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

**NATIONAL BOARD
SUBGROUP
REPAIRS AND ALTERATIONS**

MINUTES

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Meeting of January 10th, 2017
San Diego, California

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

Secretary Bill Vallance called the meeting to order at 8:00 am. Mr. Vallance explained the Chair, Angelo Bramucci and Vice Chair, Bryan Schulte were unavailable for this meeting and he would begin by running it.

2. Introduction of Members and Visitors

The members and guests introduced themselves. An Attendance sheet, (Attachment Page 2), was passed around for all in to sign. There were 19 Sub Group members present.

3. Announcements These were presented by Secretary Vallance

- The National Board invites all committee members and visitors to a reception at the Quad Ale House on Wednesday, January 11th. The event begins at 5:30pm. The venue is approximately a five minute walk from the hotel.
- The draft of the 2017 edition of the NBIC has been approved by the NBIC Committee, and will be available for purchase on July 1st, 2017.
- Thursday's breakfast and lunch will be presented by the National Board.
- The Executive Committee is proposing term limits for officers of Sub Groups and Committees. This will be moved on to the Board of Trustees for approval and onto ANSI for acceptance.

4. Section of Interim Chairman Mr. Vallance put forth an email he received from Sub Group Chairman Angelo Bramucci, which in it he recommends Mr. Rob Troutt run this meeting in his absence. A motion was made and unanimously approved to appoint Mr. Rob Troutt to run this meeting.

5. Adoption of the Agenda

A motion was made and unanimously approved to adopt the agenda as amended with 3 new business items added.

6. Approval of the Minutes of July 19th, 2016 Meeting

A motion was made and unanimously approved to approve the Sub Group minutes of the July 19, 2016.

7. Review of Rosters

a. Membership Nominations

There are no membership nominations for Sub Group Repairs and Alterations.

b. Membership Reappointments

- Mr. Ben Schaefer is eligible for reappointment to Subgroup Repairs and Alterations. A motion was made for Mr. Ben Schafer to be reappointed as a member of the subgroup repairs and alterations. The motion was unanimously passed. This reappointment is subject to the approval of the Chairman of the Board of Trustees.

8. Interpretations- Old Business

Item Number: IN15-0601	NBIC Location: Part 3, Section 3	Attachment Page 4
General Description: Use of backing strips to install flush patches repair/alteration classification		
Subgroup: Repairs and Alterations		
Task Group: G Galanes (PM), B. Morelock, M. Webb, M. Bost		
History:		
<u>July 2015</u> Interpretation request submitted by Mr. Nate Manzon of PMC Engineering Solutions. Mr. Galanes, Mr. Edwards, Mr. Morelock, Mr. Pillow, and Mr. Milette reviewed the request, but did not develop a proposed response.		
<u>January 2016</u> Mr. Galanes reported that no action has been taken.		
<u>July 2016</u> Mr. Pillow presented a proposed committee question and reply. Installation of a flush patch in a pressure retaining item with backing strips is a repair provided the backing strip does not reduce joint efficiency and had increased coverage by NDT when the original code of construction considered backing rings. <u>A motion was made and unanimously approved to move this to the NBIC Main Committee for consideration.</u> The item was not letter balloted in the period between meetings because approval of the 2017 edition took priority.		
<u>January 2017</u> Mr. Galanes reviewed this item with the committee noting the item was passed at the July 2016 meeting and approved to move to the main committee. It will be letter balloted at the Main Committee after this meeting.		

Item Number: IN15-0901	NBIC Location: Part 3	Attachment Page 5
General Description: Installation of nozzle to the outside of a blind flange repair/alteration classification		
Subgroup: Repairs and Alterations		
Task Group: M. Toth (PM), R. Underwood, C. Hopkins, J. Walker		
History:		
<u>July 2015</u> Interpretation request submitted by Mr. Michael Goolsby of Austin Industrial.		
<u>January 2016</u> Mr. Galanes reported that no action has been taken.		

July 2016

A progress report was given by R. Underwood. Further information will be requested of the inquirer to proceed with interpretation at the Sub Group Repairs and Alterations.

January 2017

M. Toth gave a report that he has tried to contact the inquirer for further information. Recently the inquirer's email address supplied to the National Board came back to Mr. Toth as unavailable. A motion was made and unanimously approved to **close** this item with no further action. A letter should be sent to the inquirer letter to let them know that the Item has been closed.

Item Number: IN15-1301	NBIC Location: Part 3	No Attachment
General Description: Does changing a bolt material require an "R" form and stamp?		
Subgroup: Repairs and Alterations		
Task Group: Jamie Walker(PM)		
History:		
<u>July 2015</u> Interpretation request submitted by Mr. Nathan Brink of Phillips 66.		
<u>January 2016</u> This item missed the SC agenda and will be addressed in July 2016.		
<u>July 2016</u> R. Underwood presented his Task Groups attached interpretation research and response for accepting explosion weld plugging of heat exchanger tubes. A motion was made and unanimously approved to move this item onto the NBIC Committee for consideration which was linked to another item for code revision (NB16-2601).		
<u>January 2017</u> Jamie Walker presented the item and this Sub Group decided the item needed to be reworked so this will be considered a progress report.		

Item Number: IN16-0201	NBIC Location: Part 3	Attachment Pages 7 & 8
General Description: Sequence for Stamping and R Report Signing		
Subgroup: Repairs and Alterations		
Task Group: M. Bost (PM), B. Schaefer, R. Milette, B. Schulte		
History:		
<u>January 2016</u> Mr. Pillow reported that a task group was assigned.		
<u>July 2016</u> M. Bost presented the Task Groups interpretation response. At the Sub Group Repairs and Alterations a rousing debate took place. A vote was taken at the Sub Group Repairs and Alterations where the item failed with 17 negative votes, 2 abstentions and one approval. The Task Group requested this item remain open while a new action item NB16-0301 was assigned, PM Ben Schaefer, to consider		

addressing Stamping and R report signing sequencing as part of the NBIC.

January 2017

B. Schaefer requested this item be closed with no further action as it goes along with NB16-0301 which was also closed. A motion was made and unanimously approved to close this item with no further action.

Item Number: IN16-0401 **NBIC Location: Part 3, 1.6.1** **Attachment Page 9 & 10**

General Description: Certificates of Authorization for companies in a merger or acquisition

Subgroup: Repairs and Alterations

Task Group: J. Amato (PM), R. Cauthon, B. Wielgoszinski

July 2016

A progress report was given for the interpretation to address interpretations response wording.

January 2017

J. Amato presented the Item. A motion was made and unanimously approved to move this to the Sub Committee R/A for consideration.

It was also requested a new action item # NB17-0302 be opened so the information addressed in the interpretation can be placed into NBIC Part 3. The Action Item Task Group: J. Amato(PM), B. Schafer, B. Boseo, R. Miletti, R. Strum & B. Wielgoszinski.

Item Number: IN16-0801 **NBIC Location: Part 3** **Attachment Page 11**

General Description: Result of NB16-0810; heat recovery steam generator alterations

Subgroup: Repairs and Alterations

Task Group: R. Troutt(PM), Randy Cauthon, Mike Webb

January 2017

R. Troutt presented the item that was also associated NB16-0810. A motion was made and unanimously approved to move to the Sub Committee R/A for consideration.

Item Number: IN16-1001 **NBIC Location: Part 3** **Attachment Page 12**

General Description: Is an increase in bracket loading that only increases local stress in a pressure part considered an alteration?

Subgroup: Repairs and Alterations

Task Group: Craig Hopkins(PM)

January 2017

C. Hopkins presented the item. A motion was made and unanimously approved to move this item to the Sub Committee R/A for consideration.

Item Number: IN16-1101	NBIC Location: Part 3	Attachment Pages 13-15
General Description: In case of alteration of Heat Exchanger - Tube side only, is it allowed mention MAWP for tube side only on the Alteration nameplate, as alteration was done only on tube side.		
Subgroup: Repairs and Alterations		
Task Group: Brain Morelock(PM)		
<u>January 2017</u>		
B. Morelock presented the item related to a single side of a multi chambered vessel being altered and a motion was made and unanimously approved to move this onto the Sub Committee R/A for consideration.		

Item Number: IN16-1201	NBIC Location: Part 3	No Attachment
General Description: Are new calculations required if a routine repair is done with material that has a greater allowable stress than the original material?		
Subgroup: Repairs and Alterations		
Task Group: Nathan Carter(PM), R. Underwood, J. Walker, & D. Martinez		
<u>January 2017</u>		
N. Carter presented the item and after much discussion it was determined to make this a progress report and get further information from the inquirer related to it.		

