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August 28, 2003

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WOG-03-444

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Annette L. Vietti-Cook, Secretary
U.S. Nuclear Regulatory Commission
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Attention: Rulemaking and Adjudication Staff

Subject: Westinghouse Owners Group
Westinghouse Owners Group Comments and Feedback on the
Proposed Rulemaking for 10 CFR Part 50.69 "Risk Informed
Categorization and Treatment of Structures, Systems and
Components for Nuclear Power Reactors"

The Westinghouse Owners Group (WOG) has reviewed the Commission's Notice of Proposed Rulemaking for 10 CFR Part 50.69 "Risk Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors" as published in the Federal Register on Friday, May 16, 2003. The primary review effort was carried out by a team of Westinghouse and utility personnel who have been intimately involved in the development of the industry guidance related to this rulemaking, including the pilot plant efforts to validate and improve the guidance. In addition, utility members of the WOG in a wide range of disciplines that would eventually be impacted by the new rule were invited to provide their input. The comments and feedback contained in this letter and its attachments are the culmination of that intensive review effort. We would like to thank the Commission for the opportunity to provide comments and feedback at this time.

The WOG would like to commend the Commission on the initiative to risk-inform the treatment requirements for structures, systems and components that has culminated in the publication of this proposed rule. We believe that this is a very large step forward in achieving the overall goal of the Commission to include risk information and insights into the design and operation of commercial nuclear power plants with the intent of further improving safety and, at the same time, removing burdensome

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SECY-02

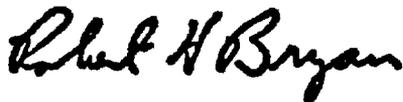
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regulatory requirements. We agree with most of the provisions of the proposed rule and our comments primarily deal with the implementation of the new requirements of the proposed rule.

Of primary concern to the WOG members is the appropriateness and clarity of the information provided in the Statement of Considerations (SOC) accompanying the proposed rule. Our understanding of the purpose of the SOC is to provide additional information to clarify the intent of the rule language. As such, the SOC should be limited to considerations that are important to understanding the background assumptions and processes that led to the rule language. This is not the case with the SOC accompanying the proposed rule as published in the Notice of Proposed Rulemaking. The SOC contains significant examples of Commission expectations, requirements, and other guidance that, in many cases, is not consistent with the rule language or intent as proposed. As such, the SOC represents considerable uncertainty in the regulatory process to the extent that, if retained in the publication of the final rule, may result in the refusal of licensees to implement this voluntary rule.

Detailed comments and feedback are provided in the attachment to this letter. The comments and feedback in the attachment are presented in five categories: a) the requirements in rule itself, b) appropriateness and clarity of the information in the Statement of Considerations, c) technical information in the Statement of Considerations and the proposed rule, d) editorial comments, e) feedback on the specific areas where input was requested, and f) the draft Regulatory Guide DG-1121. If you have any questions related to these comments, please contact Mr. Maurice Dingler, Chairman of the WOG Systems and Equipment Subcommittee at 620-364-4127.

Very truly yours,



Robert H. Bryan, Chairman
Westinghouse Owners Group

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cc: WOG Steering Committee
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WOG Licensing Subcommittee
WOG Systems & Equipment Engineering Subcommittee
WOG Risk Management Subcommittee
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WOG Comments on NPR for 10 CFR Part 50.69

INDEX TO WOG COMMENTS

- A. Rule Requirements**
- B. Appropriateness of the Statement of Considerations**
- C. Technical Information in the Statement of Considerations**
- D. Editorial Comments**
- E. Specific Areas of Requested Input**
- F. Draft Regulatory Guide DG-1121**

A. RULE REQUIREMENTS

A.1 CRITERION FOR UNISOLATED CONTAINMENT

The selection of a 1 inch penetration size as a bounding criteria for all light water reactors is inconsistent with other regulatory documents related to large early releases. For example, the most recent regulatory guidance on containment penetration size that is risk significant is provided in draft Appendix H - Containment Integrity Significance Determination Process (SDP) that was provided at the NRC's "ROP MONTHLY PUBLIC MEETING, MAY 22 2003". In that document and in the excerpted piece from Federal Register Page 16525, Column 3 (above), risk significance is equated to LERF and to a 100 volume percent per day leakage rate from containment. According to that document at page 45, "The 100 volume percent per day leakage rate is approximately equivalent to a hole size in containment of 2.5 to 3 inches in diameter for PWRs with large dry containments, 2 inches for PWRs with ice condenser containments, 1 inch for BWRs with Mark I or II containments, and 2.5 inches for BWRs with Mark III containments."

