

# Proposed Rules

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This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

## NUCLEAR REGULATORY COMMISSION

### 10 CFR Part 50

[Docket No. PRM-50-75]

#### Nuclear Energy Institute; Receipt of Petition for Rulemaking

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Petition for rulemakings; Notice of receipt.

**SUMMARY:** The Commission requests public comment on a petition for rulemaking filed February 6, 2002, by the Nuclear Energy Institute (NEI) (PRM-50-75). The petition requests amendment of the NRC's Emergency Core Cooling System (ECCS) regulations to allow the use of an alternative maximum pipe break size for the largest pipe in the reactor coolant system in ECCS evaluation models for Light-Water Nuclear Power Reactors. The regulations currently specify the use of a double-ended rupture of the largest pipe in the reactor coolant system in ECCS models. NEI states that the proposed change is necessary to improve consistency within the existing regulations and will provide increased plant safety through the use of more realistic technical specifications in surveillance testing. The petitioner estimates regulatory improvements could be expedited by up to two years.

**DATES:** Submit comments by June 24, 2002. Comments received after this date will be considered if it is practical to do so, but the Commission is able to assure consideration only for comments received on or before this date.

**ADDRESSES:** Mail comments to: Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemakings and Adjudications Staff.

Deliver comments to: 11555 Rockville Pike, Rockville, Maryland, between 7:30 a.m. and 4:15 p.m. on Federal workdays.

For a copy of the petition, write to Michael T. Lesar, Chief, Rules and

Directives Branch, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC, 20555-0001.

You may also provide comments via the NRC's interactive rulemaking Web site at <http://ruleforum.llnl.gov>. This site allows you to upload comments as files in any format, if your Web browser supports the function. For information about the interactive rulemaking Web site, contact Ms. Carol Gallagher, (301) 415-5905 (e-mail: [cag@nrc.gov](mailto:cag@nrc.gov)).

Documents related to this petition, including comments received, may be examined, and/or copied for a fee, at the NRC's Public Document Room, located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records will be accessible electronically from the ADAMS Public Library component on the NRC Web site (the Electronic Reading Room), [www.nrc.gov](http://www.nrc.gov). If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC PDR Reference staff at 1-800-397-4029, 301-415-4737 or by e-mail to [pdr@nrc.gov](mailto:pdr@nrc.gov).

**FOR FURTHER INFORMATION CONTACT:** Michael T. Lesar, Chief, Rules and Directives Branch, Division of Administrative Services, Office of Administration, U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001 or e-mail: [MTL@nrc.gov](mailto:MTL@nrc.gov).

#### SUPPLEMENTARY INFORMATION:

##### The Petitioner

The petitioner, the Nuclear Energy Institute (NEI), is an umbrella organization for the nuclear energy industry. The NEI is responsible for coordinating its members' efforts in matters involving generic policy issues and the regulatory aspects of generic operational and technical issues affecting the nuclear power industry. NEI members include all entities in the United States licensed by the NRC to construct or operate nuclear power plants, other nuclear industry organizations, as well as major architectural and engineering firms and nuclear steam supply system vendors.

##### Background

The petitioner states that 10 CFR 50.46, *Acceptance Criteria for Emergency Core Cooling Systems*

(ECCS) for Light-Water Nuclear Power Reactors, Appendix A to 10 CFR part 50, *General Design Criteria (GDC) for Nuclear Power Plants*, and Appendix K to 10 CFR part 50, *ECCS Evaluation Models*, currently require that assumption of a double-ended break of the largest pipe in the reactor coolant system be considered in the evaluation models for evaluation of the ECCS acceptance criteria and be used to determine ECCS performance requirements. NEI reports that Appendix K, promulgated in the early 1970s, specified the required and acceptable features of ECCS evaluation models. The petitioner believes these models were developed with conservative assumptions and notes that the models were required to address areas where data was lacking or uncertainties were large or unquantifiable.

NEI further reports that in 1987, the Commission amended 10 CFR part 50, GDC 4 of Appendix A, *Environmental and dynamic effects design bases* to exclude the dynamic effects of postulated ruptures in the reactor coolant system primary piping and other high energy line piping by the use of leak-before-break (LBB) technology. This relaxation of methodology was justified, the petitioner claims, because the probability of a pipe break in the largest diameter pipe was extremely low for the conditions for which the piping was designed. The petitioner notes that this amendment also allowed for the removal of pipe whip restraints and jet impingement devices.

According to the petitioner, the Commission acknowledged that the 1987 GDC 4 amendment introduced an inconsistency into the design basis by retaining the large postulated pipe ruptures for containment design, emergency core cooling, and environmental qualification, but allowing an exclusion for the dynamic effects of large postulated pipe ruptures for piping less than or equal to the largest pipe in the reactor coolant system. NEI points out that the Commission stated at that time its intention to address these inconsistencies through a long-term evaluation.

