

## *IWB-5220 System Leakage Test*

### **IWB-5221 Pressure**

(a) For portions of Class 1 safety injection systems that are continuously pressurized during an operating cycle, the pressure associated with a statically-pressurized passive safety injection system of a pressurized water reactor may be used as the test pressure.

(b) For all other systems, the system leakage test shall be conducted at a pressure not less than the pressure corresponding to 100% rated reactor power.

(c) The system test pressure and temperature shall be attained at a rate in accordance with the heat-up limitations specified for the system.

### **IWB-5222 Boundaries**

(a) The pressure retaining boundary during the system leakage test shall correspond to the reactor coolant boundary, with all valves in the position required for normal reactor operation startup. The visual examination shall, however, extend to and include the second closed valve at the boundary extremity.

(b) The Class 1 pressure retaining boundary which is not pressurized when the system valves are in the position required for normal reactor startup shall be pressurized and examined at or near the end of the inspection interval. This boundary may be tested in its entirety or in portions and testing may be performed during the testing of the boundary of (a).

(1) For portions of Class 1 vent, drain, and test piping between the first and second isolation devices that normally remain closed during plant operation, only the boundaries of (a) shall apply.

(2) For portions of the Class 1 boundary between the first and second isolation valves in the injection and return path of standby safety systems, the system leakage test may be conducted by pressurization of the Class 1 volume, using the Class 2 safety system to pressurize the volume. Such alternative tests shall be performed each inspection interval. The system leakage test shall be conducted using the pressure associated with the Class 2 system function that provides the highest pressure between the Class 1 isolation valves.

## ARTICLE IWB-5000 SYSTEM PRESSURE TESTS

### IWB-5200 SYSTEM TEST REQUIREMENTS

#### IWB-5210 TEST

(a) Pressure-retaining components shall be tested at the frequency stated in, and visually examined by the method specified in Table IWB-2500-1 (B-P).

(b) The system pressure tests and visual examinations shall be conducted in accordance with Article IWA-5000 and this Article. The contained fluid in the system shall serve as the pressurizing medium.

(c) As an alternative to (b), a BWR Class 1 system leakage test following repair/replacement activities may be conducted at a test pressure of at least 87% of the pressure corresponding to 100% rated reactor power.

(1) This alternative pressure may not be used to satisfy the requirements of Table IWB-2500-1 (B-P).

(2) This alternative pressure may not be used to satisfy the pressure test requirements of IWA-4540 following repair/replacement activities on the reactor vessel.

#### IWB-5220 SYSTEM LEAKAGE TEST

##### (17) IWB-5221 Pressure

(a) For portions of Class 1 safety injection systems that are continuously pressurized during an operating cycle, the pressure associated with a statically pressurized passive safety injection system of a pressurized water reactor may be used as the test pressure.

(b) For all other systems, the system leakage test shall be conducted at a pressure not less than the pressure corresponding to 100% rated reactor power.

(c) The system test pressure and temperature shall be attained at a rate in accordance with the heat-up limitations specified for the system.

(d) As an alternative to (a) above, a BWR Class 1 system leakage test following repair/replace activities may be conducted at a test pressure of at least 87% of the pressure corresponding to 100% rated reactor power.

(1) This alternative pressure may not be used to satisfy the requirements of Table IWB-2500-1 (B-P).

(2) This alternative pressure may not be used to satisfy the pressure test requirements of IWA-4540 following repair/replacement activities on the reactor vessel.

##### (17) IWB-5222 Boundaries

(a) The pressure-retaining boundary during the system leakage test shall correspond to the reactor coolant boundary, with all valves in the position required for

normal reactor operation startup. The visual examination shall, however, extend to and include the second closed valve at the boundary extremity.

(b) The Class 1 pressure-retaining boundary which is not pressurized when the system valves are in the position required for normal reactor startup shall be pressurized and examined at or near the end of the inspection interval. This boundary may be tested in its entirety or in portions and testing may be performed during the testing of the boundary of (a).

(1) For portions of Class 1 vent, drain, and test piping between the first and second isolation devices that normally remain closed during plant operation, only the boundaries of IWB-5221(a) shall apply.

(2) For portions of the Class 1 boundary between the first and second isolation valves in the injection and return path of standby safety systems, the system leakage test may be conducted by pressurization of the Class 1 volume, using the Class 2 safety system to pressurize the volume. Such alternative tests shall be performed each inspection interval. The system leakage test shall be conducted using the pressure associated with the Class 2 system function that provides the highest pressure between the Class 1 isolation valves.

#### IWB-5230 HYDROSTATIC TEST

(a) The hydrostatic test may be conducted at any test pressure specified in Table IWB-5230-1 corresponding to the selected test temperature, provided the requirements of IWB-5240 are met for all ferritic steel components within the boundary of the system (or portion of system) subject to the test pressure (see IWA-5245).

(b) Whenever a hydrostatic test is conducted in which the reactor vessel contains nuclear fuel and the vessel is within the system test boundary, the test pressure shall not exceed the limiting conditions specified in the plant Technical Specifications.

#### IWB-5240 TEMPERATURE

(a) The minimum test temperature for either the system leakage or system hydrostatic test shall not be lower than the minimum temperature for the associated pressure specified in the plant Technical Specifications.

(b) The system test temperature shall be modified as required by the results obtained from each set of material surveillance specimens withdrawn from the reactor vessel during the service lifetime.