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NUCLEAR UTILITY GROUP  
 ON EQUIPMENT QUALIFICATION

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May 17, 2000

Ms. Annette L. Vietti-Cook  
 Secretary of the Commission  
 U.S. Nuclear Regulatory Commission  
 Washington, D.C. 20555-0001

**ATTENTION:** Rulemakings and Adjudications Staff

**SUBJECT:** Nuclear Utility Group on Equipment Qualification - Comments on the  
 Advance Notice of Proposed Rulemaking to Risk-Inform the  
 Special Treatment Requirements

Dear Ms. Vietti-Cook:

This letter provides the comments of the Nuclear Utility Group on Equipment Qualification ("NUGEQ") on the Advance Notice of Proposed Rulemaking (ANPR), *Risk-Informing Special Treatment Requirements* (65 Fed. Reg. 11,488 - March 3, 2000) at proposed 10 CFR Parts 21, 50, 52 and 100.<sup>1</sup> The NUGEQ appreciates having had the opportunity to participate in the review of this proposal through the NRC-sponsored public workshops.

Our comments are organized as follows:

- Categorization of Systems, Structures, and Components (SSCs)
- Treatment of SSCs

The NUGEQ is comprised of 35 electric utilities in the United States and Canada, including NRC licensees authorized to operate over 100 nuclear power reactors. The NUGEQ was formed in 1981 to address and monitor topics and issues related to equipment qualification, particularly with respect to the environmental qualification of electrical equipment pursuant to 10 C.F.R. § 50.49.

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- Monitoring of SSCs
- Regulatory Processes

We strongly endorse risk-informing the special treatment requirements, which will result in an increased focus on SSCs that are risk significant and a decreased focus on SSCs that are not risk significant. The net effect will assure adequate protection of the public health and safety while at the same time reducing the regulatory burden associated with the current deterministic regulations. Our comments focus on those aspects of this initiative that concern the appropriateness, from a risk perspective, of maintaining the full range of requirements imposed by 10 C.F.R. § 50.49 with respect to providing assurance that particular electrical SSCs will remain operational following design basis events. Additionally, we endorse the pilot program to demonstrate the viability of the risk categorization processes in establishing the alternative risk-informed special treatment requirements. We appreciate the opportunity to comment on the ANPR. We would be pleased to address any questions the NRC may have on our comments.

Additionally, we endorse the comments prepared on behalf of the industry by the Nuclear Energy Institute.

Sincerely,

Original signed by William A. Horin

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Counsel to the Nuclear Utility Group on Equipment  
Qualification

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## ENCLOSURE

### NUCLEAR UTILITY GROUP ON EQUIPMENT QUALIFICATION COMMENTS ON ADVANCE NOTICE OF PROPOSED RULEMAKING

#### RISK-INFORMING SPECIAL TREATMENT REQUIREMENTS

#### I. CATEGORIZATION OF SSCs

##### A. SSC Categorization Process

We endorse the approach that includes a new Appendix to Part 50 to establish a risk-informed process that categorizes SSCs with respect to their risk significance. However, we believe that the proposed Appendix, as presented in the ANPR is too detailed. As proposed, it amounts to a prescriptive regulation to categorize SSCs. For example, we believe that it is not important to identify and document specific, individual elements of special treatment requirements for all SSCs as part of the categorization process. For components that are currently environmentally qualified in accordance with 10 C.F.R. § 50.49, this additional documentation process would be very burdensome without providing any additional safety benefit. In addition, an overly prescriptive categorization process may result in additional exemption requests, which is not consistent with the goal to reduce regulatory burden. We recognize that the proposed process must be inspectable and scrutable by the NRC, however, we believe that these goals can be accomplished with a regulation that is less prescriptive.

We endorse the approach that minimizes the number of risk significance levels to the extent practical. More risk significance levels and sub-levels will make the categorization process over-complicated. This will result in increased implementation difficulties for both licensees and the NRC. It seems that the only purpose in creating more risk significance levels is to establish a like number of treatment levels. The process should be flexible so that each licensee can categorize and determine the appropriate treatment of SSCs based on the risk significance of the SSC or the risk significance of the system function. (See Section II, below.) In accomplishing this goal, we do not believe that creating an excessive number of risk levels is required.

