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THE NATIONAL BOARD
OF BOILER AND PRESSURE VESSEL INSPECTORS

NATIONAL BOARD INSPECTION CODE COMMITTEE

MAIN SESSION MINUTES

Meeting of January 12th, 2023
Charleston, SC

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1. **Call to Order**
   Mr. George Galanes, Chair of the Main Committee, called the meeting to order at 9:00 a.m. local time. After calling the meeting to order, he took some time to thank the National Board staff members for helping the meetings run smoothly and effectively during the week.

2. **Introduction of Members and Visitors**

   Mr. Galanes asked Mr. Jonathan Ellis to perform a roll call using the list of registrants for this meeting. Mr. Ellis began with committee members and followed with visitors. The full list of attendees can be found on Attachment Page 1.

3. **Check for a Quorum**

   After the roll call was completed, Mr. Galanes announced that enough Main Committee members were present to establish a quorum.

4. **Awards/Special Recognition**
   Mr. Jim Sekely – 20 Years as a Main Committee member

   Mr. Gary Scribner recognized Mr. Sekely for his twenty years of service on Main Committee. Mr. Galanes also thanked Mr. Sekely.

5. **Announcements**
   - Mr. Scribner announced that lunch will be served from 11:30 a.m. to 12:30 p.m. in the Colonial Ballroom.
   - Mr. Galanes announced the formation of a task group to develop rules and a scope for the use of additive welding manufactured pressure parts. This subject would fall under engineered repairs and alterations. Mr. Galanes, Mr. Ben Schaefer, Mr. John Siefert, Mr. Walter Sperko, Mr. Jon Ferreira, Mr. Jim Getter, Mr. Trevor Seime, and Ms. Melissa Wadkinson will be the members of this task group.
   - Mr. Scribner recognized Mr. Tom Beirne for his time spent as secretary of Subgroup and Subcommittee Pressure Relief Devices (PRD). He also announced that Mr. Bob Viers will be taking over for Mr. Beirne as secretary.
   - Additionally, Mr. Scribner announced a call for an editorial task group to be formed. This task group should have representatives from each subcommittee to review editorial changes being proposed by National Board staff to make sure the changes are truly editorial in nature.
   - Mr. Galanes announced that the Main Committee is seeking to add a new member to represent VR Certificate Holders on the Committee since Ms. Marianne Brodeur has retired from committee work. Mr. Galanes asked that any interested VR Certificate Holders on the PRD committees should email their resumes to Mr. Ellis.

6. **Adoption of the Agenda**
   Before making a motion to adopt the agenda, the following changes were proposed:
   - Add Item I23-03 to Subcommittee Installation's report.
   - Add Item A23-07 to Subcommittee Inspection's report.
   - Add Items I23-01, I23-02, A23-04, A23-05, and A23-06 to the Subcommittee Repairs and Alterations (R&A) report.

   A motion was made, seconded, and unanimously approved to adopt the agenda with the proposed additions.

7. Approval of the Minutes of the July and December 2022 Meetings
The minutes are available for review online at https://www.nationalboard.org/Index.aspx?pageID=13&ID=18.

A motion was made, seconded, and unanimously approved to accept the minutes from the July and December 2022 meetings.

8. Items Approved for 2025 NBIC
See Attachment Page 5 for a summary of items currently approved for the 2025 NBIC edition.

9. Report of Subcommittees

a. Subcommittee Installation

i. Interpretations

Item Number: 23-03	**NBIC Location: Part 1, 1.6.3**	**Attachment Page 6**

General Description: Boiler Room Exit

Subgroup: SG Installation

Task Group: P. Jennings (PM), T. Clark, J. Kleiss

Explanation of Need: Some inspectors are interpreting NBIC Part 1, 1.6.3 to mean that boiler room exits are restricted to ground level egress only.

January 2023 Meeting Action: Mr. Don Patten presented the proposal for this item. A motion was made and seconded to accept the proposal as presented. Some discussion was held regarding the wording of the committee questions and the meaning on the inquirer's request. Mr. Joe Brockman provided sufficient background information to answer these questions. After the discussion concluded, a vote was taken; the motion to accept the proposal as presented was unanimously approved.

ii. Action Items – Old Business

Item Number: 20-27	NBIC Location: Part 1, 1.6.9 & S6.3	No Attachment

General Description: Carbon Monoxide Detector/Alarm NBIC 2019

Subgroup: SG Installation
Task Group: E. Wiggins (PM), R. Spiker, R. Smith, G. Tompkins, S. Konopacki and R. Austin

Explanation of Need: These codes are being enforced by some jurisdictions on existing installations. Inspectors need to know what codes we need to enforce. Do the detectors have specific levels of CO when an alarm is to go off? Is there a requirement for an audible alarm or decibel level of the alarm? Where in the boiler room should the alarm/monitor be mounted?

January 2023 Meeting Action: Ms. Melissa Wadkinson presented background information for this item, including feedback from previous letter ballots and from the Executive Committee. A motion was made and seconded to close this item with no action. Mr. Venus Newton stated that he believed the code should tell people what they need if the code requires that carbon monoxide monitors be added to the boiler room. Discussion was held on which requirements would be used and who would maintain logs and records. Several Main Committee members stated that further rules should be left to the jurisdictions, as trying to incorporate rules into the NBIC would lead to scope creep. The motion to close this item without further action passed with one disapproval. The disapproving voter provided the following reason for their Disapprove vote: "My negative vote is based on the fact that we have a requirement in the NBIC to install a CO monitor, but we fail to provide adequate guidance on how to comply with the requirement. We are failing to provide information that is needed to be in compliance with the CO monitor requirements."

Item Number: 20-33	NBIC Location: Part 1	No Attachment

General Description: Flow or Temp Sensing Devices forced Circulation Boilers

Subgroup: SG Installation
Task Group: M. Downs (PM), D. Patten, M. Wadkinson

Explanation of Need: Incorporation of applicable CSD-1 requirements.

January 2023 Meeting Action: Mr. Patten stated that Subgroup and Subcommittee Installation voted to close this item because it was determined that NBIC Part 1 lines up with CSD-1 on this topic. A motion was made, seconded, and unanimously approved to close this item with no action.

Item Number: 20-44	NBIC Location: Part 1	No Attachment

General Description: CW Vacuum Boilers

Subgroup: SG Installation
Task Group: R. Spiker (PM), M. Washington, M. Byrum

Explanation of Need: Incorporation of applicable CSD-1 requirements.

January 2023 Meeting Action: Mr. Patten stated that Subgroup and Subcommittee Installation voted to close this item because they felt that there was little information on this subject that could be added to Part 1. A motion was made, seconded, and unanimously approved to close this item with no further action.

Item Number: 20-62	NBIC Location: Part 1, 1.4.5.1	No Attachment

General Description: Update the National Board Boiler Installation Report

Subgroup: SG Installation

Task Group: T. Clark (PM), E. Wiggins, R. Spiker, T. Creacy, P. Jennings, G. Tompkins, and D. Patten.

January 2023 Meeting Action: Mr. Patten reported that a proposal for this item will be submitted to Subgroup Installation for letter ballot.

Item Number: 20-86	NBIC Location: Part 1, 2.10.1 a)	No Attachment

General Description: Testing and Acceptance: Boiling-out Procedure

Subgroup: SG Installation

Task Group: E. Wiggins (PM), D. Patten, M. Washington and S. Konopacki.

January 2023 Meeting Action: Mr. Patten stated that the task group is still working on a proposal for this item.

Item Number: 22-13	NBIC Location: Part 1, 3.8.2.2	Attachment Page 9

General Description: Align hot water boiler thermometer requirements with ASME Section IV

Subgroup: SG Installation

Task Group: T. Clark (PM)

Explanation of Need: NBIC Part 1 does not expressly permit the use of temperature sensors or digital displays as thermometers for hot-water heating or supply boilers, even though they are permitted under ASME Section IV, HG-612. NBIC Part 1 also does not address the required temperature range of thermometers, inconsistent with ASME Section IV.

January 2023 Meeting Action: Mr. Patten asked Mr. Tom Clark to present the proposal for this item. After Mr. Clark presented the proposal, a motion was made and seconded to approve this proposal as presented. Mr. Galanes asked about changing two instances of the word "indication" in the proposal to "reading". The proposal was altered to reflect this suggestion. Further discussion was held on the wording of the proposed language and why it did not exactly match ASME Section IV wording. Mr. Clark explained that the proposal's wording reflected the same meaning as the ASME wording. A vote was taken, and the motion to approve the proposal with Mr. Galanes' suggested changes was approved with two disapprovals and one abstention. The members that voted Disapprove provided the following reasons for their vote:

- "I do not believe the proposed language is a direct alignment with ASME Section IV and could be misinterpreted."
- "I think the wording related to the electronic temperature sensor should be the same as what is indicated in Section IV to minimize any confusion."

The abstaining member provided the following reason for their abstention vote: "I agree with this change, but I feel the verbiage should match ASME exactly."

iii. Action Items – New Business

Item Number: 22-28	**NBIC Location: Part 1, 9.1**	**No Attachment**

General Description: Pool Heater definition and requirements

Subgroup: SG Installation

Task Group: J. Kleiss (PM), R. Spiker, T. Creacy, and M. Byrum

Explanation of Need: The NBIC Installation and Inspection Codes do not have a definition for pool heaters. There is potential for confusion regarding which NBIC requirements, if any, should apply to pool heaters.

January 2023 Meeting Action: Mr. Patten stated that the task group is working on developing a proposal for this item.

Item Number: 22-30	**NBIC Location: Part 1, 3.6.3**	**No Attachment**

General Description: Drains in equipment rooms with heating boilers containing glycol

Subgroup: SG Installation

Task Group: P. Jennings (PM), R. Adams, D. Zalusky, D. Patten, and R. Smith

Explanation of Need: Glycol should be disposed of in accordance with regulations. The intent of this addition to the text is to identify that drains may not be the proper way to dispose of glycol.

January 2023 Meeting Action: Mr. Patten said that a task group has been assigned to this item, and that they are currently working on a proposal.

Item Number: 22-31	**NBIC Location: Part 1, 3.8.2.3**	**Attachment Page 10**

General Description: Location of temperature controls

Subgroup: SG Installation

Task Group: P. Jennings (PM)

Explanation of Need: There is currently no requirement that the temperature controls measure the boiler temperature at or near the boiler outlet.

January 2023 Meeting Action: Mr. Patten asked Mr. Pat Jennings to present the proposal for this item. After the proposal was presented, a motion was made and seconded to approve the proposal as presented. Mr. Newton asked if this proposed language restricts other temperature sensors that are used in other parts of the building to monitor the boiler. Mr. Jennings and Mr. Patten said that this requirement would not restrict those sensors, but rather require sensors also be included at or near the outlet. The motion to accept this proposal was unanimously approved.

Item Number: 22-32	NBIC Location: Part 1, 3.8.1.4 b)	No Attachment
General Description: High pressure limit control requirements for fired jacketed steam kettles **Subgroup:** SG Installation **Task Group:** R. Adams (PM), D. Patten, T. Clark, and T. Creacy **Explanation of Need:** As a safeguard to over pressurizing the fired jacketed steam kettle, the pressure range of the actuated high pressure limit control should not exceed the MAWP of the vessel.		
January 2023 Meeting Action: Mr. Patten stated that the task group is currently working on a proposal for this item.		

b. Subcommittee Inspection

i. Interpretations

Item Number: 22-40	NBIC Location: Part 2, 4.4.7.2	No Attachment
General Description: Allowable stresses for t(required) calculation **Subgroup:** Inspection **Task Group**: T. Clark (PM), B. Ray, B. Wilson, J. Petersen **Submitted by**: Tom Chen **Explanation of Need:** For the purpose of setting up inspection plans, especially with older equipment, we are calculating t(required) per Part 2, para 4.4.7.2. However, we would like to know if it is permissible to use the higher allowable stresses in later editions of ASME BPV Code.		
January 2023 Meeting Action: Mr. Jim Getter reported that a task group has been assembled to develop a proposal for this item.		

ii. Action Items – Old Business

TG FRP Items:

Item Number: NB16-1402	NBIC Location: Part 2, New Supplement	No Attachment
General Description: Life extension for high pressure FRP vessels above 20 years **Subgroup:** FRP **Task Group:** M. Gorman (PM) **Background:** In 2016, when this item was first opened, it was assigned as an item for Part 3. Recent discussions with SC R&A and the FRP Task Group have revealed that this item is better suited for Part 2. This item has been approved by the FRP Task Group. **Scope:** The goal of this proposal is to provide a method to evaluate whether the service life of high-pressure fiber reinforced plastic pressure vessels can be extended for an additional lifetime. **January 2023 Meeting Action:** Mr. Getter stated that the FRP Task Group plans to have a proposal to present at the July 2023 meeting.		

TG Historical Items:

Item Number: 20-26	NBIC Location: Part 2, S2	No Attachment
General Description: Concern for Historical Boiler Inspections Nationwide **Subgroup:** Historical **Task Group:** T. Dillon (PM), R. Underwood, L. Moedinger, M. Wahl, D. Rupert, K. Anderson, M. Sansone & J. Wolf **Explanation of Need:** Currently Jurisdictions are not uniform in adoption of how and when inspections are performed. **January 2023 Meeting Action:** Mr. Getter said that both Task Group Historical and Subcommittee Inspection voted to close this item with no action, and instead take this subject as an ongoing discussion item. A motion was made, seconded, and unanimously approved to close this item with no action.		

Item Number: 21-03	NBIC Location: Part 2, S2	Attachment Page 11
General Description: Inspection of through stays and diagonal stays (submitted by David Rose) **Subgroup:** Historical **Task Group:** D. Rose (PM), R. Bryce, R. Forbes, & C. Jowett **Explanation of Need:** The code is silent on the inspection of through stays and diagonal stays. Additionally, new repair methods are available from ASME that can be incorporated.		
January 2023 Meeting Action: Mr. Getter presented the proposal for this item. A motion was made and seconded to approve this item as presented. Discussion was held on the proposal's wording and grammar. Mr. Paul Shanks asked for the reasoning behind choosing 3x, 20%, etc. and the feasibility of measuring based on those numbers. Mr. Trevor Seime explained that these are tools/guidelines for the inspector to use when determining repairs or replacements. After discussion, the Main Committee voted unanimously to approve the motion.		

Item Number: 21-34	NBIC Location: Part 2, S2	Attachment Page 12
General Description: Working Pressure Calculations for Curved Stayed Surfaces		
Subgroup: Historical **Task Group:** Mike Wahl (PM), R. Bryce, and T. Dillon **Background:** In January 2021, Dr. Bryce initiated the conversation with the group for this topic. He is proposing the group open an item to address working pressure calculations for curved stayed surfaces. After discussion a task group was formed		
January 2023 Meeting Action: Mr. Getter gave a brief presentation on this item's proposal, and then requested that it be sent to Main Committee as a letter ballot. Mr. Galanes approved this request.		

TG Locomotive Items:
There are currently no Locomotive items open for Part 2.

SG Inspection Items:

Item Number: 20-57	NBIC Location: Part 2, 4.4.1 a)	No Attachment
General Description: Evaluate revision to Part 2, 4.4 FFS scope roles and responsibilities (submitted by Mr. George Galanes). **Subgroup:** Inspection **Task Group:** M. Horbaczewski (PM) and B. Ray. **Explanation of Need:** Currently, there is confusion surrounding implementation of FFS for Part 2 inspection activities, where the FFS form is located and Part 3 activities regarding Part 3, 3.3.4.8 because it references Part 2 for FFS. In addition, we need to have a Part 2 Inspection member to be assigned to assist in the development of roles and responsibilities. **January 2023 Meeting Action:** Mr. Getter stated that the task group is still working on a proposal for this item.		

Item Number: 21-25	NBIC Location: Part 2	Attachment Page 14
General Description: Autoclave/Quick opening device PP (submitted by Kevin Hawes) **Subgroup:** Inspection **Task Group:** V. Scarcella (PM), T. Bolden, M. Horbaczewski, J. Peterson, J. Clark, W. Hackworth, M.A. Shah, C. Becker, J. Morgan **Explanation of Need:** Upon our AIA (Intact) QRR I produced a Power point presentation on Autoclave inspections. Your NB team leader Gary Scribner suggested I forward this inspection presentation to the NB for review of content as mention of good reference material for next NBIC edition. I have attached a copy of this PP for your considerations.		
January 2023 Meeting Action: Mr. Getter said that the proposal for this item will be sent to SG Inspection for a Review and Comment Ballot.		

Item Number: 21-47	NBIC Location: Part 2, 2.2.4 & 2.2.5	No Attachment
General Description: To provide better guidance as it relates to carbon monoxide **Subgroup:** Inspection **Task Group:** W. Hackworth (PM), V. Scarcella, D. Buechel, T. Barker, T. Bolden, M. Sansone, H. Henry, J. Castle, J. Morgan, J. Clark **Explanation of Need:** Need to provide more comprehensive items to be reviewed to guide the inspector on carbon monoxide and combustion air. **January 2023 Meeting Action:** Mr. Getter stated that the task group is still working on a proposal for this item.		

Item Number: 22-03	NBIC Location: Part 2	Attachment Page 17
General Description: Create example inspection list **Subgroup:** Inspection **Task Group:** V. Scarcella (PM), M. Sansone, M. Mooney, T. Bolden, and D. Buechel **Submitted by:** V. Scarcella **Explanation of Need:** Average high and low mean failure rate has a 10 point plus gap which needs to be closed. The Chief of LA, Donnie LeSage brought up the item in COQ but resigned Part 2 due to other duties.		
January 2023 Meeting Action: Mr. Getter presented the proposal for this item. Motion and second to approve as presented. A motion was made, seconded, and approved with one abstention to accept the proposal for this item.		

Item Number: 22-06	NBIC Location: Part 2, 3.4.9 e)	No Attachment
General Description: Part 2 task group to review Part 3 Item 21-53 **Subgroup:** Inspection **Task Group:** M. Horbaczewski (PM), J. Clark, B. Wilson, J. Mangas, P. Polick **Submitted by:** D. Graf **Explanation of Need:** Part 2 task group to investigate further changes to Part 2/Part 3 that could be needed because of action item 21-53.		
January 2023 Meeting Action: Mr. Getter stated that the task group is working on a proposal for this item.		

Item Number: 22-22	NBIC Location: Part 2, 4.2	Attachment Page 18
General Description: Changes and additions to align with part III with in service inspections **Subgroup:** Inspection **Task Group:** T. Bolden (PM), J. Clark, J. Petersen, M. Sansone, B. Ray, D. Graf, and J. Mangas **Submitted By**: V. Scarcella **Background Information:** Several areas where part III after repair in service inspections should be aligned with part II.		
January 2023 Meeting Action: Mr. Getter shared that the proposal will be sent to SG Inspection for a Review and Comment Ballot.		

iii. New Items:

Item Number: 22-26	NBIC Location: Part 2, 2.3.6.8	No Attachment
General Description: Addition of cast acrylic as a pressure vessel material **Subgroup:** Inspection **Task Group:** J. Calvert (PM), V. Newton, D. Buechel, D. Rose **Submitted by:** J. Calvert **Explanation of Need:** Provide inspectors with the criteria necessary to competently inspect vessels like acrylic chromatography columns.		
January 2023 Meeting Action: Mr. Getter stated that the task group is still working on a proposal for this item.		

