

10 CFR50.69, Risk-Informed Categorization and Treatment of SCCs for Nuclear Power Plants

Report by Ad-Hoc Committee to
SC-2

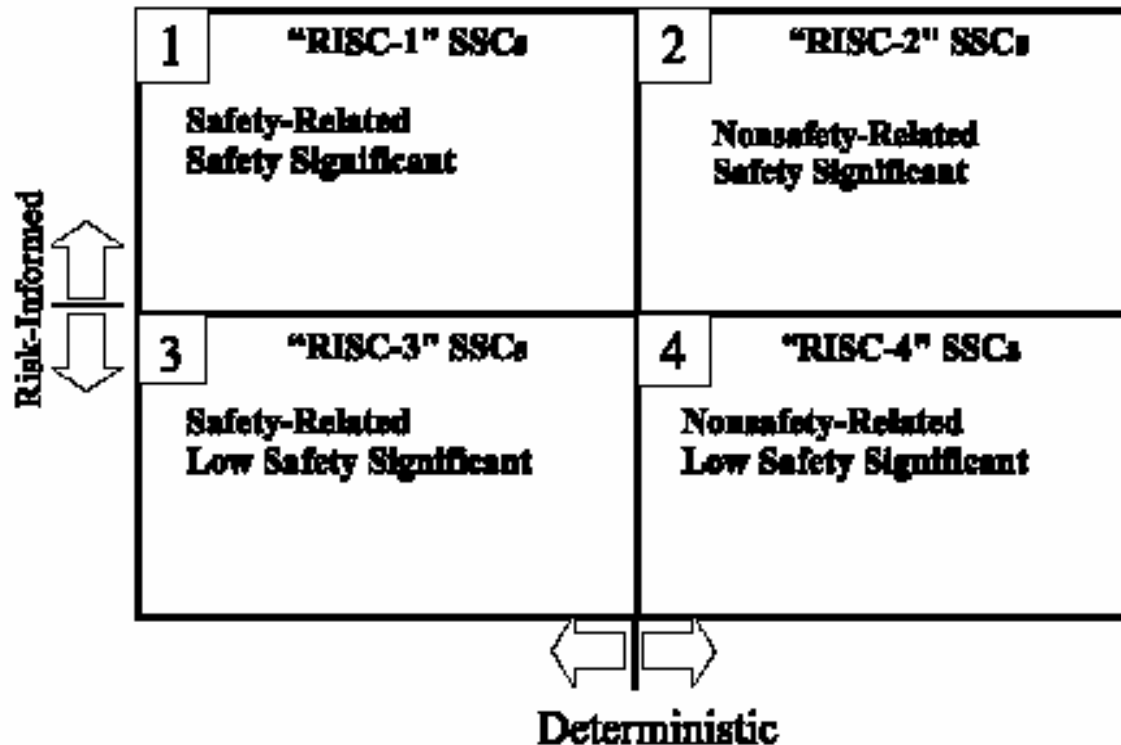
April 21, 21, 2004

Summary of 10 CFR 50.69, Risk-Informed Categorization and Treatment of SSCs for NPPs.

a) Definitions

RISC - Risk Informed Safety Class

- 1 - safety related, that perform safety significant functions
- 2 - non-safety related, that perform safety significant functions
- 3 - safety related, that perform low safety significant functions
- 4 - non safety related, that perform low safety significant functions



b) Applicability and Scope of Risk-Informed Treatment of SSCs.

1) A licensee may voluntarily comply with this section as an alternative to compliance with the following requirements applicable to RISC-3 and 4:

- (i) 10 CFR 21
- (ii) 10 CFR 50.49
- (iii) 10 CFR 50.55(e)
- (iv) ISI, IST, IEEE 279, IEEE 603, and 10 CFR 50.55a(h)
- (v) 10 CFR 50.65
- (vi) 10 CFR 50.72
- (vii) 10 CFR 50.73
- (viii) App B to 10 CFR 50
- (ix) parts of App J to 10 CFR 50 for penetrations and valves
- (x) parts of App A to 10 CFR 100

2) Licensee choosing this method shall submit an application for license amendment, containing the following:

(i) description of categorization process

(ii) description of measures taken to assure that the quality and level of detail of the systematic processes that evaluate the plant for internal and external events ... are adequate for the categorization of the SSCs.