We recommend that the size of the line / penetration (or leakage rate) not be specified in the rule language in order to facilitate reasonable changes to that size that might be indicated by new information or analyses in the future. In addition, the Statement of Considerations should be revised to be consistent with other regulatory documentation (i.e., Appendix H of the SDP guidance).

Applicable NOPR Federal Register Locations:

Federal Register Page 26525 Column 1 Bottom Quarter of Column

"2. Penetrations less than 1 inch in equivalent diameter."

and Federal Register Page 26525 Column 2 Top of Column

"4. The valve size is 1-inch nominal pipe size or less."

and Federal Register Page 26525 Column 2 Middle of Column

"The second criterion for reducing the scope of Type B testing (*i.e.*, penetrations less than 1 inch in equivalent diameter) is essentially the same as the fifth criterion for reducing the scope of Type C testing (*i.e.*, valve size is 1-inch or less). By definition penetrations of this size do not contribute to large early release."

and Federal Register Page 26525 Column 3 First Full Paragraph

"NUREG-1493, "Performance-Based Containment Leak-Test Program," dated September 1995, calculated the containment leakage necessary to cause a significant increase in risk and found that the leakage rate must typically be approximately 100 times the Technical Specification leak rate, La. It is improbable that even the leakage of multiple v valves in the categories under consideration would exceed this amount."

and Federal Register Page 26549 Column 3 50.69(b)(1)(ix)(A) and
50.69(b)(1)(ix)(B)(4)

"(A) Containment penetrations that are either 1-inch nominal size or less, or continuously pressurized."

"(4) The valve is 1-inch nominal size or less."

A.2 TREATMENT REQUIREMENTS FOR EQ AND SEISMIC

The rule contains requirements for environmental qualification of RISC-3 SSCs that can be interpreted to be quite similar to the requirements of 50.49 and Part 100 Appendix A. The level of detail of requirements in this section is greater than in the categorization section, while the categorization is more important to the potential for reduction in treatment for low safety significant SSCs permitted by this rule. It is our belief that the rule language can be simplified by deleting the parenthetical clarifications for environmental and seismic conditions without changing the intent of the treatment requirements for design control. As the rule language for this section now stands, the requirements for RISC-3 SSCs can exceed the requirements presently imposed on RISC-1 SSCs for some plants.

Applicable NOPR Federal Register Locations:

Federal Register Page 26550	Column 31	50.69(d)(2)(i)
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“(i) Design control. Design functional requirements and bases for RISC-3 SSCs must be maintained and controlled. RISC-3 SSCs must be capable of performing their safety-related functions including design requirements for environmental conditions (i.e., temperature and pressure, humidity, chemical effects, radiation and submergence) and effects (i.e., aging and synergism); and seismic conditions (design load combinations of normal and accident conditions with earthquake motions);”

A.3 EXTENT OF NRC APPROVAL OF LICENSEE SUBMITTALS

The rule is ambiguous concerning extent of implementation of 50.69 to systems other than those specifically referenced in the required license amendment. It is our understanding that the approval of the license amendment submittal by the Commission would permit licensees to use the categorization and high level treatment processes described in the license amendment request for additional systems without the need to obtain additional approvals from the Commission. The rule language should be revised to clarify that only the initial implementation of 50.69 needs to be approved by the Commission using a license amendment request.

Applicable NOPR Federal Register Locations:

Federal Register Page 26550	Column 1	50.69(b)(3)
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“(3) The Commission will approve a licensee’s implementation of this section if it determines that the process for categorization of RISC-1, RISC-2, RISC-3, and RISC-4 SSCs satisfies the requirements of § 50.69(c) by issuing a license amendment approving the licensee’s use of this section.”