Item Number: 22-37	NBIC Location: Part 2, S11.4.2.6	No Attachment

General Description: Retention requirements should those of the NBIC, not the construction code.

Subgroup: Inspection
Task Group: None assigned.
Submitted by: L. Ponce

Explanation of Need: The NBIC should not refer to the ASME Code but should refer to Part 3, Table 1.5.1 where record retention for repair/alteration activity and FFS are located. The scope para.S11.1 states in part, "This Supplement provides guidelines to be followed when a finite element analysis (FEA) is submitted as part of a quantitative engineering assessment for in-service equipment, or a repair or alteration for a pressure retaining item…"

January 2023 Meeting Action: Mr. Getter said that the Subgroup and Subcommittee voted to close this item with no action because they felt the existing language is sufficient. A motion was made, seconded, and unanimously approved to close this item with no action.

Item Number: 22-38	NBIC Location: Part 2, 4.6.1 & S11.3.2 b)	No Attachment

General Description: Correction to S11.3.2 b) and 4.6.1

Subgroup: Inspection
Task Group: None assigned.
Submitted by: L. Ponce

Explanation of Need: The first part of this recommended correction is an incorrect reference in S.11.3.2 b). "4.6.1.2" does not exist and should be "4.6.1". The second part - Considering the statemen in paragraph S11.3.2 b), it seems the word 'review' in 4.6.1 should be in 'lieu' of instead of "rather". As it currently reads, 4.6.1 does not seem to provide 'justification for use of FEA rather than the rules in the code of construction' in S11.3.2 b).

January 2023 Meeting Action: Mr. Getter said that the Subgroup and Subcommittee voted to close this item with no action because they felt the proposed change was not necessary. A motion was made, seconded, and unanimously approved to close this item with no action.

Item Number: 22-39	NBIC Location: Part 2, 4.4.8.7 g)	No Attachment

General Description: Recommended clarification of requirements for Evaluating Local Thin Areas

Subgroup: Inspection
Task Group: V. Newton (PM), T. Barker
Submitted by: L. Ponce

Explanation of Need: The existing text may lead to confusion due to a misplaced comma after 'specified' in the first sentence and no reference to what is being specified in the paragraph. The proposed text is a way to tie in the specified requirement in paragraph (f).

January 2023 Meeting Action: Mr. Getter stated that the task group is working on a proposal for this item.

Item Number: 23-07	NBIC Location: Part 2, 2.2.4	Attachment Page 19
General Description: 2.2.4 updated to include not allowing combustibles **Subgroup:** Inspection **Task Group:** V. Newton (PM) **Submitted by:** V. Newton **Explanation of Need:** Frequently see combustible materials stored in boilers rooms, specifically calling them out as not allowed would be helpful to Inspectors.		
January 2023 Meeting Action: Mr. Getter presented a proposal for this item. A motion was made, seconded, and unanimously approved to accept the proposal as presented.		

c. Subcommittee Repairs & Alterations

i. Interpretations

Item Number: 21-79	NBIC Location: Part 3, 3.3.3 h)	Attachment Page 20
General Description: Mechanical Replacement of Shell or Head **Subgroup:** Repairs and Alterations **Task Group:** None assigned **Explanation of Need:** This interpretation and corresponding Code revision would provide clarity to NBIC users and address whether mechanical replacement of these components is considered a repair. **January 2023 Meeting Action:** Mr. Trevor Seime presented the proposal for this item. A motion was made and seconded to approve the proposal as presented. Mr. Paul Shanks asked if the proposal's wording would indicate that this is an NBIC repair. To address this. Mr. Scribner suggested adding the clause, "this is beyond the scope of NBIC Part 3" to Committee Response 2. Mr. Bob Underwood asked if this would technically be beyond the scope if mechanical repair is defined in the glossary. Mr. Scribner said that it would still be beyond the scope. Mr. Marty Toth asked if this type of repair would be prohibited by jurisdictional requirements, and Mr. Scribner responded that it would not be prohibited. After discussion concluded, the motion was unanimously approved.		

Item Number: 22-14	NBIC Location: Part 3, 3.2.2 b) and c)	Attachment Page 23

General Description: Overlaid Replacement Parts

Subgroup: Repairs and Alterations

Task Group: T. McBee (PM), M. Carlson

Explanation of Need: Replacement parts that are documented using a Manufacturer's Partial Data report that have been inspected by an Authorized Inspector may still be supplied as a replacement part under paragraph 3.2.2 b) and therefore not require a Hydro test per Paragraph 3.2.2 e).
Panels made from Overlaid tubes and for single overlaid tube Dutchman that contain only weld overlay, where the overlay is not considered to be pressure retaining when the overlay is not considered part of the strength of the boiler tube per ASME Section I PW-44. May be supplied as replacement parts under paragraph 3.2.2 b). The purpose of the overlay is to extend the life of boiler tubes in the waste to energy corrosive environment from external wear.

January 2023 Meeting Action: Mr. Seime reported that this item was approved via Main Committee letter ballot on January 6, 2023.

ii. New Interpretation Requests:

Item Number: I22-24	NBIC Location: Part 3, 3.3.4.8	Attachment Page 27

General Description: Repair of pressure ret'ing items without complete removal of defect

Subgroup: Repairs and Alterations

Task Group: M. Quisenberry (PM), L. Dutra

Explanation of Need: 3.3.4.8 does imply that the defect should be known in regards to characteristics such as orientation, nature, depth, configuration but does not fully state this.

January 2023 Meeting Action: Mr. Seime presented the proposal for this item. A motion was made seconded, and unanimously approved to accept the proposal as presented.

Item Number: I22-25	NBIC Location: Part 3, 3.3.2 e) 5)	No Attachment

General Description: ASME Section I Watertube Boilers – Plugging Tubes

Subgroup: Repairs and Alterations

Task Group: D. Kinney (PM), R. Derby

Explanation of Need: The last item in paragraph 3.3.2 e) reads, "5) Seal welding a mechanical connection for leak tightness where by design, the pressure retaining capability is not dependent on the weld for strength and requires no PWHT." A repair organization used this paragraph as justification to document a seal welded tube plug on a watertube boiler as routine.

January 2023 Meeting Action: Mr. Seime reported that this item will be sent out as a Subcommittee R&A ballot, and then a Main Committee letter ballot.

Item Number: I22-33	NBIC Location: Part 3, 3.4.3	Attachment Page 30

General Description: Encapsulation of Shells and Heads

Subgroup: Repairs and Alterations

Task Group: M. Quisenberry (PM), R. Derby

Explanation of Need: Correct this*****

January 2023 Meeting Action: Mr. Seime presented the proposal for this item. A motion was made, seconded, and unanimously approved to accept the proposal as presented.

Item Number: I23-01	NBIC Location: Part 3, 5.2 & 5.7.1	Attachment Page 33

General Description: Stamping Requirements for Repairs and Alterations

Subgroup: Repairs and Alterations

Task Group: None assigned.

Explanation of Need: There has been at least one instance where a nameplate has not been attached to a PRI and the R Form has already been signed. When questioned, the Inspector aptly stated that there is no "shall be" requirement in the NBIC for the nameplate to be attached prior to signing the R Form. What happens if the Inspector is reassigned or resigns? The stamping/nameplate may never be completed.

January 2023 Meeting Action: Mr. Seime presented the proposal for this item. A motion was made and seconded to approve the proposal provided that the action item accompanying it (A23-05) was approved. Mr. Seime then presented item A23-05. A motion was made and seconded to approve A23-05 as presented. Some wording modifications were made, and modified proposal for A23-05 was the unanimously approved. The Main Committee then voted on the motion to approve I23-01; that motion was unanimously approved as well.

Item Number: I23-02	NBIC Location: Part 3, 1.3.2	Attachment Page 36

General Description: Jurisdictional requirements not meeting NBIC requirements

Subgroup: Repairs and Alterations

Task Group: None assigned.

Explanation of Need: This interpretation will clarify that when a Jurisdictional requirement does not meet an NBIC requirement or an NBIC requirement is diminished, the National Board "R" stamp shall not be applied, nor will the R-Form be signed.

January 2023 Meeting Action: Mr. Seime presented the proposal for this item. A motion was made, seconded, and unanimously approved to accept the proposal as presented.

iii. Action Items – Old Business

TG Graphite Items:

Item Number: NB15-2208	NBIC Location: Part 3	No Attachment

General Description: Develop supplement for repairs and alterations based on international construction standards

Subgroup: Graphite

Task Group: Greg Becherer (PM)

January 2023 Meeting Action: Ms. Kathy Moore stated that the Graphite Task Group is still developing a proposal for this item.

Item Number: 19-73	NBIC Location: Part 3, S3	No Attachment

General Description: Requirements for who can make hole plugging repairs on graphite blocks

Subgroup: Graphite

Task Group: C. Cary (PM), A. Viet, A. Stupica

Explanation of Need: Performing hole plugging repairs in graphite blocks is a common repair for graphite pressure vessels, but the NBIC currently has no formal requirements for this type of repair.

January 2023 Meeting Action: Ms. Moore stated that the Graphite Task Group is still working on the proposal for this item.

TG FRP Items:

There are currently no FRP items open for Part 3.

TG Historical Items:

Item Number: 20-25	NBIC Location: Part 3, S2.13	No Attachment

General Description: Repair Procedure for Fire Boxes

Subgroup: SG Historical

Task Group: M. Wahl (PM), Robin Forbes, T. Dillon, L. Moedinger, & F. Johnson

Explanation of Need: In NBIC Part 3, S2.13.10.3, S2.13.11 do not define what to do at a riveted joint. On the tubesheet, or firedoor sheet, where it is flanged to rivet to the firebox, the repairs are silent on what to do at the riveted joint.

January 2023 Meeting Action: Mr. Seime reported that the task group is still working on the proposal for this item.

Item Number: 21-09	NBIC Location: Part 3, S2	Attachment Page 39

General Description: Incorporate new repair methods for through and diagonal stays

Subgroup: Historical

Task Group: D. Rose (PM), R. Bryce, R. Forbes, & C. Jowett

Explanation of Need: The code is silent on the inspection of through stays and diagonal stays. Additionally new repair methods are available from ASME that can be incorporated.

January 2023 Meeting Action: Mr. Seime presented the proposal for this item. A motion was made, seconded, and unanimously approved to accept the proposal as presented.

TG Locomotive Items:

There are currently no Locomotive items open for Part 3.

NR Task Group Items:

Item Number: 21-02	NBIC Location: Part 3, 1.6	Attachment Page 40

General Description: Define "Fuel Loading" as it pertains to NR activities

Subgroup: Repairs and Alterations

Task Group: P. Edwards (PM)

Explanation of Need: The NR TG would like to clarify "Fuel Loading" as used to determine Category 1, 2 or 3 NR activities.

January 2023 Meeting Action: Mr. Ray Spuhl presented the proposal for this item. A motion to approve the proposal was made, seconded, and unanimously approved.

Item Number: 21-37	NBIC Location: Part 3, 1.6	Attachment Page 41

General Description: Parts used in NR Activities

Subgroup: Repairs and Alterations

Task Group: B. Wielgoszinski (PM)

Explanation of Need: Clarification that parts used in NR activities are fabricated by NR Certificate Holders and inspected by appropriately endorsed National Board commissioned Inspectors.

January 2023 Meeting Action: Mr. Ray Spuhl presented the proposal for this item. After the proposal was presented, a motion to approve the proposal was made, seconded, and unanimously approved.

Item Number: A22-29	NBIC Location: Part 3, 1.6.6.2 s) & 1.6.7.2 s)	Attachment Page 45

General Description: Removal of the requirement of AIA audits from the NR program

Subgroup: Repairs and Alterations

Task Group: R. Spuhl (PM)

Explanation of Need: This requirement cannot be enforced and is not defined by the the NR Certificate Holder and therefore must be removed.

January 2023 Meeting Action: Mr. Ray Spuhl presented the proposal for this item. A motion to approve the proposal was made, seconded, and unanimously approved.

SG Repairs & Alterations Items:

Item Number: 20-67	NBIC Location: Part 3, S6	Attachment Page 46

General Description: Revisions to Part 3, Supplement 6

Subgroup: Repairs and Alterations
Task Group: R. Underwood (PM)

Explanation of Need: Supplement 6 was implemented into the 2007 Edition of the NBIC Part 3 to provide requirements and guidelines for repairs, alterations and modifications to DOT Transport Tanks using the National Board's "TR" Program (which was never implemented). S6 has been revised over the years to remove reference to the "TR" Program, but still contains many requirements that are not correct. This purpose of this proposal is to review the entire Supplement and make appropriate revisions that comply with NBIC Part 3 and DOT requirements.

January 2023 Meeting Action: Mr. Underwood presented the proposal for this item. He then requested that the item be sent to Main Committee as a letter ballot; Mr. Galanes approved this request. Mr. Galanes also asked if the tables should include a citation to the DOT code. Mr. Scribner said that it could be done but isn't necessary. Mr. Jim Sekely said that it would be a good idea to reference the DOT code in case the code changes in the future.

Item Number: 21-12 **NBIC Location: Part 3, 3.3.3, 3.4.4, Section 9** **No Attachment**

General Description: Clarify the definitions and examples of "Repair" and "Alteration"

Subgroup: Repairs and Alterations

Task Group: P. Becker (PM), K. Moore, P. Shanks, R. Underwood, M. Chestnut, T. Sieme

Explanation of Need: Clarify the definitions of "Repair" and "Alteration" in the Glossary and revise the list of examples of each to better define the allowable scope of activities.

History: This Item was created as a result of conversation regarding Interp. Item 20-78 and Action Item 20-54

January 2023 Meeting Action: Ms. Moore reported that the task group continues to work on a proposal for this item.

Item Number: 21-31 **NBIC Location: NBIC Glossary** **No Attachment**

General Description: Revise definition of "Field"

Subgroup: Repairs and Alterations

Task Group: R. Miletti (PM), P. Gilston, M. Toth, J. Walker

Explanation of Need: A "Field" site under the current definition could be multiple rented or leased spaces used for repairs/alterations, where there is no single or specific customer or job, but rather the locations(s) are used for conducting repair/alteration activities by personnel employed by the Certificate Holder on a continual basis.

January 2023 Meeting Action: Ms. Moore stated that a proposal is still being developed for this item.

Item Number: 21-43 **NBIC Location: Part 3, Glossary** **No Attachment**

General Description: Defining and revising "Practicable" and "Practical" within the NBIC

Subgroup: Repairs and Alterations

Task Group: M. Toth (PM)

Explanation of Need: Defining and revising Practicable and Practical within the NBIC and revising where applicable

January 2023 Meeting Action: Ms. Moore said that the task group will be seeking input from all four parts to determine better words that could be used in place of "practicable" and practical" within the NBIC.

Item Number: 21-44	NBIC Location: Part 3, Glossary	No Attachment

General Description: Defining "De-Rating" within Part 3

Subgroup: Repairs and Alterations

Task Group: M. Toth (PM)

Explanation of Need: Defining de-rating within Part 3

January 2023 Meeting Action: Ms. Moore reported that work is still being done on this item.

Item Number: 21-45	NBIC Location: Part 3, Supplements	No Attachment

General Description: Add a supplement for engineered repairs and alterations

Subgroup: Repairs and Alterations

Task Group: R. Underwood (PM)

Explanation of Need: There has been interest from companies operating with the Oil, Gas and Chemical industries to address certain types of repairs that may exist in ASME PCC-2 or API. NBIC does not have many of these repair methods within the book.

January 2023 Meeting Action: Ms. Moore stated that the scope of this item has been expanded to encompass a supplement that addresses engineered and advanced repairs.

Item Number: 21-53	NBIC Location: Part 3, S8.5 a)	No Attachment

General Description: Post Repair Inspection of weld repairs to CSEF steels

Subgroup: Repairs and Alterations

Task Group: P. Gilston (PM)

Explanation of Need: The requirement for Inspector involvement in post-repair inspections to CSEF weld repairs is to ensure future safe operation of the boiler. This is a function of the inservice Authorized Inspection Agency, not the Repair Inspector, whose duties end with completion of repair documentation.

January 2023 Meeting Action: Ms. Moore shared that the task group is still working on the proposal for this item.

Item Number: 21-67	NBIC Location: Part 3, 3.4.9	No Attachment

General Description: Add welding requirements to plugging firetubes

Subgroup: Repairs and Alterations

Task Group: P. Gilston (PM), K. Moore, Trevor Seime, M. Quisenberry

Explanation of Need: The current NBIC does not have enough direction or requirements for welding tube plugs in firetubes.

January 2023 Meeting Action: Ms. Moore reported that the task group is still working on the proposal for this item.

Item Number: 21-82	NBIC Location: Part 3, 3.3.3 s)	Attachment Page 58

General Description: Examples of Repairs

Subgroup: Repairs and Alterations

Task Group: P. Davis (PM), R. Underwood, P. Gilston, , J. Ferreira, J. Walker, E. Cutlip, P. Miller, L. Dutra

Explanation of Need: Adding "repair" to 3.3.3(s) would then address use of different weld material. Currently 3.3.3(s) only addresses replacement of the part, not repair (Repair is addressed in 3.3.3(r)).

January 2023 Meeting Action: Ms. Moore presented a proposal for this item and stated that it will be going out to Subgroup and Subcommittee R&A as a letter ballot.

Item Number: A22-02	NBIC Location: Part 3, 3.3.2 e) 1)	No Attachment

General Description: Part 4 Item A21-83 may impact part 3, 3.3.2 e) 1)

Subgroup: Repairs and Alterations

Task Group: M. Toth (PM), B. Derby, L. Dutra, M. Carlson

Explanation of Need: Part 4 Item A21-83 was reviewed as it may impact part 3, 3.3.2 e) 1) examples of Routine Repairs. An Item for Part 3 will be opened to address "valve" repairs as they relate to SRVs.

January 2023 Meeting Action: Ms. Moore explained that Subgroup and Subcommittee R&A voted to close this item with no action because they determined the Part 4 item 21-83 does not impact Part 3. A motion was made, seconded, and unanimously approved to close this item with no further action.

Item Number: A22-12	NBIC Location: Part 3, 3.3.5.2 & 3.4.5.1	Attachment Page 60

General Description: Lost or Destroyed UDS

Subgroup: Repairs and Alterations

Task Group: T. Seime (PM)

Explanation of Need: To provide the ability to repair/alter these vessels with a reconstructed UDS.

January 2023 Meeting Action: Mr. Seime presented the proposal for this item. A motion to approve the proposal was then made, seconded, and unanimously approved.

Item Number: A22-18	NBIC Location: Part 3, 9.1 (and all other Parts)	No Attachment

General Description: Definition of blowdown and blowoff

Subgroup: Repairs and Alterations

Task Group: K. Moore (PM)

Explanation of Need: These terms are not consistently used throughout the industry. This is to provide guidance to use the correct term when addressing the equipment or the action.

January 2023 Meeting Action: Ms. Moore stated that the task group is working on the proposal for this item.

Item Number: A22-19	NBIC Location: Part 3, 5.5.2	No Attachment

General Description: R Certificate Holders with Design Only Scope

Subgroup: Repairs and Alterations

Task Group: J. Ferreira (PM), R. Valdez, G. Scribner, B. Schaefer, M. Schaser

Explanation of Need: To add new paragraphs 5.2.2 d) and 5.2.2 e) which will provide guidance for R Certificate Holders with "Design Only" on which activities they are permitted to perform and how they and the Inspectors shall complete the R-2 Form.

