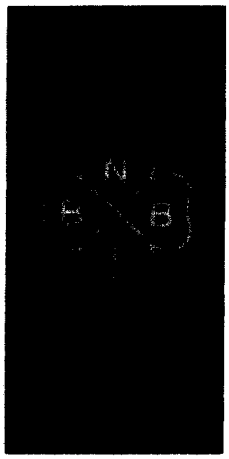

THE
NATIONAL
BOARD
OF BOILER AND
PRESSURE VESSEL
INSPECTORS

Date Distributed: February 10, 2010

SUBCOMMITTEE REPAIRS and ALTERATIONS

MINUTES

Meeting of January 20, 2010
Austin, Texas

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The National Board of Boiler & Pressure Vessel Inspectors
1055 Crupper Avenue
Columbus, Ohio 43229-1183
Phone: (614)888-8320
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1. **Call to Order – 8:00 a.m.**

The meeting was called to order at 8:01 a.m. by Chairman George Galanes.

2. **Announcements**

Jack Given provided a report from the NBIC Executive Committee Meeting:

- PRD is being proposed as a new book Part 4,
- National Board staff is considering issuing the NB-23 Code on a 2-yr edition frequency with no addendums,
- Qualification requirements for an "R"-Certificate Holder may be removed from the Code book and transferred into a NB-document,
- The Code was now being translated into Chinese and is being introduced into Canada as a CSA-standard.

Wednesday a Reception will be held at 6:30 p.m. in the hotel Atrium hosted by the National Board. Thursday Breakfast and Lunch will also be provided in the Atrium.

3. **Adoption of the Agenda**

NB10-0801 was added to the agenda. There was a motion to approve the agenda as modified. The motion was unanimously approved.

4. **Approval of Minutes of July 2009**

There was a motion to approve the minutes of the July meeting. The motion was unanimously approved.

5. **Review of the Roster (Attachment 1)**

Mr. Galanes would like to increase the membership of this subcommittee. Different persons were discussed to add to the subcommittee including Linda Williamson.

Mr. Angelo Bramucci is interested in joining the subgroups Repair and Alteration General and Specific. There was a motion to recommend membership for Mr. Bramucci to the Chairman of the Board of Trustees. The motion was unanimously approved.

6. **Interpretations**
There were no interpretations assigned to this Subcommittee.

7. **Public Review Comments for 2010 Addendum (Attachment 2)**

PR10-0101 ***Part 3 4.4.1 e)*** Under 4.4.1 e) delete the first sentence, NDE may be conducted.

There was a motion to reject this comment because the current wording provides permission and the current wording is in other paragraphs. The motion was unanimously approved.

PR10-0201 ***Part 3 4.4.1 e)*** In 4.4.1 e) First sentence should read, "other weld areas may be examined as identified by the Inspector and where required, the Jurisdiction" Change shall to may to agree with the acceptance of regulatory authorities.

There was a motion to reject this comment because the Inspector's and Jurisdiction's requirements must be followed for the NDT method to be used. The subcommittee accepted the editorial portion of the

comment to capitalize Jurisdiction. The motion was unanimously approved.

8. Action Items (Attachment 3)

NB07-0905 ***Part 2 4.3.1-4.3.3 SC Inspection*** Review these sections for completeness and consistency in pressure testing. Mr. Cook suggested forming a task group from all three parts. A task group of G. Galanes(Chair), D. Parrish, M. Horbaczewski and J. Yagen has been assigned. Included in the attachment is an email from Mr. Galanes requesting that his concern be addressed in this action item. (Attachment 3 pgs 1 - 2)

There was a motion to accept the definitions as shown in the attachment. The motion was unanimously approved.

NB08-0304 ***Part 3 Forms 5.13.4.1 SG on R and A Specific*** The instruction guide for "R" Forms needs to be improved. The form also needs to have the ability to expand to accommodate people filling it out completely. A task group of R. Pulliam (Chair), M. Webb and W. Jones has been assigned. (No Attachment)

A progress report was given. The task group is expected to submit a proposal for letter ballot for Subcommittee approval before the July 2010 meeting.