B. APPROPRIATENESS OF THE STATEMENT OF CONSIDERATIONS

B.1. TREATMENT OF RISC-3 SSCS

One area of the Statement of Considerations that we believe needs significant attention by the Commission in developing the final rule is the Statement of Considerations sections on Treatment for SSCs categorized under the 50.69 process. The rule requirements for treatment (i.e., 50.69(d)) were developed to include the high level attributes to be applied to the SSCs categorized according to the requirements in 50.69(c) while leaving flexibility for licensee implementation. A performance-based approach is specified in 50.69(e) to provide assurance that adequate treatment is being applied to those SSCs. However, the Statement of Considerations (Section V.5.0) includes significant details that the Commission expects of licensees in

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developing the plant specific treatment requirements for categorized SSCs. While the Commission is careful to state that these are expectations and that the failure to implement a specific expectation is not by itself a regulatory concern, these expectations represent a significant uncertainty to licensees. While these expectations are not part of the text of the 50.69 rule, their inclusion in the Statement of Considerations carries significant weight in determining the Commissions intent.

We believe that this is inappropriate material to include in the Statement of Considerations for a number of reasons:

- The detailed expectations and examples do not clarify the intent of the treatment requirements in the rule;
- It defeats the rule objective of assuring that the categorization process is robust and therefore subsequent treatment can be performance based; and
- The important elements of treatment may change as experience is gained with 50.69 and inclusion of detailed examples in the Statement of Considerations may no longer be appropriate to understand the intent of the rule language.

We believe that a robust categorization process, supported by the Integrated Decision-Making Panel deliberations, which includes PRA as one consideration, provides an adequate foundation for reducing the treatment requirements for low safety significant SSCs. Therefore, only the high level attributes of treatment for RISC-3 SSCs needs to be discussed in this rulemaking as represented in the SOC.

Applicable NOPR Federal Register Locations:

Federal Register Page 26541 to 26545

All of Section V.5.2

Examples include:

- At page 26543, first column: "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."
- At page 26543, second column: "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."
- At page 26543, third column: "Testing—Testing under simulated design basis conditions could be performed on the SSC."
- At page 26544, first column: "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 function if called upon to function under operational or design basis conditions over the interval between periodic testing or inspections."

B.2. TREATMENT OF RISC-1 AND RISC-2 SSCS

The SOC contains requirements for RISC-1 and RISC-2 SSCs that appear to require that additional treatment be applied and that their performance be more closely monitored than the currently required. We believe that this is an unnecessary step. The treatment and performance of RISC-1 and RISC-2 SSCs is already closely scrutinized under existing regulatory requirements (e.g., 50.65) and licensee programs (e.g., Corrective Action Programs). Also, imposing additional requirements for RISC-1 and RISC-2 SSCs in systems where 50.69 is implemented by a licensee (as opposed to safety related SSCs in systems where 50.69 is not implemented at the same plant) would create an uneven treatment of safety related SSCs at each plant. Any additional treatment requirements for RISC-1 and RISC-2 SSCs should be removed from the SOC.

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Applicable NOPR Federal Register Locations:

Federal Register Page 26513 Column 3 1st Partial Paragraph

“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 Federal Register Page 26514 Column 1 1st Paragraph of Section III

“Under this approach, a licensee would be allowed to reduce special treatment requirements for SSCs that are determined to be of low safety significance and would enhance requirements for treatment of other SSCs that are found to be safety significant. “

and Federal Register Page 26514 Column 3 1st Full Paragraph

“The proposed rule would impose greater treatment requirements on SSCs that perform safety-significant functions (RISC-1 and RISC-2 SSCs) to ensure that defense-in-depth and safety margins are maintained.”

and Federal Register Page 26517 Column 1 Bottom of Last Paragraph

“In the proposed rule, a licensee would be required to ensure that the treatment applied to RISC-1 and RISC-2 SSCs is consistent with the performance credited in the categorization process. This includes credit with respect to prevention and mitigation of severe accidents. In some cases, licensees might need to enhance the treatment applied to RISC-1 or RISC-2 SSCs to support the credit taken in the categorization process, or conversely adjust the categorization assumptions to reflect actual treatment practices.”

and Federal Register Page 26540 Column 3 First Full Paragraph

“If a § 50.69 licensee chooses to categorize a selective set of SSCs as RISC-3, and the categorization of SSCs as RISC-3 is based on credit taken for the performance of other plant SSCs (that would be RISC-1 or RISC-2, whether or not these SSCs are within the selective implementation set), then the licensee must ensure that consistency of performance with what was credited in the categorization.”