January 2023 Meeting Action: Ms. Moore reported that the task group is still working on a proposal for this item.

iv. New Items:

Item Number: A22-27	**NBIC Location: Part 3**	**No Attachment**

General Description: Post Repair Activity - Boil Out

Subgroup: Repairs and Alterations

Task Group: J. Ferreira (PM), L. Dutra, M. Toth and M. Quisenberry

Explanation of Need: When major repairs are made and the boiler is not properly cleaned of oils, it will cause water level instability and carryover.

January 2023 Meeting Action: Ms. Moore made a motion to close this item with no action because Subgroup and Subcommittee felt there needed to be more discussion among each part to determine if this item is necessary. This motion was seconded. Mr. Newton asked if the definition is Close with no action until a later date to allow other Parts to discuss the topic. Discussion was held on the necessity of including Boil Out in the NBIC and in which Part it fits. During discussion, many members felt the topic would fit best in Part 3. After discussion ended, a vote was taken on the motion to close this item with no action. That motion passed with one disapproval vote. The disapproving member gave the following reason for their vote: "The repair is supposed to bring the boiler/pressure vessel back to full operational condition and part of this would include cleaning the repair parts to the original condition. Failure to include "Boiling Out" could cause additional failure to the repaired object."

Item Number: A22-41	**NBIC Location: Part 3, 1.5**	**No Attachment**

General Description: Reference NB-415 in Quality System

Subgroup: Repairs and Alterations

Task Group: P. Davis (PM), M. Carlson, L. Ponce, J. Walker.

Explanation of Need: Requirements in the NB-415 should be included in the R Cert. Holder's QC Manual. Examples: a) Notifying the National Board when an organization changes scope, ownership, name, location, address, or Inspection Agreement and b) Return of the stamp.

January 2023 Meeting Action: Ms. Moore stated that the task group is working on a proposal for this item.

Item Number: A23-04	NBIC Location: Part 3, 3.3.4.6	No Attachment

General Description: Addressing Flush Patch Plate Weld NDT

Subgroup: Repairs and Alterations

Task Group: J. Ferreira (PM), K. Moore, Added M. Schaser, T. McBee, and F. Johnson

Explanation of Need: NBIC Item to Address Flush Patch Plate Weld NDT.

January 2023 Meeting Action: Ms. Moore stated that the task group is working on a proposal for this item.

Item Number: A23-05	NBIC Location: Part 3, 5.2 d)	Attachment Page 62

General Description: Clarify that stamping is required prior to signing R Form

Subgroup: Repairs and Alterations

Task Group: R. Underwood (PM)

Explanation of Need: There is at least one instance where a nameplate has not been attached to a PRI and the R Form has already been signed. When questioned, the Inspector aptly stated there is no "shall be" requirement in the NBIC for the nameplate to be attached prior signing the R Form. What happens if that Inspector is reassigned or resigns? The stamping/nameplate may never be completed.

January 2023 Meeting Action: This item was unanimously approved during the discussion for Item I23-01.

Item Number: A23-06	NBIC Location: Part 3, 3.3.4.8 c)	Attachment Page 63

General Description: Correction to paragraphs c) 5) and 6)

Subgroup: Repairs and Alterations

Task Group: B. Boseo (PM)

Explanation of Need: Part 3, 3.3.4.8 c) 5) and 6) should be changed to a) and b) under subparagraph 4).

January 2023 Meeting Action: A proposal was presented by Mr. Brian Boseo. A motion was then made, seconded, and unanimously approved to accept the proposed changes.

d. Subcommittee Pressure Relief Devices

i. Interpretations

Item Number: 22-36	NBIC Location: Part 4, 4.2.2	Attachment Page 65

General Description: Use of Code case 2787 in Repairs

Task Group: None assigned.

Explanation of Need: Code Case 2787 was approved by ASME to allow a manufacturer to develop valves that will work on multimedia applications without any required adjustments. These valves may have different components and will have multiple certified capacities. As these valves are entering the marketplace, some customers are requesting that their existing valves get converted to the multimedia type valves. This request would allow the NBIC Committee to adopt the Code Case for us in the VR program in accordance with NBIC Part 4.2.2 and allow the VR holder to convert a valve to a multimedia design that has more than one certified capacity on the valve nameplate.

January 2023 Meeting Action: Mr. Adam Renaldo presented the proposal for this item. A motion was made and seconded to approve the proposal as presented. A question was asked about where in the NBIC it is written that code cases can be adopted. Section 4.2.2 of Part 4 was then reviewed by the Committee members. Mr. Renaldo mentioned that a task group will be formed to reword section 4.2.2. A suggestion was made to letter ballot this item to Main Committee and include a copy of the code case in ballot. Mr. Paul Shanks felt that using an interpretation to approve a code case wouldn't be valid. Further discussion was held about approaching this as an intent interpretation. Ultimately, the motion to approve the proposal was withdrawn so that the subgroup and subcommittee could work more on the proposal.

ii. Action Items – Old Business

Item Number: NB15-0305	NBIC Location: Part 4	No Attachment

General Description: Create Guidelines for Installation of Overpressure Protection by System Design.

Task Group: B. Nutter, A. Renaldo, D. Marek (PM), D. DeMichael, J. Wolf

January 2023 Meeting Action: Mr. Renaldo reported that the proposal for this item will be sent out as a letter ballot to SG Installation and SG PRD.

Item Number: NB15-0307	NBIC Location: Part 4	No Attachment

General Description: Create Guidelines for Repair of Pin Devices.

Task Group: D. McHugh (PM), A. Renaldo, T. Tarbay, R. McCaffrey, J. Simms, C. Beair

Meeting Action: Mr. Renaldo stated that the proposal for this item will be sent out as a letter ballot to SG Installation and SG PRD.

Item Number: NB15-0315	NBIC Location: Part 4, 2.5.6 and 2.6.6 and Part 1, 4.5.6 and 5.3.6	No Attachment

General Description: Review isolation Valve Requirements, and reword to allow installation of pressure relief devices in upstream piping.

Task Group: D. DeMichael (PM), B. Nutter, A. Renaldo, D. Marek

Meeting Action: Mr. Renaldo said that the task group is still working on the proposal for this item.

Item Number: 19-83	NBIC Location: Part 4, 4.7.5	No Attachment

General Description: Address Alternate Pressure Relief Valve Mounting Permitted by ASME CC2887-1

Task Group: D. Marek (PM), T. Patel, J. Ball

Explanation of Need: ASME Code Case 2887-1 permits the installation of pressure relief valves below a low mass water tube boiler or water heater under certain conditions. This set of conditions and alternate location should be addressed in the NBIC as the use of low mass water tube boilers and water heaters becomes more widespread.

Meeting Action: Mr. Renaldo reported that the proposal for this item will be sent out as a letter ballot to SG Installation and SG PRD.

Item Number: 20-85	NBIC Location: Part 4, 3.2.6	No Attachment

General Description: Add language to Part 4, 3.2.6 to define test intervals for thermal fluid heater PRDs

Subgroup: PRD

Task Group: B. Nutter (PM), T. Patel, D. Schirmer, J. Wolf

Explanation of Need: The proposed language comes from work done on action item 19-88.

Meeting Action: Mr. Renaldo reported that the proposal for this item will be sent out as a letter ballot to SG Inspection and SG PRD..

Item Number: 21-08	NBIC Location: Part 4, S4.4	No Attachment

General Description: Additional guidance for tank vent repairs

Subgroup: PRD

Task Group: D. DeMichael (PM), B. Donalson, B. Nutter, K. Beise, J. Grace

Explanation of Need: The recently approved S4.4, "Weight Loaded Vents," provided new guidance for tank vent repairs. Several additional topics need to be addressed to enhance the guidance. These topics include: 1) Suggested test equipment and configuration for the prescribed tank vent testing. 2) Minimum requirements for replacement parts, 3) Guidance for painting tank vent components.

Meeting Action: Mr. Renaldo stated that the task group is still working on the proposal for this item.

Item Number: 21-18	NBIC Location: Part 4, 3.2.6	Attachment Page 66

General Description: Pressure Tests for Pressure Relief Valve Repair Parts

Subgroup: PRD

Task Group: J. Simms (PM), T. Tarbay, A. Donaldson, D. DeMichael, T. Patel, B. Nutter

Explanation of Need: Pressure relief valve manufacturers must produce valve parts that comply with ASME Code requirements to be able to apply the ASME Symbol Stamp and Designator to a new valve. These parts are the same that are sold as repair parts. The logistic issues to fabricate and maintain an inventory of spare parts not complying with ASME Code requirements is significant versus producing all parts in compliance with code. Consequently, why have a pressure test requirement for parts purchased from the valve manufacturer for those certificate holders who chose to buy parts produced by the manufacturer?

January 2023 Meeting Action: Mr. Renaldo presented the proposal for this item. A motion was made, seconded, and unanimously approved to accept the proposal.

Item Number: 21-36	NBIC Location: Part 4, 3.3.3.4 i)	No Attachment

General Description: Add Test Details to NBIC Part 4, 3.3.3.4 i) Valve Adjustment and Sealing

Subgroup: PRD

Task Group: None assigned

Explanation of Need: There is no reference in the T/O requirements for Set Pressure Testing, use of proper Test Fluid or Seat Tightness unless and until a minor adjustment is required. This is surely the intent, but it is not clearly specified as it is in the current VR requirements.

Meeting Action: Mr. Renaldo reported that the task group is still working on the proposal for this item.

Item Number: 21-59	NBIC Location: Part 4, 3.2.6.1	No Attachment

General Description: Deferral of inspection due dates (pressure relieving devices NBIC PART IV)

Subgroup: PRD
Task Group: None assigned

Explanation of Need: Since the code has clearly recommended inspection frequency intervals for the different classes of pressure relief devices, it shall have the requirements related to the deferral of due dates. The inspection due date deferrals are usually not considered but in exceptional cases where operating plant may not be able to handover the device due to some practical limitations or the turnaround frequency of the plant is extended due to stakeholders' requirements etc. The owner is usually ensuring that a deferment is not posing any significant EHSS risk by proper risk analysis but a clarity from code on the minimum or maximum duration the device can be deferred will add a great value in decision making. There are some codes which have added deferment clauses such as API 510 but the NBIC is always having precedence in this subject and shall have statement added to its code.

Meeting Action: Mr. Renaldo reported that the item has been approved by SG and SC PRD but is being taken back for further work due to comments received from SC Inspection.

Item Number: 21-61	NBIC Location: Part 4, 3.3.4	No Attachment

General Description: Audit Requirements for the T/O holder

Subgroup: PRD
Task Group: A. Donaldson (PM), A. Cox, J. Simms, P. Dhobi, T. Tarbay, D. Marek

Explanation of Need: Opened as a result of a Subgroup PRD ballot comment from item 21-05 (Shop audits for VR certificate holders). The comment recommended adding requirements specifically for organizations that are T/O only.

Meeting Action: Mr. Renaldo stated that the proposal for this item will be sent out as a letter ballot to SG PRD.

Item Number: 21-62	NBIC Location: Part 4, 4.8.5.4 i) 3)	No Attachment

General Description: Verification of existing spring during repair activities

Task Group: A. Donaldson (PM), B. Nutter, E. Creaser, P. Dhobi, T. Patel, J. Simms

Explanation of Need: This requirement has created an administrative requirement that potentially prevents a VR Stamp holder from applying the "VR" stamp to valves they have repaired. The requirement is negatively impacting owners, and jurisdictions that enforce the NBIC Part 4. This clause introduces a unique requirement in the BPV industry to confirm that code material in a Code stamped item be verified and traceable at all time after the item is ASME code stamped but the verification can only be provided by the manufacturer. Historically, any valve received or worked on that was sealed by a VR Stamp holder or in the case of an initial repair the ASME assembler was deemed to be Code compliant, and no further verification was needed recognizing the validity and continuity of the ASME and VR quality programs. It is clearly understood that if a spring, or any other critical part is deemed necessary to be replaced during a repair the manufactures verification is required and justifiable.

Meeting Action: Mr. Renaldo reported that the task group is still working on the proposal for this item.

Item Number: 22-08	NBIC Location: Part 4, 2.4.1.6 & 2.4.4.2; Part 1, 3.9.1.6 & 3.9.4.2	No Attachment

General Description: Review and improve guidance for T&P valve installation relating to probe.

Subgroup: PRD

Task Group: D. Marek (PM), J. Ball, J. Wolfe, T. Clark

Explanation of Need: Existing text refers to location of valve connection and does not give guidance that the temperature probe needs to be located in the hottest water in the tank for the valve to actuate at the specified temperature.

Meeting Action: Mr. Renaldo reported that the task group is still working on the proposal for this item.

Item Number: 22-09	NBIC Location: Part 4, 4.6.1	No Attachment

General Description: Add language to NBIC Part for valves manufactured to Code Case 2787

Subgroup: PRD

Task Group: A. Donaldson (PM), R. Donalson, B. Nutter, T. Tarbay, J. Simms
Explanation of Need: There are no requirements to address valve repairs that were manufactured or assembled to Code Case 2787 (use of more than one certified capacity on the pressure relief valve or the nameplate).

Meeting Action: Mr. Renaldo said that the task group is still working on the proposal for this item.

Item Number: 22-15	NBIC Location: Part 4, 2.4.5 and Part 1, 3.9.5	No Attachment

General Description: What is the meaning of "service limitations" as used in Part 4, 2.4.5?

Subgroup: PRD

Task Group: T. Beirne (PM), B. Nutter, T. Clark

Explanation of Need: Part 4, 2.4.5 (also Part 1, 3.9.5) references "service limitations set forth in Part 1, 3.2, Definitions" when establishing pressure relief requirements for tanks and heat exchangers. Part 1, 3.2 points readers to the glossary. As "service limitations" is not itself defined within the glossary, and the term does not appear elsewhere in the code, what specific service limitations are being referenced?

Meeting Action: Mr. Renaldo shared that the proposal for this item will be sent out as a letter ballot to SG Inspection and SG PRD.

Item Number: 22-16	NBIC Location: Part 4, 2.4.4 and Part 1, 3.9.4	No Attachment

General Description: Allow the use of pressure relief valves on potable water heaters.

Subgroup: PRD

Task Group: D. Sullivan (PM), J. Ball, T. Clark

Explanation of Need: ASME Section IV, Part HLW-800.1 allows the use of pressure relief valves in place of temperature and pressure relief valves on potable water heaters. NBIC Parts 1 and 4 specifically require temperature and pressure relief valves, which is not consistent with the code of construction. Some manufacturers are shipping HLW stamped potable water heaters with pressure relief valves. Often the physical construction of these units is such that a temperature and pressure relief valve cannot be accommodated.

Meeting Action: Mr. Renaldo reported that the proposal for this item will be sent out as a letter ballot to SG Inspection and SG PRD.

Item Number: 22-20	NBIC Location: Part 4, 4.7.4	No Attachment

General Description: Inspection and testing of PRV's located above isolation valves.

Subgroup: PRD

Task Group: D. Marek (PM), K. Beise, J. Ball, E. Creaser, H. Cornett, A. Renaldo

Explanation of Need: Add requirement to make sure the internals of a PRV inlet and outlet are inspected when it is tested, and require tests to be done with a pressure vessel with volume.

Meeting Action: Mr. Renaldo stated that the task group is still developing a proposal for this item.

iii. New Items:

Item Number: 22-34	NBIC Location: Part 4, S6.3 & S6.5	Attachment page 67

General Description: Update duplicate nameplate marking requirements in Supplement 6

Subgroup: PRD

Task Group: None assigned.

Explanation of Need: With the publication of Section XIII updates to the duplicate nameplate requirements were needed to refer to designator rather than code section. This item will also make the marking requirements consistent with those in the pending publication of updated paragraph 4.7.4 resulting from item 21-84.

January 2023 Meeting Action: Mr. Renaldo presented the proposal for this item. A motion was made, seconded, and unanimously approved to accept the proposal as presented.

Item Number: 22-35	NBIC Location: Part 4, 4.6.2	Attachment page 68

General Description: Update reference of Section VIII steam valves to UV designated steam valves

Subgroup: PRD

Task Group: None assigned.

Explanation of Need: With the publication of Section XIII new UV designated valves are constructed to Section XIII. The references should be to UV designator not code section.

January 2023 Meeting Action: Mr. Renaldo presented the proposal for this item. A motion was made, seconded, and unanimously approved to accept the proposal as presented.

10. Liaison Activities

i. American Society of Mechanical Engineers BPV Code (ASME BPV)

a. Mr. Scribner and Mr. Ray gave a brief update on recent activities from the ASME BPC and ASME PCC committees.

ii. American Welding Society (AWS)

Mr. Jim Sekely presented a report on recent AWS activities. See Attachment Page 69 for the full report.

11. Future Meetings

- July 10-13, 2023 – St. Louis, MO
- January 8-11, 2024 – Charlotte, NC

12. Adjournment

Mr. Galanes adjourned the meeting at 1:20 p.m. local time.

