PR 1,2,10,19,20,21,25,26,50,51,52,54,55, et. al
(71FR12781) Comment No. 27

PR 50,72 and 73
(71FR62663) Comment No. 18

NUCLEAR ENERGY INSTITUTE

Marvin S. Fertel
SENIOR VICE PRESIDENT AND
CHIEF NUCLEAR OFFICER

December 20, 2006

The Honorable Dale E. Klein
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: Public Availability of NEI Letter Dated December 8, 2006

PROJECT NUMBER: 689

Dear Chairman Klein:

Our letter to you dated December 8, 2006, was marked "Exempt from public disclosure in accordance with 10 CFR 2.390." Upon further review, we have determined that this letter may be made publicly available by the NRC.

Sincerely,

Marvin S. Fertel

c: The Honorable Edward McGaffigan, Jr., Commissioner, NRC
The Honorable Jeffrey S. Merrifield, Commissioner, NRC
The Honorable Gregory B. Jaczko, Commissioner, NRC
The Honorable Peter B. Lyons, Commissioner, NRC
Mr. Luis A. Reyes, Executive Director for Operations, NRC
Mr. William F. Kane, Deputy Executive Director for Reactor and Preparedness Programs, NRC
Ms. Karen D. Cyr, General Counsel, NRC
Mr. James E. Dyer, Director, Office of Nuclear Reactor Regulation, NRC
Mr. R. William Borchardt, Director, Office of New Reactors, NRC
NRC Document Control Desk

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NUCLEAR ENERGY INSTITUTE

Marvin S. Fertel
SENIOR VICE PRESIDENT AND
CHIEF NUCLEAR OFFICER

December 8, 2006

The Honorable Dale E. Klein
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: Severe Accident Provisions in 10 CFR Part 52

Dear Chairman Klein:

This letter is a supplement to the NEI letter dated December 1, 2006, on the draft final rulemaking package for 10 CFR Part 52. The following describes an industry proposal to address beyond design bases security events in Part 52, thereby establishing an appropriate regulatory basis for the consideration of these scenarios early in the process of new plant development at the design stage.

In addition to the draft final Part 52 rule, the Commission has two other ongoing rulemakings that address beyond design bases events. These are §73.62, which is currently before the Commission as a proposed rule applicable to prospective new plants, and §73.55, which is currently available for public comment as a proposed rule and is applicable to both current and future plants. Both of these rulemakings include requirements to address beyond design bases conditions that result from larges fires and explosions that challenge core cooling, containment or spent fuel pool integrity. To enhance the clarity and coherence of the regulatory framework for new plants, the industry proposes that the Commission include these beyond design bases security events in Part 52, terminate the proposed rule §73.62, and exclude new plants from these scenarios in §73.55.

Consistent with the principles that underscore Part 52, this proposal would define a more inclusive set of beyond design bases events that need to be evaluated and resolved as part of design certification. This proposal would accelerate the agency's promulgation of regulations that establish an appropriate basis for the implementation of design features and mitigation strategies associated with conditions that result from large fires and explosions (including commercial aircraft impact) that challenge core cooling, containment or spent fuel pool integrity. This would enhance the completeness of combined license applications currently under development and establish greater certainty in the regulatory framework.

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Exempt from Public Disclosure in accordance with 10 CFR 2.390

The security assessment in the proposed §73.62 would require applicants to conduct similar types of evaluations as the existing fleet for security issues covering design bases threats and beyond design bases threats. In addition, §73.55 would codify the security orders for existing plants covering the same set of events as §73.62. New plant applicants and designers are already performing such evaluations to identify candidates for design enhancement in advance of NRC requirements. The industry and NRC activities associated with implementing the beyond design bases threat scenarios focus on design enhancements and mitigation strategies that are traditional engineering and operational activities. Thus, it is more appropriate for these beyond design bases events to be treated early in the overall Part 52 process at the design certification stage, and not as new security requirements.
The industry would seek to work closely with the NRC in developing acceptable guidance for this requirement, and to ensure consistent implementation across the new plant designs.

The enclosure provides additional details on our proposal, including suggested rule language and supplementary information for the rulemaking package. If you or your staff has any questions, please contact Adrian Heymer of the NEI staff, 202-739-8094 or me, at 202-739-8125.

Sincerely,

Marvin S. Fertel

Enclosure

c: The Honorable Edward McGaffigan, Jr., Commissioner, NRC
The Honorable Jeffrey S. Merrifield, Commissioner, NRC
The Honorable Peter B. Lyons, Commissioner, NRC
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Mr. R. William Borchardt, Director, Office of New Reactors, NRC

Enclosure to NEI Letter Dated December 8, 2006

The objective of this proposal is to improve regulatory clarity and coherency in NRC regulations, in the area of beyond design bases threats and severe accident provisions for new plants. The proposal would accelerate the agency's promulgation of regulations on features and strategies for the prevention and mitigation of beyond design bases conditions that result from large fires and explosions that could challenge core cooling, containment or spent fuel pool integrity. This regulation encompasses the evaluation of a deliberate commercial aircraft impact on a new plant.

Discussion

The NRC proposed rulemaking on 10 CFR 73.62 would require a new plant applicant to assess design features for the prevention and mitigation of the effects of large fires and explosions. Section 73.62 merely repeats for new plants the requirements of Section 73.55 for existing plants but requires the evaluations to be performed as part of the design.

