



**THE
NATIONAL
BOARD**
OF BOILER AND
PRESSURE VESSEL
INSPECTORS

SUBGROUP ON LOCOMOTIVES

AGENDA

*Meeting of November 9-10, 2009
Williams, AZ*

The National Board of Boiler & Pressure Vessel Inspectors
1055 Crupper Avenue
Columbus, Ohio 43229-1183
Phone: (614)888-8320
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Members present: Schueler, Jackson, Scerbo, Moedinger, Withuhn, Conrad, Lee, Griner, Jackson, Reetz, Butler

Agenda

- 1. Adoption of Agenda**
- 2. Announcements**
- 3. Minutes of previous meeting**
- 4. Errata -**
- 5. NBIC negative votes**
- 6. Technical Library Update**
- 7. Old Business**

Discussion and Progress Report: a general discussion ensued in the ESC meeting regarding staybolt and flue tools; It was generally agreed that emphasis should be on the application and not the tools; Staybolt material and application was discussed and it was decided that this may be a subject that can be included in the NBIC; Secretary will put it in the NBIC agenda; This item was not officially opened so the secretary is removing it from the ESC agenda; nothing new as of 11/08; Dick Stone will make an initial draft for 11/09 meeting, as of 3/09; no discussion 11/09

Discussion and Progress Report: Boiler tube seal welding; NB philosophy has changed to allow more explanatory items in the NBIC; to that end it was agreed to include the text from the current ASME Section I on flue application; a submission will be prepared for the 11/07 meeting; nothing new as of 11/08; Dick Stone will draft an initial document for 11/09 meeting, as of 3/09; no discussion 11/09

Discussion and Progress Report: FRA inspector class. None scheduled for 2005. Nothing new as of 11/05; Rob Castiglione indicated the interest of FRA for recurring training for its inspectors as of 3/06; no report as of 11/06; discussion and recommendations for future training as of 3/07; class set for week of 4 May 2008 as of 11/07; nothing new as of 3/08; Nothing new as of 11/08; Nothing new as of 3/09; none scheduled for 2010 as of 11/09;

#09-xxxx **Discussion and Progress Report:** Evaporation rates for steam locomotive boilers
Table S1.6 Minimum Pounds of Steam per Hour per Square Foot of Heating Surface for Steam Locomotive Boiler Safety Relief Valve Capacity
Firebox heating surface – hand fired 8, stoker fired 10, oil fired 14
Flue heating surface (area of waterside of flues) – hand fired 5, stoker fired 7, oil fired 8
Superheater heating surface (area of pressure side of superheater elements in locomotives with no valve between the boiler and the superheaters) – hand fired 5, stoker fired 7, oil fired 8;

Insert this as a new Inspection Zone under Part 2, S1.6 as action #08-xxxx; **This is NOT included in the “Draft 2009 Addendum Cycle A” , with comments due by 8 December 2008;**

Action taken at 3/08 meeting: Item was resubmitted; Not on January 2009 NBIC committee agenda; Robin will make sure this gets a number as of 3/09;

Discussion and Progress Report: Recommended practice issues – items to be considered; Prioritization;

Results of committee and guest poll:

1. Unqualified repair personnel & organizations – Yuill, McCormack

2. Standards for boiler surveys - Butler
 3. Wrong materials used – all applications - Jackson
 4. Riveting practices – fit up, prep, eccentric holes & tapers - Stone
 5. Welding seams and rivets to stop leaks - Griner
 6. Head of flexible staybolt welded to rusted off remnant of old sleeve - Stone
 7. Understanding of stresses that cause staybolt failure - Moedinger
 8. Material documentation - Jackson
 9. Taking boiler UT readings only at the minimum requirement - Butler
 10. Welding – weld caps to sleeves - Franzen
 11. Welding by unqualified personnel - Griner
 12. Full penetration welded bolt countersink prep - Janssen
 13. Improper threaded staybolt application – overdriving, oil on threads, no bucking - Moedinger
 14. Improper flue application – over rolling, incorrect type expanders – Conrad, Lee
 15. Seal welding over oily surfaces - Janssen
 16. Extent of pad welding – too much - Griner
 17. Materials and skills not up to any standard - Jackson
- Nothing new as of 11/08; assigned tasks at 3/09 meeting

