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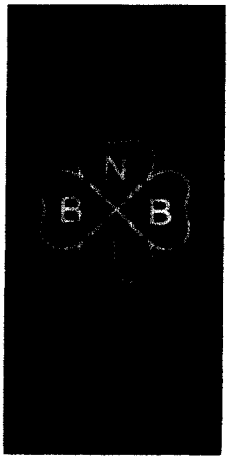

THE
NATIONAL
BOARD
OF BOILER AND
PRESSURE VESSEL
INSPECTORS

NATIONAL BOARD INSPECTION CODE COMMITTEE

AGENDA

Meeting of January 21, 2010
Austin, Texas

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 a.m.**

2. **Introduction of Members/Visitors**

3. **Announcements**

   a. Invitation to the Chief Inspector of Texas

   b. Mr. David Douin, National Board Executive Director

   c. Others

4. **Adoption of the Agenda**

5. **Approval of the Minutes of July 2009 Meeting**

6. **Review of Rosters/Resignations/Nominations/Reappointments (Attachment 1)**

   a. Changes to rosters

   b. Resignations

      Mr. Allan Platt has retired from his position as Chief of the State of Connecticut therefore resigning from all committee participation.

   c. Nominations and reappointments for NBIC Committee members

      Mr. Neil Titer, Mr. Steve Bacon and Mr. Mike Richards are all eligible for reappointment to the NBIC Committee. A vote will be taken.

7. **Report of Subcommittees**

   a. Subcommittee on PRD (Attachment 2)

   Charge: To develop new rules, revise, interpret and maintain existing rules which address administrative and technical requirements for installation, inspection and repairs of pressure relief devices.

   Membership: Frank Hart (Chair), Marianne Brodeur, Sid Cammeresi, Alton Cox, Denis DeMichael, Robert Donalson, Kevin Fitzsimmons, Thakor Patel, Raymond McCaffrey and Joe Ball (Secretary).

   F. Hart is expected to report on the following:

   1) Inquiries (Attachment 2, pgs. 1-4)

   IN10-0101 Proposed Question 1: Is a "changeover" valve as specified in ASME Code Case 2254 allowed for use between the boiler and the required safety valve if all conditions of Code Case 2254 have been met? **Proposed Question 2**: Does the National Board Inspection Code Committee have any plans to adopt the ASME Code Case 2254 and revised the requirements of NBIC Part 1 Section 2.9.5.1 c) such that allowance would be made for the use of "Changeover" valves if the MAWP of the boiler was 800 psig or below and all of the conditions set forth in the

ASME Code Case have been met?

Proposed Answer Question 1: Yes. 2008 NBIC Part 1, Section 2 2.9.5.1 c) states "No valve of any description should be placed between the safety or safety relief valves and the boiler" and as defined in the Introduction of the Code: "Should-indicates a preferred but not mandatory means to accomplish the requirement unless specified by others such as the Jurisdiction."

Proposed Answer Question 2: Yes. The Committee (NBIC), while remaining consistent with the intended purpose of the Code as outlined in the Forward "It is organized for the purpose of promoting greater safety to life and property by securing concerted action and maintaining uniformity in post-construction activities of pressure-retaining items, thereby ensuring acceptance and interchangeability among jurisdictional authorities responsible for the administration and enforcement of various codes and standards" and "The general philosophy underlying the NBIC is to parallel those provisions of the original code of construction as they can be applied to post-construction activities", recognizes that certain NBIC states (i.e. California) have accepted the use of "Changeover" valves as specified in ASME Code Case 2254 or they have written into their States Boiler Laws (multiple states) to adopt the latest ASME Code Cases and that the Code Case will allow an owner, operator, or owner-operator the ability to switch out a malfunctioning safety or safety relief valve without a complete boiler shutdown and system de-pressure while maintaining the uninterrupted safety relief protection thus increasing the safe reliability of the boiler while decreasing the risk to personnel and property associated with shutdown and start-up operations.

2) Public Review Comments for 2010 Addendum Cycle A

There are no public review comments for this subcommittee.

3) Action Items

NB06-0101 ***Part 3 S7.5 (b) SC on PRD*** This item concerns a proposed revision to paragraph Part 3 S7.5 b) of the NBIC to revise requirements relating to the source of specifications for replacement parts. A proposal was made to the SC on R and A and it failed. It was sent back to the task group for more work. A task group of M. Brodeur (Chair), A. Tannis, S. Cammerisi, B. Nutter, A. Syed, J. Richardson, T. Patel, K. Simmons and R. McCaffrey is assigned. (See Attachment 2, pgs.5 - 7)

July 2006
A progress report was given.

January 2007
A progress report was given.

July 2007
A progress report was given.

January 2008
A progress report was given.

July 2008
A proposal was made to the SC on R and A and it failed. It was sent back to the task group for more work.

January 2009
It was decided to send a letter ballot out on this item. The letter ballot was sent to the subcommittee and the ballot failed.

July 2009
Mr. Hart reported with a handout of suggested wording. There was a motion to accept the suggested wording. The motion failed with a voting result of 8 approved, 3 disapproved and 8 abstentions.

January 2010
Mr. Hart is expected to report.

NB07-1301 ***Part 3 3.2.2 SC on PRD*** Quality control systems for replacement parts. This item addresses requirements for the manufacturing and quality control for replacement parts to be used for pressure relief valve. A task group of A. Cox (Chair), D. DeMichael, T. Patel, K. Simmons and K. Fitzsimmons has been assigned. (See Attachment 2, pgs. 8-9)

July 2007
A progress report was given.

January 2008
A progress report was given.

July 2008
A progress report was given.

January 2009
A progress report was given.

July 2009
A progress report was given. The task group will continue to work on this item.

January 2010
Mr. Hart is expected to report.

b. Subcommittee on Installation (Attachment 3)

Charge: Responsible for developing new rules, revising, interpreting and maintaining existing rules which address administrative and technical requirements for installing pressure retaining items. This subcommittee also directs, supports, reviews and approves any items forwarded by each subgroup functioning under this subcommittee.

Membership: Michael Richards (Chair), Paul Bourgeois, Geoff Halley, Craig Hopkins, Stan Konopacki, Brian Moore, Gary Scribner, Raymond Snyder, Ron Sulzer Neil Titer, Jim Yagen, James McGimpsey (Secretary).

M. Richards is expected to report on the following:

1) Inquiries

There were no inquiries submitted for this subcommittee.

2) Public Review Comments for 2010 Addendum Cycle A

There are no public review comments for this subcommittee.

3) Action Items

NB06-0306 ***Part 1 3.8.3.1 SG on Boilers*** Address combustion controls for fired boilers. Reference action item NB02-2502. Brian Moore reported that CSD-1 and Section IV are working jointly on controls and safety devices. There were plans to publish in 2008. A task group of B. Moore has been assigned. (No Attachment)

January 2007
Brian Moore gave a progress report that the CSD-1 Committee will be meeting in May 2007 and he will have a report at the July NBIC meeting. A task group of B. Moore and P. Bourgeois was assigned.

July 2007
Mr. Moore reported that the CSD-1 Committee made a number of changes to the document and that they should be publishing in April 2008. It was decided that this action item should be expanded upon to fill in the blanks where CSD-1 is lacking. A task group of Brian Moore, Ron Sulzer, Ray Snyder and Geoff Halley was assigned to address solid fuel firing for a full range of boilers.

January 2008
Mr. Moore reported that the CSD-1 Committee still plans to publish in 2008. Mr. Halley also gave a brief report on solid fuels.

July 2008
Brian Moore reported the CSD-1 task group is working on new language for fuel trains with possible transfer of language to Part 2 of the NBIC.

January 2009
This action item was taken as a progress report. Mr. Moore reported that there are plans to publish at the end of April 2009.

July 2009
Mr. Brian Moore gave a progress report. He said that CSD-1still plans to publish in 2009 but he could not confirm the dates. Mr. Moore will continue to work on this item.

July 2010
A report is expected.

NB07-1208 ***Part 1 Glossary (SG Boilers and PVP)*** Expand on the glossary for Part 1 Installation. A task group of C. Hopkins (Chair), P. Bourgeois, B. Moore and R. Snyder has been assigned. (No Attachment)

July 2007
This will be an ongoing action item as the glossary will expand. Due to a public review comment it was decided to delete all terms that do not have a definition following them.

January 2008
A progress report was given.

July 2008
A progress report was given along with a handout of suggested wording additions.

January 2009
A progress report was given.

July 2009
A progress report was given.

January 2010
Mr. Richards is expected to report.

NB08-0320 Part 1 Installation 4.3 SG on Boilers Add a new paragraph in 4.3 General Requirements to address change of service for a pressure vessel. These requirements should caution installers, inspectors, owners, and jurisdictional authorities of the inherent dangers involved when changing service. A new supplement should be added to address the specific requirements for installation of pressure vessels that are being converted from one service to another. (Attachment 3, pgs. 1-3)

July 2008
A task group was assigned.

January 2009
Mr. Wielgoszinski gave a progress report.

July 2009
Mr. Bryan Schulte gave a progress report on NB08-0320, NB08-0321 and NB08-0322. in the absence of Mr. Bob Wielgoszinski. The task group will continue to work on these items simultaneously.

January 2010
Mr. Wielgoszinski is expected to report on NB08-0320, NB08-0321 and NB08-0322.

NB08-2101 ***Part 1 Installation SG on Boilers*** CSD-1 does not address solid fuel firing and it would appropriate for the NBIC to look into it. A task group of G. Halley (Chair), M. Richards, D. Pranghoffer and B. Moore has been assigned. (No Attachment)

July 2008
A progress report was given. Mr. Geoff Halley presented a handout.

January 2009
A progress report was given.

July 2009
A progress report was given.

January 2010
Mr. Halley is expected to report.

NB09-0204 ***Part 1 SG on Boilers*** Address water heaters other than fired storage units.

July 2009
A progress report was given.

January 2010
Mr. Scribner is expected to report.

NB09-0501 ***Part 1*** *SG on PVP* Add the appropriate rules to Part 1 to ensure that Installation rules address the same requirements for pressure vessels and controls as will later be required for Inservice Inspection. (No Attachment)

January 2009
This item was taken as a progress report. A task group of G. Scribner (Chair), R. Snyder and J. Yagen was assigned.

July 2009
A progress report was given.

January 2010
Mr. Richards is expected to report.

NB09-0601 ***Part 1 2.2 SG on PVP*** This action item is a result of PR07-2102 which led to NB07-1212. Change the definition of power boilers to exclude thermal fluid heaters. A task group of G. Scribner, P. Bourgeois and R. Sulzer has been assigned. (Attachment 3, pgs 4-6)

January 2009
A task group was assigned.

July 2009
A progress report was given.

January 2010
Mr. Richards is expected to report.

NB10-0201 *Part 1 S3* Expand the section on installation of thermal fluid heaters. This action item is a result of splitting NB09-0601into two parts. A task group of J. Yagen, G. Halley, P. Bourgeois and R. Sulzer has been assigned. (No Attachment)

January 2010
Mr. Richards is expected to report.

NB10-0202 ***Part 1 SG on Boilers*** Address solar fired boilers. A task group of G. Scribner(Chair),M. Richards, R. Snyder, S. Konopacki and J. Yagen has been assigned. (No Attachment)

January 2010
Mr. Richards is expected to report.

c. SC on Inspection (Attachment 4)

Charge: Responsible for developing new rules, revising, interpreting and maintaining existing rules which address administrative and technical requirements for inspection of pressure retaining items. This subcommittee also directs, supports, reviews and approves any items forwarded by each subgroup functioning under this subcommittee.

Membership: Don Cook (Chair), Steve Bacon, Domenic Canonico, Jim Getter, Mark Horbaczewski, Mark Mooney, Greg McRae, David Parrish, Bob Reetz , John Richardson, Jim Riley, Mike Schwartzwalder, Stan Staniszewski, Randy Wacker and Bill Smith (Secretary).

D. Cook is expected to report on the following:

1) Inquiries

There were no inquiries submitted for this subcommittee.

2) Public Review Comments for 2010 Addendum Cycle A

There were no public review comments submitted for this subcommittee.

3) Action Items

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. (See Attachment 4, pgs, 1a) – 3a) and 1-20)

July 2007
A progress report was given.

January 2008
A progress report was given.

July 2008
A progress report was given.

January 2009
A progress report was given.

July 2009
A progress report was given. The task group for this item was modified. Mr. Robert Aben is to be replaced by Mr. George Galanes as the representative from Part 3 Repairs and Alterations. Mr. Mark Horbaczewski is to replace Mr. Ron Shapiro on the task group.

January 2010
Mr. Galanes is expected to report.

NB07-0910 ***Part 2 S6 SG Inspection Specific*** Review DOT supplement. A task group of S. Staniszewski (Chair), G. McRae and J. Riley has been assigned. This specific Supplement should be reviewed by the task group for completeness and accuracy. (No Attachment)

July 2007

A progress report was given. Changes to the DOT Glossary were approved previously due to approved public review comments.

January 2008

A progress report was given. The task group has met twice to discuss the public review comments received from the 2007 edition and in the process 11 more issues were identified.

July 2008

A progress report was given.

January 2009

This item was taken as a progress report. Mr. Staniszewski reported that the Federal Government is planning to release a standard on rule making under docket # PHMSA 2005-21351 in June of 2009.

July 2009

A progress report was given. Mr. Staniszewski reported that he would keep the Committee updated on the publication of the standard.

January 2010

Mr. Staniszewski is expected to report.

NB07-0912 ***Part 2 SG Inspection Specific Inspection Guides Section 5*** Review the National Board Inspection guides for Cast Iron Boilers, Pressure Relief Devices, Water Level Controls & Devices and Operating Controls. (No Attachment)

July 2007

A progress report was given.

January 2008

Task groups were assigned to address the four inspection guides.

July 2008

- Guide for Cast Iron Boilers – Task group of W. Barbato, R. Dobbins, and D. Canonico. A motion made to accept the review and updates of the task group. The motion was unanimously approved.

- Guide for PRD – Task group of J. Richardson and R. Wacker. A progress report was given by Mr. Wacker.

- Guide for Water Level Controls & Devices – Task group of S. Bacon and V. Newton. A motion made to accept the review and updates of the task group. The motion was unanimously approved.

- Guide for Operating Controls – Task group of S. Bacon and V. Newton. A progress report was given by Mr. Bacon.

January 2009

A progress report was given. Three out of the four components have been approved by the Subcommittee. The guide for Pressure Relief Devices has not yet been reviewed.

July 2009

Mr. Staniszewski gave a report that stating that all parts of this action item have been approved except for the guide for PRD. The task group has reviewed the guide and forwarded it to the SC on PRD for their review.

January 2010

Mr. Cook is expected to report.

NB08-0701 ***Part 2 S7 SG on Inspection Specific*** Add a requirement for change of service from above ground to below ground installation of LPG tanks. We also need requirements for how to inspect these tanks. A task group of G. McRae (Chair), G. Galanes, J. Getter, M. Huffman, V. Mullins, J. Reed, D. Cook, J. Richardson and V. Newton has been assigned. (No Attachment)

January 2008

A progress report was given and a task group was assigned.

July 2008

A progress report was given.

January 2009

A progress report was given. This item will be discussed in conjunction with NB08-0321.

July 2009

This item was taken as a progress report. This action item will be worked on simultaneously with the task group assigned to NB08-0320, NB08-0321 and NB08-0322.

January 2010

Mr. Cook is expected to report.

NB08-0702 ***Part 2 S7 SG on Inspection Specific*** The maximum corrosion allowance for a LPG tank should be 10% of the minimum thickness required. A task group of G. McRae (Chair), G. Galanes, J. Getter, M. Huffman, V. Mullins, J. Reed, D. Cook, J. Richardson and V. Newton has been assigned. (No Attachment)

January 2008

A progress report was given and a task group was assigned.

July 2008

A progress report was given.

January 2009

A progress report was given. There were plans to discuss this item at the April meeting of

PVMA.

July 2009
A progress report. This action item will be worked on simultaneously with the task group assigned to NB08-0320, NB08-0321 and NB08-0322.

January 2010
Mr. Cook is expected to report.

NB08-0703 ***Part 2 S7SG on Inspection Specific*** Investigate the feasibility of marking or stamping a re-rated name plate on a LPG tank that is being altered from an above ground tank to a below ground tank. A task group of G. McRae(Chair), G. Galanes, J. Getter, M. Huffman, V. Mullins, J. Reed, D. Cook, J. Richardson, and V. Newton has been assigned. (No Attachment)

July 2008
A progress report was given and a task group was assigned.

January 2009
A progress report was given. This item will be discussed in conjunction with NB08-0321.