Item Number: IN16-1301	NBIC Location: Part 3, 4.4.1	No Attachment
General Description: To determine if a liquid pressure test must be deemed impracticable before NDE can be performed to verify the integrity of repairs to pressure retaining items and connecting welds of replacement parts.		
Subgroup: Repairs and Alterations		
Task Group: David Martinez(PM) Nathan Carter		
<u>January 2017</u>		
N. Carter presented the item. He mentioned there are 3 interpretations, 98-33, 04-23 & 13-09 that are related to this item. After discussion this was determined to be a progress report.		

9. Interpretations – New Business

Item Number: IN17-0101	NBIC Location: Part 3, 1.8.7.2	No Attachment
General Description: Certificate Holders Audit Responsibility		
Subgroup: SG Repairs and Alterations		
Task Group: NRTG		
<u>January 2017</u> P. Edwards presented a progress report for this item that the NRTG is working on.		

10. Action Items – Old Business

Item Number: NB12-0801	NBIC Location: Part 3	Attachment Pages 16-21
General Description: Add requirements for repair and alteration of gasketed PHEs in the field		
Subgroup: Repairs and Alterations		
Task Group: R. Cauthon (PM), B. Wielgoszinski, N. Carter		
History:		
<u>January 2012</u> This item was transferred from R/A General. A task group of E. Ortman (PM), G. Galanes and B. Wielgoszinski was assigned.		
<u>July 2012</u> A progress report was provided by Mr. Cauthon		
<u>January 2013</u> A progress report on this Action Item was given by B. Wielgoszinski and E. Ortman. During discussions it was suggested by R. Wielgoszinski that it may only be necessary to list actions that are considered repairs and actions considered alterations. The Task Group will continue to gather information for the next meeting.		
<u>July 2013</u> A progress report along with 3 documents for review was presented by Mr. Ed Ortman.		
<u>January 2014</u> Mr. Ortman is coordinating the NBIC updates with the ASME code future requirements. Once established a letter ballot will be sent out. Mr. Galanes and Mr. Pillow will be copied on correspondence should questions come up.		
<u>July 2014</u> Mr. Cauthon gave a progress report; Section VIII Div.1 has a revision in progress to address PHEs. We are waiting resolution of that action before finalizing the NBIC proposal.		
<u>January 2015</u> Mr. Cauthon gave a progress report. Progress is being made in ASME BPV Section VIII Division 1 on a PHE appendix, which the task group is keeping tabs on.		
<u>July 2015</u>		

Mr. Galanes invited Mr. Randy Cauthon to give a report on the status of this item. Mr. Cauthon explained this item is being developed in accordance with ASME Section VIII, and there will be coordination with the ASME committees as this item is worked on.

January 2016

Mr. Galanes reported that work is ongoing, pending more development from ASME Section VIII.

July 2016

R. Cauthon presented proposed revisions to NBIC in paragraphs 3.3. This sub-committee had two Plate Heat Exchanger PHE manufacturers provide a presentation to SC members concerning PHE design, fabrication and examples of repairs. These representatives were Stacey Flynn from Alfa Laval and Pete Matkovic from SPX Flow. A motion was made and unanimously approved to review the proposed revisions for PHE with a subcommittee letter ballot. This item failed the SC R/A ballot. Rationale for the negative votes is attached.

January 2017

N. Carter presented the revisions to the item from the last letter ballot responses. A motion was made and the item passed with 3 negative votes, R. Troutt, M. Toth, & C. Hopkins. This item will move the Sub Committee R/A for consideration.

NB12-0801

Item Number: NB16-0810	NBIC Location: Part 3, 3.4.3 e)	Attachment Page 22
General Description: Add additional example of alteration relating to burners		
Subgroup: Repairs and Alterations		
Task Group: R. Troutt(PM), G. Scribner, M. Webb		
<u>July 2016</u> A progress report was given by R. Trout.		
<u>January 2017</u> R. Troutt presented the item. A motion was made and unanimously approved to move this onto the Sub Committee R/A for consideration.		

Item Number: NB16-2001	NBIC Location: Part 3, 1.6.1 c)	Attachment pages 23-24
General Description: Update language about record maintenance in Table 1.6.1 c)		
Subgroup: Repairs and Alterations		
Task Group: J. Pillow (PM)		
<u>July 2016</u> J. Pillow provided a progress report for this item that the task group hopes to have addressed at the January 2017 meeting.		
<u>January 2017</u>		

G. Galanes present the item for addition to records maintenance Table 1.6.1. A motion was made and unanimously approved to move this item to the Sub Committee R/A for consideration.

11. Action Items – New Business

Item Number: NB16-0301	NBIC Location: Part 3	No Attachment
General Description: Based on IN16-0201, address sequence for stamping and R report signing		
Subgroup: SG Repairs and Alterations		
Task Group: M. Bost (PM), Ben Schaefer		
<u>January 2017</u>		
B. Schaefer presented the item and through research and discussion a motion was made and unanimously approved to close this item with no further action.		

Item Number: NB16-0302	NBIC Location: Part 3	Attachment Page 25
General Description: Encapsulation over cracks		
Subgroup: SG Repairs and Alterations		
Task Group: George Galanes (PM)		
<u>January 2017</u>		
G. Galanes presented the item and attachment. The Sub Group discussed the attachment and the encapsulation paragraphs approved in the 2017 NBIC Part 3. A motion was made and unanimously approved to close this item with no further action.		

Item Number: NB16-0303	NBIC Location: Part 3	No Attachment
General Description: Fillet welded patches		
Subgroup: SG Repairs and Alterations		
Task Group: Brain Boseo (PM)		
<u>January 2017</u>		
B Boseo presented the item and the Sub Group felt there were two separate areas within the Item that needed to be addressed in Part 3. This is a progress report.		

Item Number: NB16-0504	NBIC Location: Part 3, Section 2	No Attachment
General Description: Ensure SWPS reference table is up-to-date		
Subgroup: SG Repairs and Alterations		
Task Group: J. Sekely(PM)		
<u>January 2017</u>		

This report will be a progress report.

Item Number: NB16-0608	NBIC Location: Part 3, 1.8.2	No Attachment
General Description: Address Nuclear QA program requirements for owner and certificate holder		
Subgroup: SG Repairs and Alterations		
Task Group: NR Task Group		
<u>January 2017</u>		
P. Edwards presented a progress report that NRTG member, C. Smith will review Part 3 1.8.2 to NQA-1		

Item Number: NB16-0609	NBIC Location: Part 3, 1.8.7 and 1.8.8	No Attachment
General Description: Add requirements from 1.8.6 1) 2) for Category 2 and 3 for accreditation of calibration activities		
Subgroup: SG Repairs and Alterations		
Task Group: NR Task Group		
<u>January 2017</u>		
P. Edwards gave a progress report related to calibration activities and the task group needs to align Part 3 paragraphs with NCA-3126.		

Item Number: NB16-0610	NBIC Location: Part 3, 1.8	Attachment Page 26
General Description: Review scope statements for NR Category 3 in regards to Section VIII, B31.7, etc.		
Subgroup: SG Repairs and Alterations		
Task Group: NR Task Group		
<u>January 2017</u>		
P Edwards presented the attachment for 1.8.2 and revision categories 1 & 3 in the paragraph. A motion was made and unanimously approved to move this to the Sub Committee for consideration.		

Item Number: NB16-1502	NBIC Location: Part 3	Attachment Pages 27- 33
General Description: Develop supplement for repairs and alterations based on international construction standards		
Subgroup: SG Repairs and Alterations		
Task Group: International Repair Supplement Task Group		

January 2017

G. Galanes presented a portion of a Power Point from the Executive Committee from Author C. Withers. This will be considered a progress report. The Task Group consists of C. Withers, C. Smith, & G. Galanes plus others.

Item Number: NB16-2602 **NBIC Location: Part 3, Section 9** **No Attachment**

General Description: Add definitions for practicable and impracticable to glossary

Subgroup: SG Repairs and Alterations

Task Group: R. Underwood, R. Miletta

January 2017

R. Underwood presented the attachment. After discussion this item was considered a progress report.

Item Number: NB16-2901 **NBIC Location: Part 3, Sections 1 and 3** **No Attachment**

General Description: Result of PR16-0201, add additional requirements related to mechanical repairs

Subgroup: SG Repairs and Alterations

Task Group: M. Toth (PM), Rick Valdez, B. Schafer, Bob Wielgoszinski

January 2017

M. Toth gave a progress report for this item. It was stated there are several interpretations related to this item such as 04-19 & 98-29.

Item Number: NB16-3001 **NBIC Location: Part 3, 5.6** **Attachment Page 34**

General Description: Result of PR16-0701, review form registration log requirements

Subgroup: SG Repairs and Alterations

Task Group: Kathy Moore(PM), M. Webb

January 2017

M. Webb presented the attachment for revision to the form log paragraph related to R form registration. A motion was made and unanimously approved to move this to the Sub Committee for consideration.

