Date Distributed: December 19, 2019

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

NATIONAL BOARD TASK GROUP HISTORICAL BOILERS

AGENDA

Meeting of January 13th, 2020
San Diego, CA

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

1. **Call to Order**
   8:00 AM

2. **Introduction of Members and Visitors**

3. **Check for a Quorum**

4. **Awards/Special Recognition**

5. **Announcements**

   The National Board will be hosting a reception for all committee members and visitors on Wednesday evening at 5:30pm at The Smoking Gun. Additional information about the reception can be found on the Hotel Information webpage for the meeting: https://www.nationalboard.org/Index.aspx?pageID=456&ID=478

6. **Adoption of the Agenda**

7. **Approval of the Minutes of the July 15th, 2019 Meeting**

   The minutes are available for review on the National Board website, www.nationalboard.org.

8. **Review of Rosters (Attachment Page 1)**
   a. **Membership Reappointments**
      i. Mr. Mark Jordan's membership to the group expires on January 30th, 2020.

   b. **Membership Nominations**
      i. Mr. Tom Shernisky is interested in becoming a member of the Historical Boilers Task Group. His resume can be found on Attachment Page 2.

   c. **Officer Nominations**

9. **Action Items**

Item Number: 19-22	**NBIC Location: Part 2, S2**	**No Attachment**
General Description: Review of MAWP on Return Flue Boilers. **Subgroup:** SG Historical **Task Group:** M. Wahl (PM), J. Amato, R. Bryce & D. Rose **Explanation of Need:** From the Presentation, by Robert Bryce, the subcommittee feels this needs to be reviewed more in-depth. Continue the research and documentation on the MAWP of Return Flue Boiler. This was started with the documentation presented by Robert Bryce which is located in the NBIC cloud under January 2019 Historical Subcommittee. **July 2019 Meeting Action:** Mr. Bryce presented a PowerPoint to the SG. After the PowerPoint the group had many questions and had discussion on the equations currently used and the need for the new equation. The group has decided they need to do more research before a final proposal can be made.		

Item Number: 19-27	NBIC Location: Part 3, S2.13.14.3-a	Attachment Page6

General Description: Fusible Plug Repair Using Half Coupling Figure

Subgroup: SG Historical

Task Group: None assigned

July Meeting Action: The proposal for this item was approved unanimously by TG Historical and SC Repairs & Alterations. Main Committee voted to send the item to letter ballot for action prior to the January 2020 meeting.

New Items:

Item Number: 19-84	NBIC Location: Part 2, S2.10.7	Attachment Page 7

General Description: Inspecting riveted joints for failure

Subgroup: SG Historical

Task Group: None assigned

Explanation of Need: The text covers cracks parallel to a longitudinal joint, but there is no text covering inspection of plate material around a rivet.

Item Number: 19-89	NBIC Location: Part 2, S2.7.3.2	No Attachment

General Description: Longer NDE cycle for historic boilers

Subgroup: SG Historical

Task Group: None assigned

Explanation of Need: The National Historic Boiler Association (NHBA) of Canada is the association of Canadian historical boiler associations.

The NHBA is submitting a request for change to the National Board Subgroup, Historical Boilers, to review and extend the current NDE cycle for historical boilers that is defined in Part 2, S2.7.3.2. The duration is currently shorter than other jurisdictions.

- TSSA of Ontario, Canada enforced a 10-year cycle on ultrasonic thickness testing on historical boilers after careful review of recurring NDE results and operating logs from various historical boilers in that province.
- England is reportedly also on a 10-year cycle.

Extending the NBIC NDE cycle to 10 years would reduce costs for owners in jurisdictions where NBIC is being strictly followed. If granted the opportunity, the NHBA has data to support this request.

10. Future Meetings

- July 13th-16th, 2020 – Louisville, KY
- January 11th -14th, 2021 – TBD

11. Adjournment

Respectfully submitted,

Jonathan Ellis

Jonathan Ellis
NBIC Secretary

Contents

Task Group Historical Boilers

Last Name	First Name	Interest Category	Role	Exp. Date	More
Dillon	Tom	General Interest	Chair	08/30/2021	Details
Getter	Jim	Manufacturers	Vice Chair	01/30/2021	Details
Metzmaier	Jodi		Secretary	12/30/2099	Details
Amato	Joel	Jurisdictional Authorities	Member	01/30/2021	Details
Johnson	Frank	Users	Member	01/30/2021	Details
Jordan	Mark	Jurisdictional Authorities	Member	01/30/2020	Details
Moore	Kathy	National Board Certificate Holders	Member	10/30/2022	Details
Rose	David	Users	Member	07/30/2022	Details
Rupert	Dennis	General Interest	Member	01/30/2021	Details
Sansone	Matthew	Jurisdictional Authorities	Member	01/30/2021	Details
Troutt	Robby	Jurisdictional Authorities	Member	01/30/2021	Details
Underwood	Robert	Authorized Inspection Agencies	Member	08/30/2021	Details
Wahl	Mike	General Interest	Member	01/30/2021	Details
Wolf	Jon	Authorized Inspection Agencies	Member	07/30/2020	Details

