



*THE NATIONAL BOARD  
OF BOILER AND PRESSURE VESSEL INSPECTORS*

# **NATIONAL BOARD INSPECTION CODE TASK GROUP INTERPRETATIONS**

## **AGENDA**

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Meeting of January 9, 2023  
Charleston, SC

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**

The Chair will call the meeting to order at 1:00 p.m. EST. For those attending in person, the meeting will be held in Carolina A on the Mezzanine Level of the hotel.

**2. Roll call of Members and introduction of Visitors**

**3. Check for a Quorum**

**4. Awards/Special Recognition**

**5. Announcements**

- The National Board will be hosting a reception on Wednesday evening from 6:30 p.m. to 8:30 p.m. in the Colonial Ballroom at the hotel.
- The National Board will be hosting breakfast and lunch on Thursday. Breakfast will be served from 7:00 a.m. to 8:00 a.m. in the Colonial Ballroom, and lunch will be served from 11:30 a.m. to 12:30 p.m. in the Colonial Ballroom.

**6. Adoption of the Agenda**

**7. Approval of the Minutes of the July 11<sup>th</sup>, 2022, Meeting**

The minutes are available for review on the National Board website, [www.nationalboard.org](http://www.nationalboard.org).

**8. Review of Rosters**

**a. Membership Nominations**

- i. Mr. Matt Schaser and Mr. Jon Ferreira would like to be considered for INTERP Task Group membership.

**b. Membership Reappointments**

None

**c. Officer Nominations**

## 9. Interpretations

Item Number: I21-79	NBIC Location: Part 3, 3.3.3(h)(2)	Attachment Page 1
<p><b>General Description:</b> Mechanical Replacement of Shell or Head</p> <p><b>Subgroup:</b> Repairs and Alterations</p> <p><b>Task Group:</b> B. Schaefer (PM), M. Quisenberry</p> <p><b>Explanation of Need:</b> This interpretation and corresponding Code revision (A21-80) would provide clarity to NBIC users and address whether mechanical replacement of these components is considered a repair.</p> <p><b>INT TG July 2022 Meeting Action:</b> M. Quisenberry presented a <b>PR</b></p>		
Item Number: I22-14	NBIC Location: Part 3, 3.2.2 b) and c)	Attachment Page 2
<p><b>General Description:</b> Overlaid Replacement Parts</p> <p><b>Subgroup:</b> Repairs and Alterations</p> <p><b>Task Group:</b> T. McBee (PM), M. Carlson, D. Kinney, M. Quisenberry, P. Gilston, J. Ferreira</p> <p><b>Explanation of Need:</b> Replacement parts that are documented using a Manufacturer's Partial Data report that have been inspected by an Authorized Inspector may still be supplied as a replacement part under paragraph 3.2.2 b) and therefore not require a Hydro test per Paragraph 3.2.2 e). Panels made from Overlaid tubes and for single overlaid tube Dutchman that contain only weld overlay, where the overlay is not considered to be pressure retaining when the overlay is not considered part of the strength of the boiler tube per ASME Section I PW-44. May be supplied as replacement parts under paragraph 3.2.2 b). The purpose of the overlay is to extend the life of boiler tubes in the waste to energy corrosive environment from external wear.</p> <p><b>July 2022 Meeting Action:</b> T. McBee presented. Additional members added to task group. <b>This was a PR.</b></p> <p><b>NOTE:</b> This item is currently being balloted to Main Committee for approval.</p>		