The petitioner contends that improvements in probabilistic fracture mechanics (PFM) have resulted in NRC approval of a more safety-focused

approach for implementing ASME Section XI In-service Inspection requirements, significantly improving worker and public safety. NEI proposes these improved methodologies as the basis for eliminating the inconsistencies introduced in the 1987 amendment. NEI believes insights from these new analyses will provide the basis for further regulatory improvements through the expanded use of PFM and LBB concepts to the large-break loss-of-coolant pipe-break size definition.

The petitioner concludes that the proposed changes would focus design and operational procedures, resources, and practices on the more likely, safety-significant events. NEI argues that the suggested amendments would ultimately result in additional improvements in the protection of public health and safety and restore consistency to a central element of the regulatory system.

#### Proposed Action

The petitioner proposes to amend 10 CFR 50.46 and Appendices A and K to 10 CFR part 50 to change the acceptance criteria for analysis of emergency core cooling systems for light-water nuclear power reactors. NEI wishes to add to the explanation and definition of a loss-of-coolant accident (LOCA) that must be addressed in the evaluation model, an option to the current break size, now defined as "a break equivalent in size to the double-ended rupture of the largest pipe in the reactor system." NEI proposes adding an optional break size that is "up to and including an alternate maximum break size that is approved by the Director of the Office of Nuclear Reactor Regulation (NRR)." The petitioner recommends that this option also be included in Appendix K detailing the features of ECCS Evaluation models, including consideration of the effects of longitudinal splits in the largest pipes, with the split area equal to the cross-sectional area of the largest pipe, or equal to an alternate maximum break area that is approved by the Director of NRR.

#### Rationale

NEI offers the following rationale in support of its petition:

- The operating experience gained from 2500 reactor years of very high safety performance and increases in technical knowledge;
- The Commission's commitment to risk-informed regulation; and
- A range of expected benefits.

#### *Operating Experience and Increased Technical Knowledge*

NEI explains that the petition provides a means for streamlining the regulatory process and improving licensee and NRC focus on matters that have greater safety significance. The petitioner claims that U.S. nuclear power plants have a very high safety performance record and that the insights from probabilistic risk assessments (PRAs) from more than 2500 reactor years of operating experience and from increased technical knowledge, have produced evidence that some systems and design bases events that originally were considered highly important to safety have significantly less importance than were originally thought, and that some systems or events that were not originally considered important to safety are now considered important.

The petitioner states that the large break LOCA is a central element in the design and licensing bases for light water reactors, and that advances in analytic techniques (PFM, LBB, and PRA) demonstrate that a large break LOCA as currently defined is an extremely unlikely event, presenting negligible risk to public health and safety. NEI contends that the changes requested will provide added impetus and direction in the development and approval of the large break LOCA implementation applications, with resulting safety and resource benefits from risk-informing the large break LOCA criterion in the Commission's regulations.

The petitioner states that substantial design, licensing, operational activities and resources are expended in addressing this one extremely unlikely event, the instantaneous double-ended break of the largest pipe. The petitioner believes that it is appropriate to provide an option for a licensee to revise its design and licensing bases to better focus on the more probable equipment failures and events that have greater safety significance.

The petitioner asserts that this petition is a natural extension of current leak-before-break (LBB) methodologies, approved by the NRC in 1987; NEI notes that the LBB acceptance criteria have remained very limiting, and retain conservative margins on leak rate, flaw size, and loads.

#### *Risk-Informed Regulation*

The petitioner cites the 1995 NRC Policy Statement (60 FR 42622; August 16, 1995) formalizing the Commission's commitment to a risk-informed approach to regulation through an expanded use of probabilistic risk

assessment (PRA) to reduce regulatory conservatism: "The use of PRA technology should be increased in all regulatory matters to the extent supported by the state of the art in PRA methods and data, and in a manner that complements the NRC's deterministic approach and supports the NRC's traditional defense-in-depth philosophy."

The petitioner also cites NRC Regulatory Guide 1.174, *An Approach for Using Probabilistic Risk Assessment in Risk-informed Decisions on Plant-Specific Changes to the Current Licensing Basis* to the extent that the guide provides metrics on what constitutes an acceptable change. NEI notes that the technical basis for the petition is the insights and information provided in the area of LBB, PFM, and licensee specific PRAs. NEI expects licensee and generic owners' groups' submittals on large break LOCA applications to be based on these technical insights and information as well as application-specific analyses.

The petitioner assures that the industry, in concert with this petition, will continue to develop the technical work to support the use of alternate-maximum LOCA break size for safety analysis of reactor designs. The petitioner further states industry will start work on the development of specific applications that will be based on the new pipe-break sizes to form the basis of industry and regulatory implementation guidelines.

NEI explains that, if approved, this petition will allow operator and support personnel to focus on safety-significant matters resulting in improved plant reliability, specifically: improved service life, since equipment will not be required to meet unnecessarily harsh testing conditions, such as rapid cold starts and loading sequences; improved reliabilities; reduced wear and tear on safety-significant equipment; and improved training effectiveness, as operations and plant support staff will be focused on the more probable events and will no longer need to focus on compliance with technical specification limits based on margins required for large break LOCAs such as ultimate heat sink temperatures.

