

December 3, 2001

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Washington, DC 20006-3708

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Union of Concerned Scientists
1707 H Street, NW
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SUBJECT: LICENSE RENEWAL ISSUE: SCOPING OF SEISMIC II/I PIPING SYSTEMS

Dear Messrs. Nelson and Lochbaum:

The purpose of this letter is to provide you with the opportunity to comment on the enclosed guidance clarifying the scoping of seismic II/I piping systems. This is consistent with our goal to more efficiently resolve license renewal issues identified by the staff or the industry, as outlined in NRR Office Letter No. 805, "License Renewal Application Review Process." Based on your response to this letter, the staff will decide how to finalize and implement this guidance.

The staff developed this guidance to ensure that scoping of seismic II/I piping systems, including piping and supports, is conducted in accordance with the requirements of 10 CFR 54.4(a)(2). We are requesting comments on the proposed guidance and request that you submit comments within 30 days following the date of this letter to ensure a timely resolution of this issue. The staff plans to incorporate this position into the improved renewal guidance documents (NUREGs 1800, and/or 1801) in a future update. It is also possible that comparable changes might be needed to NEI 95-10, Revision 3, "Industry Guidance for Implementing the Requirements of 10 CFR Part 54 - The License Renewal Rule." If you have any questions regarding this matter, please contact Hai-Boh Wang at 301-415-2958, Christian Araguas at 301-415-3936, or William Burton at 301-415-2853.

Sincerely,

/RA/

Christopher I. Grimes, Chief
License Renewal and Standardization Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Project 690

Enclosure: As stated

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STAFF POSITION ON SCOPING OF SEISMIC II/I PIPING SYSTEMS

1. BACKGROUND

Section 54.29 of 10 CFR Part 54 (the Rule) states that a renewed license may be issued by the Commission if the Commission finds that actions have been or will be taken with respect to the matters identified in paragraphs (a)(1) and (a)(2) of this section such that there is reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the Current Licensing Basis (CLB), and that any changes made to the CLB in order to comply with this paragraph are in accord with the Act and the Commission's regulations. These matters include managing the effects of aging during the period of extended operation to assure the functionality of structures and components that have been identified to require review under Section 54.21(a)(1).

The Statements of Consideration (SOC) for the Rule states that the objective of a license renewal review is to determine whether the detrimental effects of aging, which could adversely affect the functionality of systems, structures, and components (SSCs) that the Commission determines require review for the period of extended operation, are adequately managed.

The SOC articulates the underlying philosophy of the Rule that during the extended period of operation, safety-related functions should be maintained in the same manner and to the same extent as during the current licensing term. Aging effects that could adversely impact on the ability of SSCs to maintain these safety-related functions during the extended period of operation should be evaluated.

Section 54.4(a)(2) of the Rule states that all non-safety related systems, structures, and components whose failure could prevent satisfactory accomplishment of any of the functions identified in Section 54.4(a)(1) should be included within the scope of the Rule. The SOC provides additional guidance related to this scoping criterion. Specifically, the SOC states that "To limit this possibility for the scoping category relating to nonsafety-related systems, structures, and components... An applicant for license renewal should rely on the plant's CLB, actual plant-specific experience, industry-wide operating experience, as appropriate, and existing engineering evaluations to determine those nonsafety-related systems, structures, and components that are the initial focus of the license renewal review. Consideration of hypothetical failures that could result from system interdependencies that are not part of to CLB and that have not been previously experienced is not required." (Federal Register, Volume 60, No. 88, 22467).

2. DISCUSSION

A subset of non-safety-related piping systems that meet the 54.4(a)(2) criterion is seismic II over I (seismic II/I) piping. Seismic II/ I denotes non-seismic Category I SSCs interacting with seismic Category I SSCs as described in Position C.2 of Regulatory Guide 1.29, "Seismic Design Classification." The SOC specifically includes seismic II/I components as a subset of the 54.4(a)(2) scoping requirement. In addition, Section 2.1.III.B of the Standard Review Plan for License Renewal (September, 1997) states that "The reviewer verifies that the so-called 'seismic II over I' systems, structures, and components consistent with the plant's CLB are identified by the applicant's proposed screening methodology."

Enclosure

During the review of several license renewal applications, the staff has found that applicants have sometimes misinterpreted the requirements for scoping criterion 54.4(a)(2), particularly as it related to seismic II/I piping. Specifically, some applicants have only considered seismicity in determining whether seismic II/I piping should be included within the scope of license renewal. Several applicants have concluded that only the seismically-designed pipe supports for seismic II/I piping need to be included within the scope of license renewal. This conclusion is based on having the seismic II/I piping seismically supported, and operating experience that has shown that seismically supported piping at nuclear plants, whether new or old, has not failed during a seismic event. Applicants therefore conclude that consideration of seismic II/I pipe failures is hypothetical.

The staff's concern is that seismic II/I piping, though seismically supported, would be subjected to the same plausible aging effects as safety-related piping. For example, depending on piping material, geometrical configuration, operating condition such as water chemistry, temperature, flow velocity, and external environment, erosion and corrosion may be plausible aging effects for some seismic II/I piping. Those effects, if not properly managed, could result in age-related failures and adversely impact the safety functions of safety-related SSCs.

As mentioned previously, applicants consider failure of pipe segments during a seismic event to be hypothetical for the reasons stated above. The staff agrees that operating experience shows that seismically-supported piping has not failed during a seismic event, and agree that, on this basis, seismic supports should be included within the scope of license renewal. However, the staff maintains that industry operating experience has also shown that piping has failed for reasons other than a seismic event. For example, numerous erosion and corrosion-related pipe wall thinning issues, and pipe failure events are documented in a number of generic communications, and are summarized in Information Notice (IN) 2001-09, "Main Feedwater System Degradation in Safety-Related ASME Code Class 2 Piping Inside the Containment of a Pressurized Water Reactor." The operating experience referenced in this IN shows that piping has failed for reasons other than seismic events. On this basis, the staff concludes that pipe failures due to age-related degradation are not hypothetical, and therefore, both seismic II/I piping segments and their supports should be included within the scope of license renewal.

3. CONCLUSION

On the basis of the above discussion, the staff concludes that seismic II/I piping systems, including both the piping segments and supports, should be included within the scope of license renewal. By including these components within scope, age-related degradation of these components can be evaluated and, if appropriate, adequately managed to ensure that intended functions can be maintained during the extended period of operation.

This staff position applies both to applicants who have committed in their CLB to follow the guidance of RG 1.29, as well as to applicants whose plants include piping segments whose failure could impact safety-related SSCs, whether due to a seismic event, or due to other reasons, as discussed above.

NUCLEAR ENERGY INSTITUTE

Project No. 690

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