Item Number: NB16-3002	NBIC Location: Part 3, 3.2.2 e)	Attachment Page 35 & 36
General Description: Result of PR16-0704, clarify that pressure tests of level and duration required by original COC are sometimes permissible after installation		
Subgroup: SG Repairs and Alterations		
Task Group: Mike Webb(PM)		
<u>January 2017</u>		
M. Webb presented the attachment and after discussion and possible action to be done in ASME Section I, replacement parts a motion was made and unanimously approved to close this item with no further action.		

Item Number: NB16-2603	NBIC Location: Part 3, 4.4.1(a)(1)	Attachment Page 37
General Description: Maximum Liquid Test Pressure		
Subgroup: SG Repairs and Alteration		
Task Group: R. Underwood (PM)		
<u>January 2017</u>		
R. Underwood presented the attachment. A motion was made and unanimously approved to move this to the Sub Committee R/A.		

Item Number: NB16-0603	NBIC Location: Part 3, Supplement 9	No Attachment
General Description: Move from Part 3 to Part 4		
Subgroup: Repairs and Alterations, NR TG		
Task Group: NRTG P Edwards (PM), Ben Schafer		
<u>January 2017</u>		
P. Edwards presented this new item for information only as it is an NBIC Part 3. This is PRD Action Item		

12. Future Meetings

July 17-20, 2017 – Columbus, Ohio
 January 8-11, 2018 – Location TBD

13. Adjournment

Respectfully submitted,

Bill Vallance
 Secretary Sub Group Repairs and Alterations

Sub Group Repairs and Alterations

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SG Repairs and Alterations Attendance Sheet - 1/10/17

Are you

Name	Company	Phone Number	Email	Signature	Attend Rec.?	Guest?
Angelo Bramucci	Alstom Power	(860) 285-9176	angelo.c.bramucci@power.alstom.com			
Bryan Schulte	NRG Energy	(713) 795-1456	bryan.schulte@nrgenergy.com			
William Vallance	National Board	(614) 888-8320	bvallance@nationalboard.org	<i>Wm Vall</i>		
Joel Amato	State of Minnesota	(651) 284-5137	joel.amato@state.mn.us	<i>Joel Amato</i>	X	
Brian Boseo	Graycor Industrial Constructors	(630) 684-7300	brian_boseo@graycor.com	<i>Brian Boseo</i>	✓	
Nathan Carter	Hartford Steam Boiler	(860) 722-5750	nathan_carter@hsbct.com	<i>Nathan Carter</i>	✓	
Randal Cauthon	Alstom Power	(860) 285-3481	randal.t.cauthon@power.alstom.com			
Paul Edwards	WECTEC	781-298-3826 (617) 589-5677	EDWARDS P & E paul.edwards@ch2.com ASME.ORG	<i>Paul D. Edwards</i>	✓	
George Galanes	Diamond Technical Services	(815) 634-2727	ggalanes@diamondtechnicalservices.com	<i>George Galanes</i>	✓	
Craig Hopkins	Seattle Boiler Works	(206) 762-0737	chopkins@seattleboiler.com	<i>Craig Hopkins</i>	✓	
Frank Johnson	PBF Energy	(419) 698-6614	frank.johnson@pbfenergy.com	<i>Frank Johnson</i>	✓	
Wayne Jones	Arise	(251) 895-8826	wayne.jones@ariseinc.com	<i>Wayne Jones</i>	✓	
David Martinez	Factory Mutual	(781) 255-4784	david.martinez@fmglobal.com	<i>David Martinez</i>	✓	
Larry McManamon	Boilermakers National Apprenticeship Program	(708) 636-6656	lmac@glabap.com			
Ray Miletta	Babcock & Wilcox	(330) 860-2589	rmiletta@babcock.com	<i>Ray Miletta</i>	✓	
Kathy Moore	Joe Moore & Company	(919) 832-1665	kathymoore@joemoorecompany.com	<i>Kathy Moore</i>	✓	
Brian Morelock	Eastman Chemical Company	(423) 229-1205	morelock@eastman.com	<i>Brian Morelock</i>	✓	
James Pillow	Common Arc	(860) 688-2531	jpillow@commonarc.com			
Benjamin Schaefer	AEP	(614) 267-4072	bschaefer@aep.com	<i>Benjamin Schaefer</i>	✓	
James Sekely	Consultant	(412) 389-5567	jsekely@comcast.net			
Walter Sperko	Sperko Engineering Services	(336) 674-0600	sperko@asme.org	<i>Walter Sperko</i>	✓	

Interpretation IN15-0601

Proposed Interpretation

Inquiry:	IN15-0601
Source:	Mr. Nate Manzon, PMC Engineering Solutions
Subject:	NBIC Part 3 Section 3
Edition:	2013
Question 1:	May installation of a flush patch in a pressure retaining part be classified as a "Repair" if any of its attachment welds are made using a backing strip along with the welds receiving the same degree of volumetric examinations as original construction when the original vessel design and construction of the pressure retaining part did not use backing strips in its design and construction.
Reply 1:	No. If backing strips were not considered and used in the original design and construction, and are used on the flush patch installation, the work must be classified as an Alteration.
Question 2:	May installation of a flush patch in a pressure retaining part be classified as a "Repair" if any of its attachment welds are made using a backing strip along with the welds receiving a lesser or higher degree of volumetric examination such that the applicable flush patch butt weld design joint efficiency is lower or higher than original construction when the original vessel design and construction of the pressure retaining part did not use backing strips in its design and construction.
Reply 2:	No. If backing strips were not considered and used in the original design and construction, and are used on the flush patch installation, and if the applicable joint efficiency of the weld made using a backing strip is lower or higher than that of the joint efficiency used on the original design, there would be a change in the joint efficiency applicable to design of the part which would mandate that the work be classified as an Alteration.
Committee's Question:	If a flush patch plate in a pressure retaining item (PRI) is installed with attachment welds using backing strips and the attachment welds receive the same or higher degree of volumetric examination required by the original code of construction with no reduction in joint efficiency as original construction is this considered a repair?
Committee's Reply:	Yes
Rationale:	
SC Vote	

Interpretation IN15-0901

Proposed Interpretation

Inquiry:	IN15-0901
Source:	Mr. Michael Goolsby, Austin Industrial
Subject:	NBIC Part 3
Edition:	2013
Question 1:	<p>When you have the original vessel with nozzles installed and covers (blind flanges) placed on those nozzles by the fabricator.</p> <p>If you modify the blind flange by adding a nozzle on the outside of the blind flange. Would this be considered a repair?</p>
Reply 1:	Yes
Question 2:	<p>If you have an in-service vessel that has B31.3 piping flanged up to a nozzle on the vessel. The piping is removed and a blind flange installed. It is then decided to install a nozzle on the outside of the blind flange. Would this be considered a repair?</p>
Reply 2:	<u>No</u> . The face of the flange was the end of the original Code boundary.
Question 3:	Is the outside surface of the blind flange or cover considered the end of the Code boundary per the NBIC?
Reply 3:	<p>3)a) <u>Yes</u> Code stops at the outside of the blind flange.</p> <p>3) b) <u>No</u> The Code stops at the flange face.</p>
Committee's Question:	<ol style="list-style-type: none"> 1) Is the attachment of a nozzle to the outside surface of a cover on a PRI considered a repair? 2) Would it be considered a repair if B31.3 piping connected to a PRI by means of a flange is removed and a blind flange is installed, and a nozzle is then attached to the outside of the blind flange? 3) Is the outside surface of the blind flange or cover considered the end of the Code boundary per the NBIC?
Committee's Reply:	<ol style="list-style-type: none"> 1) Yes, as a minimum, depending on the size of the nozzle being attached 2) The question falls outside the scope of the NBIC 3) Code boundary falls outside the scope of the NBIC
Rationale:	1)
SC Vote	
NBIC Vote	

Request for Interpretation

Jamie Walker
Hayes Mechanical
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Office: 773.292.2707
Cell: 773.910.5892

