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ADJUDICATIONS STAFF

Secretary, U. S. Nuclear Regulatory Commission
Washington, DC 20555
ATTN: Rulemakings and Adjudications Staff

COMMENTS ON PROPOSED RULE ON RISK-INFORMED CATEGORIZATION AND TREATMENT OF STRUCTURES, SYSTEMS, AND COMPONENTS FOR NUCLEAR POWER REACTORS (RIN 3150 – AG42)

Gentlemen:

Attached are comments from the Strategic Teaming and Resource Sharing (STARS)[1] nuclear power plants on a proposed rule on "Risk-Informed Categorization and Treatment of Structures, Systems, and Components for Nuclear Power Reactors." The proposed rule was issued by the NRC on May 16, 2003, in 68 FR 26511. In response to the NRC request for public comment on the proposed rule, we are submitting the attached comments.

We appreciate the opportunity to submit comments on this important proposed rule, and we fully support the Commission's efforts to risk-inform the special treatment requirements in 10CFR Part 50.

We will continue to work with the industry and staff to address these comments. If there are any questions concerning these comments, please contact Scott M. Head at (361) 972-7136 or Glen E. Schinzel at (361) 972-7854.

[1] STARS is an alliance of six plants (eleven nuclear units) operated by TXU Energy, AmerenUE, Wolf Creek Nuclear Operating Corporation, Pacific Gas and Electric Company, STP Nuclear Operating Company and Arizona Public Service Company.

Template = SECY-067

SECY-02

Sincerely,

D. R. Woodlan, Chairman
Integrated Regulatory Affairs Group
STARS

Attachment

ATTACHMENT 1

Comments on Proposed 10CFR50.69 "Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors" Offered on Behalf of STARS Licensees

The Strategic Teaming and Resource Sharing (STARS) alliance, consisting of South Texas Project, Comanche Peak, Wolf Creek, Callaway, Palo Verde, and Diablo Canyon, offer the following comments on the proposed new rule 10CFR50.69:

Statements of Consideration (68 Fed. Reg. from 26511 through 26549)

The insight offered by the NRC in the Statements of Consideration included with the proposed rule is appreciated. While it is understood that these insights are not regulatory requirements, it is also understood that these statements offer additional insights into the staff's intent for the proposed rule and its implementation. Because of the interpretation of these insights as currently written, it is necessary to offer comments to ensure clarity and consistency in understanding on the proposed rule's requirements and effective implementation.

The proposed rule is substantially different from the initial concept for this rulemaking as outlined in SECY-98-300, Options For Risk-Informed Revisions To 10 CFR Part 50 - "Domestic Licensing Of Production And Utilization Facilities," dated December 23, 1998. For those safety-related SSCs determined to be low safety significant (RISC-3), SECY-98-300 indicated that the special treatment requirements imposed on these components could be reduced and replaced with normal industrial practices. For those non-safety related SSCs determined to be safety significant (RISC-2), SECY-98-300 indicated that an evaluation could be performed of existing treatment practices to ensure that the safety significant design functional requirements are reliably assured. If existing practices are deemed sufficient, then no additional special treatment requirements are necessary to be imposed. If existing practices are deemed insufficient, then the licensee would select the additional special treatment requirements needed to enhance the reliability and confidence in the safety significant design functions. For safety-related, safety significant SSCs (RISC-1), SECY-98-300 indicated that existing special treatment requirements would be sufficient and would remain in place. For non-safety related, non-safety significant SSCs (RISC-4), since these SSCs are generally outside of regulatory requirements, SECY-98-300 indicated that no change would be made to the treatment approach applied by the licensee. This understanding of the Option 2 approach in SECY-98-0300 has not been followed, and the proposed rule is no longer fully reflective of the original Option 2 approach. Detailed comments are as follows:

1. Proposed 50.69 imposes additional burden on all safety significant SSCs

   Several areas of the proposed rule explicitly address the inclusion of additional requirements on safety significant SSCs. On page 26513, II, it reads: "As part of this

process, those SSCs found to be of risk-significance would be brought under a greater degree of regulatory control through the requirements being added to the rule designed to maintain consistency between actual performance and the performance considered in the assessment process that determines their significance." And again on page 26514, III ". . . and would enhance requirements for treatment of other SSCs that are found to be safety significant." While it is agreed that RISC-1 beyond design basis functions and RISC-2 SSCs may require additional special treatment requirements to be applied, the above statements are clear that the NRC intent is for all safety significant SSCs (RISC-1 and RISC-2) to be subjected to enhanced regulatory control. This is neither necessary nor in agreement with the intent of SECY-98-0300.

