Date Distributed:

THE NATIONAL BOARD
OF BOILER AND PRESSURE VESSEL INSPECTORS

NATIONAL BOARD INSPECTION CODE COMMITTEE

MAIN SESSION MINUTES

Meeting of July 13th, 2023
St. Louis, MO

The National Board of Boiler & Pressure Vessel Inspectors
1055 Crupper Avenue
Columbus, Ohio 43229-1183
Phone: (614)888-8320
FAX: (614)847-1828

1. **Call to Order**
   The Chair, Mr. George Galanes, called the meeting to order at 9:00 a.m. Central Time.

2. **Introduction of Members and Visitors**
   Mr. Galanes asked for those present in-person to introduce themselves, starting with the Main Committee members before moving to the visitors. He then asked the Secretary, Mr. Jonathan Ellis, to take a roll call for the online attendees. A full list of meeting attendees can be found on Attachment Page 1.

3. **Check for a Quorum**
   After the introduction of members and visitors concluded, Mr. Galanes announced that enough Main Committee members were present to establish a quorum for the meeting.

4. **Awards/Special Recognition**
   There were no awards or special recognitions for this meeting.

5. **Announcements**
   - The National Board will be hosting lunch on Thursday for those attending the Main Committee meeting. Lunch will be served from 11:30 a.m. to 12:30 p.m. in Cardinal C.
   - Representatives from the U.S. Chemical Safety Board will be giving a presentation on the Loy Lange Box Company pressure vessel explosion that occurred in 2017.
   - If you'd like to request a new Interpretation or Action item, this should be done on the National Board Business Center.
     - Anyone, member or not, can request a new item.
   - As a reminder, anyone who would like to become a member of a group or committee:
     - Should attend at least 2 meetings prior to being put on the agenda for membership consideration. The nominee will be on the agenda for voting during their 3rd meeting.
     - The nominee must submit the formal request along with their resume to the NBIC Secretary **PRIOR TO** the meeting. *nbicsecretary@nbbi.org*
     - If needed, we can also create a ballot for voting on a new member between meetings.
   - Thank you to everyone who registered online for this meeting. The online registration is very helpful for planning our reception, meals, room set up, etc. Please continue to use the online registration for each meeting. If you are here in person, and did not register, please visit the National Board website to register now. Registering will make sure we have an accurate count for the reception, breakfast, and lunch. It also is a good way to make sure we have the most up-to-date contact information.

   Mr. Galanes read through the announcements listed above. He also thanked National Board staff for their help facilitating the meetings during the week, and he thank the members and visitors for contributing to the meetings.

   Ms. Pat Becker announced an EPRI workshop for alternative weld methods that will be taking place on August 24th. Those interested in attending the workshop can visit EPRI's website or contact Ms. Becker directly.

6. **Adoption of the Agenda**
   A motion was made, seconded, and unanimously approved to adopt the agenda as presented.

7. **Approval of the Minutes of the January 2023 Meeting**
   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 January 2023 NBIC meeting.

8. U.S. Chemical Safety Board Presentation

Mr. Adam Henson and Mr. Drew Sahli gave a presentation on the 2017 Loy-Lange Box Company pressure vessel incident, investigation, and resulting recommendations. The presentation slides can be found on Attachment Page 3.

9. Items Approved for 2025 NBIC

See Attachment Page 17 for a summary of items currently approved for the 2025 NBIC edition.

10. Main Committee Task Group on Developing Rules for Additive Manufacturing Pressure Parts (Item 23-09)

a. TG Members – G. Galanes (PM), J. Siefert, B. Schaefer, W. Sperko, J. Ferreira, J. Getter, T. Seime, and M. Wadkinson.

Mr. Galanes reported that the task group is waiting on ASME action before moving forward with this item.

11. Report of Subcommittees

a. 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, J. Roberts, J. Sowinski **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.		
July 2023 Meeting Action: Mr. Jim Getter reported that the task group is still working on the 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.

July 2023 Meeting Action: Mr. Jim Getter reported that the project manager is still working on the proposal for this item.

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

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), B. Ray, and B. Williams

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.

July 2023 Meeting Action: Mr. Getter explained that the subgroup and subcommittee voted to close this item with no action, as they have not received a response from EPRI regarding a direction for this topic. A motion was made, seconded, and unanimously approved to close this item with no action.

Item Number: 21-25	NBIC Location: Part 2	Attachment Page 18

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.

July 2023 Meeting Action: Mr. Getter stated that the proposal for this item has been approved by the subgroup and subcommittee and requested that it be sent to the Main Committee as a letter ballot. Mr. Galanes approved this request.

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), J. Smith, 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.

July 2023 Meeting Action: Mr. Getter stated that the task group is still working on a 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, H. Henry, P. Gilston, B. Ray, and T. Bolden
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.

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

Item Number: 22-22	NBIC Location: Part 2, 4.2	No Attachment

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.

July 2023 Meeting Action: Mr. Getter stated that a proposal for this item will be sent to the subgroup as a letter ballot.

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.

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

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, J. Morgan, B. Wilson
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).

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

Item Number: 23-08	NBIC Location: Part 2	No Attachment

General Description: Part 2 task group to review Part 3 Item 21-67

Subgroup: Inspection
Task Group: M. Horbaczewski (PM), J. Clark, B. Wilson, J. Mangas, P. Polick, H. Henry, P. Gilston, B. Ray, T. Bolden, T. LeBeau, and A. Triplett
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 21-67.

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

iii. New Items:

Item Number: 23-16	NBIC Location: Part 2	No Attachment
General Description: Part III is adding requirements for inservice inspectors for repair F/U **Subgroup:** Inspection **Task Group:** None assigned. **Submitted by:** V. Scarcella **Explanation of Need:** Part III has items pending for mechanical repairs and post repair work inspections and the SG needs to make sure we have adequate instructions for the inspector.		
July 2023 Meeting Action: Mr. Getter reported that this item was closed by both the subgroup and subcommittee because its scope is covered by existing items 22-06 and 23-08. A motion was made, seconded, and unanimously approved to close this item with no action.		

Item Number: 23-17	NBIC Location: Part 2, 2.3.6.4 and 4.4.8.7	No Attachment
General Description: Steel-loss acceptance criteria for pressure-retaining items **Subgroup:** Inspection **Task Group:** D. Graf (PM), B. Ray, J. Roberts, T. Vandini, C. Becker, J. Sowinski, and J. Hadley **Submitted by:** J. Hadley **Explanation of Need:** (1) Resolve inconsistencies between the 2021 NBIC's air, ammonia, LPG, and general acceptance criteria. (2) Provide screening criteria that, if met, would ensure that a pressure-retaining item also meets the conservative criteria in API 579-1/ASME FFS-1, Fitness-For-Service, 2021 edition, "ASME FFS-1", Part 3 Level 1 (brittle fracture) and either Part 4 Level 2 or Part 5 Level 1 (wall thinning). If not met, an owner/user could fall back on more complex, less conservative, ASME FFS-1 assessments. (3) Describe steel-loss screening criteria in one location within NBIC, and reference this location when needed, to facilitate future revisions. (4) Coordinate NBIC with ASME FFS-1. They have been referencing each other for some years, so coordinating them seems worthwhile.		
July 2023 Meeting Action: Mr. Getter stated that the task group is still working on a proposal for this item.		

Item Number: 23-19	NBIC Location: Part 2, S6.13.6	Attachment Page 21

General Description: DOT Transport Tank Pressure Testing (Part 2, Supplement 6)

Subgroup: Inspection
Task Group: None assigned.
Submitted by: R. Underwood

Explanation of Need: The table in 49CFR180.407(g)(1)(iv) appears to have been revised at some point to add "The test pressure on the nameplate or specification plate" to the beginning of each specification pressure test requirement. Table S6.13.6 needs to be revised to reflect the current DOT requirements.

July 2023 Meeting Action: Mr. Getter presented the proposal for this item. Mr. Bob Underwood also gave some explanation on why this change is being made: to keep up to date with DOT requirements. A motion was made, seconded, and unanimously approved to accept the proposal as presented.

Item Number: 23-26	NBIC Location: Part 2	No Attachment

General Description: Adding verbiage in Part 2 to mention a time limit on tube plugs in vessels

Subgroup: Inspection
Task Group: M. Horbaczewski (PM), J. Clark, B. Wilson, J. Mangas, P. Polick, H. Henry, P. Gilston, B. Ray, T. Bolden, T. LeBeau, and A. Triplett
Submitted by: K. Moore

Explanation of Need: Part 3 is currently revamping 3.3.4.9. We feel like there should be a statement in the NBIC that the Chief or the in-service Inspector can address the operational issues and concerns of plugged tubes.

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

Item Number: 23-27	NBIC Location: Part 2, 1.5.1	No Attachment

General Description: Addition of requirement for Inspector to be present for inspections.

Subgroup: Inspection
Task Group: V. Newton (PM), V. Scarcella, T. Bolden, J. Morgan, J. Smith, T. Barker, C. Becker, C. Hartford
Submitted by: D. Kinney

Explanation of Need: While it has always been standard industry practice for inspections to be performed in-person, and there are requirements for remote inspection, currently there is no language in Part 2 or RCI-1 requiring the Inspector to be present at the location of installation while performing an inspection. This requirement is implied, but not stated.

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

Item Number: 23-28	NBIC Location: Part 2, 5.3.3	No Attachment

General Description: Revision to NB-136

Subgroup: Inspection
Task Group: J. Clark (PM), D. Graf, J. Petersen, J. Smith
Submitted by: D. Kinney

Explanation of Need: For Line #3, "R" should be added, and should match Line #13.
For Line #13, when filling out the form, there is confusion between Owner or User, and Owner-User. These are two different terms defined in the NBIC. I believe the intention is to use "Owner or User" and not "Owner-User, and this should be clarified on the form.

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

Item Number: 23-30	NBIC Location: Part 2, S7. 10 and Table S9.4	Attachment Page 23

General Description: References to change of service for LPG vessels incorrectly use "altered"

Subgroup: Inspection
Task Group: None assigned.
Submitted by: T. Vandini

Explanation of Need: Conversion of service for LPG tanks (typically from above ground to underground service) typically involves changes to the vessel covered under Part 3, Paragraph 3.3.3 and, as such, are considered repairs. As such, the language referring to these conversions that uses the word "altered" or "alteration" may be confusing to an inspector or other user of NBIC. I suggest changing the word "altered" to "converted" and removing the specific reference to "alterations".

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

Item Number: 23-37	NBIC Location: Part 2, 1.4	No Attachment

General Description: Add comment to further define responsibility of the owner user

Subgroup: Inspection
Task Group: V. Scarcella (PM), J. Smith, J. Mangas, T. Barker
Submitted by: V. Scarcella

Explanation of Need: Specifically, if the inspector is going to a location where for instance H2S of some harmful pathogen is being handled, those locations have and should provide safety training and equipment needed to complete the inspection. For internals this is already touched on in 1.5.3. "Requirements of occupational safety and health regulations (i.e., federal, state, local, or other), as well as the owner-user's own program and the safety program of the Inspector's employer are applicable."

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

Item Number: 23-42	NBIC Location: Part 2, 1.4 a)	No Attachment
General Description: Change for consistency **Subgroup:** Inspection **Task Group:** None assigned. **Submitted by:** L. Ponce **Explanation of Need:** Inconsistencies add confusion and increase liabilities of all parties.		
July 2023 Meeting Action: Mr. Getter stated that this item was withdrawn by the requestor and was therefore closed by both the subgroup and subcommittee. A motion was made, seconded, and unanimously approved to close this item with no action.		

b. Subcommittee Repairs & Alterations

i. New Interpretation Requests:

Item Number: I23-10	NBIC Location: Part 3, 3.3.4.6 and 3.4.3	Attachment Page 24
General Description: Seamless Head Flush Patch - Repair vs Alteration **Subgroup:** Repairs and Alterations **Task Group:** B. Boseo (PM), L. Dutra, B. Schaefer **Explanation of Need:** Is the use of a flush patch on the center portion of a seamless head of an ASME Sect. VIII Div. 1 vessel considered a repair or alteration per the 2011 NBIC? **July 2023 Meeting Action:** Mr. Seime presented the proposal for this item. A motion was made and seconded to approve the proposal as presented. This motion was unanimously approved.		