ACTION ITEM No: IN15-1301

Proposed Interpretation

Inquiry:	IN15-1301
Source:	Mr. Nathan Brink, Phillips 66
Subject:	NBIC Part 3, Section 3
Edition:	2013
Question 1:	Does 3.4.3 g / 3.3.3 s imply that a change of bolt material (for example on an exchanger girth flange or floating head due to availability, or increasing corrosion resistance) is an alteration/repair requiring an "R" form and stamp?
Reply 1:	Yes. Replacement of pressure retaining parts shall be performed by an R Certificate Holder and documented on the applicable R-1 or R-2 Form.
Committee's Question:	Does 3.4.3 g / 3.3.3 s imply that a change of bolt material is an alteration/repair requiring an "R" form and stamp?
Committee's Reply:	Yes, if required by the Jurisdiction.
Rationale:	When replacing bolting that is identified on a pressure retaining items' MDR, the replacement activity could be categorized as a Repair or Alteration. When bolting is replaced due to being defective, replacement with a suitable material that meets the specifications of the original Code of construction could be classified as a Repair and documented on an R-1 form. When bolting is replaced with a material that does not meet the specifications of the original Code of construction, that replacement activity should be classified as an Alteration, and documented on an R-2 form. The replacement bolting material must be selected based on sound engineering analysis and calculations as warranted, supporting that the replacement bolting will perform satisfactorily for the intended service.
SC Vote	
NBIC Vote	

Request for Interpretation

Monte Bost
HSB Global Standards

ACTION ITEM No. : IN16-0201

Purpose	Certification of National Board "R" Form
Proposed Question	Before signing the applicable National Board "R" Form, shall the Inspector verify the stamping and/or nameplate is correct and, where applicable, properly attached to the pressure retaining item?
Proposed Answer	Yes
Background	<p>NBIC Part 3, Section 1, 1.3.2(b) states before signing the R Form, the Inspector shall verify a number of items including all functions necessary to ensure compliance to the code have been satisfactorily performed.</p> <p>b) Before signing the appropriate NBIC Report Form, the Inspector shall review the drawings, ensure the repair or alteration was performed in accordance with the accepted code of construction or standard, witness any pressure test or any acceptable alternative test method applied, ensure that the required nondestructive examinations have been performed satisfactorily, and that the other functions necessary to ensure compliance with the requirements of this code have been satisfactorily performed.</p> <p>c) The Inspector shall verify the stamping or nameplate is correct and where applicable, the nameplate has been properly attached.</p> <p>NBIC Part 3, Section 5, 5.7.1 states that stamping of the pressure retaining item indicates the work was performed with the requirements of this code.</p> <p>5.7 STAMPING REQUIREMENTS FOR REPAIRS AND ALTERATIONS</p> <p>5.7.1 GENERAL</p> <p>The stamping of or attachment of a nameplate to a pressure-retaining item shall indicate that the work was performed in accordance with the requirements of this code. Such stamping or attaching of a nameplate shall be done only with the knowledge and authorization of the Inspector. The "R" Certificate Holder responsible for repair or the construction portion of the alteration shall apply stamping. For a re-rating where no physical changes are made to the pressure-retaining item, the "R" Certificate Holder responsible for design shall apply stamping.</p> <p>The Certificate of Inspection on the R Form states that to the best of his knowledge, the Inspector is certifying the work complies with the applicable requirements of the NBIC.</p>

CERTIFICATE OF INSPECTION

I, _____, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and certificate of competency, where required, issued by the Jurisdiction of _____ and employed by _____ of _____ have inspected the work described in this report on _____ and state that to the best of my knowledge and belief, this work complies with the applicable requirements of the National Board Inspection Code. By signing this certificate, neither the undersigned nor my employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the undersigned nor my employer shall be liable in any manner for any personal injury, property damage, or loss of any kind arising from or connected with this inspection.

Date _____ Signed _____
(Inspector) (National Board and Jurisdiction no.)

IN16-0401 Interpretation Response

Subject; Part 3, 1.6.1

Background: Two companies, each holding an “R” Certificate of Authorization, have merged and now operate under a common corporate umbrella. Each prior independent company is now a wholly owned subsidiary of a parent company.

Question 1; Is it permissible for subsidiary companies, under a common corporate ownership, to possess and maintain separate R certificates of Authorization?

Reply 1: Yes

Question 2: May the subsidiary companies under common corporate ownership exchange and use quality related documents and procedures?

Reply 2: *The NBIC does not address the sharing and use of quality documents and procedures between subsidiaries.*

Question 3: Must subsidiary companies now under a common corporate owner combine the Quality System Programs of each subsidiary into a single program that is applicable to all subsidiaries?

Reply 3: No. They may continue to operate independently and hold separate "R" Certificates of Authorization.

Background: In a combined cycle plant, combustion turbine exhaust (waste-heat) is the principal source of heat to an HRSG. When upgrades are performed to the combustion turbine, it can result in increased heat input to the HRSG.

Question:

When the total heat input into a Heat Recovery Steam Generator (HRSG) is changed (increased firing rate, adjustment, or modification to the primary or an auxiliary heat source), resulting in the steaming capacity exceeding the original Manufacturer's Minimum Required Relieving Capacity (MRRC), does this departure from the original Manufacturer's design represent an alteration as described in Part 3, 3.4?

Reply: Yes

For the committee:

Within the Power Generating industry, Combustion Turbines (CT's), not un-like other generations of power producing equipment, may seek ways to refine CT-efficiency thereby reducing operating cost. When the CT-equipment is used in conjunction with a Heat Recovery Steam Generator (HRSG), original HRSG-design understandings may be inadvertently sidestepped as a very relevant component of understanding the combined operating system.

At risk is, there may be instances where an improvement in efficiency is sought at the CT, without looking at the HRSG as a recipient of the waste-heat, and the effects of steaming, potentially exceeding the steam relieving requirements of ASME Section I, PG-67.

While an increase in total combustion mass-flow may initially represent the providence of increased steaming capacity and some perception of reward by the Owner, the increase in firing weighs heavily environmentally and is routinely monitored and reported. The consequences of exceeding the State-dependent emission permit may limit practical opportunity without besetting a "New Source Review", environmental impact study; a very costly venture, but the prerogative of the Owner. As presented, the interpretation does not question operating prerogatives of the Owner; within or outside of the recommended operating guidance of the OEM. To add, routine CT-tuning required to stay within environmental limits, and routine maintenance activities representing component replacements are outside of this interpretation as there is not an upset in MRRC.

3.4.3 EXAMPLES OF ALTERATIONS

- 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;
- b) A decrease in the minimum temperature;
- c) The addition of new nozzles or openings in a boiler or pressure vessel except those classified as repairs;
- d) A change in the dimensions or contour of a pressure-retaining item;
- e) In a boiler, an increase in the heating surface or steaming capacity as described on the original Manufacturer's Data Report;
- f) The addition of a pressurized jacket to a pressure vessel;
- g) Except as permitted in NBIC Part 3, 3.3.3 s); replacement of a pressure retaining part in a pressure retaining item with a material of different allowable stress or nominal composition from that used in the original design;
- h) The addition of a bracket or an increase in loading on an existing bracket that affects the design of the pressure-retaining item to which it is attached;
- i) The replacement of a pressure relieving device (PRD) as a result of work completed on a pressure-retaining item (PRI) that changes the resultant capacity to exceed the minimum required relieving capacity (MRRC) required by the original code of construction as described on the original Manufacturer's Data Report.

Interpretation IN16-1001

Proposed Interpretation

Inquiry:	IN16-1001
Source:	Unknown
Subject:	Examples of Alterations, Part 3, 3.4.3 (h)
Edition:	2015
Original Question 1:	If an increase in loading on an existing bracket cause only increase of local stress in pressure part without physical change (reinforcing) of the part, is the requirement of Alteration applicable as per 3.3.3 (h)?
Committee Question 1:	Is an increase in external loading on a bracket that increases local stress in a pressure retaining item (PRI) which does not require redesign of the PRI or bracket attachment considered an alteration?
Reply 1:	No.
SC Vote	
NBIC Vote	

Inquiry:	IN16-1001
Source:	Unknown
Subject:	Examples of Alterations, Part 3, 3.4.3 (h)
Edition:	2015
Original Question 2:	In 3.4.3 (h), does the word “pressure retaining item” include existing bracket itself (non-pressure part)?
Committee Question 2:	
Reply 2:	See definition of Pressure Retaining Item(PRI) in NBIC Part 3 Glossary
SC Vote	
NBIC Vote	

Interpretation IN16-1101

Proposed Interpretation

Inquiry:	IN16-1101
Source:	Pradeep Subhedar
Subject:	NBIC Part 3 Section 5.7.3, 5.7.5, and Figure 5.7.5-b
Edition:	2015
Question 1:	In case of alteration of Heat Exchanger - Tube side only, is it allowed mention MAWP for tube side only on the Alteration nameplate, as alteration was done only on tube side.
Reply 1:	Yes or No
Committee's Question:	If an alteration is performed only on one pressure chamber (e.g. shell side or tube side) of a heat exchanger, is it permitted to only stamp the MAWP for the altered side on the alteration nameplate?
Committee's Reply:	No, the MAWP of both chambers shall be listed on the nameplate.
Rationale:	NBIC Part 3, Sections 5.7.3, 5.7.5, Fig. 5.7.5-b The alteration nameplate represents the current stamped ratings of the altered vessel. Having to decipher the current stamped ratings of the altered vessel from the alteration nameplate(s) and the original manufactured nameplate leads to confusion.
SC Vote	
NBIC Vote	

Background Information IN16-1101 12-19-16 from the Inquirer:

We would like to have code interpretation on the NBIC Part -3 code cl. 5.7.3 and Figure 5.7.5 b

Inquiry:

In case of alteration of Heat Exchanger - Tube side only, is it allowed mention MAWP for tube side only on the Alteration nameplate, as alteration was done only on tube side.