In addition, on page 26540 V.5.1, it is stated that "Section 50.69(d)(1) requires that a licensee or applicant ensure that RISC-1 and RISC-2 SSCs perform their functions consistent with categorization process assumptions by evaluating treatment being applied to these SSCs to ensure that it supports the key assumptions in the categorization process that relate to their assumed performance. To meet this, a licensee should first evaluate the treatment being applied in light of the credit being taken in the categorization process, with appropriate adjustment of treatment or categorization to achieve consistency as necessary." These statements explicitly obligate a licensee implementing 50.69 to evaluate treatment applied to all safety significant SSCs to ensure adequacy of treatment. This is an added burden that is neither necessary nor appropriate. Since RISC-1 SSCs are currently subjected to full regulatory requirements, reviewing the regulatory-imposed treatment adds no value.

2. Defacto categorizations are inappropriately provided

Various sections (e.g., 26537, V.4.2.2) specifically provide an expected categorization result (i.e., it is expected for PWRs that a sufficiently robust categorization process would categorize high energy ASME Section III Class 2 piping of the main steam and feedwater systems as RISC-1). These statements are inappropriate and subvert the categorization process. The categorization process is robust enough to determine appropriate safety significant outcomes without the NRC imposing an outcome before the process is even completed.

In addition, the proposed rule should clarify the extent of a "categorized system." While it is understood that major and minor components would be included, it is unclear if completion of a system categorization would include piping, cabling, fuses, relays, etc which may not have explicit numbering designations consistent with the other components "contained" within the system.

3. Inconsistency in usage of terms leads to confusion of intent

Section III.2.0 (for example) is open to interpretation and confusion by applying different levels of terminology when discussing expectations. Some examples include:

- "all pertinent (relevant) information" vs. "available deterministic and probabilistic information"
- "must reflect the as-built and as-operated plant" vs. "an up-to-date PRA reasonably representing the current plant configuration"
- "penetrations less than 1 inch in equivalent diameter" vs. "that are either 1 inch nominal size or less"

To clearly communicate the intent of Option 2 and to aid in appropriate implementation, consistent and accurate terminology must be utilized.

4. Alternate treatment for RISC-3 SSCs will not induce increased component failure rates

   Section III.2.0, page 26516 states, "The proposed rule would require applicants and licensees to perform evaluations to assess the potential impact on risk from changes to treatment." The industry position has been, and continues to be, that reduced treatment on RISC-3 SSCs will not have an appreciable effect on component failure rates. The intent of Option 2 was to apply industrial controls to the RISC-3 SSCs, and by so doing, would provide sufficient confidence that the SSCs would continue to perform their design functional requirements when demanded.

   Performing sensitivity studies of modeled RISC-3 SSCs, with a bounding multiple of postulated failure rate increases, would provide sufficient assurance that any increase in a RISC-3 SSC failure rate would be recognized and compensatory measures taken well before the bounding condition was ever challenged. This approach would eliminate the need to specifically consider changes in SSC reliability due to alternate treatment during the categorization process. Performing sensitivity studies for non-modeled SSCs is not required due to the safety significance of these SSCs not meeting the threshold to require modeling.

5. Proposed RISC-3 treatments are overly restrictive and burdensome

   Section V.5.2.1, page 26542 states that "it would be difficult to rely on earthquake experience alone to demonstrate functionality of SSCs," and "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 function during or after the design basis earthquake events," and "The successful performance of an SSC after the earthquake event does not demonstrate it would have functioned during the event." These statements impose an undue burden on licensees, and virtually eliminate the use of experience data to provide reasonable assurance that low safety significant SSCs can perform their intended function.

Section V.5.2.3 states that "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." This requirement, as expounded and clarified in the examples provided in this section, go beyond normal industrial practices in the industry, and indeed, would impose an additional program on licensees, namely, a "Son-of-Appendix B" program that was never intended by SECY-98-0300.

6. RISC-3 containment isolation valve treatment is burdensome

Section V.4.3 states that for CIVs categorized as RISC-3, "the licensee will need to address the impact of the proposed change in treatment on a case-by-case basis to ensure that the defense-in-depth principle continues to be satisfied." It is not clear what this statement intends. Section b.1.ix of the proposed rule details criterion for RISC-3 CIVs to be exempted from Appendix J. These criteria ensure that any release path is either small (1" or less) or eliminated due to the penetration remaining pressurized or fluid-filled. As a result, the criteria ensure that there will be no significant impact on defense-in-depth from recategorization. Additionally, Section V.4.3 itself notes that sensitivity studies could be used, which would obviate any need for a case-by-case evaluation of each CIV. Thus, the implied evaluation and documentation in Section V.4.3 appears to impose an additional burden that is not intended by the proposed rule.

7. Implementation of 50.69 by license amendment imposes an unnecessary burden

As communicated previously by the Nuclear Energy Institute (NEI) in its July 10, 2002 letter on this topic, implementation of 50.69 by license amendment is an unnecessary burden. Under 50.69, the design functional requirements of RISC-3 SSCs are still required to be satisfied, albeit at a lesser degree of assurance. Allowing an alternate means to comply with the special treatment regulations does not, in and of itself, change the design or operation of the plant. RISC-3 SSCs will remain in the plant and will still be expected to function when demanded.

