NRC NEWS

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Office of Public Affairs Telephone: 301/415-8200

Washington, D.C. 20555-0001 E-mail: opa@nrc.gov

Web Site: http://www.nrc.gov

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NRC PROPOSES ADDING PLANE CRASH SECURITY ASSESSMENTS TO NEW REACTOR DESIGN CERTIFICATION REQUIREMENTS

The U.S. Nuclear Regulatory Commission (NRC) today unveiled the third in a series of major steps to enhance the post-Sept. 11 security of nuclear power plants. The agency proposal would require each applicant for a new reactor design to assess how the design, to the extent practicable, can have greater built-in protections to avoid or mitigate the effects of a large commercial aircraft impact, making them even more resistant to an attack.

The Commission emphasized that seeking security assessments and examining how designs can be improved is consistent with the traditional approach the NRC has taken to so-called "beyond design basis events." These are events with conditions exceeding the stresses imposed by the "design basis event" conditions which require plants to be brought to a safe shutdown. Design basis event conditions include large pipe breaks, fires, earthquakes, hurricanes, tornados and floods. Assessing a new reactor design in the early stages can enable modifications or additional features to reduce the need for human intervention in the event of an airplane crash.

The NRC will seek comment from the public, the nuclear industry and the technical community on the proposal. The proposed rule, which will replace an NRC staff proposal, will be available for comment later this year.

In 1985 the NRC said it expected reactor designers to build in more safety features to cope with beyond design basis severe accidents as reactor designs advanced. However, it did not require specific features, leaving that to plant designers. In the subsequent decades, reactor designs submitted to and approved by the Commission have achieved substantial safety improvements.

The proposed rule, if adopted, will affect new applicants for reactor design certification and applicants for a combined license that does not reference a certified design. It would require applicants to describe how the design, to the extent practicable, can avoid or mitigate the effects of an aircraft crash with reduced reliance on actions by reactor operators. That approach, the Commission found, "allows the designers to evaluate potential competing technical factors, such as the response to earthquakes and passive safety systems, while at the same time addressing aircraft impacts." The Commission said the assessments should look at areas such as core cooling capability, containment integrity and spent fuel pool integrity.

"This is the most recent step in a broad, proactive effort to improve the security of reactors initiated by the NRC after Sept. 11, 2001," said NRC Chairman Dale Klein. "We need more technical analysis to understand how to address this. At the end of the road there may not be any changes necessary, but there also may be additional things that can be done."

"This proposal gives us the chance to assess and make practicable changes to new reactor designs early in the design process," he said. Klein added that even for plants already certified it would be "in the interest of both the designers and their clients to adopt these changes at the design stage."

The agency in January approved a final rule enhancing security regulations governing the design basis threat (DBT) against which nuclear power plants must be able to defend with high assurance using their own capabilities. The Commission decided not to include large commercial aircraft in the DBT because the weaponry needed to defend against such a threat, surface-to-air missiles or fighter aircraft, cannot be possessed by the private security forces that protect commercial nuclear plants. The responsibility for such a threat belongs with the U.S. government, which has taken numerous steps to prevent terrorist use of large commercial aircraft since 9-11.

In another step to address aircraft impact, building on a directive put in place in February 2002, the agency told reactor operators to develop strategies to mitigate the impact of large fires and explosions potentially caused by an aircraft impact. Comments on a proposed rule codifying that step for both existing and new reactors are being examined by the NRC staff in preparation for a final rule for Commission consideration.

The third major step taken today is the proposal on security assessments for new reactor designs.

In addition to design and mitigative measures for reactors, the NRC also works closely with other federal agencies such as NORAD, the Federal Aviation Administration and the intelligence community to provide layered protection. The NRC has an agreement with NORAD that enables reactor operators to learn rapidly of imminent aviation threats and swiftly place the reactor in a safe state.

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