



**THE  
NATIONAL  
BOARD**  
OF BOILER AND  
PRESSURE VESSEL  
INSPECTORS

# **NATIONAL BOARD TASK GROUP INTERPRETATIONS**

## **AGENDA**

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Meeting of July 12<sup>th</sup>, 2021  
Cincinnati, OH

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**

1:00 PM Eastern Time. For those attending in person, the meeting will be held in Rookwood on the 4<sup>th</sup> floor.

**2. Introduction of Members and Visitors ([Attachment 1](#))**

**3. Check for a Quorum**

**4. Announcements**

- The National Board will host a reception for all committee members and visitors on Wednesday evening from 5:30pm – 7:30 pm in the Continental Room on the Mezzanine Level.
- The National Board will host a breakfast for all committee members and visitors on Thursday morning at 7:00 am and a lunch at 11:30 am in the Rosewood room on the 4<sup>th</sup> floor of the Hotel.
- A coffee station with snacks will be provided in the morning and afternoon outside of the meeting rooms on the 3<sup>rd</sup> and 4<sup>th</sup> floors.
- The 2021 NBIC is available as of July 1<sup>st</sup>, 2021.
  - Stress the importance of letter ballot voting
  - Read the workflow procedure and ask for questions
  - Remind people that they may be in an Interp group and not be a member of the Interp task group. If so, they present it or ask for a member to present it.
  - New numbering system with (I) or (A) to distinguish between the types of items
  - Finding out the status of the items and asking if "the needle has moved"
  - Expectations for member voting
  - The expectation of increased participation of members and guests in task group
  - The expectation that task group work will be conducted between committee meetings in addition to the week of meetings

**5. Adoption of the Agenda**

**6. Approval of the Minutes of the January 11, 2021 Meeting**

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

**7. Review of Rosters**

## 8. Interpretations

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| <b>Item Number: 20-78</b>                                                                                                                                                                                                                                       | <b>NBIC Location: Part 3, 3.3.3 s) &amp; 3.4.4 d)</b> | <b>Attachment 2</b> |
| <b>General Description:</b> Repairs and Alterations of Tube Bundles                                                                                                                                                                                             |                                                       |                     |
| <b>Subgroup:</b> Repairs and Alterations                                                                                                                                                                                                                        |                                                       |                     |
| <b>Task Group:</b> Paul Shanks (PM)                                                                                                                                                                                                                             |                                                       |                     |
| <b>Explanation of Need:</b><br>Submission is for R Certificate Holders we provide Repair Inspection services for. NBIC Part 3, 3.3.3 s) seems to allow to be a repair, but under 3.4.4 d) where the dimensions change it might be classified as an alteration.) |                                                       |                     |
| <b>INT TG Action:</b> Progress Report – Discussion of this Item (20-78) and Item 20-54 dealing with 3.4 .4 d) resulted in P. Becker opening a new Item (21-12) to better clarify the definition and examples of “Repairs” and “Alterations”                     |                                                       |                     |
| <b>SC ACTION:</b> Mr. Shanks presented a <b>Progress Report</b> .                                                                                                                                                                                               |                                                       |                     |

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| <b>Item Number: 20-91</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>NBIC Location: Part 3, 1.5.1 h)</b> | <b>Attachment 3</b> |
| <b>General Description:</b> Mechanical Repair Procedures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                        |                     |
| <b>Subgroup:</b> Repairs and Alterations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                        |                     |
| <b>Task Group:</b> R. Underwood (PM), R. Valdez                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                        |                     |
| <b>Explanation of Need:</b><br>Part 3, paragraph 1.5.1(h) requires that control of mechanical assembly/repair procedures be addressed in the R Certificate Holder's Quality Manual. Over the last year or so, there have been National Board Team Leaders requesting these procedures (during joint reviews) for work such as rolling tubes in a boiler and replacing a bolted fitting on a pressure retaining item. This has resulted in questions from certificate holders and Inspectors about why an "R" certificate holder is required to have procedures for mechanical work that doesn't even require an "R" Stamp.                                                                                                                                                                                                           |                                        |                     |
| <b>INT TG Action:</b> Proposal was Unanimously Approved                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                        |                     |
| <b>SC ACTION:</b> Mr. Underwood presented a proposal that was revised after discussion. The proposal was motioned, seconded and was <b>Approved</b> w/ 1 Abstention (P. Shanks)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                        |                     |
| <b>January 2021 MC Action:</b> Mr. Underwood presented the proposal for this item. Mr. Troutt noted that there was one abstention at the subcommittee level. A motion was made and seconded to approve the proposal as presented. There was discussion on if a lack of an R form falls under the NBIC, and if doing mechanical repairs needs an R form. Mr. Scribner felt that this is interpreting language that is not in the NBIC, and that there are other procedures in place outside of NBIC to address this subject. Mr. Troutt pointed out that the inquirer is asking specifically about the first sentence of 1.5.1 h), and this interpretation answers that specific question. Additional discussion was held, which led to the original motion being taken back. The task group will do additional work on the proposal. |                                        |                     |