NB08-0322 ***Part 3 3.2 SG on R and A General*** Add a new paragraph to 3.2 General Requirements for Repairs and Alterations to address change of service for a pressure vessel. These requirements should caution inspectors, owners, repair organizations and jurisdictional authorities of the inherent dangers involved when changing service. A new supplement should be added to address the specific requirements for repairs and alterations of pressure vessels that have been converted from one service to another. A task group representing all three parts of the NBIC has been formed under the leadership of Bob Wielgoszinski. Task group members from R & A are P. Edwards and B. Schulte. (No Attachment)

A progress report was given by Bob Wielgoszinski. Work will continue.

NB10-0101 ***Part 3 5.9.6 SG on R&A Specific*** Change 5.10 to facilitate information flow. Task group of B. Boseo (Chair), J. Given and J. Sekely has been assigned. (No attachment)

Mr. Boseo gave a progress report. The task group is expected to have a proposal for the July meeting.

NB10-0102 ***Part 3 S1.2.10 SG on Locomotives*** Clarify requirements for repairs and alterations to Boiler Barrel un-stayed areas. (No attachment)

Mr. Reetz provided a progress report. Locomotive Group voted to take out last two sentences of S1.2.10(a). It was commented that these sentences should stay for clarity. It was also advised that SG-Locomotives modify the sentence for the appropriate NDE methods. It was mentioned that 3.3.4.1 addresses NDE methods that may be used. The SC suggested that the SG-Locomotives use words similar to 3.3.4.1 for the last two sentences in S1.2.10(a) to ensure the defect is removed.

NB10-0103 ***Part 3 Part 3 S2.13.9.2 SG on Historical*** Resolve conflict of text and figure. S2.13.9.2. (No attachment)

Mr. Reetz provided a progress report. This item will be ready for the July 2010 meeting.

NB10-0104 ***Part 3 S2.13.12.3 SG on Historical*** Should the reference in a) be to S2.13.11.2 or what is written. (No attachment)

Mr. Reetz provided a progress report. This item will be ready for July 2010 meeting.

NB10-0105 ***Part 3 S2.13.12.2 SG on Historical*** Remove a) from paragraph and revise wording so both paragraphs are clear. Clarify rules for Welded Flush Patches in Tubesheets. (No attachment)

Mr. Reetz provided a progress report. Revised figures are not clear and they will be corrected and enhanced. Item will be ready for July 2010 meeting.

NB10-0106 ***Part 3.S4.16.3.a) SG on FRP*** Change Manufacturer's Design report to Fabricator's Design Report. (No attachment)

Mr. Jones provided some background information for this item. No report of SG-action. A motion was made that: S4.16.3(a) the "Manufacturer's Design Report" be changed to "Fabricator's Design Report." SC-unanimously endorsed the proposal pending approval by SG-FRP.

NB10-0107 ***Part 3 S4.18.1 b) SG on FRP*** Revise paragraph to include alteration as well as repair. (No attachment)

There was no report available for this meeting.

NB10-0108 ***Part 3 S5.4 d) SG on Repairs and Alterations Specific*** Clarify documentation requirements for Yankee Dryers. Task group of J. Given has been assigned. (No attachment)

Mr. Given provided a progress report. The item was taken back for more revision and review from Yankee Dryer task group.

NB10-0109 ***Part 3 S6.17 TG on DOT*** Add the words alteration and modification to the first sentence. The sentence should read, "The following requirements shall apply to all repairs, alterations and modifications to pressure retaining items. (No attachment)

No action was taken. The task group has not addressed this item.

NB10-0110 ***Part 3 S6.19.1 SG on DOT*** This information should be combined with S6.15.1 since they are talking about the same information. Has TR-1 and TR-2 been developed? (No attachment)

No action was taken. The task group has not addressed this item.

NB10-0302 ***Part 3 S3.2 SG on FRP*** The current text permits the repair firm to make repairs from non ASME Code material. The proposed revision requires new parts to be made from Code material. (No attachment)

There was a motion to approve the text as revised by the SC pending approval of the SG FRP. The motion was unanimously approved.