New plant designers are performing evaluations required by Section 73.55 in advance of Commission regulations because of the need and schedule for developing complete and quality applications. The industry is implementing an integrated four-part plan for conducting evaluations and identifying enhancements to new designs that have been certified or will apply for design certification. The four steps are:

1. Security Enhancement Review -- uses current industry target set development guidance to evaluate the ability of each vendor's design to withstand attacks and recommend reasonable changes to the design to enhance the robustness of the design with regard to the beyond design bases threat (DBT).
2. Security Safeguards Review -- defines the final target sets based on the design of the station. It documents the response of the design to DBT attacks.
3. Evaluation of beyond design bases threat scenarios, including large fires and explosions (Interim Compensatory Measures). This part assesses the design for compliance to the NRC Security Orders of February 2002, which will be codified in §73.55.
4. Security Plan – describes the plan, training and qualification plan, and contingency plan using the NRC endorsed template NEI 03-12.

Under the industry proposal, the design bases threat scenarios would be evaluated under Section 73.55 for both new and existing plants. The beyond design bases threat events for new plants would be addressed in Section 52.47, design

certification requirements. Thus, Section 73.62 would be redundant and unnecessary.

The draft final Part 52 rule includes requirements for design certification applicants to include a description and evaluation of the design features or strategies for the prevention and mitigation of a specific set of severe accidents: ex-vessel accidents. These are the accidents referenced in Commission Policy Statements on Advanced Reactors and Severe Accidents: Challenges to containment integrity caused by core-concrete interaction, steam explosion, high-pressure core melt ejection, hydrogen combustion, and containment bypass.

The industry acknowledges that action should be taken to prevent or mitigate certain specific beyond design bases events including those resulting from large fires and explosions. To improve regulatory coherency and consistency, large fires and explosions should be addressed in the same regulation and in the same manner as other similar beyond design bases events that are already being addressed in the regulations.

The evaluations of the features and strategies that could mitigate or prevent beyond design bases accidents that result from large fires and explosions are performed by engineering and operational groups. Similarly, NRC reviews are performed by engineering and operations inspectors. Therefore, it is more appropriate for these matters to be addressed in Part 52 as opposed to Part 73. Such a step would add clarity and improve regulatory effectiveness.

Proposed Sections 52.47(a)(23), 52.79(a)(38) 52.137(a)(23) and 52.157(f)(23) identify requirements addressing prevention and mitigation of specific severe accidents in applications for design certification, combined licenses (COL), standard design approval and manufacturing licenses, respectively. By incorporating beyond design bases security events that are similar to the set of severe accidents already being considered (similar but not the same as severe accidents) in Part 52, this change would serve well the principles underlying Part 52 and co-locate analogous requirements in a single regulation.

The following is a summary of the industry proposal including suggested Part 52 rule language and accompanying Supplementary Information for the statements of consideration:

<u>Recommended Part 52 Rule Language</u>

Replace the existing language in Sections 52.47(a)(23), 52.79(a)(38) 52.137(a)(23) and 52.157(f)(23) with the following language:

> Section 52.47(a)(23), Section 52.79(a)(38), Section 52.137(a)(23) and Section 52.157(f)(23): *Applications must include a description and evaluation of the*

design features or strategies for the prevention and mitigation of specific severe accidents and beyond design bases events.

(i) For light water reactors, applications must include a description and evaluation of the design features or strategies for the prevention and mitigation of a specific set of severe accidents that challenge containment integrity caused by core-concrete interaction, steam explosion, high-pressure core melt ejection, hydrogen combustion, and containment bypass.

(ii) For all reactor designs, applications must include a description and evaluation of the design features or strategies for the prevention and mitigation of beyond design bases events that result from large fires and explosions that challenge core cooling, containment or spent fuel pool integrity."

Recommended Supplementary Information

...(i) The features for the prevention and mitigation for the set of severe accidents described in §52.47 should be based on realistic evaluations. These evaluations should be similar in scope and level of detail to those associated with the development of the severe accident management guidelines and the individual plant evaluation activities, i.e., generally consistent with national consensus codes and standards, yet not constrained by the normal design allowable limits of such codes and standards.

...(ii) The features and strategies to prevent and mitigate beyond design bases events that result from large fires and explosions should be generally consistent with national consensus codes and standards. The purpose of the evaluation of large fires and explosions is to identify and implement simple features that can enhance the robustness of the design against a spectrum of these types of events. The evaluations would assess a range of events.

The prevention and mitigation features and strategies shall provide reasonable assurance of adequate protection of public health and safety. For extreme scenarios, sufficient mitigation in the form of design features or mitigation strategies shall be available to provide time to initiate the site emergency plan.

The term "prevent" should be interpreted in the same manner as it has been interpreted in the individual plant evaluation activities and in the development of severe accident management guidelines and strategies. In the context of severe accidents and beyond design bases events, the term "prevent" relates to simple actions and plant modifications that can be easily implemented with minimum resource burden that will improve the robustness of the design and mitigation capabilities.

NRC special treatment requirements, including the requirements of Appendices A and B to Part 50, do not apply to features, structures, systems and components that are designed to prevent or mitigate a severe accident management function or a beyond design bases function, unless those structures, systems and components are used to support a safety-related function. The design, procurement, construction and operation of features for the prevention and mitigation of severe accidents and beyond design bases events are not subject to NRC special treatment requirements.