



Dominion

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OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

Secretary
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

GL03-023

Attention: Rulemakings and Adjudications Staff

**COMMENTS ON NOTICE OF PROPOSED RULEMAKING FOR 10 CFR 50.69,
RISK-INFORMED CATEGORIZATION AND TREATMENT OF STRUCTURES,
SYSTEMS AND COMPONENTS FOR NUCLEAR POWER REACTORS
(FEDERAL REGISTER, VOLUME 68, NUMBER 95, PAGES 26511-26551,
DATED MAY 16, 2003)**

Virginia Electric and Power Company (Dominion) and Dominion Nuclear Connecticut, Inc. (DNC) offer the following comments on the subject Federal Register notice, which solicited public comments on the proposed new 10 CFR 50.69. The proposed rule would provide an optional risk-informed approach for determining the scope of NRC special treatment regulations. This rulemaking is of particular interest to Dominion since Surry Power Station is one of two Westinghouse Owners Group pilot plants for trial implementation of the proposed rule.

We are encouraged by the progress the industry and the NRC have made in developing the proposed rule, and believe the published rule language has benefited from continuing dialog between all the stakeholders. However, there remain several major issues that must be resolved before implementation of the rule. The major issues deal with the prescriptive nature of the statements of consideration (SOC) and some ambiguous language in two parts of the rule.

First, the rule language and SOC are inconsistent with regard to expectations for treatment of plant systems and components that are of low safety significance. The rule indicates that the NRC will not review the treatment guidance, however, the SOC includes many statements pertaining to how the treatment changes should be made. We request that prescriptive statements on treatment that imply requirements on the licensee be removed from the SOC.

Second, the SOC contains many "shall", "should", "must" and "will" statements that either have not been discussed with the stakeholders, are impractical or cost-prohibitive, are inconsistent with industry guidance in NEI 00-04, exceed

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SECY-02

current regulatory requirements for safety-related equipment, imply extension of the rule language, provide regulatory guidance that interprets the rule language, or contain requirements that have not been agreed upon by the stakeholders. We request that each of these statements be discussed further with the stakeholders and if retained, be moved from the SOC to either a regulatory guide or the NEI 00-04 guidance.

Third, the rule language relating to design control requirements for RISC-3 SSCs is not well worded to ensure that future interpretations of the rule do not exceed existing design requirements or invalidate use of existing design alternatives. For example, the wording for design requirements could be interpreted to apply environmental qualification considerations to all SSCs, not just those which fall under existing environmental qualification design requirements. In addition, the wording of the seismic design control requirements could be interpreted, based on SOC statements, to exclude use of seismic qualification alternatives provided to the A-46 plants. We request that the specifics of how the design control requirements are met be moved to a regulatory guide or the language in the rule be reworded to ensure these misinterpretations cannot occur.

Lastly, the rule language and SOC are not clear regarding the potential need for additional license amendment requests when a licensee wishes to expand implementation of the rule to additional systems. Our expectation is that the initial license amendment request would cover implementation of the rule to any or all systems at the plant and no additional license amendment requests would be needed for expansion of the rule to additional systems at a later date.

With regard to PRA capability and scope, we believe the proposed rule adequately addresses the subject. However, the Federal Register notice raises the issue of whether a full scope and all modes PRA should be a prerequisite for implementation of this rule. The categorization guidance in NEI-00-04 has been developed with consideration of the risk from all events in all modes of operation. The NEI-00-04 guidance uses conservative, deterministic screening evaluations such as FIVE, Seismic Margins Method, and NUMARC 91-06 guidance to define the RISC-1 SSCs in lieu of probabilistic models for these events. Because of the conservative application of these deterministic screening evaluations in the NEI-00-04 categorization methodology, there is an incentive for licensees to develop probabilistic models for these events, where cost-effective. Imposition of requirements to develop full scope and all modes PRAs for application of this rule would unnecessarily set the standard for use of the rule beyond the near term capability of most licensees and preclude licensees from determining at a later date that it may be cost-beneficial to develop more full scope PRA models to achieve greater burden reduction through application of this rule.

