

and bases continue to apply unless they are specifically changed in accordance with the appropriate regulatory change control process (*e.g.*, § 50.59). The rule further states that RISC-3 SSCs must be capable of performing their safety-related functions under design basis conditions including (any applicable) design requirements for environmental conditions (temperature, pressure, humidity, chemical effects, radiation, and submergence), effects (aging and synergisms), and seismic conditions (design load combinations of normal and accident conditions with earthquake motions).

It is recognized that the level of confidence in the design basis capability of RISC-3 SSCs may be less than the confidence provided in the capability of RISC-1 SSCs to perform their safety functions. The proposed treatment requirements for the control of the design of RISC-3 SSCs are included, in part, to provide a basis for the assumption in the categorization process that these SSCs will continue to be capable of performing their safety-related functions under design basis conditions throughout their service life. The implementation of an effective design control process is crucial to the maintenance of the functionality of safety-related SSCs because many SSCs cannot be monitored or tested to demonstrate design basis capability or to identify potential degradation as part of normal plant operations. For instance, if the SSC were modified or replaced, the design control processes are important means by which the required capability is installed and maintained over the life of the component. Further, because it is not possible to test or monitor some SSCs under the conditions that they might experience in service, other means, such as control of design and procurement of SSCs, and condition monitoring, are used such that the SSCs are capable of performing their functions. The proposed rule would require that licensees have a design control process that maintains and applies design requirements to ensure that RISC-3 SSCs will be capable of performing their safety-related functions under design basis conditions. To meet this performance objective, the licensee's design control process would be expected to specify appropriate quality standards; select suitable materials, parts, and equipment; control design interfaces; coordinate participation of design organizations; verify design adequacy; and control design changes. The manner in which the design control requirements for RISC-3 SSCs are

accomplished would be the responsibility of the licensees adopting § 50.69. The proposed rule would allow flexibility for licensees to focus their resources on the SSCs that are most safety-significant while implementing an effective design control process for RISC-3 SSCs. For example, licensees might provide design control for RISC-3 SSCs through application of (1) the process established under Criterion III of 10 CFR Part 50, Appendix B; (2) an augmented quality assurance program such as might have been established in response to regulatory guidance issued in conjunction with § 50.62 (for SSCs used to comply with anticipated transients without a plant scram; or (3) a plant-specific process currently in place or established to satisfy the treatment requirements of § 50.69.

The design control process under § 50.69 is intended to provide assurance that the proposed rule is satisfying the principle that the design requirements of RISC-3 SSCs would not be changed under § 50.69. For example, the design provisions of Section III of the ASME Boiler and Pressure Vessel Code (BPV Code) required by § 50.55a(c), (d), and (e) for RISC-3 SSCs are not affected by the proposed rule. Another example is a requirement for fracture toughness of particular materials that is part of a licensee's design requirements; such a requirement would continue to apply when repair or replacement of affected components is undertaken. Licensees would continue to be required by § 50.59 to evaluate proposed modifications to design requirements for safety-related SSCs, including those categorized as RISC-3.

For RISC-3 SSCs, the proposed rule would remove the requirements for a program for environmental qualification of electric equipment specified in § 50.49, "Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants." However, the proposed rule would not eliminate the requirements in 10 CFR part 50, Appendix A, "General Design Criteria for Nuclear Power Plants," that electric equipment important to safety be capable of performing their intended functions under the applicable environmental conditions. For example, Criterion 4 of 10 CFR part 50, Appendix A, "General Design Criteria for Nuclear Power Plants," requires that SSCs important to safety be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents. In accordance with § 50.69(d)(2), the licensee is required to design, procure, install,

maintain, and monitor electric equipment important to safety such that they are capable of performing their intended functions under the environmental conditions listed in § 50.69(d)(2)(i) throughout their service life. Further, if RISC-3 electrical equipment is relied on to perform its safety-related function beyond its design life, licensees should have a basis justifying the continued capability of the equipment under adverse environmental conditions.

RISC-3 and RISC-4 SSCs would continue to be required to function under design basis seismic conditions, but would not be required to be qualified by testing or specific engineering methods in accordance with the requirements stated in 10 CFR part 100, Appendix A. A licensee who adopts the proposed rule would no longer be required to meet certain requirements in Appendix A to part 100, Sections VI(a)(1) and VI(a)(2), to the extent that those requirements have been interpreted as mandating qualification testing and specific engineering methods to demonstrate that RISC-3 SSCs are designed to withstand the Safe Shutdown Earthquake and Operating Basis Earthquake. The proposed rule does not remove the design requirements related to the capability of RISC-3 SSCs to remain functional considering Safe Shutdown Earthquake and Operating Basis Earthquake seismic loads, including applicable concurrent loads. These continue to be part of the design basis requirements or procurement requirement for replacement SSCs. The proposed rule would not change the design input earthquake loads (magnitude of the loads and number of events) or the required load combinations used in the design of RISC-3 SSCs. For example, for the replacement of an existing safety-related SSC that is subsequently categorized as RISC-3, the same seismic design loads and load combinations would still apply. The proposed rule would permit licensees to select a technically defensible method to show that RISC-3 SSCs will remain functional when subject to design earthquake loads. The level of confidence for the design basis capability of RISC-3 SSCs, including seismic capability, may be less than the confidence in the design basis capability of RISC-1 SSCs. The use of earthquake experience data has been mentioned as a potential method to demonstrate SSCs will remain functional during earthquakes. However, it would be difficult to rely on earthquake experience alone to demonstrate