Senior Project Manager

Education
Graduated from Weir Senior High School 1985
Pittsburgh Technical Institute
Associates in Mechanical CADD 1987
University of Phoenix BSBM 2003
Retired USAF E-7
VFW & American Legion Member
Masonic Lodge #2 Wellsburg, WV

Registrations/Certifications
National Board Commission # 11413
Licensed in 24 Jurisdictions

Professional Affiliations
Professional Affiliations/Memberships
ASME CSD-1 Alternate Committee
ASME Member

Location
Pittsburgh PA

Years with Bureau Veritas
7 years
Total Years of Experience
26 years of experience

Contact information:
Thomas J Shernisky
Senior Project Manager
OneCIS Insurance
a Bureau Veritas North America, Inc. Company
Foster Plaza XI
790 Holiday Dr Suite 2
Pittsburgh, PA 15220

Direct: 412-503-4115
Mobile: 304-374-5165
Fax: 412-921-8836
thomas.shernisky@us.bureauveritas.com

Personal information: email:
hdski67@gmail.com
Phone; 304-479-8016

As Senior Project Manager responsibilities include technical direction on all jurisdictional code, national codes e.g., NFPA, API, ASME, National Board to all inspectors and clients. Managing the QA/QC Program for PVJ and keeping inspectors training requirements up-to-date. Managing accounts that are written and creating Service Instructions for those accounts.

Additional responsibilities include managing inspectors in the field, assist the Director of Jurisdictional Service in any way needed. To include but limited to writing of new business, marketing Bureau Veritas services, visiting agents, clients and brokers. Also required to make production numbers by assisting with the budget and having inspectors manage their work load efficiently and accurately to meet budgets monthly.

As Project Manager for OneCIS Insurance, responsibilities include technical direction on all jurisdictional code, national codes e.g., NFPA, API, ASME, National Board to all inspectors and clients. Managing the QA/QC Program for PVJ and keeping inspectors training requirements up-to-date.

Additional responsibilities include managing inspectors in the field, assist the Director of Jurisdictional Service in any way needed. Managing accounts that have been written and creating Service Instructions for those accounts.

Previous job responsibilities for Bureau Veritas and others:

Inspected construction and installation authorized by permits for compliance with applicable codes, laws rules and regulations pertaining to various types of steam boilers and shops including steam generators, water tube boilers, fire tube boilers, and low pressure steam boilers. Reviewed construction calculations, allowable working pressures, tensile strengths, stress values, and corrosion allowances. Inspected manufacturing shops, nuclear reactors and nuclear code shops. Inspected various types of unfired pressure vessels including air tanks, digesters, vulcanizers, heat exchangers, jacketed kettles, retorts, hot water tanks, hydro-pneumatic tanks, diffusers, refrigeration vessels, and hospital sterilizers which may contain pressurized air, oil and water, air and oil, steam, manufactured gas, or chemicals, and stores energy for power, processing

or heating purposes.

Responsible for inspections of boilers and unfired pressure vessels within my assigned territory. Primary duties involve the in-service inspection of boilers and unfired pressure vessels to assure compliance with Alaska Statutes, the ASME Boiler and Pressure Vessel Code and the National Board Inspection Code. Responsible for inspection of new boiler and pressure vessel installations, as well as the required inspections for boilers and pressure vessels altered or repaired within the state. These duties require me to be aware of all the annual changes to the ASME and NB Codes and be involved with the review of manufacturing and repair company Quality Control Systems.

Act as an advisor and consultant to engineers, architects and repair concerns regarding boiler and pressure vessel codes and standards. During the course of field inspections, at times may be required to perform Certificate of Fitness and construction contractor licensing inquiries and issue cease and desist orders to enforce licensing statutes.