July 2009
Mr. McRae is expected to report.

January 2010
Mr. Cook is expected to report.

d. SC on Repairs and Alterations (Attachment 5)

Charge: Responsible for developing new rules, revising, interpreting and maintaining existing rules which address administrative and technical requirements for repairing or altering pressure retaining items. This subcommittee also directs, supports, reviews, and approves any items forwarded by each subgroup functioning under this subcommittee.

Membership: George Galanes (Chair), Paul Edwards, Jack Given, Wayne Jones, Jim Larson, Frank Pavlovicz, Jim Pillow, Bryan Schulte, Jim Sekely, Mike Webb and John Hoh (Secretary).

G. Galanes is expected to report on the following:

1) Inquiries
There were no inquiries submitted for this subcommittee.

2) Public Review Comments for 2010 Addendum Cycle A (Attachment 5, pgs. 1-3)

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

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.

3) Action Items

NB08-0304 ***Part 3 Forms 5.13.1 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)

January 2008
A progress report was given.

July 2008
A progress report was given

January 2009
A progress report was given.

July 2009
A progress report was given.

January 2010
Mr. Pulliam is expected to report.

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. (Attachment 5, pgs. 4-6)

January 2010
Mr. Boseo is expected to report.

NB10-0102 ***Part 3 S1.2.10 SG on Locomotives*** Clarify requirements for repairs and alterations to Boiler Barrel unstayed areas. (Attachment 5 pgs. 7-9)

January 2010
Mr. Reetz is expected to report.

NB10-0103 ***Part 3 Part 3 S2.13.9.2 SG on Historical*** Resolve conflict of text and figure. S2.13.9.2. (Attachment 5, pg. 10)

January 2010
Mr. Reetz is expected to report.

NB10-0104 ***Part 3 S2.13.12.2 SG on Historical*** Should the reference in a) be to S2.13.11.2 or what is written. (Attachment 5, pgs. 11-13)

January 2010
Mr. Reetz is expected to report.

NB10-0105 ***Part 3 S2.13.12.3 SG on Historical*** Remove a) from paragraph and revise wording so both paragraphs are clear. Clarify rules for Welded Flush Patches in Tubesheets.(Attachment 5, pgs. 14-15)

January 2010
Mr. Reetz is expected to report.

NB10-0106 ***Part 3.S4.16.3.a) SG on FRP*** Change Manufacturer's Design report to Fabricator's Design Report. (Attachment 5, pg. 16)

January 2010
Mr. Reetz is expected to report.

NB10-0107 ***Part 3 S4.18.1 b) SG on FRP*** Revise paragraph to include alteration as well as repair. (Attachment 5, pg. 17)

January 2010
Mr. Galanes is expected to report.

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. (Attachment 5, pg.18)

January 2010
Mr. Given is expected to report.

NB10-0109 ***Part 3 S6.17 SG 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. (Attachment 5, pg. 19)

January 2010
Mr. Staniszewski is expected to report.

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? (Attachment 5, pg. 20)

January 2010
Mr. Staniszewski is expected to report.

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. (Attachment 5, pgs. 21-23)

January 2010
Mr. Galanes is expected to report.

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. (Attachment 5, pgs. 24-25)

January 2010
A report is expected.

9. Liaison Activities

- **a.** ASME
- **b.** AWS
- **c.** API
- **d.** PVRC
- **e.** PCC
- **f.** Others

10. New Business

11. Future Meetings

The following meetings have been scheduled:

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

12. Adjournment

Respectfully submitted,

Robin Hough
Secretary, NBIC Committee
:rh

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Attachment 1

Committee on National Board Inspection Code

Member	Title	Expiration Date	Interest Category
Hough, Robin	Secretary		
Titer, H. Neal		01/31/2010	Users
Bacon, Steven E.		01/31/2010	Users
Richards, H. Michael		01/31/2010	Users
Hart, Frank		07/19/2010	Manufacturer
Pillow, James T.		07/19/2010	General Interest
Richardson, John		07/19/2010	Manufacturer
Galanes, PE, George W.		07/19/2010	Users
Snyder, Raymond		07/19/2010	Auth Inpection Agencies
Canonico, Dr. Domenic A.		07/19/2010	General Interest
Cook, Don		07/19/2010	Jurisdictional Authorities
Reetz, Robert		07/19/2010	Jurisdictional Authorities
Sulzer, R. C.		07/19/2010	Manufacturer
Parks, Terry	Chair	07/19/2010	General Interest
Hopkins, Craig		07/19/2010	NB Certificate Holders
Wielgoszinski, Robert V.	Vice Chair	10/31/2010	Auth Inpection Agencies
Parrish, Dave		07/24/2011	Auth Inpection Agencies
Scribner, Gary		07/24/2011	Jurisdictional Authorities
Bourgeois, Paul		07/24/2011	Auth Inpection Agencies
Sekely, James		09/30/2011	General Interest
Given, Jack		01/26/2012	Jurisdictional Authorities
Edwards, Paul D.		08/27/2012	NB Certificate Holders
Staniszewski, Jr., Stanley		08/27/2012	Regulatory Authorities
Yagen, James M.		08/27/2012	Users

Total Members: 23

Attachment 2

PROPOSED INTERPRETATION

Inquiry No.	IN10-0101
Source	Chuck Easterbrooks
Subject	Part 1 2.9.5.1 c)
Edition	2007
Question	1: Is a "Changeover" valve as specified in ASME Code Case 2254 allowed for use between the boiler and the required safety relief valve if all of the conditions of the Code Case 2254 have been met? 2: Does the National Board Inspection Code Committee have any plans to adopt the ASME Code Case 2254 and revise the requirements of NBIC Part 1 2.9.5.1 c) such that allowance would be made for the use of "Changeover" valves if the MAWP of the boiler was 800 psig or below and all of the conditions set forth in the ASME Code Case have been met?
Reply	1:Yes. 2008 NBIC Part 1, Section 2, 2.9.5.1 (c) states" No valve of any description should be placed between the safety or safety relief valves and the boiler" and as defined in the Introduction of the Code: "Should – indicates a preferred but not mandatory means to accomplish the requirement unless specified by others such as the Jurisdiction" 2: The Committee (NBIC), while remaining consistent with the intended purpose of the Code as outlined in the Forward "It is organized for the purpose of promoting greater safety to life and property by securing concerted action and maintaining uniformity in post-construction activities of pressure-retaining items, thereby ensuring acceptance and interchangeability among jurisdictional authorities responsible for the administration and enforcement of various codes and standards" and "The general philosophy underlying the NBIC is to parallel those provisions of the original code of construction, as they can be applied to post-construction activities", recognizes that certain NBIC States (i.e. California) have accepted the use of "Changeover" valves as specified in ASME Code Case 2254 or they have written into their States Boiler Laws (multiple States) to adopt the latest ASME Code Cases and that the Code Case will allow an owner, operator, or owner-operator the ability to switch out a malfunctioning safety or safety relief valve without a complete boiler shutdown and system depressure while maintaining the uninterrupted safety relief protection, thus increasing the safe reliability of the boiler while decreasing the risk to personnel and property associated with shutdown and

	start-up operations.				
Committee's Question					
Committee's Reply					
Rationale					
SC Vote	Unanimous	No. Affirmative	No. Negative	No. Abstain	No. Not Voting
NBIC Vote	Unanimous	No. Affirmative	No. Negative	No. Abstain	No. Not Voting
Negative Vote Comments					

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Chuck Easterbrooks
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(432) 209-1086 cell
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Attn: National Board Inspection Code Committee
Subject: NBIC 2007 Part 1 Section 2.9.5.1 C) Mounting and Discharge Requirements

Background: In 1998 ASME Boiler and Pressure Vessel Code Committee adopted and enacted Code Case 2254 which allowed for the installation of "Changeover" valves between safety valves or safety relief valves on Section I boilers if the MAWP of the boiler was 800 psig or less and the crossover valves met strict conditions established in the Code Case. A number of NBIC States have either adopted the use of "Changeover" valves or have elected to allow for the use of ASME approved Code Cases as applicable to that State's boiler regulations.
The "Changeover" valves permit the user to service safety or safety relief valves without the need to shutdown the effected equipment while still maintaining 100% relief capacity, thus removing inherent safety issues related to the startup and shutdown activities.

Question 1:
Is a "Changeover" valve as specified in ASME Code Case 2254 allowed for use between the boiler and the required safety relief valve if all of the conditions of Code Case 2254 have been met?

Question 2:
Does the National Board Inspection Code Committee have any plans to adopt the ASME Code Case 2254 and revise the requirements of NBIC Part 1 Section 2.9.5.1 (C) such that allowance would be made for the use of "Changeover" valves if the MAWP of the boiler was 800 psig or below and all of the conditions set forth in the ASME Code Case have been met?

Thank you for your consideration,

Chuck Easterbrooks

RE: Inquiry
Easterbrooks, Chuck
to:
RHough
11/25/2009 01:21 AM
Show Details

History: This message has been forwarded.
Mrs. Hough,

Sorry for the delay in the response. I hope this satisfies your request. If you have any questions or further clarifications need to be made, please let me know so that I may assist

Question 1:
Is a Changeover valve as specified in ASME Code Case 2254 allowed for use between the boiler and the required safety relief valve if all of the conditions of Code Case 2254 have been met?

Answer: Yes

Justification: 2008 NBIC Part 1, Section 2, 2.9.5.1 (c) states" No valve of any description should be placed between the safety or safety relief valves and the boiler" and as defined in the Introduction of the Code: "Should – indicates a preferred but not mandatory means to accomplish the requirement unless specified by others such as the Jurisdiction"

Question 2:
Does the National Board Inspection Code Committee have any plans to adopt the ASME Code Case 2254 and revise the requirements of NBIC Part 1 Section 2.9.5.1 (C) such that allowance would be made for the use of "Changeover" valves if the MAWP of the boiler was 800 psig or below and all of the conditions set forth in the ASME Code Case have been met?

Answer: Yes

Justification: The Committee (NBIC), while remaining consistent with the intended purpose of the Code as outlined in the Forward "It is organized for the purpose of promoting greater safety to life and property by securing concerted action and maintaining uniformity in post-construction activities of pressure-retaining items, thereby ensuring acceptance and interchangeability among jurisdictional authorities responsible for the administration and enforcement of various codes and standards" and "The general philosophy underlying the NBIC is to parallel those provisions of the original code of construction, as they can be applied to post-construction activities", recognizes that certain NBIC States (i.e. California) have accepted the use of "Changeover" valves as specified in ASME Code Case 2254 or they have written into their States Boiler Laws (multiple States) to adopt the latest ASME Code Cases and that the Code Case will allow an owner, operator, or owner-operator the ability to switch out a malfunctioning safety or safety relief valve without a complete boiler shutdown and system depressure while maintaining the uninterrupted safety relief protection, thus increasing the safe reliability of the boiler while decreasing the risk to personnel and property associated with shutdown and start-up operations.

Chuck Easterbrooks
QA/QC Supervisor
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NB06-0101

COMMITTEE: National Board Inspection Code
Subcommittee on Pressure Relief Devices

ADDRESS WRITER CARE OF:
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To: Marianne Brodeur (TG Chair)
Kevin Simmons
Thakor Patel
Brandon Nutter
Ray McCaffery
Alton Cox
Ali Syed
Joe Ball SC-PRD Secretary
Frank Hart, SC-PRD Chairman

July, 22nd, 2009

Subject: NB06-0101, Source of Specification for replacement parts

EXISTING Part 3, S7.5 a)

(a) All Critical parts shall be fabricated by the Valve manufacturer or to the Manufacturer's specifications.

Critical parts are those that may affect the Valve flow passage, capacity function, or Pressure retaining integrity.

(b) All critical parts not fabricated by the valve Manufacturer shall be supplied with material test certification for the material used to fabricate the part.

(c) Replacement critical parts receiving records Shall be attached or be traceable to the valve Repair document.(See S7.3(a)). These records Shall conform to at least one of the following.

PROPOSED REVISION TO Part 3, S7.5, a)

All replacement critical parts shall be fabricated by the original valve manufacturer under its current ASME Quality System or to specifications of the original valve manufacturer. The specifications shall include all technical data required to produce the part.

The replacement critical part fabricator other than the original valve manufacturer shall have and provide evidence of :

a. An industry recognized Quality System equivalent to ASME
b. The applicable revision of the technical data from the original Valve Manufacturer to produce the specific part.

These requirements do not apply to parts and components that are normally purchased by the manufacturer from an outside vendor and are considered hardware items built to existing industry standards or specifications, provided the parts comply with the original valve manufacturer's material and design requirements. The hardware items include, but not limited to studs, nuts, screws, 'o' rings, washers, and fittings.

5

Negative votes for NB06-0101

1. Reason for Disapproval- I believe replacement parts of PRV's shall meet the requirements as in the original code of construction as do all other repairs in the NBIC. To allow not certified parts to be used would be a risk to public safety.

   Gary Scribner

2. I felt the proposed change would created additional hardships on both Owners of PRD's and VR shops that repair PRD's. From the Owner / User perspective it is already difficult to get replacement PRD parts in a timely manner; adding the new sections and the word "original " to Part 3 S7.5, potentially would make replacement parts difficult if not impossible to obtain, and may force owners to completely replace PRD's at the scheduled maintenance intervals. I recommend the existing language in Part 3 - S7 remain as is.

   Steve Bacon

3. The proposed revisions to Part 3, S7.5(a) and (b) would unfairly limit the selection of potential valve part suppliers to original manufacturers or those with close relationships to only those manufacturers. In addition, the proposed changes do not add any element of safety to the public in my opinion. The existing words appear to be sufficient to assure capable manufacturers are selected for making the PRD parts.

   Ron Pulliam

4. I voted "abstain" on item NB06-0101 during the meeting bur am now changing my vote to negative in support of and in agreement with Alton Cox, Marianne Brodeur and Sidney Cammeresi.

   David Parrish

Abstention votes on NB06-0101

1. I did not have sufficient information to adequately consider this item. From what I can see, however, we may be changing a longstanding safety issue if this item proceeds. Critical parts should only come from the manufacturer.

   Bob Reetz

2. I abstained from voting because I didn't feel confident that I understood the proposed changes and the impact the changes would have on critical replacement parts for valves.

Jim Pillow

3. I would like to know how the non-O.E.M part manufacturer can properly design and fabricate the part for the Safety Relief Device and guarantee original design performance.

   James Yagen

4. Voted abstain because I don't understand all the implications.

   Craig Hopkins

5. Did not understand the item.

   Jack Given

6. How does Man. concern fabricate a part for the valve without having the specification or drawing criteria.

   Ray Snyder

7. I abstained on this for lack of information and a feeling that proprietary issues might be best handled as staff function with access to consul. I don't understand whether an adopted code can or should give an edge to an original manufacturer over a replacement parts manufacturer.

   Allan Platt

COMMITTEE: National Board Inspection Code
Subgroup Pressure Relief Devices

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TO: Denis DeMichael, DuPont
Thakor Patel, Farris
Kevin Simmons, Tyco
Kevin Fitzsimmons, Cater Chambers
Joe Ball, SG-PRD Secretary
Frank Hart, SG-PRD Chairman

DATE: January 13, 2008

SUBJECT: New Business NB07- 1301 – QC System for Replacement Critical Parts

BACKGROUND / RATIONALE: This item is intended to address discussions regarding replacement critical part fabrication by the Original PRV Manufacturer. A "VR" Certificate Holder's Quality System must include a method of determining that parts received from the Original PRV Manufacturer meet the Original PRV Manufacturer's specifications. Consider the following:

1) A provision should be added to require OEMs to provide Replacement Critical Parts equivalent to a ASME Program Parts.

2) Parts Identification – Allows VR Holder to identify part for appropriate repair instructions:
   1) OEM Parts marking is a new concept. TG needs to consider.
      a. Manufacturer's identification symbol
      b. Manufacturer's Part Number
      c. Material Marking – Type and Traceability
         i. May be coded
      d. Hydrostatic Testing Mark (where applicable)

OEM must hold current ASME Certification for the PRV Design in order to furnish Replacement Critical Parts. Otherwise, how does VR Holder know parts meet the requirements of the OEM ASME accepted program?.

If the OEM does not hold current ASME Certification, the OEM must furnish a C of C with the part(s) and MTRs, etc.

NOTE: RA-2255, i. *Repair and Inspection Program* (Second Sentence)
Repair procedures shall require verification that the critical parts meet the valve manufacturer's specification.

I have included a proposed revision to RE-1050 for your consideration.

Thank you for your consideration of this matter. I look forward to discussing this item.