Item Number: I23-11	NBIC Location: Part 3, 5.1 and 5.11	Attachment Page 25

General Description: Correcting duplicate nameplate that is not affixed to directly the vessel

Subgroup: Repairs and Alterations

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

Explanation of Need: Part 3 seems to contain no method for correcting errors on a name plate. Section 5 is not clear on what requirements apply to a duplicate name plate when the actual name plate is still affixed to the vessel and hidden under insulation. Since the duplicate name plate is not the actual name plate and is not affixed directly to the ASME pressure vessel, an R stamp holder should not be required to correct or replace a duplicate name plate. If a duplicate name plate were welded directly to the vessel, one could argue that Part 3 applies since interaction with the vessel could be required.

July 2023 Meeting Action: Mr. Seime presented the proposal for this item. The Task Group and Subcommittee R&A determined that this question is more appropriate for ASME CA-1. A motion was made, seconded, and unanimously approved to close this item and send a letter to the inquirer stating that they should contact CA-1.

Item Number: I23-15	NBIC Location: Part 3, 3.3.2	Attachment Page 28

General Description: Routine Repairs Using Parts With Different Nominal Composition

Subgroup: Repairs and Alterations

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

Explanation of Need: As written, Paragraph 3.3.2 implies that routine repairs require repair or replacement with "like material"...as in 3.3.3 r). This is supported by Interpretation 01-19. Allowing "material upgrades"...as in 3.3.3 s)...will reduce costs and labor associated with the growing number of repairs requiring in-process inspection and stamping due solely to material availability.

July 2023 Meeting Action: Mr. Seime presented the proposal for this item. A motion was made and seconded to approve the proposal as presented. Ms. Moore noted that there was one Disapproval vote at the subcommittee level, which was shared during the Main Committee meeting. No further discussion was held, and the motion was unanimously approved.

Item Number: I23-20	NBIC Location: Part 3, 3.3.4.8	Attachment Page 31

General Description: Boiler tube plug installation time consideration

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.

July 2023 Meeting Action: Mr. Seime presented the proposal for this item. A motion was made and seconded to approve the proposal as presented. This motion was unanimously approved.

Item Number: I23-47	NBIC Location: Part 3, 3.4.4 d)	Attachment Page 34

General Description: Interpretation of Alteration for dimensional change.

Subgroup: Repairs and Alterations

Task Group: None assigned.

Explanation of Need: The inquirer is looking to change a vessel nozzle flange from 150# to 300# to allow them to increase the torque value to reduce flange leaks that have been occurring.

July 2023 Meeting Action: Mr. Seime presented the proposal for this item. A motion was made and seconded to close this item and send a letter to the inquirer stating that this is consulting (see terry's notes for the letter). This motion was unanimously approved.

Item Number: I23-48	NBIC Location: Part 3, 3.3.2	Attachment Page 37

General Description: Plugging of tube hole without welding.

Subgroup: Repairs and Alterations

Task Group: None assigned.

Explanation of Need: An Air-Cooled Heat Exchanger where the tube was expanded to the tube sheet needs to be repaired due to a tube leak. The repair will be done by plugging without removing the tube from the tube sheet. Is this considered a Routine Repair?

July 2023 Meeting Action: Mr. Seime presented the proposal for this item. A motion was made and seconded to close this item and send a letter to the inquirer stating that their question is outside the scope of NBIC Part 3. Mr. Brent Ray asked if it would be appropriate to refer the inquirer to ASME PCC-2; Mr. Galanes stated that this could be done in the letter sent to the inquirer. No further discussion was held, and the motion was unanimously approved.

ii. Action Items – Old Business

TG Graphite Items:
Ms. Moore asked Mr. Aaron Viet, Chair of Task Group Graphite, to speak about the Group's 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)

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

Item Number: 19-73	NBIC Location: Part 3, S3	Attachment Page 40

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.

July 2023 Meeting Action: Mr. Viet presented the proposal for this item. It will be sent to Main Committee as a letter ballot.

Item Number: A23-43 **NBIC Location: Part 3, S3.3 a)** **Attachment Page 43**

General Description: Gasket surface repair

Subgroup: Graphite

Task Group: A. Viet (PM)

Explanation of Need: Occasionally, minor damage can occur along the gasket surface on parts of a graphite pressure vessel. Currently, repairing these minor damages is not a routine repair, but in certain instances it would make sense for the repair to be considered routine. This proposal adds language to allow for cement-only repair of a gasket surface where the damage is no more than 3/16" deep to be considered a routine repair.

TG Graphite April 2023 Meeting Action: During the Task Group's meeting, they determined that performing a cement-only repair to a damaged gasket surface on a graphite pressure vessel could be considered a routine repair, if the depth of the damage did not exceed 3/16". This proposed change was unanimously approved by the group.

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

Item Number: A23-44 **NBIC Location: Part 3, S3.5.4** **Attachment Page 44**

General Description: Revision to Part 3, S3.5.4 m) to clarify requirements

Subgroup: Graphite

Task Group: F. Brown (PM)

Explanation of Need: Task Group discussion noted that S3.5.4 m) applies to all of S3.5.4, not only to the tube plugging proposal in S3.5.4 f). The TG agreed that the existing language in S3.5.4 f) 3) is not sufficiently specific where it says: "The "R" Certificate Holder shall note on Line 8 of the R-1 Form the installation of cemented graphite tube plugs in accordance with this section." ("this section" is ambiguous).

TG Graphite April 2023 Meeting Action: The Task Group worked on Mr. Brown's proposal for changing S3.5.4 m) to specifically say that "R" stamp holders without the G designator would need to specify on Form R-1 that they are using the provisions of S3.5.4 f). This proposal was unanimously approved by the Task Group.

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

Item Number: A23-45	NBIC Location: Part 3, S3.3	No Attachment

General Description: Graphite plate replacement as Routine repair

Subgroup: Graphite

Task Group: J. Wince (PM)

Explanation of Need: In many cases, replacing a plate in a graphite plate heat exchanger is something that can be considered routine, but it is not currently defined as such. This proposal seeks to add this procedure to the list of routine repairs for graphite pressure vessels.

TG Graphite April 2023 Meeting Action: The Task Group worked on Mr. Wince's proposal, and then voted to unanimously approve the proposed changes.

July 2023 Meeting Action: Mr. Viet stated that the Task Group will be doing some additional work to the proposal based on feedback from Subcommittee R&A.

Item Number: A23-46	NBIC Location: Part 3, S3.3	Attachment Page 45

General Description: Requirements for Inlays as Routine repairs

Subgroup: Graphite

Task Group: J. Clements (PM)

Explanation of Need: The one cubic inch limit for inlays in S3.3 a) 6) is impractically small and "never happens". There is a need to increase this limit to something more practical while staying within the scope of a routine repair.

TG Graphite April 2023 Meeting Action: The Task Group worked on Mr. Clement's proposal, and through discussion decided on increasing the limit for inlays as a routine repair from one cubic inch to no greater than 64 cubic inches or 10% of total volume. This proposed change was unanimously approved by the Task Group.

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

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.

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

TG Locomotive Items:

There are currently no Locomotive items open for Part 3.

NR Task Group Items:

There are currently no NR Task Group items open for Part 3.

SG Repairs & Alterations Items:

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

July 2023 Meeting Action: Ms. Moore reported that the task group is still developing 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.

July 2023 Meeting Action: Ms. Moore stated that the task group is still working on a proposal 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), B. Underwood

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

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

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), B. Underwood, J. Walker, M. Wadkinson, L. Dutra

Explanation of Need: Defining de-rating within Part 3

July 2023 Meeting Action: Ms. Moore stated that the task group is still working on this item.

Item Number: 21-45	NBIC Location: Part 3, Supplements	Attachment Page 46

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.

July 2023 Meeting Action: Ms. Moore asked Mr. Underwood to report on this item. Mr. Underwood stated that there will be a letter ballot sent to Main Committee to vote on the proposed Scope for the new engineered repairs supplement. If the scope is approved, then the task group will begin working on a proposal that will move the engineered repair and alterations methods from the body of Part 3 into the proposed new supplement.

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), E. Cutlip, A. Triplett

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.

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

Item Number: 21-67	NBIC Location: Part 3, 3.4.9	Attachment Page 47

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.

July 2023 Meeting Action: Ms. Moore asked Mr. Gilston to present this item. Mr. Gilston explained the proposal and then requested that the item be sent as a letter ballot to Main Committee in order to give the Committee time to review the proposed changes.

Item Number: 21-82	NBIC Location: Part 3, 3.3.3 s)	Attachment Page 50

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)).

July 2023 Meeting Action: Mr. Underwood presented the proposal for this item. A motion was made and seconded to approve the proposal as presented. During discussion, a few editorial changes were made at the request of Mr. Scribner. The motion and second was amended to include these changes to the proposal. A vote was taken, and the motion to approve the amended proposal passed unanimously.

Item Number: 22-18	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), M. Quisenberry

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.

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

Item Number: 22-19	NBIC Location: Part 3, 5.5.2	Attachment Page 51

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.

July 2023 Meeting Action: Ms. Moore stated that the proposal for this item will be balloted to Subcommittee R&A prior to the January 2024 NBIC meeting.

Item Number: 22-41	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.

July 2023 Meeting Action: Ms. Moore reported that the task group is still 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.

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

iii. New Items:

Item Number: A23-12	NBIC Location: Part 3	No Attachment

General Description: Inspector involvement for repairs of wasted areas

Subgroup: Repairs and Alterations

Task Group: R. Valdez (PM), J. Ferreira

Explanation of Need: Based on recommendations by CSB, should an Inspector be required to physically view equipment that is being repaired in a wasted area prior to any repair/alteration activity?

July 2023 Meeting Action: Ms. Moore reported that both Subgroup and Subcommittee R&A voted unanimously to close this item with no action, as its scope is covered by RCI-1. A motion was then made and seconded to close this item with no action. A vote was taken, and the motion passed unanimously.

Item Number: A23-13	NBIC Location: Part 3, 3.3.3 s)	Attachment Page 52

General Description: Consistent addressing of the term for weld metal

Subgroup: Repairs and Alterations

Task Group: P. Gilston (PM), W. Sperko, J. Siefert, T. Melfi, F. Johnson

Explanation of Need: Item for addressing consistent addressing of the term for weld metal is being opened based on discussions on A21-82. Weld Metal vs Filler Metal vs Filler Material, etc.

July 2023 Meeting Action: Ms. Moore presented the proposal for this item and stated that it will be balloted to the other three subcommittees for approval.

Item Number: A23-14	NBIC Location: Part 3, Table S9.2	No Attachment

General Description: Extension Instructions for Reports of Repair

Subgroup: Repairs and Alterations

Task Group: M. Quisenberry (PM)

Explanation of Need: Additional text should be added to Instruction (29) of Table S9.2 of Supplement 9 (listing the "R" Cert. of Auth expiration date), to provide instructions on how to document if the "R" Cert. Holder is operating under an extension.

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

Item Number: A23-21	NBIC Location: Part 3, 3.3.4.9	No Attachment

General Description: Boiler tube plug guidelines and inclusion or watertube boilers

Subgroup: Repairs and Alterations

Task Group: E. Cutlip (PM), P. Gilston, K. Moore, A. Triplett

Explanation of Need: Currently both firetube and watertube boilers require a boiler tube be plugged when replacement of a tube is not practicable at the time the defective tube is detected.

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

Item Number: A23-22	NBIC Location: Part 3, 2.5.3.4	Attachment Page 54

General Description: Changes to Part 3, 2.5.3.4 to clarify intent

Subgroup: Repairs and Alterations

Task Group: T. White (PM), B. Schaefer

Explanation of Need: As written, this paragraph is ambiguous and confusing. The rewrite clarifies the paragraphs intent.

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

Item Number: A23-24	NBIC Location: Part 3	No Attachment

General Description: Repairs to quick actuating closures

Subgroup: Repairs and Alterations

Task Group: T. McBee (PM), C. Becker, M. Schaser, A. Khssassi, R. Smith

Explanation of Need: Put safe guidelines for repairs to quick actuating closures.

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

Item Number: A23-25	NBIC Location: Part 3, 5.11	Attachment Page 56

General Description: Name Plate replacement

Subgroup: Repairs and Alterations

Task Group: R. Valdez (PM), J. Ferreira

Explanation of Need: This does not address missing name plates. NB136 is about the form not the name plate. This needs to address missing name plates as well. There should also be a reference to point the Stamp Holder Part 2 - 5.2

July 2023 Meeting Action: Ms. Moore asked Mr. Valdez to present the proposal for this item. After the proposal was presented, a motion was made and seconded to approve the proposal. This motion passed with one abstention from Mr. Marty Toth.