**New Interpretation Requests:**

<b>Item Number: I22-24</b>	<b>NBIC Location: Part 3, 3.3.4.8</b>	<b>Attachment Page 5</b>
<p><b>General Description:</b> Repair of pressure ret'ing items without complete removal of defect</p> <p><b>Subgroup:</b> Repairs and Alterations</p> <p><b>Task Group:</b> M. Quisenberry (PM), L. Dutra</p> <p><b>Explanation of Need:</b> 3.3.4.8 does imply that the defect should be known in regards to characteristics such as orientation, nature, depth, configuration but does not fully state this.</p> <p><b>January 2023 Meeting Action:</b></p>		
<b>Item Number: I22-25</b>	<b>NBIC Location: Part 3, 3.3.2 e) 5)</b>	<b>Attachment Page 6</b>
<p><b>General Description:</b> ASME Section I Watertube Boilers – Plugging Tubes</p> <p><b>Subgroup:</b> Repairs and Alterations</p> <p><b>Task Group:</b> D. Kinney (PM), R. Derby</p> <p><b>Explanation of Need:</b> The last item in paragraph 3.3.2 e) reads, “5) Seal welding a mechanical connection for leak tightness where by design, the pressure retaining capability is not dependent on the weld for strength and requires no PWHT.” A repair organization used this paragraph as justification to document a seal welded tube plug on a watertube boiler as routine.</p> <p><b>January 2023 Meeting Action:</b></p>		
<b>Item Number: I22-33</b>	<b>NBIC Location: Part 3, 3.4.3</b>	<b>Attachment Page 7</b>
<p><b>General Description:</b> Encapsulation of Shells and Heads</p> <p><b>Subgroup:</b> Repairs and Alterations</p> <p><b>Task Group:</b> M. Quisenberry (PM), R. Derby</p> <p><b>Explanation of Need:</b> To clarify that encapsulation cannot be used to maintain the pressure retaining capability of shells and heads of pressure retaining items.</p> <p><b>January 2023 Meeting Action:</b></p>		

## 10. Future Meetings

- July 2023 – TBD
- January 2024 – Charlotte, NC

## 11. Adjournment

Respectfully submitted,

*Terrence Hellman*

Terrence Hellman, TG Interpretations Secretary

## PROPOSED INTERPRETATION

<b>Item No.</b>  21-79
<b>Subject/Title</b>  Mechanical Replacement of Shell or Head
<b>Project Manager and Task Group</b>  
<b>Source (Name/Email)</b>  Robert Underwood / robert_underwood@hsb.com
<b>Statement of Need</b>  This interpretation and corresponding Code revision would provide clarity to NBIC users and address whether mechanical replacement of these components is considered a repair.
<b>Background Information</b>  There are two conflicting NBIC interpretations relating to mechanical replacement of parts. Interpretation 01-29 states that NBIC neither requires nor prohibits documenting mechanical repair installation on a Form R-1. Recently passed interpretation 19-11 states that mechanical replacement of pressure retaining components in ASME Section VIII, Div. 3 vessels are considered a repair activity. 19-11 cites paragraph 3.3.3 which provides examples of repairs. Paragraph 3.3.3(h)(2) specifically states that replacement of head or shell in accordance with the original design. It does not specify whether head was replaced by welding or mechanical attachment.
<b>Proposed Question</b>  Is mechanical replacement of a shell or head of a pressure retaining item considered a repair activity?
<b>Proposed Reply</b>  Yes, see Part 3, 3.3.3(h).
<b>Committee's Question 1</b>  
<b>Committee's Reply 1</b>  
<b>Rationale</b>  
<b>Committee's Question 2</b>  
<b>Committee's Reply 2</b>  
<b>Rationale</b>  