NB10-0701 ***Part 3 SG on R/A General*** Assure the ultimate objective of quality of work with sufficient documentation to show what was accomplished under the R stamp program. (No attachment)

Mr. Galanes gave a progress report. This item has been merged with NB08-0304. Comments were that Mr. Scribner's proposal was over and above current ASME Code requirements. Mr. Edward's reported that these items were handled together due to similarity, BUT the records retention portion would be handled under this item. Bulleted items 2 and 3 were merged into NB08-0304 and item 3 for record retention will be handled on this item. Mr. Reetz commented that record retention is important. A

task group will be assigned.

NB10-0801 ***Part 3 4.4.1 a) and 4.4.2 a) SG R/A Specific*** Add new language as guidance for adjusting the water temperature for pressure or hydrostatic test. (See Attachment 3, pgs. 3-6)

Mr. Galanes reported with a handout of suggested revisions. There was a motion to accept the new wording as presented. The motion was unanimously approved.

10. Future Meetings

July 2010, Columbus, Ohio
January 2011, Austin, Texas

11. Adjournment

Respectfully Submitted,

Mike Webb
Acting Secretary
:rh

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ATTACHMENT 1

Attendance List Subcommittee on Repairs and Alterations

Meeting Date: January 20, 2010

Paul Edwards Manager, Construction QC Stone & Webster, Inc. 100 Technology Center Drive Stoughton, MA 02072 Ph: 617-589-5690 Fax: 617-589-1792 E-mail: paul.edwards@shawgrp.com	Attended: Yes ☑ No ☐ Initial	**John Hoh** The National Board 1055 Crupper Ave. Columbus, OH 43229 Ph: 614-431-3229 Fax: 614-847-1828 E-mail: jhoh@nationalboard.org	Attended: Yes ☐ No ☑ Initial
Mike Webb Xcel Energy 4653 Table Mountain Drive Golden, CO 80403 Ph:720-497-2138 Fax: 720-497-2117 E-mail: mike.webb@xcelenergy.com	Attended: Yes ☑ No ☐ Initial	**George W. Galanes, PE** Manager, Metallurgy and QA Midwest Generation EME, LLC Joliet Station/Chicago Annex 1800 Channahon Road Joliet, IL 60436-8539 Ph: 815-207-5897 Fax: 312-788-5218 E-mail: ggalanes@MWGen.com	Attended: Yes ☑ No ☐ Initial
Bryan Schulte NRG Maintenance Services 12307 Kurland Drive Houston, TX 77034 Ph: 713-795-1456 Fax: 713-795-1451 E-mail: bryan.schulte@nrgenergy.com	Attended: Yes ☑ No ☐ Initial	**Jim Larson** One Beacon Insurance Company 2540 180th Street, East Port Lake, MN 55372 Ph: 952-226-2956 Fax: 952-226-2957 E-mail: jmloghome@earthlink.net	Attended: Yes ☒ No ☐ Initial
James T. Pillow Common Arc Corporation 67 Wyndemere Lane Windsor, CT 06035 Ph: 860-688-2531 Fax: 860-688-2531 E-mail: Jpillow@commonarc.com	Attended: Yes ☑ No ☐ Initial	~~**George W. Galanes, PE**~~ ~~Manager, Metallurgy and QA~~ ~~Midwest Generation EME, LLC~~ ~~Joliet Station/Chicago Annex~~ ~~1800 Channahon Road~~ ~~Joliet, IL 60436-8539~~ ~~Ph: 815-207-5897~~ ~~Fax: 312-788-5218~~ ~~E-mail: ggalanes@MWGen.com~~	Attended: Yes ☑ No ☐ Initial
Jack Given Bureau Chief Department of Labor Boiler Safety Bureau 1101 Mail Service Center Raleigh, NC 27699-1101 Ph: 919-807-2774 Fax: 919-807-2762 E-mail: jack.given@labor.nc.gov	Attended: Yes ☒ No ☐ Initial	**James Sekely** Welding Service Inc. ~~Wayne Crouse, Inc.~~ 716 Vanderbilt Drive Monroeville, PA 15146 Ph: 412-389-5567 Fax: 724-327-7381 E-mail: jsekely@comcast.net	Attended: Yes ☑ No ☐ Initial