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.”

B.3. FEEDBACK OF DATA COLLECTION

The assessment of data collected should be an engineering function and the decision to “feedback” into the categorization and treatment processes should not be required unless there is a significant deviation in SSC performance compared to that used during the categorization process. The words in the Statement of Considerations (page 26541) should be clarified to match the “appropriate” text from the rule language (page 26550).

Applicable NOPR Federal Register Locations:

Federal Register Page 26541 Column 2 Top of Column

“Finally, when data is collected, it must be fed back into the categorization and treatment processes...”

and Federal Register Page 26550 Column 3 50.69 (e)(1)

“In a timely manner but no longer than every 36 months, the licensee shall review changes to the plant, operational practices, applicable industry operational experience, and, as appropriate, update the PRA and SSC categorization.”

B.4. SSCS/EVENTS NOT MODELED IN THE PRA

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 at page 26537 of the NOPR are regulatory guidance as opposed information that clarifies the intent of the rule language. Therefore it is inappropriate to include this in the SOC.

Additionally, the criterion are sufficiently vague as to invite interpretation issues. For example, the fifth criterion refers to monitoring of post accident conditions. Almost all plant instrumentation can be used to monitor post accident conditions. A framework for considering the importance of the parameters modeled by plant instrumentation has been developed and presented in Regulatory Guide 1.97, Rev. 3. Although these importance considerations do not include any risk insights, they provide a valuable tool in considering the relative importance of each. Those Regulatory Guide 1.97 parameters that are classified as Type 1 of Class A variables are included in the plant Technical Specifications to ensure their availability following a postulated accident because of their perceived importance as derived from design basis insights. Similarly, a large number of SSCs are included in the plant Emergency Operating Procedures based on the design of the Procedures to cover design basis and credible beyond design basis plant conditions. However, only a few of the SSCs are key to the successful recovery of from a postulated accident using the Emergency operating Procedures. We believe that these criteria should not be included in the SOC.

Applicable NOPR Federal Register Locations:

Federal Register Page 26537	Column 2	Bottom Half of Column
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“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”

C. TECHNICAL INFORMATION IN THE STATEMENT OF CONSIDERATIONS

C.1. NRC REVIEW OF PRA

The discussion of the NRC review requirements for the PRA is contradictory in the various sections of the SOC. In particular, at page 26516, the implication is that a detailed review of the PRA is necessary because there are key assumptions and models that could impact categorization results. However, at other sections of the SOC, the implication is that the review of the PRA will be at a higher level that includes how peer review findings were addressed. We believe that the appropriate level of Commission review of the PRA is that laid out in draft Regulatory Guide 1122, ““DETERMINING THE TECHNICAL ADEQUACY OF PRA RESULTS FOR RISK-INFORMED ACTIVITIES””. This does not include an in-depth review of the PRA nor does it include approval of the PRA. With respect to external events (fire, seismic, etc.) and other operating modes, the NRC review of the PRA methods (either quantitative or qualitative) should be limited to the process used and the consideration of the applicability of peer review comments from the internal events PRA to these other PRAs. We would also like to point out that the PRA

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is only one consideration in the deliberations of the Integrated Decision-Making Panel; the categorization is not based solely on the PRA.

Applicable NOPR Federal Register Locations:

Federal Register Page 26516 Column 1 Last Paragraph

“This review will determine whether the licensee’s application satisfies the § 50.69 requirements, and consider the adequacy of the PRA, focusing on the results of the peer review and the actions taken by the licensee to address any peer review findings. The Commission has determined that a focused NRC staff review of the PRA is necessary because there are key assumptions and modeling parameters that can have a significant enough impact on the results such that NRC review of their adequacy for this application is considered necessary to verify that the overall categorization process will yield acceptable decisions.”

Federal Register Page 26528 Column 3 First Full Paragraph

“While detailed regulatory guidance has been developed to provide guidance for implementing categorization consistent with the proposed rule requirements, the Commission concluded that a prior review and approval was still necessary to enable the NRC staff to review the scope and quality of the plant-specific PRA taking into account peer review results. The NRC staff would also review other evaluations and approaches to be used such as margins-type analyses.”

and Federal Register Page 26528 Column 3 Last Partial Paragraph

“As discussed above, prior NRC review and approval of the licensee’s proposed PRA, basis for sensitivity studies and evaluations, and results of PRA review process is required.”

