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# NATIONAL BOARD INSPECTION CODE COMMITTEE

THE  
NATIONAL  
BOARD  
OF BOILER AND  
PRESSURE VESSEL  
INSPECTORS

## *Agenda*

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*Meeting of NBIC Sub-Group on Inspection and Repair of Locomotive Boilers  
12 - 14 April 2010  
Meeting at Strasburg, PA.*

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The National Board of Boiler & Pressure Vessel Inspectors  
1055 Crupper Avenue  
Columbus, Ohio 43229-1183  
Phone: (614) 888-8320  
FAX: (614) 847-1828

**Meeting convened at:** 9 am, 9 November 2009

**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 –**

- Part 2, pg. 106, S1.4.2.1-1) – Should read *Rivet head wastage for riveted joints in tension shall be determined by measuring h in Fig. S1.4.2.1 l, where h shall not be less than 0.250 where:...*
- Part 3, pg. 111, materials list has deleted Pipe – SA-106, SA-53, seamless; has deleted Bronze castings – SB-61, SB-62, Sb-148; Bolts & Studs – SA-307 A or B;
- Part 3, pg. 111, S1.1.3.1 d), last sentence should be “stress” and not “strength”
- Part 3, pg. 119, Fig. S1.2.9.2-b should be renamed; Fig. S1.2.9.2-a should be moved to arch tube page;

### **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;

**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; nothing new as of 11/09;

**Discussion and Progress Report:** Operating procedures for NBIC Steam Locomotive subgroup adopted as presented at 3/09 meeting; no discussion at 11/09 meeting;

**Motion** to open item to discuss scope for locomotive and historical boilers in NBIC – Reetz, 2<sup>nd</sup> Jackson

**Voted** - 9 affirmative, 0 negative, 0 abstaining, 0 not voting

**Motion** to amend Part 3, Section 6 as follows: Griner 2<sup>nd</sup> Butler:

- Drop the word “Firetube” from the title
- Drop “General Requirements” and replace with “Scope”
- S1.1 Scope: This supplement is provided to cover repairs and alterations to all steam locomotive boilers of welded or riveted construction.
- S1.1.1 – This section remains the same
- S1.1.2 Application: It is the intent of this supplement that all steam locomotive boilers meet the requirements of the FRA rules for steam locomotive boilers, 49 CFR, Part 230, Steam Locomotive Inspection and Maintenance Standards.

**Voted** - 9 affirmative, 0 negative, 0 abstaining, 0 not voting

**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?

**Motion** to delete last two sentences of S1.2.10, a) – Griner, 2<sup>nd</sup> Conrad

**Voted** - 9 affirmative, 0 negative, 0 abstaining, 0 not voting

**Discussion and Progress Report:** Main committee wants reference to safety relief valves in the inspection section and the repair section. Bob Reetz will inform the main committee that we are working on this issue.

**Discussion and Progress Report:** Flue application procedures – Stone

**Discussion and Progress Report:** Rivets – Stone

**Discussion and Progress Report:** Ferrules – Stone

**Discussion and Progress Report:** Staybolts – Stone

**Discussion and Progress Report:** This task group has been requested by ASME to write a locomotive construction code for ASME Section I; ASME 08-1760; NB10-1501

## 8. New Business

MUD HOLE DOORS: Rev #0

1. The contact fit of the Mud Hole Door sealing surface upon the firebox sheet opening shall be checked using the "Contact Blue method" and without the gasket installed. The required contact fit is a unbroken 100% continuous contact around the Mud Hole Door sealing surface.
2. A Mud Hole Door sealing surface having less than 100% continuous contact can be repaired. Repair methods include scraping, machining, and weld build up.
3. The maximum allowable depth of pitting or wear on the Mud Hole Door sealing surface and body shall not exceed 40% of the seal surface thickness. If the depth of pitting or wear is greater, repair of the Mud Hole Door is prohibited.
4. Mud Hole Door Clamps shall have proper fit and alignment on the Mud Hole Door, the Clamp Stud, and the firebox sheet upon assembly. The Mud Hole Door Clamp shall not bend, twist or distort itself or any of the mating parts upon assembly.
5. Worn surfaces of Mud Hole Door Clamps may be repaired by welding.
6. Clamp Studs that are damaged, cracked, or worn below the acceptable thickness or thread diameter shall be replaced. Repair is prohibited.
7. Clamp Studs that are attached to the Mud Hole Door by threading or use of a screwed connection shall be secured to the Mud Hole Door to prevent loosening by riveting or another mechanical method.
8. Replacement of wrought iron Mud Hole Doors, Mud Hole Door Clamps, and Clamp Studs by steel components is a repair.
9. Repair of Mud Hole Doors, Mud Hole Door Clamps and Clamp Studs made from wrought iron is prohibited.

