



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, DC 20555 - 0001**

July 18, 2008

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

**SUBJECT: SECURITY AND AIRCRAFT IMPACT RULEMAKING FOR NUCLEAR POWER PLANTS**

Dear Chairman Klein:

During the 554<sup>th</sup> meeting of the Advisory Committee on Reactor Safeguards (ACRS), July 9-11, 2008, we reviewed the following three draft final rules that are part of the final Rulemaking to revise power reactor security requirements: 10 CFR 50.54(hh), "Mitigative Strategies and Response Procedures for Potential or Actual Aircraft Attacks;" 10 CFR 73.54, "Protection of Digital Computer and Communication Systems and Networks;" and 10 CFR 73.58, "Safety/Security Interface Requirements for Nuclear Power Reactors." We also reviewed draft final rule 10 CFR 50.150, "Consideration of Aircraft Impacts for New Nuclear Power Reactor Designs." During our review, we had the benefit of discussions with representatives of the NRC staff and a member of the public. We also had the benefit of the documents referenced.

**RECOMMENDATION AND CONCLUSION**

1. The draft final rules 10 CFR 50.54(hh), 10 CFR 73.54, 10 CFR 73.58, and 10 CFR 50.150 should be approved. We agree that, as described in 10 CFR 50.150, it is appropriate to treat aircraft attacks as beyond-design-basis events.
2. We plan to review the guidance documents associated with these rules.

**DISCUSSION**

Final Rulemaking to Revise Power Reactor Security Requirements

Following the terrorist attacks of September 11, 2001, the NRC conducted a comprehensive review of security requirements given the changing threat environment. By an Order dated February 25, 2002, the Commission required that all operating power reactor licensees develop and adopt protective contingency measures against the threat of an aircraft attack and mitigative strategies to cope with the consequences of such an attack. Three other Orders were issued in the following years to impose additional requirements in the area of physical security.

The final rulemaking will amend the security regulations by incorporating provisions of these Orders as security requirements. Additionally, this rulemaking adds several new requirements and amends some existing requirements. In accordance with the Commission's guidance in the October 31, 2003, Staff Requirements Memorandum, we did not review the elements of the proposed rulemaking that deal with physical security. We have reviewed the elements that deal with mitigative strategies, cyber security, and the safety/security interface.

10 CFR 50.54(hh), "Mitigative Strategies and Response Procedures for Potential or Actual Aircraft Attacks"

By an Order dated February 25, 2002, the Commission required all operating power reactor licensees to develop and adopt protective contingency measures in response to a threat of aircraft attack and mitigative strategies to cope with large fires and explosions resulting from any cause, including beyond-design-basis aircraft impacts. To develop insights into the effects of the impact of a large commercial aircraft on operating power plants, the staff performed pilot studies of representative plants. As the staff continued to review implementation of the Orders, additional information and insights became available that were factored into the rulemaking. These requirements, which are promulgated on the basis of adequate protection of public health and safety and common defense and security, are applicable to all currently operating and future nuclear plants.

Since 2002, we have reviewed the development of these requirements and provided feedback in a number of reports. In our April 24, 2006, report, "Review of Ongoing Security-Related Activities," we concluded that the staff's activities have provided an adequate basis for enhancing security at existing nuclear power plants.

The NRC is now proposing to incorporate into 10 CFR 50.54 (hh) the requirement for contingency and mitigative measures as a condition of license. This new rule would establish the necessary framework for consistent application of Commission requirements for actions to be taken in the event of an aircraft threat. This rule incorporates requirements that we have already reviewed and endorsed. The rule language has appropriate focus on areas of our previous recommendations. Draft final rule 10 CFR 50.54 (hh) should be approved. We intend to review the associated regulatory guidance documents.

10 CFR 73.54, "Protection of Digital Computer and Communication Systems and Networks"

The requirements of 10 CFR 73.54 are designed to provide high assurance that digital computer and communication systems and networks are adequately protected against cyber attacks, up to and including the design-basis threat as required in 10 CFR 73.1(a)(1)(v). This rule would establish requirements for a cyber security program that includes protection, analysis to identify assets to be protected, implementation, risk and modification management, training, and appropriate procedural framework. This rule requires that applicants for an operating or combined license and current operating plant licensees develop and submit a cyber security plan as a license amendment for review and approval by the staff. The cyber security plan is to

address the requirements of this rule, including the development of a defense-in-depth protective strategy and mitigation of the effects of a cyber attack. This rule is a substantial improvement over the requirements imposed by the Orders issued following the terrorist attacks on September 11, 2001. Draft final rule 10 CFR 73.54 should be approved. We have already provided comments on the interim staff guidance and the staff's plan to issue additional regulatory guidance on cyber security in our report of April 29, 2008. We intend to review applicable guidance documents.

#### 10 CFR 73.58, "Safety/Security Interface Requirements for Nuclear Power Reactors"

Draft final rule 10 CFR 73.58 makes explicit the important conjoint requirements that plant activities should not affect security activities adversely and that security activities should not affect plant safety adversely. This rule requires that changes to plant configurations or security be evaluated to identify potential adverse effects on the capability to maintain both safety and security. Interactions between security and safety requirements must be assessed and managed. It is expected that existing configuration management programs would already control these interactions, but the new requirement is justified by the added complexity stemming from the many new security measures introduced by the post-September 11, 2001, security environment. This rule should be approved. We intend to review the associated regulatory guidance documents.