Item Number: A23-29	NBIC Location: Part 3, 1.5.1 s)	No Attachment

General Description: Clarification of Intent

Subgroup: Repairs and Alterations

Task Group: A. Triplett (PM), P. Becker

Explanation of Need: The sentence is unclear as it currently reads. With the new wording it clarifies the intent.

July 2023 Meeting Action: Ms. Moore stated that the task group is still preparing a proposal for this item.

Item Number: A23-33	NBIC Location: Part 3, Table 2.3	Attachment Page 60

General Description: Update Table 2.3 to remove dates

Subgroup: Repairs and Alterations

Task Group: J. Sekely (PM)

Explanation of Need: Since the use of all current and previous versions of the listed SWPS's is permitted, there is no reason to date the listed SWPSs.

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

Item Number: A23-35	NBIC Location: All Parts, 9.1	No Attachment

General Description: Definition of "non-load bearing attachment" (All Parts)

Subgroup: Repairs and Alterations

Task Group: T. White (PM), A. Khssassi

Explanation of Need: The term "nonload bearing attachment" is used as a basis for determining a routine repair but is not defined in the NBIC.

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

Item Number: A23-36	NBIC Location: Part 3, 4.2 a) and 4.4 b)	Attachment Page 61

General Description: Clarifying Rules for Using Alternative NDE Methods

Subgroup: Repairs and Alterations

Task Group: T. White (PM), P. Miller

Explanation of Need: It has been determined that there may be some confusion regarding allowable NDE methods for repairs and alterations. The existing language of 4.2 a) tells the reader that alternative NDE methods acceptable to the Inspector and, where required, the Jurisdiction, may be used provided the requirements of Section 4 are met. However, it is possible that the reader is not familiarizing themselves with all of the requirements of Section 4 prior to proposing an alternative NDE method. This change should help clarify and reinforce the requirements for alternative NDE methods for repairs and alterations.

July 2023 Meeting Action: Ms. Moore stated that Subgroup and Subcommittee R&A voted to close this item with no action and made a motion to officially close this item. This motion was seconded, and Mr. White explained that this item is already being covered by 23-04. Mr. Scribner explained that he submitted this item to help add needed clarity to the section. After discussion, the original motion was withdrawn; the item will go back to the Subgroup for further work.

Item Number: A23-38	NBIC Location: Part 3, 1.1 a)	No Attachment

General Description: Scope Clarification for Part 3

Subgroup: Repairs and Alterations

Task Group: M. Quisenberry (PM), E. Cutlip, J. Walker

Explanation of Need: The owner or user's need to return equipment to service must never compromise the operational safety of the equipment or the process by which the operational safety of the equipment is assured. There is an interpretation that supports this notion by describing subjects permitted to be considered when determining whether a repair or alteration activity is practicable.

July 2023 Meeting Action: Ms. Moore reported that a task group has been assigned to this item to begin work on a proposal.

Item Number: A23-39	NBIC Location: Part 3, 3.3.1	No Attachment

General Description: Strengthening Prevention of Defect Recurrence

Subgroup: Repairs and Alterations

Task Group: M Quisenberry (PM), J. Walker, F. Johnson

Explanation of Need: The existing text recommends, but does not require an investigation of the cause, extent, and likelihood of recurrence of defects. The existing text also has no requirement for anyone to act to prevent the recurrence of defects. Where root and/or proximate causes of defects are known, or could be determined, someone needs to act to prevent catastrophic failure of equipment.

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

Item Number: A23-40	NBIC Location: Part 3, 3.3.4.1	No Attachment

General Description: Strengthening Requirements to Ensure Defect Removal

Subgroup: Repairs and Alterations

Task Group: L. Dutra (PM), E. Cutlip, A. Renaldo

Explanation of Need: The existing text alludes to the potential need for nondestructive examination (NDE) to ensure complete removal of defects but does not require it. The means to ensure defects have been removed must be understood by all to ensure safety. There is an interpretation of the 2021 NBIC that compounds this issue permitting repair organizations to not follow the requirements of NBIC Part 3, 3.3.4.8 even when the characteristics of the defect cannot be fully established.

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

Item Number: A23-41	NBIC Location: Part 3, 3.3.4.6 a) 2)	No Attachment

General Description: Strengthening Requirements for Defect Removal When Patching

Subgroup: Repairs and Alterations

Task Group: A. Khssassi (PM), L. Dutra, A. Renaldo

Explanation of Need: The existing text requires the removal of defective material until sound material is reached but provides no requirements or guidance on means to employ to ensure complete removal of defective material. The means to ensure defects have been removed must be understood by all to ensure safety. There is an interpretation of the 2021 NBIC that compounds this issue permitting repair organizations to not follow the requirements of NBIC Part 3, 3.3.4.8 even when the characteristics of the defect cannot be fully established.

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

Item Number: A23-49	NBIC Location: Part 3, 3.2.1 a)	No Attachment

General Description: Hardness testing of existing materials

Subgroup: Repairs and Alterations

Task Group: P. Becker (PM), W. Sperko

Explanation of Need: Field hardness testing of existing materials may be difficult and produce erroneous results. It is usually unnecessary for determining properties required for selection of welding procedures. Unless needed, it should not be required to be performed. The purpose of verifying existing materials in Paragraph 3.2.1 a) is not to confirm acceptability of existing design, but to determine nominal composition for welding.

July 2023 Meeting Action: Ms. Becker explained that the proposed change submitted for this item was not needed and that the existing code language is sufficient. No further discussion was held. A motion was made, seconded, and unanimously approved to close this item with no further action.

Item Number: A23-51	NBIC Location: Part 3, 1.5.1	Attachment Page 62

General Description: Replace "legal" with "company" in 1.5.1 a) Title Page

Subgroup: Repairs and Alterations

Task Group: T. Hellman (PM)

Explanation of Need: The National Board has not adopted the ASME policy regarding company and legal names. Per the ASME policy it is permissible to have two names on a Certificate of Authorization and the quality manual. The 2023 NBIC 1.5.1 a) "legal" term may cause confusion for certificate holders, their AIAs, and review teams.

July 2023 Meeting Action: Ms. Moore asked Mr. Hellman to present the proposal for this item. After he presented the proposal, a motion was made and seconded to approve the proposal as presented. The motion passed unanimously.

c. Subcommittee Pressure Relief Devices

i. Interpretations

Item Number: 22-36	NBIC Location: Part 4, 4.2.2	Attachment Page 63

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.

July 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: 23-34	NBIC Location: Part 4, Supp. 6	Attachment Page 64

General Description: Sealing of Nuclear Class Relief Valves

Task Group: None assigned.

Explanation of Need: Provisions in NBIC Part 4 for “test only” activities do not provide direction for the periodic testing, adjustment and sealing of nuclear class valves. As the practice of involving the ANI is not described or sealing of a nuclear class valve without ANI witnessing is not explicitly prohibited the process of testing and sealing of nuclear class valves that were not repaired needs to be clarified.

July 2023 Meeting Action: Mr. Renaldo presented the proposal for this item, and Mr. Creaser provided some additional background on the item. No further discussion was held. A motion was made, seconded, and unanimously approved to accept the proposal as presented.

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, D. Schirmer **July 2023 Meeting Action:** Mr. Renaldo reported that a proposal for this item will be balloted to Subgroup and Subcommittee Installation prior to the January 2024 NBIC meeting.		

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, J. Simms, C. Beair, C. Chernisky **July 2023 Meeting Action:** Mr. Renaldo reported that a proposal for this item will be balloted to Subcommittee PRD prior to the January 2024 NBIC meeting.		

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 **July 2023 Meeting Action:** Mr. Renaldo stated that the task group is still working on a 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. **July 2023 Meeting Action:** Mr. Renaldo reported that a proposal for this item will be sent out as a letter ballot to SG PRD.		

Item Number: 20-85	NBIC Location: Part 4, 3.2.6	Attachment Page 67

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.

July 2023 Meeting Action: Mr. Renaldo presented a proposal for this item. After the proposal was presented, a motion was made, seconded, and unanimously approved to accept the proposed changes.

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.

July 2023 Meeting Action: Mr. Renaldo stated that the task group is still working on the proposal for this item.

Item Number: 21-36	NBIC Location: Part 4, 3.3.3.4 i)	Attachment Page 70

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

Subgroup: PRD

Task Group: D. Marek (PM), A. Cox, P. Dhobi, T. Patel

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.

July 2023 Meeting Action: Mr. Renaldo presented the proposal for this item. A motion was made and seconded to approve the proposal as presented. The motion passed unanimously.

Item Number: 21-59	NBIC Location: Part 4, 3.2.6.1	Attachment Page 71

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

Subgroup: PRD
Task Group: T. Beirne (PM)

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.

July 2023 Meeting Action: Mr. Renaldo presented the proposal for this item. A motion was made and seconded to approve the proposal as presented. Mr. Schaefer asked if it was previously known that the table was only recommended. Mr. Renaldo confirmed that the section title indicates that the requirements are recommended, and that the proposed change matches the intent of the section. No further discussion occurred, and the motion was unanimously approved.

Item Number: 21-61	NBIC Location: Part 4, 3.3.4	Attachment Page 75

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.

July 2023 Meeting Action: Mr. Renaldo stated that the proposal for this item will be sent out as a letter ballot Main Committee.

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, J. Grace, D. Gonzales, T. Cardy

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.

July 2023 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.

July 2023 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).

July 2023 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	Attachment Page 78

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?

July 203 Meeting Action: Mr. Renaldo presented the proposal for this item. A motion was made and seconded to approve the proposed changes as presented. Mr. Galanes asked if the changes were approved by both Parts 1 and 4, and Mr. Renaldo and Ms. Wadkinson confirmed that they did. No further discussion occurred, and the motion was unanimously approved.

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.

July 2023 Meeting Action: Mr. Renaldo reported that the proposal is still in development for this item.

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.

July 2023 Meeting Action: Mr. Renaldo stated that the task group is still developing a proposal for this item.

iii. New Items:

Item Number: 23-18	NBIC Location: Part 4, 4.2.2	Attachment Page 80

General Description: Revision and clarification of Part 4, 4.2.2 for use of ASME Code Cases

Subgroup: PRD

Task Group: A. Donaldson (PM)

Explanation of Need: 4.2.2 requires revision to clarify how ASME Code Cases are applied in the repair and conversion of pressure relief devices. Revision is also necessary to remove the requirement that the NBIC Main Committee adopt individual ASME Code Cases before they may be used in Jurisdictions that have adopted them. The current wording does not allow conversion of a device to no-longer comply with an ASME Code Case.

July 2023 Meeting Action: Mr. Renaldo reported that a proposal for this item will be sent out for ballot to the Main Committee.

Item Number: 23-31	NBIC Location: Part 4, 3.2.5 d) 5) and Part 2, 2.5.7 d) 5)	No Attachment

General Description: Testing of liquid service valves to be water or other suitable liquid

Subgroup: PRD

Task Group: P. Dhobi (PM), K. Beise, T. Tarbay, T. Patel, H. Cornett, D. Marek

Explanation of Need: The intent is that liquid service valves be tested on liquid. The term fluid can mean either liquid or vapor.

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

Item Number: 23-32	NBIC Location: Part 4, 3.3 and Supp. 6	No Attachment

General Description: Rules for T/O activities related to Nuclear Class Valves

Subgroup: PRD

Task Group: E. Creaser (PM), P. Dhobi, D. McHugh, J. Simms

Explanation of Need: Nuclear facilities that perform repair and T/O activities would by allowing them to use T/O for nuclear class valves that were serviced but not in need of repair but need to be set and sealed again.

July 2023 Meeting Action: Mr. Renaldo announced that a task group has been assigned to this item to begin developing a proposal.

d. Subcommittee Installation

i. Interpretations

There are currently no open interpretation items for Part 1.

ii. Action Items – Old Business

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. **July 2023 Meeting Action:** Mr. Patten reported that the task group is still working on the proposal for this item.		

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, S. Konopacki, and R. Spiker. **July 2023 Meeting Action:** Mr. Patten stated that the task group is still working on a proposal for this item.		

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.		
July 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	Attachment 81
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.		
July 2023 Meeting Action: Mr. Pat Jennings presented the proposal for this item. A motion was made, seconded, and unanimously approved to accept the proposal as presented.		