## New Interpretation Requests:

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| <b>Item Number: 21-17</b>                                                                                                                                                                                                                                                                               | <b>NBIC Location: Part 3, 3.3.3 &amp; 3.3.4</b> | <b><a href="#">Attachment 4</a></b> |
| <b>General Description:</b> Using any ASME PCC-2 methods in an R-stamped activity                                                                                                                                                                                                                       |                                                 |                                     |
| <b>Subgroup:</b> Repairs and Alterations                                                                                                                                                                                                                                                                |                                                 |                                     |
| <b>Task Group:</b> George Galanes (PM), R. Valdez                                                                                                                                                                                                                                                       |                                                 |                                     |
| <b>Explanation of Need:</b><br>Some certificate holders are confused by the reference to PCC-2 in NBIC part 3 and believe they have carte blanche to use any and all PCC-2 methods in an R-stamped activity.                                                                                            |                                                 |                                     |
| <b>Meeting Action:</b> Failed SC LB (5-5). PM Comment: This is addressed in 3.2.6. However, as a service to our users interpretations are issued to sometimes re-state the obvious existing wording. At the next meeting we can ask Mr. Shanks if he would like to withdraw his interpretation request. |                                                 |                                     |

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| <b>Item Number: 21-21</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>NBIC Location: Part 3, 3.4</b> | <b>No Attachment</b> |
| <b>General Description:</b> Minimum required thickness determination; Use of Mandatory Appendix 46                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                   |                      |
| <b>Subgroup:</b> Repairs and Alterations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                   |                      |
| <b>Task Group:</b> Tim McBee (PM), B. Morelock                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                   |                      |
| <b>Explanation of Need:</b><br>Pressure vessels are often designed with a single specified corrosion allowance for the entire vessel. Calculating minimum required thicknesses per the original construction code (and not relying only on the specified corrosion allowance listed on the manufacturer's data report) often results in identifying surplus material for use as corrosion allowance that was not utilized at the time of construction nor reflected on manufacturer's data report. Unfortunately, most vessel designs were not optimized on a per-component basis to maximize corrosion allowance and as a result, significant amounts of time and effort have been spent with unnecessary shutdowns, repairs, and / or fitness for service (FFS) evaluations all of which might have been avoided or deferred for years had the vessel originally been optimized for corrosion allowance. |                                   |                      |

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| <b>Item Number: 21-22</b>                                                                                                                                  | <b>NBIC Location: Part 3.3.3 &amp; 3.4.4</b> | <b>No Attachment</b> |
| <b>General Description:</b> Examples of Repairs and Alterations                                                                                            |                                              |                      |
| <b>Subgroup:</b> Repairs and Alterations                                                                                                                   |                                              |                      |
| <b>Task Group:</b> Trevor Seime (PM)                                                                                                                       |                                              |                      |
| <b>Explanation of Need:</b><br>Disclaimer statement would help clarify that the listed examples are not a set list, and only represent some case examples. |                                              |                      |

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| <b>Item Number: 21-28</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>NBIC Location: Part 3, 1.5.1 &amp; 3.3.3 c)</b> | <b>No Attachment</b> |
| <b>General Description:</b> Subcontracted Weld-Overlay Repair<br><br><b>Subgroup:</b> Repairs and Alterations<br><br><b>Task Group:</b> Walter Sperko (PM), M. Quisenberry<br><br><b>Explanation of Need:</b><br>(1) To clarify whether it is permitted for an "R" Certificate of Authorization Holder to subcontract weld-overlay repair to another company who does not possess an "R" Certificate.<br>(2) To clarify whether a subcontractor's shop used on a regular basis may be considered as a field location to allow welding by and under the control of the "R" Certificate Holder at that shop. |                                                    |                      |

