

issued under this part, a combined license issued under part 52 of this chapter, or the termination of a license issued under 10 CFR part 54, whichever is later. Records of changes in procedures and records of tests and experiments must be maintained for a period of 5 years.

[64 FR 53613, Oct. 4, 1999, as amended at 66 FR 64738, Dec. 14, 2001; 72 FR 49500, Aug. 28, 2007]

**§ 50.60 Acceptance criteria for fracture prevention measures for lightwater nuclear power reactors for normal operation.**

(a) Except as provided in paragraph (b) of this section, all light-water nuclear power reactors, other than reactor facilities for which the certifications required under § 50.82(a)(1) have been submitted, must meet the fracture toughness and material surveillance program requirements for the reactor coolant pressure boundary set forth in appendices G and H to this part.

(b) Proposed alternatives to the described requirements in Appendices G and H of this part or portions thereof may be used when an exemption is granted by the Commission under § 50.12.

[48 FR 24009, May 27, 1983, as amended at 50 FR 50777, Dec. 12, 1985; 61 FR 39300, July 29, 1996]

**§ 50.61 Fracture toughness requirements for protection against pressurized thermal shock events.**

(a) *Definitions.* For the purposes of this section:

(1) *ASME Code* means the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section III, Division I, "Rules for the Construction of Nuclear Power Plant Components," edition and addenda and any limitations and modifications thereof as specified in § 50.55a.

(2) *Pressurized Thermal Shock Event* means an event or transient in pressurized water reactors (PWRs) causing severe overcooling (thermal shock) concurrent with or followed by significant pressure in the reactor vessel.

(3) *Reactor Vessel Beltline* means the region of the reactor vessel (shell material including welds, heat affected zones and plates or forgings) that di-

rectly surrounds the effective height of the active core and adjacent regions of the reactor vessel that are predicted to experience sufficient neutron radiation damage to be considered in the selection of the most limiting material with regard to radiation damage.

(4)  $RT_{NDT}$  means the reference temperature for a reactor vessel material, under any conditions. For the reactor vessel beltline materials,  $RT_{NDT}$  must account for the effects of neutron radiation.

(5)  $RT_{NDT(U)}$  means the reference temperature for a reactor vessel material in the pre-service or unirradiated condition, evaluated according to the procedures in the ASME Code, Paragraph NB-2331 or other methods approved by the Director, Office of Nuclear Reactor Regulation or Director, Office of New Reactors, as appropriate.

(6) *EOL Fluence* means the best-estimate neutron fluence projected for a specific vessel beltline material at the clad-base-metal interface on the inside surface of the vessel at the location where the material receives the highest fluence on the expiration date of the operating license.

(7)  $RT_{PTS}$  means the reference temperature,  $RT_{NDT}$ , evaluated for the EOL Fluence for each of the vessel beltline materials, using the procedures of paragraph (c) of this section.

(8) *PTS Screening Criterion* means the value of  $RT_{PTS}$  for the vessel beltline material above which the plant cannot continue to operate without justification.

(b) *Requirements.* (1) For each pressurized water nuclear power reactor for which an operating license has been issued under this part or a combined license issued under Part 52 of this chapter, other than a nuclear power reactor facility for which the certification required under § 50.82(a)(1) has been submitted, the licensee shall have projected values of  $RT_{PTS}$  or  $RT_{MAX-X}$ , accepted by the NRC, for each reactor vessel beltline material. For pressurized water nuclear power reactors for which a construction permit was issued under this part before February 3, 2010 and whose reactor vessel was designed and fabricated to the 1998 Edition or earlier of the ASME Code, the projected values must be in accordance