Attendance List Subcommittee on Repairs and Alterations

Meeting Date: **January 20, 2010**

Frank Pavlovicz The Babcock & Wilcox Company 20 S. Van Buren Ave. Barberton, Ohio 44133 Ph: 330-860-6148 Fax: 330-860-8932 E-mail: fjpavlovicz@babcock.com	SUB FOR - Attended: ← Yes ☐ No ☒ *Initial*	RON PULLIAM B&W CONSTRUCTION Co. 74 ROBINSON AVE. B207 BARBERTON, OH 44203 330-860-2856 Fx 330-860-2180 RLPULLIAM@BABCOCK.com	Attended: Yes ☒ No ☐ *Initial*
Name: WALT SPERKO Company: SPERKO ENGINEERING Address: 4503 HOLLYWOOD DR City/State/Zip: GREENSBORO NC Ph: 336-674-0600 Fax: E-mail: SPERKW@ASME.ORG.		Name: Thomas White Company: NRG Energy Address: 12301 Kurland Dr City/State/Zip: Houston TX 77034 Ph: 281-782-4972 Fax: E-mail: tom.white@nrgenergy.com	
Name: Mike Huffman Company: American Welding & Tank Address: 111 Tank Road City/State/Zip: Tesup, GA 31545 Ph: 912 427 5629 Fax: 912 427 7770 E-mail: Mhuffman@awtank.com		Name: BRIAN MORELOCK Company: EASTMAN CHEMICAL CO. Address: P.O Box 511, B54D City/State/Zip: KINGSPORT, TN 37660-5054 Ph: 423-229-1205 Fax: 423-229-6099 E-mail: morelock@eastman.com	
Name: Terry Sheffler Company: Xcel Energy - Tx. Address: 6th & Tyler City/State/Zip: Amarillo, Tx 79101 Ph: (806) 378-2199 Fax: (806) 378-2627 E-mail: terry.sheffler@xcelenergy.com		Name: Brian Bosed Company: APlan Power Address: 2000 Day Hill Rd. City/State/Zip: Windsor, CT Ph: (847) 961-0047 Fax: E-mail: brian.m.bosed@power.alstom.com	

Attendance List Subcommittee on Repairs and Alterations

Meeting Date: **January 20, 2010**

Name: WILLIAM BOGGS Company: MADISON, LTD. Address: 15 CHURCH STREET City/State/Zip: DOYLESTOWN, PA 18901 Ph: 610-348-3387 Ext. Fax: E-mail: WBOGGS@MADISONLTD.COM	Name: WAYNE JONES Company: ARISE Address: on file. City/State/Zip: on file Ph: Ext. Fax: E-mail:
Name: STUART CAMERON Company: DONJAN BABCOCK Address: POSTERFIELD ED City/State/Zip: ABERDEEN UK PA4 8DJ Ph: 44 141 825 5310 Ext. Fax: E-mail: SCAMERON@donjanbabcock.com	Name: Company: Address: City/State/Zip: Ph: Ext. Fax: E-mail:
Name: Joe Bluemel Company: One CIS Ins. Address: 3663 N. Sam Houston Pkwy E City/State/Zip: Houston, TX 77032 Ph: 281-986-1348 Ext. Fax: 281-986-1379 E-mail: joe.bluemel@onecis.com	Name: Company: Address: City/State/Zip: Ph: Ext. Fax: E-mail:

Public Review Comments Form
Action Item Listing

PRC #	Reference Paragraph	Type	Proposed Response	SC Vote A-D-AB-N	MC Vote A-D-AB-N	Page #	Final Action
PR10-0101	Part 3 4.4.1 e)	Technical	5	10-0-0-0			Rejected comment because current wording provides permission Also, current wording is used on other paragraphs.
PR10-0201	Part 3 4.4.1 e)	Technical	5	10-0-0-0			Rejected comment because the Inspector's and Jurisdiction's requirements must be followed for the NDT method to be used.

