



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

**NATIONAL BOARD  
TASK GROUP  
INTERPRETATIONS  
(REPAIRS AND ALTERATIONS)**

**MINUTES**

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Meeting of July 15<sup>th</sup>, 2019  
Kansas City, MO

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## 1. Call to Order

The meeting was called to order at 1:10 p.m. by Acting Chairman, Mr. Rob Trout.

## 2. Introduction of Members and Visitors

The attendees are identified on the attendance sign in sheet ([Attachment 1](#)). Mr. Trout called for nominations for a formal Chair for the Task Group. Mr. Rick Sturm was the only volunteer and was unanimously approved as Chair for the Interpretation Task Group.

## 3. Announcements

T. Hellman made announcements that the National Board will be hosting a reception for all committee members and visitors on Wednesday evening at 5:30pm in the Rooftop Ballroom on the top floor of the InterContinental.

## 4. Adoption of the Agenda

A motion was made, seconded, and unanimously approved to adopt the Agenda.

## 5. Interpretations

Item Number: 17-143	NBIC Location: Part 3	No Attachment
<b>General Description:</b> Can an "R" stamp certified shop manufacture and use parts for use on the pressure boundary to complete the repair of a boiler?		
<b>Subgroup:</b> Locomotive		
<b>Task Group:</b> Paul Welch (PM), Linn Moedinger		
<b>January 2019 Meeting Action:</b> Progress Report: Mr. Moedinger gave a progress report that work is still being done on the item and it will be put out to Letter Ballot to Repair and Alteration SG.		
<b>Meeting Action:</b> No one from Locomotive TG was present to discuss the item. This was listed as a Progress Report.		

Item Number: 18-34	NBIC Location: Part 3, 8.4	<a href="#">Attachment 2</a>
<b>General Description:</b> Does an R certificate holder assume responsibility for safety/integrity of a vessel outside the scope of repair?		
<b>Subgroup:</b> Repairs and Alterations		
<b>Task Group:</b> Nathan Carter – PM, Michael Quisenberry		
<b>History:</b> From the July 2018 Main Committee meeting: Mr. Galanes introduced the item and Mr. Carter explained the item. Mr. Cook said that this question is outside the scope of the NBIC and that should be the response to the inquirer. Mr. Pillow said that he would like the question rephrased a bit. Mr. Walker brought up interpretation 95-41 and Mr. Edwards brought up interpretation 95-17. Mr. Richards agreed that this is out of the scope of the NBIC. Mr. Dave Douin felt this is a question that should be handled by a legal body, not a technical body. Item was withdrawn for further work.		
<b>January 2019 Meeting Action:</b> Progress Report: Mr. Nathan Carter reported that the Task Group is awaiting comment from the National Board's legal representation on this Item.		

**March 28, 2019 Action:** E-mail received from G. Scribner stating:  
“The following answer was recommended by legal:

Responsibility for safety/integrity of a vessel outside the scope of a repair is outside the scope of the NBIC and is to be considered a legal issue.”

**Meeting Action:** T. Hellman presented the email from the National Board’s legal recommendation that this is outside the scope of the NBIC. A motion was made, seconded, and unanimously approved to respond to the Inquirer that this is outside of the scope of the NBIC, but to include Interpretations 95-17 and 95-41 to see if these would answer their questions.

**Item Number: 18-53** **NBIC Location: Part 3** [Attachment 3](#)

**General Description:** Is changing the corrosion allowance noted on the original Manufacturer’s Data Report considered an alteration per NBIC, when this task is performed solely for the purpose of establishing minimum required thicknesses on an internal Owner / User mechanical integrity database?

**Subgroup:** Repairs and Alterations

**Task Group:** Brian Boseo

**January 2019 Meeting Action:** Progress Report: Mr. Boseo presented that there has been no response from the inquirer for more information. Mr. Boseo stated that one more attempt will be made to request more information, and if no response is received by the July 2019 meeting, this item will be closed.

**Meeting Action:** Mr. Boseo stated that there has been no response from the inquirer. A motion was made, seconded, and unanimously approved to close this item with no action.

### New Interpretation Requests

**Item Number: 19-4** **NBIC Location: Part 3, 3.2** [Attachment 4](#)

**General Description:** Use of Different Editions of the Construction Code for Repair or Alteration

**Subgroup:** Repairs and Alterations

**Task Group:** M. Quisenberry – PM

**Explanation of Need:** Try to resolve if there should be a restriction to different editions of the code of construction.

**Meeting Action:** Mr. Quisenberry presented and Mr. Galanes (the inquirer) discussed the background information. After discussion, Mr. P. Shanks referenced Interpretation Item Number 95-19 as addressing this question already. Mr. Galanes withdrew his inquiry. A motion was made, seconded, and unanimously approved to close this item with no action.

**Item Number: 19-5** **NBIC Location: Part 3, 3.2.6** [Attachment 5](#)

**General Description:** Reference to Other Codes and Standards

**Subgroup:** Repairs and Alterations

**Task Group:** B. Morelock – PM

**Explanation of Need:** Repair Methodology proposed by user is rejected by AI as there are no codes,

standards, and practices available to support repair method.

**Meeting Action:** Mr. Trout presented and the Committee's questions and replies were amended after discussion. A motion to respond to the inquirer with the amended proposed reply was motioned, seconded, and unanimously approved.

<b>Item Number: 19-10</b>	<b>NBIC Location: Part 3, Introduction, paragraph on Interpretations</b>	<b><a href="#">Attachment 6</a></b>
<b>General Description:</b> Allow interpretations to be used in any edition, provide the same wording		
<b>Subgroup:</b> Repairs and Alterations		
<b>Task Group:</b> K. Moore – PM		
<b>Explanation of Need:</b> NBIC currently limits each interpretation to the edition it was issued for. However often time the words in question do not change from one edition to another. At present a new interpretation would be needed for each edition of the NBIC to address the same issues, this is a delay to field work and a drain on NBIC committee time.		
<b>Meeting Action:</b> Kathy Moore presented and the proposed response was amended after discussion. A motion to approve the response as amended was made, seconded, and unanimously approved. This item was forwarded to the Secretaries of Part 1, 2, and 4 to be added to their SG and SC Agendas for discussion since this Item will impact all Parts of the NBIC.		

<b>Item Number: 19-17</b>	<b>NBIC Location: Part 3, S1.2.11.3</b>	<b><a href="#">Attachment 7</a></b>
<b>General Description:</b> Wastage at Mudring: If the majority of the wastage is on the fireside, and there minimal wastage on the waterside, does this section still govern repairs?		
<b>Subgroup:</b> Locomotive		
<b>Task Group:</b> L. Moedinger – PM		
<b>Explanation of Need:</b> This question is in regards to a CFR 230, 1472 day boiler inspection on a 1927 built Baldwin 4-8-4 steam locomotive. The door sheet (aka back sheet) in the firebox has sustained wastage at the mudring on the fireside, caused by the proximity of the firebrick. In the figure S1.2.11.3, the drawing indicates a wastage on the waterside, yet the text of section S1.2.11.3 does not specify if it is referring to the waterside, the fireside, or both. Please see attached diagram of the wastage in question.		
<b>Meeting Action:</b> No members of the Locomotive TG were present to discuss this Item. Progress Report.		

<b>Item Number: 19-20</b>	<b>NBIC Location: Part 3, 3.3.4.2 e)</b>	<b><a href="#">Attachment 8</a></b>
<b>General Description:</b> Use of Heli-Coils for repairs and alterations of PRI's		
<b>Subgroup:</b> Repairs and Alterations		
<b>Task Group:</b> N. Carter – PM		
<b>Explanation of Need:</b> Paragraph 3.3.4.2e) states that defective bolting shall not be repaired but shall be replaced with suitable material that meets the specification of the original code of construction. When a bolt head is broken off leaving the bolt threaded in the RPI, a Heli-Coil is normally used to fix the		

problem. The problem with a Heli-Coil, is that there types made of different materials. NBIC requires material used to be in accordance with the Code of Construction. Also, needed to be taken into consideration would be threading calculations to verify acceptable pressure retention of the RPIs MAWP.