In any event, it is permissible for the NRC to grant new authority to a licensee by means of rulemaking rather than a licensing proceeding, and the NRC is not legally compelled to require licensees to seek a license amendment to implement Section 50.69. Furthermore, given the experience of the South Texas Project with respect to its risk-informed exemption request, we believe that the requirement to seek a license amendment to implement Section 50.69 will discourage licensees from implementing Section 50.69.

Alternate means for a licensee to implement 50.69 could be addressed through the establishment of high level criteria in the body of the proposed rule, with detailed criteria in a guidance document.

Other Comments on the 50.69 Proposed Rule (68 Fed. Reg. from 26549 through 26551)

A. Section (d)(2)(i) on page 26550 states that "RISC-3 SSCs must be capable of performing their safety-related functions including design requirements for environmental conditions and effects; and seismic conditions." The language for this statement should be clarified to ensure that the environmental conditions and effects and seismic conditions only apply to those SSCs previously qualified for environmental conditions or seismic conditions. The statement could be interpreted as imposing an additional burden of environmental and seismic requirements on all RISC-3 SSCs.

B. Section (e)(2) on page 26550 states that "The licensee shall monitor the performance of RISC-1 and RISC-2 SSCs. The licensee shall make adjustments as necessary to either the categorization or treatment processes so that the categorization process and results are maintained valid." The second sentence should be clarified. The only available categorization adjustment for these SSCs is to re-categorize them as RISC-3 or RISC-4. Generally this will only occur if an error was made in the original categorization process or if new insights are made available to the Integrated Decision-Making Panel (IDP). The licensee's categorization process will address these types of non-routine situations to ensure that the categorization results remain sound with an accurate technical basis. The intent of obligating categorization adjustments in the proposed rule statement is not understood and should be clarified.

Other Topics for Public Comment (68 Fed. Reg. from 26545 through 26457)

The NRC sought public comment on several specific issues pertaining to the proposed rule. Each of these issues is addressed below:

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. It is agreed that the proposed level of detail is beyond what is necessary to provide reasonable confidence in RISC-3 design basis capability in light of the robust categorization process.

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: NRC should not require a level 2 internal and external initiating events, all-mode, peer-reviewed PRA as a minimum "entry card" for 50.69 implementation. 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. In addition, the industry PRA peer certification process aids in ensuring that minimum standards are satisfied and requires PRA enhancements where weaknesses are noted. If a level 2 internal and external initiating events, all-mode, peer-reviewed PRA were required as the minimum standard for 50.69, a limited number of licensees would be available to implement the proposed rule, and a disincentive would be established for pursuing risk-informed applications. This disincentive would result in fewer applications exercised and less experience and feedback to continue to refine and expand risk-informed applications.

Licensees who have developed comprehensive PRAs should be allowed more flexibility with SSC categorization and resulting treatment. A less comprehensive PRA will result in more conservative categorization decisions, equating to fewer SSCs moving from RISC-1 to RISC-3. Therefore, there is a built-in incentive for licensees to enhance their PRAs factoring in their available resources.

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

Response: 50.69 should not require NRC review and approval of a licensee's proposed treatment program for RISC-3 SSCs. While NRC approval of a licensee's proposed RISC-3 treatment program would provide added confidence by 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. This encumbrance would prove to be a disincentive for licensees to pursue a 50.69 process.

It is in the licensee's best interest to operate their facilities safely and reliably, and in a cost-effective manner. This safety and economic balance has resulted in improved safety as shown by NRC and industry performance indicators, and improved industry operating capacity factors reaching 90% and greater. These same sound safety and economic approaches will be applied to RISC-3 SSCs to ensure their continued reliability. Therefore, NRC review and approval of a licensee's proposed treatment program is unwarranted.

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

Response: The NRC inspection and enforcement program should not require modification to allow implementation of 50.69. 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. The oversight and enforcement can be accomplished under the existing programs.

It should be recognized that NRC staff, region, and resident training will be necessary to allow effective 50.69 implementation, with licensee inspections focused on safety significant SSCs.

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

Response: As discussed during the South Texas request for exemption from the special treatment requirements, an extensive database of operating experience already exists which aids in reducing the uncertainty associated with reduced treatment on RISC-3 SSCs. While it is still believed that reduced treatment will not, in and of itself, result in increased component failure rates of RISC-3 SSCs, South Texas conducted an extensive review of industry experience databases to compare the impact of treatment on both safety-related and non-safety related SSCs. This review included over 74 billion component hours of direct industry operating experience. The review found that for all 33 component type categories contained within the databases, the failure frequencies were comparable for both safety-related and non-safety related SSCs in each of the component type categories.

Future deficiencies noted on RISC-3 SSCs will continue to be captured and documented on Condition Reports. These Condition Reports permit the continuing evaluation of RISC-3 SSC operating experience by the IDP during periodic reviews, and for the IDP to adjust the SSC treatment or categorization level if deemed necessary.