(iii) results of PRA review process to meet (b)(2)(ii), above.

(iv) description of characterization of effects of treatment conducted to satisfy (c)(1)(iv), below.

3) The Commission will approve implementation when it has determined that the process for categorization satisfies (c), below.

c) SSC categorization Process

1) SSCs must be categorized using a process that identifies their safety significant functions. The process must:

(i) consider results and insights from the plant-specific PRA.

(ii) determine SSC functional importance using an integrated, systematic process.

(iii) maintain defense-in-depth

(iv) **PROVIDE REASONABLE CONFIDENCE** that for SSCs categorized as RISC-3, sufficient safety margins are maintained and that any **POTENTIAL** increases from (b)(1), above, or (d)(2) below are small.

2) SSCs shall be categorized by an Integrated Decision-making Panel (IDP).

d) Alternative Treatment Requirements.

1) assurance shall be provided that RISC-1 and 2 SSCs perform their functions

2) Processes shall be developed and implemented for RISC-3 SSCs to control the design; procurement; inspection, maintenance, testing, and surveillance; and corrective action to PROVIDE REASONABLE CONFIDENCE in the capability of RISC-3 SSCs to perform their safety related functions under design basis conditions throughout their service life. The implementation of these processes and the assessment of their effectiveness must be controlled and accomplished through documented procedures and guidelines.

The processes must meet the following requirements, as applicable:

- (i) design control
- (ii) procurement
- (iii) maintenance, inspection, testing, and surveillance
- (iv) corrective action

e) Feedback and Process Adjustment

1) no later than every 36 months, review changes and update PRA and SSC categorization, as necessary

2) no later than every 36 months, monitor performance and perform an evaluation to validate categorization of RISC-1 and 2 SSCs to determine if adjustments are necessary.

3) no later than every 36 months, consider performance data for RISC-3 SSCs to determine if performance is consistent with the categorization process, and make needed adjustments to either the categorization or implementation process.

f) Program Documentation and Change Control

(i) document the basis for categorization before removing any requirements from (b)(1), above.

(ii) update plant FSAR to reflect categorization results

(iii) changes to the FSAR need not include a 50.59 evaluation

g) Reporting - LERs shall be submitted under 50.73(b) for any event or condition that **WOULD** have prevented RISC-1 or 2 SSCs from performing a safety significant function.

Comments by Ad-Hoc Committee Members

..... If a piece of equipment currently evaluated by a PRA is replaced by one that does not meet all EQ pedigree requirements, this changes the failure probability of that component

..... Standard IEEE-323 must address the approach to 10 CFR 50.69 implementation that should be developed as soon as possible

..... Better definition is needed in describing how one meets the documentation, design control, and Quality Assurance area of the Risk-3 categorization

..... do not agree with the Staff assessment on the number of hours this process would reduce

..... implies that at least a level of documentation and basis equivalent to a commercial quality dedication is required

..... the documentation, as well as the estimated time, can certainly out burden the time, cost, and magnitude of records typically required in 50.49 space for maintaining a qualification record

Comments by Ad-Hoc Committee Members (cont.)

..... this approach can only be effective at the component level and not the system level

..... The proposed Rule allows licensee exemption from Appendix B, Part 21, and 10 CFR 50.49, but it requires the licensee to provide reasonable confidence

..... the Commission is allowing a lower level of assurance for RISC-3 SSCs based on their low safety significance, but it requires licensees to have processes in place that provide reasonable confidence

..... RISC-3 SSCs would be removed from the scope of 10 CFR 50.49. In addition, the Commission has concluded that for low safety-significant SSCs additional assurance such as that provided in 10 CFR 50.49 for testing, documentation, and margins are not necessary. However, it also states that these SSCs must continue to remain capable of performing their safety related functions under design basis conditions.