In addition to the above comments, Dominion supports additional comments made by NEI, the Westinghouse Owners Group, the Seismic Qualification Users Group, and the Nuclear Utility Group on Equipment Qualification.

The enclosures address specific questions included by the NRC in the Federal Register notice, and additional details on our comments. If there are any questions on these comments, please contact either:

John Winebrenner John Winebrenner@dom.com or (804) 273-2822,

Thomas Hook Tom Hook@dom.com or (804) 273-2327, or

Don Olson Don Olson@dom.com or (804) 273-2830

Sincerely,

A handwritten signature in black ink, appearing to read "CF", with a horizontal line extending to the right.

Chris L. Funderburk, Director
Nuclear Licensing & Operations Support

Enclosures

ENCLOSURE 1

The Federal Register notice sought comments on the following:

VI.2.1 PRA Requirements

"The Commission is seeking comment as to whether the NRC should amend the requirements in § 50.69(c) to require a level 2 internal and external initiating events, all-mode, peer-reviewed PRA that must be submitted to, and reviewed by the NRC..."

Comment:

We believe the NRC should retain the PRA requirements as currently specified in the proposed rule for the reasons specified in the basic letter.

VI.2.2 Review and Approval of Treatment for RISC-3 SSCs

"The Commission is interested in any benefits of this approach as well as any implications for this rulemaking and associated guidance."

Comment:

Requirement for NRC review and approval of treatment guidance or implementation for RISC-3 SSCs would unnecessarily increase the regulatory burden for both the NRC and industry without a commensurate benefit. By definition, the SSCs to which the treatment changes would apply are low safety significant. We agree with the approach of the proposed rule which delineates high-level treatment requirements with no detailed regulatory guidance or review.

VI.2.3 Inspection and Enforcement

"The Commission is seeking public comment on whether or not changes are needed in NRC's inspection and enforcement programs to enable NRC to exercise the appropriate degree of regulatory oversight of facility operations encompassed by the proposed rule."

Comment:

The existing NRC inspection and enforcement process, which already addresses all affected functional areas including procurement, maintenance, testing and surveillance, design bases, and corrective actions, is adequate to identify and address any performance deficiencies.

V1.2.4 Operating Experience

"The Commission is seeking public comment on the availability and role of relevant operational experience in reducing the uncertainty associated the effects of reducing special treatments on SSC performance and how such operational experience could be used to support this rulemaking."

Comment:

As in any change process, there are uncertainties which must be assessed based on prior experience. As part of the South Texas project exemption request, a large database of operating experience information was developed. This operating experience demonstrates that the failure rates of commercial components are comparable to the failure rates of safety-related components. In the absence of data which contradicts this conclusion, it is appropriate to use the available data and implement the monitoring activities through corrective action programs as proposed in NEI-00-04 to ensure that impacts of treatment changes on RISC-3 SSCs are evaluated and adjustments made to treatment in a timely manner.

VII.1 Regulatory Guide and Implementation Guidance for §50.69

The Commission is also seeking public comment on DG-1121, which would address the industry categorization guidance document, NEI-00-04.

Comment:

We believe that NRC endorsement of NEI-00-04 through DG-1121 is appropriate. NEI-00-04 is undergoing revision to address NRC comments from stakeholder interactions and issues raised in the SOC.