Reply:

Yes or No

Background:

Repair organisation added 3 nozzles on Tube side of the Heat exchanger and shell side was not touched. Since alteration nameplate needs to mark with MAWP, is it allowed to mention MAWP only on Tube side as the work was carried out only on Tube side. The word Tube side also can be punched below MAWP.

Hope to receive your kind reply.

With best regards,
Pradeep Subhedar

Rationale from NBIC Part 3:

1.3.2 Acceptance Inspection

c) The Inspector shall verify the stamping or nameplate is correct and where applicable, the nameplate has been properly attached

NBIC Part 3, 5.2.2 Preparation of Form R-2 (Alterations)

b) The information describing an alteration to a pressure-retaining item shall be identified on Form R-2 with a complete description of the scope of work for physical or non-physical changes. When the scope of work represents a change that will increase the Minimum Required Relieving Capacity (MRRC) of a pressure-retaining item, such as a change in heating surface, Maximum Designed Steaming Capacity (MDSC), or Btu/hr (W) heating capacity, the new MRRC shall be documented on Form R-2 and indicated on the appropriate nameplate of NBIC Part 3, Figure 5.7.5-b or NBIC Part 3, Figure 5.7.5-c.

NBIC Part 3, Section 5

5.7.3 Stamping Requirements for Alterations

Pressure-retaining items altered in accordance with this code shall have a nameplate or stamping applied adjacent to the original manufacturer's stamping or nameplate in accordance with this section. For an alteration where physical changes are made to the pressure-retaining item, the "R" Certificate Holder responsible for the construction portion of the alteration shall apply the stamping or nameplate. For an alteration where no physical changes are made to the pressure-retaining item (e.g., a re-rating) the "R" Certificate Holder, assuming responsibility for the design, shall apply the stamping or nameplate.

5.7.5 SPECIFIC REQUIREMENTS FOR STAMPING AND NAMEPLATES

a) Required data shall be in characters of at least 5/32 in. (4 mm) high, except that characters for pressure relief valve repair nameplates may be smaller. Markings may be produced by casting, etching, embossing, debossing, stamping, or engraving. The selected method shall not result in any harmful contamination, or sharp discontinuities to, the pressure-retaining item. See NBIC Part 3, Figures 5.7.5-a through 5.7.5-g.

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

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

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

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

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

g) The subject nameplate shall be securely attached using a method compatible with the structure or stand-off bracket supporting the nameplate, in a manner that will impede easy removal. The method of attaching this nameplate, as permitted by the original code of construction, may include, but is not limited to:

- 1) Welding
- 2) Adhesive, bonding or cementing
- 3) Tamper-resistant mechanical fasteners of suitable metal construction

NBIC Interpretations:

INTERPRETATION 13-02

Subject: Part 3, 5.7.5

Edition: 2011

Question: When temperature limits are not required to be placed on the original manufacturer's nameplate in accordance with the original code of construction, may the temperature field for Figures 5. 7. 5 b) and 5.7.5 c) be indicated as N/A?

Reply: Yes

<u>Subject</u>	Plate Heat Exchangers		
<u>File Number</u>	NB12-0801	Prop. on Pg.	2 thru 4
Proposed Revision	Add examples of routine repairs, repairs, and alterations for plate heat exchangers and revise R-1 form to include PHEs.		
<u>Statement of Need</u>	Because of the unique design of the PHE, the current ASME Pressure Vessel and NBIC Codes do not specifically address the design of PHE's, nor the potential repairs or alterations. This is intended to provide guidance to the industry and the Jurisdictions.		
<u>Project Manager</u>	Randy Cauthon		

SubGroup	R&A		
SubGroup Negatives		SG Meeting Date	January 10, 2017

SubCommittee Negatives		SC Meeting Date	January 11, 2017
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3.3 REPAIRS TO PRESSURE-RETAINING ITEMS

3.3.3 EXAMPLES OF REPAIRS

- a) Weld repairs or replacement of pressure parts or attachments that have failed in a weld or in the base material;
- b) The addition of welded attachments to pressure parts, such as:
 - 1) Studs for insulation or refractory lining;
 - 2) Hex steel or expanded metal for refractory lining;
 - 3) Ladder clips;
 - 4) Brackets having loadings that do not affect the design of the pressure-retaining item to which they are attached; and
 - 5) Tray support rings.
- c) Corrosion resistant strip lining, or weld overlay;
- d) Weld buildup of wasted areas;
- e) Replacement of heat exchanger tubesheets in accordance with the original design;
- f) Replacement of boiler and heat exchanger tubes where welding is involved;
- g) In a boiler, a change in the arrangement of tubes in furnace walls, economizers, or super heater sections;
- h) Replacement of pressure-retaining parts identical to those existing on the pressure-retaining item and described on the original *Manufacturer's Data Report*. For example:
 - 1) Replacement of furnace floor tubes and/or sidewall tubes in a boiler;
 - 2) Replacement of a shell or head in accordance with the original design;
 - 3) Rewelding a circumferential or longitudinal seam in a shell or head;
 - 4) Replacement of nozzles of a size where reinforcement is not a consideration.
- i) Installation of new nozzles or openings of such a size and connection type that reinforcement and strength calculations are not a consideration required by the original code of construction;
- j) The addition of a nozzle where reinforcement is a consideration may be considered to be a repair, provided the nozzle is identical to one in the original design, located in a similar part of the vessel, and not closer than three times its diameter from another nozzle. The addition of such a nozzle shall be restricted by any service requirements;
- k) The installation of a flush patch to a pressure-retaining item;
- l) The replacement of a shell course in a cylindrical pressure vessel;
- m) Welding of gage holes;
- n) Welding of wasted or distorted flange faces;
- o) Replacement of slip-on flanges with weld neck flanges or vice versa;
- p) Seal welding of buttstraps and rivets;
- q) Subject to the administrative procedures of the Jurisdiction and approval of the Inspector, the replacement of a riveted section or part by welding;

- r) The repair or replacement of a pressure part with a code-accepted material that has a nominal composition and strength that is equivalent to the original material, and is suitable for the intended service; and
- s) Replacement of a pressure-retaining part with a material of different nominal composition and, equal to or greater in allowable stress from that used in the original design, provided the replacement material satisfies the material and design requirements of the original code of construction under which the vessel was built. The minimum required thickness shall be at least equal to the thickness stated on the original *Manufacturer's Data Report*.
- t) The replacement of a pressure relieving device (PRD) attached by welding, provided the replacement device's relieving capacity is equal to or greater than the PRD capacity required by the original code of construction.
- u) Repairs to plate heat exchangers (PHE) are limited to the following:
 - 1) Welding on any pressure part, i.e. not limited to a flange, nozzle, or endplate;
 - 2) In kind replacement of endplates, or welded nozzles,
 - 3) Replacement of any failed connection or frame bolting, representing the replacement parts described in Part 3, 3.2.2-a), with no change of material or grade as described on the MDR or OEM-drawing,
 - 4) The addition or repair of load bearing attachments (e.g., welded supports or lifting lugs) to the endplates.
 - 5) Replacement of critical parts bearing certification or manufacturer's stamping with no-change in material allowed as described on the Manufacturer's Data Report (MDR) or verifiable Original Equipment Manufacturers (OEM) drawing.

3.4.3 EXAMPLES OF ALTERATIONS

- 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;
- b) A decrease in the minimum temperature;
- c) The addition of new nozzles or openings in a boiler or pressure vessel except those classified as repairs;
- d) A change in the dimensions or contour of a pressure-retaining item;
- e) In a boiler, an increase in the heating surface or steaming capacity as described on the original Manufacturer's Data Report (MDR);
- f) The addition of a pressurized jacket to a pressure vessel;
- g) Except as permitted in NBIC Part 3, 3.3.3 s); replacement of a pressure retaining part in a pressure retaining item with a material of different allowable stress or nominal composition from that used in the original design;
- h) The addition of a bracket or an increase in loading on an existing bracket that affects the design of the pressure-retaining item to which it is attached;
- i) The replacement of a pressure relieving device (PRD) as a result of work completed on a pressure-retaining item (PRI) that changes the resultant capacity to exceed the minimum required relieving capacity (MRRC) required by the original code of construction as described on the original Manufacturer's Data

Report.