C.2. ELEMENTS OF 50.69 REVIEW SUBMITTAL

We agree that the scope of the NRC review and approval process for implementation of 50.69 should be limited to the categorization process, including the PRA quality per the process outlined in DG-1122. A more detailed NRC review of the PRA models should not be required to assure that the categorization process is robust. Similarly, a detailed review of the categorization of each SSC should not be required as long as the licensee follows a process that has been endorsed by the NRC.

Applicable NOPR Federal Register Locations:

Federal Register Page 26530 Column 3 Last Paragraph

“Thus, the approach that has been developed is for a rule with the minimum elements of the categorization process defined in the rule, a requirement for NRC review and approval of the categorization process (including PRA peer review information) to be used, and detailed implementation guidance (in the form of a regulatory guide).”

C.3. SSCS/EVENTS NOT MODELED IN THE PRA

For SSCs not modeled in a quantitative PRA, candidate RISC-3 SSCs have already been determined to be low safety significant because the basis for not modeling them is that their failure does not contribute to risk. For the qualitative PRA assessments (e.g., fire, seismic, etc.) if an SSCs is a candidate for RISC-3, then the screening assessment (e.g., FIVE, SMA, etc.) should identify these SSCs as low risk significant and therefore their complete failure does not contribute to the qualitative risk results. We should rely on the fact that the qualitative PRA assessments are much more bounding than the quantitative assessments and therefore there should be no requirements to assess the impact of reduced treatment for any SSC that is not modeled in either a quantitative or qualitative PRA. Thus with respect to SSCs and events not modeled in the PRA, the licensee should not be required to provide the “basis to support that the evaluations are bounding estimates of the potential change in risk”, as the basis should be that it is not modeled in the PRA.

Applicable NOPR Federal Register Locations:

Federal Register Page 26516 Column 3 First Full Paragraph

“For other SSCs (not modeled in the PRA), other types 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.”

C.4. PART 21 REPORTING REQUIREMENTS

We agree with the NRC on this issue of only applying Part 21 reporting requirements to RISC-1 SSCs. RISC-2, 3 and 4 SSCs have already been determined to be of low enough safety significance that the Part 21 reporting requirements are not crucial to the NRC’s regulatory processes. However, the discussion of the basis for not including RISC-2, 3 and 4 SSCs under the Part 21 reporting requirements is very long and repetitive; this section could be reduced considerably without losing the context of the basis.

Applicable NOPR Federal Register Locations:

Federal Register Page 26519 Column 3 Last Paragraph

“Those SSCs that are viewed as being of sufficient safety significance to require Part 21 reporting are RISC-1 SSCs.”

C.5. RISC-1 AND RISC-2 DEFINITIONS

The criteria for difference between RISC-1 and RISC-2 SSCs on page 26520 are not consistent with the definition of “safety related” in 50.2. The only real difference between a RISC-1 and RISC-2 SSC is based on the definition of “safety related” in 50.2. The criteria used on page 26520 to explain the difference between RISC-1 and RISC-2 SSCs are broader than the definition in 50.2.

It should also be noted that the definition of a “basic component” on page 26522 is virtually identical to the definition of “safety related” in 50.2. The applicable SOC text should be revised to be consistent with the definition of “safety related” in 50.2.

Applicable NOPR Federal Register Locations:

Federal Register Page 26520 Column 1 First Full Paragraph

“By contrast, RISC-2 SSCs are less important than RISC-1 SSCs because they do not play a role in prevention and mitigation of design basis events (*i.e.*, the SSCs that maintain integrity of fission product barriers, that provide or support the primary success paths for shutdown, or that prevent or mitigate accidents that could lead to potential offsite exposures). They are not part of the reactor protection system or engineered safety features that perform critical safety functions such as reactivity control, inventory control and heat removal. that licensees evaluate treatment being applied for consistency with key categorization assumptions, monitor the performance of these SSCs, take corrective actions, and report when a loss of a safety-significant function occurs.”

