

Question and Response Report

for:

Module 11a: Periodic Safety Review

IRRS Question and Response Report

Question No: 133

Module 11a: Periodic Safety Review

Question

- I. Does the Regulatory Body require the operator to perform periodic safety reassessment (periodic safety review)?
II. What is the scope of such a reassessment?
III. How does the Regulatory Body establish the criteria for such a periodic safety review?

Response

The U.S. Nuclear Regulatory Commission (NRC) does not require licensees to perform periodic safety reviews at predefined intervals. Instead, the NRC has established processes to ensure licensees perform continuous review and maintenance of safety of their facilities and their licensing bases. The licensing basis for nuclear power plants (NPPs) is established upon issuance of the license and evolves throughout the term of the operating license because of the continuing regulatory activities of the NRC, as well as the activities of the licensee. Licensees implement quality assurance program requirements (Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities") and the maintenance rule (10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants") for active structures and components. Licensees are also required to perform assessments of modifications under 10 CFR 50.59, "Changes, Tests and Experiments," and submit license amendments under 10 CFR 50.90, "Application for Amendment of License, Construction Permit, or Early Site Permit." In addition, the NRC evaluates licensee operating experience, information from inspections, audits, and investigations, and regulatory research. As necessary, the NRC requires changes to the licensing basis for licensees through the release of new or revised regulations, the issuance of orders modifying licenses, and acceptance of licensee commitments to modify NPP designs and procedures (e.g., in response to licensee events or generic communications). In such cases, the NRC follows established processes that ensure the appropriate NRC actions are taken with full consideration of the safety significance of the issue, and opportunity for stakeholder involvement (e.g., rulemaking, hearing process, backfit analysis). Finally, the NRC requires implementation of aging management programs for passive components as part of licensees' preparation, and NRC's review and issuance, of license renewal applications.

Licensees are required to perform the following actions regarding periodic reviews and assessments:

- Implement quality assurance program requirements that control the procurement of materials and services and implementation of changes to facilities, processes, and procedures (Appendix B to 10 CFR Part 50). These requirements apply through the term of the license and the extended term (i.e., term of the renewed license).
- Implement the maintenance rule (10 CFR 50.65) for active components. This controls the maintenance and oversight of active components through the term of the license and the extended term.
- Review plant changes in accordance with 10 CFR 50.59. The goal of the maintenance rule is to establish good maintenance practices to help ensure the operability, availability, and reliability of structures, systems, and components (SSCs) important to safety. See the response to Question 129 for additional information on 10 CFR 50.59 requirements.
- For each NPP, implement performance and condition monitoring activities such as inservice testing, inservice inspection, technical specification surveillance tests, and post-maintenance operability.
- Develop and submit license amendments in accordance with 10 CFR 50.90.
- Develop and submit license renewal applications in accordance with 10 CFR Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants." License renewal applicants are required to complete an integrated plant assessment (IPA) and evaluate time-limited aging analyses. An IPA identifies and lists structures and components subject to an aging management review. These include passive structures and components that perform their intended function without moving parts or without a change in configuration or properties. Examples of these components include the reactor vessel, steam generators, piping, component supports, and seismic Category I structures.

The NRC implements the following actions regarding periodic reviews and assessments:

- Reviews license amendment request.
- Reviews changes licensees implement under 10 CFR 50.59. (See the response to Question 131 regarding additional information on 10 CFR 50.59 review activities.)
- Performs inspections of licensed activities. The NRC has resident inspectors onsite at each NPP that are responsible for verifying that operators activities are properly conducted to ensure safe operations. Further, inspection activities are supported by region-based inspectors. The NRC uses an established enforcement process to emphasize the importance of compliance with regulatory requirements, and to encourage prompt identification and prompt, comprehensive correction of violations, and an established allegation process for anyone who identifies violations or wrongdoing by licensee to report them to the NRC. (See Module VI for information on NRC inspection activities.)
- Implements the Reactor Oversight Process (ROP). The overall safety performance assessment of licensees is conducted annually as part of the ROP to verify that NPPs are being operated in accordance with the NRC rules and regulations. The ROP is a risk-informed, tiered approach for ensuring plant safety. The ROP evaluates plant performance by analyzing two distinct inputs: performance indicators reported by the licensee, and inspection findings resulting from the NRC's inspection program. The results of the assessment determine the degree of plant-specific oversight. As part of the ROP, the NRC performs problem identification and resolution inspections twice a year to determine if the operator's corrective action program meets the established requirements and effectively addresses issues. The NRC also has an industry trends program that provides a mean to assess overall industry performance using industry-level indicators. (See Module VI for information on the NRC ROP.)
- Evaluates licensee operating experience, NRC and industry research, and information from inspections and audits. The objective is to determine whether or not there is adequate feedback of safety experience from other licensees' findings so that safety improvements are introduced to all licensees. In response to these evaluations, the NRC may: issue orders imposing new requirements for significant safety issues; revise its regulations, including consideration of backfitting the requirements to all current licensees; or issue generic communications (e.g., information notices, generic letters) in order to provide information to licensees for consideration or to obtain information on how licensees are maintaining compliance and safety. (See the response to Question 126 regarding additional information on operating experience.)

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-Reviews and approves of license renewal applications. The NRC requires implementation of aging management programs for passive components as part of licensees' preparation, and NRC's review and issuance, of license renewal applications. The license renewal process includes onsite audits, inspections, and reviews by independent advisory committees and members of the public. The process ensures that (1) all affected SSCs are identified, (2) aging effects and aging mechanisms are evaluated, (3) time-limited aging analyses are performed, (4) environmental impacts are considered, (5) changes in the technical specifications and final safety analysis report are identified, and (6) the licensing basis is maintained in order to allow an additional 20 years of operation. (See the response to Question 87 for more information on the license renewal process.) To date, 59 NPP licenses have been renewed for operation up to 60 years, and 18 more applications are currently under review.