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

iii. Action Items – New Business

Item Number: 23-50	NBIC Location: Part 1, 2.8.5 and 3.8.1.5	Attachment Page 84
General Description: Require separate waterside piping connections for multiple LWCO devices **Subgroup:** SG Installation **Task Group:** T. Clark (PM), T. Creacy, M. Byrum, J. Choitz, and R. Spiker **Explanation of Need:** CSD-1 CW-120 (a) and CW-140 (a) address piping connection requirements for low-water fuel cutoff devices for low-pressure and high-pressure steam boilers. Specifically, both sections require each LWCO device to have a separate piping connection on the waterside. However, NFPA 85 does not address any installation requirements for LWCO devices, potentially allowing them to be installed in an unsafe manner.		
July 2023 Meeting Action: Mr. Tom Clark presented the proposal for this item. A motion was made and seconded to approve the proposal as presented. Mr. Patten clarified that this item pertains to external devices on the boiler. The Committee took time to review the comparable CSD-1 requirements and decided that some of the wording in the proposal should be edited to match CSD-1. The motion was amended to include these revisions. Mr. Newton voiced concerns regarding a lack of clarity on whether the proposed changes would allow a common water connection to a boiler. No further discussion occurred, and the revised motion was approved. There was one disapproval vote from Mr. Newton, who provided the following reason for his disapproval vote: "My objection is based on the lack of clarity in the wording. It is not clear in the wording that we are not allowing a common water connection to the boiler. It states they cannot share the same water column, but doesn't talk about the actual connection to the boiler. This will create confusion in the field and allow for improper installations."		

Item Number: 23-52	NBIC Location: Part 1, 2.5.3.2 and 3.5.3	No Attachment

General Description: Harmonize electrical requirements for all types of boilers/water heaters

Subgroup: SG Installation

Task Group: T. Clark (PM), S. Konopacki, J. Kleiss, R. Spiker, and John Choitz

Explanation of Need: Electrical requirements for power boilers, heating boilers, and water heaters are inconsistent, particularly regarding remote emergency shutdown switches. In some cases the requirements are the same, but worded or ordered differently. In order to promote better understanding of code requirements and consistency in their application, I propose making sections 2.5.3 and 3.5.5 as uniform as possible.

July 2023 Meeting Action: Mr. Patten stated that a task group was assigned to begin working on a proposal for this item.

Item Number: 23-53	NBIC Location: Parts 1 and 2, 1.4.5.1 and 5.3.2	No Attachment

General Description: Remove "Form" from the title of the various NBIC reports.

Subgroup: SG Installation

Task Group: T. Creacy (PM), T. Clark, and R. Adams

Explanation of Need: The are many inconsistencies in the terms and titles used in the NBIC regarding the various reports used to document installation, inspection, repair, and alteration activity. For standardization, this proposal has two parts, 1) revise the I-2, NB-6, NB-7, NB-136, NB-66, NB-299 etc., report titles to delete "form", and 2) to replace "form" in the applicable areas with "report". An example of a revision to the text in the body of the NBIC is shown in the "Proposed Text".

July 2023 Meeting Action: Mr. Patten stated that Subgroup and Subcommittee Installation voted to close this item because this can be handled editorially by National Board staff. Main Committee members agreed with this suggestion. A motion was made, seconded, and unanimously approved to close this item with no action.

12. Errata for 2023 NBIC Part 2

Item Number: 23-54	**NBIC Location: Part 2, 1.5.4, 2.3.5.4, and S2.7.2**	**Attachment Page 86**
General Description: Remove Form NB-5 references in NBIC Part 2 because the form was removed from the 2023 edition **Subgroup:** Inspection **Task Group:** L. Ponce (PM) **Explanation of Need:** Form NB-5 was deleted from the 2023 NBIC alongside several updates to Form NB-6 and NB-7. However, existing references to NB-5 were not deleted from the body of 2023 NBIC Part 2. This errata item, if approved, will be published on the National Board website to help with any confusion until the references can be officially removed in the 2025 edition.		
July 2023 Meeting Action: Mr. Scribner provided details for this item and presented the proposed errata that would be published online for reference. A motion was made, seconded, and unanimously approved to authorize publishing these errata on the National Board's website, with the understanding that the highlighted references to Form NB-5 will be deleted in the 2025 NBIC edition.		

13. Liaison Activities

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

a. Mr. Scribner provided a brief update on major ASME actions from the May 2023 Code Week. A copy of his Code Week report can be found on Attachment Page 89.

ii. American Welding Society (AWS)

a. Mr. Sekely gave an update on recent AWS activities, including news on newly updated welding procedure specifications. His full report can be found on Attachment Page 157.

14. Future Meetings

i. January 8-11, 2024 – Charlotte, NC

ii. July 2024 – TBD

15. Adjournment

Mr. Galanes adjourned the meeting at 12:53 p.m. Central Time.

Respectfully submitted,

Jonathan Ellis

Jonathan Ellis
NBIC Secretary

THE NATIONAL BOARD
OF BOILER AND PRESSURE VESSEL INSPECTORS

NATIONAL BOARD INSPECTION CODE COMMITTEE

ATTACHMENTS

July 2023 NBIC Main Committee Meeting Attendance - Members

First Name	Last Name	Role	Company	Email	In-Person	Remote	Did Not Attend
George	Galanes	Chair	Diamond Technical Services	ggalanes@diamondtechnicalservices.com	x		
Melissa	Wadkinson	Vice Chair	Fulton	melissa.wadkinson@fulton.com	x		
Jonathan	Ellis	Secretary	NBBI	jellis@nbbi.org	x		
Timothy	Barker	Member	FM Global	timothy.barker@fmglobal.com	x		
Jim	Getter	Member	Worthington Industries	jim.getter@worthingtonindustries.com	x		
Craig	Hopkins	Member	Seattle Boiler Works	chopkins@seattleboiler.com		x	
Kathy	Moore	Member	Joe Moore & Co.	kathymoore@joemoorecompany.com	x		
Brian	Morelock	Member	Eastman Chemical Company	morelock@eastman.com		x	
Venus	Newton	Member	XL Insurance	venus.newton@boilerproperty.com	x		
Thakor	Patel	Member	Farris Engineering	Thakorpatel1@gmail.com		x	
Brent	Ray	Member	Marathon Petroleum	bdray@marathonpetroleum.com	x		
H. Michael	Richards	Member	LiquidMetal	Hmichaelrichards.pe@gmail.com		x	
Matt	Sansone	Member	State of New York	matthew.sansone@labor.ny.gov		x	
Ben	Schaefer	Member	AEP	bschaefer@aep.com	x		
Trevor	Seime	Member	State of North Dakota	tsseime@nd.gov	x		
Jim	Sekely	Member	Consultant	jsekely@comcast.net		x	
Tim	Simmons	Member	International Brotherhood of Boilermakers	tsimmons@boilermakers.org	x		
Marty	Toth	Member	ECS Consulting	mtoth@boiscotraininggroup.com		x	
Bob	Underwood	Member	HSB	robert_underwood@hsb.com	x		
Eddie	Wiggins	Member	State of Alabama	Edward.Wiggins@labor.alabama.gov		x	

July 2023 NBIC Main Committee Meeting Attendance - Visitors (based on pre-meeting registration)

First Name	Last Name	Blank	Company	Email	In-Person	Remote	Did Not Attend
Aaron	Viet		CG Thermal	aaronv@cgthermal.com	x		
Adam	Renaldo		Linde	adam.renaldo@linde.com	x		
Aziz	Khssassi		RÃ©gie du bÃ¢timent du QuÃ©bec	aziz.khssassi@rbq.gouv.qc.ca	x		
Bernard	Hrubala		TUV Rheinland	bhrubala@us.tuv.com	x		
Brian	Boseo		Burns & McDonnell Construction	bmboseo@burnsmcd.com	x		
Bryan	Ahee		Bradford White Corporation	bahee@bradfordwhite.com	x		
Caslav	Dinic		Technical Standards and Safety Authority - Ontario	cdinic@tssa.org			x
Clark	Turner		Calder	cturner@cpmt.com			x
Clay	Moultrie		Quality Steel Corporation	cmoultrie@propanetank.com	x		
Daniel	Marek		Mainthia Technologies Inc	daniel.t.marek@nasa.gov	x		
Darrell	Graf		Air Products & Chemicals Inc	grafdr@airproducts.com	x		
Del	Schirmer		XL Insurance / Boiler Property Consulting	del.schirmer@boilerproperty.com			x
Don	Kinney		NC Dept. of Labor- Boiler Safety Bureau	don.kinney@labor.nc.gov	x		
Donald	Patten		Bay City Boiler	dpatten@baycityboiler.com	x		
Erik	Heck		ARI-Armaturen	eheck@ari-armaturen.us			x
Greg	Goossens		The National Board	ggoossens@nbbi.org	x		
Harrington	Henry		ARISE Inc.	mitsuboyee@gmail.com			x
James	Roberts		TRIARC Tank	james.roberts@triarccorp.com			x
Jamie	Walker		Hayes Services	jdwalkman@yahoo.com	x		
Jay	Simms		Baker Hughes	jack.simms@bakerhughes.com	x		
Jeff	Kleiss		Lochinvar, LLC.	jkleiss@lochinvar.com	x		
Jodi	Metzmaier		National Board	jmetzmaier@nbbi.org	x		

Joe	Brockman		FM Global	ronald.brockman@fmglobal.com			x
Johnathon	Bates		Boilermakers	bateslocal26@yahoo.com	x		
Jon	Ferreira		The Harford Steam Boiler Inspection and Insurance Company	jonathan_ferreira@hsb.com	x		
Joseph	Beauregard		Los Alamos National Laboratory	joeducati@hotmail.com	x		
Kim	Beise		Dowco Valve Company Inc	kbeise@dowcovalve.com	x		
Lee	Burton		Air Products & Chemicals	burtondl@airproducts.com	x		
Linn	Moedinger		Strasburg Rail Road	linnwm@supernet.com		x	
Louis	Dutra		Bay City Boiler	ldutra@baycityboiler.com	x		
Luis	Ponce		National Board of Boiler and Pressure Vessel Inspectors	lponce@nbbi.org	x		
M. A.	SHAH		ABM Industrial Services Inc.	abmindustrialservices@gmail.com		x	
Mark	Horbaczewski		Diamond Technical Services	mhorbaczewski@diamondtechnicalservices.com	x		
Mark	Mooney		National Board	mmooney@nationalboard.org			x
Marvin	Byrum		Arise Boiler Inspection and Insurance Co	marvin.byrum@tuvsud.com	x		
Matt	Schaser		The Equity Engineering Group, Inc.	mschaser@e2g.com			x
Michael	Carlson		State of Washington	camx235@lni.wa.gov			x
Michelle	Vance		NBBI	mvance@nationalboard.org	x		
Patricia	Becker		EPRI	pbecker@epri.com	x		
Patrick	Polick		State of Illinois	patrick.polick@illinois.gov	x		
Patrick	Jennings		HSB	patrick_jennings@hsb.com	x		
paul	shanks		BVi&I	paul.shanks@onecis.com		x	
Philip	Gilston		The Hartford Steam Boiler and Inspection Co.	philip_gilston@hsb.com	x		
Prakash	Dhobi		Lakeside	pkdhobi@gmail.com	x		
Randy	Kennedy		Babcock & Wilcox	crkennedy@babcock.com			
Ray	Ceccarelli		FM Global	raymond.ceccarelli@fmglobal.com		x	
Richard	Anderson		International Code Council, Inc.	randerson@iccsafe.org			x
Riley	Collins		Eastman Chemical Company	rileycollins@eastman.com		x	
Robert	Viers		National Board of Boiler & Pressure Vessel Inspectors - Testing Laboratory	rviers@nationalboard.org	x		
Robert	McGuire		GE Vernova, GE Steam Power.	robert.b.mcguire@ge.com		x	
Rodger	Adams		Zurich	rodger.adams@zurichna.com	x		
Ronald	Spiker		State of South Carolina	ronndj@gmail.com	x		
Stacey	Marks		BV I&I	stacey.marks@bureauveritas.com		x	
Stephen	Klejst		U.S. Chemical Safety Board	stephen.klejst@csb.gov	x		
Steve	Frazier		City of Seattle	steve.frazier@seattle.gov		x	
Terrence	Hellman		National Board	thellman@nationalboard.org	x		
Thomas	White		NRG Energy	thomas.white@nrg.com	x		
Tim	McBee		ARISE	timothy.mcbee@tuvsud.com		x	
TIM	LEBEAU		Southern Company Services	tclebeau@southernco.com			x
Timothy	Bolden		CNA	timothy.bolden@cna.com			x
Timothy	Memmer		Quality Steel	tmemmer@propanetank.com			x
Tom	Vandini		Quality Steel Corporation	tvandini@propanetank.com	x		
Tom	Clark		State of Oregon	thomas.g.clark@dcbs.oregon.gov	x		
Tusharkumar	Patel		TUV INDIA PVT LTD	tusharpatel0914@gmail.com			x
Tusharkumar	Patel		TUV NORD GROUP	ptushar@tuv-nord.com			x
Tyler	Ward		Central Maintenance and Welding	tward@cmw.cc			x
Wendy	White		NBBI	wwhite@nbbi.org	x		

Pressure Vessel Explosion at the Loy-Lange Box Company

Drew Sahli
Investigator-In-Charge

Adam Henson
Recommendations Specialist

U.S. Chemical Safety and Hazard Investigation Board

About the CSB

U.S. Chemical Safety and Hazard Investigation Board

Vision: A nation free from chemical disasters.