Responsible for the technical field inspection of boiler, unfired pressure vessels, machinery and miscellaneous electrical apparatus on behalf of my employer for the purpose of public safety code regulation & risk control. I was responsible for completing boiler & machinery risk assessments on facilities in the medical, aerospace, agricultural, and utility industries. Clients consisted of Cargill, Archer Daniels Midland, Honeywell International and Reliant Energy.
Responsible for the technical field inspection of boiler, unfired pressure vessels, machinery and miscellaneous electrical apparatus on behalf of my employer for the purpose of public safety code regulation & risk control. Responsible for investigating boiler & machinery claims filed by insured parties of my employer within my assigned territory. I was also responsible for account management duties on large accounts such as Allegheny Technologies, Incorporated, and Wheeling Pittsburgh Steel. Duties consisted of monitoring expenses on the account, working closely with the client and the broker on the account to strengthen relationships, preparing an account management plan on how the client's locations were to be serviced. I assisting the underwriter on the accounts in pricing the

	account accordingly by developing the proper probable maximum loss and maximum foreseeable loss data so as the proper amount of facultative reinsurance could be retained.

Project Experience

Loss Reduction/Account Manager
Allegheny Technologies Incorporated

1/2004 – 7/2005
Boiler & Machinery Account Manager

Loss Reduction/ Account Manager
Wheeling Pittsburgh Steel Corp.

1/2004 – 7/2005
Boiler & Machinery Account Manager

Loss Reduction/Account Manager
Weirton Steel Corp.

1/2004 – 7/2005
Boiler & Machinery Account Manager

Employment History

OneCIS Insurance Co. – Pittsburgh, PA
Senior Project Manager
2010 to Present

State of Oregon – Portland OR.
Boiler & Pressure Vessel Inspector
2009 to 2010
Inspections

State of Alaska – Anchorage, AK
Boiler & Pressure Vessel Inspector I
2007 to 2009
Inspections

CNA Insurance Co.- Pittsburgh, PA
Risk Control Consultant & Account Manager
1996 – 2001 then 2004 to 2005
Authorized Inspector, Account Management, Inspections, Quality Assurance and Control

Publications and Presentations

LCDSV-WBIA Meeting 2017

Item Number: 19-27, SG Historical
Part 3, S2.13.14.3

S2.13.14.3 REPAIR OF FUSIBLE PLUG OPENING

a) Threaded holes with damaged threads may be repaired by re-tapping or weld buildup and rethreading the threads shall be removed prior to welding.

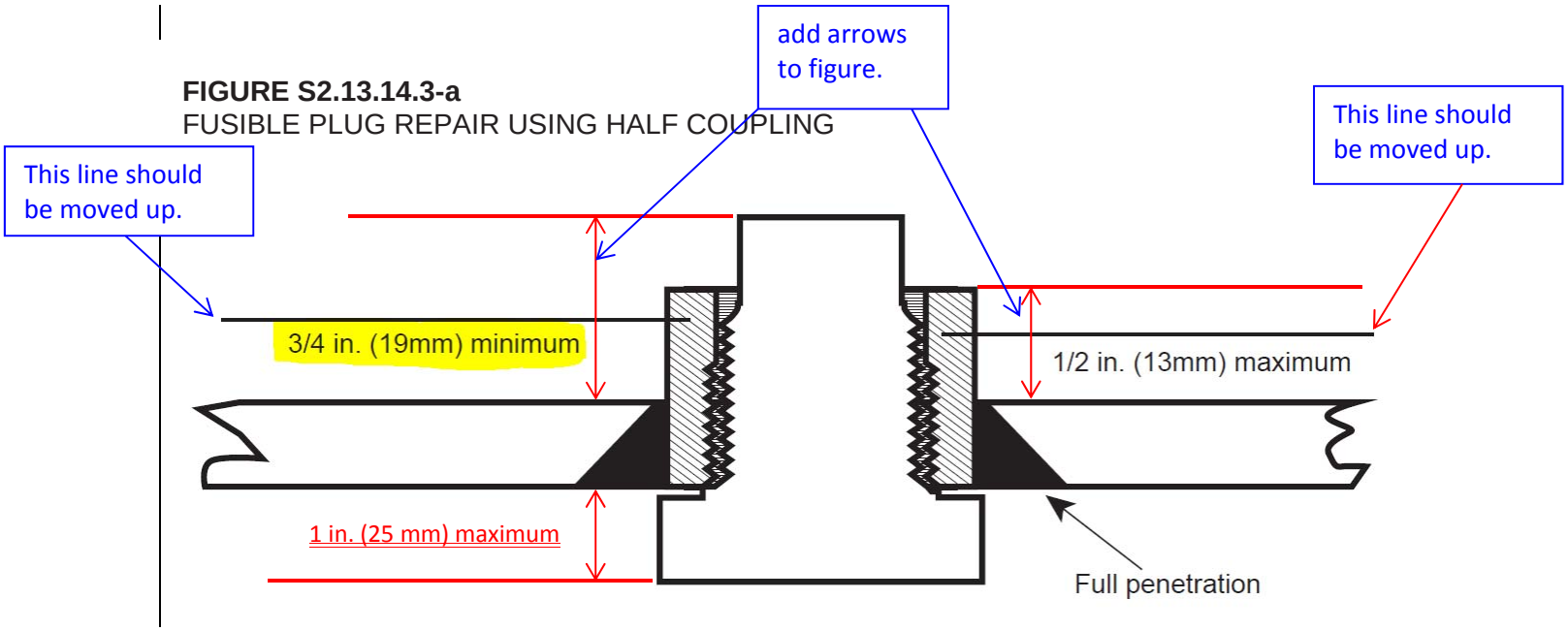
b) Threaded opening with damaged threads that ~~can not~~cannot be repaired by re-tapping or re-threading should be repaired by welding a flush patch or half coupling connection to the sheet.