ENCLOSURE 2

COMMENTS ON SPECIFIC LANGUAGE OF THE PROPOSED RULE

1. The requirement in proposed 10 CFR 50.69(b)(2)(iv) to include known degradation mechanisms in the categorization process for active and low consequence passive SSCs is unnecessary, not addressed in the NEI-00-04 guidance, and overly burdensome. While the Integrated Decision-Making Panel (IDP) can be made aware of degradation mechanisms in general, consideration of degradation mechanisms for each specific active and low consequence passive SSC during categorization has no value since methods have not been developed to utilize degradation mechanisms in the categorization. Consideration of known degradation mechanisms is appropriately performed in the treatment change process.
2. The wording of the design control requirements for RISC-3 SSCs in proposed 10 CFR 50.69(d)(2)(i) could be misinterpreted to require environment condition assessments for all RISC-3 SSCs and preclude seismic design methods currently used by A-46 plants. Also, the inclusion of "synergism" effects exceeds the existing equipment qualification requirements for non-harsh environmental safety-related SSCs.
3. The requirement in proposed 10 CFR 50.69(d)(2)(iv) to identify, document, and correct conditions "that could prevent a RISC-3 SSC from performing its safety-related functions under design basis conditions" exceeds existing corrective action program requirements. The word "could" should be deleted.

ENCLOSURE 3

COMMENTS ON SPECIFIC LANGUAGE OF THE STATEMENTS OF CONSIDERATION FOR THE PROPOSED RULE

1. Federal Register Pages 26511 through 26547

The statements of consideration (SOC) contain many "shall", "should", "must" and "will" statements that either have not been discussed with the stakeholders, are impractical or cost-prohibitive, are inconsistent with industry guidance in NEI-00-04, exceed current regulatory requirements for safety-related equipment, imply extension of the rule language, provide regulatory guidance that interprets the rule language, or contain requirements that have not been agreed upon by the stakeholders. We request that each of these statements be discussed further with the stakeholders and if retained, be moved from the SOC to either a regulatory guide or the NEI-00-04 guidance.

2. Federal Register Page 26516 Column 1 1st Full Paragraph

"The proposed rule would contain general requirements for consideration of SSCs, modes of operation or initiating events not modeled in the PRA. As a result, the implementing guidance plays a significant role in effective implementation, and bolsters the need for NRC review and approval of the categorization process before implementation."

Comment:

The scope of "initiating events not modeled in the PRA" needs to be better defined as events such as internal fire, seismic, shutdown events, etc. Otherwise, some could interpret this scope as including events screened out of the internal events analysis based on their low frequency.

3. Federal Register Page 26516 Column 3 First Full Paragraph

"For other SSCs (not modeled in the PRA), other types of evaluations would be used to provide the basis for concluding that the potential increase in risk would be small. A licensee will need to submit its basis to support that the evaluations are bounding estimates of the potential change in risk and that programs already in existence or implemented for proposed § 50.69 can provide sufficient information that any potential risk change remains small over the lifetime of the plant."

Comment:

SSCs not modeled in the PRA fall into two categories: (1) those SSCs which are indirectly related to or support SSCs modeled in the PRA and (2) all other SSCs which do not impact CDF or LERF by their exclusion from the PRA model. It is the licensee's responsibility to ensure that SSCs in the first category are correctly categorized consistent with their associated SSCs modeled in the PRA. The SSCs in the second category are by definition low safety significant by their exclusion from the PRA model, and it is the IDP's responsibility to ensure that these SSCs do not impact CDF or LERF. It is illogical to attempt to bound the risk impact of excluding the second set of SSCs since they, by definition, do not impact CDF or LERF. Therefore, the reference to the bounding analysis should be replaced with text which identifies the two types of not-modeled SSCs and the requirement that each type of SSCs be independently reviewed by the IDP to ensure they are correctly assessed for their potential to impact CDF and LERF.

4. Federal Register Page 26517 Column 3 Second Full Paragraph

"In implementing the processes required by the proposed rule, licensees will need to obtain data or information sufficient to make a technical judgement that RISC-3 SSCs will remain capable of performing their safety-related functions under design basis conditions."

Comment:

The scope of the data and information collection effort described in the above excerpt is ambiguous. NEI-00-04 identifies the corrective action program as the process which addresses this concern.

5. Federal Register Page 26520 Column 2 First Partial Paragraph

"As discussed in Sections III.3 and III.5 of this SOC, the Commission is proposing that additional regulatory controls be imposed on RISC-2 SSCs to prevent their performance from degrading."