Mission: Drive chemical safety excellence through independent investigations to protect communities, workers, and the environment.

Incident Overview

U.S. Chemical Safety and Hazard Investigation Board

Location: St. Louis, MO

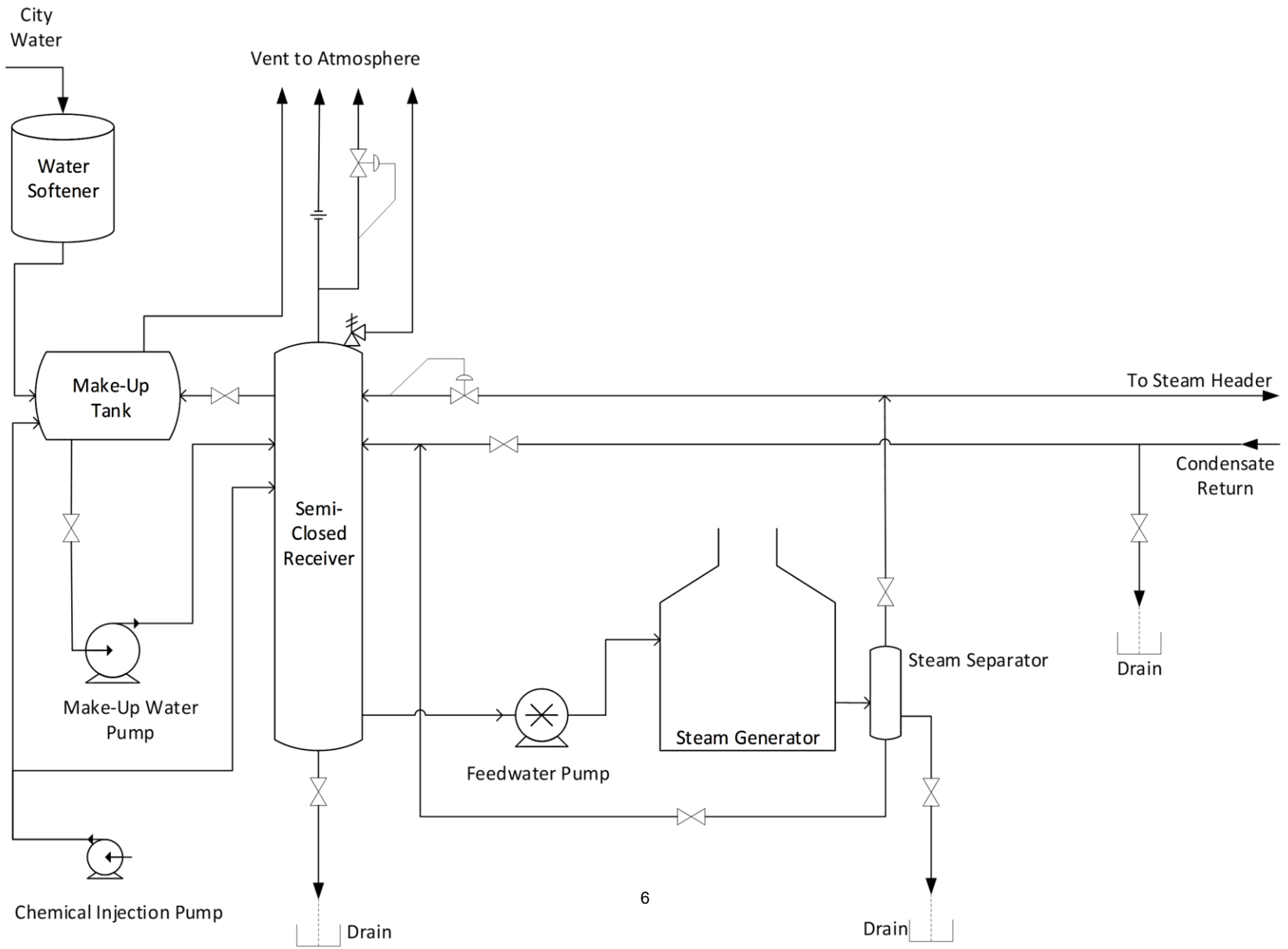
Date: April 3, 2017

Description: A steam explosion caused a steel pressure vessel ("Semi-Closed Receiver") to launch into the air flying several hundred feet in the air and landing on a nearby company.

Consequences:

- 4 fatalities – one employee, 3 public at large
- Severe property damage to Loy-Lange and Faultless Healthcare Linen

Loy-Lange Steam System



Semi-Closed Receiver

U.S. Chemical Safety and Hazard Investigation Board

History

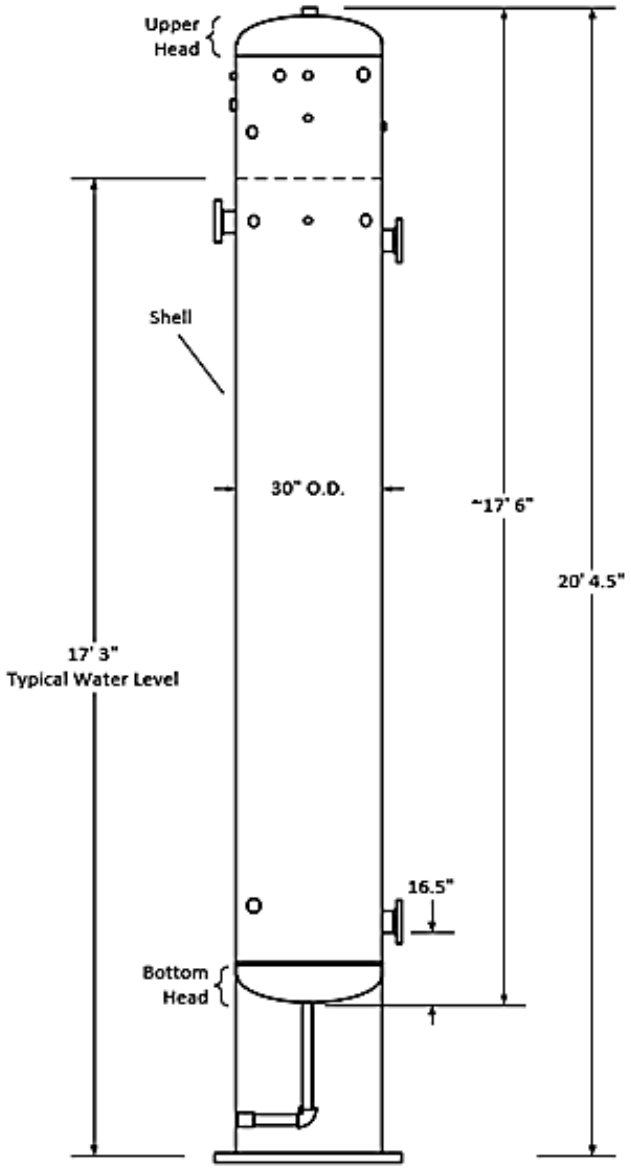
- Installed in 1997
- Repaired in April 2004, August 2012, and November 2012

Design

- Vertical, Cylindrical Pressure Vessel
- ~100 PSI Working Pressure
- 150 PSI MAWP

Function

- Receives Deaerated Makeup Water and Returning Condensate
- Supplies Feedwater to Steam Generators



Abbreviated Timeline

U.S. Chemical Safety and Hazard Investigation Board

Friday

- SCR Leaking
- Repair Company Unavailable
- System Left Inservice

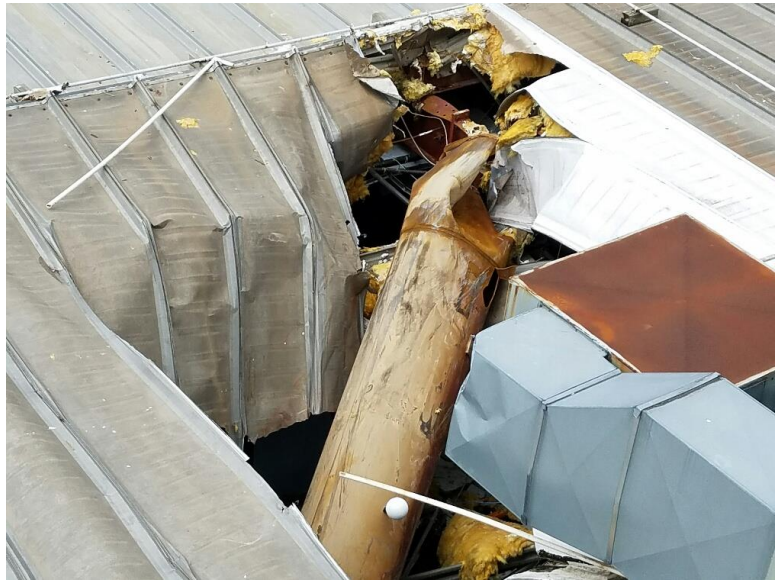
Saturday & Sunday

- System Shutdown Per Usual "Wet Layup"

Monday

- Normal Startup
- SCR Explodes


SCR
KRANZ



Key Issues

U.S. Chemical Safety and Hazard Investigation Board

Pressure Vessel Corrosion

- Excessive thinning in SCR bottom head
- Caused by oxygen corrosion

Pressure Vessel Inspection

- SCR not registered and never inspected

Pressure Vessel Repair

- 2012 repair likely left unacceptably thin material in place
- Repair Inspector did not detect non-conforming repair

