

- 4) When weld repairs are performed without complete removal of the defect(s), this shall be noted on the Form R-1 in the description of the work. The "R" Stamp Holder performing the weld repairs shall provide detailed information on the Form R-1, describing the method and extent of repair and include the specific location of the repair on the item.
- 5) The interval to either re-inspect or remove the item from service for repair shall be determined based on a risk-based inspection program developed and implemented as required by Paragraph 3.3.4.8. The inspection interval shall not exceed the remaining life of the item, and shall be documented on the FFSA Form and in the Remarks section of the Form R-1. The FFSA Form shall be affixed to the Form R-1 when weld repairs are performed in NBIC Part 3, 3.3.4.8.
- 6) A copy of the completed Form R-1 with the completed FFSA Form attached may be registered with the National Board, and when required, filed with the Jurisdiction where the item was installed.

### 3.3.5 REPAIR OF ASME SECTION VIII, DIVISION 2 OR 3, PRESSURE VESSELS

#### 3.3.5.1 SCOPE

The following requirements shall apply for the repair of pressure vessels constructed to the requirements of Section VIII, Division 2 or 3, of the ASME Code.

#### 3.3.5.2 REPAIR PLAN

The repair plan shall be prepared by the owner, and shall include a detailed description of the repair, the extent of the repair, and the method of repair.

**Rational:** An effort to address many jurisdictions and repair organizations concerns with the tube plugging of firetube boilers and procedures that are performed on a continuous basis and to assist in unifying basic requirements following guidelines of the NBIC.

Tube plugging is presently being performed using various processes such as welding, and mechanical methods such as driving and expanding to existing tubes (sleeved or un-sleeved) or tube sheet holes when tubes are removed.

The Task Group considered the scope of the NBIC should only address the repairs that pertain to replacement of tubing or when tubing involves welding in its repair method. The task group felt that the plugging of a tube or tubes in a firetube boiler is a deviation from its original operating parameters and the manufacturer's original design. The NBIC should not address mechanical repair methods, and could not safely determine a repair procedure or process when the various effects on the pressure boundaries, heat transfer and byproducts of combustion are unknown. The Task Group endorse the use of should vs. shall as documented so cases where it is not necessary to consult the manufacturer, particularly if you have an experienced and knowledgeable R stamp holder who can make the necessary design considerations (both structural and performance related). The original Manufacturer may not even exist in some cases.

### Section 3.3.4.9 TUBE PLUGGING IN FIRETUBE BOILERS

- a) Plugging of firetubes in a firetube boiler is not recommended, but the practice is not prohibited. There may be cases where replacement of a firetube is not practical at the time a defective firetube is detected. In those cases, with acceptance of the Inspector and, when required, the Jurisdiction, the tube may be plugged. The boiler may be returned to service for a period of time agreed-upon by the Inspector and, when required, the Jurisdiction, at the end of which the tube shall be replaced.
- b) Plugs may be held in place by mechanical means or by welding.
- c) Based on an evaluation by the "R" Certificate Holder performing the repair and with acceptance by the Inspector and, when required, the Jurisdiction, plugs held in place by welding may be installed by welding the plug to the tube, to the tube sheet, or a combination of both.
- d) Welding and material shall be in accordance with the original code of construction or as noted in the applicable sections of the NBIC Part 3.
- e) The Form R-1 shall be completed for plugging of firetubes whether using plugs held in place by mechanical means or by welding.

. The use of plugs held in place by mechanical means shall be noted in the remarks section of the Form R-1. The agreed upon duration before replacement of the plugged tube shall be noted in the remarks section of the Form R-1.