**Meeting Action:** R. Trout presented. Reference to Interpretation 04-19 (Mech repairs are not addressed in NBIC) was discussed as addressing this inquiry. Discussion that Heli-coils would be an Alteration; not a “Repair” was held. R. Trout will open a new Action Item to propose “threaded inserts” as an Alteration example. The response to the inquirer that Heli-Coils are considered a mechanical alteration with reference to Interpretation Item Number 04-19 was motioned, seconded, and approved.

**Item Number: 19-25**                      **NBIC Location: Part 3, 4.4.2 c)**                      [Attachment 9](#)

**General Description:** NDE methods to do in lieu of Hydro test

**Subgroup:** Repairs and Alterations

**Task Group:** J. Siefert – PM

**Explanation of Need:** For ASME BPV Section VIII Division 2 Vessel is under Alteration with Re-rate of lowering MAWP & increasing of Design Temperature & there is no physical alteration in the Vessel but only change is in the Alteration design report because of different design stress intensity value at higher design temperature.

**Meeting Action:** Mr. Siefert presented. After discussion, Paul Shanks stated he believed this was “consulting”. A motion to approve the proposal was made, seconded, and approved.

**Item Number: 19-26**                      **NBIC Location: Part 3, 3.3.2**                      [Attachment 10](#)

**General Description:** Clarification on welding repairs on appendages

**Subgroup:** Repairs and Alterations

**Task Group:** P. Shanks – PM

**Explanation of Need:** The original submitter of this item will sometimes need to perform a welding repair on an appendage (not on the tank itself) in order for the complete process of refurbishment to be done for their customers’ expectations. There appears to be no direct reference to these types of minor welding repairs for the refurbishment process in the NBIC code.

**Meeting Action:** Mr. Shanks stated there is still work being done on this item. Progress Report.

**Item Number: 19-34**                      **NBIC Location: Part 3, 3.2.2 e)**                      [Attachment 11](#)

**General Description:** Is it the intent of Part 3, 3.2.2 e) that the reference to the original code of construction is for determining the hydrostatic test pressure?

**Subgroup:** Repairs and Alterations

**Task Group:** P. Edwards – PM

**Explanation of Need:** NBIC Part 3 Section 3 paragraph 3.2.2 e) (shown below) states that replacement

parts shall receive a pressure test as required by the original code of construction. The original submitter is concerned that this clause is not being interpreted consistently by all users of the NBIC. The words in question are "...as required by the original code of construction." ASME issued interpretation I-16-1 (see attached) and revised PW-54 to clarify that Section I does not contain requirements for the hydrostatic testing of replacement parts provided for an existing unit. Based on this, the words "... as required by the original code of construction." Could be interpreted to mean that pressure testing of the parts is not required because Section I does not require testing of replacement parts. The submitter does not think that was the Committee's intent when clause e) was added to 3.2.2. Linking the words "original code of construction" to the test pressure would eliminate the potential interpretation that testing is only required when the original code of construction specifically requires testing of replacement parts.

**Meeting Action:** P. Edwards presented Interpretation Item and intent to open a new Action Item to revise the text in Part 3, 3.2.2 e). The proposal was amended and a motion to accept as amended was made, seconded, and unanimously approved.

<b>Item Number: 19-35</b>	<b>NBIC Location: Part 3, 2.5.2 and 3.4</b>	<b><a href="#">Attachment 12</a></b>
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**General Description:** POST WELD HEAT TREATMENT- ALTERATION-Part 3- 3.4 & 2.5.2

**Subgroup:** Repairs and Alterations

**Task Group:** J. Pillow – PM

**Explanation of Need:** An R Certificate Holder is Doing Repair Work on the Shell Side of Heat Exchanger, which was not PWHT Earlier. As per Client Request, Welded Joints are Post weld Heat Treated and Consider as Alteration, Client wants Shell Side to Under Go Full Post weld Heat Treatment Including areas not repaired. NDE is being Carried out for Complete Equipment and Client wants PWHT for Welds which are in Services and without any repairs.

**Meeting Action:** Mr. Trout presented to refer the inquirer to Interpretation Number 13-06. A motion to reply with Interpretation 13-06 was made, seconded, and unanimously approved.

<b>Item Number: 19-36</b>	<b>NBIC Location: Part 3, 3.3.2 &amp; 3.3.5</b>	<b><a href="#">Attachment 13</a></b>
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**General Description:** Routine Repairs of VIII Div 2 and Div 3 PV

**Subgroup:** Repairs and Alterations

**Task Group:** J. Pillow – PM

**Explanation of Need:** Para 3.3.2 talks about requirements for and examples of routine repairs. It does not specify any restrictions on pressure retaining items construction Code. It states that Routine repairs are repairs for which the requirements for in-process involvement by the Inspector and stamping by the "R" Certificate Holder may be waived as determined appropriate by the Jurisdiction and the Inspector. It states that all other applicable requirements of this code (NBIC) shall be met. Para 3.3.5.1 of NBIC states that the following requirements shall apply for the repair of pressure vessels constructed to the requirements of Section VIII, Division 2 or 3, of the ASME Code. This calls for properly Certified repair plan to be submitted to the Inspector who will make acceptance inspection and sign R-1 Form.

**July 2019 Consideration:** The results of the Ballot 19-36-SC &SG RA to be discussed. (Failed both SG and SC due to lack of votes)

**Meeting Action:** R. Trout presented and a motion to accept the proposal was made, seconded, and

unanimously approved.

**Item Number: 19-42**      **NBIC Location: Part 3, 3.3.3 s) & 3.4.4 g)**      **Attachment 14**

**General Description:** 3.3.3 s) design intent clarification vs 3.4.3 g)

**Subgroup:** Repairs and Alterations

**Task Group:** P. Shanks –PM

**Explanation of Need:** The design requirement in 3.3.3 s) is not well defined and is allowing potentially unsafe material changes to be conducted as repairs without adequate assessment.

**Meeting Action:** P. Shanks presented that work is still ongoing for this item. Progress Report.

## 6. Future Meetings

Rob Trout discussed the next meeting of the TG to be held on Monday, January 13<sup>th</sup> and future meetings.

- January 13<sup>th</sup> -16<sup>th</sup>, 2020 – San Diego, CA
- July 13<sup>th</sup> -16<sup>th</sup>, 2020 – Louisville, KY

## 7. Adjournment

A motion was made to adjourn the meeting at 3:30 PM. The motion was seconded and unanimously approved.

Respectfully submitted,



Terrence Hellman  
SG Repairs and Alterations Secretary





**PROPOSED INTERPRETATION**

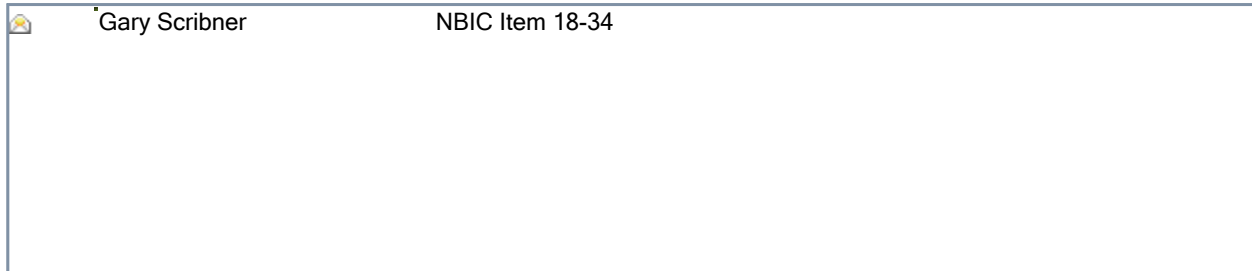
<b>Inquiry No.</b>	<b>18-34</b>				
<b>Source</b>	<b>James Barlow <a href="mailto:jbarlow@performancepulsation.com">jbarlow@performancepulsation.com</a></b>				
<b>Subject</b>	Scope of Work				
<b>Edition</b>	2017				
<b>Question</b>	<p><b>Background</b>  We received a vessel for repair of a cracked nozzle weld. The repair was performed per Part 3. During this work a discussion was started concerning the scope of responsibility for the “R” Certificate Holder. One side of the team said we should only be responsible for the requested repair. That our scope of work is defined by the owner/user and completion of the requested repair meets the requirements of NBIC Part 3. The other side, that I am on, feels we have a responsibility to inspect the vessel to ensure that what we are sending back into service is safe. As a licensed Engineer I am struggling with balancing wanting to ensure the vessel integrity is sound with the wants of a customer who may think that a repair means “the vessel” and not just what was in our scope of work.</p> <p><b>Question:</b>  When an “R” Certificate Holder performs a repair on a vessel, does the Certificate Holder assume responsibility for the integrity or condition of the rest of the vessel outside the scope of the repair?</p>				
<b>Reply</b>	No				
<b>Committee’s Question</b>	When an “R” Certificate Holder performs a repair to a pressure retaining item, does the Certificate Holder assume responsibility for the integrity or condition of the rest of the pressure retaining item outside the scope of the repair?				
<b>Committee’s Reply</b>	No				
<b>Rationale</b>					
<b>SC Vote</b>		No. Affirmative	No. Negative	No. Abstain	No. Not Voting
<b>NBIC Vote</b>		No. Affirmative	No. Negative	No. Abstain	No. Not Voting
<b>Negative Vote Comments</b>					