## PROPOSED INTERPRETATION

<b>Item No.</b>  22-14
<b>Subject/Title</b>  Overlaid Replacement Parts
<b>Project Manager and Task Group</b> Tim McBee – PM, Mike Carlson, Don Kinney, Michael Quisenberry, Phil Gilston, Jon Ferreira.
<b>Source (Name/Email)</b>  Harold Greer / Harold.greer32@yahoo.com
<b>Statement of Need</b>  Replacement parts that are documented using a Manufacturer's Partial Data report that have been inspected by an Authorized Inspector may still be supplied as a replacement part under paragraph 3.2.2 b) and therefore not require a Hydro test per Paragraph 3.2.2 e). Panels made from Overlaid tubes and for single overlaid tube Dutchman that contain only weld overlay, where the overlay is not considered to be pressure retaining when the overlay is not considered part of the strength of the boiler tube per ASME Section I PW-44. May be supplied as replacement parts under paragraph 3.2.2 b). The purpose of the overlay is to extend the life of boiler tubes in the waste to energy corrosive environment from external wear.
<b>Background Information</b>  ASME Section I PG-112.6 states that a P-4 is neither required nor prohibited for pressure parts that do not contain pressure-retaining welds. NBIC Part 3 section 3 paragraph 3.2.2 c) .....replacement parts subject to internal or external pressure fabricated by welding, "which require inspection by an Authorized Inspector"..... An inspector could interpret this as, any replacement part that is certified with a form P-4 would therefore require inspection by an Authorized Inspector and would then require a Hydro test by paragraph 3.2.2 e) prior to installation in the boiler. It is the opinion of this manufacturer that Overlaid boiler tubes where the overlay is not considered as part of the strength of the boiler tube per PW-44 of ASME Section I, is not pressure retaining. Hydro testing of Weld Overlay would not provide meaningful data and would require excessive costs for no benefit. Such as performance of 200 hydro tests at 1.5 x MAWP for section I, for 200 Overlaid tube Dutchmen, where each tube must be witnessed by the Inspector prior to installation in a boiler. Whereas, after installation there are 400 actual pressure retaining welds in a single test at a pressure that need only verify leak tightness and the acceptance of the Inspector.
<b>Proposed Question</b>  Q1) May a boiler furnace wall panel that contains no pressure retaining welds and has been documented on a P-4 Manufacturer's Partial Data Report in accordance with PG-112.6 of ASME Section I, be provided as a replacement part in accordance with NBIC Part 3, 3.2.2 b)? Q2) The same panel referred to in Q1 is manufactured with a weld overlay that is not part of the strength of the boiler tube (corrosion resistance, hard facing, etc...) and documented on a P4 Manufacturer's Partial Data Report in accordance with PG-112.6 of ASME Section I. May this wall panel be provided as a replacement part in accordance with NBIC Part 3, 3.2.2 b)? Q3) May overlaid boiler tubes, where the overlay is not pressure retaining and is not considered part of the strength of the boiler tube per ASME Section I , PW-44, supplied individually, may these overlaid tubes be provided as a replacement part in accordance with Paragraph 3.2.2 b)?
<b>Proposed Reply</b>  Q1) YES Q2) YES Q3) YES
<b>Committee's Question 1</b> 1. May boiler tubes or boiler tube panel assemblies with <u>hard-facing or corrosion resistance overlay</u> that contain no pressure retaining welds be supplied as a replacement part?
<b>Committee's Reply 1</b> 1. Yes.
<b>Rationale</b> NBIC Part 3, paragraph 3.2.2 b).

**Committee's Question 2**

2. Are boiler tubes or boiler tube panel assemblies with hard-facing or corrosion resistance overlay that contain no pressure retaining welds required to be pressure tested?

**Committee's Reply 2**

2. No.

**Rationale**

NBIC Part 3, paragraph 3.2.2 e).



**Committee's Question 3**

3. Are boiler tubes or boiler tube panel assemblies with hard-facing or corrosion resistance overlay that contain no pressure retaining welds required to be provided with a partial data report?

**Committee's Reply 3**

3. No, partial data reports are neither required nor prohibited.

**Rationale**

NBIC Part 3, paragraph 3.2.2 c) and ASME Section I, PG-112.6.

VOTE:							
COMMITTEE	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

## PROPOSED INTERPRETATION

<b>Item No.</b>  22-24
<b>Subject/Title</b>  Repair of pressure ret'ing items without complete removal of defect
<b>Project Manager and Task Group</b>  
<b>Source (Name/Email)</b>  Fazlollah (Fred) Afshar / fredafshar@bandmriskadvice.com
<b>Statement of Need</b>  3.3.4.8 does imply that the defect should be known in regards to characteristics such as orientation, nature, depth, configuration but does not fully state this.
<b>Background Information</b>  On a 1 1/2" thick 304 H reactor operating normally in vacuum and around 1200 degrees F, cracking is found on the lower head to shell joint. Grinding to 1 1/4" thick has eliminated more than 60% of the cracks but still in areas not accessible, the cracks do exist. Detection requires special phased array sensor that is being built but not yet available. Client is citing NB 3.3.4.8 for the cracks left in place and planning to return to operation. Question is submitted to seek the Committee's view.
<b>Proposed Question</b>  Q: If the size, orientation and/ or the contour of the defect may not be fully established, would the provisions of 3.3.4.8 be applicable? 3.3.4.8 Repair of pressure retaining items without complete removal of defects does not address the situation where the defect (i.e. cracks) characteristics are not fully established due to geometrical configuration of internals or other physical obstacles not allowing use of available NDE techniques to fully study the size, orientation and configuration of cracks.
<b>Proposed Reply</b>  No. The defect shall be validated in full for provisions of NB 3.3.4.8 to be applied.
<b>Committee's Question 1</b>  
<b>Committee's Reply 1</b>  
<b>Rationale</b>  
<b>Committee's Question 2</b>  
<b>Committee's Reply 2</b>  
<b>Rationale</b>  