and Federal Register Page 26522 Column 3 Last Paragraph

“For the purposes of this subsection, the term “basic component” means a facility structure, system, component or part thereof necessary to assure— (1) The integrity of the reactor coolant pressure boundary, (2) The capability to shut-down the facility and maintain it in a safe shut-down condition, or (3) The

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and Federal Register Page 26539 Column 1 First Full Paragraph

“One mechanism that could lead to large increases in CDF/LERF is extensive, across system common cause failures. 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.”

and Federal Register Page 26516 Column 3 Bottom of First Full Paragraph

“A licensee is required to consider potential effects of common-cause interaction susceptibility and potential impacts from known degradation mechanisms. To meet this requirement, a licensee would need to: (a) Maintain an understanding of common-cause effects and degradation mechanisms and their potential impact on RISC-3 SSCs; (b) maintain an understanding of the programmatic activities that provide defenses against common cause failures (CCFs) and failures resulting from degradation; and (c) factor this knowledge into the treatment applied to the RISC-3 SSCs.”

C.9. DESIGN BASIS FUNCTIONS

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.

Applicable NOPR Federal Register Locations:

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; “

C.10. ASSURING DESIGN BASIS FUNCTIONS

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 some of the discussion regarding means to assure RISC-3 SSCs can perform their design basis function requirement implies that something more is required for a RISC-3 SSCs compared to the current requirements applied to RISC-1 SSCs.

Applicable NOPR Federal Register Locations:

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.”

C.11. RECOVERY MODELING IN PRA

One of the three considerations identified for sensitivity studies is human error probability. However, at the bottom of the page, the discussion uses the wording recovery actions. In some PRA studies, recovery has a different meaning compared to human error probabilities. Human error probabilities are modeled in PRA assessments for all operator actions. Some of these actions are a direct result of instructions in the Emergency Operating Procedures and their modeling is relatively straight-forward, based on the accident

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system may use a common component identifier, but are two separate systems from a safety perspective.

- The boundaries between mechanical and electrical components are not consistent from plant to plant. Using an MOV as an example, the boundary between the electrical “system” and “mechanical” system may be the electrical connections to the MOV at one plant and the motor control center at another plant.

It is recommended that each licensee be permitted the flexibility to define the “system” boundaries in a clear and consistent method for each plant.

Applicable NOPR Federal Register Locations:

Federal Register Page	Column	Last Full Paragraph
26531	1	“The Commission has determined that selective implementation on a system basis should be allowed, but not for components within a system.”
26539	3	Section V.4.5
		“However, the implementation, including the categorization process, must address entire systems or structures; not selected components within a system or structure.”
26540	23	50.69(c)(1)(v)
		“Be performed for entire systems and structures, not for selected components within a system or structure.”

D. EDITORIAL COMMENTS

D.1. PILOT PLANT SCOPE

The pilot plant activities had the objective of exercising the proposed NEI *and ASME categorization* guidance. All of the pilot activities only exercised the categorization process in the NEI guidance, as opposed to the entire NEI “Implementation” guidance. Additionally, the WOG pilot activities also exercised draft versions of the ASME Code Case for categorization of pressure boundary SSCs. The categorization of pressure boundary components using the ASME guidance provided significant feedback to the ASME that is reflected in the Code Case as approved by ASME.

Applicable NOPR Federal Register Locations:

Federal Register Page	Column	Section
26532	1	IV.3.0
		“To aid in the development of the proposed rule and associated implementation guidance, several plants volunteered to conduct pilot activities with the objective of exercising the proposed NEI implementation guidance and using the feedback and lessons-learned to improve both the implementation guidance and the governing regulatory framework.”

D.2. TIMING OF CATEGORIZATION VS. NRC REVIEW

The licensee should not be required to wait until approval by NRC is received before proceeding with performing the categorization and treatment processes. In fact, the License Amendment Request required for implementation of 50.69 requires that some details of the categorization and treatment processes be provided for NRC review. The statement should more correctly read: “Upon approval of the categorization process, the licensee can begin implementation of treatment changes according to the approved categorization and treatment processes”.