**NBIC Item 18-34**

**Gary Scribner** to: Terrence Hellman  
Cc: Jonathan Ellis, Luis Ponce

05/21/2019 08:58 AM



Terry,

Interrelation 18-34 As the question;

Does an R certificate holder assume responsibility for safety/integrity of a vessel outside the scope of repair?

The following answer was recommended by legal

Responsibility for safety/integrity of a vessel outside the scope of a repair is outside the scope of the NBIC and is to be considered a legal issue.

I would recommend referring the inquirer to the definition of a repair in the glossary.

Regards,

**Gary L. Scribner**

Assistant Executive Director, Technical

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**INTERPRETATION 95-17**

**Subject:** R-404 Authorization of Organizations Making Repairs

1992 Edition with the 1994 Addendum

**Question 1:** Is it the intent of the NBIC to permit documented repairs (Form R-1) regardless of whether documented or undocumented repairs have been performed in the past?

**Reply 1:** Yes, provided the original construction was to the ASME Code.

**Question 2:** When an "R" Certificate Holder performs a repair on a vessel, does the Certificate Holder assume responsibility for the work performed by others on the vessel?

**Reply 2:** No.

## INTERPRETATION 95-41

**Subject:** RC-1110 Nondestructive Examination  
1995 Edition with the 1995 Addendum

Question 1: When performing in-service inspection, radiographic examination uncovers indications in welds made by the original manufacturer that are in excess of that allowed by the original code of construction. Is it a requirement that these welds be repaired?

Reply 1: The decision as to whether or not to perform a repair of deficiencies discovered during in-service inspection is outside the scope of the Code. See RB-3280.

Question 2: When nondestructive examination of a repair weld reveals indications in excess of that allowed by the original code of construction, must the indication be removed or reduced to an acceptable size?

Reply 2: Yes.

Action Item 18-53: Interpretation Request

**Inquirer:** Angel Rodriguez [AGRodriguez@dow.com](mailto:AGRodriguez@dow.com)

**Subject:**

Definition of Alteration (NBIC Part 3, Section 9, 9.1)

Examples of Alteration (NBIC Part 3, 3.4.3)

**Question:**

Is changing the corrosion allowance noted on the original Manufacturer's Data Report considered an alteration per NBIC, when this task is performed solely for the purpose of establishing minimum required thicknesses on an internal Owner / User mechanical integrity database?

## PROPOSED INTERPRETATION

<b>Inquiry No.</b> <b>19-4</b>	Part 3, Section 1, 1.2a Construction Standards for Pressure Retaining Items
<b>Source</b>	Inquirer: George Gallanes NBIC Committee PM: Michael Quisenberry
<b>Subject</b>	Part 3, Section 1, 1.2a Construction Standards for Pressure Retaining Items
<b>Edition</b>	2017
<b>Question</b>	<b>Inquirer's Proposed Q and R</b>  <b>Question 1:</b> May an earlier or later edition of the construction code be used for repair or alterations to a pressure retaining item?  <b>Proposed Reply 1:</b> Yes
<b>Reply</b>	
<b>Committee's Question</b>	Q1; May an earlier edition of the construction code be used for repair or alteration of a pressure retaining item?  Q2: May a later edition of the construction code be used for repair or alteration of a pressure retaining item?
<b>Committee's Reply</b>	R1: No. Earlier codes of construction may not be applicable to a pressure retaining item that had yet to be constructed.  R2: Yes. Only if the later code of construction is <b>more</b> applicable than the original code of construction (See Part 3, 1.2(a) & (b).
<b>Rationale</b>	Earlier codes of construction may not represent the <b>most</b> applicable code of construction to the work at hand.
<b>SC Vote</b>	
<b>NBIC Vote</b>	
<b>Negative Vote Comments</b>	

## **BACKGROUND/INQUIRER'S REQUEST**

**Explanation of Need:** Try to resolve if there should be a restriction to different editions of the code of construction.

**Background Information:** There are different Interpretations which have been issued on this topic.

### **NBIC EXCERPTS**

#### **1.2 CONSTRUCTION STANDARDS FOR PRESSURE-RETAINING ITEMS**

- a) When the standard governing the original construction is the ASME Code or ASME RTP-1, repairs and alterations to pressure-retaining items shall conform, insofar as possible, to the section and edition of the ASME Code most applicable to the work planned.
- a) If the pressure-retaining item was not constructed to a construction code or standard, or when the standard governing the original construction is not the ASME Code or ASME RTP-1, repairs or alterations shall conform, insofar as possible, to the edition of the construction standard or specification most applicable to the work. Where this is not possible or practicable, it is permissible to use other codes, standards, or specifications, including the ASME Code or ASME RTP-1, provided the "R" or "NR" Certificate Holder has the concurrence of the Inspector and the Jurisdiction where the pressure-retaining item is installed.

### **INTERPRETATION 95-19**

**Subject:** RC-1000 General Requirements

1995 Edition

**Question:** When the NBIC references "the original code of construction," is it required to use the edition and addenda of that code as used for construction?

**Reply:** No. The term "original code of construction" refers to the document itself, not the edition/addenda of the document. Repairs and alterations may be performed to the edition/addenda used for the original construction **or a later edition/addenda most applicable to the work.**

### **INTERPRETATION 95-20**

**Subject:** Foreword

1995 Edition

**Question:** May the requirements of an earlier Edition and Addenda **of the NBIC** be used when performing a repair or alteration?

**Reply:** Yes.

**This is in reference to the NBIC not the Code of Construction. Some jurisdictions have not adopted the latest edition of the NBIC and require an earlier edition to be followed for Repairs and Alterations.**

**INTERPRETATION 04-18**

**Subject:** Part RD-3010

2004 Edition with 2005 Addendum

**Question:** Using the rules of RD-3010, is rerating of a pressure-retaining item designed by a proof test method permitted using a later edition/addendum of the original Code of Construction?

**Reply:** Yes, except as may be limited by Code of Construction requirements for satisfactory assurance of accuracy in computing the maximum allowable working pressure. This would include, for example, that all pressure boundary parts be inspected to ensure that each part's current thickness is greater or equal to the minimum or nominal thicknesses as listed on the Manufacturer's Data Report.