Best Regards,

J. Alton Cox

1/2

(8)

PART 3, 57.5

EXISTING ~~RE-1050~~

~~RE-1050~~

~~All~~ Critical parts shall be fabricated by the valve manufacturer or to ~~his~~ the manufacturers specifications. Critical parts are those that may affect the valve flow passage, capacity function, or pressure-retaining integrity.

All critical parts not fabricated by the valve manufacturer shall be supplied with material test certification for the material used to fabricate the part.

Replacement critical parts receiving records shall be attached or be traceable to the valve repair document (see RA-2255 (i)). These records shall conform to at least one of the following.

a. Receiving records documenting the shipping origin of the part fabricated by the valve manufacturer (such as packing list) from the valve manufacturer or assembler of the valve type.

b. A document prepared by the "VR" Certificate holder certifying that the replacement part used in the repair has the manufacturer's identification on the part or is otherwise labeled or tagged by the manufacturer and meets the manufacturer's acceptance criteria (e.g. critical dimensions found in maintenance manual).

c. Receiving records for replacement critical parts obtained from a source other than the valve manufacturer or assembler of the valve type shall include a certificate of compliance that provides as a minimum:
   1. The part manufacturer and part designation.
   2. A certifying statement that either:
      a. The part was fabricated by the valve manufacturer and meets the manufacturer's acceptance criteria (e.g. critical dimensions found in maintenance manual), or
      b. The part meets the manufacturer's specifications and was fabricated from material as identified by the attached material test report
   3. The signature of an authorized individual of the part source, and
   4. The name and address of the part source for whom the authorized individual is signing.

Material for bolting shall meet the manufacturer's specification, but does not require material test certification if marked as required by the material specification.

PART 3

PROPOSED REVISION TO ~~RE-1050~~

57.5 a)

All replacement critical parts furnished by the original valve manufacturer shall be fabricated in accordance with the original valve manufacturer's ASME accepted Quality System.

Replacement critical parts shall be marked/tagged with:

a. Manufacturer's identification symbol
b. Manufacturer's Part Number
c. Material Marking – Type and Traceability (may be coded)
d. Hydrostatic Testing Marking (as applicable)

The valve manufacturer shall hold current ASME Certification for the PRV Design in order to furnish replacement critical parts.

If the valve manufacturer or assembler does not hold current ASME Certification, the valve manufacturer shall furnish a Certificate of Compliance with the part(s) and material test reports (refer to section c. below).

2/2

(9)

Part 3
NB08-0320

Attachment 3

NATIONAL BOARD INSPECTION CODE

SUB-COMMITTEE INSTALLATION
Change of Service for a Pressure Vessel

Task Group Assignment: Add requirements to change the service of pressure vessels in
Part I Installation
Part 2 Inspection and
Part 3 Repair/Alterations

NB08-0320, NB08-0321, NB08-0322

The following additions to the NBIC are proposed:

PART I – SECTION 1 – ADD:

1.3 (d) Change of service and/or relocation:

Specific requirements for inspection of pressure vessels that have been converted from one service to another and/or re-located movement may include re-location within an existing facility or to a new facility by the current owner. It may also include purchase of used vessels for installation in another facility by a new owner. (See 2.3.6.6)

1.3 (e) When the re-location crosses Jurisdictional boundaries or where the ownership changes, the Jurisdiction may regulate re-installation.

PART I – SECTION 4 – 4.2 DEFINITION:

Change of service pressure vessels that have been converted from one service to another and/or re-located.

PART I – SECTION 9 INSTALLATION – GLOSSARY OF TERMS

Change of Service: Pressure vessels that have been converted from one service to another and/or re-located.

PART I – SECTION II – INDEX

Change of Service Part 1 (1.3) (4.2) Part 2 (2.3.6.6)

NB08-0320

NATIONAL BOARD INSPECTION CODE

SUB-COMMITTEE INSTALLATION
Sub-Group for Installation (Part I) (Boilers)
(Pressure Vessels and Piping)

Members: Sub-Group: Boilers and Pressure vessel and Piping
Sub-Group for Inspections, Sub-Group for Repairs and Alterations

Task Group Assignment: Change of Service
NB08-0320, NB08-0321, NB08-0322

PART 2 2.3.6 Description and Concerns of Specific Types of Pressure Vessels

2.3.6.6 Change of Service of Pressure Vessels

This section describes guide lines to address the specific requirements for inspection of pressure vessels that have been converted from one service to another. Changes such as contents, pressure and temperature can be successfully adopted, providing there is an understanding of the effect on the vessel.

1) Can the vessel accept increase in flow rates or will this change create impingement problems on internal surfaces?

2) Will the change create loading problems at nozzle and wall junctions?

3) Is the wall thickness still acceptable when the new contents are of a higher specific gravity?

4) When the new contents are of a higher specific gravity, is there an increase in the design pressure due to the additional static head pressure, without an increase in the stamped MAWP?

5) Are the supports able to safely carry the additional weight of the contents?

6) Are materials compatible with new contents which may increase corrosion rates; perhaps accelerated as a function of changes in service temperatures?

7) Will the new service conditions present cyclic pressure or thermal variations which could shorten vessel life?

8) Will the pressure relief devices and their discharge piping arrangements function properly and reliably?

9) Is there a complete understanding of the causes and effects associated with changing service condition or re-locating vessels?

10) Does the owner or potential buyer have the knowledge to analyze these changes; or must outside expertise be used?

11) The Jurisdictional authority shall be contacted before proceeding where the vessel is or will be installed.

NBIC – NB09-0601

POWER BOILER

Part 1 – Section 2

Current Definition

2.2 DEFINITIONS

A power boiler is a closed vessel in which water or other liquid is heated, steam or vapor generated, steam or vapor is superheated, or any combination thereof, under pressure for use external to itself, by the direct application of energy from the combustion of fuels or from electricity or solar energy. (The term boiler includes fired units for heating or vaporizing liquids other than water; but does not include fired process heaters and systems.) The term boiler also shall include the apparatus used to generate heat and all controls and safety devices associated with such apparatus or the closed vessel.

a) Power Boiler
A boiler in which steam or other vapor is generated at a pressure in excess of 15 psig (100 kPa) for use external to itself.

A07 b) High-Temperature Water Boiler
A boiler in which water is heated and operates at a pressure in excess of 160 psig (1.1 MPa) and/or temperature in excess of 250 ° F. (121◦ C). °

Proposed Text

2.2 DEFINITIONS

A power boiler is a closed vessel in which water or other liquid is heated, steam or vapor generated, steam or vapor is superheated, or any combination thereof, under pressure for use external to itself, by the direct application of energy from the combustion of fuels or from electricity or solar energy. The term boiler also shall include the apparatus used to generate heat and all controls and safety devices associated with such apparatus or the closed vessel.

a) Power Boiler
A boiler in which steam or other vapor is generated at a pressure in excess of 15 psig (100 kPa) for use external to itself.

A07 b) High-Temperature Water Boiler
A boiler in which water is heated and operates at a pressure in excess of 160 psig (1.1 MPa) and/or temperature in excess of 250 ° F. (121◦ C). °

BOILER

A pressurized vessel in which water is heated, steam is generated, steam is superheated or any combination of these, under pressure or vacuum by the direct application of heat. The term boiler includes fired units for heating or vaporing liquids other than water where these units are separate from processing systems and complete within themselves. The term boiler also shall include the apparatus used to generate heat and all controls and safety devices associated with such apparatus or the closed vessel.

a) Power Boiler
A boiler in which steam or other vapor is generated at a pressure in excess of 15 psig (100 kPa) for use external to itself.

A07 b) High-Temperature Water Boiler
A boiler in which water is heated and operates at a pressure in excess of 160 psig (1.1 MPa) and/or temperature in excess of 250 ° F. (121◦ C). °

Note 1 The term boiler does not include fired process heaters and systems

Note 2 Some Jurisdictions may require ASME Section I or Section VIII construction. Code requirements for the particular Jurisdiction shall be reviewed for thermal fluid heaters.

2.2 DEFINITIONS

a) Power Boiler (Vapor)- A closed vessel in which vapor is generated, vapor superheated, or any combination thereof, for use external to itself, at a pressure in excess of 15psi (100 kPa).

b) Power Boiler (Liquid) – A closed vessel in which a liquid is heated for use external to itself at a pressure in excess of 160 psig (1.1 MPa) and/or temperature in excess of 250° F (121°C).

Rationale

1) To eliminate the confusion caused by dual definitions for power boilers under the general "DEFINITIONS".

2) To eliminate useless misleading verbiage not pertaining to a true definition.

3) To clarify by code that a water boiler may be a power boiler by code.

NOTE, The purpose of a definition is to **define,** not educate or legislate. The jurisdictions will determine necessary inspection requirements. Also I believe it is time we begin to dissociate ourselves from traditional **"steam"** and **"water"** terminology, as well as specifying fuels. As far as the "apparatus" to generate heat, it is again up to each jurisdiction to determine inspection requirements by Statute/Regulation or adopted code.

Note, The NBIC is an inspection code based on ASME construction codes and incorporating device requirements for safety. We may not be overly concerned, (at the inspection phase), and within common sense limits, with the process medium. Our scope of inspection jurisdictionally is driven by construction code boundarys, and mostly defined by pressure/temperature parameters.

A. Platt 07/14/2009

Attachment 4

NBIC Main Committee Task Group Action Block

Subject Pressure Testing Terminology in the NBIC

File Number 07-0905 **Prop. on Pg.**

Proposal Review current use of pressure testing terminology and revise as necessary to provide consistency of terminology across Parts 1-3 of the NBIC. Also, evaluate need for cautionary statement regarding low toughness materials subjected to pressure testing.

Explanation

Project Manager M. Horbaczewski

Task Group Galanes (CHAIR), Parrish, Yagen, andHorbaczewski.

Task Group Negatives **TG Meeting Date**

Background

This task group (TG) has been re-assigned to report back to the NBIC main committee Chair. The purpose of this TG is to review pressure testing terminology as currently stated in the NBIC, and to recommend necessary revisions to provide consistency of pressure testing terminology for Parts 1-3 of the NBIC.

1a) 1/3

NBIC Main Committee Task Group Action Block

NB07-0905

NBIC Glossary Revisions

Current Definition for Pressure Testing

> **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 above.

Insert New Definitions below into the Glossary

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 liquid medium (which is incompressible) to verify the leak tightness integrity of a repair or to verify the leak tightness of a pressure retaining item. The liquid test pressure shall be the minimum required to verify the integrity of the repair or leak tightness of the pressure retaining item, as agreed upon between the Inspector and the owner-user.

Pneumatic Pressure test – a test method using an inert gas which shall not exceed the maximum pneumatic test pressure in the original code of construction (if applicable) or as agreed upon between the owner/user and Certificate holder.

Rationale;
The proposed change to the existing definition of pressure testing to liquid pressure testing captures the essence of using a liquid only. We now have identified the use of pneumatic pressure testing, where an inert gas is used versus a liquid.

(2a) 2/3

NBIC Main Committee Task Group Action Block

So, by having three forms of pressure testing identified in the Glossary, we can now go back and substitute in Part 1-3, terms where we can use Hydrotesting with reference to original code of construction followed by Liquid pressure testing to check for leaks or to verify leak 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.

3a)

NBIC Main Committee Task Group Action Block

Subject Pressure Testing Terminology in the NBIC

File Number 07-0905 **Prop. on Pg.**

Proposal Review current use of pressure testing terminology and revise as necessary to provide consistency of terminology across Parts 1-3 of the NBIC. Also, evaluate need for cautionary statement regarding low toughness materials subjected to pressure testing.

Explanation

Project Manager TBD

Task Group Galanes, Parrish, Yagen, Horbaczewski, and ?

Task Group Negatives **TG Meeting Date**

Background

This task group (TG) has been re-assigned to report back to the NBIC main committee Chair. The purpose of this TG is to review pressure testing terminology as currently stated in the NBIC, and to recommend necessary revisions to provide consistency of pressure testing terminology for Parts 1-3 of the NBIC.

1/20

EXISTING TEXT	PROPOSED TEXT
TION CODE • PART 2 — INSPECTION procedures. Alternatively, lines may be blanked or sections of pipe removed. Blowoff lines, where practicable, shall be disconnected between pressure parts and valves. All drains and vent lines shall be open. 2) The Inspector shall review all personnel safety requirements as outlined in 1.4 prior to entry. Note: If a boiler has not been properly prepared for an internal inspection, the inspector shall decline to make the inspection. 2.2.7 EVIDENCE OF LEAKAGE a) It is not normally necessary to remove insulating material, masonry, or fixed parts of a boiler for inspection, unless defects or deterioration are suspected or are commonly found in the particular type of boiler being inspected. Where there is evidence of leakage showing on the covering, the Inspector shall have the covering removed in order that a thorough inspection of the area may be made. Such inspection may require removal of insulating material, masonry, or fixed parts of the boiler. b) For additional information regarding a leak in a boiler or determining the extent of a possible defect, a leak test may be performed per 4.3.3. A07	**pressure** [replace "leak" with "pressure"]

2/20

2.3.3 EXTERNAL INSPECTION

The purpose of an external inspection is to provide information regarding the general condition of the pressure vessel. The following should be reviewed:

a) Insulation or Other Coverings
If it is found that external coverings such as insulation and corrosion-resistant linings are in good condition and there is no reason to suspect any unsafe condition behind them, it is not necessary to remove them for inspection of the vessel. However, it may be advisable to remove small portions of the coverings in order to investigate attachments, nozzles, and material conditions.

Note: Precautions should be taken when removing insulation while vessel is under pressure.

b) Evidence of Leakage
Any leakage of gas, vapor, or liquid should be investigated. Leakage coming from behind insulation coverings, supports or settings, or evidence of past leakage should be thoroughly investigated by removing any covering necessary until the source of leakage is established.

For additional information regarding a leak in a pressure vessel or determining the extent of a possible defect a pressure test may be performed per Section 4.3.1.

[add new text following 2.3.3, b]

3/20

ON CODE • PART 2 — INSPECTION 2.4.6 EVIDENCE OF LEAKAGE a) A leak should be thoroughly investigated and corrective action initiated. Leaks beneath piping insulation should be approached with caution, especially when removing insulation from a pressurized piping system for inspection. b) A pressure test may be required to obtain additional information regarding the extent of a defect or detrimental condition. c) To determine tightness, the test pressure need be no greater than the normal operating pressure. The metal temperature should be not less than 70°F (21°C) and the maximum metal temperature during inspection should not exceed 120°F (49°C). The potential corrosive effect of the test fluid on the piping material should be considered.	[Replace 2.4.6 with following and delete part "c."] **b) For additional information regarding a leak in piping or determining the extent of a possible defect a pressure test may be performed per Section 4.3.1.** ~~**c) To determine tightness, the test pressure need be no greater than the normal operating pressure. The metal temperature should be not less than 70°F (21°C) and the maximum metal temperature during inspection should not exceed 120°F (49°C). The potential corrosive effect of the test fluid on the piping material should be considered.**~~

4/20

3.4.9 CRACKS	
a) Cracks may result from flaws existing in material or excessive cyclic stresses. Cracking can be caused by fatigue of the metal due to continual flexing and may be accelerated A07 by corrosion. Fire cracks are caused by the thermal differential when the cooling effect of the water is not adequate to transfer the heat from the metal surfaces exposed to the fire. Some cracks result from a combination of all these causes mentioned.	
b) Cracks noted in shell plates and fire cracks that run from the edge of the plate into the rivet holes of girth seams should be repaired. Thermal fatigue cracks determined by engineering evaluation to be self arresting may be left in place.	
c) Areas where cracks are most likely to appear should be examined. This includes the ligaments between tube holes, from and between rivet holes, any flange where there may be repeated flexing of the plate during operation and around welded connections.	
d) Lap joints are subject to cracking where the plates lap in the longitudinal seam. If there is any evidence of leakage or other distress at this point, the Inspector shall thoroughly examine the area and, if necessary, have the plate notched or slotted in order to determine whether cracks exist in the seam. Repairs of lap joint cracks on longitudinal seams are prohibited.	[Replace "hydrostatic" with "pressure" and add "a" preceding "nondestructive."]
e) Where cracks are suspected, it may be necessary to subject the pressure-retaining item to a hydrostatic test or nondestructive examination to determine their presence and location.	e) Where cracks are suspected, it may be necessary to subject the pressure-retaining item to a **pressure** test or **a** nondestructive examination to determine their presence and location.
A07 f) Cracks shall either be repaired, or formally evaluated by Crack Propagation Analysis to quantify their existing mechanical integrity.	
65	

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4.3.1 PRESSURE TESTING a) During an inspection of a pressure-retaining item, there may be certain instances where inservice conditions have adversely affected the tightness of the component or the inspection discloses unusual, hard to evaluate forms of deterioration that may affect the safety of the vessel. In these specific instances, a pressure test using air, water, or other suitable test medium may be required at the discretion of the Inspector to assess leak tightness of the pressure-retaining item. b) The Inspector is cautioned that a pressure test will not provide any indication of the amount of remaining service life or the future reliability of a pressure-retaining item. The pressure test in this instance only serves to determine if the pressure-retaining item contains defects that will not allow the item to retain pressure. In certain instances, pressure tests of inservice components may reduce the remaining service life of the component due to causing permanent deformation of the item.	**4.3.1. PRESSURE TESTING** During an inspection of a pressure-retaining item, there may be certain instances where in-service conditions have adversely affected the tightness of the component or the inspection discloses unusual, hard to evaluate forms of deterioration that may affect the pressure retaining capability of the vessel. In these specific instances, a pressure test using air, water, or other suitable test medium may be required at the discretion of the Inspector to assess pressure boundary integrity of the pressure-retaining item. The Inspector is cautioned that a pressure test will not provide any indication of the amount of remaining service life or the future reliability of a pressure-retaining item. The pressure test only serves to determine if the pressure-retaining item contains defects that will not allow the item to retain pressure. In certain instances, pressure tests of in-service components may reduce the remaining service life of the component due to causing permanent deformation of the item.