1. Accepted in principle
2. Accepted, changes are incorporated
3. Accepted for new business action
4. Rejected, except as noted
5. Rejected for the following reason
6. More information is needed

ATTACHMENT 2

ATTACHMENT 3

NB07-0905
NBIC Part 3 Repairs and Alterations

Proposal: This proposal is part of a multi-book Task Group that will develop improved definitions for the Glossary.

Glossary for Part 3

Current Words

> **Pressure Test** — Prior to initial operation, the completed boiler, including pressure piping, water columns, superheaters, economizers, stop valves, etc., shall be pressure tested in a test performed in accordance with the original code of construction prior to initial operation of an installed unit that is witnessed by an Inspector.

Delete the definition above but keep the term pressure test with a new definition suggested below.

Insert New Definitions below into the Glossary;

Pressure Test – Hydrostatic test, liquid pressure test, pneumatic pressure test and other pressure test methods permitted by the original code of construction.

Hydrostatic Test – a liquid pressure test that is performed in accordance with the requirements of the original code of construction.

Liquid Pressure Test - a test method using water or other incompressible liquid to verify the leak tightness integrity of a repair or to verify the leak tightness of a pressure retaining item.

Pneumatic Pressure test – a test which uses air or other compressible gas as the test medium.

Rationale;
By having three types of pressure testing definitions identified in the Glossary, we can now go back and substitute in Part 1-3, terms where we refer to Hydrotesting with reference to original code of construction followed by Liquid pressure testing to check for leaks or to verify repair integrity and finally we have pneumatic pressure testing as an alternative to Liquid Pressure testing.

I believe using the above definitions provides improved consistency and uniformity across all 3 parts of the NBIC. I deliberately chose not to address the definition of "Leak Test" because this can fall under a Liquid Pressure test OR pneumatic pressure test.

NBIC Subcommittee R&A Action Block

Subject Insert for Pressure Testing Guidance for Part 3 Repairs and Alterations

File Number NB10-~~0108~~ -0301 **Prop. on Pg.**

Proposal Explanation Proposed New Language for Part 3 of the NBIC.
This proposal concerns adding language as guidance for adjusting the water temperature for pressure or hydrostatic testing above the current requirement of 60 deg F.

Project Manager Galanes

Task Group Negatives **TG Meeting Date**

This is a new item requested to address concerns related to pressure retaining items that were fabricated prior to 1968 that may have poor notch toughness properties as a result of coarse grain melting practices coupled with higher P and S contents in the plate steel.

The proposed insert A attached provides caution for R-Certificate holders to understand the notch toughness behavior of steels used to fabricate heavy wall or thick-walled pressure retaining items to avoid the possibility of brittle fracture during pressure or high pressure hydrostatic testing after alterations or even repairs.

Thick-walled vessels are those that by virtue of their wall thickness and exhibiting low fracture toughness have a plane strain condition (constraint) at ambient temperature where pressure or hydrostatic testing is performed.

4.4.1 TEST OR EXAMINATION METHODS APPLICABLE TO REPAIRS

Based on the nature and scope of the repair activity, one or a combination of the following examination and test methods shall be applied to repairs and replacement parts used in repairs.

a) Liquid Pressure Test
Pressure testing of repairs shall meet the following requirements:

1) Pressure tests shall be conducted using water or other liquid medium. The test pressure shall be the minimum required to verify the leak tightness integrity of the repair, but not more than 150% of the maximum allowable working pressure (MAWP) stamped on the pressure-retaining items, as adjusted for temperature. When original test pressure included consideration of corrosion allowance, the test pressure may be further adjusted based on the remaining corrosion allowance.

2) During a pressure test where the test pressure will exceed 90% of the set pressure of the pressure relief device, the device shall be removed whenever possible. If not possible, a spindle re-
A07 straint may be used following the valve manufacturer's instructions and recommendations. Extreme caution should be employed to ensure only enough force is applied to contain pressure. Excessive
A07 mechanical force applied to the spindle restraint may result in damage to the seat and/or spindle and may interfere with the proper operation of the valve.
A07 The spindle restraint shall be removed following the test.