#### MATERIAL SECTION

Mud Hole Door                    SA-105, SA-515, SA-516, SA-285 Grade C

Mud Hole Door Clamp            SA-105, SA-515, SA-516, SA-285 Grade C

Clamp Stud                        SA-675 Grade 60, 65 & 70, SA-105, SA-193

#### **9. Guest questions**

#### **10. Next meeting**

#### **11. Adjournment**

#### **12. Roster - attachment**

## **Minutes**

### **Adoption of Agenda**

**Motion** to adopt agenda –

**Voted** – 0 affirmative, 0 negative, 0 abstaining, 0 not voting

### **Announcements –**

#### **Minutes of previous meeting**

**Motion** to approve minutes –

**Voted** - 0 affirmative, 0 negative, 0 abstaining, 0 not voting

**Errata** – none

**NBIC negative votes** - none

**Technical Library Update** – none

**Old Business**

**New Business**

**Guest questions** - none

**Next meeting** –

**Adjournment** –

**Motion** - to adjourn –

**Voted** - 0 affirmative, 0 negative, 0 abstaining, 0 not voting

**NBIC Subgroup & Engineering Standards Committee Members**

(M) = Member (MN) = Member non-voting

25 February 2010

- (M) **Steven M. Butler** Email [greenchili@tds.net](mailto:greenchili@tds.net)  
 PO Box 1251  
 Alamosa, CO 81101 cell 262 853-9662
- (M) **David Conrad, Chief Mechanical Officer (vice chair ESC)** Email [jdconrad@snet.net](mailto:jdconrad@snet.net)  
 Valley Railroad Co.  
 PO Box 452 (860) 614-9777 cell  
 Essex, CT 06426 (860) 767-2021 FAX (860) 767-0104
- (M) **Robert Franzen** Email [ssoa2001@aol.com](mailto:ssoa2001@aol.com)  
 Steam Services of America  
 55 John Allman Lane  
 Sylva, NC 28779 cell 828 226-5214 fax 828 631-2903 Work 828 631-2901
- (M) **David Griner (vice chair NB, treasurer ESC)** [dgriner@arizonamechanicalengineering.com](mailto:dgriner@arizonamechanicalengineering.com)  
 8450 Wethersfield  
 Peoria, AZ 85381 (307) 421-7304(cell)
- (M) **Steve Jackson, Chief Mechanical Officer D&SNG** Email [sjackson@durangotrain.com](mailto:sjackson@durangotrain.com)  
 479 Main Avenue  
 Durango, CO 81301 (c) (970) 946-5106 (h) (970) 247-1491 (w) (970) 385-8850(w) FAX (970) 259-3570
- (M) **Matthew A. Janssen** Email [mjanssen@monida.us](mailto:mjanssen@monida.us)  
 PO Box 1627  
 Sandpoint, ID 83864 (208)304-3454 cell
- (M) **Stephen Lee, Manager, Train Operating Practices & Mgr.-Steam Locomotive Operations**  
 Union Pacific Railroad  
 1800 Westland Road E-mail [SALee@up.com](mailto:SALee@up.com)  
 Cheyenne, WY 82001 (307) 778-3214 FAX (307) 778-3310 cell (307) 631-3058
- (M) **Doyle McCormack, Engineer** Email [doyle396@comcast.net](mailto:doyle396@comcast.net)  
 616 Roosevelt Street  
 Oregon City, OR 97045 (503) 655-7999 (h) Cell (503) 442-7645
- (M) **Linn Moedinger, VPCMO ( ESC, NB subgroup Secretary), Strasburg Rail Road**  
 PO Box 96 (717) 575-4478 cell E-mail [linnwm@supernet.com](mailto:linnwm@supernet.com)  
 Strasburg, PA 17579 (717) 464-2041 (h) (717) 687-8421 (w) FAX (717) 687-6194
- (MN) **George L. Scerbo, FRA, Railroad Safety Specialist, MP&E**  
 West Building, Mail Stop 25  
 1200 New Jersey Ave., SE Email [george.scerbo@DOT.GOV](mailto:george.scerbo@DOT.GOV)  
 Washington, DC 20590 (202) 493-6249(w) (202) 230-9593 cell (FAX) (202) 493-6230
- (MN) **Robert Schueler**  
 National Board of Boiler Inspectors E-mail [schuelerrl@asme.org](mailto:schuelerrl@asme.org)  
 1055 Crupper Avenue E-mail [rschueler@nationalboard.org](mailto:rschueler@nationalboard.org)  
 Columbus, OH 43229 (614) 888-8320 (w) (FAX) (614) 847-1828 (Direct FAX) (815) 371-0133
- (M) **Richard Stone, ALSTOM**  
 692 Grange Road Email [richard.b.stone@power.alstom.com](mailto:richard.b.stone@power.alstom.com)  
 Teaneck, NJ 07666 (201) 287-0374 (201) 370-3517 cell (FAX) (201) 836-1230
- Chair **Bill Withuhn, (ESC, NB Chair) Smithsonian Institution** E-mail [wwithuhn@aol.com](mailto:wwithuhn@aol.com)  
 6311 Barr=s Lane (301) 503-8355 cell  
 Lanham, MD 20706-2841 (301) 459-6047 (h) (202) 633-1919 (w) FAX (202) 357-4256
- (M) **Robert Yuill, Steam Locomotive Consultant, Historic Machinery Services**  
 PO Box 856 E-mail [hismachry@windstream.net](mailto:hismachry@windstream.net)  
 Springville, AL 35146 (256) 538-6938 FAX is the same # (205) 908-0482 CELL
- (M) **Robert Reetz, Chief Boiler Inspector** E-mail [breetz@nd.gov](mailto:breetz@nd.gov)  
 North Dakota Insurance Dept., Boiler Inspection Dept. Phone 701 328-9607  
 1701 S. 12<sup>th</sup> Street FAX 701 328-9610  
 Bismarck, ND 58504-6644