

functionality of SSCs if the design basis includes multiple earthquake events or combinations of loadings unless these specific conditions were enveloped by the experience data. Additionally, if the SSC is required to function during or after the earthquake, the experience data would need to contain explicit information that the SSC actually functioned during or after the design basis earthquake events as required by the SSC design basis. The successful performance of an SSC after the earthquake event does not demonstrate it would have functioned during the event. Qualification testing of an SSC would be necessary if no suitable alternative method is available for showing that the SSC will perform its design basis function during an earthquake.

Licensees are responsible for proper installation and post-installation testing of RISC-3 SSCs as part of design control and other treatment processes to provide reasonable confidence in the capability of SSCs to perform their functions. The Commission also expects licensees to control special processes associated with installation, such as welding, to provide reasonable confidence in the design basis capability of RISC-3 SSCs. Licensees would be expected to perform sufficient post-installation testing to verify that the installed SSC is operating within expected parameters and is capable of performing its safety functions under design basis conditions. In performing post-installation testing, licensees may apply engineering analyses to extrapolate the test data to demonstrate design basis capability.

V.5.2.2 Section 50.69(d)(2)(ii) Procurement Process

Section 50.69(d)(2)(ii) specifies that procured RISC-3 SSCs satisfy their design requirements. In order to obtain components that meet the requirements, the licensee would be expected to specify the technical requirements (including applicable design basis environmental and seismic conditions) for items to be procured. Further, the Commission expects licensees to use established methods (e.g., vendor documentation, equivalency evaluation, technical evaluation, technical analysis, or testing) to develop a technical basis for the determination that the procured item can perform its safety-related function under design basis conditions, including applicable design basis environmental conditions (temperature, pressure, humidity, chemical effects, radiation, and submergence), and effects (aging and synergisms), and seismic conditions (design load combinations of

normal and accident conditions with earthquake motions). In addition to appropriately specifying in the procurement the desired component, the licensee/applicant would also be expected to conduct activities upon receipt to confirm that the received component is what was ordered.

The proposed rule would allow more flexibility in the implementation of the procurement process for RISC-3 SSCs than currently provided by 10 CFR part 50, Appendix B. Nevertheless, licensees will continue to be responsible for implementing an effective procurement process for RISC-3 SSCs. Differences constituting a design change are expected to be documented and addressed under the licensee's design control process. As an example of one acceptable procurement process, a licensee might use an approach similar to that described below:

Vendor Documentation—Vendor documentation could be used when the performance characteristics for the SSC, as specified in vendor documentation (e.g., catalog information, certificate of conformance), satisfy the SSC's design requirements. If the vendor documentation does not contain this level of detail, the design requirements could be provided in the procurement specifications. The vendor's acceptance of the stated design specifications provides sufficient confidence that the RISC-3 SSC would be capable of performing its safety-related functions under design basis conditions.

Equivalency Evaluation—An equivalency evaluation could be used when it is sufficient to determine that the procured SSC is equivalent to the SSC being replaced (e.g., a like-for-like replacement).

Engineering Evaluation—For minor differences, a technical evaluation could be performed to compare the differences between the procured SSC and the design requirements of the SSC being replaced and determines that differences in areas such as material, size, shape, stressors, aging mechanisms, and functional capabilities would not adversely affect the ability to perform the safety-related functions of the SSC under design basis conditions.

Engineering Analysis—In cases involving substantial differences between the procured SSC and the design requirements of the SSC being replaced, a technical analysis could be conducted to determine that the procured SSC can perform its safety-related function under design basis conditions. The technical analysis would be based on one or more engineering methods that include, as necessary, calculations, analyses and

evaluations by multiple disciplines, test data, or operating experience to support functionality of the SSC over its expected life.

Testing—Testing under simulated design basis conditions could be performed on the SSC.

V.5.2.3 Section 50.69(d)(2)(iii) Maintenance, Inspection, Test, and Surveillance Process

Section 50.69(d)(2)(iii) specifies that periodic maintenance, inspections, tests, and surveillance activities be established and conducted, and their results evaluated using prescribed acceptance criteria to determine that the RISC-3 SSCs will remain capable of performing their safety-related functions under design basis conditions until their next scheduled activity.

To meet this requirement, licensees are expected to establish the scope, frequency, and detail of predictive, preventive, and corrective maintenance activities (including post-maintenance testing) to support the determination that RISC-3 SSCs will remain capable of performing their safety-related functions under design basis conditions throughout their service life. For a RISC-3 SSC in service beyond its design life, the Commission expects licensees to have a basis to determine that the SSC will remain capable of performing its safety-related function. Following maintenance activities that affect the capability of an SSC to perform its safety-related function, licensees would be expected to perform post-maintenance testing to verify that the SSC is performing within expected parameters and is capable of performing its safety function under design basis conditions. Licensees may apply engineering analyses to extrapolate the test data to demonstrate design basis capability as part of post-maintenance testing. The Commission expects licensees to identify the preventive maintenance needed to preserve the capability of RISC-3 SSCs to perform their safety-related functions under applicable design basis environmental and seismic conditions for their expected service life.

To have reasonable confidence that SSCs can perform their functions, licensees must implement effective processes for inspection, testing, and surveillance of RISC-3 SSCs; they may apply their own individual approaches such that the requirements of § 50.69 are satisfied. As an example, the provisions for risk-informed inspection and testing in applicable ASME Code Cases would constitute one effective approach in satisfying the § 50.69 requirements. To prevent the occurrence of common-