**Interpretation IN19-5**  
**Proposed Interpretation**

<b>Inquiry:</b>	IN19-5
<b>Source:</b>	
<b>Subject:</b>	NBIC Part 3 Section Part 3, 3.2.6
<b>Edition:</b>	2017
<b>General Description:</b>	
<b>Question 1:</b>	Can user's opinion, categorization and proposed Repair methods be considered under NBIC Part 3, 3.2.6?
<b>Reply 1:</b>	No
<b>Committee's Question 1:</b>	Can a bolt hole in a SA350-LF2 flange be repaired using SA-105 material that is welded using a Welding Procedure Specification (WPS) that was qualified without postweld heat treatment (PWHT) and without impact testing?
<b>Committee's Reply 1:</b>	No.
<b>Question 2:</b>	Does AI have final authority to take decision under Part 3, 3.2.6 when jurisdiction does not exist?
<b>Reply 2:</b>	Yes
<b>Committee's Question 2:</b>	Does the Authorized Inspector (AI) have final authority for review and acceptance of a completed repair by a repair organization that has an "R" Certificate of Authorization under Part 3, 3.2.6 when jurisdiction does not exist?
<b>Committee's Reply 2:</b>	Yes.
<b>Rationale:</b>	NBIC Part 3, Section 3.2.6
<b>SC Vote</b>	
<b>NBIC Vote</b>	

**Rationale:****3.2.6 REFERENCE TO OTHER CODES AND STANDARDS**

Other codes, standards, and practices pertaining to the repair and alteration of pressure retaining items can provide useful guidance. Use of these codes, standards and practices is subject to review and acceptance by the Inspector, and when required, by the Jurisdiction. The user is cautioned that the referenced codes, standards and practices may address methods categorized as repairs; however, some of these methods are considered alterations by the NBIC.

In the event of a conflict with the requirements of the NBIC, the requirements of the NBIC take precedence.

Some examples are as follows:

- a) National Board *BULLETIN* - National Board Classic Articles Series;
- b) ASME PCC-1, Guidelines for Pressure Boundary Bolted Flange Joint Assembly;
- c) ASME PCC-2, Repair of Pressure Equipment and Piping.

**ASME Section IIA, SA-350/SA-350M, 2017 ED, SPECIFICATION FOR CARBON AND LOW-ALLOY STEEL FORGINGS, REQUIRING NOTCH TOUGHNESS TESTING FOR PIPING COMPONENTS**

**4. General Requirements**

4.1 Product furnished to this specification shall conform to the requirements of Specification A 961, including any supplementary requirements that are indicated in the purchase order. Failure to comply with the general requirements of Specification A 961 constitutes nonconformance with this specification. In case of conflict between the requirements of this specification and Specification A 961, this specification shall prevail.

**7.2 Impact Test:**

7.2.1 Requirements — The material shall conform to the requirements for impact properties in Table 3 when tested at the applicable standard temperature in Table 4 within the limits of 7.2.4.2 and 7.2.4.3.

**11. Rework and Retreatment**

11.3.1 Repair by welding shall be made using welding procedures and welders qualified in accordance with ASME Section IX of the Code. The weld procedure qualification test shall also include impact tests of the weld metal and heat-affected zone. All impact test specimens shall have the longitudinal axis transverse to the weld and the base of the notch normal to the weld surface.

**ASTM A 961: Standard Specification for Common Requirements for Steel Flanges, Forged Fittings, Valves, and Parts for Piping Applications**

**12. Impact Requirements**

12.1 The part shall conform to the impact requirements prescribed in the product specification.

**Background Information IN19-5 from the Inquirer:**

Saudi Aramco Hawiyah Gas Plant (User) requested Repair to one of their Floating tube sheet Heat Exchanger (UHX-14.1(a)). The user requested repair organization to plug all bolt holes of floating tube sheet using Plug material SA-105 and close by welding. New holes were drilled at center of the ligament of previously drilled bolt holes as required by original drawing of the heat exchanger. No design has been performed and method classified as "Repair".

It is informed that the floating tube sheet has shrunk during service and due to which after dismantling it was difficult to reassemble the Floating tube sheet.

Tube Sheet Material is SA350 LF2 Class-1. WPS used to close holes is without PWHT and without impact.

National Board Inspector rejected the repair method with the following understanding:

1. Welding on SA-350 forging shall meet requirement for Repair of Base Material in accordance with SA 350 and Section 11.8.
2. Integrity of this Flange is compromised as it is Plugged with SA 105 Material and welded for 5 mm with Groove on both Side. This methodology of Repairing Base material is not approved as per Code

AIS Concurred and provided his Opinion to AI question as follows:

1. Welding on SA-350 forging shall meet requirement for Repair of Base Material in accordance with SA-350 and Section 11.8

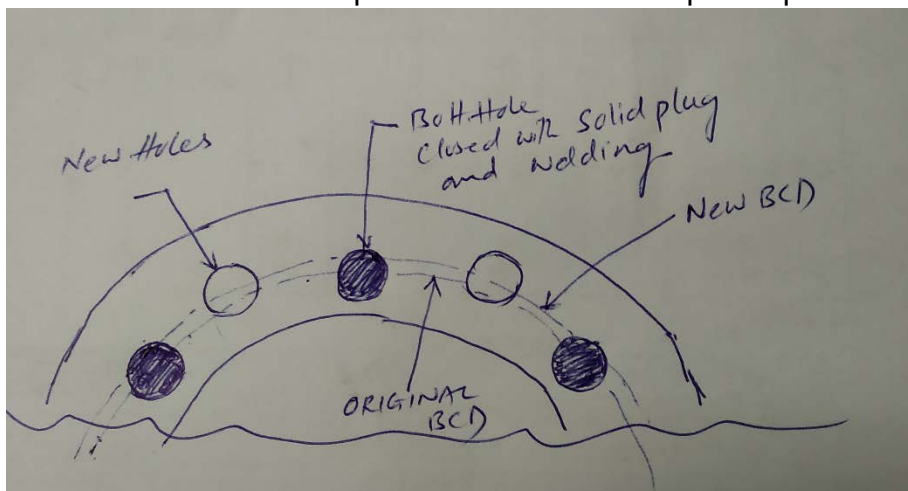
AIS Opinion: **All types of repairs are not addressed in NBIC however para 3.2.6 shall be applicable and to be complied.**

2. Integrity of this Flange is now compromised as it is Plugged with SA 105 Material and welded for 5 mm with Groove on both Side. This methodology of Repairing Base material is not approved as per Code

AIS Opinion: **Refer my comments above, the user is cautioned in para 3.2.6 that the referenced codes, standards and practices may address methods categorized as repairs. These methods/Practices must be accepted by AI.**

Questions:

1. Can user opinion, categorization and acceptance of Repair methods be considered under NBIC Para 3.2.6, Part 3?
2. Does NB consider this repair method as an acceptable practice?



## PROPOSED INTERPRETATION

<b>Inquiry No.</b>	19-10
<b>Source</b>	Paul Shanks
<b>Subject</b>	Interpretations
<b>Edition</b>	2017
<b>Question</b>	May an interpretation issued to a past NBIC edition be used in any other NBIC edition when the words in the NBIC paragraph are the same? (See Part 3, Introduction, Interpretations for text reference)
<b>Reply</b>	Yes if the NBIC has not changed the requirements pertaining to the interpretation
<b>Committee's Question</b>	May an interpretation issued to a past NBIC Edition be used for any other NBIC Edition when the requirements of the NBIC are the same?
<b>Committee's Reply</b>	Yes.
<b>Rationale</b>	<p>NBIC currently limits each interpretation to the edition it was issued for. However, often time the words in question do not change from one edition to another. At present a new interpretation would be needed for each edition of the NBIC to address the same issues, this is a delay to field work and a drain on NBIC committee time.</p> <p><b>Background Information:</b> Understandably each request for interpretation does not require a change to the words in the NBIC, but given the same NBIC words and consistent committee approach to resolving interpretations the same answer should be provided from one edition to the next. But this would cause a delay in working to a standard accepted practice and would consume time for the committee answering the same base question each year. Further the proposed approach is that which ASME currently employs and whilst NBIC and ASME are different they do operate within the same industrial sphere so the proposed interpretation is not unusual.</p>
<b>SC Vote</b>	
<b>NBIC Vote</b>	

<b>Negative Vote Comments</b>	
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Item 19-17: Interpretation of Part 3, S1.2.11.3