Summary of Comments on Proposed 10CFR 50.69, by SC-2 Ad-Hoc Committee

The detail in the SOC is inconsistent with the language in the Rule. Does not reflect original intent of SECY-98-0300 to risk-inform the regulations.

Staff focus on specifying treatment details of RISC-3 SSCs does not reflect a risk-informed balance for the least important SR components. In some cases, the treatment detail exceeds current regulatory requirements for SR components.

Cost-effective implementation may not be possible, owing to specified treatment detail, thus, industry would be reluctant to use this approach.

Loss will be to industry to not be able to take advantage of insights gained through quality risk-management methods and models.

Summary of Comments on Proposed 10CFR 50.69, by SC-2 Ad-Hoc Committee

- 1. Proposed rule 50.69 imposes additional burden on all safety significant SSCs**
- 2. Proposed rule 50.69 imposes unnecessary review requirements on safety significant SSC treatment**
- 3. Proposed rule 50.69 virtually eliminates the use of experience data for seismic applications**
- 4. Proposed rule 50.69 places increased evaluation burden on RISC-3 containment isolation valves**
- 5. Proposed rule 50.69 imposes additional maintenance requirements on RISC-3 SSCs**
- 6. Proposed rule 50.69 imposes additional burden to justify no change in component reliability due to reduced treatment**

Additional Topics for Consideration

Responses to NRC solicitation for comments to other issues.

Issue 1: Should additional detailed language be included in 50.69(d)(2)?

Response: Additional detailed language should not be included in 50.69(d)(2). It is the licensee's responsibility to adequately develop and implement processes that control RISC-3 SSC's design, procurement, maintenance, and corrective actions.

Issue 2: Should 50.69(c) require a level 2 internal and external initiating events, all-mode, peer-reviewed PRA to be submitted to and approved by the NRC?

Response: NO. While it is understood that a more comprehensive PRA provides greater categorization insights, a less comprehensive (but acceptable) PRA supplemented with non-PRA methods to address other modes and hazards has proven to provide adequate insights to make appropriate risk-informed decisions in existing applications.

Additional Topics for Consideration (cont.)

Issue 3: Should 50.69 require NRC review and approval of the licensee's proposed treatment program for RISC-3 SSCs?

Response: NO. While NRC approval of a licensee's proposed RISC-3 treatment program would provide added confidence for the licensee and NRC during 50.69 implementation activities, the 50.69 approval process would become encumbered with excessive details focused on the least important safety-related equipment, and would become a distinct disincentive for licensees to pursue the process.

Issue 4: Should NRC inspection and enforcement programs be modified to enable appropriate degree of regulatory oversight to be exercised?

Response: NO. With the added insight of safety significant and low safety significant SSCs resulting from the 50.69 categorization process, both licensees and the NRC can better focus their resources on those SSCs determined to be safety significant.

Additional Topics for Consideration (cont.)

Issue 5: What role can relevant operating experience play in reducing the uncertainty associated with the effects of treatment on RISC-3 performance?

Response: An extensive database of industry operating experience already exists which aids in reducing the uncertainty associated with reduced treatment on RISC-3 SSCs. It is believed that reduced treatment will not, in and of itself, result in increased component failure rates of RISC-3 SSCs.

... as of 4/9/04 ...
from NRC web site

Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors (RIN 3150-AG42)

Current News

The comment period for this proposed rule was to have expired on July 30, 2003. By letter dated July 3, 2003, Nuclear Energy Institute (NEI) requested a 30-day extension to the comment period. NEI indicated that this extension is to allow for the thorough review and refinement of comments developed by NEI's Option 2 task force and other constituents in the industry. In view of the importance of both the proposed rule and the industry's comments on it, the NRC has decided to extend the comment period by 30 days as requested.

The comment period has been extended and now expires on August 30, 2003. Comments received after this date will be considered if it is practical to do so, but the Commission is able to ensure consideration only for comments received on or before this date.