c) The half coupling connection shall be such a size as to not interfere with proper operation of the fusible plug. The half coupling shall be welded flush to the fire side using a full penetration weld. The half coupling must not project higher than ½ inch (13 mm) from the water side (See Figure NBIC Part 3, S2.13.14.3-a).

d) Flush patch type repairs are to be installed in accordance with S2.13.9.3 and S2.13.10.3 (See Figure S2.13.14.3-b).

e) A fusible plug shall be of such length that when installed it shall project at least ¾ inch (19 mm) on the water side of the plate, tube, or flue. It shall extend through the plate, tube, or flue on the fire side as little as possible but not more than 1 inch (25 mm).

FIGURE S2.13.14.3-a
FUSIBLE PLUG REPAIR USING HALF COUPLING



Action Item Request Form

CODE REVISIONS OR ADDITIONS

Request for Code revisions or additions shall provide the following:

a) Proposed Revisions or Additions

Current text is incomplete with respect to inspecting riveted joints for failure. This proposal suggests adding more text, found in historic inspection documents, to further assist and direct the field inspector for assessing the condition of a riveted joint.

Existing Text:

S2.10.7 LIMITATIONS

a) The maximum allowable working pressure shall be the lesser of that calculated in accordance with NBIC Part 2, S2.10, or the MAWP established by the original manufacturer.

b) The shell or drum of a boiler in which a "lap seam crack" extending parallel to the longitudinal joint and located either between or adjacent to rivet holes, when discovered along a longitudinal riveted joint for either butt or lap joint, shall be permanently discontinued for use under steam pressure, unless it is repaired with jurisdictional approval.

Provide a brief explanation of the need for the revision or addition.

The text covers cracks parallel to a longitudinal joint, but there is no text covering inspection of plate material around a rivet.

c) Background Information

Review of the NBIC shows that failure indicators of riveted seams have not been identified or itemized. This proposal addresses this oversite.

Referenced standards, related discussion follow proposed wording.

Proposed wording

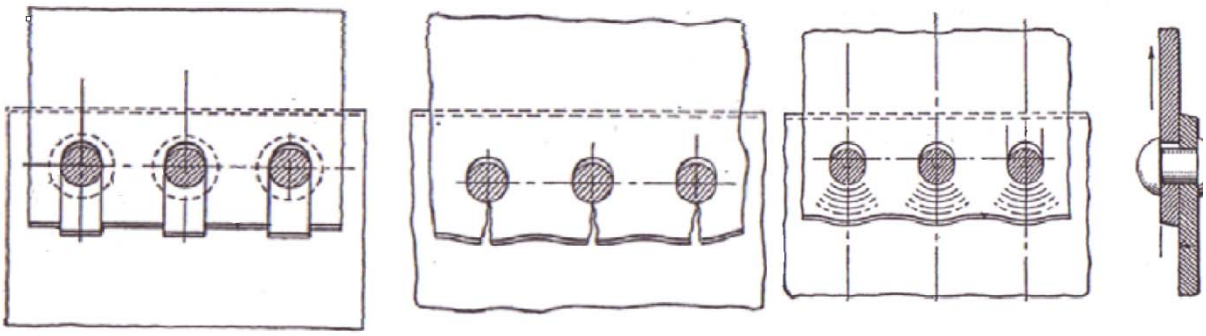
S2.10.2.3 INSPECTION OF RIVETED SEAMS

A riveted joint in a vessel subjected to pressure may fail in a number of different ways, depending on the type and relative proportions of the joint. Methods of failure may be classified as follows:

a.) Rivets may shear off.
b.) The plate may tear along the centerline of the row of rivets.
c.) The plate may shear in front of the rivets.
d.) The plate may tear from the outer edge of the rivet hole to the caulking edge.
e.) The plate may crush in front of the rivets.

