susceptible to outside surface attack, require surface examination each interval, in the same sequence, to the extent practical, over the lifetime of the item. The plant-specific review shall be updated each interval. The requirements of IWB-2411 shall be met. Acceptance standards shall be in accordance with IWB-3514. For any socket weld connections identified as susceptible to thermal fatigue, VT-2 visual examination shall be performed at operating pressure during each refueling outage. Contributors to outside surface attack include proximity to nearby leak paths, proximity to chloride-bearing materials, existence of moisture- or salt-laden atmosphere, and existence of insulation or other coating or cover that traps moisture. Specific outside surface attack susceptibility criteria are as follows:

(1) austenitic stainless steel base metal, welds, or heat-affected zone (HAZ); operating temperature greater than 150°F (65°C); and piping outside surface within five pipe diameters of a probable leak path (e.g., valve stem) and covered with nonmetallic insulation not in compliance with U.S. NRC Regulatory Guide 1.36 (e.g., chloride content) or equivalent requirements

(2) austenitic stainless steel base metal, welds, or HAZ and piping outside surface exposed to wetting from a concentrated chloride-bearing environment (e.g., seawater, brackish water, brine) or

(3) items identified as susceptible to any mechanisms of outside surface attack other than external chloride stress corrosion cracking based on a review of plant experience and plant-specific processes and programs addressing chlorides and other contaminants

(e) For PWR stainless steel residual and regenerative heat exchangers, in lieu of the requirements of Examination Categories B-B, B-D, and B-J, VT-2 visual examinations may be performed in accordance with the following:

(1) These alternative examination requirements shall not be applied to any heat exchanger, nor to any heat exchanger design or configuration, that has experienced a through-wall leak, such as heat exchangers with an inner shell (inner barrel). The Owner shall review industry experience to determine which heat exchanger designs or conf ed, it shall 000. Any subsequent use of these alternative examination requirements shall then be discontinued. The affected heat exchanger and others of the same design or configuration shall be examined in accordance with (a).

r_o = nozzle outer radius, in. (mm)
r_i = nozzle inner radius, in. (mm)

(2) Application of these alternative examination requirements is limited to those welds that are part of the as-received heat exchanger assembly. The regenerative heat exchanger assembly may be formed from multiple smaller heat exchanger subcomponents connected by sections of piping. All of the smaller heat exchanger subcomponents and the connecting piping are within the boundary of the heat exchanger assembly.

(3) All welds, other than reinforcing plate welds, shall have received at least one volumetric examination. The preservice or Construction Code volumetric examination may be used to meet this requirement. Reinforcing plate welds shall have received at least one surface examination.

(4) The component shall be VT-2 visually examined for evidence of leakage while undergoing the system leakage test as required by Examination Category B-P, to be performed every refueling outage. IWB-3522 shall be met.

(f) For BWRs, in lieu of examining all nozzles, at least 25% of nozzle inner radii and nozzle-to-shell welds, including at least one nozzle for each system and nominal pipe size, may be examined for Table IWB-2500-1 (B-D), Item Nos. B3.90 and B3.100, provided the following conditions are met:

(1) The nozzles are not feedwater nozzles or control rod drive return line nozzles.

(2) The provisions of Appendix VIII are used for examinations.

(3) The maximum RPV heatup and cooldown rates are limited to less than 115°F/hr (64°C/h).

(4) For recirculation inlet nozzles

$$(pr/t)/C_{RPV} \le 1.15$$

where

C_{RPV} = 19,332 (for U.S. Customary units) or 133.29 (for SI units)
p = the RPV normal operating pressure, psi (MPa)
r = the RPV inner radius, in. (mm)
t = the RPV wall thickness, in. (mm)

(5) For recirculation inlet nozzles

$$\left[p\left(r_o^2 + r_i^2\right)/\left(r_o^2 - r_i^2\right)\right]/C_{NOZZLE} \le 1.47$$

where

C_{NOZZLE} = 1,637 (for U.S. Customary units) or 11.29 (for SI units)

For definitions of p, ~~r, and t~~, see (4).

(6) For recirculation outlet nozzles

$$(pr/t)/C_{RPV} \le 1.15$$

where

C_{RPV} = 16,171 (for U.S. Customary units) or 111.50 (for SI units)

For definitions of p, r, and t, see (4).

(7) For recirculation outlet nozzles

$$\left[p\left(r_o^2 + r_i^2\right)/\left(r_o^2 - r_i^2\right)\right]/C_{NOZZLE} \le 1.59$$

where

C_{NOZZLE} = 1,977 (for U.S. Customary units) or 13.63 (for SI units)

For definitions of p, r, and t, see (4).

(8) Fluence levels do not exceed 1×10^{17} n/cm^2 on [illegible] component.

For definitions of r_o and r_i, see (5)

(9) The total number of heatup and cooldown cycles from plant startup for the component will not exceed 40 by the end of the interval. A cycle consists of both a heatup and a cooldown.

(g) For BWRs, a VT-1 visual examination may be performed in lieu of volumetric examination for Table IWB-2500-1 (B-D), Item No. B3.100, provided the conditions (f)(1) through (f)(7) are met.