



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

October 30, 1996

MEMORANDUM TO: Chairman Jackson

FROM: James M. Taylor *James M. Taylor*
Executive Director for Operations

SUBJECT: BASIS FOR REVIEW OF THE FIRST LICENSE RENEWAL APPLICATION

This memorandum responds to your request of September 6, 1996, for additional information on how the draft Standard Review Plan for License Renewal (SRP-LR) and the various other documents identified as sources for the staff's review either relate to or address the requirements of 10 CFR Part 54.

Source Documents

As discussed in our response of August 13, 1996, the following documents are source documents:

1. Working draft SRP-LR. This document incorporates staff experience gained from the review of the Nuclear Management and Resources Council (NUMARC, now part of the Nuclear Energy Institute (NEI)) industry reports addressing the management of aging of specific structures and components for license renewal, the Baltimore Gas and Electric Company (BGE) and the Babcock and Wilcox Owners Group (B&WOG) license renewal screening methodology, and the information in the proposed license renewal rule amendment. This review experience is captured in the working draft SRP-LR as elements describing the areas of review, acceptance criteria, and review procedures. This draft document was placed in the NRC Public Document Room on December 13, 1995.
2. The Statements of Consideration (SOC) accompanying the final rule amendment (60 FR 22461; May 8, 1995). Because of implementation issues associated with the previous rule on license renewal, the rule amendment and the background with the rule were developed with a consideration of implementation. Also, the rule language provides many examples of structures and components that require a renewal review.
3. Draft Regulatory Guide DG-1047, "Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses." The draft Regulatory Guide for License Renewal (RG-LR) was published for public comment on August 26, 1996 (61 FR 43792). The NEI prepared

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guidance document NEI 95-10, "Industry Guideline for Implementing the Requirements of 10 CFR Part 54 - The License Renewal Rule," which is being reviewed by the staff. After resolving public comments, the staff plans to endorse NEI 95-10 in the RG-LR as an acceptable method for complying with the requirements of the license renewal rule. In addition, the staff will conduct a public workshop on the draft PG-LR on October 29, 1996.

4. Staff safety evaluation reports (SERs) addressing license renewal. The staff is gaining experience through its ongoing review of owners group reports and licensee technical reports addressing renewal. The staff issued SERs for the B&WOG that addressed the management of aging of their reactor coolant system piping for renewal and for the BGE that addressed BGE's integrated plant assessment methodology for renewal. The staff also issued a draft SER for the B&WOG that addressed the management of aging management of their pressurizers.
5. NUREG-1557, "Summary of Technical Information and Agreements From Nuclear Management and Resources Council Industry Reports Addressing License Renewal." This report summarizes technical information and agreements from the staff's review of the NUMARC industry reports addressing the management of aging of specific structures and components for license renewal. (NUREG-1557 will be published in the near future.)
6. NUREG/CR-6490, "Nuclear Power Plant Generic Aging Lessons Learned (GALL)." This document is a compilation of the results of the extensive Nuclear Plant Aging Research (NPAR) Program sponsored by the Office of Nuclear Regulatory Research on operating experience information related to plant aging. This document also includes plant aging information from NRC generic communications, licensee event reports, and NUMARC industry reports. (NUREG/CR-6490 will be published in the near future.)

Rule Requirements and Source Documents

The technical information required in a license renewal application is described in 10 CFR 54.21(a) through (d). The following information describes how the source documents identified above may either relate to or address these rule requirements:

1. Integrated Plant Assessment. The applicant is required to identify long-lived and passive structures and components within the scope of license renewal, justify the methodology selected to identify these structures and components, and demonstrate that aging effects will be adequately managed so that the intended functions will be maintained for the period of extended operation (10 CFR 54.21(a)).

The integrated plant assessment process involves various steps:

- a. Scoping. The renewal rule defines criteria for scoping plant systems, structures, and components requiring a renewal review. The SOC accompanying the renewal rule provides examples of systems, structures, and components that are within the scope of renewal.
- b. Long-Lived and Passive Structures and Components. The renewal rule requires that long-lived and passive structures and components within the scope of license renewal be reviewed for management of aging. The SOC accompanying the renewal rule discusses what constitutes long-lived structures and components, based on their replacement programs. NEI 95-10 indicates that lives of more than 40 years are considered long.