Figure S2.10.2.3 illustrates visual indicators of (c), (d), (e). Inspection shall visually inspect for cracked or stressed plate material along a riveted joint. Indications of failure shall be monitored or repaired, at the discretion of the jurisdiction.

FIGURE S2.10.2.3



Note: Good engineering practice requires that the lap of plate outside rivet holes, measured from the outer edge of the rivet holes to the edge of the plate must be at least equal to the diameter of the rivet hole.

Referenced text:

Steam Boiler Design, Part 2, Great Britain, 1922:

20. Methods of Failure of Riveted Joint.—A riveted joint in a vessel subjected to pressure may fail in a number of different ways, depending on the type and relative proportions of the joint; but the simplest methods of failure may be illustrated by taking a single-riveted lap joint as an example. With such a joint, the methods of failure may be classified as follows:

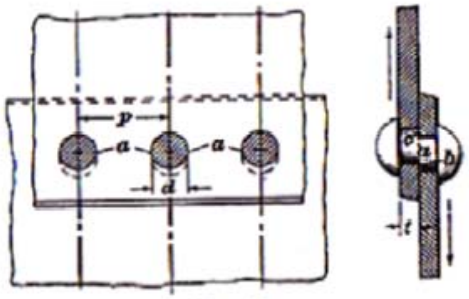


FIG. 19

1. The rivets may shear off, as shown in Fig. 19.

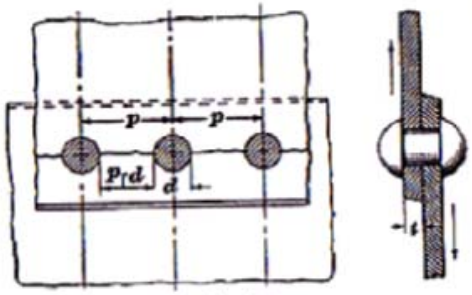


FIG. 20

2. The plate may tear along the center line of the row of rivets, as shown in Fig. 20.

3. The plate may crush in front of the rivets, as shown in Fig. 21.

4. The plate may shear in front of the rivets, as shown in Fig. 22 (*a*).

5. The plate may tear from the outer edge of the rivet hole to the calking edge, as shown in Fig. 22 (*b*).

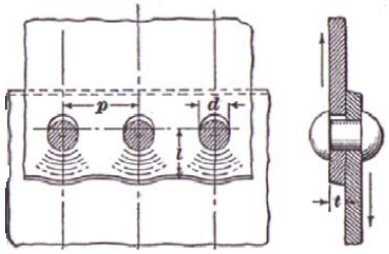


FIG. 21

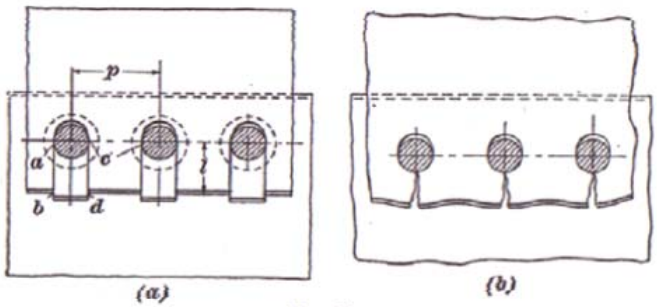


FIG. 22

The provided Note is also important, because a design that does not adhere to this rule may need a different joint efficiency value than what is provided in TABLE S2.10.6. This rule has existed but is not necessarily followed in pre-code boilers.

ASME, 1914:

183 On longitudinal joints, the distance from the centers of rivet holes to the edges of the plates, except rivet holes in the ends of butt straps, shall be not less than one and one-half times the diameter of the rivet holes.

Canadian Interprovincial Standard, 1931:

Lap Outside Rivet Holes

199. The lap of plate outside rivet holes measured from the outer edge of the rivet holes to edge of plate must be at least equal to diameter of rivet hole, and must not be more than 1/8 inch in excess of the diameter of the rivet hole.

Thurston, 1888:

tion. The joint is so proportioned that the fracture will occur by shearing the rivets rather than by breaking out the edge of the sheet or tearing away the lap bodily. The lap usually extends beyond the rivet-hole about 1.5 times the diameter of the rivet.

Single-row lap seam from an 1881 6hp Russell traction engine: