

**Approval Date: July 5, 2005**

*The ASME Boiler and Pressure Vessel Standards Committee took action to eliminate Code Case expiration dates effective March 11, 2005. This means that all Code Cases listed in this Supplement and beyond will remain available for use until annulled by the ASME Boiler and Pressure Vessel Standards Committee.*

**Case N-722**  
**Additional Examinations for PWR Pressure Retaining**  
**Welds in Class 1 Components Fabricated With Alloy**  
**600/82/182 Materials**  
**Section XI, Division 1**

*Inquiry:* What examinations, in addition to those of Table IWB-2500-1, may be performed to provide additional detection capability for pressure boundary leakage in pressurized water reactor plants having pressure re-

taining partial or full penetration welds in Class 1 components fabricated with Alloy 600/82/182 material?

*Reply:* It is the opinion of the Committee that in addition to the examination requirements of Table IWB-2500-1 the additional examinations of Table 1 shall be performed for pressurized water reactor plants having partial or full penetration welds in Class 1 components fabricated with Alloy 600/82/182 material.

The Committee's function is to establish rules of safety, relating only to pressure integrity, governing the construction of boilers, pressure vessels, transport tanks and nuclear components, and inservice inspection for pressure integrity of nuclear components and transport tanks, and to interpret these rules when questions arise regarding their intent. This Code does not address other safety issues relating to the construction of boilers, pressure vessels, transport tanks and nuclear components, and the inservice inspection of nuclear components and transport tanks. The user of the Code should refer to other pertinent codes, standards, laws, regulations or other relevant documents.

TABLE 1  
EXAMINATION CATEGORIESCLASS 1 PWR COMPONENTS CONTAINING ALLOY 600/82/182<sup>1</sup>

Item No.	Parts Examined <sup>2</sup>	Examination Requirements	Examination Method <sup>3, 4, 5</sup>	Acceptance Standard	Extent and Frequency of Examination		Deferral of Inspection to End of Interval
					First Inspection Interval	Successive Inspection Intervals	
Reactor Vessel <sup>2</sup>							
B15.80	RPV bottom-mounted instrument penetrations	All penetrations	Visual, VE	IWB-3522	Every other refueling outage	Same as for 1st interval	Not permissible
B15.90	Hot leg nozzle-to-pipe connections	All connections	Visual, VE	IWB-3522	Each refueling outage	Same as for 1st interval	Not permissible
B15.95	Cold leg nozzle-to-pipe connections	All connections	Visual, VE	IWB-3522	Once per interval <sup>6, 7</sup>	Same as for 1st interval	Not permissible
B15.100	Instrument connections	All connections	Visual, VE	IWB-3522	Once per interval <sup>6, 7</sup>	Same as for 1st interval	Not permissible
Steam Generators							
B15.110	Hot leg nozzle-to-pipe connections	All connections	Visual, VE	IWB-3522	Each refueling outage	Same as for 1st interval	Not permissible
B15.115	Cold leg nozzle-to-pipe connections	All connections	Visual, VE	IWB-3522	Once per interval <sup>6, 7</sup>	Same as for 1st interval	Not permissible
B15.120	Bottom channel head drain tube penetration	All penetrations	Visual, VE	IWB-3522	Once per interval <sup>6, 7</sup>	Same as for 1st interval	Not permissible
B15.130	Primary side hot leg instrument connections	All connections	Visual, VE	IWB-3522	Each refueling outage	Same as for 1st interval	Not permissible
B15.135	Primary side cold leg instrument connections	All connections	Visual, VE	IWB-3522	Once per interval <sup>6, 7</sup>	Same as for 1st interval	Not permissible
Pressurizer							
B15.140	Heater penetrations	All penetrations	Visual, VE	IWB-3522	Each refueling outage	Same as for 1st interval	Not permissible
B15.150	Spray nozzle-to-pipe connections	All connections	Visual, VE	IWB-3522	Each refueling outage	Same as for 1st interval	Not permissible
B15.160	Safety and relief nozzle-to-pipe connections	All connections	Visual, VE	IWB-3522	Each refueling outage	Same as for 1st interval	Not permissible
B15.170	Surge nozzle-to-pipe connections	All connections	Visual, VE	IWB-3522	Each refueling outage	Same as for 1st interval	Not permissible
B15.180	Instrument connections	All connections	Visual, VE	IWB-3522	Each refueling outage	Same as for 1st interval	Not permissible
B15.190	Drain nozzle-to-pipe connections	All connections	Visual, VE	IWB-3522	Each refueling outage	Same as for 1st interval	Not permissible
Piping							
B15.200	Hot leg instrument connections	All connections	Visual, VE	IWB-3522	Each refueling outage	Same as for 1st interval	Not permissible
B15.205	Cold leg instrument connections	All connections	Visual, VE	IWB-3522	Once per interval <sup>6, 7</sup>	Same as for 1st interval	Not permissible
B15.210	Hot leg full penetration welds	All welds	Visual, VE	IWB-3522	Each refueling outage	Same as for 1st interval	Not permissible
B15.215	Cold leg full penetration welds	All welds	Visual, VE	IWB-3522	Once per interval <sup>6, 7</sup>	Same as for 1st interval	Not permissible

TABLE 1 EXAMINATION CATEGORIES (CONT'D)

## NOTES:

- (1) Alloy 600/82/182 are equivalent to UNS N06600 (SB-163, SB-166, SB-167, SB-168 and SB-564), UNS N06082 (SFA 5.14 ERNiCr-3) and UNS W86182 (SFA 5.11 ENiCrFe-3).
- (2) The reactor vessel closure head is not addressed in this Case.
- (3) The Visual Examination (VE) performed on Alloy 600/82/182 components for evidence of pressure boundary leakage and corrosion on adjacent ferritic steel components shall consist of the following:
  - (a) A direct VE of the bare-metal surface performed with the insulation removed. Alternatively, the VE may be performed with insulation in place using remote visual inspection equipment that provides resolution of the component metal surface equivalent to a bare-metal direct VE.
  - (b) The VE may be performed when the system or component is depressurized.
  - (c) The direct VE shall be performed at a distance not greater than 4 ft (1.2 m) from the component and with a demonstrated illumination level sufficient to allow resolution of lower case characters having a height of not greater than 0.105 in (2.7 mm).
- (4) Personnel performing the VE shall be qualified as VT-2 visual examiners and shall have completed a minimum of four (4) hours of additional training in detection of borated water leakage from Alloy 600/82/182 components and the resulting boric acid corrosion of adjacent ferritic steel components.
- (5) An ultrasonic examination, performed from the component inside or outside surface in accordance with the requirements of Table IWB-2500-1 and Appendix VIII (1995 Edition with the 1996 Addenda or later) shall be acceptable in lieu of the VE requirement of this table.
- (6) VE shall be performed in accordance with the schedule in IWB-2400.
- (7) The detection of evidence of pressure leakage at a VE location shall require the VE of all components within the Examination Item No. prior to reactor startup. These additional VEs shall not affect the original VE schedule of the components within the Examination Item No.