- j) For plate heat exchangers, in addition to all the applicable examples of alterations above, the following changes from what is listed on the MDR or described on the Original Equipment Manufacturer's (OEM)-drawing:
- 1) For heat transfer plates:
 - a) A change in material grade or nominal thickness:
 - b) A reduction in number beyond any minimum, or when no minimum is specified:
 - c) An increase in number beyond any maximum, or when no maximum is specified:
 - d) A change in model type:
 - 2) Any change in material whether described at 3.3.3 s) or as described at 3.4.3 g):
 - a) A change in connection bolt or frame compression bolt diameter or material grade:
 - b) A change in material grade or nominal dimensions of any end plates or nozzles.

Definition to be added into glossary:

Plate Heat Exchangers (PHE): An assembly of components consisting of heat transfer plates and its supporting frame. The frame provides structural support and pressure containment and may consist of fixed endplates, moveable endplates, an upper carrying bar and lower guide bar which provide plate alignment, and frame compression bolts.

SG-3

1/10/17

NB 12-0801

CRAIG HOPKINS VOTED NO

REASON: ITEM SHOULD BE
REWORDED PER
BOB WIELGOSZINSKI'S
RECOMMENDATION,
WHICH WAS TO CHANGE
OPENING PARAGRAPH +
ADD A FIFTH EXAMPLE



The Westgate Hotel

My negative (as well as Rob Louth) was due to the need to have the suggested revisions by myself and Bob W. If the revisions are made both Rob and I will lift our negatives

Thank you,

Marty Louth

EXAMPLES OF ALTERATIONS

- 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;
- b) A decrease in the minimum temperature;
- c) The addition of new nozzles or openings in a boiler or pressure vessel except those classified as repairs;
- d) A change in the dimensions or contour of a pressure-retaining item;
- e) In a boiler, an increase in the heating surface or steaming capacity as described on the original Manufacturer's Data Report;
- f) The addition of a pressurized jacket to a pressure vessel;
- g) Except as permitted in NBIC Part 3, 3.3.3 s); replacement of a pressure retaining part in a pressure retaining item with a material of different allowable stress or nominal composition from that used in the original design;
- h) The addition of a bracket or an increase in loading on an existing bracket that affects the design of the pressure-retaining item to which it is attached;
- i) The replacement of a pressure relieving device (PRD) as a result of work completed on a pressure-retaining item (PRI) that changes the resultant capacity to exceed the minimum required relieving capacity (MRRC) required by the original code of construction as described on the original Manufacturer's Data Report.
- j) An increase in the total heat input (increased firing rate, adjustment, or modification to the primary or auxiliary heat source) into a boiler, Heat Recovery Steam Generator (HRSG), or PRI resulting in the steaming capacity exceeding the original Manufacturer's Minimum Required Relieving Capacity (MRRC) as described on the name plate and or Manufacturers Data Report.

Background: In a combined cycle plant, combustion turbine exhaust (waste-heat) is the principal source of heat to an HRSG. When upgrades are performed to the combustion turbine, it can result in increased heat input to the HRSG.

For the committee:

Within the Power Generating industry, Combustion Turbines (CT's), not un-like other generations of power producing equipment, may seek ways to refine CT-efficiency thereby reducing operating cost. When the CT-equipment is used in conjunction with a Heat Recovery Steam Generator (HRSG), original HRSG-design understandings may be inadvertently sidestepped as a very relevant component of understanding the combined operating system.

At risk is, there may be instances where an improvement in efficiency is sought at the CT, without looking at the HRSG as a recipient of the waste-heat, and the effects of steaming, potentially exceeding the steam relieving requirements of ASME Section I, PG-67.

While an increase in total combustion mass-flow may initially represent the providence of increased steaming capacity and some perception of reward by the Owner, the increase in firing weighs heavily environmentally and is routinely monitored and reported. The consequences of exceeding the State-dependent emission permit may limit practical opportunity without besetting a "New Source Review", environmental impact study; a very costly venture, but the prerogative of the Owner. As presented, the example does not question operating prerogatives of the Owner; within or outside of the recommended operating guidance of the OEM.

To add, routine CT-tuning required to stay within environmental limits, and routine maintenance activities representing component replacements are outside of this example as there is not an upset in MRRC.

CODE REVISIONS OR ADDITIONS

Existing Text: Part 3, Table 1.6.1, c)

Form "R" Reports, Records, or Documents	Instructions	Minimum Retention Period
c) Continuity records for a welder, welding operator, bonder, or cementing technician.	Minimally, continuity records for a welder, bonder, or cementing technician within the Certificate Holder's quality system shall be described and established at the time of the applicant's initial certificate review and demonstrated at each triennial review required thereafter.	As applicable to the scope of work identified on the <i>Certificate of Authorization</i> , the continuity records are subject to review during each National Board triennial certificate review.

Add the following sentence to the text regarding "Minimum retention Period".

Continuity records for those employed by the Certificate Holder need not be retained for more than 5 years.

Statement of Need

Because there is no established retention period for continuity records for those employed by the Certificate Holder, the Certificate Holder may be expected to retain continuity records from the date of initial qualification onward. This can be as long as 10 to 20 years, or longer. This is an unnecessary burden on the Certificate Holders.

Background Information

The burden of records retention varies amongst the various Certificate Holders. For example, it may be of little or no burden for a Certificate Holder that employs a limited number of welders, bonders or cementing technicians on a continuous basis, but for a Certificate Holder that employs hundreds, perhaps thousands, of welders, bonders or cementing technicians for short periods of time, such as needed for site repairs and alterations, record retention becomes quite burdensome. Is verification of continuity maintenance dating back longer than 5 years needed to assure safety? I don't believe so. The NBIC has built-in safeguards when a person's skill comes into question. These safeguards are provided in Part 3, Section I, paragraph 2.2.6.b and 2.2.6.1.c, Section 6, S4.10.5.b, S6.8.6.b, and S7.12.6.b. These paragraphs require qualifications to be revoked when there is specific reason to question the person's ability to meet the specification requirements.

Please note that ASME Section VIII requires welding records to be retained for at least 3 years. Section I just approved a revision to be published in the 2017 Edition that states that continuity records need not be retained for more than 5 years (See following page).

INFORMATION ONLY

ASME Item 16-1500 Records Retention Rev 4

A-302.11, PW-28.4 and PB-29.3

Existing Text	Proposed Revision
<p>A-302.11 Records Retention. The Manufacturer or assembler shall have a system for the maintenance of radiographs and Manufacturers' Data Reports as required by this Section.</p>	<p>A-302.11 Records Retention. The Manufacturer or assembler shall have a system for the maintenance of radiographs (PW-51.4), UT reports (PW-52.2), and Manufacturers' Data Reports (PG-113.3), and <u>qualification maintenance records for welders and welding operators (PW-28.4) and brazers and brazing operators (PB-29.3)</u> as required by this Section.</p>
<p>PW-28.4 The Manufacturer shall maintain qualification records of the welding procedures, welders, and welding operators employed, showing the date, results of the tests, and the identification mark assigned to each welder. These records shall be certified by the Manufacturer by signature or some other method of control in accordance with the Manufacturer's Quality Control System and be accessible to the Authorized Inspector.</p>	<p>PW-28.4 The Manufacturer shall maintain qualification records of the welding procedures, welders, and welding operators employed, showing the date, results of the tests, and the identification mark assigned to each welder. These records shall be certified by the Manufacturer by signature or some other method of control in accordance with the Manufacturer's Quality Control System and be accessible to the Authorized Inspector. <u>Continuity records showing that the qualifications of the welders and welding operators have been maintained need not be retained for more than 5 years.</u></p>
<p>PB-29.3 The Manufacturer shall maintain qualification records of the brazers and brazing operators showing the date and result of tests and the identification mark assigned to each. These records shall be certified by the Manufacturer by signature or some other method of control in accordance with the Manufacturer's Quality Control System and be accessible to the Inspector.</p>	<p>PB-29.3 The Manufacturer shall maintain qualification records of the brazers and brazing operators showing the date and result of tests and the identification mark assigned to each. These records shall be certified by the Manufacturer by signature or some other method of control in accordance with the Manufacturer's Quality Control System and be accessible to the Inspector. <u>Continuity records showing that the qualifications of the brazers and brazing operators have been maintained need not be retained for more than 5 years.</u></p>

Item Number: NB16-0302

NBIC Location: Part 3

General Description: Encapsulation over cracks

Subgroup: SG Repairs and Alterations

Task Group: None assigned G. Galanes. I have reviewed the encapsulation technique and determined that trying to do this over a crack requires a comprehensive investigation into the cause of cracking for a pressure retaining item. For SCC or SSC failures which can form at multiple locations within a pressure retaining item, encapsulation could be impractical from a safety standpoint. For thermal fatigue cracks, encapsulation could be effective, but again, this requires detailed failure analysis to ensure crack initiation sites have been identified and encapsulated.

