



NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

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No. 10-001

January 4, 2010

NRC APPROVES FINAL RULE ON NUCLEAR REACTOR VESSEL PROTECTION REQUIREMENTS

The Nuclear Regulatory Commission approved a final rule to provide alternate requirements for protection against pressurized thermal shock events in nuclear power plant reactor vessels. Updated analysis methods allow pressurized-water reactor (PWR) licensees to better account for some effects of aging on their reactor vessels.

The rule increases the realism of calculations used to examine a PWR's susceptibility to a phenomenon known as pressurized thermal shock (PTS). PTS can occur under some scenarios that rapidly cool the internal surface of the reactor vessel while the vessel is pressurized. This would subject the steel to substantial thermal stresses, which could lead to cracking and potential failure of the vessel. The other type of U.S. nuclear power plant design, a boiling water reactor, is not susceptible to PTS.

The rule allows licensees of operating PWRs to voluntarily adopt a more realistic technical approach for determining the probability of vessel failure during a PTS event. This revised approach was derived using data from research on currently operating PWRs. The data indicate the overall risk of PTS-induced vessel failure after 60 years of reactor operation is much lower than previously estimated.

If a licensee chooses to adopt the new approach, the rule would require PWR operators to perform detailed analyses of both reactor vessel surveillance data and the results of regular reactor vessel inspections. If the analyses' findings exceed certain limits, the operator must take steps to either limit the reactor vessel's exposure to neutron radiation (which can make the vessel brittle) or determine how the reactor's systems can be modified to prevent PTS-induced vessel failure.

The rule is published in today's *Federal Register* and will be available on the NRC's Web site by entering ML083470915 at this address: <http://adamswebsearch.nrc.gov/dologin.htm>. For more information on the rule, contact NRC staff members Steward Schneider (telephone 301-415-4123, e-mail. steward.schneider@nrc.gov), Barry Elliot (telephone 301-415-2709, e-mail barry.elliott@nrc.gov), or Mark Kirk (telephone 301-415-6015, e-mail mark.kirk@nrc.gov).

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