The organization who performs the pressure test and applies a spindle restraint shall attach a metal tag that identifies the organization and date the work was performed to the pressure relieving device. If the seal was broken, the organization shall reseal the adjustment housing with a seal that identifies the responsible organization. The process shall be acceptable to the Jurisdiction where the pressure-retaining items are installed.

3) The metal temperature for the pressure test shall be in accordance with the original code of construction, but not less than 60°F (16°C) unless the owner provides information on the toughness characteristics of the material to indicate the acceptability of a lower test temperature. During close examination the metal temperature shall not exceed 120°F (49°C), unless the owner specified requirements for a higher test temperature, and it is acceptable to the Inspector.

4) Hold-time for the pressure test shall be a minimum of 10 minutes prior to examination by the Inspector. Where the test pressure exceeds the MAWP of the item, the test pressure shall be reduced to the MAWP for close examination by the Inspector. Hold-time for close examination shall be as necessary for the Inspector to conduct the examination.

b) Pneumatic Test
A pneumatic test may be conducted. Concurrence of the owner shall be obtained in addition to that of the Inspector and Jurisdiction where required. The test pressure shall be the minimum required to verify leak tightness integrity of the repair, but shall not exceed the maximum pneumatic test pressure of the original code of construction. Precautionary requirements of the original code of construction shall be followed.

c) Initial Service Leak Test
When an initial service leak test is permitted by the original code of construction, such testing may also be used to verify the leak tightness integrity of repairs.

d) Vacuum Test
A vacuum test may be conducted. Vacuum test methods used shall be suitable to verify the leak tightness integrity of the repair.

e) Nondestructive Examination (NDE)
NDE may be conducted. Exclusive use of Visual Examination (VT) shall not be permitted. NDE methods used shall be suitable for providing meaningful results to verify the integrity of the repair.

4.4.2 TEST OR EXAMINATION METHODS APPLICABLE TO ALTERATIONS

Based on the nature and scope of the alterations activity, one or a combination of the following examination and test methods shall be applied to alterations and replacement parts used in alterations.

a) Liquid Pressure Test
Pressure testing of alterations shall meet the following requirements:

1) A pressure test as required by the original code of construction shall be conducted. The test pressure shall not exceed 150% of the maximum allowable working pressure (MAWP) stamped on the pressure-retaining item, as adjusted for temperature. When the original test pressure included consideration of corrosion allowance, the test pressure may be further adjusted based on the remaining corrosion allowance. The pressure test for replacement parts may be performed at the point of manufacture or point of installation.

2) As an alternative to pressure testing connecting welds in accordance with the original code of construction, connecting welds may be tested or examined in accordance with the rules for repairs (see 4.4.1). Connecting welds are defined as welds attaching the replacement part to the pressure-retaining item.

3) During a pressure test where the test pressure will exceed 90% of the set pressure of the pressure relief device, the device shall be removed whenever possible. If not possible, a spindle restraint may be used following the valve manufacturer's instructions and recommendations. Extreme caution should be employed to ensure only enough force is applied to contain pressure. Excessive mechanical force applied to the spindle restraint may result in damage to the seat and/or spindle and may interfere with the proper operation of the valve. The spindle restraint shall be removed following the test. **A07**

a. The organization who performs the pressure test and applies a spindle restraint shall attach a metal tag that identifies the organization and date the work was performed to the pressure relieving device. If the seal was broken, the organization shall reseal the adjustment housing with a seal that identifies the responsible organization. The process shall be acceptable to the Jurisdiction where the pressure-retaining items are installed.

4) The metal temperature for the pressure test shall be in accordance with the original code of construction, but not less than 60°F (16°C), unless the owner provides information on the toughness characteristics of the material to indicate the acceptability of a lower test temperature. During close examination the metal temperature shall not exceed 120°F (49°C), unless the owner

NBIC Subcommittee R&A Action Block

Insert "A"

For thick-walled pressure retaining items, it is recommended to seek technical guidance in establishing the notch toughness characteristics of the steel prior to pressure testing so that the metal temperature may be warmed above 60 deg F (16 deg C) to avoid brittle fracture.