Respectfully submitted,

Jonathan Ellis

Jonathan Ellis
NBIC Secretary

THE NATIONAL BOARD
OF BOILER AND PRESSURE VESSEL INSPECTORS

NATIONAL BOARD INSPECTION CODE COMMITTEE

ATTACHMENTS

January 2023 NBIC Main Committee Meeting Attendance - General Session

Attendee Name	Email Address	Company Name	In-Person	Online	Did Not Attend
Austin, Randy	rdaustin@lanl.gov	Los Alamos National Laboratory		x	
Barker, Timothy	timothy.barker@fmglobal.com	FM Global	x		
Ellis, Jonathan	jellis@nbbi.org	NBBI	x		
Galanes, George	ggalanes@diamondtechnicalservices.com	DTS, Inc.	x		
Getter, Jim	jim.getter@worthingtonindustries.com	Worthington Industries	x		
Hopkins, Craig	CHOPKINS@SEATTLEBOILER.COM	Seattle Boiler Works, Inc.	x		
Moore, Kathy	kathymoore@joemoorecompany.com	Joe Moore & Company	x		
Morelock, Brian	morelock@eastman.com	Eastman Chemical Company, TNO	x		
Newton, Venus	venus.newton@bpcllcga.com	Boiler and Property Consulting/XLIA	x		
Patel, Thakor	thakorpatel1@gmail.com	Consultant		x	
Ray, Brent	bdray@marathonpetroleum.com	Marathon Petroleum Company	x		
Richards, Mike	Hmichaelrichards.pe@gmail.com	LiquidMetal	x		
Sansone, Matt	matthew.sansone@labor.ny.gov	State of New York		x	
Schaefer, Ben	bschaefer@aep.com	American Electric Power	x		
Seime, Trevor	tsseime@nd.gov	State of North Dakota	x		
Sekely, Jim	jsekely@comcast.net	Welding Services, Inc.		x	
Simmons, Tim	tsimmons@boilermakers.org	International Brotherhood of Boilermakers		x	
Toth, Marty	mtoth@boiscotraininggroup.com	ECS Consulting, LLC	x		
Underwood, Bob	robert_underwood@hsb.com	Hartford Steam Boiler	x		
Wadkinson, Melissa	melissa.wadkinson@fulton.com	Fulton Thermal Corp	x		
Washington, Milton	Milton.Washington@dol.nj.gov	State of New Jersey		x	
Wiggins, Eddie	Edward.Wiggins@labor.alabama.gov	State of Alabama		x	
Adams, Rodger	rodger.adams@zurichna.com	Zurich			x
Ahee, Bryan	bahee@bradfordwhite.com	Bradford White Corporation	x		
AHMED, S M FAYSAL	smfaysal.ahmed@rsc-bd.org	RMG SUSTAINABILITY COUNCIL			x
Beauregard, Joseph	joeducati@hotmail.com	Los Alamos National Laboratory	x		
Becker, Chuck	hggbecker@yahoo.com	Quality Steel Corporation	x		
Becker, Pat	Pbecker3135@gmail.com	EPRI	x		
Beirne, Thomas	tbeirne@nationalboard.org	The National Board of Boiler and Pressure Vessel Inspectors	x		
Beise, Kim	kbeise@dowcovalve.com	Dowco Valve Company Inc		x	
Bierl, Craig	cbierl@chubb.com	Chubb Insurance		x	
Boseo, Brian	bmboseo@burnsmcd.com	Burns & McDonnell	x		

Brantley, Ernest	Ernest.brantley@bpcllcga.com	AXA XL Insurance			x
Brockman, Joe	Ronald.Brockman@FMGlobal.com	FM Global	x		
Burton, Lee	BURTONDL@AIRPRODUCTS.COM	Air Products & Chemicals		x	
Byrum, Marvin	marvin.byrum@gmail.com	Arise Boiler Inspection and Insurance Co	x		
Calderon, Benjamin	benjamin.calderon@libertymutual.com	Liberty Mutual Insurance	x		
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Carlson, Mike	camx235@lni.wa.gov	State of Washington	x		
Ceccarelli, Ray	raymond.ceccarelli@fmglobal.com	FM Global	x		
Chestnut, Scott	stchestnut@marathonpetroleum.com	Marathon Petroleum			
Collins, Riley	rileycollins@eastman.com	Eastman Chemical Company	x		
Cox, Matthew	matthew.cox@GE.com	GE Steam Power			
Creaser, Eben	Eben.creaser@gnb.ca	Province of New Brunswick			x
Davis, Paul	paul.davis22@woodplc.com	Wood Group USA, Inc.	x		
Derby, Robert	rderby@uanet.org	United Association ITF	x		
Dhobi, Prakash	prakash.dhobi@lakesidecontrols.com	Lakeside Process Controls, Ltd.	x		
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Graf, Darrell	grafdr@airproducts.com	Air Products & Chemicals Inc	x		
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Henry, Harrington	harrington.henry@tuvsud.com	ARISE Inc.	x		
Jennings, Patrick	patrick_jennings@hsb.com	HSB	x		
Jessick, Jerry	jjessick@fusion-etc.com	Fusion Integrated Solutions		x	
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Kinney, Don	don.kinney@labor.nc.gov	North Carolina Boiler Safety Bureau			x
Kleiss, Jeff	jkleiss@lochinvar.com	Lochinvar, LLC.	x		
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Lower, Mark	mlower1@vols.utk.edu	Oak Ridge National Laboratory			x
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Marks, Stacey	stacey.marks@bureauveritas.com	Bureau Veritas		x	
McBee, Timothy	timothy.mcbee@tuvsud.com	ARISE		x	
McGuire, Robert	robert.b.mcguire@ge.com	GE Steam Power		x	
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Schaser, Matt	mschaser@e2g.com	The Equity Engineering Group, Inc.	x		
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SHAH, M. A.	abmindustrialservices@gmail.com	ABM Industrial Services Inc.		x	
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Siefert, John	jsiefert@epri.com	EPRI	x		
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Spiker, Ron	ronndj@gmail.com	State of South Carolina	x		
Spuhl, Raymond	RAYMOND_SPUHL@HSB.COM	The Hartford Steam Boiler Inspection and Insurance Company	x		
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Theiler, Craig	theilercraig@gmail.com	ERL, Inc.			x

Theiler, Craig	ctheiler@erlinc.net	ERL, Inc.			x
Triplett, Andrew	triplettal@ornl.gov	UT-Battelle, LLC		x	
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Valdez, Rick	rvaldez@prim.com	Rick Valdez	x		
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Viers, Robert	rviers@nationalboard.org	National Board of Boiler & Pressure Vessel Inspectors	x		
Walker, Jamie	jwalker@hayesmechanical.com	Hayes Services	x		
White, Tom	thomas.white@nrg.com	NRG Energy	x		
White, Wendy	wwhite@nbbi.org	NBBI	x		
Zalusky, David	David.Zalusky@cna.com	CNA Insurance			x

Title	Item Number	Cycle	NBICEdition	Assigned Subgroup
Define "Fuel Loading" as it pertains to NR activities	21-02	A	2025	Subgroup Repairs/Alterations
Inspection of through stays and diagonal stays	21-03	A	2025	Task Group Historical Boilers
Incorporate new repair methods for through and diagonal stays	21-09	A	2025	Task Group Historical Boilers
Pressure Tests for Pressure Relief Valve Repair Parts	21-18	A	2025	Subgroup Pressure Relief Devices
Parts used in NR Activities	21-37	A	2025	Subgroup Repairs/Alterations
Create example inspection list	22-03	A	2025	Subgroup Inspection
Lost or Destroyed UDS	22-12	A	2025	Subgroup Repairs/Alterations
Align hot water boiler thermometer requirements with ASME Section IV	22-13	A	2025	Subgroup Installation
Removal of the requirement of AIA audits from the NR program	22-29	A	2025	Subgroup Repairs/Alterations
Location of temperature controls	22-31	A	2025	Subgroup Installation
Update duplicate nameplate marking requirements in Supplement 6	22-34	A	2025	Subgroup Pressure Relief Devices
Update reference of Section VIII steam valves to UV designated steam valves	22-35	A	2025	Subgroup Pressure Relief Devices
Clarify that stamping is required prior to signing R Form	23-05	A	2025	Subgroup Repairs/Alterations
Editorial change for Section 3, Para. 3.3.4.8 c) 5 and 6	23-06	A	2025	Subgroup Repairs/Alterations
2.2.4 updated to include not allowing combustibles	23-07	A	2025	Subgroup Inspection

PROPOSED INTERPRETATION

Item No.

23-03

Subject/Title

Boiler Room Exit

Project Manager and Task Group

Source (Name/Email)

Dwaine Dierksen / dwaine.dierksen@chubb.com

Statement of Need

Some inspectors interpretations are restricting exits to ground level egress only.

Background Information

A boiler room on a roof elevation with exit onto that roof elevation would only be allowed if a fire escape or an additional roof egress back into another part of the building was incorporated to reach the ground level.

Proposed Question

Are there any restrictions where the boiler room exits to? Such as roofs, a secured (fenced area), other rooms, etc?

Proposed Reply

No.

Committee's Question 1

Does NBIC Part 1 specify where the boiler room exits should lead?

Committee's Reply 1

No

Rationale

NBIC Part 1 – Neither 1.6.3 nor the glossary of terms definition for “Exit” state where exits lead.

Committee's Question 2

Committee's Reply 2

Rationale

	VOTE:						
COMMITTEE	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

CODE INTERPRETATIONS

Requests for code Interpretations shall provide the following:

a) Inquiry
Provide a condensed and precise question, omitting superfluous background information and, when possible, composed in such a way that a "yes" or a "no" reply, with brief provisos if needed, is acceptable. The question should be technically and editorially correct.

b) Reply
Provide a proposed reply that clearly and concisely answer the inquiry question. Preferably the reply should be "yes" or "no" with brief provisos, if needed.

c) Background Information
Provide any background information that will assist the committee in understanding the proposed Inquiry and Reply Requests for Code Interpretations must be limited to an interpretation of the particular requirement in the code. The Committee cannot consider consulting type requests such as:

A review of calculations, design drawings, welding qualifications, or descriptions of equipment or Parts to determine compliance with code requirements;

A request for assistance in performing any code-prescribed functions relating to, but not limited to, material selection, designs, calculations, fabrication, inspection, pressure testing, or installation; or

A request seeking the rationale for code requirements.

Item 22-13
Submitted by: Tom Clark
Page **1** of **1**

Part 1

3.8.2.2 THERMOMETERS

Each hot-water heating or hot-water supply boiler shall have a thermometer so located and connected that it shall be easily readable. The thermometer shall be so located that it shall at all times indicate the temperature of the water in the boiler at or near the outlet. The thermometer shall have a minimum ~~indication~~reading of 70°F (20°C) or less and a maximum reading~~indication~~ at least equal to 320°F (160°C) but not more than 400°F (205°C).

An electronic temperature sensor and display may be used in lieu of a thermometer, and the display shall have a minimum indication range of 70°F (20°C) to 320°F (160°C); the display shall always be on.

HG-612 Thermometers/Temperature Sensors

Each hot water heating or hot water supply boiler shall have a thermometer or temperature sensor with display so located and connected that it shall be easily readable. The thermometer or sensor shall be so located that it shall at all times indicate the temperature of the water in the boiler at or near the outlet.

(a) Thermometer shall have a minimum reading of 70°F (20°C) or less.

(b) Thermometer shall have a maximum reading at least equal to 320°F (160°C) but not more than 400°F (205°C).

(c) Electronic temperature sensor used in lieu of a thermometer shall meet the following requirements:

(1) The sensor shall be powered from the boiler power supply, and it shall have a display that remains on at all times. The sensor shall have a backup power supply.

(2) The full scale of the sensor and display must be a minimum of 70°F (20°C) to 320°F (160°C). It shall be accurate to within ±1 deg.

(3) The sensor shall have a minimum operating temperature range of 32°F to 300°F (0°C to 150°C).

(4) The display shall have an ambient operating temperature range of 32°F to 120°F (0°C to 50°C) unless otherwise required by the application.

Item 22-31
Submitted by: Patrick Jennings
Page **1** of **1**

Part 1, 3.8.2.3

3.8.2.2 THERMOMETERS

Each hot-water heating or hot-water supply boiler shall have a thermometer so located and connected that it shall be easily readable. The thermometer shall be so located that it shall at all times indicate the temperature of the water in the boiler at or near the outlet.

3.8.2.3 TEMPERATURE CONTROL

Each automatically fired hot-water heating or hot-water supply boiler shall be protected from over-temperature by at least two temperature-operated controls.

a) Each individual hot-water heating or hot-water supply boiler or each system of commonly connected boilers shall have at least one control that will cut off the fuel supply when the water temperature reaches an operating limit, which shall be less than the maximum allowable temperature.

b) In addition to a) above, each individual automatically fired hot-water heating or hot-water supply boiler shall have at least one safety limit control with manual reset that will cut off the fuel supply at or below the maximum allowable temperature at the boiler outlet.

c) Each operating and safety limit control shall have its own sensing element and operating switch. The temperature sensing elements shall be so located that they shall at all times sense the temperature of the water in the boiler at or near the outlet.

d) Alternatively, integrated controls with multiple sensors may be used to meet the requirements of 3.8.2.3 a) and b).

Item 21-03 Inspection of through stays and diagonal stays
David Rose

S2.10.4.1 STAYBOLTS

The maximum allowable working pressure for symmetrically spaced corroded staybolts will be calculated using the formula provided in either of the two following paragraphs or the accompanying tables. Equations calculate MAWP based on measuring the staybolt spacing on the stayed surface and the minimum diameter of the corroded staybolt.

Through stays shall be visually examined for damage or failure such as corrosion, sagging or cracks.

1. Sagging beyond three times the original diameter of the stay shall be replaced.
2. Cracked through stays shall be replaced.
3. Corroded through stays shall be measured where accessible and if the measured diameter has been reduced by more than 20% of the original, the through stay shall be replaced.

Alternatively, the acceptable loading may be calculated in accordance with the relevant sections of the 1971 ASME BPVC.

Diagonal braces shall be visually examined for damage or failure such as corrosion, deformation, or cracks.

1. Cracks shall be repaired.
2. Deformation should be carefully monitored for changes indicating movement.
3. Corroded braces shall be measured where accessible and if the measured diameter has been reduced by more than 20% of the original or the cross-sectional area has been reduced by 30%, the brace shall be replaced.

Alternatively, the acceptable loading may be calculated in accordance with the relevant sections of the 1971 ASME BPVC.

a) Iron Staybolt
Staybolts which are of iron or of unknown material shall be calculated using the following formula or Table S2.10.4.1-a. The table is based on a stress value of 7,500 psi (51.7 MPa) for staybolts. Refer to ASME Section 1, 1971 Edition, Table PG-23.3, for allowable loads for all staybolts.

FORMULA HERE

b) Steel Staybolts
Staybolts of known, steel material shall be calculated using the following formula or Table S2.10.4.1-b. The table is based on a stress value of 11,300 psi (78.0 MPa) for staybolts. Refer to ASME Section 1, 1971 Addenda for allowable loads for all staybolts.

FORMULA HERE

S2.10.4.1 STAYBOLTS

The maximum allowable working pressure for symmetrically spaced corroded staybolts will be calculated using the formula provided in either of the two following paragraphs or the accompanying tables. Equations calculate MAWP based on measuring the staybolt spacing on the stayed surface and the minimum diameter of the corroded staybolt.

a) Iron Staybolt

Staybolts which are of iron or of unknown material shall be calculated using the following formula or Table S2.10.4.1-a. The table is based on a stress value of 7,500 psi (51.7 MPa) for staybolts. Refer to ASME Section 1, 1971 Edition, Table PG-23.3, for allowable loads for all staybolts.

$$p = \frac{\pi \left[\frac{d}{2}\right]^2 s}{p^2}$$

S = 7,500 psi (51.7 MPa)

b) Steel Staybolts

Staybolts of known, steel material shall be calculated using the following formula or Table S2.10.4.1-b. The table is based on a stress value of 11,300 psi (78.0 MPa) for staybolts. Refer to ASME Section 1, 1971 Addenda for allowable loads for all staybolts.

$$p = \frac{\pi \left[\frac{d}{2}\right]^2 s}{1.1 x p^2}$$

S = 11,300 psi (78.0 MPa)

c) For curved stayed surface subjected to external pressure, equations to calculate MAWP of staybolts on curved stayed surfaces shall use the longitudinal and circumferential pitches. Use $(l \times w)$ in place of p^2 in equations S2.10.4.1.a and S2.10.4.1.b.

S2.10.4.3 CURVED STAYED SURFACES SUBJECTED TO INTERNAL PRESSURE

The maximum allowable pressure for stayed curved plates and those parts, which require staying with stays or staybolts of uniform diameter, uniformly longitudinally spaced, shall be calculated using the following formula.

$$P = \frac{TS \times t \times E}{H \times FS}$$

where

$$E = \frac{p_l - d_s}{p_l}$$

p_l is longitudinal staybolt pitch
d_s is the outside diameter of the staybolt

If E is not known, then 80% may be used
TS = tensile strength; if not known then 55,000 shall be used
FS = 5 for curved stayed surfaces subjected to internal pressure
H for locomotive style boilers = height of crown sheet of firebox to wrapper sheet measured through the hole for the fusible plug
H for boilers with circular fireboxes = inside radius of the course of shell or drum

S2.10.4.4 CURVED STAYED SURFACES SUBJECTED TO EXTERNAL PRESSURE

The maximum allowable pressure for stayed curved plates and those parts, which require staying with stays or staybolts of uniform diameter, uniformly longitudinally spaced, and subjected to pressure on the convex side, shall be calculated using the following formula.

If (d_O *<= 42 inches*)

$$P = P_s + \frac{8000t}{d_0}$$

If (d_O *> 42 inches*)

$$P = P_s$$

where

P_s *is stayed surface equation from S2.10.4 STAYED SURFACES*
d_o *is outside diameter of firetube, if tapered use the largest outside diameter*

Item 21-25
Scarcella
November 17, 2022

2.3.6.5 INSPECTION OF PRESSURE VESSELS WITH QUICK-ACTUATING CLOSURES

~~a)~~ This section describes guidelines for inspection of pressure vessels equipped with quick-actuating closures~~. Due to the many different designs of quick-actuating closures, potential failures of components that are not specifically covered should be considered. The scope of inspection should include areas affected by abuse or lack of maintenance and a check for inoperable or bypassed safety and warning devices~~. Pressure vessels with quick actuating closures have a higher likelihood of personnel being in close proximity of the vessel during opening. There is a higher probability of an accident while operating the enclosure.

a) Specifically, accidents have occurred because gaskets have stuck and have released suddenly when pried open. Wear and fatigue damage caused by the repetitive actuation of the mechanism and pressure cycles are also a source of accidents.

b) Temperatures above that for which the quick-actuating closure was designed can have an adverse effect on the safe operation of the device. If parts are found damaged and excessive temperatures are suspected as the cause, the operating temperatures may have exceeded those temperatures recommended by the manufacturer. Rapid fluctuations in temperatures due to rapid start-up and shutdown may lead to cracks or yielding caused by excessive warping and high thermal stress. An ~~careful observation~~ inspection ~~should~~ shall be made of the condition of the complete installation~~,~~. Review shall ~~including~~ include maintenance, ~~and~~training, operation, and non-destructive examination records. This review shall serve as a guide in forming an opinion of the care the equipment receives. The construction history of the vessel should be established, including: year built, materials of construction, extent of postweld heat treatment, previous inspection results, and repairs or alterations performed. Any leak should be thoroughly investigated and the necessary corrective action initiated.

1) Inspection of parts and appurtenances

The owner user shall adhere to the items below, and the items shall be verified by the inspector if applicable.

a. Seating surfaces of the closure device, including but not limited to the gaskets, O-rings, or any mechanical appurtenance, shall be inspected to ensure proper alignment. ~~of the closure to the seating surface, should be inspected. This inspection can be made by using powdered chalk or any substance that will indicate that the closure is properly striking the seating surface of the vessel flange. If this method is used, a check should be made to ensure that:~~

~~1. Material used shall not contaminate the gasket or material with which it comes into contact; and~~
~~2. The substance used shall be completely removed after the examination.~~

b. The closure mechanism of the device ~~should~~ shall be inspected for freedom of movement and proper contact with the locking elements. This inspection should indicate that the movable portions of the locking mechanism are striking the locking element in such a manner that full stroke can be obtained. Inspection should be made to ensure that the seating surface of the locking mechanism is free of metal burrs and deep scars, which would indicate misalignment or improper operation. A check should be made for proper alignment of the door hinge mechanisms to ensure that adjustment screws and locking nuts are properly secured.

c. When deficiencies are noted, the following corrective actions ~~should~~ shall be initiated:

Commented [JM1]: This is an incomplete sentence

Commented [JM2]: From Vinny:
From ASME Section VIII div 1 FF-2

Commented [JM3]: From Vinny:
ASME Section VIII FF-5

Commented [JM4]: From Vinny:
ASME Section VIII FF-3 and NBIC Part II Section 3.4.1 and 3.4.9a

1. If any ~~deterioration~~ defect of the gasket, O-ring, etc., is found, the gasket, O-ring, etc., ~~should~~ shall be removed from service and replaced immediately. Replacements ~~should~~ shall be in accordance with the vessel manufacturer's specifications;
2. If any cracking or excessive wear is discovered on the closing mechanism, the owner or user ~~should~~ shall contact the original manufacturer of the device for spare parts or repair information. If this cannot be accomplished, the owner or user should contact an organization competent in quick-actuating closure design and construction prior to implementing any repairs;
3. Defective safety or warning devices ~~should~~ shall be repaired or replaced prior to further operation of the vessel;
4. Deflections, wear, or warping of the sealing surfaces may cause out-of-roundness and misalignment. The manufacturer of the closure ~~should~~ shall be contacted for acceptable tolerances for out-of-roundness and deflection; and
5. The operation of the closure device through its normal operating cycle should be observed while under control of the operator. This ~~should~~ shall indicate if the operator is following posted procedures and if the operating procedures for the vessel are adequate.
6.