6/20

NATIONAL BOARD INSPECTION CO

c) If an inservice pressure test is required, the following precautions shall be met:

1) The test pressure should not exceed 90% of the set pressure of the lowest setting pressure relief device on the component to avoid damage to pressure relief devices.

2) Test pressure should be selected or adjusted in agreement between the Inspector and the owner-user. When the original test pressure includes consideration of corrosion allowance, the test pressure may be further adjusted based upon the remaining corrosion allowance.

3) The metal temperature during a pressure test should not be less than 60°F (16°C) unless the owner-user provides information on the toughness characteristics of the vessel material to indicate the acceptability of a lower test temperature.

4) The metal temperature shall not be more than 120°F (49°C) unless the owner-user specifies the requirement for a higher test temperature. If the owner-user specifies a test temperature higher than 120°F (49°C), then precautions shall be taken to afford the Inspector close examination without risk of injury.

5) When contamination of the vessel contents by any medium is prohibited or when a pressure test is not practical, other testing methods described below may be used provided the precautionary requirements of the applicable Section of the original construction code or other standards are followed. In such cases, there shall be agreement as to the testing procedure between the owner-user and the Inspector.

Use of pressure test procedures shall be in agreement between the owner-user and the Inspector. Use of written procedures and experienced personnel is required when performing pressure tests. The Inspector shall review the written procedure to become familiar with limitations, adequacy, methods, and acceptance standards identified.

All instrumentation, including pressure and temperature gages, used to monitor a pressure test shall be properly calibrated.

When contamination of the vessel contents by water is prohibited or when a hydrostatic test is not practical due to weight or other considerations, other test mediums may be used provided the precautionary requirements of the applicable section of the original construction code or other standards are followed. In such cases, there shall be agreement as to the testing procedure between the owner-user and the Inspector.

Pressure testing shall not be conducted using flammable or toxic fluids.

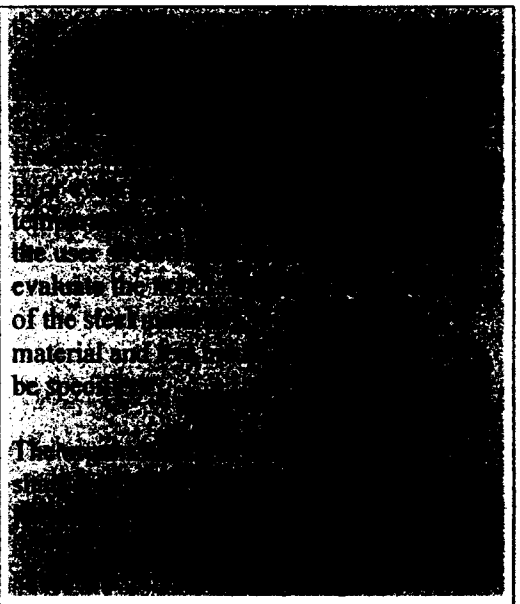
NOTE: The requirements of NBIC Part 3 shall be followed when performing a pressure test following repair or alteration of a pressure retaining item.

The following precautions shall be considered when conducting a pressure test of an inservice pressure retaining item:

ALL PRESSURE TESTING:

[redacted]

7/20

HYDROSTATIC TEST:

A hydrostatic test is the preferred method for conducting a pressure test.

Test pressure should be selected or adjusted in agreement between the Inspector and the owner-user.

The test pressure should not exceed 90% of the set pressure of the lowest setting pressure relief device on the component to avoid damage to pressure relief devices.

The hydrostatic test pressure must not exceed 150% of the MAWP.

During a hydrostatic test where the test pressure will exceed 90% of the set pressure of a pressure relief device, the device shall be removed whenever possible. If not possible or practical, a spindle restraint such as a gag may be used provided that the valve manufacturer's instructions and recommendations are followed. Extreme caution should be

9/2c

	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. The organization who performs the hydrostatic 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.  The metal temperature shall not be more than 120°F (49°C) unless the owner-user specifies the requirement for a higher test temperature. If the owner-user specifies a test temperature higher than 120°F (49°C), then precautions shall be taken to afford the Inspector close examination without risk of injury. Hold-time for the hydrostatic test shall be for a minimum of 10 minutes prior to the examination by the Inspector. Test pressure shall be maintained for the time necessary for the Inspector to conduct the inspection. **PNEUMATIC TEST**

	A pressure test using a compressible gas should not be performed unless a pressure test using a non-compressible fluid will damage the pressure retaining item or cause contamination of the internal surfaces of the pressure retaining item. Due to the volumetric expansion potential of a pressurized compressible fluid, adequate safety precautions must be taken to ensure personnel safety. Properly calibrated instrumentation shall be used to detect leakage of the testing medium. The instrumentation selected shall be appropriate for the test medium. Instrumentation may detect changes in pressure or chemical concentrations and shall be sensitive enough to detect leakage. A pneumatic test using air as a test medium may be conducted without using instrumentation provided that the inspection is performed using a bubble test. Test pressure for a pneumatic bubble test is not to exceed the lesser of 10% of the pressure retaining item operating pressure or 5 psig.

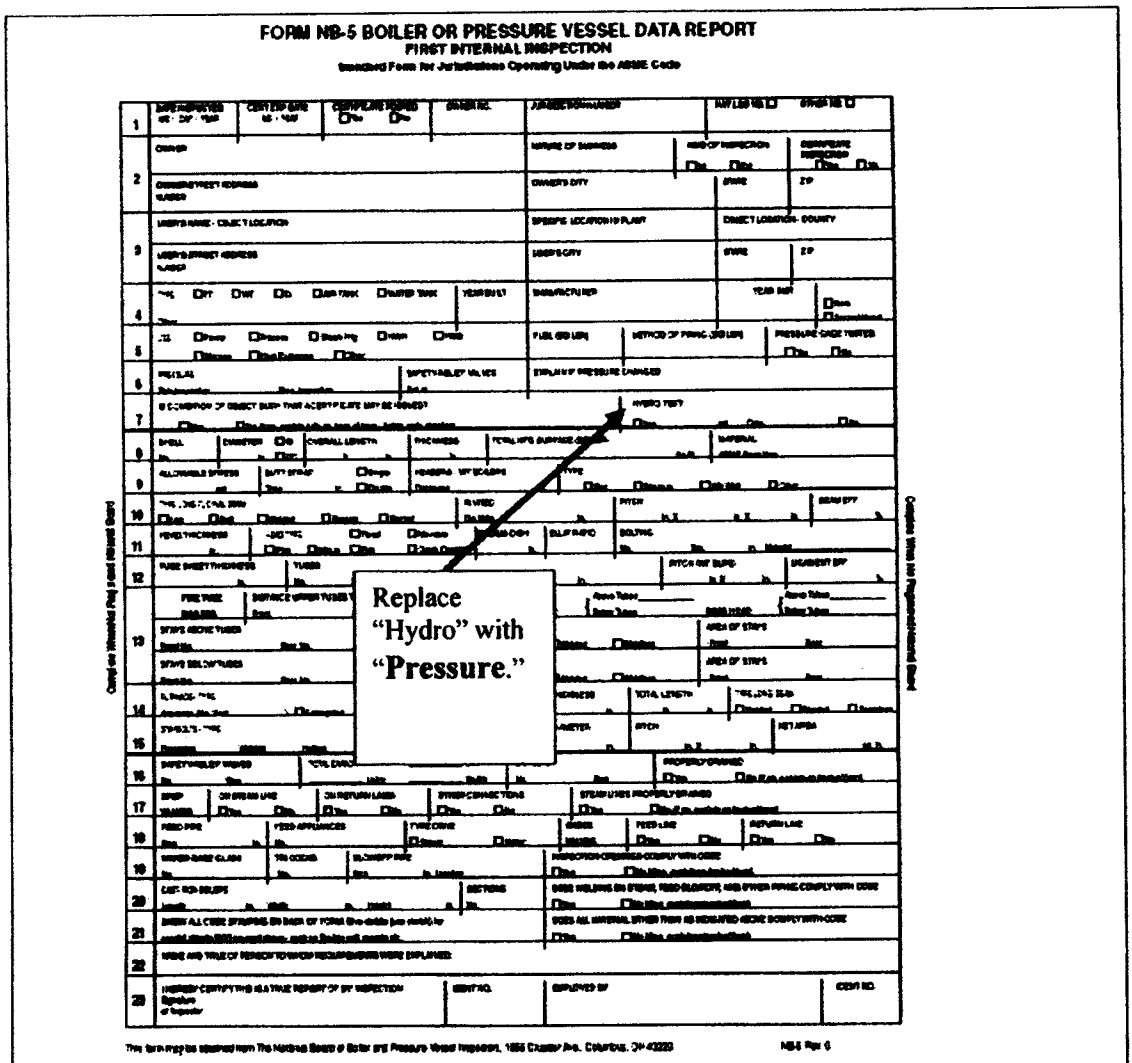
10/2

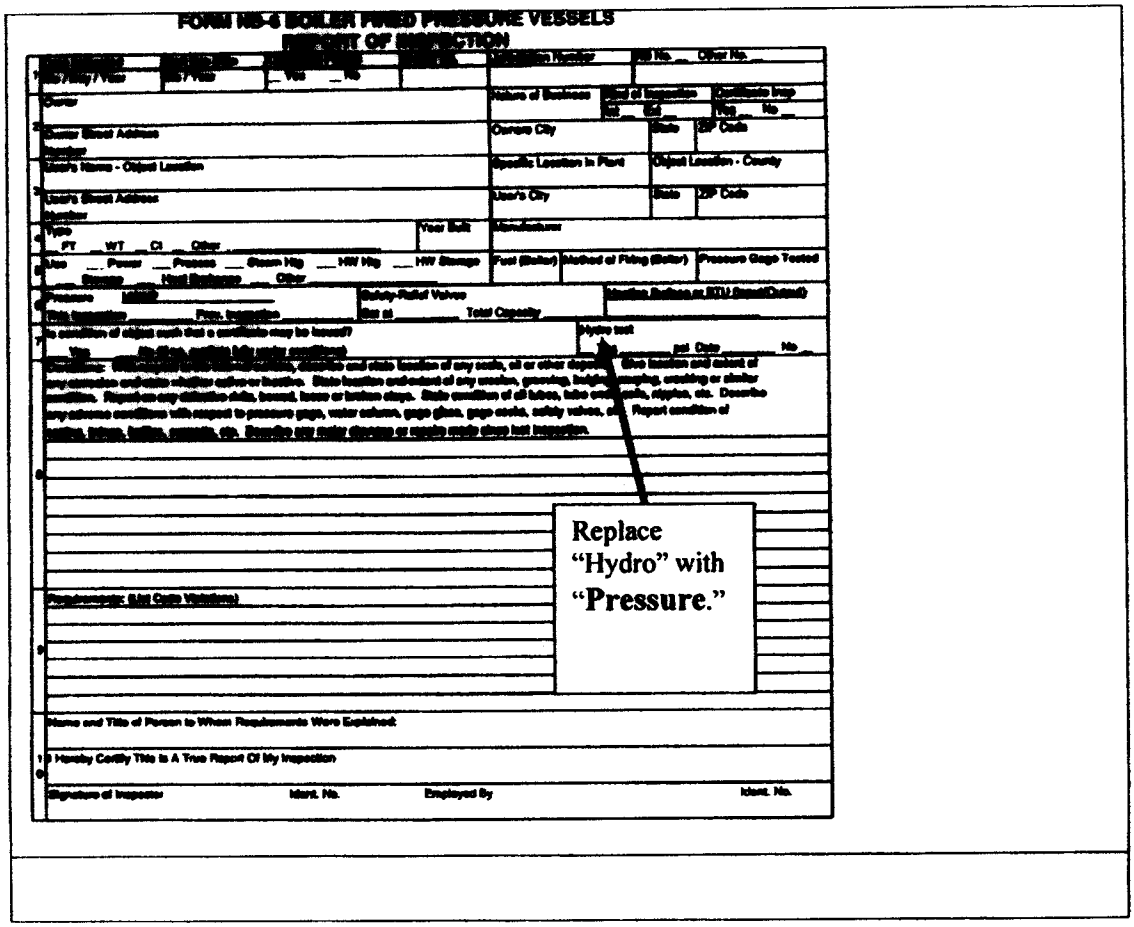
ION CODE • PART 2 — INSPECTION	
he 4.3.2 LEAK TESTING ed Leak testing for the purpose of detecting any est leakage may be performed when a pressure he test cannot be performed. Some methods or es- techniques for leak testing may include bubble test (direct pressure or vacuum), helium mass spectrometer, pressure change, or flow mea- surement. Use of leak test procedures shall be or in agreement between the owner-user and the he Inspector. Use of written procedures and expe- en rienced personnel is required when performing n- leak tests. The Inspector shall review the written he procedure to become familiar with limitations, ed adequacy, methods, and acceptance standards on identified.	**4.3.2 LEAK TESTING** Leak testing for the purpose of detecting significant pressure boundary leakage may be performed. A leak test is conducted by filling the PRI with the normal operating fluid at ambient pressure and temperature. The PRI is visually examined for signs of leakage.
es- 4.3.3 EVIDENCE OF LEAKAGE IN A of BOILER es er- For additional understanding regarding a leak ite in a boiler, see 2.2.7 for the extent of a pos- n- sible defect. A pressure test may be performed as follows: be a) To determine tightness, the test pressure he shall be no greater than the maximum al- nt lowable working pressure stamped on the he pressure-retaining item. ire u- b) During a pressure test where the test pres- sc- sure will exceed 90% of the set pressure of of a pressure relief device, the device shall be removed whenever possible. If not possible or practical, a spindle restraint such as a el gag may be used provided that the valve ed manufacturer's instructions and recom- al. mendations are followed. Extreme caution w should be employed to ensure only enough n- force is applied to contain pressure. Exces- le sive mechanical force applied to the spindle on restraint may result in damage to the seat d. and/or spindle and may interfere with the nt proper operation of the valve. The spindle he restraint shall be removed following the test.	***4.3.3 Delete***

14/20

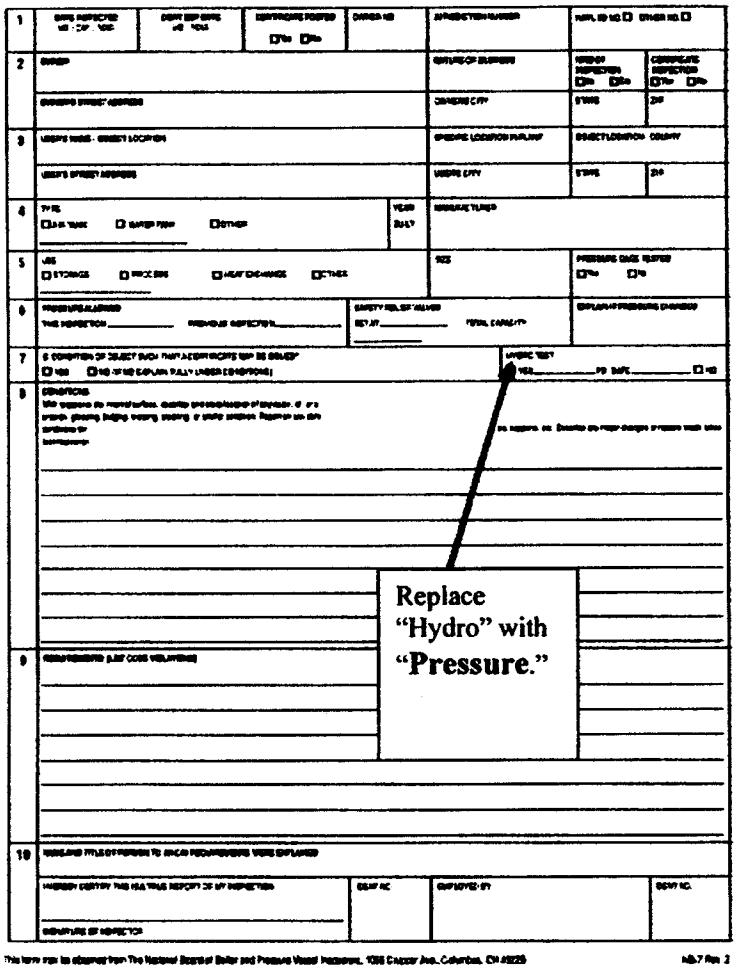
c) Components subjected to fire damage can exhibit altered mechanical properties, and should be evaluated to determine if the material has retained necessary strength and toughness as specified in the original code of construction. Heating above the lower critical temperature results in a phase transformation that upon rapid cooling can dramatically affect material properties. Evaluation methods may consist of: 1) Portable hardness testing 2) Field metallography or replication 3) Pressure testing 4) Magnetic particle testing 5) Liquid penetrant testing 6) Visual examination 7) Dimensional verification checks d) If visual distortion or changes in the microstructure or mechanical properties are noted, consider replacing the component or a detailed engineering analysis shall be performed to verify continued safe operation. e) Techniques for evaluating fire damage are referenced in applicable standards. See 1.3.	<u>**3) Pressure testing**</u>

4/2


FORM NB-5 BOILER OR PRESSURE VESSEL DATA REPORT
FIRST INTERNAL INSPECTION
Replace "Hydro" with "Pressure."