#### 10 CFR 50.150, "Consideration of Aircraft Impacts for New Nuclear Power Reactor Designs"

In our April 24, 2006, report, we noted that the degree to which the risk due to security events can be reduced for existing plants is severely constrained by the cost of modifications in an existing plant. If incorporated into the design before construction and licensing, the cost of reducing the risk due to security events can be substantially reduced. We recommended that the studies performed for existing plants be extended to examine the potential for increasing the robustness of new plants for security events and for including security considerations in the design certification process.

At the direction of the Commission, the staff has performed aircraft impact assessments for four new reactor designs (AP1000, ABWR, ESBWR, and EPR), and an assessment of the US-APWR is under way. In addition, the staff has prepared 10 CFR 50.150, "Consideration of Aircraft Impacts for New Nuclear Power Reactor Designs." This rule would require that all new reactor applicants identify and incorporate design features and functional capabilities that avoid or mitigate, to the extent practical and with reduced reliance on operator actions, the effects of the aircraft impact on core cooling capability, containment integrity, spent fuel cooling capability, and spent fuel pool integrity. A description of how the design features and functional capabilities achieve avoidance or mitigation of the effect of aircraft impact must be provided by the designer or the licensee.

This rule treats impact of a large commercial aircraft on a nuclear reactor as a beyond-design-basis event. We agree with this treatment and the use of the above functional criteria to measure compliance with the rule.

The Statement of Considerations includes the expectation for a “rigorous assessment” to be performed by the designer, and expands on the intended meaning of “avoidance,” “mitigation,” and “to the extent practical.” We agree with the clarifications provided. This rule is responsive to the recommendation in our April 24, 2006, report and will enhance the robustness of new reactors against security threats. This rule should be approved. We intend to review the associated guidance document.

Sincerely,

*/RA/*

William J. Shack  
Chairman

## REFERENCES

1. Final Rule FRN (draft), "10 CFR Parts 50, 52, 72, and 73, [NRC-2008-0019] RIN 3150-AG63, Power Reactor Security Requirements," May 2008.
2. Draft SECY Paper, "Final Rulemaking - Power Reactor Security Requirements (RIN 3150-AG63)."
3. 73 FRN 19444, Power Reactor Security Requirements, Supplemental Proposed Rule, dated April 10, 2008.
4. Integrated Comment Responses Supporting Final Rule: Power Reactor Security Requirements, June 2008.
5. Memorandum dated May 6, 2008, from Michael Case, NRR, to Frank P. Gillespie, ACRS, Subject: Information for the Advisory Committee on Reactor Safeguards Review of Draft Guidance and Final Rulemaking to Amend 10 CFR Parts 50 and 52: Consideration of Aircraft Impacts for New Power Reactor Designs, with enclosures listed below:
  - Commission Paper (draft), "Final Rule – Consideration of Aircraft Impacts for New Nuclear Power Reactor Designs (RIN 3150-AI19);"
  - *Federal Register* Notice (draft), "10 CFR Parts 50 and 52, RIN 3150-AI19, [NRC-2007-0009] Consideration of Aircraft Impacts for New Nuclear Power Reactor Designs;"
  - "Environmental Assessment Supporting Final Rule, 10 CFR Parts 50 and 52 - Consideration of Aircraft Impacts for New Nuclear Power Reactor Designs" (draft), USNRC, April 2008;
  - Draft NEI Guidance Document, dated December 10, 2007, "Methodology for Performing Aircraft Impact Assessments for New Plant Designs," (SECURITY-RELATED INFORMATION - WITHHOLD UNDER 10 CFR 2.390).
6. Analysis of Public Comments on Consideration of Aircraft Impacts for New Nuclear Power Reactor Designs RIN 3150-AI19, June 2008.
7. Report dated April 29, 2008, from William J. Shack, Chairman, ACRS to Dale E. Klein, Chairman, NRC, Subject: Digital Instrumentation and Control Systems Interim Staff Guidance.
8. Report dated April 24, 2006, from Graham B. Wallis, Chairman, ACRS, to Nils J. Diaz, Chairman, NRC, Subject: Review of Ongoing Security Related Activities (OFFICIAL USE ONLY).

9. Staff Requirements Memorandum dated October 31, 2003, Subject: Staff Requirements – Meeting with Advisory Committee on Reactor Safeguards (ACRS), 9:30 a.m., Thursday, October 2, 2003, Commissioners' Conference Room, One White Flint North, Rockville, Maryland (open to public attendance).
10. EA-02-026, "Interim Compensatory Measures Order," issued February 25, 2002.

9. Staff Requirements Memorandum dated October 31, 2003, Subject: Staff Requirements – Meeting with Advisory Committee on Reactor Safeguards (ACRS), 9:30 a.m., Thursday, October 2, 2003, Commissioners' Conference Room, One White Flint North, Rockville, Maryland (open to public attendance).
10. EA-02-026, "Interim Compensatory Measures Order," issued February 25, 2002.

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