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| <b>Item Number: 21-32</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>NBIC Location: Part 3, 4.2</b> | <b>No Attachment</b> |
| <b>General Description:</b> NDE requirements when repairing defects in original weld metal<br><br><b>Subgroup:</b> Repairs and Alterations<br><br><b>Task Group:</b> R. Troutt.<br><br><b>Explanation of Need:</b><br>This provision will help clarify to "R" Stamp Certificate holders and owners of pressure vessels that are in need of minor repairs to existing welds. Due to the ambiguous wording of this clause any welding on a head to shell joint may be interpreted to require volumetric inspection when the name plate is stamped RT4. |                                   |                      |

## 9. Future Meetings

- January 18<sup>th</sup>-21<sup>st</sup>, 2022 – San Diego, CA
- July 2022 – TBD

## 10. Adjournment

Respectfully submitted,

*Terrence Hellman*

Terrence Hellman

SC R&A Secretary



## INTERPRETATION 20-78

## Repairs and Alterations of Tube Bundles

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <b>Inquiry No.</b> | 20-78                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Source</b>      | Micah Davidian<br>Email: mdavidian@dir.ca.gov<br>Phone: +1 (559) 4456817                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Subject</b>     | Submission is for R Certificate Holders we provide Repair Inspection services for<br><br>Background Information: For questions 1-4, NBIC Part 3, 3.3.3 s) seems to allow to be a repair, but under 3.4.4 d) where the dimensions change it might be classified as an alteration.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Edition</b>     | 2019 Part 3 3.3.3 s) and 3.4.4 d)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Question</b>    | <p>Question 1: When a tube bundle is replaced where the new tubesheet material is the same as the original bundle but has a thicker tubesheet due to adding corrosion allowance where the original design did not include corrosion allowance, is this considered a repair or alteration?</p> <p>Question 2: When a tube bundle is replaced where the new tubesheet material is the same as the original bundle but has a thicker tubesheet due to adding additional corrosion allowance to the original design, is this considered a repair or alteration?</p> <p>Question 3: When a tube bundle is replaced where the new tubesheet material is the same as the original bundle but has a thicker tubesheet due to adding thickness for future machining allowance, is this considered a repair or alteration?</p> <p>Question 4: For a tube bundle, does NBIC Part 3, 3.4.4 d) mean that any physical changes e.g. tubesheet thickness, tube wall thickness or length of tubes from the original design will be an alteration?</p> <p>Question 5: If a tube bundle is replaced where the new tubesheet material is the same as the original bundle but has a thicker tubesheet due to ASME Sec VIII, Div. 1, Part UHX tubesheet formulas, is this considered a repair or alteration.</p> <p>Proposed Reply:</p> <p>Question 1: Alteration (calculations required)</p> <p>Question 2: Alteration (calculations required)</p> <p>Question 3: Repair</p> <p>Question 4: Some may be repairs others alterations.</p> <p>Question 5: Alteration (calculations required)</p> |
| <b>Reply</b>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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| <b>Committee's Question</b>   | <p>Q1: When a tubesheet in a replacement tube bundle has the same material as the original design but is thicker due to adding corrosion allowance where the original design did not include corrosion allowance or adding additional corrosion allowance or adding a machining allowance, is this considered a repair or alteration?</p> <p>Q2: In the case of a tube bundle, does NBIC Part 3, 3.4.4 d) mean that any physical changes e.g. tubesheet thickness, tube wall thickness or length of tubes from the original design will be an alteration?</p> <p>Q3: When a replacement tube bundle has the same tubesheet material as the original design but is thicker due to a change in the analytic method, is this considered a repair or alteration.</p> |
| <b>Committee's Reply</b>      | <p>A1: Alteration<br/> A2: Yes<br/> A3, Alteration</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Rationale</b>              | <p>Original questions 1,2 &amp;3 have all be rolled up into Q&amp;A1.</p> <p>All, per para 3.4.4 d) a change in dimension or contour of a PRI is an example of an alteration, the tube sheet getting thicker is a change in dimension. The glossary definition of PRI includes material so is not limited to the overall vessel/boiler</p> <p>Q3- I believe this is in reference to a heat exchanger built before Part UHX was adopted into Section VIII Div.1 so would have been built to TEMA rules which aren't 100 % the same as Part UHX. I do not think we should explain how to get around this in the answer to an interpretation.</p>                                                                                                                   |
| <b>SC Vote</b>                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>NBIC Vote</b>              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Negative Vote Comments</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |



## PROPOSED INTERPRETATION

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| <b>Inquiry No.</b>            | <b>20-91</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Source</b>                 | Robert Underwood – Hartford Steam Boiler                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Subject/Background</b>     | <p>To determine if procedures are required for mechanical repairs/assemblies as referenced in Part 3, paragraph 1.5.1(h).</p> <p>Part 3, para. 1.5.1(h), requires that control of mechanical assembly/repair procedures be addressed in the R Certificate Holder's Quality Manual. Over the last year or so, there have been National Board Team Leaders requesting these procedures (during joint reviews) for work such as rolling tubes in a boiler and replacing a bolted fitting on a pressure retaining item. This has resulted in confusion and several questions from certificate holders and Inspectors about why an "R" certificate holder is required to have procedures for mechanical work that doesn't even require an "R" Stamp.</p> |
| <b>Edition</b>                | 2019; Part 3: Repairs and Alterations; Section 1, paragraph 1.5.1(h)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Question</b>               | Are mechanical repair/assembly procedures that are referenced in Part 3, paragraph 1.5.1(h), required for work that does not require an "R" Form?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Reply</b>                  | Proposed Reply: No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Committee's Question 1</b> | <u>For an <del>is a</del> "R" Certificate of Authorization holder, is it required to have mechanical <del>repair</del>/assembly procedure(s) in accordance with Part 3, 1.5.1 h) mandatory</u> for work that does not require an R Form?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Committee's Reply</b>      | No, <u>provided it is not required by the Jurisdiction.</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Rationale</b>              | There are many interpretations addressing mechanical work, replacing boiler tubes "non welded", repairing studded outlet threads "no welding" the NBIC does not address non welded repairs (mechanical), nor requires a written procedure or a repair plan when this work does not require an R Form.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>SC Vote</b>                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>NBIC Vote</b>              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Negative Vote Comments</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

**Part 3, 1.5.1(h)**

## h) Repair and Alteration Methods

The manual shall include controls for repairs and alterations, including **mechanical assembly procedures**, materials, nondestructive examination methods, pre-heat, and postweld heat treatment, as applicable. Special requirements such as nonmetallic repairs and alterations to graphite and fiber-reinforced thermosetting plastic pressure-retaining items including bonding or mechanical assembly procedures shall be addressed, if applicable.

**Part 3, Supplement 9 - Glossary**

**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.

**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 brazing, as defined under the rules of the NBIC.

## PROPOSED INTERPRETATION

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| <b>Inquiry No.</b>            | <b>21-17</b>                                                                                                                                                                                                 |
| <b>Source</b>                 | Submitted by Mr. Paul Shanks from OneCis                                                                                                                                                                     |
| <b>Subject</b>                | Part 3, Section 3.2.6 Reference to ASME PCC-2                                                                                                                                                                |
| <b>Edition</b>                | 2019                                                                                                                                                                                                         |
| <b>Explanation of Need</b>    | Using any ASME PCC-2 methods in an R-stamped activity                                                                                                                                                        |
| <b>Question</b>               | May any method as described in ASME PCC-2 be used in an NBIC repair or alteration activity without specific reference in NBIC Part 3?                                                                        |
| <b>Reply</b>                  | No, the NBIC committee chose to select only specific PCC-2 articles for use in NBIC activities.                                                                                                              |
| <b>Committee's Question 1</b> | May repair methods provided in other codes and standards referenced in the 2019 Edition of the NBIC, Part 3 Section 3.2.6 be used for repair or alteration activities performed in accordance with the NBIC? |
| <b>Committee's Reply 1</b>    | Yes, subject to acceptance by the Inspector and when required, by the Jurisdiction. Some repair methods listed in other codes and standards may be considered as alterations by the NBIC.                    |
| <b>Committee's Question 2</b> |                                                                                                                                                                                                              |
| <b>Committee's Reply 2</b>    |                                                                                                                                                                                                              |
| <b>Rationale</b>              | When ASME PCC_2 was first introduced and referenced in the NBIC, the committee did not exclude any of the repair methods other than some of the repair methods may be considered alterations by the NBIC.    |
| <b>SC Vote</b>                |                                                                                                                                                                                                              |
| <b>NBIC Vote</b>              |                                                                                                                                                                                                              |
| <b>Negative Vote Comments</b> |                                                                                                                                                                                                              |

## Relevant Background

XXX

## Relevant Interpretations

None.