The renewal rule and the accompanying SOC provide examples of structures and components considered to be passive. In addition, NEI 95-10, Appendix B, gives a table of typical active and passive structures and components. The staff SER on the BGE integrated plant assessment methodology discusses whether plant instrumentation is active or passive. In addition, the staff SER on the B&WOG pressurizer contains a discussion on determining whether pressurizer heaters are passive or active.

- c. Intended Functions. The renewal rule requires that aging effects be adequately managed so that the intended functions of the structures and components will be maintained consistent with the current licensing basis (CLB) for the period of extended operation. The SOC accompanying the renewal rule discusses the criteria for defining intended functions. The SOC also indicates that structures and components may have active and passive intended functions and that the active intended functions are excluded from a renewal review. The SOC provides some examples of active and passive intended functions. NEI 95-10 provides examples of typical passive structure and component intended functions. In addition, the staff SER on the B&WOG pressurizer contains a discussion on determining the intended functions of components.
- d. Structures and Components Subject to Aging Management Review. Section 54.21(a)(1) requires that structures and components subject to an aging management review be identified and listed. The structures and components subject to an aging management review for renewal are those long-lived and passive structures and components within the scope of license renewal. Although the staff SER on the BGE integrated plant assessment methodology indicates that the BGE integrated plant assessment process, if implemented, would identify all structures and components subject to an aging management review, the staff's ongoing review of the BGE technical reports is evaluating how extensive the list of structures and components should be in the renewal application and how much information could be maintained on site.

- e. Screening Methodology. Section 54.21(a)(2) requires that the applicant justify the methodology for identifying structures and components subject to an aging management review. The SOC accompanying the renewal rule discusses the criteria for structures and components requiring an aging management review for renewal and provides flexibility to the applicant in developing the plant-specific methodology for meeting these criteria. NEI 95-10 discusses a process for developing a screening methodology. The staff SER on the BGE integrated plant assessment methodology provides an example of an acceptable plant-specific screening methodology, including plant information sources and specific screening steps.
 - f. Aging Effects. The renewal rule requires that aging effects be managed. The industry report summary (NUREG-1557) tabulates specific aging effects for certain plant structures and components and identifies whether these aging effects are insignificant or should be evaluated for renewal. This information is also contained in the working draft SRP-LR. The GALL report (NUREG/CR-6490) provides an extensive tabulated summary of plant operating experience related to aging. The staff SERs on the B&WOG topical reports on the reactor coolant system piping and the pressurizer discuss applicable aging effects evaluated for renewal for these components.
 - g. Aging Management Demonstration. Section 54.21(a)(3) requires that an applicant demonstrate that the effects of aging will be adequately managed so that the intended functions will be maintained consistent with the CLB for the period of extended operation. The industry report summary (NUREG-1557) identifies specific aging management programs that may be considered for managing certain aging effects for certain plant structures and components. It also identifies cases in which additional aging management programs should be developed for renewal. This information is also contained in the working draft SRP-LR. The GALL report (NUREG/CR-6490) provides some information on existing aging management programs. The staff SERs on the B&WOG topical reports on the reactor coolant system piping and the pressurizer contain acceptable aging management programs for renewal for these components. NEI 95-10 contains information on a process that an applicant could implement to develop aging management programs to demonstrate that aging effects would be managed. NEI 95-10 also contains elements to be considered in developing aging management programs. In addition, BGE recently completed a "template" that describes appropriate information to be included in a renewal application.
2. CLB Changes. Before NRC completes its review, the applicant is required to periodically amend the license renewal application to identify any changes to the CLB that materially affect the content of the renewal application (10 CFR 54.21(b)).

This requirement specifies that the applicant must keep the information in the renewal application updated during the staff's review. Staff review guidance is likely to be unnecessary.

3. Time-Limited Aging Analyses. For aging analyses that are based on the current license term, for example, 40 years, the applicant is required to evaluate their continued validity for the period of extended operation, for example, 60 years. Similarly, plant-specific exemptions based on time-limited aging analyses need to be evaluated (10 CFR 54.21(c)).

The SOC accompanying the renewal rule contains a discussion of time-limited aging analyses and their need for evaluation. The SOC discusses which analyses are considered relevant and provides typical examples of time-limited aging analyses. It also indicates that the number of time-limited aging analyses is expected to be relatively small and will vary depending on the plant-specific CLB. NEI 95-10 contains additional examples of time-limited aging analyses and discusses a process for evaluating them. The working draft SRP-LR provides additional information on the evaluation of those time-limited aging analyses identified in the SOC. In addition, the staff is evaluating the generic safety issues (GSIs) on metal fatigue and environmental qualification (EQ) of electrical equipment, which are significant time-limited aging analyses for renewal.