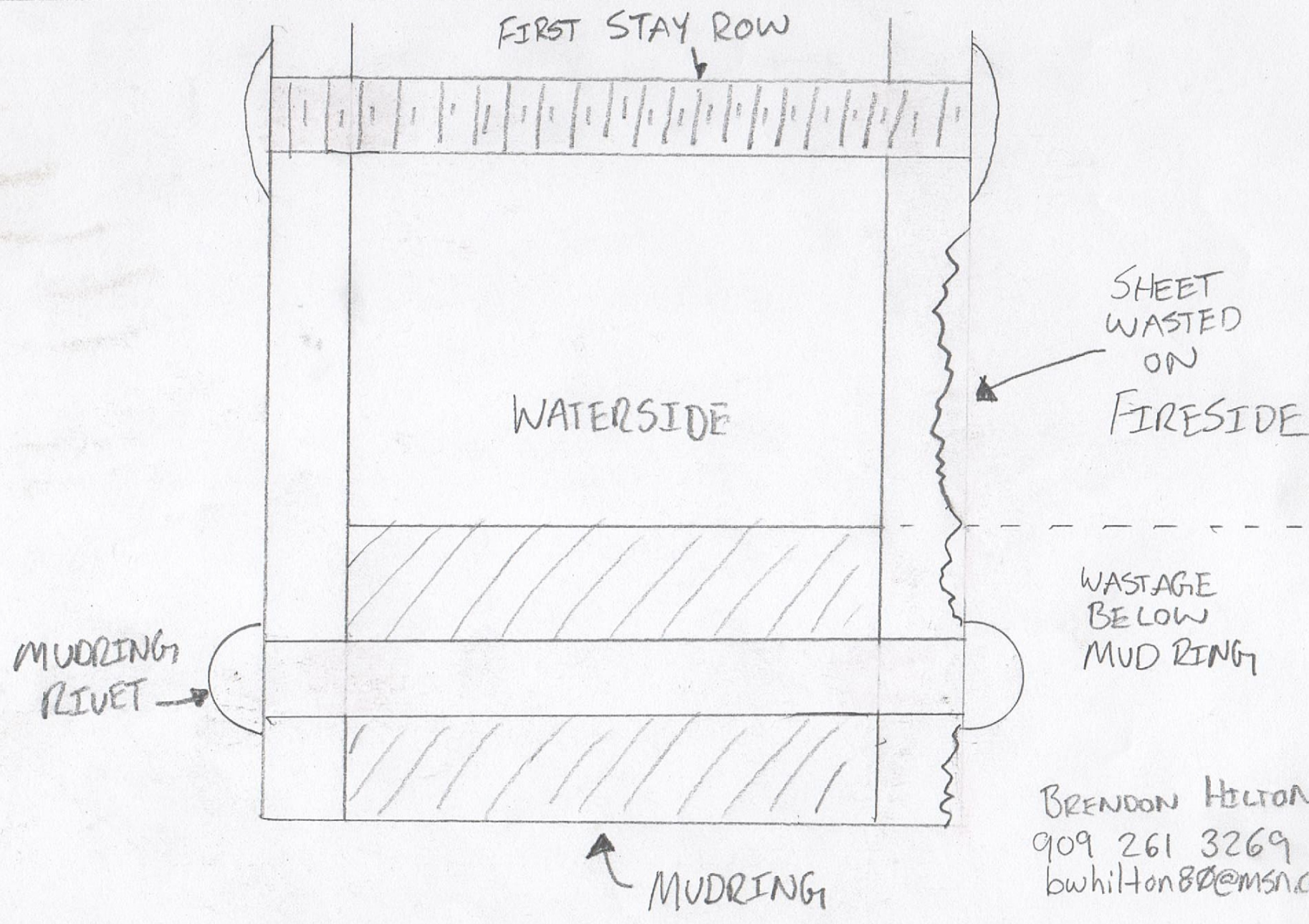
Submitted by: Brendon Hilton [bwhilton80@msn.com](mailto:bwhilton80@msn.com)

Background - This question is in regards to a CFR 230, 1472 day boiler inspection on a 1927 built Baldwin 4-8-4 steam locomotive. The door sheet (aka back sheet) in the firebox has sustained wastage at the mudring on the fireside, caused by the proximity of the firebrick. In the figure S1.2.11.3, the drawing indicates a wastage on the waterside, yet the text of section S1.2.11.3 does not specify if it is referring to the waterside, the fireside, or both. Please see attached diagram of the wastage in question.

Question - If the majority of the wastage is on the fireside, and there minimal wastage on the waterside, does this section still govern repairs?

Answer - Yes or No would be fine.

QUESTION: IF THE MAJORITY OF WASTAGE IS ON THE FIRESIDE, DOES  
RULE S.I.2.11.3 STILL GOVERN REPAIR?



Item 19-20: Interpretation Request  
Submitted by: Rob Troutt [rob.troutt@tdlr.texas.gov](mailto:rob.troutt@tdlr.texas.gov)

**Explanation of Need:**

- Paragraph 3.3.4.2e) states that defective bolting shall not be repaired but shall be replaced with suitable material that meets the specification of the original code of construction.
- When a bolt head is broken off leaving the bolt threaded in the RPI, a Heli-Coil is normally used to fix the problem.
- The problem with a Heli-Coil, is that there types made of different materials. NBIC requires material used to be in accordance with the Code of Construction. Also, needed to be taken into consideration would be threading calculations to verify acceptable pressure retention of the RPIs MAWP

**Background Information:**

- When a bolt head is broken off, the normal way of correction is to drill out the bolt with a slightly larger size drill, thread the bigger diameter hole, install a Heli-Coil and replace the bolt.
- Not only does this type of fix include adding material to the RPI, The hole diameter for the bolt is increased along with depending on the type of Heli-Coil used (may be non-threaded or threaded) pressure retention calculation should be provided for verification.

**Question 1:** Is using a Heli-Coil considered a mechanical alteration?

**Proposed Reply 1:** YES

**Question 2:** If the answer to question 1 is no, then is it considered a mechanical repair?

**Proposed Reply 2:** NO



## PROPOSED INTERPRETATION

<b>Inquiry No.</b>	Item 19-25
<b>Source</b>	M.A. Shah <a href="mailto:abmindustrialservices@gmail.com">abmindustrialservices@gmail.com</a>
<b>Subject</b>	<p>This inquiry seeks an interpretation of NBIC Part 3, 4.4.2 c), which states the following:</p> <p>c) Nondestructive Examination</p> <p>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.</p>
<b>Edition</b>	2017
<b>Explanation of Need</b>	For ASME BPV Section VIII Division 2 Vessel is under Alteration with Re-rate of lowering MAWP & increasing of Design Temperature & there is no physical alteration in the Vessel but only change is in the Alteration design report because of different design stress intensity value at higher design temperature.
<b>Question</b>	In lieu of a liquid pressure test, what kind of NDE methods or combination of methods used shall be suitable for providing meaningful results to verify the integrity of the alteration?
<b>Reply</b>	No further NDE shall be required as there is no Physical Alteration for the Vessel.
<b>Committee's Question 1</b>	An alteration to a Section VIII Div. 2 vessel is performed by lowering the MAWP and increasing the design temperature. No physical work was performed on the vessel. Calculations confirm that the hydrostatic test pressure for the new MAWP and design temperature would be higher than that of the original hydrostatic test pressure. Is a new hydrostatic test required after the alteration is completed?
<b>Committee's Reply 1</b>	Yes, except as provided in Part 3, 4.4.2.c.
<b>Committee's Question 2</b>	The NBIC Part 3, 4.4.2.c provides rules for performing NDE in lieu of a hydrostatic test of an alteration. Is it required that concurrence of the owner, the Inspector, and when required, the Jurisdiction be obtained regarding the NDE methods, or combination of methods, to be used to verify the integrity of the alteration?
<b>Committee's Reply 2</b>	Yes.
<b>Rationale</b>	NBIC Part 3, Section 3.3.4, Section 4.4.2. and Section 9.1
<b>SC Vote</b>	

<b>NBIC Vote</b>	
<b>Negative Vote Comments</b>	

## Relevant Background

NBIC Section 3.4.4 clearly states that an example of an alteration is an increase in the design temperature for the pressure retaining item. Furthermore, the definitions section 9.1 states that nonphysical changes such as an increase in the design temperature shall be considered an alteration. Thus, in the background information provided by the requestor, it is clear that this scenario describes a vessel which has been altered.

