

United States Nuclear Regulatory Commission
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NRC CONSIDERS CHANGES TO REGULATIONS ON INADVERTENT CRITICALITY REQUIREMENTS FOR NUCLEAR POWER PLANTS

The Nuclear Regulatory Commission staff has proposed amending its regulations to provide operators of nuclear power plants greater flexibility in demonstrating their ability to ensure against an inadvertent criticality involving fresh fuel.

The new rule would provide operators of nuclear plants three ways of meeting NRC requirements designed to safeguard against a criticality incident with new fuel being handled or stored outside the reactor. Operators could install criticality monitors in areas where they are required; demonstrate through analyses and procedural controls that adequate measures have been taken to prevent inadvertent criticality incidents; or, elect to comply with certain requirements that will be incorporated into NRC regulations.

The NRC requires that its licensees authorized to possess certain quantities of special nuclear material maintain in each area where these materials are handled, used, or stored, a monitoring system capable of detecting an inadvertent criticality. The purpose of the requirement is to ensure that if a criticality inadvertently does occur, personnel would be alerted and would take appropriate action.

Most nuclear power plants were granted exemptions to this requirement during their construction under the terms of the licenses issued to them that permitted the receipt of the initial fuel load for their reactors. Sometimes, these exemptions were not explicitly renewed when operating licenses were issued.

NRC anticipated that the requirements for criticality monitors, designed for fuel fabrication facilities where greater opportunity exists for an inadvertent criticality, might be unnecessary at power reactors because fresh fuel assemblies cannot go critical unless placed in a special configuration in the presence of a moderator. Further, facilities where fresh fuel is stored and handled and water-filled pools where spent fuel is stored are specially designed to prevent inadvertent criticality. Hence, because it considered an inadvertent criticality unlikely, NRC staff has historically granted exemptions to its criticality monitoring requirements for nuclear power plant operators who demonstrated that certain criteria related to procedures, plant design, and fuel enrichment were being met.

The large number of exemption requests it has processed has led the NRC staff to the

conclusion that its regulations should be amended to provide flexibility for its power reactor licensees without the necessity of going through the exemption process.

Interested persons are invited to submit written comments on the proposed changes to the Secretary, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001, Attention: Rulemaking and Adjudications Staff, within 75 days after publication of a Federal Register notice. This notice is expected to be published shortly.

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