Hydro test
Replace "Hydro" with "Pressure."

FORM NB-7 PRESSURE VESSELS
REPORT OF INSPECTION
Standard Form for Jurisdictions Operating Under the ASME Code



i: Broken staybolts may be detected by leakage through telltale holes and by hammer testing. Both methods are most effective when the boiler is under hydrostatic pressure of at least 95% MAWP. If a hydrostatic test cannot be applied, the hammer test may be performed alone with the boiler drained.	In Part 2 - Supplement 1, there are several references to hammer testing staybolts while a hydrostatic test is being conducted. The Task Group recommends that this practice be further evaluated to ensure that personnel safety and integrity of the equipment is not jeopardized. **S1.4 LOCOMOTIVE FIRETUBE BOILER INSPECTION**

	S1.4.1 INSPECTION METHODS i.) Broken staybolts may be detected by leakage through telltale holes and by hammer testing. Both methods are most effective when the boiler is under hydrostatic pressure of at least 95% MAWP. If a hydrostatic test cannot be applied, the hammer test may be performed alone with the boiler drained.
NATIONAL BOARD INSPECTION SUPPLEMENT 2 HISTORICAL BOILERS S2.1 SCOPE a) This supplement is provided as a guide to inspection of historical steam boilers of riveted and/or welded construction not falling under the scope of Supplement 1. These historical steam boilers would include: steam tractors, traction engines, hobby steam boilers, portable steam boilers, and other such boilers that are being preserved, restored, and maintained for demonstration, viewing, or educational purposes. 07 Note: This supplement is not to be used for steam locomotive boilers falling under the requirements of the Federal Railroad Administration (FRA). FRA rules for steam locomotive boilers are published in 49 CFR 230. Specific rules and special requirements for inspection, repairs, alterations, and storage of steam locomotive boilers are identified in Supplement 1 of the NBIC. b) The rules specified in this supplement shall be used in conjunction with the applicable rules in this Code. References specified or contained in this Supplement may provide additional information to assist the user when applying the requirements of this supplement. S2.2 INTRODUCTION	Supplement 2, there are several references to pressure testing. S 2.6 contains a safety warning that is in direct contradiction to guidance provided in Section 4.3.1. The Task Group strongly recommends that the safety warning be deleted from Supplement 2. The Task Group recommends that all pressure test requirements currently found in supplement 2 be deleted. Supplement 2 should reference Section 4.3.1.and 4.3.2 where necessary. The Task Group recommends that recurring pressure test requirements for historical boilers be further evaluated to ensure that integrity of the equipment is not jeopardized.

10/21

NB07-0905 Part Revision Proposal July 17, 2009

NATIONAL BOARD INSPECTION CO b) Common evidence of exposure to fire is: 1) charring or burning of the paint or other protective coat; 2) burning or scarring of the metal; 3) distortion; or 4) burning or melting of the valves. c) A pressure vessel that has been subjected to the action of fire shall be removed from service until it has been properly evaluated. The general intent of this requirement is to remove from service pressure vessels which have been subject to the action of fire that has changed the metallurgical structure or the strength properties of the steel. Visual examination with emphasis given to the condition of the protective coating can be used to evaluate exposure from a fire. This is normally determined by visual examination as described above with particular emphasis given to the condition of the protective coating. If there is evidence that the protective coating has been burned off any portion of the pressure vessel surface, or if the pressure vessel is burned, warped, or distorted, it is assumed that the pressure vessel has been overheated. If, however, the protective coating is only smudged, discolored, or blistered, and is found by examination to be intact underneath, the pressure vessel shall not be considered affected within the scope of this requirement. Vessels that have been involved in a fire and show no distortion shall be requalified for continued service by retesting using the hydrostatic test procedure applicable at the time of original fabrication.	[Replace "hydrostatic" with "pressure" in part "c"] pressure

17/2c

Dutchman — Generally limited to tube or pipe cross-section replacement. The work necessary to remove a compromised section of material and replace the section with material meeting the service requirements and installation procedures acceptable to the Inspector. Also recognized as piecing.

Examination — In process work denoting the act of performing or completing a task of interrogation of compliance. Visual observations, radiography, liquid penetrant, magnetic particle, and ultrasonic methods are recognized examples of examination techniques.

Exit — A doorway, hallway, or similar passage that will allow free, normally upright unencumbered egress from an area.

Field — A temporary location, under the control of the Certificate Holder, that is used for repairs and/or alterations to pressure-retaining items at an address different from that shown on the Certificate Holder's *Certificate of Authorization*.

Forced-Flow Steam Generator — A steam generator with no fixed steamline and waterline.

Inspection — A process of review to ensure engineering design, materials, assembly, examination and testing requirements have been met and are compliant with the Code.

Inspector — See National Board Commissioned Inspector and National Board Owner-User Commissioned Inspector.

Intervening — Coming between or inserted between, as between the test vessel and the valve being tested.

Jurisdiction — A governmental entity with the power, right, or authority to interpret and enforce law, rules, or ordinances pertaining to boilers, pressure vessels, or other pressure-retaining items. It includes National Board member jurisdictions defined as "jurisdictional authorities."

Jurisdictional Authority — A member of the National Board, as defined in the National Board Constitution.

[Insert new description of "Hydrostatic test".]

Hydrostatic test – A pressure test which is conducted using water or another appropriate liquid as the test medium.

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Lift Assist Device — A device used to apply an auxiliary load to a pressure relief valve stem or spindle, used to determine the valve set pressure as an alternative to a full pressure test.

Manufacturer's Documentation — The documentation that includes technical information and certification required by the original code of construction.

Mechanical Assembly — The work necessary to establish or restore a pressure retaining boundary, under supplementary materials, whereby pressure-retaining capability is established through a mechanical, chemical, or physical interface, as defined under the rules of the NBIC. A08

Mechanical Repair Method — A method of repair, which restores a pressure retaining boundary to a safe and satisfactory operating condition, where the pressure retaining boundary is established by a method other than welding or blazing, as defined under the rules of the NBIC. A08

NBIC — The *National Board Inspection Code* published by The National Board of Boiler and Pressure Vessel Inspectors.

"NR" Certificate Holder — An organization in possession of a valid "NR" *Certificate of Authorization* issued by the National Board.

National Board — The National Board of Boiler and Pressure Vessel Inspectors.

National Board Commissioned Inspector — An individual who holds a valid and current National Board Commission.

Nuclear Items — Items constructed in accordance with recognized standards to be used in nuclear power plants or fuel processing facilities.

Original Code of Construction — Documents promulgated by recognized national standards writing bodies that contain technical requirements for construction of pressure-retaining items or equivalent to which the pressure-retaining item was certified by the original manufacturer.

Leak Test – An examination that is conducted using the normal operating fluid of a PRI at ambient pressure and temperature. The PRI is visually examined for signs of leakage. A leak test is used to determine if there are significant pressure boundary integrity issues.

[Insert new description of "Leak Test."]

Owner or User — As referenced in lower case letters means any person, firm, or corporation legally responsible for the safe operation of any pressure-retaining item.

Owner-User Inspection Organization — An owner or user of pressure-retaining items that maintains an established inspection program, whose organization and inspection procedures meet the requirements of the National Board rules and are acceptable to the jurisdiction or jurisdictional authority wherein the owner or user is located.

Owner-User Inspector — An individual who holds a valid and current National Board Owner-User Commission.

Piecing — A repair method used to remove and replace a portion of piping or tubing material with suitable material and installation procedure.

Pressure-Retaining Items (PRI) — Any boiler, pressure vessel, piping, or material used for the containment of pressure, either internal or external. The pressure may be obtained from an external source, or by the application of heat from a direct source, or any combination thereof.

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.

Repair — The work necessary to restore pressure-retaining items to a safe and satisfactory operating condition.

Re-ending — A method used to join original code of construction piping or tubing with replacement piping or tubing material for the purpose of restoring a required dimension, configuration or pressure-retaining capacity.

Re-rating — See alteration.

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[Insert new description of "Pneumatic Test."]

Pneumatic Test – A pressure test which uses air or another compressible gas as the test medium.

[Replace existing "Pressure Test" with following text and "Note."]

Pressure Test – An examination that is conducted using an external source of pressure to pressurize a fluid (liquid or gas) contained inside a pressure retaining item. The PRI is visually examined for signs of leakage during the application of pressure. A pressure test can be used to aid in the determination of the pressure boundary integrity of a pressure retaining item.

The NBIC recognizes two types of pressure tests; hydrostatic and pneumatic.

Note: The term " pressure test" is sometime used to mean an operational test of a pressure relief device's pressure relieving set point and operating parameter. The above definition does not apply PRD operational testing.

Attachment 5

National Board of Boiler and Pressure Vessel Inspectors
National Board Inspection Code
Submission of Public Review Comment
2010 Draft Edition with 2010 Addendum Cycle A

PLEASE SUBMIT ONLY ONE COMMENT/RECOMMENDATION PER PAGE
Make additional copies as needed

Comments Must be Received No Later Than: December 7, 2010

Instructions: If unable to submit electronically, please print this form and fax or mail. Print or type clearly.

Date: 10/22/09

Commenter Name: George Galanes

Commenter Address: Midwest Generation
Illinois

Commenter Phone: 815 - 207 - 5897

Commenter Fax: 312 - 788 - 5218

Commenter Email: ggalanes@mwgen.com

Section/Subsection Referenced: Part 3, 4.4.1 (e)

Comment/Recommendation: *Proposed Solution:* ☐ New Text ☒ Revise Text ☐ Delete Text

Under 4.4.1 (e), delete the first sentence, NDE may be conducted. See attachment

Source: ☒ Own Experience/Idea ☐ Other Source/Article/Code/Standard

Submit Form To: Robin Hough, Secretary, NBIC Committee, The National Board of Boiler & Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, OH 43229, fax 614-847-1828, email, rhough@nationalboard.org

NB Use Only
Commenter No. Issued: PR10-01
Comment No. Issued: 01
Project Committee Referred To: Repairs + Alterations

4.4.1 TEST OR EXAMINATION METHODS APPLICABLE TO REPAIRS

e) Nondestructive Examination

~~NDE may be conducted, when pressure testing is not practicable.~~ NDE methods used shall be suitable for providing meaningful results to verify the integrity of the repair. Exclusive use of Visual Examination (VT) is only permitted with the following considerations:

1. When a pressure test or alternative NDE methods other than Visual Examination (VT), are not practicable the exclusive use of direct VT as an NDE method shall be limited to routine repairs, as identified in 3.3.2.

2. For each repair being considered, the exclusive use of direct VT as an NDE method shall be acceptable to the Inspector, and where required, the Jurisdiction.

3. As a minimum, direct VT shall be performed after the root weld layer or first-pass is deposited, and the final weld surface. Other weld layers shall be examined as identified by the Inspector and, where required, the jurisdiction.

4. Personnel completing direct VT shall be qualified and certified in accordance with paragraph 4.2- b), AWS QC-1, or any nationally recognized standard acceptable to the Jurisdiction. Visual acuity shall be demonstrated using as a minimum, standard J-2 letters on standard Jaeger test type charts for near vision.

5. Direct VT shall be performed in accordance with a written procedure meeting the procedure and reporting requirements listed in the original code of construction or ASME Section V, Article 9.

4.4.2 TEST OR EXAMINATION METHODS APPLICABLE TO ALTERATIONS

Section 4.4.2-c

c) Nondestructive Examination

Nondestructive examination (NDE) may be conducted when contamination of the pressure retaining item by liquids is possible or when pressure testing is not practicable. Concurrence of the owner shall be obtained in addition to the Inspector, and, where required, the Jurisdiction. Exclusive use of Visual Examination (VT) shall not be permitted. In all cases NDE methods or combination of methods used shall be suitable for providing meaningful results to verify the integrity of the alteration.

(2)

National Board of Boiler and Pressure Vessel Inspectors
National Board Inspection Code
Submission of Public Review Comment
2010 Draft Edition with 2010 Addendum Cycle A

PLEASE SUBMIT ONLY ONE COMMENT/RECOMMENDATION PER PAGE
Make additional copies as needed

Comments Must be Received No Later Than: December 7, 2010

Instructions: If unable to submit electronically, please print this form and fax or mail. Print or type clearly.

Date: 11/3/09

Commenter Name: Mike Schwartzwalder

Commenter Address: American Electric Power
1 Riverside Plaza, Columbus, Ohio 43215

Commenter Phone: 614-716-1913

Commenter Fax: 614-716-1744

Commenter Email: meschwartzwalder@aep.com

Section/Subsection Referenced: 4.4.1 e)

Comment/Recommendation: *Proposed Solution:* ☐ New Text ☑ Revise Text ☐ Delete Text

- Use consistent capitalization of the term "jurisdiction" throughout the Section.

- In 4.4.1 e) 3 last sentence should read "Other weld areas ~~shall~~ 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.

Source: ☐ Own Experience/Idea ☑ Other Source/Article/Code/Standard _____

Submit Form To: Robin Hough, Secretary, NBIC Committee, The National Board of Boiler & Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, OH 43229, fax 614-847-1828, email, rhough@nationalboard.org

NB Use Only
Commenter No. Issued: PR10-02
Comment No. Issued: 01
Project Committee Referred To: Repairs + Alterations

(3)

be marked out but left legible. The new blowdown may be based on the current ASME Code requirements.

e) Incorrect information on the original manufacturer's nameplate shall be marked out but left legible. Corrected information shall be indicated on the repair nameplate and noted on the document as required by the quality system. A07

5.9.4 TEST ONLY NAMEPLATE

a) Where a valve has been tested and adjusted, as permitted by S7.10.1, but not otherwise repaired, a "Test Only" nameplate shall be applied that contains the following information:

1) Name of responsible organization;

2) Date of test;

3) Set Pressure; and

4) Identification, such as "Test Only."

b) A "test only" nameplate is also recommended when periodic testing has been performed, even when no adjustments have been made, for the purpose of identifying the date the valve was tested.

c) The existing repair nameplates, if applicable, shall not be removed during such testing.