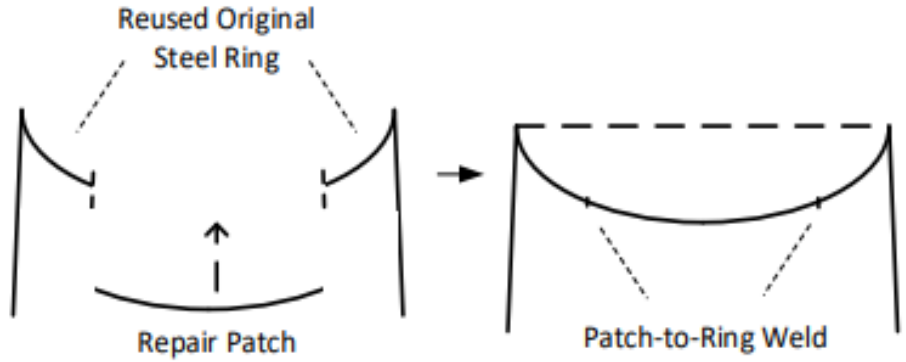
Process Safety Management Systems

- Loy-Lange had inadequate safety management systems

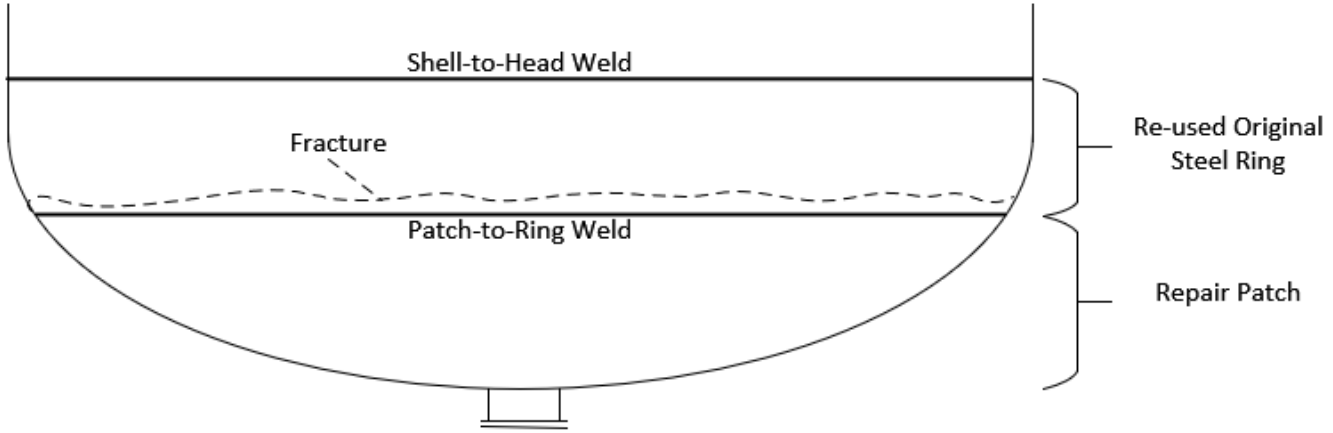
The November 2012 Repair

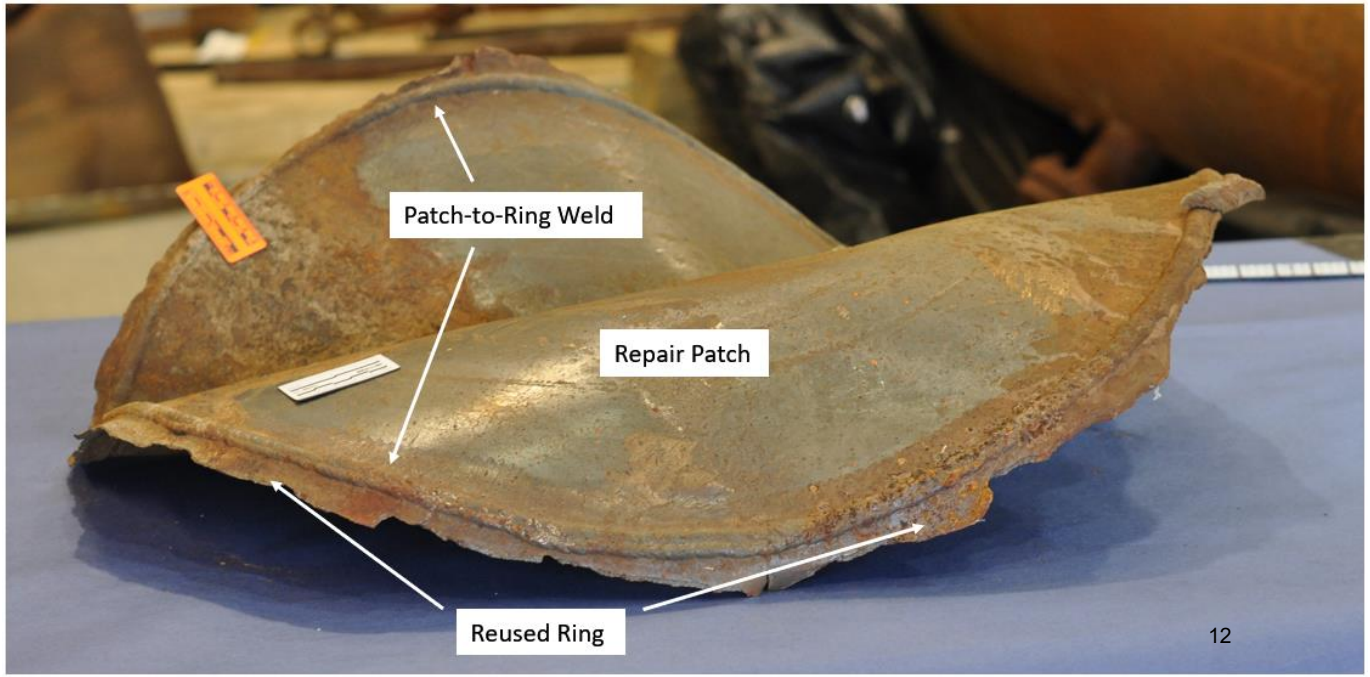
U.S. Chemical Safety and Hazard Investigation Board

- **Circumstances**
  - SCR leaking
  - “Emergency Repair” requested
- **Process**
  - SCR bottom head and skirt removed
  - Circular portion of bottom head removed
  - Flush patch applied
  - Bottom head and skirt rewelded
  - Thickness of remaining material purportedly measured by tape measure and finger feel
  - Post repair inservice leak Test (Per Form R-1)
  - Repair inspector witnessed test but no other part of repair process
- **Result**
  - SCR returned to service
  - Proposal for full replacement of SCR bottom head (Declined)



Post Incident Analysis





Issues with the 2012 Repair

U.S. Chemical Safety and Hazard Investigation Board

The Owner or User

- Insufficient action to correct root cause(s) of recuring defect
- “Emergency Repair”

The R Stamp Organization

- Ineffective methods employed to ensure sufficient thickness of remaining materials
- Departure from NBIC Part 3 requirements
- “Emergency Repair”

The Repair Inspector

- Failure to detect, and acceptance of non-conforming repair

Recommendations

U.S. Chemical Safety and Hazard Investigation Board

Loy-Lange Box Company (3)

- Establishing a Safety Management System

The City of St. Louis (Mayor & Board of Aldermen) (3)

- Closing Gaps in Pressure Vessel Safety Regulations

Arise, Inc. (1)

- Improving Company Part 3 Procedures and Practices

The National Board (1)

- Improving NBIC Part 3

Proposed Changes to NBIC

U.S. Chemical Safety and Hazard Investigation Board

Scope Clarification

- Financial/Operational Concerns of Owners or Users

Strengthening Prevention of Defect Recurrence

- Investigating Defects and Corrective Action

Strengthening Requirements to Ensure Defect Removal

- NDE and/or Testing To Ensure Defect Removal

Strengthening Requirements for Defect Removal When Patching

- Testing to Ensure Defect Removal

U.S. Chemical Safety and Hazard Investigation Board

Items Approved for 2025 NBIC - YTD

Title	Item Number	Cycle	NBICEdition	Assigned Committee
Define "Fuel Loading" as it pertains to NR activities	21-02	A	2025	Subcommittee Repairs/Alterations
Inspection of through stays and diagonal stays	21-03	A	2025	Subcommittee Inspection
Incorporate new repair methods for through and diagonal stays	21-09	A	2025	Subcommittee Repairs/Alterations
Pressure Tests for Pressure Relief Valve Repair Parts	21-18	A	2025	Subcommittee Pressure Relief Devices
Parts used in NR Activities	21-37	A	2025	Subcommittee Repairs/Alterations
Create example inspection list	22-03	A	2025	Subcommittee Inspection
Lost or Destroyed UDS	22-12	A	2025	Subcommittee Repairs/Alterations
Align hot water boiler thermometer requirements with ASME Section IV	22-13	A	2025	Subcommittee Installation
Removal of the requirement of AIA audits from the NR program	22-29	A	2025	Subcommittee Repairs/Alterations
Location of temperature controls	22-31	A	2025	Subcommittee Installation
Update duplicate nameplate marking requirements in Supplement 6	22-34	A	2025	Subcommittee Pressure Relief Devices
Update reference of Section VIII steam valves to UV designated steam valves	22-35	A	2025	Subcommittee Pressure Relief Devices
Clarify that stamping is required prior to signing R Form	23-05	A	2025	Subcommittee Repairs/Alterations
Editorial change for Section 3, Para. 3.3.4.8 c) 5 and 6	23-06	A	2025	Subcommittee Repairs/Alterations
2.2.4 updated to include not allowing combustibles	23-07	A	2025	Subcommittee Inspection
Revisions to Part 3, Supplement 6	20-67	B	2025	Subcommittee Repairs/Alterations
Add language to Part 4, 3.2.6 to define test intervals for thermal fluid heater PRDs	20-85	B	2025	Subcommittee Pressure Relief Devices
Working Pressure Calculations for Curved Stayed Surfaces	21-34	B	2025	Subcommittee Inspection
Add Test Details to NBIC Part 4, 3.3.3.4 i) Valve Adjustment and Sealing	21-36	B	2025	Subcommittee Pressure Relief Devices
Deferral of inspection due dates (pressure relieving devices NBIC PART IV)	21-59	B	2025	Subcommittee Pressure Relief Devices
Examples of Repairs	21-82	B	2025	Subcommittee Repairs/Alterations
What is the meaning of "service limitations" as used in Part 4, 2.4.5?	22-15	B	2025	Subcommittee Pressure Relief Devices
Drains in equipment rooms with heating boilers containing glycol.	22-30	B	2025	Subcommittee Installation
DOT Transport Tank Pressure Testing (Part 2, Supplement 6)	23-19	B	2025	Subcommittee Inspection
Changes to Part 3, 2.5.3.4 to clarify intent	23-22	B	2025	Subcommittee Repairs/Alterations
Name Plate replacement	23-25	B	2025	Subcommittee Repairs/Alterations
References to change of service for LPG vessels incorrectly use "altered"	23-30	B	2025	Subcommittee Inspection
Update Table 2.3 to remove dates	23-33	B	2025	Subcommittee Repairs/Alterations
Gasket Surface Repair for Graphite Pressure Vessels	23-43	B	2025	Subcommittee Repairs/Alterations
Revision to Part 3, S3.5.4 m)	23-44	B	2025	Subcommittee Repairs/Alterations
Requirements for Inlays as Routine Repairs	23-46	B	2025	Subcommittee Repairs/Alterations
Require separate waterside piping connections for multiple LWCO devices	23-50	B	2025	Subcommittee Installation
Replace "legal" with "company" in 1.5.1 a) Title Page	23-51	B	2025	Subcommittee Repairs/Alterations

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. Pressure vessels with less than five cubic feet of volume and a design pressure less than 50 psi are excluded from the requirements of this section. ~~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.

a. Accidents have occurred when gaskets became stuck and 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~~ for evaluating 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~~taken by an "R" Certificate Holder.

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:

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 indicate if the operator is following posted procedures and if the operating procedures for the vessel are adequate~~.

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 (RBI) 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 RBI program shall be made available for review by the inspector.

Item 23-19
B. Underwood
Part 2

EXISTING TEXT

TABLE S6.13.6
PRESSURE TEST REQUIREMENTS

Cargo Tank Specification	Test Pressure
MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306	20.7 kPa (3 psig) or design pressure, whichever is greater
MC 304 and MC 307	275.8 kPa (40 psig) or 1.5 times design pressure, whichever is greater
MC 310, MC 311, and MC 312	20.7 kPa (3 psig) or 1.5 times design pressure, whichever is greater
MC 330 and MC 331	1.5 times either MAWP or the re-rated pressure, whichever is applicable
MC 338	1.25 times either MAWP or the re-rated pressure, whichever is applicable
DOT 406	34.5 kPa (5 psig) or 1.5 times the MAWP, whichever is greater
DOT 407	275.8 kPa (40 psig) or 1.5 times the MAWP, whichever is greater
DOT 412	1.5 times the MAWP

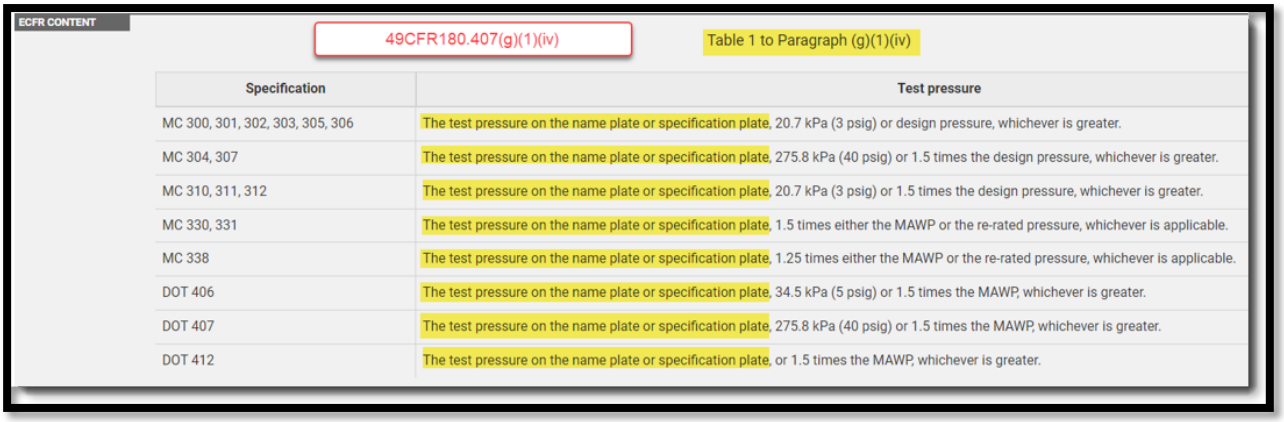
PROPOSED TEXT

TABLE S6.13.6
PRESSURE TEST REQUIREMENTS

Transport ~~Cargo~~ 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~~ 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 I of the ASME Code shall be tested at a pressure at least twice the design pressure.
MC 338	~~1.25 times either MAWP or the re-rated pressure, whichever is applicable~~ 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 I 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, or 1.5 times the MAWP, whichever is greater.