##### B. PRA Quality and Scope - Quantification of Risk

We believe that the PRA process described in the ANPR is sufficient to ensure that SSCs

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are properly categorized without a PRA consensus standard. The proposed regulations describe a very robust SSC categorization process that includes a quantitative determination of risk and the participation of a licensee integrated decision-making panel (IDP). Where it is recognized that a plant's PRA is limited in scope, the overall assessment of risk can still occur through a conservative IDP process. For example, if a licensee does not have a PRA for external events or low power/shutdown operations, or extended operation beyond the risk-significant period of post-accident response, the licensee can still meaningfully assess risk for the purpose of classifying SSCs. As a result, this more conservative IDP approach may yield more SSCs categorized as risk significant. Consistent with the proposal in the ANPR, the IDP must provide justification, on the basis of bounding analyses or qualitative considerations, that risk is not significantly impacted where the PRA model does not account for external events or plant operating mode.

## II. TREATMENT OF SSCs

### A. Treatment for Risk-Informed Safety Categories (RISC) 1, 2, 3 and 4

The regulation should be flexible enough to allow the licensee to determine special treatment requirements<sup>2</sup> based on the SSC level or the system function level. In providing this flexibility, a licensee can choose to apply appropriate treatment to a SSC based on the risk-category of the SSC, or it can choose to apply certain treatment based on a particular attribute that supports a risk significant function. For example, an SSC which may - for particular events - be risk-significant, yet not be significant for purposes of 10 C.F.R. § 50.49 because the SSC does not require qualification for that particular event.

We endorse the approach that the special treatment for SSCs classified as RISC-1 (safety related, risk significant) will be in accordance with existing regulations. In addition, we endorse the approach that SSCs classified as RISC-4 (non-safety related, not risk significant) will continue to be treated in accordance with normal commercial grade standards.

<sup>2</sup> As used here, special treatment requirements are those requirements imposed on SSCs that go beyond industry-established requirements for equipment classified as "commercial grade" that provide additional confidence that the equipment is capable of meeting its functional requirements under design basis conditions.

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For SSCs categorized as RISC-2 (non-safety related, safety significant) by the licensee, we endorse the approach that the regulations should be flexible enough so that each licensee can determine the appropriate treatment requirements based on the credit taken for the particular SSC in the PRA. We understand from the workshops that these SSCs would typically be those associated with accident scenarios that are beyond the design basis, but are included in the PRA because of their risk significance. The goal should be to assure that the risk significant assumptions in the PRA are preserved through appropriate treatment. Included in the determination of appropriate treatment will be information gained from the qualification, analysis and testing of SSCs under the existing deterministic framework. As referenced in the ANPR, the pilot program will be an effective method to verify that appropriate treatment requirements will be determined and applied to RISC-2 SSCs.

For SSCs categorized as RISC-3 (safety related, not risk significant) by the licensee, we endorse the approach that the regulations should be flexible enough so that each licensee can determine the appropriate treatment requirements based on the risk significance of the SSC or the risk significance of the function performed by the SSC. Furthermore, we endorse the approach that existing safety related SSCs categorized as not risk significant will no longer be subject to the special treatment requirements for the candidate rules identified in the ANPR. Under this approach, we anticipate that for safety related (not risk significant) SSCs currently within the scope of 10 C.F.R. § 50.49, the licensee will provide the appropriate level of assurance for continued post-accident SSC functionality through appropriate procurement, treatment and monitoring requirements. (See Section III, below.) Information derived from the qualification, analysis and testing of SSCs under the existing deterministic framework may be utilized to determine the appropriate level of treatment based on risk significance. However, the existing qualification requirements of 10 C.F.R. § 50.49 will no longer be applicable.