5.9.5 REPLACEMENT OF ILLEGIBLE OR MISSING NAMEPLATES

a) Illegible Nameplates
When the information on the original manufacturer's or assembler's nameplate or stamping is illegible, but traceability can be confirmed, the nameplate or stamping will be augmented or replaced by a nameplate furnished by the "VR" stamp holder stamped "duplicate." It shall contain all information that originally appeared on the nameplate or valve, as required by the applicable section of the ASME Code, except the "V," "HV," or "UV" symbol and the National Board mark. The repair organization's nameplate, with the "VR" stamp and other required data specified in 5.9.2, will make the repairer responsible to the owner and the Jurisdiction that the information on the duplicate nameplate is correct.

b) Missing Nameplates
When the original valve nameplate is missing, the repair organization is not authorized to perform repairs to the valve under the "VR" program, unless positive identification can be made to that specific valve and verification that the valve was originally stamped with an ASME "V" or "UV" symbol or marked with an ASME "HV" symbol. Valves that can be positively identified will be equipped with a duplicate nameplate, as described in this section, in addition to the repairer's "VR"-stamped nameplate. The repairer's responsibilities for accurate data, as defined in 5.9.5(a) (Illegible Nameplates), shall apply.

c) Marking of Original Code Stamp
When a duplicate nameplate is affixed to a valve, as required by this section, it shall be marked "Sec. I," "Sec. IV," or "Sec. VIII," as applicable, to indicate the original ASME Code stamping.

5.9.6 REQUIREMENTS FOR STAMPING AND NAMEPLATE INFORMATION

5.9.6.1 SCOPE

When a pressure-retaining item is repaired or altered, the Certificate Holder shall attach a nameplate or stamp the item, except when otherwise permitted by these rules. Similarly, when pressure relief devices are repaired, the

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attachment of a nameplate is required. The specific requirements for nameplates/stamping are described in this Part. See Figures 5.9.6-a thru 5.9.6-g.

5.9.6.2 GENERAL REQUIREMENTS FOR STAMPING AND NAMEPLATES

a) Required data shall be in characters of at least 5/32 in. (4 mm) high, except that characters for pressure relief valve repair nameplates may be smaller. Markings may be produced by casting, etching, embossing, debossing, stamping, or engraving. The selected method shall not result in any harmful contamination of or sharp discontinuities to the pressure-retaining item.

b) The National Board code symbols ("R," "VR," and "NR") are to be stamped; do not emboss.

c) Stamping directly on items, when used, shall be done with blunt-nose continuous or blunt-nose interrupted dot die stamps. If direct stamping would be detrimental to the item, required markings may appear on a nameplate affixed to the item.

d) The Certificate Holder shall use its full name as shown on the *Certificate of Authorization* or an abbreviation acceptable to the National Board.

e) The letters "RP" shall be stamped below the "R" symbol stamp to indicate organizations accredited for performing repairs or alterations to fiber-reinforced plastic items.

f) The letter "G" shall be stamped below the "R" symbol stamp to indicate organizations accredited for performing repairs or alterations to graphite pressure equipment.

5.9.6.3 ADDITIONAL STAMPING REQUIREMENTS FOR REPAIRS

Stamping or nameplate shall be applied adjacent to the original manufacturer's stamping or nameplate. A single repair nameplate or stamping may be used for more than one repair to a pressure-retaining item provided it is carried out by the same Certificate Holder. The date of each repair, corresponding with the date on the associated Form R-1, shall be stamped on the nameplate.

5.9.6.4 ADDITIONAL STAMPING REQUIREMENTS FOR ALTERATIONS AND RE-RATINGS

Stamping or nameplate shall be applied adjacent to the original manufacturer's stamping or nameplate.

5.9.6.5 ADDITIONAL STAMPING REQUIREMENTS FOR PARTS

Stamping or nameplate shall be applied in a conspicuous location on the part.

5.10 ALTERNATIVE MARKING AND STAMPING FOR GRAPHITE PRESSURE EQUIPMENT

a) General Requirements

1) This procedure may be used in lieu of the stamping and nameplate requirements defined in this section.

2) The required data as defined in this section shall be 5/32 in. (4 mm) high, minimum.

3) The National Board code symbol ("R") shall be used to make the impression in the cement.

2/3 (5)

b) Application of the "R" Code Symbol

1) The graphite surface shall be clean and smooth.

2) Apply a thin coating of cement onto the Code part. The cement should have the consistency of toothpaste.

3) Apply sufficient heat to the cement so that it begins to form a skin.

4) Apply a coating of a thinned release agent, such as "ANTISEIZE," to the tip of the "R" stamp with a brush.

5) Press the coated stamp all the way to the bottom of the cement and remove by pulling straight out before the cement hardens.

6) Cure or heat the impression as required.

7) When cured, the part may be washed to remove any excess release agent.

c) Application of characters directly to graphite

1) Use a very thin template of a flexible material (stainless steel; flexible and easily cleaned).

2) Place the template over a clean smooth surface.

3) Hold the template securely and trowel over with approved cement to fill all of the template area.

4) Carefully lift the template from the graphite part and examine the detail of the characters.

5) If acceptable, cure the cement.

6) If the characters are incorrect or damaged, wipe off the cement with a compatible solvent and reapply.

Note: The preceding methods can be applied jointly to identify the graphite part and to transfer the "R" stamp.

5.11 STAMPING FOR FIBER-REINFORCED VESSELS

The attaching of a nameplate to a repaired or altered vessel or tank shall indicate that the work was performed in accordance with the requirements of this Code. The attachment of a nameplate shall be done only with the knowledge and authorization of the Inspector. The Certificate Holder responsible for the repair or alteration shall apply the stamping nameplate. Required stamping and nameplate information are shown in 5.9.6.

5.11.1 REMOVAL OF ORIGINAL STAMPING OR NAMEPLATE

If it becomes necessary to remove the original stamping, the Inspector shall, subject to the approval of the Jurisdiction, witness the making of a facsimile of the stamping, the obliteration of the old stamping, and the transfer of the stamping to the new item. When the stamping is on a nameplate, the Inspector shall witness the transfer of the nameplate to the new location. Any relocation shall be described on the applicable NBIC form. The restamping or replacement of a code symbol stamp shall be performed only as permitted by the governing code of construction. A07

5.11.2 STAMPING FOR REPAIRS

Pressure-retaining items repaired in accordance with the NBIC shall have a nameplate as required by Section 5.9.6. Subject to the acceptance of the jurisdiction and the concurrence of the Inspector, nameplates may not be required for routine repairs. (See 5.7.2[b]). In all cases, the type and extent of repairs necessary shall be considered prior to waiving the requirement.

3/3 (6)

S1.2.9.2 ARCH TUBES

a) Arch tubes that are damaged or reduced to less than minimum required wall thickness shall be replaced in entirety by new one-piece arch tubes. Welded repairs or partial replacement is not permitted. Damage includes defects such as bulging, burns, and cracks.

b) When arch tubes are installed by rolling, the tube end shall project through the firebox sheet not less than 1/4 in. (6 mm) nor more than 3/4 in. (19 mm) before flaring. At a minimum the tube shall be expanded and flared at least 1/8 in. (3 mm) greater than the diameter of the tube hole. Additionally, the tube may be beaded and/or seal welded provided the throat of the seal weld is not more than 3/8 in. (10 mm), and the tube is finished rolled after welding.

c) An arch tube installed by welding shall be considered a welded nozzle. Some acceptable weld joints are shown in Figure S1.2.9.2 Ref. ASME Section I, Part PW 16.1.

d) A change in tube attachment from rolled to welded or welded to rolled shall be considered an alteration.

S1.2.9.3 TUBE WALL THICKNESS FOR ARCH TUBES

The minimum wall thickness of replacement arch tubes shall be as shown in Table S1.2.9.3.

TABLE S1.2.9.3

Size	Wall Thickness
up to 3 in. (75 mm) OD	8 Birmingham wire gage (BWG)
more than 3 in. (75 mm) OD to 4 in. (100 mm) OD	7 Birmingham wire gage (BWG)

S1.2.9.4 THERMIC SIPHONS

a) For repairs to siphon knuckles see *Repair of Firebox and Tubesheet Knuckles*, and Figures S1.2.11.5-a and S1.2.11.5-b.

b) All weld repairs to the unstayed sections of the siphon neck and body shall be radiographically examined.

S1.2.9.5 CIRCULATORS

a) All butt welds on circulators shall be radiographically examined.

b) Welds applied to the circulator/firebox sheet joint shall be in accordance with the weld requirements for arch tubes. (See Figure S1.2.9.2).

S1.2.9.6 RE-ROLLING OF FLUE-TUBES AFTER SEAL WELDING A08

All flues and tubes that are installed by rolling and seal welding shall be re-rolled after seal welding is complete.

S1.2.10 REPAIRS AND ALTERATIONS TO BOILER BARREL UNSTAYED AREAS

a) Defects such as cracks and wastage may be repaired by weld buildup, a welded flush patch or a riveted patch. Installation of a riveted patch shall be considered an alteration. Prior to repairing cracks, the plate shall be examined for defects. Affected sections shall be repaired.

b) Weld buildup shall not be used if the affected section of plate has wasted below 60% of the minimum required thickness.

c) If the cracked section of plate is retained and is to be repaired by installation of a riveted patch, the crack may be stopped by drilling stop holes at each end or removed by a method such as grinding, cutting, or machining. Results of stop drilling or crack removal shall be verified by NDE.

1/30 (7)

d) Welded repairs at or near riveted seams requiring preheating or postweld heat treatment shall be carefully made in order to prevent loosening in the riveted seams, especially when localized heating is used. Where necessary to control expansion or to gain access for welding, rivets at the defective section and to each side of it may be removed. Reuse of rivets and staybolts is prohibited.

e) All welded repairs to boiler barrel unstayed areas shall be radiographically examined in accordance with ASME Code, Section I, when the size of the repaired area is greater than the maximum size of an unreinforced opening as calculated in accordance with the latest edition of ASME Code, Section I.

f) Riveted patches may be any shape or size provided the lowest patch efficiency is equal to or greater than the lowest equivalent seam efficiency of the boiler course to which it is applied. Ref: ASME Code, Section I.

FIGURE S1.2.9.4-a
Locomotive Firebox Thermic Siphon Installation

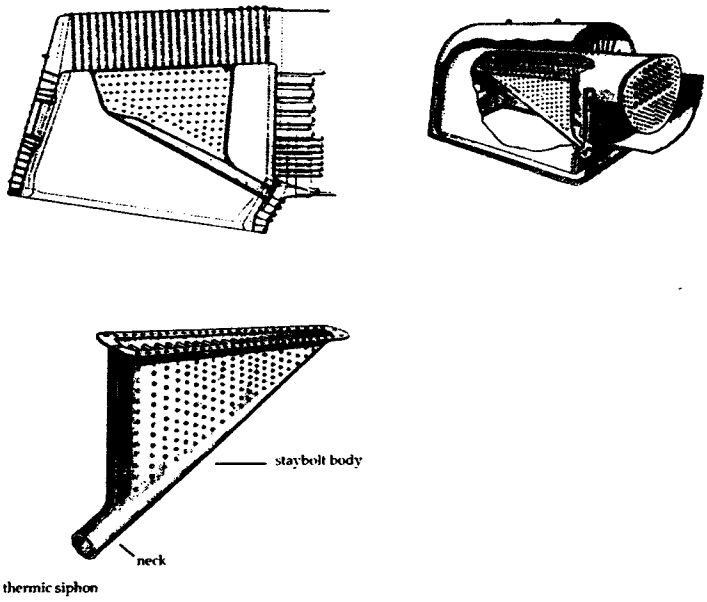
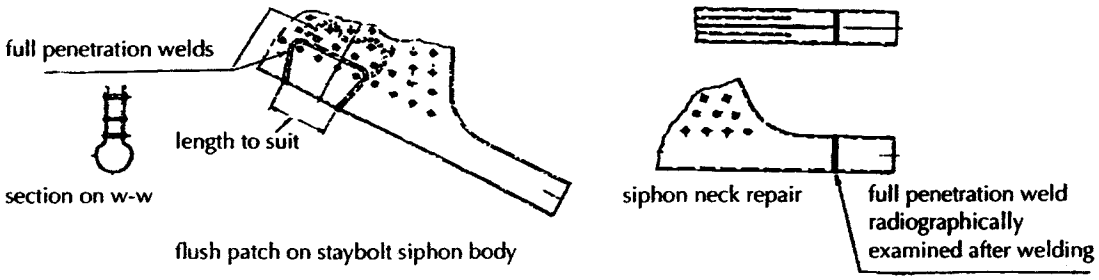


FIGURE S1.2.9.4-b
Thermic Siphon Repair



2/3 8

g) The factor of safety of all riveted patches shall not be less than four for locomotives operating under Federal Railroad Administration regulations.

S1.2.11 REPAIRS AND ALTERATIONS TO BOILER BARREL STAYED AREA

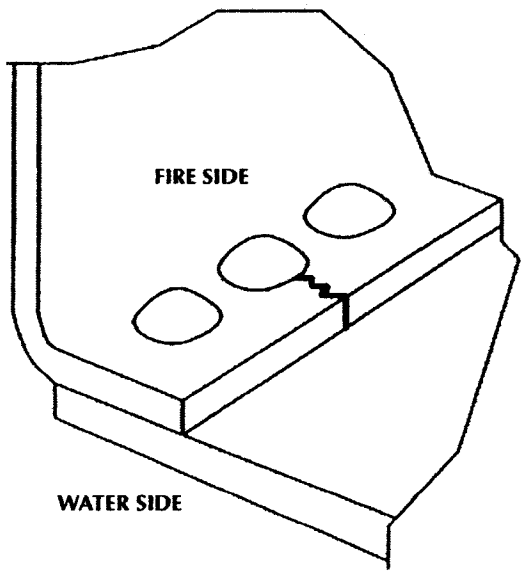
S1.2.11.1 FIREBOX SHEET REPAIR

a) Cracks in all stayed firebox sheets may be repaired by welding or the installation of a flush patch.

b) If the crack extends into a staybolt or rivet hole, the staybolt or rivet shall be removed prior to making the repair.

A07 c) Fire cracks or thermal fatigue cracks in riveted seams located in the firebox that run from the edge of the plate into the rivet holes may be left in place provided they do not leak and there is no indication that
A08 the seam or rivets are loose. (See Figure S1.2.11.1).

A08 **FIGURE S1.2.11.1**
Example of Thermal Fire Crack

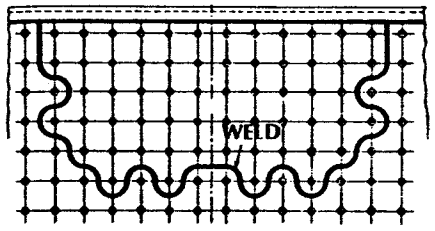


S1.2.11.2 FIREBOX PATCHES

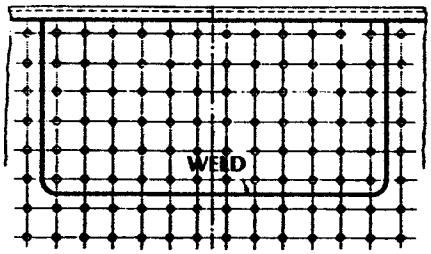
a) Patches may be any shape provided they are adequately supported by staybolts, rivets, tubes, or other forms of construction. Patches on stayed surfaces should be designed so weld seams pass between staybolt rows. (See Figure S1.2.11.2).

b) Patches are to be flush type, using full penetration welds. If the load on the patch is carried by

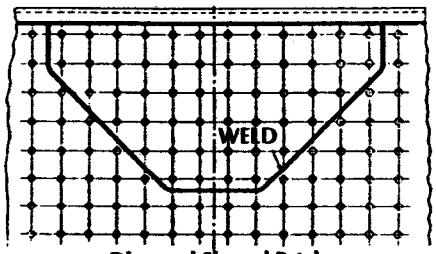
FIGURE S1.2.11.2
Typical Firebox Patches
This figure illustrates what would be considered a saw-tooth patch. Its advantage is that a maximum amount of welding is obtained for securing a given patch and by zig-zagging the weld, the weld is supported by three rows of staybolts instead of two. Its disadvantage is its irregular shape which causes greater difficulty in fitting and applying.



Saw-Tooth Patch



Rectangular Shaped Patch



Diamond Shaped Patch

3/30 (9)

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A07 S2.13.9.2 WELDED REPAIR OF CRACKS IN UNSTAYED AREAS

A07 a) Prior to repairing cracks, the plate shall be NDE examined for other defects. All affected sections shall be repaired. (See Figure S2.13.9.2).

A07 b) Cracks in stayed areas may be repaired by welding. Before cracks are repaired, however, the inner surface of the plate should be examined for possible excessive corrosion or grooving.

A07 c) Cracks in unstayed areas may be repaired by welding, providing the cracks do not extend between rivet holes in a longitudinal seam or parallel to a longitudinal seam within 8 in. (200 mm). The completed repair must be radiographed and stress relieved. Alternative methods in lieu of Postweld Heat Treatment identified in 2.5.3 may be used.