Item 23-19
B. Underwood
Part 2

Current Table in 180.407(g)(1)(iv)



ECFR CONTENT

49CFR180.407(g)(1)(iv)

Table 1 to Paragraph (g)(1)(iv)

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 the 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 the design pressure, whichever is greater.
MC 330, 331	The test pressure on the name plate or specification plate, 1.5 times either the 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 the 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, or 1.5 times the MAWP, whichever is greater.

Item 23-30
T. Vandini
Part 2

Statement of Need: Conversion of service for LPG tanks (typically from above ground to underground service) typically involves changes to the vessel covered under Part 3, Paragraph 3.3.3 and, as such, are considered repairs. As such, the language referring to these conversions that uses the word "altered" or "alteration" may be confusing to an inspector or other user of NBIC. I suggest changing the word "altered" to "changed" and removing the specific reference to "alterations".

S7.10 REQUIREMENTS FOR CHANGE OF SERVICE FROM ABOVE GROUND TO UNDERGROUND SERVICE

ASME LPG pressure vessels may be ~~altered~~ changed from above ground (AG) service to underground (UG) service subject to the following conditions.

TABLE S9.4
EXAMPLES OF CHANGE OF SERVICE CONDITIONS

Change	Some Factors to Consider
LP Gas to Ammonia	• PWHT of Vessel During Construction Wet-fluorescent magnetic particle testing (WFMT) on all internal surfaces • Internal access of vessel is necessary, may need to install manhole • NFPA 58 should be consulted
Ammonia to LP gas	• NFPA 58 should be consulted for restrictions. • Wet-fluorescent magnetic particle testing (WFMT) on all internal surfaces • Internal access of vessel is necessary., may need to install manhole • Also see, NBIC Part 2, 2.3.6.4, S7.8.6, S7.9
LP gas service: from above ground to underground	• Requires ~~alterations (~~additional nozzles~~)~~ • Corrosion protection • See NFPA 58
LP gas to air receiver	• Assurance of vessel cleanliness, i.e. removal of mercaptan • Appropriateness and number of inspection and drain openings • Corrosion allowance
Boiler Service: steam to hot water	• Nozzles may require modification for water inlet and outlet • Change of Pressure Relief Device

PROPOSED INTERPRETATION

Item No.

23-10

Subject/Title

Seamless Head Flush Patch - Repair vs Alteration

Project Manager and Task Group

Source (Name/Email)

Terrence Hellman / thellman@nationalboard.org

Statement of Need

Is the use of a flush patch on the center portion of a seamless head of an ASME Sect. VIII Div. 1 vessel considered a repair or alteration per the 2011 NBIC?

Background Information

A seamless bottom head of a vertical ASME Sect. VIII Div. 1 vessel is corroded and needs to be repaired per the 2011 NBIC. The “R” Certificate Holder will use a full penetration flush patch to replace the center corroded area of the head (in lieu of replacing the entire head). As a result of the flush patch, there is now a weld seam in a previously “seamless” head. Since welding will be performed on the head, the required thickness may be affected because the possible reduction in joint efficiency due to the new seam on the patch, and the strength and composition of the weld metal. Consequently, the repair organization has the responsibility to consider all design aspects. Per the 2011 NBIC, 3.4.3, Examples of Alterations: h) Replacement of a pressure-retaining part in a pressure-retaining item with a material of different allowable stress or nominal composition from that used in the original design;

Proposed Question

Question 1 When replacing any part of a seamless head with a full penetration flush patch, is the repair organization responsible for any changes in design? Question 2 Is the use of a flush patch on a seamless head an Alteration?

Proposed Reply

Reply 1 Yes. Reply 2 Yes.

Committee's Question 1
When installing a flush patch in an ASME Section VIII Div. 1 pressure vessel seamless head, is the repair organization responsible for evaluating any changes in design and examination requirements to determine if it is a repair or alteration?

Committee's Reply 1

Yes

Rationale

Rationale

PROPOSED INTERPRETATION

Item No.

23-11

Subject/Title

Correcting duplicate nameplate that is not affixed to directly the vessel

Project Manager and Task Group

Source (Name/Email)

Adam Renaldo / adam_renaldo@praxair.com

Statement of Need

Part 3 seems to contain no method for correcting errors on a name plate. Section 5 is not clear on what requirements apply to a duplicate name plate when the actual name plate is still affixed to the vessel and hidden under insulation. Since the duplicate name plate is not the actual name plate, and is not affixed directly to the ASME pressure vessel, an R stamp holder should not be required to correct or replace a duplicate name plate. If a duplicate name plate were welded directly to the vessel, one could argue that Part 3 applies since interaction with the vessel could be required.

Background Information

During inspection, a vessel was found with a duplicate ASME name plate that incorrectly indicated the MDMT. A check of the U-1A form, and communication with the manufacturer, confirmed that the duplicate name plate had a typo that requires correction. The actual ASME name plate is welded directly to the vessel and hidden under insulation. The duplicate is welded to a support leg.

Proposed Question

(1) Does the correction or replacement of a duplicate ASME name plate with a typographical error fall under the scope per Section 5.1 when the duplicate name plate is not affixed directly to the pressure vessel? (2) Does the NBIC contain any procedures for correcting a typographical error on a duplicate ASME nameplate that is affixed to a structural support or non-pressure-retaining part of the ASME pressure vessel? (3) Do the requirements of Section 5.11 apply to the correction or replacement of an inaccurate duplicate ASME nameplate that is affixed to a structural support or non-pressure-retaining part of the ASME pressure vessel? (4) Do the requirements of Section 5.11 apply to the correction or replacement of an inaccurate ASME name plate or duplicate name plate that is affixed directly to the pressure vessel?

Proposed Reply

(1) No (2) No. If a duplicate name plate is not affixed directly to the pressure vessel, corrections of typographical errors on the duplicate name plate fall outside the scope of Part 3 and are left to the discretion of the owner working in conjunction with the manufacturer. (3) No (4) Yes

Committee's Question 1

Committee's Reply 1

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.

23-15

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

Subject/Title

Routine Repairs

Project Manager and Task Group

Source (Name/Email)

Mark Kincs / mark.r.kincs@xcelenergy.com

Statement of Need

As written, Paragraph 3.3.2 implies that routine repairs require repair or replacement with "like material"...as in 3.3.3 r). This is supported by Interpretation 01-19. Allowing "material upgrades"...as in 3.3.3 s)...will reduce costs and labor associated with the growing number of repairs requiring in-process inspection and stamping due solely to material availability.

Background Information

Oftentimes, original materials of construction are no longer available or cost-prohibitive to obtain. Replacement of pressure-retaining components with those of different nominal composition is commonplace. The required in-process Inspector involvement and stamping of these common repairs is believed unnecessary.

Proposed Question

May repair or replacement of tubes, pipes, butt-welded fittings, or nonload bearing attachments with a code-acceptable material having a nominal composition and strength equivalent to or greater than the original material with equal-or-greater material thickness, that is suitable for the intended service, be considered a routine repair if the requirements of NBIC Part 3, 3.3.2 and the categories of 3.3.2 e) are met?

Proposed Reply

Yes, with concurrence of the Inspector and Jurisdiction, as applicable.

Committee's Question 1

1: May the replacement or repair of a pressure-retaining item using code-acceptable material suitable for the intended service, in accordance with 3.3.3 s), be considered a routine repair if it meets the requirements of NBIC Part 3, 3.3.2 and one or more of the categories listed in 3.3.2 e)?

Committee's Reply 1

1: Yes

Rationale

2021 NBIC Part 3, 3.3.3, r) and 3.3.3, s)

Committee's Question 2

Committee's Reply 2

Rationale

	VOTE:						
COMMITTEE	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

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A request seeking the rationale for code requirements.

PROPOSED INTERPRETATION

Item No.

23-20

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

Subject/Title

Boiler tube plug installation time consideration

Project Manager and Task Group

Source (Name/Email)

David Starr / dave.starr@starrcompanies.com

Statement of Need

No specific guidance is provided within the code in regard to the length of time a boiler tube plug can be left in place. Agreement by owner, inspector, and when required, Jurisdiction is ambiguous.

Background Information

Currently owners, inspectors, repair companies and Jurisdictions are applying this rule inconsistently. Often boiler tube (s) remain plugged for the life of the boiler and in some Jurisdictions this is an acceptable practice. In other cases plugged boiler tubes are required to be removed as soon as possible. Currently inconsistency in the industry is causing confusion.

Proposed Question

May a boiler be returned to service permanently with plugged tubes if agreed upon by the owner, the inspector, and when required, the Jurisdiction?

Proposed Reply

No, a plugged tube or tubes is not considered a permanent repair.

Committee's Question 1

Does the NBIC specify the time period a boiler may be placed back in service after firetubes are plugged per NBIC Part 3, 3.3.4.9?

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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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
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A request seeking the rationale for code requirements.

PROPOSED INTERPRETATION

Item No.

23-47

Subject/Title

Interpretation of Alteration for dimensional change.

Project Manager and Task Group

Source (Name/Email)

Corey Mccon / cmccon@cfindustries.com

Statement of Need

Just need some clarification as we have gotten conflicting responses from different parties.

Background Information

We are looking to change a vessel nozzle flange from 150# to 300# to allow us to increase the torque value to reduce flange leaks that have been occurring.

Proposed Question

Section 3.4.4 d) states an example of an alteration is a change in the dimensions or contour of a pressure retaining item. Would this include a change a flange OD? For example if you are changing a nozzle flange from a 150# flange to a 300# flange would that fall under this section due to the added flange thickness and OD, even though the ID is remaining the same.

Proposed Reply

Yes.

Committee's Question 1

Committee's Reply 1

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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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.

23-48

Subject/Title

Plugging of tube hole without welding.

Project Manager and Task Group

Source (Name/Email)

Djoni Pratomo / djoni_pratomo@yahoo.com

Statement of Need

Paragraph 3.3.3.f of NBIC Part 3 describes only when welding is involved.

Background Information

This question is different from Interpretation No 21-17, Question No 2, where the tube was removed and can not be considered as Routine Repair.

Proposed Question

An Air Cooled Heat Exchanger where the tube was expanded to the tube sheet needs to be repaired due to a tube leak. The repair will be done by plugging without removing the tube from the tube sheet. Is this considered as Routine Repair?

Proposed Reply

Yes.

Committee's Question 1

Committee's Reply 1

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.

S3.3 ROUTINE REPAIRS

a) The following repairs shall be considered routine, and shall comply with NBIC Part 3, 3.3.2.

1) Machining — routine repair shall not include the machining of pressure-retaining parts with the exception of minor machining for cleaning and joint preparation not to exceed 1/32 in. (0.8 mm) of material thickness.

2) Repair of Gasket Surfaces — re-machining of gasket surfaces, re-serrating, or flattening is permitted if the design thickness is maintained.

3) Replacing Individual Tubes — drilling out and replacing tubes with new tubes or repaired tubes. Only certified materials shall be used for this repair.

4) Nozzle Replacement — replacement of nozzles by removing the old nozzle and cementing a new nozzle in place. This is applicable for nozzles with inside diameters not exceeding 6 inches (152 mm).

5) Plugging Tube~~s~~ or Block Holes — plugging individual ~~tubes~~ tube~~s~~ or block holes using accepted procedures.

6) Surface Repair — surface repair by installation of plugs or inlay material shall not exceed 1 $in.^3$ (16 cm^3) of total volume.