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- the design basis functions for all SSCs will be maintained,
- operational considerations are considered by the Integrated Decision-Making Panel,
- defense in depth and safety margins are maintained, and
- risk assessment considerations provide assurance that there is a negligible change in risk

The robustness of the categorization process is used to assure that defense in depth, safety margins and risk are properly considered. There is no additional safety assurance provided by detailed requirements on treatment considerations for low safety significant SSCs. Therefore, we conclude that it is only appropriate to include the high level treatment requirements presented the NOPR. The licensee's submittal for NRC review and approval will include the attributes of the high level treatment to be applied to low safety significant SSCs, per the 50.69 rule language. Therefore, the SOC should be significantly revised to delete detailed expectations and requirements that do not directly support an explanation of the intent for the rule language.

Applicable NOPR Federal Register Locations:

Federal Register Page 26546

Columns 1&2 Section VI.1.0

“The Commission is requesting comment as to whether any of these requirements (or other requirements) are necessary to provide reasonable confidence of SSC functionality commensurate with the safety significance of the RISC-3 SSC, *i.e.*, whether the requirements on categorization are sufficiently robust that the level of detail contained in the proposed rule on treatment is appropriate.”

E.6. NRC QUESTION ON PRA SCOPE

We believe that, for this application, the current requirements of the 50.69 rule are adequate to ensure that the categorization is robust and provides adequate assurance that reduced treatment applied to low safety significant SSCs will not adversely impact the plant risk. This conclusion is based on several observations and insights:

- NRC review and approval of the PRA is not necessary to assure the adequacy of the categorization process. The PRA quality requirements of DG-1122 that includes peer reviews, self assessments of the changes made to address significant peer review findings, and the additional requirements of the ASME PRA Standard (including NRC additions and exceptions) provide a robust basis for concluding that the internal events PRA is of adequate quality for categorization under 50.69. In addition, the NRC has interacted with each licensee regarding key aspects of their PRA during the individual plant SPAR model benchmarking exercises. This should provide an adequate level of review to preclude significant issues from being identified during a more in-depth NRC review of the licensee's entire PRA.
- The use of the qualitative risk assessments for fire (e.g., the FIVE methodology) and seismic (e.g., the Seismic Margins Analysis) would result in more SSCs being categorized as risk significant, compared to a quantitative fire or seismic PRA. For example, in the case of the Surry plant, the FIVE methodology was used to screen the fire scenarios that were modeled in the quantitative fire PRA. The number of risk significant SSCs from the quantitative fire PRA was significantly less than that from the FIVE methodology. An independent qualitative assessment of the fire PRA results for Surry also showed that no additional risk important SSCs could be expected that were not identified by the FIVE methodology. Therefore, there is assurance that the use of the qualitative risk assessments provide a bounding process for identifying potentially low risk significant SSCs.
- With respect to low power, transition and shutdown modes, the qualitative assessment methodologies in use by licensees are expected to result in more SSCs being categorized as safety significant compared to a quantitative shutdown PRA. The reason for this expectation is the extensive use of the shutdown methodologies by the licensee prior to (outage planning) and during (emergent issues) each plant outage. The experience gained by the licensee plant staff (who will be represented on the IDP) staff in understanding the risk significance of SSCs during a wide range of different plant outage

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configurations provides a bounding basis for the 50.69 categorization process. Thus, the use of qualitative shutdown models is expected to provide a robust basis for determination of SSC risk importance during shutdown conditions.

- The PRA is only one input to the categorization process. Defense in depth and safety margin considerations are another important element of the categorization process. In addition, the requirement for an Integrated Decision-Making Panel to consider the any proposed categorization brings extensive wisdom and knowledge related to operations, maintenance and design of the candidate low safety significant SSCs. The entire categorization process assures that important considerations are not overlooked.

Applicable NOPR Federal Register Locations:

Federal Register Page 26546

Column 3

Section VI.2.1

“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.”