### Page 68, Section 3, Part 3

#### 3.4.4 EXAMPLES OF ALTERATIONS

(17)

- a) An increase in the maximum allowable working pressure (internal or external) or temperature of a pressure-retaining item regardless of whether or not a physical change was made to the pressure-retaining item;

### Page 237, Section 9, Part 3

**Alteration** — A change in the item described on the original Manufacturer's Data Report which affects the pressure containing capability of the pressure-retaining item. (See NBIC Part 3, 3.4.3, *Examples of Alteration*) Nonphysical changes such as an increase in the maximum allowable working pressure (internal or external), increase in design temperature, or a reduction in minimum temperature of a pressure-retaining item shall be considered an alteration.

The 'explanation of need' now links to the relevant Section 4.4.2 which requires that one of the following shall be applied to an activity considered to be an alteration: liquid pressure test; pneumatic test; or nondestructive examination. The NBIC does not describe which NDE methods are acceptable, merely that: *concurrence of the owner and inspector and possibly the jurisdiction shall be obtained; that visual examination is not sufficient; and the selected method shall be suitable to provide meaningful results verifying the integrity of the vessel.*

### Page 73, Section 4, Part 3

#### 4.4.2 TEST OR EXAMINATION METHODS APPLICABLE TO ALTERATIONS

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

- a) Liquid Pressure Test
- b) Pneumatic Test
- c) Nondestructive Examination

## Relevant Interpretations

### INTERPRETATION 93-5

**Subject:** Chapter III, R-503(d)

1992 edition

**Question:** If a pressure test required for a re-rated vessel is less than or equal to the hydrostatic test performed during construction, is a new pressure test required after the re-rating is completed?

**Reply:** No, provided no physical work is performed.

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### INTERPRETATION 98-15

**Subject:** RC-3022 & RC-3030(h) Pressure Testing Requirements Related to Re-rating Activities

1995 Edition with the 1996 Addendum

**Question 1:** If calculations and current thickness measurements indicate that a pressure retaining item may be altered by re-rating only (no physical work being done), may the original pressure test as recorded on the Manufacturer's Data Report be used to satisfy RC-3022(d), if the pressure test is at least equal to the calculated test pressure required to verify the integrity of said alteration, subject to the approval of the Inspector and the requirements of the jurisdiction?

**Reply 1:** Yes.

**Question 2:** If the maximum allowable working pressure (MAWP) of a pressure-retaining item must be reduced, due to wall thinning below the minimum wall thickness required to contain the MAWP stated on the manufacturer's data report and on the ASME stamped nameplate, but the maximum allowable temperature is increased, is it the intent of the NBIC that this be considered a re-rate?

**Reply 2:** Yes. Any increase in pressure or temperature is considered a re-rate in accordance with RC-3022.

**Question 3:** If the maximum allowable working pressure (MAWP) of a pressure-retaining item must be reduced, due to wall thinning below the minimum wall thickness required to contain the MAWP stated on the manufacturer's data report and on the ASME stamped nameplate, but the maximum allowable temperature is increased, is it the intent of the NBIC that this is, in effect, a derate and outside the scope of the NBIC?

**Reply 3:** No. Any increase in pressure or temperature is considered a re-rate in accordance with RC-3022.

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**INTERPRETATION 98-34**

**Subject:** RC-3030 Examination and Testing

1995 Edition with the 1996 Addendum

**Question:** When the design rated capacity of a boiler is increased without physical work such that the design pressure and temperature are unaffected, is it required to perform a pressure test in accordance with the NBIC?

**Reply:** No.

**Interpretation IN19-26**  
**Proposed Interpretation**

<b>Inquiry:</b>	IN19-26
<b>Source:</b>	Doug Biggar
<b>Subject:</b>	NBIC Part 3 Section Part 3, 3.3.2
<b>Edition:</b>	[Current/all]
<b>General Description:</b>	Repair of none pressure boundary parts
<b>Question 1:</b>	If a welding repair is done to an appendage of a horizontal ASME LPG pressure vessel such as a faulty leg or the raised data plate holder, is this considered routine and are we exempt to have an inspector present to witness it and/or fill out a specialized form?
<b>Reply 1:</b>	No inspector needs to be present as the welding is not performed on any part of the pressure vessel directly related to its performance under pressure.
<b>Question 2:</b>	What is the minimum length of an appendage we can weld onto without being an ASME/NBIC certified welder (only a standard welding ticket)?
<b>Reply 2:</b>	1/4"
<b>Committee's Question 1:</b>	Are refurbishment activities such as shot blasting, thread cleaning and painting considered within the scope of the NBIC?
<b>Committee's Reply 1:</b>	No
<b>Rationale 1:</b>	These activities should not affect the pressure retaining integrity of the item, per the introduction to the NBIC that (maintenance) is the function of the NBIC. Reasonably these activities fall outside the scope of the NBIC
<b>Committee's Question 2:</b>	When welding activities are conducted on materials which are not pressure retaining items of a PRI and those welding activities do not affect the original design of the PRI including applied loads, is said welding within the scope of the NBIC?
<b>Committee's Reply 2:</b>	No, provided the deposited weld metal does not extend onto pressure retaining materials
<b>Rationale:2</b>	Assumed intent-TBC by committee
<b>Committee's Question 3:</b>	
<b>Committee's Reply 3:</b>	

<b>Rationale:3</b>	Paragraph 5.11 requires that, subject to the approval of the Jurisdiction, an Inspector shall make witness to such activities.
<b>Rationale:</b>	NBIC Part 3, Introduction, Section 3.3.2 e), 3.3.3, 3.4.4 & 5.11
<b>NBIC Vote</b>	

Include in response letter: **NA**

**Rationale:**

Having emailed the enquirer to determine the scope of their typical operations it was clear that there was a general misunderstanding about the purpose of the NBIC, the proposed questions are overly specific and as sure fail to grasp the crux of the issue hence the question re-write. Q3 was added to ensure that no misunderstand occurs. With the exception of a very hardline reading on Section 3.3.2 a) the NBIC addresses in the main body and the introduction the pressure retaining capability of the item and not work conducted elsewhere.

Sections 3.3.2 e), 3.3.3 & 3.4.4 address working (welding / replacing) on components which have a pressure retaining function. Pipes, tubes, heads, shell, and tube sheet are mentioned, integral parts without pressure retaining function such as legs and davit arms are not addressed.

Section 3.3.3 a) can be read as “Weld repairs or replacement of pressure parts or of (sic) attachments that have failed in a weld or in the base material;”

Section 5.11 requires Inspector witnessing and Jurisdiction approval for nameplate removal/replacement.