Comment:

No additional regulatory controls need to be placed on RISC-2 SSCs, with the possible exception of beyond design basis functions that are not adequately addressed by the current treatment (e.g., testing of valve stroke that is not credited in the design basis). The text in the SOC should be clarified to address the specific beyond design basis scope of additional regulatory controls on RISC-2 SSCs.

6. Federal Register Page 26530

Column 1

Bottom of Page

"(2) maintaining the design basis of the facility for all SSCs, including RISC-3 SSCs as described above;"

Comment:

The "design basis" for SSCs could be interpreted to include the special treatment requirements that 50.69 proposes to remove for RISC-3 SSCs. It is suggested that this requirement be re-worded to be consistent with other sections of the Statement of Considerations – mainly that the design basis functions be maintained.

7. Federal Register Page 26531

Column 2

Middle of Page

"In other words, for some SSCs to be of low safety significance, it is necessary for other SSCs to be safety-significant. For example, a RISC-2 SSC may be credited in the categorization process and subsequently another SSC becomes RISC-3 (low safety-significant). If a licensee wants to selectively implement § 50.69 just for the system in which a particular RISC-3 SSC resides, then the licensee would also have to assure that the credit for the RISC-2 SSC is maintained also."

Comment:

The presumption in the above excerpt is incorrect. A group of SSCs in a single system or multiple systems providing the same function can all be low safety significant based on their redundancy and diversity. Furthermore, this implies that in order for an SSC to be RISC-3, the IDP would have to review the entire PRA model to identify SSCs providing the same safety function in other systems (other than the system being categorized for 50.69 implementation), that could be RISC-1 or RISC-2, in order for the SSC under consideration to be RISC-3.

8. Federal Register Page 26533

Column 1

Last sentence

"Licensees will have to establish appropriate performance-based SSC treatment processes to maintain the validity of the categorization process and its results."

and

"Therefore, when establishing the performance-based treatment process of RISC-3 SSCs, the licensee should take these assumptions into account to support the evaluations of small increase in risk resulting from implementation of the changes in treatment. It is important to obtain sufficient information on SSC performance to allow the results of the categorization process to remain valid."

and

"Finally, when data is collected, it must be fed back into the categorization and treatment processes, and when important deficiencies are found, they must be corrected; hence, requirements are also provided in these areas."

Comment:

The above excerpts imply that an SSC performance monitoring process will be developed to track SSC performance (i.e., reliability and availability) and adjust the treatment process based on changes in performance which would invalidate the categorization. The industry has proposed in NEI-00-04 that RISC-3 performance be monitored via the corrective action program, not a new reliability trending program. Imposition of a new reliability trending program for RISC-3 SSCs would be unduly burdensome and unnecessary based on the low safety significance of RISC-3 SSCs. The above text should be clarified that the corrective action program satisfies this expectation.

"Upon approval of the categorization process (and review of the supporting PRA), the licensee can begin implementation by performing categorization of SSCs and revising treatment requirements accordingly."

Comment:

The licensee should not be required to wait until approval by NRC is received before proceeding with performing the categorization and treatment processes. NRC approval should permit the licensee to implement the *results* of the categorization and treatment process.

"The evaluations shall include the effects of common cause interaction susceptibility, and the potential impacts from known degradation mechanisms for both active and passive functions, and address internally and externally initiated events and plant operating modes (e.g., full power and shutdown conditions)."

Comment:

Consideration of known degradation mechanisms in the categorization process is not required for low safety significant SSCs per the ASME Code cases and NEI-00-04 for reasons identified earlier.