#09-xxxx Discussion and Progress Report: Insert in the flue section of Part 3, S1.2.9.8, the following from BLW Standard Practice sheet 1-14A – *All flues smaller than 3”OD shall be rolled and beaded or rolled and seal welded on the firebox end, and at least one in ten at the front flue sheet end. All flues 3” OD and larger shall be rolled and beaded or rolled and seal welded at both ends and all adjacent flues smaller than 3” OD that are within the large flue pack shall be rolled and beaded or rolled and seal welded at both ends. At least one in ten of the remaining flues smaller than 3” OD shall be beaded or seal welded on the front flue sheet, in addition to rolling. Where less than all flues are seal welded or beaded on the front flue sheet, those seal welded or beaded shall be distributed as evenly as practicable throughout the flue pack. This shall be considered a repair.* Wording has been modified from 1-14A to avoid using “tubes and flues” to differentiate sizes. No discussion as of 3/08, submitted at 11/08 meeting; **Not on January 2009 NBIC committee agenda; Robin will assign a number;**
Submitted submit this item to be located in Part 3, S1.2.9.8, action item #09-xxxx at 3/09 meeting

#09-xxxx Discussion and Progress Report: Add SA-307 Grade A or B to the materials list in new row titled “Bolts and Studs”, under the application column in table located in Part 3, S1.1.3.1; No discussion as of 3/08; item submitted at 11/08 meeting; Added this item to table in Part 3, S1.1.3.1, action item #09-xxxx at 3/09 meeting;

#09-xxxx Discussion and Progress Report: Clarify Section S1.2.11 regarding whether RT and PWHT exemption applies to stayed shell as well as firebox, as intended in the 1952 Locomotive code.
*ASME Section III,
L-113, Welded Joints (a) Fusion welding may be used in boilers in cases where the stress or load is carried by other construction which conform to the requirements of the Code and where the safety of the structure is not dependent upon the strength of the weld, provided the material is permitted to be welded, or as otherwise specified in this paragraph. Welding done under these provisions need not be stress-relieved or radiographed.*

The welding procedure and welding operator shall have been qualified under the applicable provisions of Section IX of the Code for the material, type of weld, and position in which the welding is to be done.

Action taken at 11/08 meeting: Change the title of Part 3, S1.2.11.2 from “Firebox Patches” to “Stayed Area Patches”; Change wording in Part 3, S1.2.11.2, b) to read “Patches are to be flush type, using full penetration welds. If the load on the patch is carried by other forms of construction, such as braces, staybolts, rivets, or flues, radiographic examination of the welds is not required.” Item submitted at 11/08 meeting; Not on January 2009 NBIC committee agenda
Submitted this item as action item #09-xxxx – Moedinger, 2nd Reetz

#09-xxxx Discussion and Progress Report: Maximum diameter and out of roundness of flue holes

Insert the following action item #09-xxxx in Part 3, S1.2.11.6, new e) - **Maximum diameter of flue holes shall be 1/4” greater than the diameter of the flue. Holes shall be made round if they equal or exceed 1/8” out of round. See Part 3, S1.2.9.7.**

Submitted this item as action item #09-xxxx at 3/09 meeting

Discussion and Progress Report: NBIC adopt FRA inspection regimen. This topic was briefly discussed as of 11/08; No discussion at 3/09 meeting;

Discussion and Progress Report: Operating procedures for NBIC Steam Locomotive subgroup adopted as presented at 3/09 meeting

Discussion and Progress Report: Insert cross reference to Part 3, S1.2.11.6 in ferrule section, Part 3, S1.2.9.7 after ferrule section appears in NBIC;

8. New Business

Discussion and Progress Report: From the NBIC July meeting -The action item number is NB10-0102 it references Part 3 S1.2.10 and here is the background information that I received: S1.2.10 a) states prior to repairing cracks, the plate shall be examined for defects. What are the additional minimum requirements for examination methods? MT or PT? Anything else?

Discussion and Progress Report: Main committee wants reference to safety relief valves in the inspection section and the repair section.

Insert language – “Steam locomotive safety valves, suitable for the service intended shall conform to Part 2, S1.6”

Discussion and Progress Report: NB10-0501

Flue application procedures – Stone

Rivets – Stone

Ferrules – Stone

Staybolts – Stone

Cass boiler/threaded staybolts - Moedinger

9. Guest questions

10. Next meeting

11. Adjournment

12. Roster - attachment