## PROPOSED INTERPRETATION

<b>Inquiry No.</b>	<b>19-34</b>
<b>Source</b>	GE Power
<b>Subject</b>	NBIC Part 3, paragraph 3.2.2 e), Pressure Testing of Replacement Parts
<b>Edition</b>	2017
<b>Question</b>	NBIC Part 3 paragraph 3.2.2 e) states that the replacement part shall receive a pressure test as required by the original code of construction. ASME has issued an interpretation (I-16-6) clarifying that Section I does not provide rules for hydrostatic testing of parts supplied for repair or alteration of existing boilers. Is it the intent of 3.2.2 e) that the reference to the original code of construction is for determining the hydrostatic test pressure?
<b>Reply</b>	Yes
<b>Committee's Question</b>	NBIC Part 3 paragraph 3.2.2 e) states that the replacement part shall receive a pressure test as required by the original code of construction. Is it the intent of 3.2.2 e) that the reference to the original code of construction is for determining the pressure used for the hydrostatic test?
<b>Committee's Reply</b>	Yes
<b>Rationale</b>	ASME has issued interpretation I-16-1 and revised PW-54 to clarify that Section I does not contain requirements for the hydrostatic testing of replacement parts. Based on this, the language in 3-3.2.2 e) "... <i>as required by the original code of construction</i> " could be interpreted to mean that pressure testing of parts is not required because Section I does not require testing of replacement parts. On review, this was not the Committee's intent when clause e) was added to 3.2.2. The proposed intent interpretation and a supporting text revision is provided to clarify this issue. By linking the words " <i>original code of construction</i> " to the test pressure, it eliminates the potential interpretation that testing is only required when the original code of construction specifically requires testing of replacement parts.
<b>SC Vote</b>	
<b>NBIC Vote</b>	
<b>Negative Vote Comments</b>	



## **Background Materials Submitted by the Inquirer**

NBIC Part 3 Section 3 paragraph 3.2.2 e) (shown below) states that replacement parts shall receive a pressure test as required by the original code of construction. We are concerned that this clause is not being interpreted consistently by all users of the NBIC. The words in question are "...as required by the original code of construction." ASME issued interpretation I-16-1 (shown below) and revised PW-54 to clarify that Section I does not contain requirements for the hydrostatic testing of replacement parts provided for an existing unit. Based on this, the words "... as required by the original code of construction." could be interpreted to mean that pressure testing of the parts is not required because Section I does not require testing of replacement parts. We do not think that was the Committee's intent when clause e) was added to 3.2.2. We submit the proposed intent interpretation and proposed revision for the Committee's consideration to clarify this issue. By linking the words "original code of construction" to the test pressure, it eliminates the potential interpretation that testing is only required when the original code of construction specifically requires testing of replacement parts.

Proposed Intent Interpretation:

Question: NBIC Part 3 paragraph 3.2.2 e) states that the replacement part shall receive a pressure test as required by the original code of construction. ASME has issued an interpretation (I-16-6) clarifying that Section I does not provide rules for hydrostatic testing of parts supplied for repair or alteration of existing boilers. Is it the intent of 3.2.2 e) that the reference to the original code of construction is for determining the hydrostatic test pressure?

Reply: Yes.

Associated Revision:

e) Replacement parts addressed by 3.2.2 c) or d) above shall receive a pressure test as required by at the pressure determined for the completed pressure equipment (boiler, pressure vessel, etc.) in accordance with the original code of construction. If replacement parts have not been pressure tested to this pressure as required by the original code of construction prior to installation they may be installed without performing the ~~original code of construction~~ pressure test provided the owner, the Inspector and, when required, the Jurisdiction accept the use of one or a combination of the examination and test methods shown in Part 3, Section 4, paragraph 4.4.1 (for repairs) or 4.4.2 (for alterations). The R Certificate Holder responsible for completing the R Form shall note in the Remarks section of the R Form the examination(s) and test(s) performed, and the reason the replacement part was not tested at the pressure determined for the completed pressure equipment in accordance with the original code of construction.

Background Information:

NBIC Part 3 Section 3 paragraph 3.2.2 e)

- e) Replacement parts addressed by 3.2.2 c) or d) above shall receive a pressure test as required by the original code of construction. If replacement parts have not been pressure tested as required by the original code of construction prior to installation they may be installed without performing the original code of construction pressure test provided the owner, the Inspector and, when required, the Jurisdiction accept the use of one or a combination of the examination and test methods shown in Part 3, Section 4, paragraph 4.4.1 (for repairs) or 4.4.2 (for alterations). The R Certificate Holder responsible for completing the R Form shall note in the Remarks section of the R Form the examination(s) and test(s) performed, and the reason the replacement part was not tested in accordance with the original code of construction.

ASME Interpretation I-16-6

Standard Designation:	BPV I
Edition/Addenda:	2015
Para./Fig./Table No:	PW-54
Subject Description:	Section I Intent Interpretation. PW-54 Hydrostatic Testing of Section I Parts
Date Issued:	08/16/2016
Record Number:	13-942
Interpretation Number:	BPV I-16-6
Question(s) and Reply(ies):	Question: Is it the intent of Section I that the rules of PW-54 regarding hydrostatic testing apply to parts supplied for repair or alteration of existing boilers?  Reply: No. Section I does not provide rules for hydrostatic testing of parts supplied for repair or alteration of existing boilers. Please be guided by Appendix A-64, Repair to Existing Boilers.

2017 Addition to PW-54

**PW-54.4** Refer to [A-64](#) as guidance for welded pressure parts supplied to the user of an existing boiler as replacement or repair parts. (17)

A-64

#### **A-64 REPAIRS TO EXISTING BOILERS**

Where repairs are necessary that in any way affect the working pressure or safety of a boiler, a state inspector, municipal inspector, or an inspector employed regularly by an insurance company, which is authorized to do a boiler insurance business in the state in which the boiler is used, shall be called for consultation and advice as to the best method of making such repairs; after such repairs are made they shall be subject to the approval of a state inspector, municipal inspector, or an inspector regularly employed by an insurance company that is authorized to do a boiler insurance business in the state in which the boiler is used.

## PROPOSED INTERPRETATION

<b>Inquiry No.</b> <b>19-35</b>	19-35 Part 3, 2.5.2 and 3.4 PWHT of PV
<b>Source</b>	Jagadheesan Vellingiri Muthukumaraswamy <a href="mailto:jaga4021@hotmail.com">jaga4021@hotmail.com</a> <b>NBIC TPM: Jim Pillow</b> <a href="mailto:jgpillow@comcast.net">jgpillow@comcast.net</a>
<b>Subject</b>	Part 3, 2.5.2 and 3.4 PWHT of Section VIII PV
<b>Edition</b>	2017
<b>Question</b>	<p><b>Inquirer's question and reply.</b></p> <p><b>Question 1:</b> An R Certificate Holder is doing repair work on the shell side of heat exchanger, which was not Post Weld Heat Treated earlier. As per client request, repair welded joints are Post Weld Heat Treated and considered an alteration as per 3.4. For Welded Joints not repaired can Post Weld Heat Treatment be done and responsibility can be taken by R Certification and considered an alteration?</p> <p><b>Proposed Reply 1:</b> No.</p> <p><b>Question 2:</b> If R Stamp Holder holds WPS for the vessel with PWHT can that Post Weld Heat Treatment be carried out as per approved WPS in order to meet alteration requirement?</p> <p><b>Proposed Reply 2:</b> Yes.</p>
<b>Reply</b>	
<b>Committee's Question</b>	
<b>Committee's Reply</b>	<p><b>Send the inquirer the following existing interpretation.</b></p> <p><b>INTERPRETATION 13-06</b> <b>Subject:</b> Part 3, 2.5.2 <b>Edition:</b> 2013 <b>Question 1:</b> An R-Certificate holder decides to perform post weld heat treatment (PWHT) of a vessel at the request of a client, where no PWHT was performed in the original construction. Is the performance of PWHT of the vessel considered an alteration and subject to documentation using a Form R2?</p>

	<p><b>Reply: Yes.</b></p> <p><b>Question 2:</b> For the vessel described above, must the weld procedures used for construction of the vessel be qualified with PWHT?</p> <p><b>Reply: Yes.</b></p> <p><b>Question 3:</b> Must the PWHT described above be performed by the R-Certificate holder?</p> <p><b>Reply: No,</b> the PWHT may be subcontracted; however the R certificate holder retains the responsibility for the performance of the PWHT.</p>
<b>Rationale</b>	The inquirer is to be instructed to follow up with the NBIC Committee if the interpretation does not satisfy the inquiry.
<b>SC Vote</b>	
<b>NBIC Vote</b>	
<b>Negative Vote Comments</b>	

## **BACKGROUND**

Original inquiry:

**Explanation of Need:** Welds not repaired by R Stamp Holder and already existing on equipment if Post Weld Heat Treated, is not under the responsibility of the R Stamp Holder.

**Background Information:** An R Certificate Holder is doing repair work on the shell side of heat exchanger, which was not PWHT earlier. As per client request, welded joints are Post Weld Heat Treated and considered an alteration; client wants shell side to undergo full Post Weld Heat Treatment including areas not repaired. NDE is being carried out for complete equipment and client wants PWHT for welds which are in services and without any repairs.