"For these unmodeled events, the IDP assessment should consider whether an SSC has an impact on the plant's capability to: (1) Prevent or mitigate accident conditions, (2) Reach and/or maintain safe shutdown conditions, (3) Preserve the reactor coolant system pressure boundary integrity, (4) Maintain containment integrity, or (5) Allow monitoring of post-accident conditions. In determining the importance of SSCs for each of these functions, the following factors should be considered: • Safety function being satisfied by SSC operation • Level of redundancy existing at the plant to fulfill the SSC's function • Ability to recover from a failure of the SSC • Performance history of the SSC • Use of the SSC in the Emergency Operating Procedures or Severe Accident Management Guidelines."

Comment:

First, the definition of unmodeled events needs clarification. It could be construed as screened-out internal events (e.g., loss of two DC buses) or events which have been assessed using deterministic methods (e.g., FIVE, seismic margins method). It is assumed that the text implies only the later type. In addition, the 5 criteria for considering the impact of an SSC and the subsequent 5 bullets that describe the factors to be considered for each criterion are sufficiently vague as to invite interpretation issues. These criteria also are not risk related (i.e., they are deterministic) and would result in most safety-related SSCs being categorized as RISC-1. The guidance in NEI-00-04 and the ASME code cases for categorization of passive SSCs provides adequate guidance for considering unmodeled events. Therefore, the text should either be deleted or revised to reflect the guidance in NEI-00-04 and the ASME code cases.

"The categorization process encompasses both active and passive functions of SSCs. Section 50.69(b)(2)(iv) includes the requirement that the change-in-risk evaluations performed to satisfy 50.69(c)(1)(iv) must include potential impacts from known degradation mechanisms on both active and passive functions. It is necessary for a licensee to consider the impact that a change in treatment (as a result of removal of special treatment requirements) might have on the ability of the SSC to perform its design basis function and on reliability of SSCs. The purpose is to provide an understanding of the new treatment requirements and their effects on RISC-3 SSCs due to removal of special treatment requirements. This will help form the basis for the change-in-risk evaluations and will support developing a technical basis for concluding that SSC performance is consistent with the categorization process and its results and with those evaluations performed to show that there is no more than a small increase in risk associated with implementation of 50.69."

Comment:

Consistent with the comment on the rule language in proposed 10 CFR 50.69(b)(2)(iv), inclusion of known degradation mechanisms in the SSC categorization process for active and low consequence passive SSCs is unnecessary, not addressed in the NEI-00-04 guidance, and overly burdensome. Every SSC has a set of known degradation mechanisms and the consideration of these in the categorization process is of no value since there is no method or reason to adjust the categorization based on a specific component's known degradation mechanisms. Consideration of known degradation mechanisms for active SSCs is appropriately performed in the treatment change process. Furthermore, the sensitivity studies identified in NEI-00-04 provide adequate assurance that any potential degradation in reliability due to changes in special treatment for RISC-3 SSCs would not have the potential to create more than a small increase in risk. Continued monitoring of RISC-3 performance in the corrective action program will provide assurance that RISC-3 SSC performance degradations will be identified and addressed in a timely manner.

"One mechanism that could lead to large increases in CDF/LERF is extensive, across system common cause failures (CCFs). However, for such extensive CCFs to occur would require that the mechanisms that lead to failure, in the absence of special treatment, were sufficiently rapidly developing or are not self-revealing that there would be few opportunities for early detection and corrective action. Thus, when deciding how much to

assume that SSC reliability might change, the applicant or licensee is expected to consider potential effects of common-cause interaction susceptibility, including cross-system interactions and potential impacts from known degradation mechanisms."

Comment:

The last sentence of the above excerpt from the SOC appears to be inconsistent with the earlier sentences, in that cross-system interactions need not be considered for common cause interactions. Very few, if any, current PRAs include cross-system common cause modeling for the reasons stated in the SOC. Therefore, consideration of cross-system common cause is not warranted.

14. Federal Register Page 26539 Column 1 Second Full Paragraph

"Those aspects of treatment that are necessary to prevent SSC degradation or failure from known degradation mechanisms, to the extent that the results of the evaluations are invalidated, must be retained."