Overall, my recommendation is to not allow encapsulation over existing cracks, which would appear more conservative but results in maintaining safety. I believe trying to write rules permitting encapsulation or types of existing cracks or failures would be cumbersome, at best, and not result in increased safety or reduced risk of failure. Even reference back to incomplete removal of existing cracks in the current NBIC requires detailed analysis of cracks to monitor, and encapsulation would prevent this activity.

NB16-0610 NR Task Group 1-9-17

1.8.2 GENERAL

a) An organization applying for an "NR" *Certificate of Authorization* shall have a written Quality Assurance Program (QAP) that details the specific requirements to be met based on the intended category of activities selected by that organization as described below and shown in Table 1.8.2. Controls used, including electronic capabilities, in the Quality Assurance Program shall be documented in a Quality Assurance Manual (QAM). Controls required to be included within the QAM shall include who, what, when, where, why and how with an understanding that the how can be a reference to an implementation procedure or instruction. Quality activities to be described in the Quality Assurance Program are identified in Section 1.8.5 of this part. Applicants shall address all requirements in their Quality Assurance Program based on the category of activity and scope of work to be performed (organization's capabilities) to which certification is requested.

1) Category 1

Any ASME Section III Code certified item or system requiring repair/replacement activities irrespective of physical location and installation status prior to fuel loading.

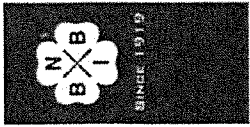
2) Category 2

After fuel loading, any item or system under the scope of ASME Section XI requiring repair/replacement activities irrespective of physical location. Based on regulatory or jurisdictional acceptance, Category 2 may be used prior to fuel loading.

3) Category 3

~~Items constructed to codes or standards other than ASME~~other than those covered by Category 1 or Category 2, requiring repair/replacement activities irrespective of physical location, installation status and fuel loading.

b) Repair organizations performing repairs of pressure relief devices in nuclear service shall meet the additional requirements of NBIC Part 4, Section 4 and NBIC Part 4, Supplement 6.



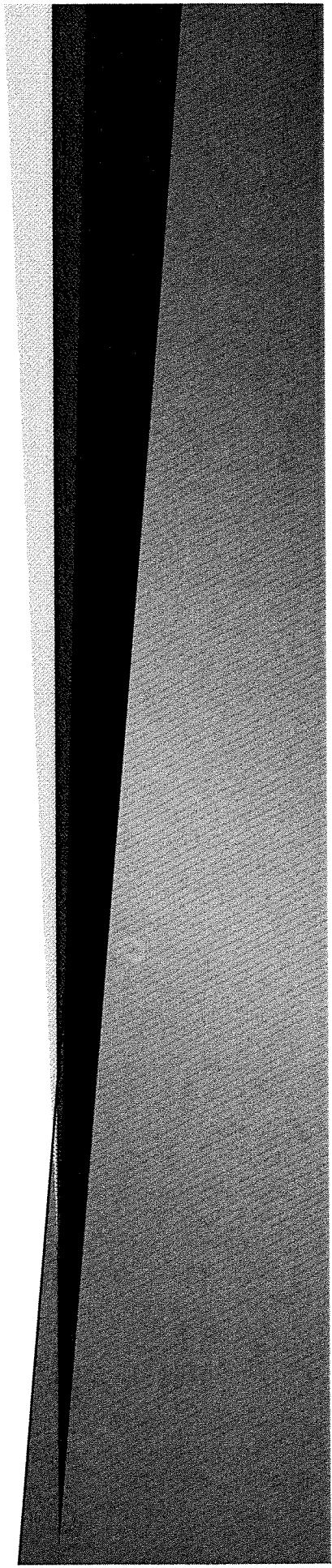
THE
NATIONAL
BOARD
OF BOILER AND
PRESSURE VESSEL
INSPECTORS

NBIC International Repair Supplement

January 2017

San Diego, CA

Chuck Withers



National Board Strategic Plan

- Develop and implement project plan for supplement to NBIC for repairs and alterations using international standards
- Basic Steps
- Organize a team
 - Develop or plan milestones, completion date, submittal to NBIC Committee
 - Develop content of the supplement
 - Determine how to integrate the supplement into the NBIC



Supplement Objectives

- Promote international use of NBIC for repairs/alterations;
- Promote uniform repair/alteration methods;
- Provide for third party inspection using qualified inspectors;
- Provide acceptance of organizations performing repairs/alterations;
- Provide certification requirements;
- Parallel NBIC Part 3 administrative and technical requirements, whenever possible;



Project Plan

- Develop task group and inform NBIC Executive Committee
- Identify milestones with target completion dates
- Compare existing NBIC requirements to needs of international users
- Develop outline of proposed supplement
- Develop detailed draft for supplement
- Ballot task group, subgroup, subcommittee, NBIC Committee
- Publish supplement in 2019 edition of NBIC



Task Group Members

- Chuck Withers – Project Manager
- Paul Smith – AMEC Foster Wheeler
- Ken Sowder – Consultant
- George Galanas – NBIC Chair, Part 3
- Mark Masters – Hartford Steam Boiler
- Clayton Smith – Fluor
- Additional task group members welcomed