2) Gages, safety devices, and controls

The owner user shall adhere to the items below, and the items shall be verified by the inspector as applicable.

~~a. The required pressure gage should be installed so that it is visible from the operating area located in such a way that the operator can accurately determine the pressure in the vessel while it is in operation. The gage dial size should be of such a diameter that it can be easily read by the operator. This gage should have a pressure range of at least 1-1/2 times, but not more than four times, the operating pressure of the vessel. There should be no intervening valve between the vessel and gage.~~

~~b.~~a. The pressure gage should be of a type that will give accurate readings, especially when there is a rapid change in pressure. It should be of rugged construction and capable of withstanding severe service conditions. Where necessary, the gage should be protected by a siphon or trap.

~~c.~~b. Pressure gages intended to measure the operating pressure in the vessel are not usually sensitive or easily read at low pressures approaching atmospheric. It may be advisable to install an auxiliary gage that reads inches of water (mm of mercury) and is intended to measure pressure from atmospheric through low pressures. This ensures that there is zero pressure in the vessel before opening. It would be necessary to protect the auxiliary ~~low-pressure~~low-pressure gage from the higher operating pressures.

~~d.~~c. Provisions should be made to calibrate pressure gages or to have them checked against a master gage as frequently as necessary.

~~e.~~d. A check should be made to ensure that the closure and its holding elements must be fully engaged in their intended operating position before pressure can be applied to the vessel. A safety interlock device ~~should~~ shall be provided that prevents the opening mechanism from operating unless the vessel is completely depressurized.

~~f.~~e. Quick-actuating closures held in position by manually operated locking devices or mechanisms, and which are subject to leakage of the vessel contents prior to disengagement of the locking elements and release of the closure, shall be provided with an audible and/or visible warning device to warn

the operator if pressure is applied to the vessel before the closure and its holding elements are fully engaged, and to warn the operator if an attempt is made to operate the locking device before the pressure within the vessel is released. Pressure tending to force the closure clear of the vessel must be released before the closure can be opened for access.

3. A Risk Based Inspection Assessment (RBIA) program, managed by the owner/user, shall be developed by a professional familiar with the design and applications of quick actuating closures. See NBIC Part 2, Section 4. The RBIA shall be made available for the review by the inspector.

Commented [JM5]: From Vinny:
See NBIC Part 2 Section 4, 4.5, 4.4.8.6, & 4.4.8.4

PART 2, SUPPLEMENT 14
LOW PRESSURE BOILER EXTERNAL INSPECTION LIST

S14.1 SCOPE

Table S14.1 is a list for guidance of a general nature and does not cover all service conditions. This list does not include all jurisdictional requirements. Use of a checklist to perform in-service inspections is recommended (1.5.1).

TABLE S14.1

NBIC Part 2 Section Reference	Inspection Component
2.2.3	General Conditions of the boiler room; lighting, ventilation, housekeeping, and general/personal safety/clearance tripping hazard
2.2.10.6c)	Verify combustion air is supplied to the boiler room
2.2.5	General condition/leakage of the boiler, and appurtenances; water, steam, fuel, flue and fuel train components
2.2.10.6d)	Remote Emergency stop button
1.5.2a) 3)	Stamping/Code Construction
2.2.10.4	Verify gage glass reading/condition
2.2.10.4b) - d)	Pressure gage reading/condition
2.2.10.6l) 3)	Thermometer reading/condition
2.5.4	Relief valve installed properly
2.5.7	Relief valve testing
2.5.2	Relief valve set pressure and capacity
2.5.3	Relief valve condition
2.2.10.6e)	Witness test of low water/flow protection devices/rating
2.2.10.6l) 1) & 2)	Pressure and temperature controls installed
2.2.10.6b)	Verify controls and safety devices are tested and documented
2.2.11	Review logs and maintenance records
1.5.4	Explain and report violations and deficiencies

4.2 NONDESTRUCTIVE EXAMINATION METHODS (NDE)

a) Listed below ~~is~~ are a variety of ~~nondestructive examination~~ NDE methods that may be employed to assess the condition of pressure-retaining items. ~~The skill, experience, and integrity of the personnel performing these examinations are essential to obtain meaningful results.~~ The Inspector ~~should~~ shall review the methods and procedures to be employed to ensure compliance with the codes, standards and/or jurisdictional requirements.

b) ~~Generally, some form of surface preparation will be required prior to use of these examination methods.~~ The Inspector shall review the surface preparation requirements of the selected method(s) and ensure these are included in the procedure.

~~b)~~c) When there is doubt as to the extent of a defect or detrimental condition found in a pressure-retaining item, the Inspector is cautioned to seek competent technical advice for further evaluation of any finding. Additionally, ~~and~~ supplemental NDE may be used to further evaluate the finding.

~~c)~~d) ~~Personnel performing examination and test methods shall have proper training and certification, as required by the owner and acceptable to the Inspector and Jurisdiction, if required.~~ NDE requirement, including: technique, the extent of coverage, procedures, personnel qualification, and acceptance criteria, shall be in accordance with the original code of construction, standard, or specification selected for the repair or alteration of the pressure-retaining item (see NBIC part 3,1.2). Where it is not possible or practical, alternative NDE methods may be used, if all other requirements are met. The alternative NDE methods shall be acceptable to the Inspector and the Jurisdiction where the pressure-retaining item is installed, where required.

e) NDE Personnel shall be qualified and certified in accordance with the requirements of the original code of construction. When this is not possible, NDE personnel may be qualified and certified in accordance with their employer's written practice.

1) The employer's written practice shall be established by using ASNT SNT-TC1A, *Recommended Practice Non-destructive Testing Personnel Qualification and Certification*, or ANSI/ASNT CP-189, *Standard for Qualification and Certification of Nondestructive Testing Personnel*, as a guideline.
2) Personnel performing the examination and test methods shall have proper training and certification, as required by the owner and acceptable to the Inspector and Jurisdiction (where required). Such training and certification shall be maintained by the employer of the NDE personnel.

2.2.4 CONDITION OF BOILER ROOM OR BOILER LOCATION

The general condition of the boiler room or boiler location should be assessed using appropriate jurisdictional requirements and overall engineering practice. Items that are usually considered are lighting, adequacy of ventilation for habitability, combustion air, housekeeping, personal safety, storage of combustibles, and general safety considerations.

PROPOSED INTERPRETATION

Item No.

21-79

Subject/Title

Mechanical Replacement of Shell or Head

Project Manager and Task Group

Source (Name/Email)

Robert Underwood / robert_underwood@hsb.com

Statement of Need

This interpretation and corresponding Code revision would provide clarity to NBIC users and address whether mechanical replacement of these components is considered a repair.

Background Information

There are two conflicting NBIC interpretations relating to mechanical replacement of parts. Interpretation 01-29 states that NBIC neither requires nor prohibits documenting mechanical repair installation on a Form R-1. Recently passed interpretation 19-11 states that mechanical replacement of pressure retaining components in ASME Section VIII, Div. 3 vessels are considered a repair activity. 19-11 cites paragraph 3.3.3 which provides examples of repairs. Paragraph 3.3.3(h)(2) specifically states that replacement of head or shell in accordance with the original design. It does not specify whether head was replaced by welding or mechanical attachment.

Proposed Question

Is mechanical replacement of a shell or head of a pressure retaining item considered a repair activity?

Proposed Reply

Yes, see Part 3, 3.3.3(h).

Committee's Question 1

Q1: Is mechanical replacement of a shell or head of a pressure retaining item considered a repair?
Q2: Is this mechanical repair required to be documented on Form R-1?

Committee's Reply 1
A1: Yes
A2: No, this is beyond the scope of NBIC Part 3, but is not prohibited.

Rationale

TG INTERP considers this a Mechanical Repair. This is not a welded repair requiring documentation on a Form R-1.

Committee's Question 2

Committee's Reply 2

Rationale

	VOTE:						
COMMITTEE	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

CODE INTERPRETATIONS

Requests for code Interpretations shall provide the following:

a) Inquiry
Provide a condensed and precise question, omitting superfluous background information and, when possible, composed in such a way that a "yes" or a "no" reply, with brief provisos if needed, is acceptable. The question should be technically and editorially correct.

b) Reply
Provide a proposed reply that clearly and concisely answer the inquiry question. Preferably the reply should be "yes" or "no" with brief provisos, if needed.

c) Background Information
Provide any background information that will assist the committee in understanding the proposed Inquiry and Reply Requests for Code Interpretations must be limited to an interpretation of the particular requirement in the code. The Committee cannot consider consulting type requests such as:

A review of calculations, design drawings, welding qualifications, or descriptions of equipment or Parts to determine compliance with code requirements;

A request for assistance in performing any code-prescribed functions relating to, but not limited to, material selection, designs, calculations, fabrication, inspection, pressure testing, or installation; or

A request seeking the rationale for code requirements.

PROPOSED INTERPRETATION

Item No.

22-14

Subject/Title

Overlaid Replacement Parts

Project Manager and Task Group
Tim McBee – PM, Mike Carlson, Don Kinney, Michael Quisenberry, Phil Gilston, Jon Ferreira.

Source (Name/Email)

Harold Greer / Harold.greer32@yahoo.com

Statement of Need

Replacement parts that are documented using a Manufacturer's Partial Data report that have been inspected by an Authorized Inspector may still be supplied as a replacement part under paragraph 3.2.2 b) and therefore not require a Hydro test per Paragraph 3.2.2 e). Panels made from Overlaid tubes and for single overlaid tube Dutchman that contain only weld overlay, where the overlay is not considered to be pressure retaining when the overlay is not considered part of the strength of the boiler tube per ASME Section I PW-44. May be supplied as replacement parts under paragraph 3.2.2 b). The purpose of the overlay is to extend the life of boiler tubes in the waste to energy corrosive environment from external wear.

Background Information

ASME Section I PG-112.6 states that a P-4 is neither required nor prohibited for pressure parts that do not contain pressure-retaining welds. NBIC Part 3 section 3 paragraph 3.2.2 c) .....replacement parts subject to internal or external pressure fabricated by welding, "which require inspection by an Authorized Inspector".... An inspector could interpret this as, any replacement part that is certified with a form P-4 would therefore require inspection by an Authorized Inspector and would then require a Hydro test by paragraph 3.2.2 e) prior to installation in the boiler. It is the opinion of this manufacturer that Overlaid boiler tubes where the overlay is not considered as part of the strength of the boiler tube per PW-44 of ASME Section I, is not pressure retaining. Hydro testing of Weld Overlay would not provide meaningful data and would requires excessive costs for no benefit. Such as performance of 200 hydro tests at 1.5 x MAWP for section I, for 200 Overlaid tube Dutchmen, where each tube must be witnessed by the Inspector prior to installation in a boiler. Whereas, after installation there are 400 actual pressure retaining welds in a single test at a pressure that need only verify leak tightness and the acceptance of the inspector.

Proposed Question

Q1) May a boiler furnace wall panel that contains no pressure retaining welds and has been documented on a P-4 Manufacturer's Partial Data Report in accordance with PG-112.6 of ASME Section I, be provided as a replacement part in accordance with NBIC Part 3, 3.2.2 b)? Q2) The same panel referred to in Q1 is manufactured with a weld overlay that is not part of the strength of the boiler tube (corrosion resistance, hard facing, etc…) and documented on a P4 Manufacturer's Partial Data Report in accordance with PG-112.6 of ASME Section I. May this wall panel be provided as a replacement part in accordance with NBIC Part 3, 3.2.2 b)? Q3) May overlaid boiler tubes, where the overlay is not pressure retaining and is not considered part of the strength of the boiler tube per ASME Section I , PW-44, supplied individually, may these overlaid tubes be provided as a replacement part in accordance with Paragraph 3.2.2 b)?

Proposed Reply

Q1) YES Q2) YES Q3) YES

Committee's Question 1

1. May boiler tubes or boiler tube panel assemblies with hard-facing or corrosion resistance overlay that contain no pressure retaining welds be supplied as a replacement part?

Committee's Reply 1

1. Yes.

Rationale

NBIC Part 3, paragraph 3.2.2 b).

Committee's Question 2

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

Committee's Reply 2

2. No.

Rationale

NBIC Part 3, paragraph 3.2.2 e).

Committee's Question 3

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

Committee's Reply 3

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

Rationale

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

	VOTE:						
COMMITTEE	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

CODE INTERPRETATIONS

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a) Inquiry
Provide a condensed and precise question, omitting superfluous background information and, when possible, composed in such a way that a "yes" or a "no" reply, with brief provisos if needed, is acceptable. The question should be technically and editorially correct.

b) Reply
Provide a proposed reply that clearly and concisely answer the inquiry question. Preferably the reply should be "yes" or "no" with brief provisos, if needed.

c) Background Information
Provide any background information that will assist the committee in understanding the proposed Inquiry and Reply Requests for Code Interpretations must be limited to an interpretation of the particular requirement in the code. The Committee cannot consider consulting type requests such as:

A review of calculations, design drawings, welding qualifications, or descriptions of equipment or Parts to determine compliance with code requirements;

A request for assistance in performing any code-prescribed functions relating to, but not limited to, material selection, designs, calculations, fabrication, inspection, pressure testing, or installation; or

A request seeking the rationale for code requirements.

PROPOSED INTERPRETATION

Item No.

22-24

Subject/Title

Repair of pressure ret'ing items without complete removal of defect

Project Manager and Task Group

M. Quisenberry (PM), L. Dutra

Source (Name/Email)

Fazlollah (Fred) Afshar / fredafshar@bandmriskadvice.com

Statement of Need

3.3.4.8 does imply that the defect should be known in regards to characteristics such as orientation, nature, depth, configuration but does not fully state this.

Background Information

On a 1 1/2" thick 304 H reactor operating normally in vacuum and around 1200 degrees F, cracking is found on the lower head to shell joint. Grinding to 1 1/4" thick has eliminated more than 60% of the cracks but still in areas not accessible, the cracks do exist. Detection requires special phased array sensor that is being built but not yet available. Client is citing NB 3.3.4.8 for the cracks left in place and planning to return to operation. Question is submitted to seek the Committee's view.

Proposed Question

Q: If the size, orientation and/ or the contour of the defect may not be fully established, would the provisions of 3.3.4.8 be applicable? 3.3.4.8 Repair of pressure retaining items without complete removal of defects does not address the situation where the defect (i.e. cracks) characteristics are not fully established due to geometrical configuration of internals or other physical obstacles not allowing use of available NDE techniques to fully study the size, orientation and configuration of cracks.

Proposed Reply

No. The defect shall be characterized in full per the requirements of NBIC 3.3.4.8 Part A

Committee's Question 1

If the characteristics of the defect cannot be fully established, would the provisions of 3.3.4.8 be applicable?

Committee's Reply 1

No.

Rationale

Committee's Question 2

Committee's Reply 2

Rationale

	VOTE:						
COMMITTEE	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

CODE INTERPRETATIONS

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Provide a condensed and precise question, omitting superfluous background information and, when possible, composed in such a way that a "yes" or a "no" reply, with brief provisos if needed, is acceptable. The question should be technically and editorially correct.

b) Reply
Provide a proposed reply that clearly and concisely answer the inquiry question. Preferably the reply should be "yes" or "no" with brief provisos, if needed.

c) Background Information
Provide any background information that will assist the committee in understanding the proposed Inquiry and Reply Requests for Code Interpretations must be limited to an interpretation of the particular requirement in the code. The Committee cannot consider consulting type requests such as:

A review of calculations, design drawings, welding qualifications, or descriptions of equipment or Parts to determine compliance with code requirements;

A request for assistance in performing any code-prescribed functions relating to, but not limited to, material selection, designs, calculations, fabrication, inspection, pressure testing, or installation; or

A request seeking the rationale for code requirements.

PROPOSED INTERPRETATION

Item No.

22-33

Subject/Title

Encapsulation of Shells and Heads

Project Manager and Task Group

Source (Name/Email)

Robert Underwood / robert_underwood@hsb.com

Statement of Need

To clarify that encapsulation cannot be used to maintain the pressure retaining capability of shells and heads of pressure retaining items.

Background Information

A pressure vessel owner believes PCC-2 allows encapsulation of components other than what's listed in 3.4.3 of Part 3 (such as heads) and therefore it should be acceptable per the NBIC. Paragraph 3.4.3 clearly indicates that the encapsulation method only applies to pipe, nozzles, fittings, and valves. This proposal would reinforce existing wording in Part 3.

Proposed Question

Does the NBIC Part 3, paragraph 3.4.3, allow for the encapsulation of components other than pipe, nozzles, fittings, and valves?

Proposed Reply

No.

Committee's Question 1
Does the NBIC Part 3, paragraph 3.4.3, allow for the encapsulation of components other than pipe, nozzles, fittings, and valves?

Committee's Reply 1

No.

Rationale

Committee's Question 2

Committee's Reply 2

Rationale

	VOTE:						
COMMITTEE	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

CODE INTERPRETATIONS

Requests for code Interpretations shall provide the following:

a) Inquiry
Provide a condensed and precise question, omitting superfluous background information and, when possible, composed in such a way that a "yes" or a "no" reply, with brief provisos if needed, is acceptable. The question should be technically and editorially correct.

b) Reply
Provide a proposed reply that clearly and concisely answer the inquiry question. Preferably the reply should be "yes" or "no" with brief provisos, if needed.

c) Background Information
Provide any background information that will assist the committee in understanding the proposed Inquiry and Reply Requests for Code Interpretations must be limited to an interpretation of the particular requirement in the code. The Committee cannot consider consulting type requests such as:

A review of calculations, design drawings, welding qualifications, or descriptions of equipment or Parts to determine compliance with code requirements;

A request for assistance in performing any code-prescribed functions relating to, but not limited to, material selection, designs, calculations, fabrication, inspection, pressure testing, or installation; or

A request seeking the rationale for code requirements.

PROPOSED INTERPRETATION

Item No.

23-01

Subject/Title

Stamping Requirements for Repairs and Alterations

Project Manager and Task Group

Source (Name/Email)

Luis Ponce / lponce@nationalboard.org

Statement of Need

There is at least one instance where a nameplate has not been attached to a PRI and the R Form has already been signed. When questioned, the Inspector aptly stated there is no "shall be" requirement in the NBIC for the nameplate to be attached prior signing the R Form. What happens if that Inspector is reassigned or resigns? The stamping/nameplate may never be completed.

Background Information

A discussion a a recent NBIC activity brought this topic to light about at least one repair/alteration where the R Form was signed but the stamping/nameplate has not been completed/attached. The NBIC Part 3, 5.2, 5.7.1 nor the RCI-1, 5-3.12 do not make this a "shall be" requirement.