### **III. MONITORING OF SSCs**

#### **A. Monitoring as a Means to Verify Functionality**

We endorse the approach that relies on the licensee's existing programs to prevent, identify and correct deficiencies in the SSC categorization and treatment process. The proven licensee design control and procurement programs will continue to provide confidence that the SSCs purchased and installed in the plant are designed to meet the specified functional requirements and environmental conditions. We anticipate that the existing licensee monitoring programs, such as operator and system engineer walkdowns, in-service inspections and tests, system surveillance tests, preventive maintenance, performance monitoring and condition monitoring will continue to be effective in

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identifying system and component level deficiencies. In addition, the Corrective Action Program (CAP) will continue to identify, track, and correct system and component level deficiencies.

The regulation should provide flexibility that allows the licensee to develop the appropriate mix of monitoring, inspection, and test required to assure that there is reasonable assurance that these SSCs remain functional. For example, for a safety related solenoid that is categorized as RISC-3 and is no longer subject to the environmental qualification requirements of 10 C.F.R. § 50.49, a licensee may determine that a cycle test as part of a broader system surveillance and a mid-cycle visual inspection are sufficient to assure that the solenoid remains functional. This monitoring may be in addition to a treatment requirement to lubricate O-rings, or to cycle MOVs, performed on an outage frequency preventive maintenance activity. Ongoing licensee activities such as those described provide assurance that the functionality of SSCs will be maintained under the risk-informed approach. We emphasize that the goal is to assure the functionality of SSCs during operation and as warranted on a risk basis, provide additional assurance of post-accident functionality. As described above, the confidence in this functionality determination is bolstered by the licensee's design and procurement control programs and the continuous oversight provided by the CAP.

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**B. Monitoring as a Means to Verify Adequate Characterization and Treatment**

As proposed in the ANPR, we endorse the approach that uses a feedback mechanism for changing the SSC categorization based on operating experience to assure that the SSCs are properly categorized. For example, if an SSC becomes unreliable, it would likely be recategorized into a higher safety significance category, requiring a higher degree of special treatment. This feedback mechanism not only assures that SSCs are properly categorized, it helps to verify that the categorization process itself is accurate.

**IV. REGULATORY PROCESSES**

**A. Prior NRC Review**

We endorse the approach that sets forth criteria for acceptable methods to categorize the SSCs that require special treatment. In addition, we endorse the approach that includes a limited NRC review of certain *process* aspects of the categorization and treatment determination to ensure that it complies with the regulations. We recommend that the new Appendix reference a regulatory guide or industry standard that provides additional detail and guidance. This is consistent with our previous comment that the new Appendix to Part 50 be prepared at a higher level (with less detail). We understand that NEI is developing a template that may be used by licensees to notify the NRC that they are adopting the risk-informed option. A review of the information supplied in this notification document would be sufficient to ensure that the licensee's program meets the NRC criteria. After implementation of the risk-informed option, we believe that the NRC inspection process is the appropriate method to ensure that the licensee's program for categorization and treatment provides reasonable assurance that public health and safety are maintained.

**B. Selective Implementation**

The regulation should be flexible enough to allow the licensee to determine which regulations and SSCs will be risk-informed while maintaining the overall objectives. Based on industry feedback, the greatest impact in terms of reducing regulatory burden and improving safety may best be achieved from risk-informing a bundled group of regulations applicable to a core group of SSCs. For example, risk-informing the Appendix B, Environmental Qualification, Seismic and Fire Protection regulations for the most risk significant systems would have a synergistic impact in reducing burden and improving safety. In addition to reducing regulatory burden on the industry and NRC, overall safety is improved because risk significant SSCs in these systems not currently addressed by the special treatment requirements may be subject to enhanced treatment by

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virtue of their risk significance.

C. Backfit Rule

Although not specifically addressed in the ANPR, we offer the following comments with respect to the backfit rule. We recognize that implementation of the risk-informed option in the regulations is voluntary on the licensees' part. However, the voluntary adoption of the regulation does not negate the backfit rule. If a licensee voluntarily adopts the risk-informed option in the regulations and the NRC subsequently imposes additional requirements it believes are necessary, those new requirements would be subject to the backfit rule (*i.e.*, requirements beyond those adopted by the licensee in implementing the risk-informed requirements).