A07 d) Cracks radiating from a common point (star cracking) shall not be repaired; installation of a flush patch is required. Cracks radiating from a rivet hole in a girth seam may be repaired if the plate is not seriously damaged.

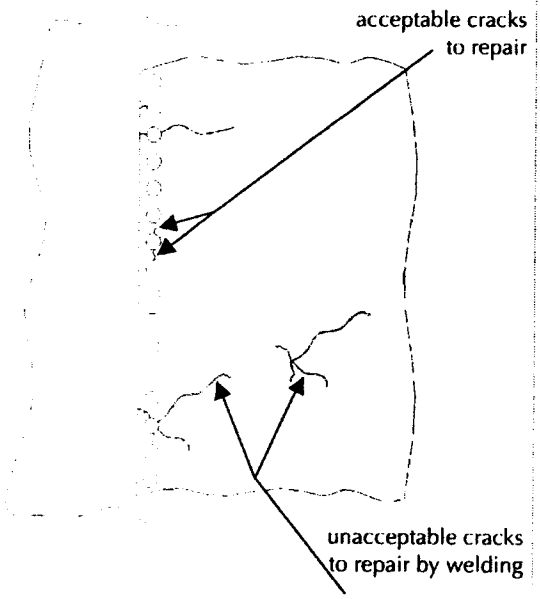
e) Prior to welding, the rivets into which cracks extend and the rivets on each side of them shall be removed. A07

f) In riveted joints, tack bolts should be placed in alternating holes to hold the plate laps firmly. A07

g) Rivets holes should be reamed after welding. A07

h) Welding shall not cover rivet heads. A07

A07 **FIGURE S2.13.9.2**
Unstayed Area Crack Repair



S2.13.9.3 WELDED FLUSH PATCHES IN UNSTAYED AREAS A07

a) Welded repairs to boiler unstayed areas shall be radiographically examined in accordance with the approved code of construction or ASME Code, Section I, when the size of the repaired area is greater than 3 in. (75 mm) in diameter. The completed repair must be stress relieved. Alternative Methods without Postweld Heat Treatment identified in 2.5.3 may be used. A07

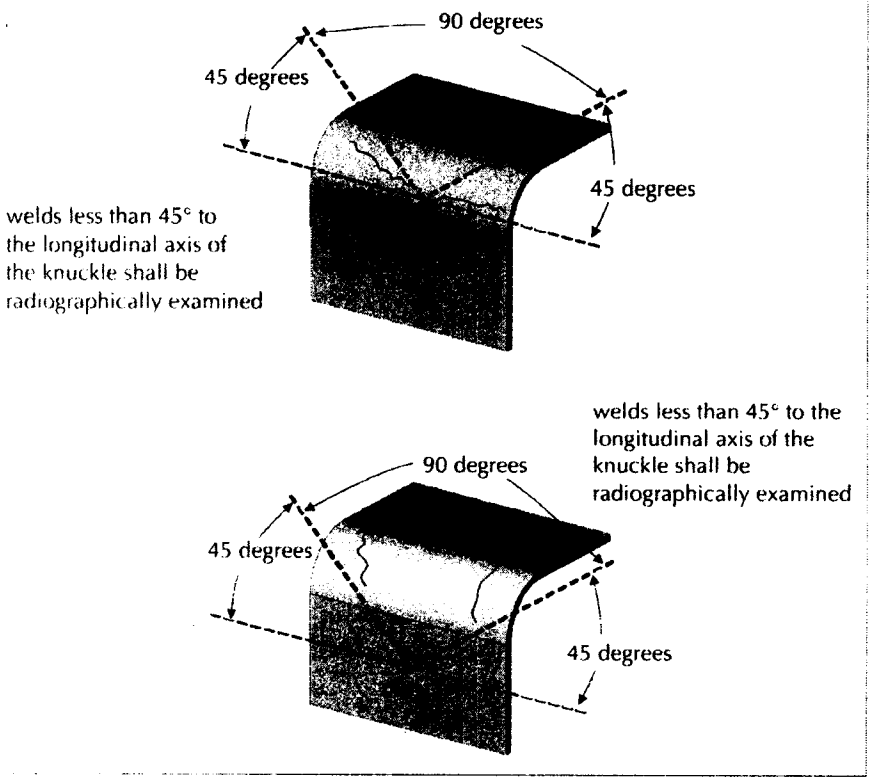
b) The weld around a flush patch shall be a full penetration weld and the accessible surfaces shall be ground flush. Examples of flush welded patches are shown in Figure S2.13.9.3. A07

c) Before installing a flush patch, the defective material should be removed until sound material is reached. A07

d) The patch should be rolled or pressed to the proper shape or curvature. The edges of the patch should align with original material without overlap. Patches shall fit flush on the waterside of the sheet. If the patch includes an existing riveted seam, A07

10

A07 **FIGURE S2.13.11.2**
Knuckle Weld Angles



A07 S2.13.11.3 WELDED FLUSH PATCHES IN FIREBOX AND TUBESHEET KNUCKLES

A07 Any patch not supported by means other than the weld, such as rivets, staybolts, tubes, or other forms of construction, shall have all weld seams radiographically examined. (See Figure S2.13.11.3). All other requirements specified in S2.13.9.3 shall be followed.

A07 S2.13.12 REPAIR OF TUBESHEETS

A07 S2.13.12.1 WELD BUILDUP OF WASTAGE AND GROOVING IN TUBESHEETS

All requirements of S2.13.9.1 and S2.13.10 shall be followed with the additional requirements listed below:

a) Damaged tubesheet holes may be repaired by welding. A07

b) Prior to welding, tubes in the wasted area should be removed.

c) Tube holes should be reamed after welding.

d) Welding shall not cover tube ends.

S2.13.12.2 WELDED REPAIR OF CRACKS IN TUBESHEETS A07

a) The same method of repairing cracks in stayed areas identified in Figure S2.13.12.2 shall be followed with the additional requirements identified below:

1) Cracks in a tubesheet and cracks between tubesheet ligaments may be

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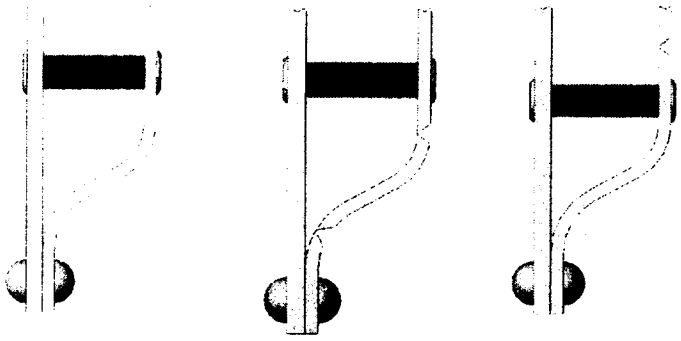
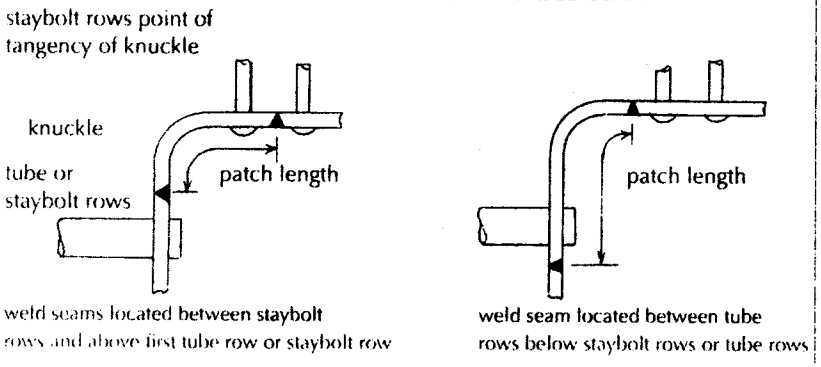
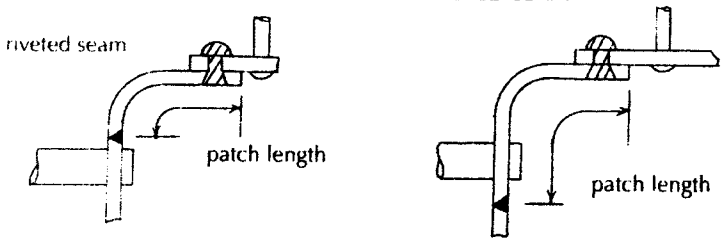
A07 FIGURE S2.13.11.3
Knuckle Flush Patch



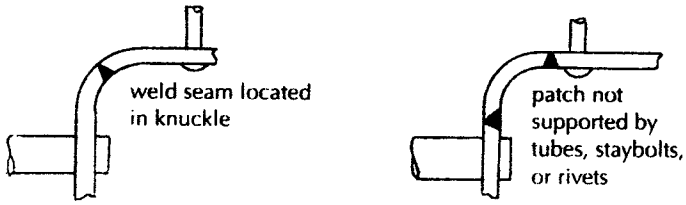
STAYED PATCH APPLIED TO BUTT WELDED SEAM



STAYED PATCH APPLIED TO RIVETED SEAM



REPAIRS REQUIRING RADIOGRAPHIC EXAMINATION OF WELD SEAMS



2/3 (12)

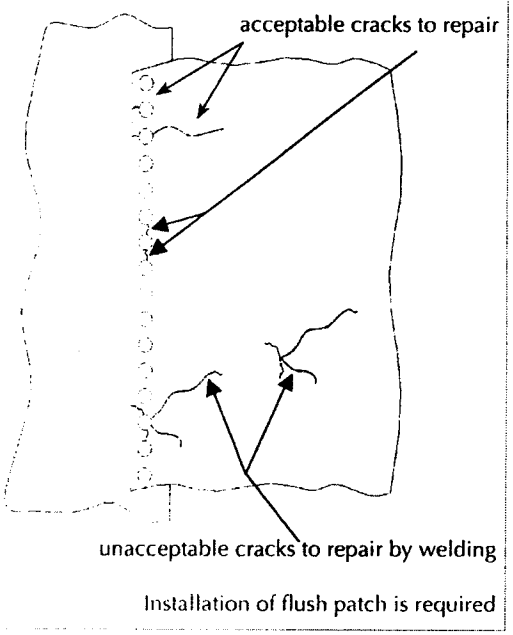
repaired by welding using full penetration welds. Before cracks are repaired, however, the inner surface of the plate should be carefully examined for possible excessive corrosion or grooving.

2) If the crack extends into a tube hole, the tube shall be removed prior to making the repair.

3) Tube holes should be reamed after welding.

4) Welding shall not cover tube ends.

FIGURE S2.13.12.2
Stayed Area Crack Repair A07

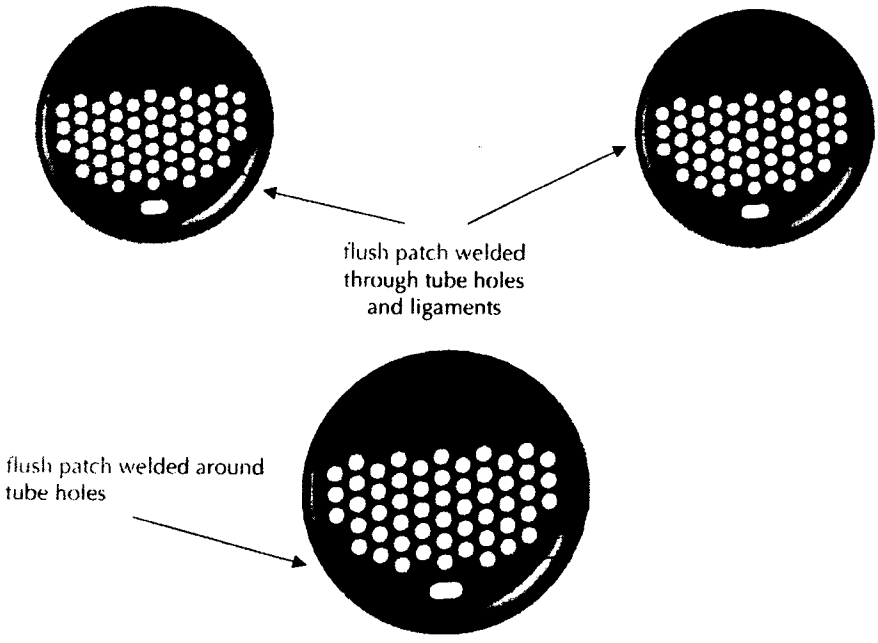


A07 S2.13.12.3 WELDED FLUSH PATCHES IN TUBESHEETS

a) The method of repair shall follow the same requirements identified in S2.13.10.3 with the following requirement as noted below:

1) Tubes, staybolts, and rivets should be installed after welding of the patch is completed. (See Figure S2.13.12.3).

A07 **FIGURE S2.13.12.3**
Tubesheet Flush Patch



3/3 (13)

repaired by welding using full penetration welds. Before cracks are repaired, however, the inner surface of the plate should be carefully examined for possible excessive corrosion or grooving.

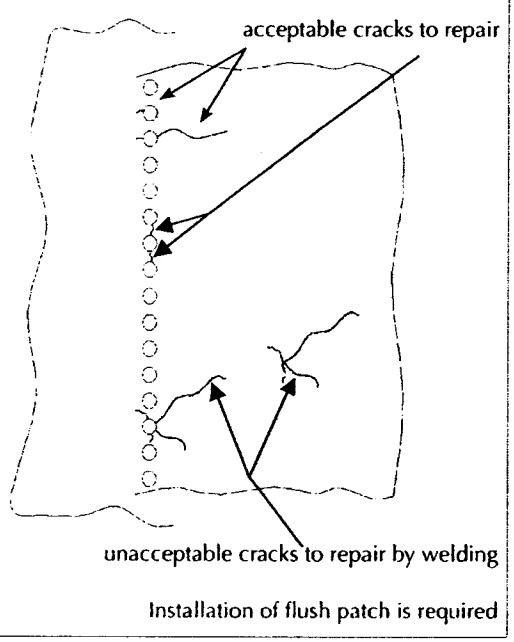
2) If the crack extends into a tube hole, the tube shall be removed prior to making the repair.

3) Tube holes should be reamed after welding.

4) Welding shall not cover tube ends.

A07

FIGURE S2.13.12.2
Stayed Area Crack Repair



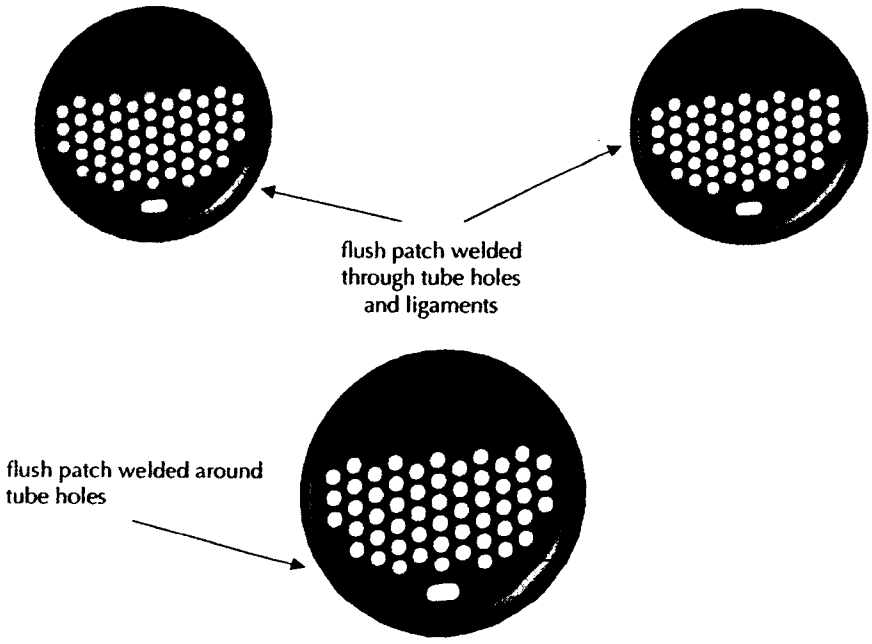
A07 S2.13.12.3 WELDED FLUSH PATCHES IN TUBESHEETS

a) The method of repair shall follow the same requirements identified in S2.13.10.3 with the following requirement as noted below:

1) Tubes, staybolts, and rivets should be installed after welding of the patch is completed. (See Figure S2.13.12.3).