Proposed Question

For NBIC Part 3 repairs and alterations, is it the intent for stamping or attaching a nameplate in 5.7.1 to be completed prior to signing the R Form by the "R" Certificate Holder and the Inspector?

Proposed Reply

Yes

Committee's Question 1

For NBIC Part 3 repairs and alterations, is it the intent for stamping or attaching a nameplate in 5.7.1 to be completed prior to signing the R Form by the Inspector?

Committee's Reply 1

Yes

Rationale

Committee's Question 2

Committee's Reply 2

Rationale

	VOTE:						
COMMITTEE	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

CODE INTERPRETATIONS

Requests for code Interpretations shall provide the following:

a) Inquiry
Provide a condensed and precise question, omitting superfluous background information and, when possible, composed in such a way that a "yes" or a "no" reply, with brief provisos if needed, is acceptable. The question should be technically and editorially correct.

b) Reply
Provide a proposed reply that clearly and concisely answer the inquiry question. Preferably the reply should be "yes" or "no" with brief provisos, if needed.

c) Background Information
Provide any background information that will assist the committee in understanding the proposed Inquiry and Reply Requests for Code Interpretations must be limited to an interpretation of the particular requirement in the code. The Committee cannot consider consulting type requests such as:

A review of calculations, design drawings, welding qualifications, or descriptions of equipment or Parts to determine compliance with code requirements;

A request for assistance in performing any code-prescribed functions relating to, but not limited to, material selection, designs, calculations, fabrication, inspection, pressure testing, or installation; or

A request seeking the rationale for code requirements.

PROPOSED INTERPRETATION

Item No.

23-02

Subject/Title

Jurisdictional requirements not meeting NBIC requirements

Project Manager and Task Group

Source (Name/Email)

Terrence Hellman / thellman@nationalboard.org

Statement of Need

This Interpretation will clarify that when a Jurisdictional requirement does not meet an NBIC requirement or an NBIC requirement is diminished, the National Board “R” stamp shall not be applied nor will the R-Form be signed.

Background Information

This Interpretation will clarify that when a Jurisdictional requirement does not meet an NBIC requirement or an NBIC requirement is diminished, the National Board “R” stamp shall not be applied nor will the R-Form be signed.

Proposed Question

When a Jurisdictional requirement does not meet an NBIC requirement or an NBIC requirement is diminished, shall the National Board “R” stamp be applied and the applicable R-Form(s) be signed?

Proposed Reply

No.

Committee's Question 1

When a Jurisdictional requirement does not meet the minimum NBIC requirements, may the National Board “R” stamp be applied and the applicable R-Form(s) be signed by both the “R” Certificate Holder and the Inspector?

Committee's Reply 1

No.

Rationale

Committee's Question 2

Committee's Reply 2

Rationale

	VOTE:						
COMMITTEE	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

CODE INTERPRETATIONS

Requests for code Interpretations shall provide the following:

a) Inquiry
Provide a condensed and precise question, omitting superfluous background information and, when possible, composed in such a way that a "yes" or a "no" reply, with brief provisos if needed, is acceptable. The question should be technically and editorially correct.

b) Reply
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c) Background Information
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A review of calculations, design drawings, welding qualifications, or descriptions of equipment or Parts to determine compliance with code requirements;

A request for assistance in performing any code-prescribed functions relating to, but not limited to, material selection, designs, calculations, fabrication, inspection, pressure testing, or installation; or

A request seeking the rationale for code requirements.

Item 21-09 Repair of through stays
David Rose

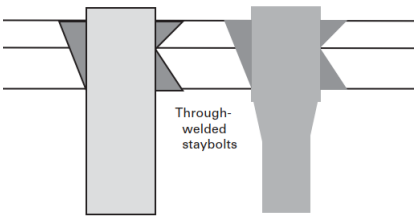
Rationale:
ASME PL-27 provides a construction method applicable to through stays that would be useful in repairs. Using PL-27 as a guide we can add these methods in to assist in the replacement of corroded or excessively sagged through stays.

Part 3 – Repair
Suggested addition:

S2.13.4.1 **REPLACEMENT OF THROUGH STAYS**

a) Threaded through stays may be replaced in kind in accordance with the original design. The threaded portion of the stay may be upsized to permit new threads to be cut in the shell. The new threads may be Unified National Fine thread.
b) Threaded through stays may be replaced by welded-in stays provided that, in the judgement of the Inspector and, ~~or~~ if required, the Jurisdiction, the material adjacent to the through stay has not been materially weakened by deterioration or wasting away.
c) Reduced section through stays shall be replaced with stays of similar design.
d) Stays shall be removed by threading out or drilling.
e) Welded stays shall be inserted into countersunk holes through the sheet and attached by full penetration welds to plate of ~~no less than~~ 3/8" (10mm) or greater in thickness.
f) The ends of the stays shall not be covered by weld metal and the face of the welds shall not be below the outside surface of the plates.
g) Minimum diameter of the reduced section of the stay shall be no less than the greater of 1" or stay bolt length divided by 120.
h) Material will be in accordance with Table S2.7.1 for Boiler Braces.
i) Original nuts and washers may be reinstalled on a welded stay for cosmetic purposes only.

Figure S2.13.4.1



After beveling, and prior to the installation of the stay, the two plates, ~~should be~~if welded, should be ~~and~~ ground back to match the bevel prep. To facilitate installation, heating the through stay will aid in tensioning the stay and prevent sag. Excessive preload applied to the stay ~~should~~shall be taken into consideration.

Item No.: 21-02

Subject Title: Define “Fuel Loading” as it pertains to NR activities.

NBIC Location:
Part 3 Repairs and Alterations: 1.6.2 a)

Project Manager and Task Group:
Raymond Spuhl, NR TG

Source Name and Email:
Terrence Hellman, thellman@nationalboard.org

Statement of Need:
The NR TG would like to clarify "Fuel Loading" as used to determine Category 1, 2 or 3 NR activities.

Background Information:

Existing Text:
1.6.2 a)
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 other than those covered by Category 1 or Category 2, requiring repair/replacement activities irrespective of physical location, installation status and fuel loading.

Proposed Text:
1.6.2 a)
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~~ not under the scope of ASME Section XI

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

3) Category 3
Any item or system, other than those covered by Category 1 or Category 2, requiring repair/replacement activities irrespective of physical location or installation status.

PROPOSED REVISION OR ADDITION

Item No.

21-37

Subject/Title

Parts used in NR activities

NBIC Location

Part: Repairs and Alterations & Repairs and Alterations; Section: 5; Paragraphs: 5.2.5 & 5.2.6

Project Manager and Task Group

Robert Wielgoszinski

Source (Name/Email)

TG NR Committee generated

Statement of Need

Action Item 21-37 is proposing revisions/additions to Part 5 regarding completion of the Forms NR-1 and NVR-1. Particularly including provision to assure that parts or items meeting ASME Code and reported on appropriate ASME Forms are certified by an Inspector holding the proper endorsements. That is the N, I, and/or C endorsements.as appropriate.

Background Information

Current text in the NBIC does not specify any special rules for parts or other items to be used in NR work. This change will assure that any work performed on parts or other items to be used in NR activities is inspected and certified by an appropriate ANI, ANII, or ANI-C

Existing Text

Proposed Text

See attached proposal

	VOTE:						
COMMITTEE	Appr oved	Disappr oved	Abs taine d	Not Voting	Passed	Faile d	Date

(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.

a) Final preparation of Form R-2, including gathering and attaching supporting reports, shall be the responsibility of the "R" Certificate Holder that performed the construction portion of the alteration. The construction organization shall complete the Form R-2 provided by the design organization, including the "Construction Certification" section of the form. An Inspector shall indicate that the work complies with the applicable requirements of this code by completing and signing the "Certificate of Inspection" section of the form. When no construction work is performed (e.g., a re-rating with no physical changes), the "R" Certificate Holder responsible for the design shall prepare the Form R-2, including gathering and attaching of supporting documentation.

b) The following shall be attached to and become a part of completed Form R-2:

1) For ASME boilers and pressure vessels, a copy of the original Manufacturer's Data Report, when available;

2) Form R-3, Report of Parts Fabricated by Welding, Manufacturer's Partial Data Reports, or Certificates of Compliance, if applicable; and

3) For other than ASME, the manufacturer's reports (i.e., reports required by the original code of construction, etc.), when available.

(21) **5.1.1 PREPARATION OF FORM R-3 REPORT OF PARTS FABRICATED BY WELDING**

Using the instructions found in Table S9.4 of Supplement 9, preparation of Form R-3 shall be the responsibility of the "R" Certificate Holder responsible for performing the work.

(21) **5.1.2 PREPARATION OF FORM R-4 REPORT SUPPLEMENT SHEET**

Using the instructions found in Table S9.5 of Supplement 9, preparation of Form R-4 shall be the responsibility of the "R" Certificate Holder responsible for performing the work.

(21) **5.1.3 PREPARATION OF FORM NR-1, REPORT OF REPAIR/REPLACEMENT ACTIVITIES FOR NUCLEAR FACILITIES**

~~Using the instructions found in Table S9.6 of Supplement 9, preparation of Form NR-1 shall be the responsibility of the "NR" Certificate Holder responsible for performing the work.~~

(21)

a) Preparation of Form NR-1 shall be the responsibility of the "NR" Certificate Holder performing the repair/replacement activity in accordance with the instructions found in Table S9.6 of Supplement 9.

b) Information describing the scope of work used to repair a pressure-retaining item (PRI) shall be documented on a Form NR-1 and extended to a Form R-4 as needed to fully describe the repair activities completed per the instructions in Table S9.6 of Supplement 9. NOTE: when a Form R-4 is utilized, reference to the "R" Certificate Holder and "R" Stamp shall mean the "NR" Certificate Holder and "NR" Stamp.

c) An Inspector holding appropriate endorsements shall indicate acceptance by signing Form NR-1, and Form R-4, if attached.

d) The Form R-3, *Report of Parts Fabricated by Welding*, an ASME Manufacturer's Data Report, or other certifications/documentation as required by the Design Specification shall be a part of the completed Form NR-1 and shall be attached thereto. NOTE: when a Form R-3 is utilized, reference to the "R" Certificate Holder and "R" Stamp shall mean the "NR" Certificate Holder and "NR" Stamp.

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5.2.6 PREPARATION OF REPORT OF REPAIR/REPLACEMENT ACTIVITIES FOR NUCLEAR PRESSURE RELIEF DEVICES

~~Using the instructions found in Table S9.7 of Supplement 9, preparation of Form NVR-1 shall be the responsibility of the "NR" Certificate Holder, possessing the "VR" Certificate denoting the repair of nuclear pressure relief valves, responsible for performing the work.~~

a) Preparation of Form NVR-1 shall be the responsibility of the "NR" Certificate Holder, who possesses a "VR" Certificate in accordance with the instructions found in Table S9.7 of Supplement 9. The "NR" Certificate scope shall include the repair/replacement of nuclear pressure relief devices.

b) Information describing the scope of work used to repair pressure relief devices shall be documented on a Form NVR-1 and extended to a Form R-4 as needed to fully describe the repair activities completed per the instructions in Table S9.7 of Supplement 9. NOTE: when a Form R-4 is utilized, reference to the "R" Certificate Holder and "R" Stamp shall mean the "NR" Certificate Holder and "NR" Stamp.

c) An Inspector holding appropriate endorsements shall indicate acceptance by signing Form NVR-1, and Form R-4, if attached.

d) The Form R-3, Report of Parts Fabricated by Welding, an ASME Manufacturer's Data Report, or other certifications/documentation as required by the Design Specification shall be a part of the completed Form NVR-1 and shall be attached thereto. NOTE: when a Form R-3 is utilized, reference to the "R" Certificate Holder and "R" Stamp shall mean the "NR" Certificate Holder and "NR" Stamp.

Item A22-29 – Schaefer – 01-09-2023 - NBIC NR Revisions

General Description: Removal of the requirements of AIA audits for the certificate holders QA Manual. This requirement cannot be enforced and is not defined by the NR Certificate Holder and therefore must be removed.

NBIC Location: Part 3, 1.6.6.2 s) 6), 1.6.7.2 s) 6) and 1.6.8.2 s) 6).

All three sections are identical. Text to be removed is struck through and red and applies to all three sections noted.

Existing Text for section 1.6.6.2 s) 6) – For Category 1

Existing Text for section 1.6.7.2 s) 6) – For Category 2

Existing Text for section 1.6.8.2 s) 6) – For Category 3

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6) Audit records shall include as a minimum;

a. written procedures;
b. checklists;
c. reports;
d. written replies; and
e. Completion of corrective actions.

~~Performance of Authorized Inspection Agency audits required by ASME QAI-1 and NB-263, RCI-1 shall be addressed in the Quality Assurance Manual.~~

SUPPLEMENT 6
REPAIR, ALTERATION, AND MODIFICATION OF DOT TRANSPORT (CARGO)} TANKS

S6.1 SCOPE

This supplement provides requirements and guidelines for repairs, alterations, or modifications to DOT Transport Tanks used for the transportation of dangerous goods via highway, rail, air, or water.

S6.2 DEFINITIONS

The definitions specified in NBIC Part 3, Section 9, *Glossary*, shall be used in conjunction with those specified in NBIC Part 2, S6.17. Where conflicts between definitions exist, those identified in NBIC Part 2, S6.17 shall take precedence.

S6.3 CONSTRUCTION STANDARDS

When the standard governing the original construction is the ASME Code or other regulations of the Competent Authority, repairs, alterations, or modifications 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 ~~practical~~ practicable, it is permissible to use other codes, standards or specifications, including the ASME Code provided the "R" Certificate Holder has the concurrence of the Inspector and~~,~~ if required, the Competent Authority.

S6.4 ACCREDITATION AND REGISTRATION

Organizations performing repairs, alterations, or modifications shall be accredited in accordance with the National Board “R” Accreditation Program. In addition repair organizations performing repairs, alterations, or modifications to transport tanks shall be registered with DOT as required by 49 CFR Part 180.

S6.5 AUTHORIZATION

The Inspector’s authorization to perform a repair, alteration, or modification shall be obtained prior to initiation of the work to be performed on a transport tank. Additional requirements are specified in NBIC Part 3, 1.3.1 and 1.3.2.

S6.6 INSPECTION

Inspection and certification shall be made by an Inspector holding an appropriate National Board Commission as required by NBIC Part 3, 1.3.

S6.7 MODIFICATIONS

All modifications, as defined in NBIC Part 2, Supplement 6, to the pressure-retaining item shall meet the requirements of NBIC Part 3 for alterations and 49CFR180.413(b).

S6.8 DRAWINGS AND CALCULATIONS

a) Design requirements for repairs, alterations and modifications shall comply with the requirements of NBIC Part 3, 3.2.4.

b) As appropriate, drawings or instructions shall be prepared to describe the repair, alteration, or modification. Drawings shall include sufficient information to satisfactorily perform the activity.

c) The design of alterations and modifications shall be completed by an organization experienced in the design portion of the standard used for the construction of the item and certified by a Design Certifying Engineer as defined in NBIC Part 2, S6.17. Design documents shall be completed prior to the start of any physical work and be available for review by the Inspector accepting the design.

S6.95 MATERIALS

The materials used in making repairs, alterations, or modifications shall conform to the original code of construction including the material specification requirements. Carbon or alloy steel having a carbon ~~con-tent~~content of more than 0.35% (0.30% for ton tanks) shall not be welded unless permitted by the original code of construction. The "R" Certificate Holder is responsible for verifying the identification of existing materials from original data, drawings, or unit records and identification of the material to be installed. Materials that have previously been in service, as described in Part 3, 3.2.1 c), are not permitted for alterations or modifications of DOT Transport Tanks per 49 CFR Part 180. Additional material requirements are provided in NBIC Part 3, Section 3.

S6.~~6~~ 10 REPLACEMENT PARTS

Replacement parts to be used in repairs, alterations, and modifications of DOT Transport Tanks shall comply with the requirements provided in NBIC Part 3, 3.2.2.

~~a) Replacement parts that will be subject to internal or external pressure that consist of new material which may be formed to the required shape by spinning, forging, die forming, and on which no fabrication welding is performed shall be supplied as material. Such parts shall be marked with the material and part identification and the name or trademark of the parts manufactured. In lieu of full identification marking on the material or part, the part manufacturer may use a coded marking system traceable to the original marking. Such markings shall be considered as the part manufacturer's certification that the part complies with the original code of construction. Examples include seamless or welded tube or pipe, forged nozzles, heads or subassemblies attached mechanically.~~

~~b) Replacement parts that will be subject to internal or external pressure, that are preassembled by attachment welds, shall have the welding performed in accordance with the original code of construction. This certificate shall be supplied in the form of a bill of material or drawings with statement of certification.~~

~~c) Replacement parts subject to internal or external pressure fabricated by welding that require shop inspection by an Authorized Inspector shall be fabricated by an organization having an appropriate ASME *Certificate of Authorization*. The item shall be inspected and stamped as required by the applicable section of the ASME Code and DOT specification requirements. A completed ASME *Manufacturer's Partial Data Report* shall be supplied by the manufacturer.~~

~~d) When the original code of construction is other than ASME, replacement parts subject to internal or external pressure fabricated by welding shall be manufactured by an organization certified as required by the original code of construction. The item shall be inspected and stamped as required by the original code of construction. Certification as required by the original code of construction shall be supplied with the item. When this is not possible or practicable the organization fabricating the part may have a National Board *Certificate of Authorization*. Replacement parts fabricated by an "R" stamp holder shall be documented on Form R-3 and the "R" Stamp applied as described in NBIC Part 3, S6.15.~~

~~S6.7 AUTHORIZATION~~

~~The Inspector's written authorization to perform a repair, alteration, or modification shall be obtained prior to initiation of the work to be performed on a transport tank. Additional requirements are specified in NBIC Part 3, 1.3.1 and 1.3.2.~~

~~S6.8 INSPECTION~~

~~Inspection and certification shall be made by an Inspector holding an appropriate National Board Commission as required by NBIC Part 3, 1.3 and shall be a Registered Inspector meeting the requirements of the Competent Authority.~~

~~S6.8.1 INSPECTOR DUTIES FOR REPAIRS, ALTERATIONS, AND MODIFICATIONS~~

~~a) Inspectors performing repair, alteration, or modification inspections under the requirements of this supplement shall satisfy the requirements of S6.8.1 to be authorized to sign the Form R-1, *Repairs* and Form R-2, *Alterations*.~~

~~b) For repairs, alterations, and modifications of transport tanks, the duties of the Registered Inspector performing inspections are detailed in Part 2, S6.10 through S6.15, as required by the Competent Authority.~~

~~c) The Registered Inspector shall meet the rules of NB-263, RCI-1, Rules for Commissioned Inspectors. Additional duties are summarized below:~~

~~1) Verify the organization performing the repair, alteration or modification activity is properly accredited and in possession of a current valid *Certificate of Authorization* to apply the "R" Stamp issued by the National Board and is working to an accepted Quality Control System;~~

~~2) Verify that the design, if required, for the modification of the vessel is approved by a Design Certifying Engineer, or Designated Approval Agency or other applicable individual;~~

~~3) Verify the materials to be used to make the repair, alteration, or modification are approved for use and comply with applicable code requirements;~~

~~4) Verify the welding procedures and welders or welding operators are properly qualified;~~

~~5) Verify that all heat treatments, if required, including PWHT have been performed in accordance with the applicable standards and that the results are acceptable;~~

~~6) Verify that all NDE, impact tests, and other tests have been performed when required, and that they are acceptable;~~

~~7) Make a visual inspection of the work performed to confirm there are no visible defects or deviations from code requirements;~~

~~8) Perform external and internal visual inspections, if the vessel is equipped with a manway, and witness the hydrostatic or pneumatic pressure test and/or leak tightness test when they are required;~~

~~9) Verify the correct nameplate is properly attached to the vessel and that the current test and inspection markings are properly attached and displayed on the proper vessel;~~

~~10) Sign the Form R-1 and, as appropriate, form R-2 when work is completed.~~

S6.~~9~~ 11 WELDING

a) Welding, including procedure specification qualification, performance qualification, qualification records, qualified personnel identification, continuity of qualified personnel, and process continuity

records shall be performed in accordance with the requirements of the original code of construction used for the fabrication of the pressure vessel retaining item and Part 3, Section 2.

a)b) For hydrogen control when low alloy steel filler metals are used, the filler metal classification shall include an H4 supplemental diffusible hydrogen designator (maximum 4 ml [H2]/100 g deposited metal) for each of the following welding processes:

1) electrodes for shielded metal arc welding (SMAW) conforming to SFA-5.5;

2) electrodes and fluxes for submerged arc welding (SAW) conforming to SFA-5.26;

3) electrodes and rods for gas shielded metal arc welding (GMAW) conforming to SFA-5.28;

4) electrodes for flux-cored arc welding (FCAW) conforming to SFA 5.29.

c) Practices used for controlling storage and exposure of filler metals shall be those developed by the "R" Certificate Holder or those recommended by the filler metal manufacturer.

b)

S6.9.1 WELDING PROCEDURE SPECIFICATION

Welding shall be performed in accordance with a Welding Procedure Specification (WPS) qualified in accordance with the original code of construction. When this is not possible or practicable, the WPS may be qualified in accordance with ASME Section IX.