4. Final Safety Analysis Report Supplement. The applicant is required to summarize the aging management programs necessary for license renewal and the time-limited aging analysis evaluations in a final safety analysis report (FSAR) supplement (10 CFR 54.21(d)).

The SOC accompanying the renewal rule discusses the documentation and regulatory control associated with license renewal. It indicates that the bases for determining that aging effects are managed during the period of extended operation and for time-limited aging analysis evaluations require the additional regulatory oversight afforded by placing the information in the FSAR. The staff is reviewing the guidance in NEI 95-10 relating to how much information should be placed in the FSAR supplement for renewal. The working draft SRP-LR also contains some discussion relating to the FSAR supplement. In addition, the Commission's staff requirement memorandum of August 8, 1996, requests the staff to ensure that regulatory guidance for renewal is consistent with the efforts underway to improve updating and treatment of the FSAR for operating reactors.

In addition to technical information required by 10 CFR 54.21, an application for license renewal must contain general information (10 CFR 54.19), necessary technical specification changes (10 CFR 54.22), and environmental information (10 CFR 54.23). While staff guidance for reviewing general information is likely to be unnecessary, these rule requirements will also be considered in the SRP-LR effort. The staff environmental review will be performed under the

recently modified Part 51 rule. A regulatory guide and standard review plan will be prepared in accordance with the Commission staff requirements memorandum for the revised Part 51 rule.

Summary

The staff has received owners group topical reports, BGE technical reports for the Calvert Cliffs units, and Duke Power Company technical reports for the Oconee units that address license renewal. The staff is reviewing these reports against the requirements of the renewal rule. The staff's review draws upon information from the source documents described earlier in this memorandum. The staff has issued SERs accepting certain submittals from owners groups and licensees.

The staff's working draft SRP-LR serves as a framework for incorporating the staff's review experience into the final SRP-LR. The current version of the working draft SRP-LR contains information from the staff's review of the NUMARC industry reports on managing the aging of certain plant structures and components, and the experience gained by the staff from reviewing the BGE and the B&WOG license renewal screening methodology. Since that time, the staff has gained additional experience from the review of B&WOG topical reports and BGE plant-specific reports, and from the development of the RG-LR. The staff has tasked a contractor at a national laboratory to update the working draft SRP-LR to capture this additional experience.

As discussed in our response of August 13, 1996, the staff's ongoing review of owners group and plant-specific reports addressing license renewal will provide additional staff review experience, and the draft SRP-LR will be updated to incorporate the results of the future reviews, as appropriate. Subsequent submittals and reviews will have the benefit of this experience.

Office of the General Counsel Comment

In response to your request, the Office of the General Counsel (OGC) provides the following comment:

The documents the staff plans to use in reviewing license renewal applications are still undergoing comment and revision. Thus, OGC cannot comment at this time whether or not the staff, in its approach to setting substantive review criteria for license renewal, will have adequately reviewed all the findings and information necessary to address the requirements of 10 CFR Part 54. The approach the staff has outlined, however, would seem reasonable for achieving this end.

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Summary

The staff has received owners group topical reports, BGE technical reports for the Calvert Cliffs units, and Duke Power Company technical reports for the Oconee units, addressing license renewal. The staff is reviewing these reports to the requirements of the renewal rule to ensure that the CLB will be maintained for the period of extended operation. The staff review draws upon information from the source documents described earlier in this memorandum. The staff has issued SERs accepting certain owners group and licensee submittals.

The staff has a working draft SRP-LR which serves as a framework for incorporating staff review experience into the final SRP-LR. The current version of the working draft SRP-LR contains information from the staff review of the NUMARC industry reports on the aging managing of certain plant structures and components, and the staff experience from reviewing the BGE and the B&WOG license renewal screening methodology. Since then, the staff has gained additional experience from the review of B&WOG topical reports and BGE plant-specific reports, and from the development of the RG-LR. The staff has ongoing efforts with a contractor at a national laboratory to update the working draft SRP-LR to capture this additional experience.

As discussed in our August 13, 1996, response, the staff's ongoing review of owners group and plant-specific reports addressing license renewal will provide additional staff review experience and the draft SRP-LR will be updated to incorporate the results of the future reviews as appropriate. Subsequent submittals and reviews will have the benefit of this experience.

As requested in your September 6, 1996, memorandum, comments of the Office of the General Counsel have been incorporated.

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