#### Expected Benefits

The petitioner lists the following benefits attained through the approval and implementation of the petition:

- Increased plant safety from more realistic technical specification surveillance testing and related requirements, such as diesel generator (DG) start times and ultimate heat sink temperature limits,

- Consistency in analytical assumptions,
- Peaking factor increases,
- Power upratings, and
- Relaxation of post-LOCA sump boron requirements to maintain core subcriticality with all rods out, and requirements for the related potential for sump dilution that could lead to recriticality.

### Scope

The petitioner points out that the petition retains the LOCA as a design basis event, but redefines the maximum break-size that may be used in a design basis evaluation. If a licensee adopts the alternate break-size, the existing large break LOCA analysis will be retained as a historical document, and the plant-specific PRA will continue to include LOCAs of all sizes, including a rupture of the large primary system piping. Moreover, the petitioner continues, a licensee will still retain capability to mitigate the extremely unlikely break of the largest pipe in the reactor system, since most of the major equipment is also needed to mitigate other design basis events. NEI states that the major components of the current ECCS, such as the head pumps (high, intermediate, and low) will be retained.

NEI warns, however, that the system capability and associated requirements and acceptance criteria of these components may be revised, based on the revised maximum LOCA break size, or other design basis accidents, whichever is more limiting. The petitioner states that if the NRC grants the proposed petition, licensees wishing to apply to use the alternative break-size criteria will amend the applicable safety analyses associated with licensee or owners' group applications. The amended analyses will be the basis for the application-specific LOCA-related safety analysis assumptions, including control rod insertion following a LOCA and associated post-LOCA sump boron requirements to maintain core subcriticality, containment sump debris generation, and the ultimate heat sink heat removal requirements.

The petitioner explains that plants requesting approval for use of an alternate maximum break size model will determine the alternate maximum break size by estimating the appropriate initiating event frequencies for LOCA events and the contribution to overall risk of equivalent break sizes greater than or equal to the alternate maximum break size. The petitioner also states that evaluation of the alternate maximum break size will include consideration of defense-in-depth, safety margins, and performance monitoring. The petitioner

states that the risk significance of the changes will be assessed, and such changes will be subject to the change control provisions of 10 CFR 50.59 and may result in a license amendment, if required, in accordance with 10 CFR 50.90.

Finally, the petitioner notes that the proposed amendment may result in changes to containment analyses, including the calculation of peak containment accident pressure, subcompartment pressure transients, containment support system requirements, or the environmental qualification temperature profile from a LOCA. NEI adds that environmental qualification temperature profiles shall continue to consider other design basis breaks in addition to the LOCAs. The petitioner assures that it is not the intent of this rulemaking petition to be the basis for changing containment structural integrity.

### Conclusion

The petitioner asserts the proposed request is consistent with and supports the NRC Strategic and Performance Goals, and the Commission's policy on PRA and risk-informed, performance-based regulation. NEI contends that approval of the petition will improve nuclear safety because a major regulation will be updated to reflect industry experience and improvements in PRAs and engineering knowledge. The petitioner concludes that this petition will result in plant design, operations, activities, and associated regulatory oversight that will be more focused on events that are more probable and of higher safety significance, while reducing unnecessary regulatory burden.

Dated at Rockville, Maryland, this 2nd day of April, 2002.

For the Nuclear Regulatory Commission.

**Annette Vietti-Cook,**

*Secretary of the Commission.*

[FR Doc. 02-8386 Filed 4-5-02; 8:45 am]

**BILLING CODE 7590-01-P**

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 25

[Docket No. NM213; Notice No. 25-02-05-SC]

#### **Special Conditions: Airbus Industrie, Model A340-500 and -600 Series Airplanes; Interaction of Systems and Structure; Electronic Flight Control System, Longitudinal Stability and Low Energy Awareness; and Use of High Incidence Protection and Alpha-floor Systems**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed special conditions.

**SUMMARY:** This action proposes special conditions for the Airbus Industrie Model A340-500 and -600 series airplanes. These airplanes will have novel or unusual design features when compared to the state of technology envisioned in the airworthiness standards for transport category airplanes associated with the systems that affect the structural performance of the airplane; the electronic flight control system (EFCS); and the use of high incidence protection and alpha-floor systems. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for these design features. These proposed special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

**DATES:** Comments must be received on or before May 8, 2002.

**ADDRESSES:** Comments on this proposal may be mailed in duplicate to: Federal Aviation Administration, Transport Airplane Directorate, Attn: Rules Docket (ANM-113), Docket No. NM213, 1601 Lind Avenue SW., Renton, Washington, 98055-4056; or delivered in duplicate to the Transport Airplane Directorate at the above address. All comments must be marked: Docket No. NM213. Comments may be inspected in the Rules Docket weekdays, except Federal holidays, between 7:30 a.m. and 4:00 p.m.

**FOR FURTHER INFORMATION CONTACT:** Tim Backman, FAA, ANM-116, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington, 98055-4056; telephone (425) 227-2797; facsimile (425) 227-1149.

**SUPPLEMENTARY INFORMATION:**