E.7. NRC QUESTION ON TREATMENT

We believe that the level of NRC review and approval of treatment processes specified in the current proposed rule language is adequate to assure that the SSCs will be capable of reliably performing their design basis functions. We believe that additional requirements or interactions are not a cost-effective use of the Commission’s or the licensee’s staff in terms of improving safety. This belief is rooted in several elements of the currently proposed rule:

- The NRC staff resources for review and endorsement of the generic categorization processes developed by NEI (NEI-00-04) and ASME (Code Case N-660) provides a high level of confidence that the categorization process will be robust. Subsequent NRC review and approval of the licensee’s implementation of the endorsed processes provides a high level of confidence that the SSC categorization developed by the licensee is robust.
- Given that the categorization process is robust and that the sensitivity of degraded reliability for SSCs as a result of reduced treatment has been assessed and found to be acceptable in terms of increases in risk, a review of the detailed treatment processes to be applied to low safety significant SSCs would not add a incremental level of safety.
- NRC review of the details of treatment processes proposed by the licensee would likely be resource intensive because each review would involve a significant learning process to understand each licensee’s implementation of treatment processes for both safety related and non-safety related SSCs. Significant plant specific variations in the previously approved implementation methods are one of the primary reasons that the NRC staff resource requirements would remain high on subsequent reviews of the treatment processes.

Applicable NOPR Federal Register Locations:

Federal Register Page 26546

Column 3

Section VI.2.2

“For treatment requirements, the proposed rule sets forth high-level requirements, and does not require NRC review and approval of specific processes a licensee would implement to meet these requirements. Another way to structure the rule would be to require NRC review and approval of the licensee’s proposed treatment program for RISC-3 SSCs. The Commission is interested in any benefits of this approach as well as any implications for this rulemaking and its associated guidance.”

F DRAFT REGULATORY GUIDE DG-1121

F.1 REFERENCE TO NEI-00-04

The industry is in the process of revising Draft Revision C to NEI-00-04 to respond to the Staff comments (that are included as an Attachment to Draft Regulatory Guide DG-1121) as well as the results of discussions between the industry and the Staff at public meetings hosted by NRC at their Offices in White Flint. We would encourage the Staff to continue to provide venues for the industry and Staff to discuss any remaining issues with the industry guidance in NEI-00-04 with the aim of the Commission's endorsement of NEI-00-04 with minimal of clarifications, enhancements, and conditions.

Applicable Draft Regulatory Guide Locations:

Regulatory Guide Page 4 Section C.1

"Draft Revision C of NEI 00-04, "10 CFR 50.69 SSC Categorization Guidance," dated June 28, 2002 (ADAMS Accession No. ML021910534), provides an approach that is acceptable to the NRC staff for meeting the categorization requirements in the proposed 10 CFR 50.69 (68 FR 26511), subject to the following clarifications, enhancements, and conditions. [To be determined upon resolution of the issues discussed in the attachment, either by appropriate revisions to NEI 00-04 or by inclusion of staff positions in the Regulatory Guide]"

F.2 Required PRA Scope

The discussion of the required PRA scope for use in the proposed 50.69 categorization process should be revised to be consistent with the statements appearing in the Statement of Considerations and rule language of the proposed 50.69 in order to clarify the minimum required scope of the PRA for this application.

Specifically, the Statement of Considerations, at Federal Register page 26535, Column 3 Section V.4.1.1 describes the minimum PRA scope for 50.69 as "internal events occurring at full power operations". Additionally, at Federal Register page 26537, bottom of second column, the use of risk assessment and risk management methodologies (e.g., fire and external events screening methodologies, seismic margins analyses, etc.) are described as acceptable methods to obtain insights for the categorization process for initiating events and plant operating models not modeled in the PRA. Further discussion of PRA scope to support implementation of the proposed 50.69 rule are provided in Section E.6 of this attachment.

Applicable Draft Regulatory Guide Locations:

Regulatory Guide Page 4 Section C.5

To meet the requirements of the proposed 10 CFR 50.69 for categorization of SSCs, licensees must use risk evaluations and insights that cover the full spectrum of potential events (i.e., internal and external initiating events) and the range of plant operating modes (i.e., full power, low power, and shutdown operations). The NRC staff believes that current state-of-the-art PRA methods are available to quantitatively address the full spectrum of potential events and the full range of plant operating modes for this type of application, and thus it is desirable for licensees to use such broad-scope PRAs. However, Draft Revision C of NEI 00-04 allows the use of non-PRA type evaluations (e.g., FIVE, seismic margins analysis, NUMARC 91-06), when PRAs have not been performed. It should be recognized that the degree of relief that can be expected will be commensurate with the assurance provided by the evaluation.