A07

FIGURE S2.13.12.3
Tubesheet Flush Patch



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A07 S2.13.13 SEAMS, JOINTS, AND RIVETS

A07 S2.13.13.1 CAULKING RIVETED SEAMS AND RIVET HEADS SEE FIGURE S2.13.13.1

a) Caulking refers to the sealing of plate seams and rivet heads by driving the edge of one surface onto the other by use of an impact tool.

b) The plate edges should be beveled to an angle not sharper than 70 degrees to the plane of the plate and as near thereto as practicable.

c) Caulking shall be done with a tool of such form that there is no danger of scoring or damaging the plate underneath the caulking edge, or splitting the caulked sheet.

d) Riveted seams and rivet heads may be recaulked after repairs to tighten joint.

A07 S2.13.13.2 RIVET HOLES

a) All holes for rivets in plates, buttstraps, heads, stays, and lugs shall be drilled; or they may be punched at least 1/8 in. less than full diameter for material not over 5/16 in. in thickness and at least 1/4 in. less than full diameter for material over 5/16 in.

b) Such holes shall not be punched in material more than 5/8 in. in thickness.

c) For final drilling or reaming the hole to full diameter, the parts shall be firmly bolted in position by tack bolts.

d) The finished holes must be true, clean, and concentric.

S2.13.13.3 ASSEMBLY OF RIVETED JOINTS A07

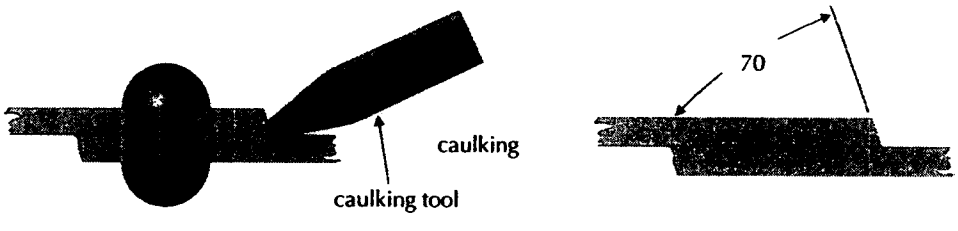
After drilling or reaming rivet holes, the plates shall be separated, the burrs and chips removed, and the plates reassembled. Barrel pins fitting the holes and tack bolts to hold the plates firmly together shall be used.

S2.13.13.4 RIVETING A07

a) Rivets shall be so driven as to fill the holes preferably by a machine that maintains the pressure until no part of the head shows red in the daylight. Barrel pins fitting the holes and tack bolts to hold the plates firmly together shall be used. A rivet shall be driven on each side of each tack bolt before removing the tack bolt.

b) Rivets shall be of sufficient length to completely fill the rivet holes and form heads at least equal in strength to the bodies of

A07 **FIGURE S2.13.13.1**
Rivet Heads



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(15)

During the vacuum test, the vacuum source may be left connected to the vessel to compensate for leakage at fittings. All vessels acoustic emission tested, as required by the original code of construction, shall be retested during the vacuum test concentrating on the repaired or altered part of the vessel.

S4.16 ADDITIONAL REQUIREMENTS FOR REPAIRS

S4.16.1 SCOPE

This section provides additional requirements for repairs to pressure-retaining items and shall be used in conjunction with S4.1 thru S4.14 and S4.18.

S4.16.2 DRAWINGS

Drawings shall be prepared or modified to describe the repair. Drawings shall include sufficient information to satisfactorily perform the repair.

S4.16.3 REPAIR PLAN

When repairs other than those defined in S4.16.4 are being made to ASME Section X or RTP-1 stamped equipment, the user shall prepare or cause to have prepared a detailed plan covering the scope of the repair.

a) Professional Engineer Review
The repair plan shall be reviewed and certified by a Professional Engineer who is registered in one or more of the states of the United States of America or the provinces of Canada and is experienced in reinforced plastic vessel design. The review and certification shall be such to ensure that the work involved in the repair is compatible with the *User's Design Specification* or *User's Basic Requirements Specification* and the *Manufacturer's Design Report*. The certification shall also include any drawings and calculations prepared as part of the repair plan.

b) Authorized Acceptance
Following review and certification, the repair plan shall be submitted to the Inspector for his review and acceptance. Repairs to pressure-retaining items shall not be initiated without the authorization of the Inspector. Subject to acceptance of the Jurisdiction, the Inspector may give prior approval for routine repairs, provided the Inspector assures that the Certificate Holder has acceptable procedures covering the repairs.

S4.16.4 ROUTINE REPAIRS

Prior to performing routine repairs, the Certificate Holder should determine that routine repairs are acceptable to the Jurisdiction where the work is to be performed.

a) Acceptable routine repairs are listed below:

1) The addition or repair of non-load bearing attachments to pressure-retaining items where post curing is not required.

2) Replacement and repair of damaged corrosion liner areas in shells and heads shall not exceed 100 sq. in. (65 sq. cm) and not exceed the original corrosion liner thickness.

b) Routine repairs may be performed under the Certificate Holder's quality system program; however, the requirement for in-process involvement of the Inspector and stamping are waived. (See Section 5 of this part).

2) Hold the maximum load for at least 30 minutes.

3) Condition the vessel by holding at reduced load as required by Section V, Article 11, T-1121.

4) Retest the vessel as required by this appendix.

5) The vessel shall be judged against the evaluation criteria for subsequent loadings.

f) Hold time for the examination by the Inspector shall be the time necessary for the Inspector to conduct the inspection.

g) When pressure testing using liquids is not practical, other methods shall be used as follows:

1) The pressure test may be a pneumatic test provided the Certificate Holder has the concurrence of the Inspector, the jurisdictional authority where required, and the owner. Precautionary requirements of the applicable section of the original code of construction shall be followed.

2) For vessels designed for vacuum, a vacuum test shall be carried out to as close as practical to the design vacuum level of the vessel. During the vacuum test the vacuum source may be left connected to the vessel to compensate for leakage at fittings. All vessels originally acoustic emission tested shall be retested during the vacuum test concentrating on the repaired or altered part of the vessel.

S4.18 REPAIR AND ALTERATION METHODS

S4.18.1 GENERAL REQUIREMENTS

a) In general, when a defective or damaged vessel wall is to be repaired, the total structural laminate sequence of laminate construction removed as part of the repair shall be replaced. The replacement laminate shall provide structural properties meeting or exceeding the requirement of the original construction standard. Moreover, when damage includes the corrosion barrier, a corrosion barrier of the same type, which shall meet or exceed the barrier properties of the original construction, shall replace the corrosion barrier removed as part of the repair.

b) The repair shall meet the requirements of the original construction standard.

S4.18.2 CLASSIFICATION OF REPAIRS

a) Vessel repairs shall be classified into the following types:

1) Type 1a — Corrosion barrier repairs

2) Type 1b — Corrosion barriers with precision bores

3) Type 2 — Corrosion barrier and interior structural layer repairs

4) Type 3 — External structural layer repairs

5) Type 4 — Alterations

6) Type 5 — Miscellaneous general external repairs or alterations

7) Type 6 — Thermoplastic repairs

8) Type 7 — Gel coat repairs

SUPPLEMENT 5
GENERAL REQUIREMENTS FOR REPAIRS AND ALTERATIONS TO YANKEE DRYERS

S5.1 SCOPE

This supplement provides additional requirements for repairs and alterations to Yankee dryer pressure-retaining components and shall be used in conjunction with inspection requirements identified in Part 2, *Inspection* Supplement 5.

S5.2 EXAMINATIONS AND TEST METHODS

In addition to the requirements of 4.4.1 and 4.4.2, the following are recommended:

a) Acoustic emission testing

b) Metallographic examination when thermal damage is suspected due to operational or repair activities.

S5.3 YANKEE DRYER REPAIR METHODS

This supplement provides additional requirements for repair methods to yankee dryer pressure-retaining components and shall be used in conjunction with Section 2 thru 5 of this part, as appropriate.

S5.3.1 REPLACEMENT PARTS FOR YANKEE DRYERS

a) Yankee dryer replacement pressure-retaining parts shall be fabricated in accordance with the manufacturer's design and the original code of construction. Yankee dryer pressure-retaining parts may include:

1) shell

2) heads

3) center shaft, stay, or trunnion

4) stay bars

5) structural bolting

6) journals

b) Replacement of nonpressure-retaining parts, when different from the manufacturer's design, shall be evaluated for any possible effect on the pressure-retaining parts.

S5.4 REPAIR GUIDE FOR YANKEE DRYERS

a) Welding or brazing shall not be used on any Yankee dryer pressure-retaining component manufactured from cast iron. The *Manufacturer's Data Report* shall be carefully reviewed to determine the material of construction of each Yankee dryer component such as shell, heads, and journals.

b) Structural deterioration or damage caused by corrosion, thinning, or cracking shall not be repaired until their extent has been determined by suitable nondestructive examination.

c) The user shall have a plan covering the scope of the repair. The plan shall ensure that the work involved is compatible with the original design specification and good engineering practices.

d) All repair work shall be documented.

A07 S6.16 ADDITIONAL REQUIREMENTS FOR REPAIRS, ALTERATIONS, OR MODIFICATIONS

A07 S6.16.1 SCOPE

This section provides additional requirements for repairs, alterations, or modifications to pressure-retaining items and shall be used in conjunction with this section.

A07 S6.16.2 REPAIRS OF DEFECTS

Before a repair is made to a defect in a welded joint or base metal, care should be taken to investigate its cause and to determine its extent and likelihood of recurrence. This information shall be made available to the Inspector.

A07 S6.16.3 MODIFICATIONS

All modifications to the pressure-retaining item shall meet the requirements of this section.

A07 S6.16.4 DRAWINGS

Drawings or instructions shall be prepared to describe the repair, alterations, or modification. Drawings shall include sufficient information to satisfactorily perform the activity.

A07 S6.16.5 AUTHORIZATION

Repairs, alterations, or modifications to pressure vessel shall not be initiated without the authorization of the Inspector, who shall determine that the repair methods are acceptable and subject to acceptance of the Competent Authority.

S6.17 EXAMINATION AND TEST A07

The following requirements shall apply to all repairs to pressure-retaining items:

a) The integrity of repairs and replacement parts used in repairs, alterations, or modifications shall be verified by examination and test.

b) The "TR" Certificate Holder is responsible for all activities relating to examination and test of repair, alterations, or modifications.

c) Examination and tests to be used shall be subject to acceptance of the Inspector and the Competent Authority.

S6.17.1 METHODS A07

One or a combination of the following examination and methods shall be applied to pressure-retaining items with the concurrence of the Inspector and the Competent Authority.

a) Liquid Pressure Test A07
Pressure testing of repairs shall meet the following requirements:

1) Pressure tests shall be conducted using water or other suitable liquid. 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 item, 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. A07

space is needed to properly record the repair, alteration, or modification, Form TR-2 shall be used.

c) It is the responsibility of the "TR" Symbol Stamp Holder to prepare, distribute, and maintain the Form TR-1 and, if required, Form TR-2. The Form(s) shall be distributed as follows:

1) Owner-User;

2) Registered Inspector;

3) Competent Authority (DOT); and

4) National Board.

d) The Form TR-1 shall be signed by a Registered Inspector as defined in S6.7.1.

A07 S6.19.1 REGISTRATION OF FORM TR-1 AND FORM TR-2

a) It is required by DOT that the Form TR-1 and, if applicable, Form TR-2 be registered with the National Board.

b) The repair organization shall maintain a sequential Form "TR" Log that shall identify the following:

1) Form number assigned for Form TR-1;

2) Identify if the activity was a repair, alteration, or modification; and

3) Date sent to the National Board.

A07 S6.19.2 GENERAL REQUIREMENTS "TR" STAMPING AND NAMEPLATES

The holder of a "TR" *Certificate of Authorization* is required to affix a stamping or nameplate on the Transport Tank that indicates, as appropriate, that the repair, alteration, or modification has been performed in accordance with the requirements of this supplement of the NBIC and the additional requirements of the code of construction. The stamping or nameplate information shall satisfy the requirements of (a) thru (g) below:

a) The required data shall be in characters at least 4 mm (5/32 in.) high;

b) The markings may be produced by casting, etching, embossing, debossing, stamping, or engraving;

c) The selected method shall not result in any harmful contamination or sharp discontinuities to the pressure-retaining boundary of the Transport Tank;

d) Stamping directly on the Transport Tank, when used, shall be done with blunt-nose continuous or blunt-nose interrupted dot die stamps. If direct stamping would be detrimental to the item, required markings may appear on a nameplate affixed to the Transport Tank;

e) The "TR" Certificate Holder shall use its full name as shown on the *Certificate of Authorization* or an abbreviation acceptable to the National Board;

f) The stamping when directly on the item or when a nameplate is used shall be applied adjacent to the original manufacturer's stamping or nameplate. A single repair, alteration, or modification stamping or nameplate may be used for more than one repair to a Transport Tank, provided the repair, alteration, or modification activity is carried out by the same certificate holder;

g) The date of each repair, alteration, or modification corresponding with the date on the Form TR-1shall be stamped on the nameplate.

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LETTER BALLOT

NB10-0302

Subj.: Revision of S3.2 d)

Explanation: 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.

PM: Shawn Malone

Background: Typically, graphite parts are machined to shape or extruded, and then impregnated. There are no standard specifications for impregnation of graphite, and no specifications for results of the impregnation. Part UIG of Section VIII, Div. 1 requires extensive testing of impregnated graphite material to prove it meets Code requirements.

The NBIC does not specifically require the repair firm to use ASME Code material for replacement parts. The proposed revision addresses this issue.

Existing text:

Delete

d) When ASME is the original code of construction, replacement parts subject to internal or external pressure, which require shop inspection by an Authorized Inspector, shall be fabricated by an organization having an appropriate ASME *Certificate of Authorization*. The item shall be inspected and stamped as required by the applicable section of the ASME Code. A completed ASME *Manufacturer's Partial Data Report* shall be supplied by the manufacturer.

Proposed Revision:

Replace with:

d) When ASME is the original code of construction, replacement parts subject to internal or external pressure shall be fabricated from certified material supplied by an organization having the appropriate ASME *Certificate of Authorization*. The item shall be inspected and stamped as required by the applicable section of the ASME Code. A completed ASME *Manufacturer's Partial Data Report* shall be supplied by the impregnated graphite material manufacturer.

Rationale: Part UIG of Section VIII, Div.1 controls the manufacture of impregnated graphite material, and requires the impregnated graphite to be stamped with the Code symbol. The current words of S3.2 d) permits the repair firm to use parts, such as tubes, that are not Code material. The proposed revision requires replacement parts to be fabricated from ASME stamped material.

NB10-0302 Graphite

Stupica,Andy voted: Approve ! 12/11/2009 3:16:23 PM	
Soltow,Ed voted: Approve ! 12/8/2009 10:56:12 AM	
malone,shawn voted: Approve ! 11/20/2009 2:38:59 PM	
Bonn,Tim voted: Approve ! 11/20/2009 12:20:47 PM	
Minick,Merle voted: Approve ! 11/20/2009 11:52:59 AM	However I think a material test report or partial data report could be used

NB10-0701

December 2, 2009

Secretary, NBIC Committee
The National Board of Boiler and
Pressure Vessel Inspectors
1055 Crupper Avenue
Columbus, OH 43229

Subject: Request for addition to NBIC, Part 3 code rules.

Purpose: To assure the ultimate objective of quality of work with sufficient documentation to show what was accomplished under the R Stamp program.

Statement of need: Currently there are no requirements for records retention or detail of work and test performed required for the R Stamp program. Joint reviews do not always provide sufficient evidence that stamp holders and inspections agencies are following code requirements when performing actual repairs and alterations of pressure retaining items. When performing jurisdictional inspections on items that have multiple repairs it is often no way for the inspector to verify who complete which repair leaving the possibility that the inspector is unable to identify non code welds.

These subjects were part of the member's technical meeting in October 2009 with overwhelming consensus that the R stamp program needs to address three separate issues.

1. Requirement for retention of all records to include but not limited drawings, design and specifications, repair and alteration methods, materials used, method of performing work, welding, NDE heat treatment, and examination and test performed. I would recommend the records retention be at least from review to review.
2. Requirements the R forms provide sufficient detail to allow for positive identification of type and location of work performed.
3. Requirements for the R forms to provide sufficient detail of examinations test and acceptance inspections to prove compliance with code requirements.

With the current economic situation and the decline in state and local revenues, many jurisdictions are being required to justify each and every program to show that they provide an acceptable level of safety without excessive cost to business. Without the recommended changes members are faced with the real possibility of being unable to

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show the real value of the R stamp program to legislators and ultimately having laws changed to remove the requirement for R stamp holders to perform welding on pressure retaining items. In my opinion, the impact of losing the requirement for the use of R stamp holders even in one jurisdiction has the potential to lead to catastrophic results.

Please feel free to contact me if you have any questions concerning this matter.

Regards,

Gary L. Scribner
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