Comment:

This excerpt establishes an ambiguous standard for evaluating treatment changes. By definition, most aspects of treatment play some role in preventing SSC degradation or failure from known degradation mechanisms. The issue is the extent of impact of treatment changes on SSC reliability and availability. NEI-00-04 addresses this issue by crediting: (1) the corrective action program for identifying and modifying treatment changes which produce unacceptable trends in SSC performance and (2) the sensitivity analyses which demonstrate that small changes in SSC performance can be tolerated without an undue increase in CDF or LERF.

15. Federal Register Page 26540 Column 2 Section V.5.1

"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."

Comment:

In PRA methods, the special treatment applied to an SSC does not impact its credit in PRAs, unless it directly affects its reliability and availability. Both safety-related and non-safety-related SSCs are credited in PRAs based on their historical reliability and availability, design functions, and design capabilities, not their treatment. Consideration of treatment impact on the

categorization process is unnecessary and has no benefit since there is no established method to do so. Treatment impacts are more appropriately considered after categorization depending on the SSC safety significance. RISC-1 and RISC-2 SSCs should be re-evaluated after categorization to ensure that beyond design basis functions credited in the PRA are adequately assured by treatment.

16. Federal Register Page 26541 Column 2 First Full Paragraph

"Further, the Commission expects that related standards (such as ASME Code Cases N-658 and N-660 on SSC categorization and treatment for purposes of repair and replacement) be used in conjunction with each other as intended by the accredited standards writing body."

Comment:

The correct numbers of the ASME Code Cases are N-660 and N-662 for SSC categorization and treatment, respectively.

17. Federal Register Page 26541 Column 3 Bottom of First Full Paragraph

"As an example, exercising of a valve or simply starting a pump does not provide reasonable confidence in design basis capability, will not detect service-induced aging or degradation that could prevent the component from performing its design basis functions in the future, and is insufficient by itself to satisfy the intent of the rule."

Comment:

The current testing and surveillance requirements for many SSCs involves simply starting a pump or exercising a valve as a means of verifying its operability and thereby providing assurance that it can perform its design basis function. The above requirement implies a standard for RISC-3 SSCs that exceeds many RISC-1 SSCs. The example should be deleted.

18. Federal Register Page 26541 Column 3 Bottom of 2nd Full Paragraph

"If a likely result of a contemplated change in treatment is an increase in failure rate, outside the bounds of the evaluations, that change in treatment would not be acceptable under..."

Comment:

The above excerpt sets an impossible standard for assessing the impact of proposed treatment changes. There are no known methods or data sets to correlate treatment changes with reliability changes. The only practical

means to effectively measure the impact of treatment is through trending of failures in the corrective action program.

19. Federal Register Page 26544

Column 1

First Full Paragraph

"To determine that SSC will remain capable until the next scheduled activity, a licensee would have to obtain sufficient operational information or performance data to provide reasonable confidence that the RISC-3 pumps and valves will be capable of performing their safety-related function if called upon to function under operational or design conditions over the interval between periodic testing or inspections."

Comment:

The above excerpt establishes a new data collection and analysis process for low safety significant SSCs that is unnecessary and burdensome. Use of the feedback mechanisms in the licensee's corrective action program are adequate to ensure that appropriate surveillance frequencies are selected for low safety significant SSCs.

20. Federal Register Page 26546

Column 2

First Partial Paragraph

"Replacements for ASME Class 2 and Class 3 SSCs or parts must meet either: (1) The requirements of the ASME Boiler & Pressure Vessel (BPV) Code; or (2) the technical and administrative requirements, in their entirety, of a voluntary consensus standard that is generally accepted in industrial practice applicable to replacement."

Comment:

Although this is alternate rule language, meeting requirements in their "entirety" is overly prescriptive and inconsistent with the low safety significance of RISC-3 SSCs. Licensees should be allowed to exclude or replace portions of voluntary consensus standards where a suitable basis (e.g., equivalency or unapplicable) for exclusion or replacement is justified and documented.