**Question 1:** An R Certificate Holder is doing repair work on the shell side of heat exchanger, which was not Post Weld Heat Treated earlier. As per client request, repair welded joints are Post Weld Heat Treated and considered an alteration as per 3.4. For Welded Joints not repaired can Post Weld Heat Treatment be done and responsibility can be taken by R Certification and considered an alteration?

**Proposed Reply 1:** No.

**Question 2:** If R Stamp Holder holds WPS for the vessel with PWHT can that Post Weld Heat Treatment be carried out as per approved WPS in order to meet alteration requirement?

**Proposed Reply 2:** Yes.

## PROPOSED INTERPRETATION

<b>Inquiry No.</b> <b>19-36</b>	Part 3, Section 3, 3.3.2 and 3.3.5, Routine Repairs of Section VIII Div.2 and Div.3 Pressure Vessels
<b>Source</b>	Inquirer: Narayanan Murugappan <b>NBIC Committee PM: Jim Pillow</b>
<b>Subject</b>	Part 3, Section 3, 3.3.2 Routine Repairs and 3.3.5 Repair of Section VIII Div.2 and Div.3 Pressure Vessels
<b>Edition</b>	2017
<b>Question</b>	<p><b>Inquirer's Proposed Q and R</b></p> <p><b>Question 1:</b> Is Routine Repairs defined para 3.3.2 applicable to pressure vessels constructed to ASME Section VIII Division-2 and 3?</p> <p><b>Proposed Reply 1:</b> Yes.</p> <p><b>Question 2:</b> If the answer to the above question is Yes, are requirements specified in Para 3.3.5 to be followed for routine repairs to pressure vessels constructed to ASME Section VIII Division-2 and 3?</p> <p><b>Proposed Reply 2:</b> Yes.</p>
<b>Reply</b>	
<b>Committee's Question</b>	<p><b>Q1;</b> Is a repair plan required for all repairs of an ASME Section VIII Div. 2 or Div. 3 pressure vessel?</p> <p><b>Q2:</b> May the repair plan for an ASME Section VIII Div.2 or Div.3 pressure vessel be accepted by the Inspector in lieu of the Authorized Inspection Agency or the Owner-User Inspection Organization?</p> <p><b>Q3:</b> Must the Authorized Inspection Agency's or the Owner-User Inspection Organization's Inspector make an acceptance inspection of the repair of an ASME Section VIII Div.2 or Div.3 pressure vessel?</p> <p><b>Q4:</b> Are routine repairs defined in Part 3, Section 3, 3.3.2, applicable to pressure vessels constructed to ASME Section VIII Div.2 or Div.3?</p>

<b>Committee's Reply</b>	<p>R1: Yes. See Part 3, 3.3.5.2.</p> <p>R2: No. See Part 3, 3.3.5.2(b).</p> <p>R3: Yes. See Part 3, 3.3.5.2(b).</p> <p>R4: No. Inspection of the repair by the Inspector is required.</p>
<b>Rationale</b>	The rules for routine repairs do not require the Inspector to inspect and accept the repair. The rules described in Part 3, 3.3.5.2(b) are clear that the Inspector must make an acceptance inspection of the repair.
<b>SC Vote</b>	
<b>NBIC Vote</b>	
<b>Negative Vote Comments</b>	

### **BACKGROUND/INQUIRER'S REQUEST**

**Explanation of Need:** Para 3.3.2 talks about requirements for and examples of routine repairs. It does not specify any restrictions on pressure retaining items construction Code. It states that Routine repairs are repairs for which the requirements for in-process involvement by the Inspector and stamping by the "R" Certificate Holder may be waived as determined appropriate by the Jurisdiction and the Inspector. It states that all other applicable requirements of this code (NBIC) shall be met. Para 3.3.5.1 of NBIC states that the following requirements shall apply for the repair of pressure vessels constructed to the requirements of Section VIII, Division 2 or 3, of the ASME Code. This calls for properly certified repair plan to be submitted to the Inspector who will make acceptance inspection and sign R-1 Form.

**Background Information:** The recent interpretations issued by NBIC are reproduced below.

INTERPRETATION 17-17

Subject: Repair and alteration of Section VIII Division 2 items

Edition: 2017

Question: Is it permissible to perform a repair or alteration on an ASME Section VIII, Division 2 pressure vessel in accordance with the NBIC when the original User's Design Specification (UDS) and/or the Manufacturer's Design Report (MDR) is not available?

Reply: No. The Repair/Alteration Plan is required to be compatible with the UDS and MDR per the NBIC Part 3, Sections 3.3.5 and 3.4.5.

## INTERPRETATION 17-08

Subject: Repair/Alteration Plans for ASME VIII, Division 2, Class 1 Pressure Vessels

Edition: 2017

Question: Does the NBIC require a Repair/Alteration Plan for an ASME Section VIII, Division 2, Class 1 vessel to be certified by an engineer when a Manufacturer's Design Report was not required to be certified under the original code of construction?

Reply: No.

### **NBIC EXCERPTS**

#### **3.3.5 REPAIR OF ASME SECTION VIII, DIVISION 2 OR 3, PRESSURE VESSELS**

##### **3.3.5.1 SCOPE**

The following requirements shall apply for the repair of pressure vessels constructed to the requirements of Section VIII, Division 2 or 3, of the ASME Code.

##### **3.3.5.2 REPAIR PLAN**

The user shall prepare, or cause to have prepared, a detailed plan covering the scope of the repair.

###### **a) Engineer Review and Certification**

The repair plan shall be reviewed and certified by an engineer meeting the criteria of ASME Section VIII, Division 2 or 3, as applicable, for an engineer signing and certifying a Manufacturer's Design Report. The review and certification shall be such as to ensure the work involved in the repair is compatible with the User's Design Specification and the Manufacturer's Design Report.

**Note:** The engineer qualification criteria of the Jurisdiction where the pressure vessel is installed should be verified before selecting the certifying engineer.

###### **b) Authorized Inspection Agency Acceptance**

Following review and certification, the repair plan shall be submitted for acceptance to the Authorized Inspection Agency/Owner-User Inspection Organization whose Inspector will make the acceptance inspection and sign the Form R-1.

Item 19-42 – Interpretation Request  
Submitted by: Paul Shanks [paul.shanks@onecis.com](mailto:paul.shanks@onecis.com)

**NBIC Location:** Part 3, 3.3.3 s) and 3.4.4 g)

**Explanation of Need:** The design requirement in 3.3.3 s) is not well defined and is allowing potentially unsafe material changes to be conducted as repairs without adequate assessment.

**Background Information:** Most pressure vessel parts are design in isolation from those around them or connected to them, heads and shell for example. There are however some components which take strength from or are subject to stresses imposed from adjacent components. For example, body flanges and bolting or tube sheets and the tubes. 3.3.3 s) allows materials of high strength than originally used to be implemented in a repair, under the condition that they “satisfy the material and design requirements of the original code” it is intuitively obvious what is meant by the material requirements but the design requirements are unclear and a great many people think stronger is more better. But in the case of tubes in a fixed tube sheet heat exchanger or bolting on a custom body flange this is not necessarily the case, upgrading the bolts or tubes could introduce an unsafe overstressed condition in the adjacent materials unless calculations are conducted this will not be known. 3.4.4 g) could be used to indicate that the some material 'upgrades' need to be an alteration but as it refers back to 3.3.3 s) and the design requirement is not well defined it becomes hard to justify a material 'upgrade' as an alteration.

**Question 1:** 3.3.3 s) includes the following “provided the replacement material satisfies the material and design requirements of the original code of construction” it is clear that the material must be one permitted by the original code of construction but in referring to the “design requirements” is it the intent of the NBIC that when higher strength material are use the new material must not introduce an overstress situation?

**Reply 1:** Yes.

**Question 2:** If the above answer is no please remove 3.4.4 g) as it is superfluous or reword it to address changing to materials with lower allowable stresses specifically.