S6.9.2 STANDARD WELDING PROCEDURE SPECIFICATIONS

A "R" Certificate Holder may use one or more applicable *Standard Welding Procedure Specifications* shown in NBIC Part 3, 2.3 without supporting *Procedure Qualification Records* (PQRs) since SWPS are pre-qualified and the PQR will not be supplied.

S6.9.3 PERFORMANCE QUALIFICATION

Welders or welding operators shall be qualified for the welding processes that are used. Such qualification shall be in accordance with the requirements of the original code of construction or ASME Section IX. Use of Standard Welding Procedures Specification shown in NBIC Part 3.2.3 is permitted for performance qualification testing.

S6.9.4 WELDING RECORDS

The "R" Certificate Holder shall maintain a record of the results obtained in welding procedure qualification, except for those qualifications for which the provisions of NBIC Part 3, S6.8.2 are used and of the results obtained in welding performance qualifications. These records shall be certified by the "R" Certificate Holder and shall be available to the inspector.

S6.9.5 WELDERS' IDENTIFICATION

The "R" Certificate Holder shall establish a system for the assignment of a unique identification mark to each welder/welding operator qualified in accordance with the requirements of the NBIC. The "R" Certificate Holder shall also establish a written procedure whereby all welded joints can be identified as to the welder or welding operator who made them. This procedure shall use one or more of the following methods and be acceptable to the Inspector. The welder's or welding operator's identification mark may be stamped (low stress stamp) adjacent to all welded joints made by the individual or, in lieu of stamping, the "R" Certificate Holder may keep a record of the welded joints and the welders or welding operators used in making the joint.

~~S6.9.6 WELDERS' CONTINUITY~~

~~The performance qualification of a welder or welding operator shall be affected when one of the following conditions occurs:~~

~~a) When the welder or welding operator has not welded using a specific process during a period of six months or more, their qualifications for that process shall expire;~~

~~b) When there is specific reason to question their ability to make welds that meet the specification, the qualification which supports the welding that is being performed shall be revoked. All other qualifications not questioned remain in effect.~~

S6.~~10~~ 12 HEAT TREATMENT

S6.~~10~~12.1 PREHEATING

Preheating may be employed during ~~welding~~ use of a process to assist in completion of the ~~welded~~ joint Preheating shall comply with the requirements in NBIC Part 3, 2.5.1. ~~(see NBIC Part 3, 2.5.1). The need for and the temperature of preheat are dependent on a number of factors such as chemical analysis, degree of restraint of the items being joined, material thickness, and mechanical properties of the base metals being joined. The Welding Procedure Specification for the material being welded shall specify the preheat temperature requirements.~~

S6.~~10~~12.2 POSTWELD HEAT TREATMENT (PWHT)

Postweld heat treatment ~~may~~ used in repairs, alterations, and modifications of DOT Transport Tanks shall comply with the requirements provided in NBIC Part 3, 2.5.2 and the Competent Authority. ~~be performed as required by the original code of construction in accordance with a written procedure. The procedure shall contain the parameters for postweld heat treatment. Local PWHT that is not specified by the original code of construction may be performed in accordance with an Alternative Postweld Heat Treatment Method described in NBIC Part 3, 2.5.2 with acceptance by the Inspector and required by the Competent Authority.~~

S6.~~10~~12.3 ALTERNATIVES TO POSTWELD HEAT TREATMENT

a) Under certain conditions, postweld heat treatment in accordance with the original code of construction may be inadvisable or impractical. In such instances, alternative methods of postweld heat treatment or special welding methods in accordance with NBIC Part 3, 2.5.3, and acceptable to the Inspector and Competent Authority may be used.

b) When the standard governing the original construction is the Code of Federal regulation for DOT/MC 331 ~~cargo~~transport tanks for propane, butane, anhydrous ammonia, and other DOT permitted commodities, and the tanks are made to the ASME Code, Section VIII, Division 1, Part UHT, repairs, alterations, or modifications 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 provided the "R" Certificate Holder has the concurrence of the DOT. Shells and heads of MC 331 ~~cargo~~transport tanks were made from quenched and tempered alloy steel plate, SA517, Grade E (originally Code Case 1298) and Grade F (originally Code Case 1204) prior to 1994.

c) The 1994 ASME Code Addenda revised UHT-5(b) to permit the joining of UHT materials to UCS or UHA materials in head and shell sections. Propane, butane, and anhydrous ammonia are the most common transported commodities and the shipper is required by DOT to comply with certain composition limitations. Propane and butane transported must have sufficiently low hydrogen sulfide content so as not to exceed the limitations for Classification One of the ASTM D1838-74 copper strip test, and the anhydrous ammonia transported must be inhibited with a minimum water content of 0.2% by weight. In addition, such ~~cargo~~transport tanks made for propane, butane, and anhydrous ammonia service must be postweld heat treated, unless specifically exempted by a DOT special permit that exempts PWHT.

S6.13 REPAIRS OF DEFECTS

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

b) For MC 330 and MC 331 transport tanks, when a repair is made to defects revealed by the wet fluorescent magnetic particle examination, including those repaired by grinding, the affected area of the ~~cargo~~transport tank must again be examined by the wet fluorescent magnetic particle method after hydrostatic testing to assure that all defects have been removed.

S6.~~11~~ 14 NONDESTRUCTIVE EXAMINATION

a) The nondestructive examination (NDE) requirements, including qualification of NDE personnel shall comply with the requirements in NBIC Part 3, 4.2 and the Competent Authority.~~., including technique, extent of coverage, procedures, personnel qualification, and acceptance criteria, shall be in accordance with the original code of construction used for the pressure vessel, and repairs, alterations, and modifications shall be subjected to the same nondestructive examination requirements as the original welds. Where this is not possible or practicable, alternative NDE methods acceptable to the Inspector and the Competent Authority may be used on a case-by-case basis.~~

~~b) NOE personnel shall be qualified and certified in accordance with the requirements of the original code of construction. When this is not possible or practicable, NDE personnel may be qualified and certified in accordance with their employer's written practice. ASNT SNT-TC-1A, *Recommended Practice for Nondestructive Testing Personnel Qualification and Certification (2006 Edition)*, or ANSI/ASNT CP-189, *Standard for Qualification and Certification of Nondestructive Testing Personnel (2006 Edition)*, shall be used as a guideline for employers to establish their written practice. The ASNT Central Certification Program (ACCP) may be used to fulfill the examination and demonstration requirements of the employer's written practice. Provisions for training, experience, qualification and certification of NDE personnel shall be described in the "R" Certificate Holder's written quality system.~~

~~S6.12 COATINGS AND LININGS~~

~~When coatings or linings are to be inspected, such inspections shall be done in accordance with the Structural Steel Painting Council, SSPC publication, No. 91-12, *Coating and Lining Inspection Manual*.~~

S6.1~~5~~3 MEASUREMENT, EXAMINATION, AND TEST EQUIPMENT

The calibration of pressure gages, measurement, examination, and test equipment, and documentation of calibration shall be performed, as required, by the applicable standard used for construction. This system shall be documented.

S6.16 PRESSURE TESTS FOR REPAIRS AND ALTERATIONS

The following requirements shall apply to all repairs, alterations, or modifications to DOT Transport Tank pressure-retaining items:

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

b) Pressure testing shall be conducted in accordance with the original code of construction and the regulations of the Competent Authority.

c) The "R" Certificate Holder is responsible for all activities relating to the pressure testing of repairs, alterations, or modifications;

S6.16.1 PRESSURE TEST METHODS APPLICABLE TO REPAIRS ~~PRESSURE TEST METHODS~~

~~The integrity of repairs, alterations and modifications of DOT Transport Tanks shall be verified by a pressure test as described below. The test method used shall be subject to acceptance of the Inspector and the Competent Authority, when required.~~

a) Liquid Pressure Test

Liquid p~~P~~ressure testing of repairs to~~, alterations, and modifications of~~ DOT Transport Tanks shall comply with ~~-~~NBIC Part 3, 4.4.12(a) and the following requirements:

1) Liquid pressure tests shall be conducted in accordance with the requirements of the original code of construction and the regulations of the Competent Authority at pressures established in Table S6.16-a. When the original test pressure included consideration of corrosion allowance, the test pressure may be further adjusted based on the remaining corrosion allowance;

TABLE S6.16-a
TEST PRESSURE REQUIREMENTS FOR REPAIRS PER 49CFR180.413 and 49CFR180.407.

~~Cargo~~Transport Tank Specification	Test Pressure
MC 300, ~~MC~~ 301, ~~MC~~ 302, ~~MC~~ 303, ~~MC~~ 305, ~~and MC~~ 306	The test pressure on the name plate or specification plate, 20.7 kPa (3 psig) or design pressure, whichever is greater.
MC 304, ~~and MC~~ 307	The test pressure on the name plate or specification plate, 275.8 kPa (40 psig) or 1.5 times design pressure, whichever is greater.
MC 310, ~~MC 3~~311, ~~and MC~~ 312	The test pressure on the name plate or specification plate, 20.7 kPa (3 psig) or 1.5 times design pressure, whichever is greater.
MC 330~~and MC~~, -331	The test pressure on the name plate or specification plate, 1.5 times either MAWP or the re-rated pressure, whichever is applicable. DOT Transport Tanks constructed in accordance with Part UHT in Section VIII, Division 1 of the ASME Code shall be tested at a pressure at least twice the design pressure.~~1.5 times either MAWP or the re-rated pressure, whichever is applicable~~
MC 338	The test pressure on the name plate or specification plate, 1.25 times either MAWP or the re-rated pressure, whichever is applicable.

DOT 406	The test pressure on the name plate or specification plate, 34.5 kPa (5 psig) or 1.5 times the MAWP, whichever is greater.
DOT 407	The test pressure on the name plate or specification plate, 275.8 kPa (40 psig) or 1.5 times the MAWP, whichever is greater.
DOT 412	The test pressure on the name plate or specification plate, 1.5 times the MAWP, whichever is greater.

~~Note: DOT Transport Tanks constructed in accordance with Part UHT in Section VIII, Division I of the ASME Code shall be tested at a pressure at least twice the transport tank design pressure.~~

b) Pneumatic Test

A pneumatic test may be conducted in accordance with the requirements of the original code of construction and the regulations of the Competent Authority at pressures established in Table 6.16-a~~8~~. Concurrence of the owner shall be obtained in addition to that of the Inspector and the Competent Authority, where required. Precautionary requirements of the original code of construction and NBIC Part 2, S6.13.6.1(c) shall be followed.

S6.16.2 PRESSURE TEST METHODS APPLICABLE TO ALTERATIONS AND MODIFICATIONS

a) Liquid Pressure Test

Liquid pressure testing of alterations and modifications to DOT Transport Tanks shall comply with NBIC Part 3, 4.4.2(a) and the following requirements:

1) Liquid pressure tests shall be conducted in accordance with the requirements of the original code of construction and the regulations of the Competent Authority at pressures established in Table S6.16-b. When the original test pressure included consideration of corrosion allowance, the test pressure may be further adjusted based on the remaining corrosion allowance;

TABLE S6.16-b
TEST PRESSURE REQUIREMENTS FOR ALTERATIONS AND MODIFICATIONS PER 49CFR180.413 AND THE APPLICABLE DOT TRANSPORT TANK SPECIFICATION

Transport Tank Specification	Test Pressure
MC 300, 301, 302, 303, 305, 306	The test pressure on the name plate or specification plate, 20.7 kPa (3 psig) or design pressure, whichever is greater.
MC 304, 307	The test pressure on the name plate or specification plate, 275.8 kPa (40 psig) or 1.5 times design pressure, whichever is greater.
MC 310, 311, 312	The test pressure on the name plate or specification plate, 20.7 kPa (3 psig) or 1.5 times design pressure, whichever is greater.
MC 330, 331	The test pressure on the name plate or specification plate, 1.5 times either MAWP or the re-rated pressure, whichever is applicable. DOT Transport Tanks constructed in accordance with Part UHT in Section VIII, Division I of the ASME Code shall be tested at a pressure at least twice the design pressure.
MC 338	The test pressure on the name plate or specification plate or 1.5 times the design pressure, plus static head of lading, plus 101.3 kPa (14.7 psi) if subjected

	to external vacuum. DOT Transport Tanks constructed in accordance with Part UHT in Section VIII, Division 1 of the ASME Code shall be tested at a pressure at least twice the design pressure.
DOT 406	The test pressure on the name plate or specification plate, 34.5 kPa (5 psig) or 1.5 times the MAWP, whichever is greater.
DOT 407	The test pressure on the name plate or specification plate, 275.8 kPa (40 psig) or 1.5 times the MAWP, whichever is greater.
DOT 412	The test pressure on the name plate or specification plate, 1.5 times the MAWP, whichever is greater.

c) Pneumatic Test

A pneumatic test may be conducted in accordance with the requirements of the original code of construction and the regulations of the Competent Authority at pressures established in Table 6.16-b. Concurrence of the owner shall be obtained in addition to that of the Inspector and the Competent Authority, where required. Precautionary requirements of the original code of construction and NBIC Part 2, S6.13.6.1(c) shall be followed.

S6.174 ACCEPTANCE INSPECTION

The Inspector making the acceptance inspection shall be the same Inspector who authorized the repairs, alterations, or modifications. Where this is not possible or ~~practical~~ practicable, another Inspector may perform the acceptance inspection; however, in all cases, the Inspector who performs the acceptance inspection shall be an employee of the same organization as the Inspector who authorized the repairs, alterations, or modifications.

S6.185 GENERAL STAMPING REQUIREMENTS

The stamping of or attaching of a nameplate to a pressure-retaining item shall indicate that the work was performed in accordance with the requirements of this code and any requirements of the Competent Authority. Such stamping or attaching of a nameplate shall be done only with the knowledge and authorization of the Inspector ~~and Competent Authority~~. The "R" Certificate Holder responsible for the repair or the construction portion of the modification/alteration shall apply the stamping. For a re-rating where no physical changes are made to the pressure-retaining item, the "R" Certificate Holder responsible for the design shall apply the stamping. Requirements for stamping and nameplate information are shown in NBIC Part 3, Section 5.

S6.185.1 SPECIFIC "R" STAMPING AND NAMEPLATE REQUIREMENTS

The holder of a "R" *Certificate of Authorization* is required to affix a stamping or nameplate on the Transport Tank that indicates, the repair, alteration, or modification has been performed in accordance with the requirements of NBIC Part 3, Supplement 6 and the additional requirements of the code of construction. All repairs, alterations, and modifications, after acceptance by the ~~Registered~~ Inspector, shall have the "R" Symbol affixed to the stamping or the nameplate. The stamping or nameplate information shall satisfy the requirements of ~~a) thru g) below~~NBIC Part 3, 5.7.~~:~~

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

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

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

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

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

f) The non-embossed Code Symbol stamping, when directly applied on the item or when a nameplate is used shall be applied adjacent to the original manufacturer's stamping or nameplate. A single repair stamping or nameplate may be used for additional activities performed, provided the repair activity is carried out by the same "R" Certificate Holder;

g) The date of each repair, alteration, or modification corresponding with the date on the applicable "R" form shall be applied to the exiting stamping or nameplate.

S6.185.2 REMOVAL OF ORIGINAL STAMPING OR NAMEPLATE

Removal of the original stamping or nameplate shall comply with the requirements of NBIC Part 3, 5.11. If it becomes necessary to remove the original stamping, the Inspector shall, subject to the approval of the Competent Authority, witness the making of a facsimile of the stamping, the obliteration of the old stamping, and the transfer of the stamping. When the stamping is on a nameplate, the Inspector shall witness the transfer of the nameplate to the new location. Any relocation shall be described on the applicable NBIC "R" Form. The restamping or replacement of a code symbol stamp shall be performed only as permitted by the governing code of construction.

S6.18.3 REPLACEMENT OF STAMPING OR NAMEPLATE

Replacement of indistinct stamping or lost, illegible, or detached nameplates shall comply with the requirements provided in NBIC Part 2, 5.2.

S6.196 FORM "R" REPORTS"R" FORMS

S6.196.1 DOCUMENTATION OF FORM "R" REPORTS

Repairs, alterations, or modifications that have been performed in accordance with the NBIC shall be documented on Form R-1, *Report of Repair* or Form R-2, *Report of Alteration* as shown in NBIC Part 3, Section 5. Form R-4, *Report Supplementary Sheet*, shall be used to record additional data when space is insufficient on Form R-1 or R-2.

S6.196.2 PREPARATION OF FORM "R" FORMSREPORTS

Preparation of "R" Forms shall be the responsibility of the "R" Certificate Holder performing the repairs, alterations, or modifications and shall comply with the requirements provided in NBIC Part 3, 5.2.1, 5.2.2 and 5.2.4. An Inspector shall indicate acceptance by signing the appropriate "R" form.

S6.19416.3 DISTRIBUTION OF FORM "R" REPORTS

Distribution of Form "R" Reports shall comply with the requirements provided in NBIC Part 3, 5.3 and 5.4

~~a) Legible copies of the completed "R" forms together with attachments shall be distributed to the owner or user, the Inspector, the Competent Authority as required, the Authorized Inspection Agency responsible for the inspection, and the National Board forregistration.~~

~~b) Distribution of the "R" forms and attachments shall be the responsibility of the "R" Certificate Holder per- forming the work.~~

S6.1916.4 REGISTRATION OF FORM ~~R-1 AND FORM R-2~~"R" REPORTS

a) ~~Organizations~~ Repair organizations performing repairs, alterations, or modifications required by this supplement shall ~~register such repairs, alterations, or modifications with the National Board.~~ submit the completed "R" Form, meeting the requirements of the NBIC, to the National Board.

b) The repair organization shall maintain a sequential Form ~~"R"~~Registration Log ~~Log that shall identify the following:~~ as described in Part 3, 5.6.