## PROPOSED INTERPRETATION

<b>Item No.</b>  22-25
<b>Subject/Title</b>  ASME Section I Watertube Boilers – Plugging Tubes
<b>Project Manager and Task Group</b>  
<b>Source (Name/Email)</b>  Luis Ponce / lponce@nationalboard.org
<b>Statement of Need</b>  The last item in paragraph 3.3.2 e) reads, “5) Seal welding a mechanical connection for leak tightness where by-design, the pressure retaining capability is not dependent on the weld for strength and requires no PWHT.” A repair organization used this paragraph as justification to document a seal welded tube plug on a watertube boiler as routine.
<b>Background Information</b>  In at least one jurisdiction, a repair organization submitted a completed and certified R-1 Report of Repair Form as a “Routine Repair” to the Chief Inspector with the scenario in the statement of need. Neither the Repair firm nor the Inspector contacted the Jurisdiction prior to designating the plugging of the watertube as a “Routine Repair.”
<b>Proposed Question</b>  Question 1 - A leaking tube is removed on a watertube boiler, and the repair organization installs and seal welds a plug into the tube opening in the shell drum. May this work be considered a routine repair as specified in NBIC, Part 3, 3.3.2e) 5)? Question 2 - A leaking tube is not removed on a watertube boiler, and the repair organization installs and seal welds a plug into the tube material that remains in the shell drum. May this work be considered a routine repair as specified in NBIC, Part 3, 3.3.2e) 5)?
<b>Proposed Reply</b>  Reply 1 - No. Tube plugging is not considered a permanent repair, therefore it shall not be considered routine. Competent technical advice from the boiler manufacturer or from another qualified source shall be obtained prior to seal welding tube plugs on watertube boilers. Reply 2 - No, tube plugging is not considered a permanent repair, therefore it shall not be considered routine. Competent technical advice from the boiler manufacturer or from another qualified source shall be obtained prior to seal welding tube plugs.
<b>Committee's Question 1</b>  
<b>Committee's Reply 1</b>  
<b>Rationale</b>  
<b>Committee's Question 2</b>  
<b>Committee's Reply 2</b>  
<b>Rationale</b>  

## PROPOSED INTERPRETATION

<b>Item No.</b> 22-33
<b>Subject/Title</b> Encapsulation of Shells and Heads
<b>Project Manager and Task Group</b>
<b>Source (Name/Email)</b> Robert Underwood / robert_underwood@hsb.com
<b>Statement of Need</b> To clarify that encapsulation cannot be used to maintain the pressure retaining capability of shells and heads of pressure retaining items.
<b>Background Information</b> A pressure vessel owner believes PCC-2 allows encapsulation of components other than what's listed in 3.4.3 of Part 3 (such as heads) and therefore it should be acceptable per the NBIC. Paragraph 3.4.3 clearly indicates that the encapsulation method only applies to pipe, nozzles, fittings, and valves. This proposal would reinforce existing wording in Part 3.
<b>Proposed Question</b> Does the NBIC Part 3, paragraph 3.4.3, allow for the encapsulation of components other than pipe, nozzles, fittings, and valves?
<b>Proposed Reply</b> No.
<b>Committee's Question 1</b>
<b>Committee's Reply 1</b>
<b>Rationale</b>
<b>Committee's Question 2</b>
<b>Committee's Reply 2</b>
<b>Rationale</b>