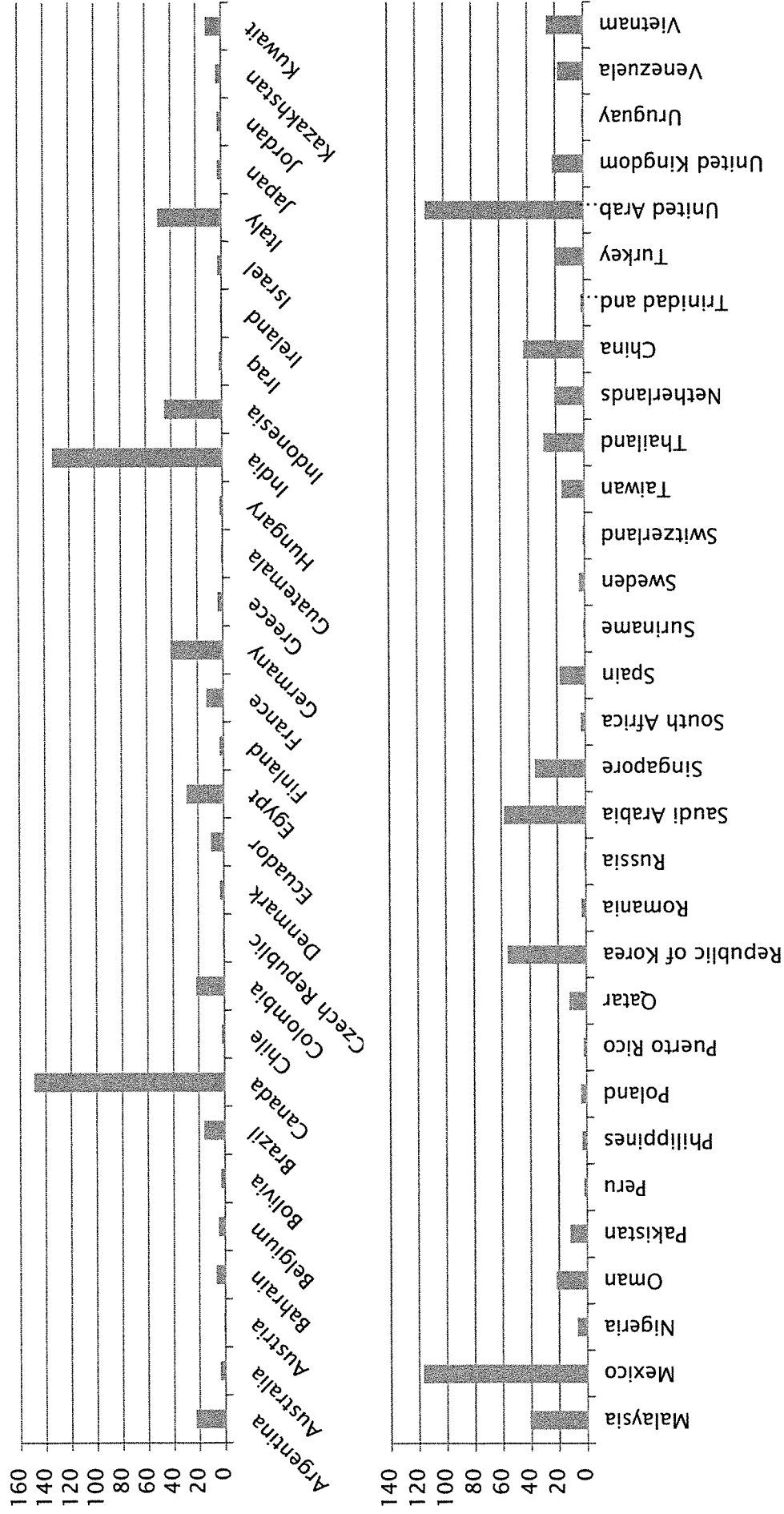


Comparison Table

Category	NBIC Part 3	New Supplement
Purpose	Maintain the integrity of pressure retaining items by providing rules for repairs and alterations to ensure continued safe operation	Maintain the integrity of pressure retaining items by providing rules for repairs and alterations using standards other than ASME to ensure continued safe operation
General Philosophy	Parallel those provisions of the original code of construction: a) ASME – section and edition most applicable b) Other standards – edition of standard most applicable or other standards including ASME – concurrence of Jurisdiction	Parallel those provisions of the original code of construction: a) Other standards – edition of standard most applicable or other standards including ASME – concurrence of Jurisdiction
Applicability	<ul style="list-style-type: none"> • US – Yes; • International – No 	<ul style="list-style-type: none"> • US – No; • International – Yes
Designated Oversight	<ul style="list-style-type: none"> • NB Commissioned Inspector “R”-AIA • Continuing education required 	<ul style="list-style-type: none"> • NB Commissioned Inspector “R” –AIA, Jurisdictional Inspector, –NBIC online training Parts 2 and 3, (CRI certificate) • Owner/Users –NBIC online training Parts 2 and 3, (CRI certificate) • NB PE Inspector completing ‘R’ Course • Continuing education required
Repair Organization	<ul style="list-style-type: none"> • Accredited by NB 	<ul style="list-style-type: none"> • Accepted by NB
Certification Period	<ul style="list-style-type: none"> • issued Certificate of Authorization, • 3 Years 	<ul style="list-style-type: none"> • issued Certificate of Acceptance, • 3 Years
Stamping	<ul style="list-style-type: none"> • Required 	<ul style="list-style-type: none"> • Not Required
Documentation	<ul style="list-style-type: none"> • R Forms 1 through 4 	<ul style="list-style-type: none"> • R Form 5 (New)
Quality Program	<ul style="list-style-type: none"> • Per NBIC Part 3, 1.6 	<ul style="list-style-type: none"> • Per NBIC Part 3, 1.6
Program Implementation	<ul style="list-style-type: none"> • Required 	<ul style="list-style-type: none"> • Not Required
Jurisdiction	<ul style="list-style-type: none"> • Takes Precedence 	<ul style="list-style-type: none"> • Takes Precedence

“R” Certificate Holders

- USA – 3540, all others – 1309 (61 countries)



NBIC Sub-Group Repairs & Alterations

Subject: Part 3, 5.6- FORM REGISTRATION LOG

NB-Item number: NB16-3001

Assigned to: M. Webb

Explanation of assignment needed:	Per Part 3, 5.6- Review the elements of the log-format as requirements, thus providing clear guidance to meet the intended objective: To document the unique and sequentially numbered Form "R" Reports that are registered with the National Board.
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Background:	Proposal was introduced as a Public Review comment; PR16-0701
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Current Wording in 2017-Edition:	5.6 FORM REGISTRATION LOG "R" or "NR" Certificate Holders shall maintain a log or multiple logs documenting unique and sequentially numbered Form "R" Reports that are registered with the National Board. The logs shall include as a minimum, form type (R-1, R-2, NR-1, etc.) description of work performed, date completed, and date report sent to the National Board
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Submitter's Proposal:	5.6 FORM REGISTRATION LOG "R" or "NR" Certificate Holders shall maintain a log or multiple logs documenting unique and sequentially numbered Form "R" Reports that are registered with the National Board. The logs shall include as a minimum, the form number, form type (R-1, R-2, NR-1, etc.) description of work performed, date <u>certified</u> by <u>registering organization completed</u> , and date report <u>submitted</u> sent to the National Board
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Proposed to SG- Repair / Alteration:	5.6 FORM REGISTRATION LOG "R" or "NR" Certificate Holders shall maintain a log or multiple logs documenting unique and sequentially numbered Form "R" Reports that are registered with the National Board. The logs shall include as a minimum, <u>each form's unique registration number, form type (R-1, R-2, NR-1, etc.)</u> description of work performed, <u>date of acceptance</u> by the <u>Authorized Inspection Agency organization</u> completed, and date the <u>report was submitted</u> sent to the National Board
PROPOSED Changes in RED	

EXAMPLE, Registration Log: R-1

NAILED IT REPAIR CO.- Certificate of Authorization number: 11017

Form Registration No.	R-Form type:	Description of Work:	AIA-signed Report: (Tag stamped date per Part-3, 5.7.2)	Date R-Report Submitted to National Board f/ registration
17-001	R-1	Replaced vessel "S-2" drain nozzle as described on Orig. Mfg. U-1 Data Report. Material size and composition as designed. NDE & Pressure Test completed. -Accepted.	1-10-17	1-13-17

NBIC Sub-Group Repairs & Alterations

Subject: Part 3, 3.2.2.-e) Alternative examination or pressure testing of replacement parts

NB-Item number: NB16-3002

Assigned to: M. Webb

Explanation of assignment needed: **Per Part 3, 3.2.2.e)-** Clarify that pressure tests of level and duration required by the original code of construction are sometimes permissible after installation.

Background: Proposal was introduced as a Public Review comment; PR16-0704

Current Wording in 2017-Edition: **REPLACEMENT PARTS**
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.

Submitter's Proposal as PR16-0704: 3.2.2 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 will not be 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 the Jurisdiction, when required, shall 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 construction organization R-Certificate-Holder responsible for completing the R Form shall note in the Remarks section of the R-Form the examination(s) and/or test(s) performed, and the reason why alternative test or examination methods were employed. ~~the replacement part was not tested in accordance with the original code of construction.~~

Proposed Action to SG-Repair / Alteration: **Close with No Action taken at this time –**
1. The submitter's proposed changes may introduce other confusion and some distraction from the expectation to complete pressure testing of a fabricated part with a pressure retaining weld, now allowing a suitable remedy to all stakeholders.
2. The submitter's proposed changes do not enhance the guidance offered in the 2017-Edition.
3. Recognizing ASME Section 1 interpretation I-86-73, may currently be valid, reportedly, ASME Section 1 Committee may be looking at requirements for replacement parts with their own stamping requirements.
4. With this reporting, this paragraph may need to be revisited in the future pending action by ASME.

Relevant information reviewed follows:

NBIC Sub-Group Repairs & Alterations

<p>ASME Section 1 interpretation I-86-73</p>	<p>Status: <input checked="" type="radio"/> Currently Valid Status Description: ASME Interpretation: I-86-73 Subject: Section I, Requirements for Replacement Parts Date Issued: January 18, 1988 File Number: BC87-483 Related Documents: Question: What are the Section I requirements for replacement parts? Reply: Section I does not mandate requirements for replacement parts. However, the jurisdiction at the point of installation may establish such requirements</p>
<p>ASME Section 1 interpretation I-98-07</p>	<p>Purpose of ASME Section I testing Status: <input checked="" type="radio"/> Currently Valid Status Description: Interpretation: I-98-07 Subject: PG-99.1 and PG-99.2, Hydrostatic Testing Date Issued: January 15, 1998 File Number: BC97-206 Related Documents: Question (1): Is the purpose of the hydrostatic test required by PG-99 of Section I to demonstrate the <u>strength and integrity</u> of the boiler and to detect leakage? Reply (1): Yes</p>

Public Review Comment Resolutions

1. **Accepted, changes are incorporated** – Accept/agree with the comment. Required non substantive changes are made to the draft addendum to address the comment and no substantive changes have been made.
2. **Accepted in principle, new business item opened** - Accept/agree with the comment and will require additional work for future changes. (However current proposal is not technically wrong and provides guidance.) Requires a new action item for tracking for substantive changes.
3. **Accepted in principle and the item is being returned to the committee for action.** (Proposal may contain technical or other incorrect information.)
4. **Rejected for the following reason** – Complete comment is rejected. Reason must be given.

NB16-2603

Underwood 1-11-2016

4.4.1 Current Wording NBIC 2015

a) Liquid Pressure Test

Pressure testing of repairs shall meet the following requirements:

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

PROPOSAL OF REVISION TO 4.4.1(a)(1) IN (similar to 4.4.1(b))

- 1) Pressure tests shall be conducted using water or other liquid medium. The test pressure shall be the minimum required to verify the leak tightness integrity of the repair, but shall not exceed the maximum liquid test pressure of the original code of construction. When original test pressure included consideration of corrosion allowance, the test pressure may be further adjusted based on the remaining corrosion allowance.