~~1) Form number assigned for Form R-1;~~

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

~~3) When the repair, alteration, or modification was completed, and~~

~~4) Date sent to the National Board.~~

~~S6.17 ADDITIONAL REQUIREMENTS FOR REPAIRS, ALTERATIONS, OR MODIFICATIONS~~

~~S6.17.1 SCOPE~~

~~This section provides additional requirements for repairs, alterations, or modifications to DOT Transport Tank pressure-retaining items and shall be used in conjunction with NBIC Part 3.~~

~~S6.17.2 REPAIRS OF DEFECTS~~

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

~~S6.17.3 MODIFICATIONS~~

~~All modifications to the pressure-retaining item shall meet the requirements of NBIC Part 3 for alterations.~~

~~S6.17.4 DRAWINGS~~

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

~~S6.17.5 AUTHORIZATION~~

~~Repairs, alterations, or modifications to a pressure-retaining item shall not be initiated without the authorization of the Inspector, who shall determine that the methods are acceptable.~~

S6.18 EXAMINATION AND TEST

The following requirements shall apply to all repairs, alterations, or modifications to DOT Transport Tank pressure-retaining items:

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

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

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

S6.18.1 METHODS

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

a) Liquid Pressure Test

Pressure testing of repairs shall meet the following requirements:

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

2) During a pressure test where the test pressure will exceed 90% of the set pressure of the pressure relief device, the device shall be removed whenever possible. If not possible, a test gag should be used using the valve manufacturer's instructions and recommendations; and

3) Hold time for the pressure test shall be a minimum of 10 minutes prior to examination by the Inspector. Where the test pressure exceeds the MAWP of the item, the test pressure shall be reduced to the MAWP for close examination by the Inspector. Hold time for close examination shall be as necessary for the Inspector to conduct the examination.

b) Pneumatic Test

A pneumatic test may be conducted. Concurrence of the owner shall be obtained in addition to that of the Inspector and the Competent Authority where required. The test pressure shall be the minimum required to verify leak tightness integrity of the repair, but shall not exceed the maximum pneumatic test pressure of the original code of construction. Precautionary requirements of the original code of construction shall be followed.

c) Nondestructive Examination

Nondestructive examination (NDE) may be conducted. NDE methods shall be suitable for providing meaningful results to verify the integrity of the repair.

S6.19 REPAIRS, ALTERATIONS, OR MODIFICATION REPORTS

a) When repairs, alterations, or modifications are performed on a transport tank, i.e., cargo tank, portable tank, or ton tank, the owner or User shall have the activity performed by a Repair Organization that has a valid "R" *Certificate of Authorization* issued by the National Board. "R" forms shall be completed and certified by the "R" Certificate Holder and received and certified by the Inspector.

b) For the purposes of documentation and stamping, modification shall be considered an alteration.

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

PROPOSED REVISION OR ADDITION

Item No. 21-82
Subject/Title Examples of Repairs
NBIC Location Part: Repairs and Alterations; Section: 3; Paragraphs: 3.3.3 (r) / (s)
Project Manager and Task Group PM – Paul M. Davis - TG Robert Underwood, Philip Miller
Source (Name/email) Paul Davis; paul.davis22@woodplc.com
Statement of Need Adding "weld repair" to 3.3. r) and adding new sentence (new 3.3.3 s) would address the use of similar or different weld consumables for welded repairs.
Background Information We have had some recent questions from repair firms about using different weld metal when performing repairs of pressure retaining items. The NBIC **does not directly address use of weld metal** that has a different composition than the original material. Paragraph 3.3.3(r) addresses "repair or replacement of pressure parts" which, if modified to read "weld repair". would cover the weld metal of similar composition and strength equivalent to that used in the original design. This proposal then adds a new sentence that addresses the use of a weld metal of a different composition and equal to or greater in strength. Also, references in the Code to original 3.3.3 s) will need to be updated to 3.3.3 t),

Existing Text – 3.3.3	**Proposed Text – 3.3.3**
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**.**	**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**.**
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;	**s)** **The repair of a pressure part with a filler metal of a different nominal composition equal to or greater in strength from that used on the original material and is suitable for the intended service.** **t)** 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; u) 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; v) 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 Manufacturer's Data Report (MDR) or Original Equipment Manufacturer's (OEM) drawing; 4) The addition or repair of load bearing attachments (e.g., welded supports or lifting lugs) to the endplates; and 5) Replacement of parts bearing certification or manufacturer's stamping with no-change in material allowed as described on the MDR or verifiable OEM drawing. **Editor Notes:** **1. Make the following reference changes:** **A. 3.3.3 g) – change 3.3.3 s) to 3.3.3 t)** **B. 3.3.3 j) 2) – change 3.3.3 s) to 3.3.3 t)**

	VOTE						
Committee	**Approved**	**Disapproved**	**Abstained**	**Not Voting**	**Passed**	**Failed**	**Date**

Item 22-12: Lost or Destroyed UDS (Part 3, 3.3.5.2 & 3.4.5.1)

Explanation of Need: To provide the ability to repair/alter these vessels with a reconstructed UDS.

Background Information: This addition is based on the comments received at the task group level for Interpretation 21-60.

Proposed Changes:

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. The certifying requirement may be waived for ASME Section VIII, Division 2, Class 1 vessels that did not require the Manufacturer's Design Report to be certified during initial construction.

If the User's Design Specification (UDS) is lost or destroyed, the ASME nameplate~~,~~ and the applicable ASME Section VIII, Division 2 and 3 ~~forms~~Manufacturer's Data Reports, ~~and~~ Partial Data Reports, and/or the Manufacturer's Design Report shall be used to reconstruct the User's Design Specification ~~such as Form A-1 Manufacture's Data Report, Form A-2 Manufacturer's Partial Data Report for Section VIII, Division 2 vessels or Manufacturer's Data Reports for Section VIII, Division 3~~. The reconstructed UDS shall meet the requirements and be certified in accordance with the latest edition of ~~of~~ ASME Section VIII, Division 2 or Division 3.

~~**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.

3.4.5.1 ALTERATION PLAN

a) Engineer Review and Certification

The alteration 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 alteration is compatible with the User's Design Specification and the Manufacturer's Design Report.

Provided that the alteration does not introduce a condition that would require an engineer to sign the Manufacturer's Design Report for ASME Section VIII, Division 2, Class 1 vessels, the certifying requirement may be waived for vessels that did not require the Manufacturer's Design Report to be certified during initial construction.

If the User's Design Specification (UDS) is lost or destroyed, the ASME nameplate~~,~~ and the applicable ASME Section VIII, Division 2 and 3 ~~forms~~Manufacturer's Data Report, Partial Data Reports, and/or the Manufacturer's Design Report shall be used to reconstruct the User's Design Specification ~~such as Form A-1 Manufacture's Data Report, Form A-2 Manufacturer's Partial Data Report for Section VIII, Division 2 vessels or Manufacturer's Data Reports for Section VIII, Division 3~~. The reconstructed UDS shall meet the requirements and be certified in accordance with the latest edition of ASME Section VIII, Division 2 or Division 3.

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

1.3.2

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, verify the stamping or nameplate is correct and the nameplate has been properly attached where applicable, and that the other functions necessary to ensure compliance with the requirements of this code have been satisfactorily performed.

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

5.2 DOCUMENTATION

a) Repairs that have been performed in accordance with the NBIC shall be documented on a Form R-1, *Report of Repair*, as shown in Supplement S9.2. A Form R-4, *Report Supplement Sheet*, as shown in Supplement S9.5, shall be used as needed to record additional data when the space provided on Form R-1 is not sufficient.

b) Alterations performed in accordance with the NBIC shall be documented on a Form R-2, *Report of Alteration*, as shown in Supplement S9.3. A Form R-4, *Report Supplement Sheet*, as shown in Supplement S9.5, shall be used as needed to record additional data when the space provided on Form R-2 is not sufficient.

c) Form R reports shall not be certified until all applicable requirements of the NBIC, including the stamping requirements of 5.7, have been met.

d) The organization performing repairs and alterations shall retain a copy of the completed Form “R” Report on file and all records and documentation substantiating the summary of work as described throughout Section 5, and as identified in the “R” Certificate Holder’s Quality System Manual.

3.3.4.8 REPAIR OF PRESSURE-RETAINING ITEMS WITHOUT COMPLETE REMOVAL OF DEFECTS

a) There may be cases where removal of a defect in a pressure-retaining item is not practical at the time the defect is found. In such cases, with approval of the Inspector and, when required, the Jurisdiction, an engineering evaluation shall be performed to determine the scope of the repair and impact to safety prior to returning the pressure-retaining item to service for a specified period of time. The engineering evaluation shall be performed by an organization with demonstrated competency in defect (and flaw) characterization of pressure-retaining items. The method of defect evaluation and time interval for returning the pressure-retaining item back to service shall be as agreed upon by the Inspector, and when required, the Jurisdiction. The specified period of time the defect can remain in service after weld repair shall be based on no ~~measureable~~measurable defect growth during subsequent inspections, or a period of time as specified by the Jurisdiction, if applicable. This repair method is not permitted for vessels used in lethal service, vessels designed for high-cycle operation or fatigue service, compressed air storage, and in cases where high stress concentration cannot be reduced by weld repair. This repair method is not permitted for DOT vessels.

b) One or more fitness-for-service engineering evaluation methods as described in NBIC Part 2, 4.4 shall be used to determine whether the defect may remain, either in part or in whole, in the pressure-retaining item. If it is determined that the defect can remain in the item, a risk-based inspection program shall be developed as described in NBIC Part 2, 4.5 to assure inspection of the defect and monitoring of defect growth over time. This program shall be a controlled and documented inspection program that specifies inspection intervals as agreed upon with the Inspector and, when required, the Jurisdiction, and shall be maintained until the defect can be completely removed and the item repaired.

c) The following requirements shall apply to the weld repair of pressure-retaining items without complete removal of defects:

1) Engineering evaluation of the defect in the pressure-retaining item shall be conducted using one or more fitness-for-service condition assessment method(s) as described in NBIC Part 2, 4.4. Engineering evaluation of the condition assessment results shall be performed by an organization that has demonstrated industry experience in evaluating pressure-retaining items, if the fitness-for-service engineering evaluation requires finite element analysis (FEA), the requirements in NBIC Part 2, 4.6 and NBIC Part 2, Supplement 11 shall be met.

2) If engineering evaluation indicates a defect can remain in the pressure-retaining item, a risk-based inspection program shall be developed and implemented based on review and acceptance by the Inspector and, when required, the Jurisdiction. The risk-based inspection program shall be in accordance with the requirements in NBIC, Part 2 4.4.

3) The fitness-for-service condition assessment and risk-based inspection programs shall remain in effect for the pressure-retaining item until such time that the defect can be completely removed and the item repaired. The fitness-for-service condition assessment method, results of assessment, and method of weld repair, if applicable, shall be documented on a Report of Fitness for Service Assessment (FFSA) Form as described in NBIC Part 2, 4.4.1 and shall be filed with the Jurisdiction, when required.

4) When weld repairs are performed without complete removal of the defect(s), this shall be noted on the Form R-1 in the description of the work. The “R” Stamp Holder performing the weld repairs shall provide detailed information on the Form R-1, describing the method, extent, and include the specific location of the weld repair on the item.

~~5)~~i. The interval to re-inspect or remove the item from service or perform weld repair shall be determined based on a risk-based inspection program developed and implemented as required by NBIC Part 2, 4.5. The inspection interval shall not

exceed the remaining life of the item, and shall be documented on the Form NB-403 and in the Remarks section of the Form R-1. The Form NB-403 shall be affixed to the Form R-1. A National Board Commissioned Inspector holding an "R" endorsement as described in NB-263, RCI-1 shall sign both the Form R-1 and the attached Form NB-403.

~~6)~~ii. A copy of the completed Form R-1 with the completed Form NB-403 attached may be registered with the National Board, and when required, filed with the Jurisdiction where the item was installed.

PROPOSED INTERPRETATION

Item No.

22-36

Subject/Title

Use of Code case 2787 in Repairs

Project Manager and Task Group

Source (Name/Email)

Alfred Donaldson / alfred.donaldson@bakerhughes.com

Statement of Need

Code Case 2787 was approved by ASME to allow a manufacturer to develop valves that will work on multimedia applications without any required adjustments. These valves may have different components and will have multiple certified capacities. As these valves are entering the marketplace, some customers are requesting that their existing valves get converted to the multimedia type valves. This request would allow the NBIC Committee to adopt the Code Case for use in the VR program in accordance with NBIC Part 4.2.2 and allow the VR holder to convert a valve to a multimedia design that has more than one certified capacity on the valve nameplate.

Background Information

This is a Part 4 issue but the system only shows Part 1 & 2

Proposed Question

Under the provisions of paragraph 4.2.2, where it is stated "ASME Code Cases may be used when they have been accepted for use by the NBIC Committee and the Jurisdiction where the pressure-retaining item is installed," is it permissible to perform a conversion and apply ASME Code Case 2787?

Proposed Reply

Proposed Reply: Yes, provided that the Jurisdiction accepts ASME Code Case 2787 and the “VR” Certificate Holder verifies that: 1. All of the requirements of ASME Code Case 2787 are met, and 2. That manufacturer's instructions and all of the requirements of the NBIC concerning conversions are met, and all certified capacities are marked on the repair nameplate.

Committee's Question 1

Committee's Reply 1

Rationale

Committee's Question 2

Committee's Reply 2

Rationale

ITEM 21-18 Proposal 1/10/23

4.6.4 PRESSURE TEST OF PARTS

a) Parts, used in repaired valves, that are required to be pressure tested by the original code of construction, shall be pressure tested and documentation provided according to the following categories:

1) Replacement Parts

The “VR” Certificate Holder is responsible for documentation that the appropriate pressure test has been completed. ~~, as required by the original code of construction.~~

2) Parts Repaired by Welding

These parts shall be subjected to ~~a~~the required pressure test ~~required by the original code of construction~~. The “VR” Certificate Holder shall be responsible for documentation of such test.

b) Parts repaired by re-machining within part specification, lapping, or polishing do not require a pressure test.

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ITEM 22-34 12/1/22

S6.3 NUCLEAR SAFETY RELATED VALVE GROUPS

These rules classify nuclear safety related pressure relief valves into three groups based upon the original code of construction and capacity certification status.

Group 1: ASME ~~Section I and Section VIII~~"V" and "UV" designated pressure relief valves accepted by the Jurisdiction for use in nuclear safety related service with National Board capacity certification.

Group 2: ASME ~~Section III~~ "NV" ~~stamped~~ designated Class 1, 2, or 3 pressure relief valves with National Board capacity certification.

Group 3: Pressure relief valves not addressed in Group 1 or Group 2. This group shall include pressure relief valves without National Board capacity certification and/or pressure relief valves constructed to codes or standards other than ASME (see NBIC Part 3, Category 3).

The term pressure relief valve includes power actuated pressure relief valves. Replacement of rupture disks in rupture disk holders or in systems is not considered a repair activity under the scope of this supplement.

S6.5 GENERAL RULES

e) When an ASME "V", "UV" or "NV" ~~stamped~~ designated pressure relief device requires a duplicate nameplate because the original nameplate is illegible or missing, it may be applied using the procedures of NBIC Part 4, 4.7.4 provided concurrence is obtained from the Authorized Nuclear Inspector and Jurisdiction. In this case the nameplate shall be marked "~~SEC. I~~V", "~~SEC. III~~NV", or "~~SEC. VIII~~UV" to indicate original ASME Code stamping or designator.

ITEM 22-35 1/10/23

4.6.2 OWNER-USER ~~ASME CODE SECTION VIII STEAM~~ TESTING OF ASME "UV" DESIGNATED STEAM SERVICE VALVES

When ASME ~~Code Section VIII~~ "UV" designated valves are repaired by the owner for the owner's own use, valves for steam service may be tested on air for set pressure and, if possible, blowdown adjustment, provided the valve manufacturer's corrections for differential in set pressure between steam and air are applied to determine the test pressure as follows:

Staff editorial note: Table of Contents will need to be updated

The B2 committee is in process of systematically updating all published SWPS's to bring them in line with the advancements realized by the Welding Community over the last 20 years..

To date. The status of that effort is;

B2.1-1-001: 2020	B2.1-1-201: 2019	B2.1-8-215: 2022	B2.1-1/8-229: 2023
B2.1-1-002: 2020	B2.1-1-202: 2019	B2.1-8-216: 2022	B2.1-1/8-230: 2023
B2.1-1-016: 2018	B2.1-1-203: 2019	B2.1-4-217: 2021	B2.1-1/8-231: 2023
B2.1-1-017: 2018	B2.1-1-204: 2019	B2.1-4-218: 2021	B2.1-1-232: 2020
B2.1-1-018: 2021	B2.1-1-205: 2019	B2.1-4-219: 2021	B2.1-1-233: 2020
B2.1-1-019: 2018	B2.1-1-206: 2019	B2.1-4-220: 2021	B2.1-1-234: 2021
B2.1-1-020: 2018	B2.1-1-207: 2019	B2.1-4-221: 2021	B2.1-1-235: 2021
B2.1-1-021: 2018	B2.1-1-208: 2019	B2.1-5A-222: 2021	
B2.1-1-022: 2018	B2.1-1-209: 2019	B2.1-5A-223: 2021	
B2.1-8-023: 2018	B2.1-1-210: 2022	B2.1-5A-224: 2021	
B2.1-8-024: 2022	B2.1-1-211: 2022	B2.1-5A-225: 2021	
B2.1-8-025: 2022	B2.1-8-212: 2022	B2.1-5A-226: 2021	
B2.1-1-026: 2018	B2.1-8-213: 2022	B2.1-1/8-227: 2023	
B2.1-1-027: 2018	B2.1-8-214: 2022	B2.1-1/8-228: 2023	TOTAL: 49 SWPSs

STATUS:`

2023 5 SWPSs: Updated and in the final stages of AWS Balloting with approval anticipated by 3/31/23.
2022 9 SWPSs: Updated and at the printers
2021 13 SWPSs Done.
2020 4 SWPSs Done.
2019 9 SWPSs Done.
2018 9 SWPSs Done.

The long-range plan for the updated SWPSs is to group them into the ANSI approved "Stabilized Maintenance" program" changing from the traditional ANSI 5year revision/re-affirmation cycle to a 10-year revision/re-affirmation cycle.

As in the past, as newly developed SWPS's are approved by the various committees, they will be offered to the NBIC for adoption.

The present format of Table 2.3 was updated, balloted, and approved by the NBIC in January 2021 Once the remaining 5 SWPSs are approved by the AWS and adopted by the NBIC; Table 2.3 will be updated listing the approved SWPSs in numerical order and the date (year) will be deleted.

Rationale: The use of previous versions of the listed SWPSs is permitted. Previous versions include Amended, Reaffirmed, Revised or Superseded SWPSs regardless of the publication date.

Regards,

Jim Sekely