ For new AMPs that have yet to be implemented at an applicant's facility, the programs have not yet generated any operating experience ~~(OE)~~. However, there may be other relevant plant-specific ~~OE at the plant~~ or generic ~~OE in the industry~~ operating experience that is relevant to the ~~AMP's~~ program elements, even though the ~~OE operating experience~~ was not identified ~~as a result of the~~ through implementation of the new program. Thus, when developing the elements for new programs, an applicant ~~may need to~~ should consider the impact of relevant ~~OE~~ operating experience that results from the past implementation of its existing AMPs ~~that are existing programs~~ and ~~the impact of relevant from~~ generic industry OE operating experience on developing the program elements. ~~Therefore, operating experience applicable to new programs should be discussed.~~ ~~Additionally, an applicant should commit to a review of future plant-specific and industry operating experience for new programs to confirm their effectiveness.~~

¹ In the mark-up, red or green strikethrough text indicates a deletion and blue underline text indicates an insertion. Green text indicates a move, where a double strikethrough indicates the original location of the text and a double underline indicates the final location of the moved text.