7) Replacement or Addition of Non-Load Bearing Attachments to Pressure-Retaining Item — For attachment of non-load bearing attachments to pressure-retaining items, the cementing procedure specification need only be qualified for the pressure part and cement to be used.

S3.5.4 PLUGGING OF LEAKING OR DAMAGED TUBE~~S~~ OR BLOCK HOLES

a) The material used for plugging ~~tubes~~ shall comply with the requirements of the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, Part UIG.

b) The point(s) of leakage shall be verified, and the corresponding leak site(s) shall be marked/labeled on the ~~tubesheet, and~~ part and recorded.

c) A plug shall be used to plug each end of the ~~tube~~hole(s) in question and each plug shall have a minimum length of 1 in. (25 mm). Multiple plugs may be used.

d) The ~~tube~~hole(s) shall be prepared for plugging ~~by enlarging the inside of the tube(s)~~ with a suitable ~~drill bit or reamer~~tool, ~~as long as~~provided the maximum hole I.D. to plug O.D. clearance of 3/32 in. (2.4 mm) is not exceeded.

1) To ensure a sound cement joint between the ~~tube~~inner~~hole~~ ~~sidewall~~ and the plug, a slightly smaller diameter plug shall be selected. The maximum clearance between the ~~tube~~hole inside diameter and the outside diameter of the plug shall not exceed 3/32 in. (2.4 mm).

~~2) As an alternative to d)1) a mandrel with an abrasive, such as sandpaper, may be used, as long as the maximum tube I.D. to plug O.D. clearance of 3/32 in. (2.4 mm) is not exceeded.~~

23) The minimum plug insertion depth of the prepared hole(s) shall meet the minimum combined plug length requirements of ~~"c"~~S3.5.4 c). ~~When the minimum plug length of "c" is exceeded, the total insertion depth of the plugs may exceed the combined length of the plugs; however, the longer plugs shall not project outside the face of the tube~~hole(s) ~~being plugged.~~

e) Plugging ~~of leaking or damaged tubes or block holes~~tubes shall be performed by certified cementing technicians, using qualified cementing procedures, in accordance with the requirements of the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, Part UIG.

f) As an alternative to e) above, any "R" Certificate Holder, with or without the letter "G" included on the "R"
Certificate of Authorization, may install graphite ~~tube~~ plugs ~~-~~provided the following conditions are met. The "R" Certificate Holder shall gain the concurrence of the Inspector, and shall utilize a tube plugging kit provided by an ASME Certificate Holder authorized to use the "G" designator. The kit shall include the following items:

1) Certified graphite plugs and certified cement ingredients, both accompanied by the appropriate documentation (Partial Data Report).

2) The qualified cementing procedure of the ASME Certificate Holder authorized to use the "G" designator, and a step-by-step procedural checklist that shall be followed explicitly. The procedure shall address the entire ~~tube~~ plugging process including plug configuration, ~~tube~~ hole cleaning and preparation, mixing and applying of the cement, application of the plugs, securing the plugs during the curing process, controlling the curing process, and leak testing, thereby meeting S3.3.

3) Additional materials and procedure shall be provided and used to prepare a demonstration plug joint prior to performing the repair. This demonstration plug joint shall be tested by a twist (torsional) test designed to demonstrate acceptable application and curing of the cement (Fig. S3.5.4). The test procedure shall include acceptance criteria, which may be based on a principle of breakage of part of the test piece. A successful twist test, in conjunction with the completed procedural checklist, shall serve as a valid cement technician certification for a single repair operation. The twist test shall be witnessed by the Inspector.

The "R" Certificate Holder shall review the material certifications including verification that the shelf life of the cement has not been exceeded, and assure that the certified cement technician has completed the qualification demonstration, and has access to the procedure and checklist. The Inspector shall review and verify that the procedure and the other elements of the certified kit, as provided by the ASME Certificate Holder authorized to use the "G" designator, have been administered and completed prior to his acceptance. The "R" Certificate Holder shall note on Line 8 of the R-1 Form the installation of cemented graphite ~~tube~~ plugs in accordance with this section. The letter "G" shall not be applied to the vessel when performing this alternative repair. The "R" Certificate Holder shall identify and document the location of the plug~~sged tubes~~ on the "R" Form.

g) The cement shall be prepared per the cement manufacturer's instructions.

h) When cementing the plugs, 100% of individual plugs, as well as the inside diameter of the ~~tube~~hole(s) ~~opening(s),~~ shall be coated with cement. The plugs shall then be inserted one by one, against each other, into each end of the ~~tube~~hole(s) being plugged.

i) Once the plugging is completed, and before the cement cures, the endplugs may need to be held in place, as newly cemented plugs may exhibit a tendency to dislodge from the plugged ~~tube~~hole(s) prior to final curing of the cement.

j) Curing time is dependent upon the cement manufacturer's instructions, and is considered complete when the cement is hardened to the point that it cannot be indented with pressure from a flat screwdriver or other similar instrument.

k) After the cement is completely cured, the ~~plugged, cemented area(s) on the tubesheet/block~~ surface may be dressed with sandpaper or other suitable abrasive.

l) ~~Repaired tubes or block holes~~ The repair shall be tested in accordance with this code, using a method acceptable to the Inspector, with a written procedure as approved by the manufacturer's internal quality system, to ensure leaks have been repaired.

m) The scope of the work completed shall be described and reported on a Form R-1.

S3.3 ROUTINE REPAIRS

a) The following repairs shall be considered routine, and shall comply with NBIC Part 3, 3.3.2.

1) Machining — routine repair shall not include the machining of pressure-retaining parts with the exception of minor machining for cleaning and joint preparation not to exceed 1/32 in. (0.8 mm) of material thickness.

2) Repair of Gasket Surfaces

a. ~~—~~ R~~r~~e-machining of gasket surfaces, re-serrating, or flattening is permitted if the design thickness is maintained.

b. Gasket surface damage repair by cement only is permitted, provided that the ~~damaged area is no deeper than~~repair depth does not exceed 3/16 in. (5 mm).

Item 23-44

Part 3, S3.5.4 m)

m) The scope of the work completed shall be described and reported on ~~a~~ Form R-1. When the work is performed in accordance with S3.5.4 f), the “R” Certificate Holder shall note on Form R-1 in “Remarks”: “Repaired in accordance with NBIC Part 3, S3.5.4 f).”

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Part 3, S3.3 a) 6)

S3.3 ROUTINE REPAIRS

a) The following repairs shall be considered routine, and shall comply with NBIC Part 3, 3.3.2.

1) Machining — routine repair shall not include the machining of pressure-retaining parts with the exception of minor machining for cleaning and joint preparation not to exceed 1/32 in. (0.8 mm) of material thickness.

2) Repair of Gasket Surfaces — re-machining of gasket surfaces, re-serrating, or flattening is permitted if the design thickness is maintained.

3) Replacing Individual Tubes — drilling out and replacing tubes with new tubes or repaired tubes. Only certified materials shall be used for this repair.

4) Nozzle Replacement — replacement of nozzles by removing the old nozzle and cementing a new nozzle in place. This is applicable for nozzles with inside diameters not exceeding 6 inches (152 mm).

5) Plugging Tubes — plugging individual tubes using accepted procedures.

6) Surface Repair — surface repair by installation of ~~plugs or~~ inlay material shall not exceed a total of 64~~1~~ in.^{3} (1049~~16~~ cm^3) or ten percent of the volume of the part, whichever is less. Surface repair does not include plug stitching.

7) Replacement or Addition of Non-Load Bearing Attachments to Pressure-Retaining Item — For attachment of non-load bearing attachments to pressure-retaining items, the cementing procedure specification need only be qualified for the pressure part and cement to be used.

SUPPLEMENT XX – ENGINEERED REPAIRS AND ALTERATIONS

SXX.1 SCOPE

a) This supplement provides general and specific requirements for engineered repairs and alterations to pressure retaining items. These requirements shall be considered as supplemental requirements to those set forth in the main Parts of the NBIC.

b) Engineered repairs and alterations contained in this supplement shall require acceptance by the Inspector and, when required, by the Jurisdiction. Procedures and methodologies established and proven in the industry are leveraged through references to published documents. Supplemental requirements are provided as necessary.

c) Engineered repairs and alterations should include items such as inspection procedures, material identification and/or testing, a complete characterization of the damage assessment, and knowledge of process conditions.

d) The remaining life and inservice monitoring requirements of any engineered repair or alteration should be established prior to implementation.

e) Careful consideration shall be given to repair or alteration of pressure-retaining items that have been fabricated of either creep strength enhanced ferritic steel materials or ferritic steel materials enhanced by heat treatment. The tensile and creep strength properties of these materials can be degraded by not following specific welding procedure specifications and heat treatment requirements. The user is cautioned to seek technical guidance for welding and heat treating requirements for these materials in accordance with the original code of construction.

f) A risk assessment may be necessary for certain engineered repair and alteration activities to ensure safe operation of equipment and minimal risk to personnel.

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

PROPOSED REVISION OR ADDITION

Item No.

21-67

Subject/Title

Removal of reference to mechanical portion and add additional information for welding

NBIC Location

Part 3 Repairs and Alterations, Section 3, Paragraph 3.3.4.9

Project Manager and Task Group

PM – Philip Gilston

TG – Kathy Moore, Trevor Seime, Don Kinney and Steve Frazier

Source (Name/email)

Kathy Moore / kathymoore@joemoorecompany.com

Statement of Need

Removing the mechanical portion of the text. Many Jurisdictions are having a difficult time enforcing that part of the NBIC. Additionally, cracking of ligaments in welded plug is a common issue, the current NBIC does not have enough direction or requirements for welding tube plugs in firetube boiler.

Background Information

Mr. Kinney wrote on the Chief's Forum and asked the Chiefs what they thought of 3.3.4.9. They wanted the mechanical portion dropped.

Improper welding of tube plugs in firetubes often creates ligament cracks.

Originally the part addressing mechanical plugs was action item 21-71, the item has been combined here to make for a clean proposal

Revision 11 Notes, summary of changes, and actions addressing comments made in the ballot:

1. 'Practicable', a suggestion to change this to 'possible' or 'practical' was made by Mr. Underwood and supported by several members. While the PM initially agreed, after discussion with the TG it was decided to leave as is for this proposal. It was advised by TG members that R&A had previously purged the word possible from part 3, and this was a roll back. Further there is a separate action out looking at the use of the rems 'practicable' and 'impracticable' and it was felt that this should be dealt with within the separate action rather than on a piecemeal basis.
2. Two comments, addressed inclusion of additional materials, P-No. 3 has been added to subsection c)1), It is not clear for firetube boilers if other P-Numbers (e.g. 4 or 5A) see much application, and that the guidance would become more involved. For higher alloys these should for now be addressed either to the original code of construction, or within the welding method rules.
3. There were a couple of comments regarding the requirement for hydro only, i.e. no alternate NDE permitted. Because of the nature of firetube boilers as oppose to water tube boilers, any leak will come from around a tube seated in the tube sheet. When such repairs are made, tubes that surround the repaired tube my be affected by the welding resulting in leakage. This would not be detected by NDE only by the hydro test.
4. The section addressing return to service of the boiler, time to be allowed and involvement of the inspector has been deleted. There were three reason behind this:
    a. Post repair activity is a Part 2 activity and should be addressed there.
    b. There is an interpretation in hand regarding whether Part 3 specifies how long a firetube boiler may be

returned to service after such repairs.

c. A survey of Chiefs asked:

i. Regarding Pt 3, 3.3.4.9 d) Tube Plugging in FT Boilers, would you prefer the reference to the length of time the boiler may be returned to service with a tube plugged, be removed and potentially be moved into NBIC Part 2 for in-service inspection?

Yes(12 responses)

No(9 responses)

Although not a land slide, more were in favor of removal.

Existing Text

3.3.4.9 **TUBE PLUGGING IN FIRETUBE BOILERS**

When the replacement of a tube in a firetube boiler is not practicable at the time the defective tube is detected, with the concurrence of the owner, Inspector, and when required, the Jurisdiction, the tube may be plugged using the following course of repair:

a) The scope of work, type of plug and method of retention; whether welded or mechanical interface, shall be evaluated by the "R" Certificate Holder performing the repair and reviewed with the Inspector, and when required, the Jurisdiction.

b) When the method of plugging is by welding, strength calculations for the size of the weld shall be in accordance with the original code of construction. The"R" Certificate Holder performing this repair shall weld the plug to the tube, or to the tube sheet, or a combination of both.

c) Plugging a tube in a firetube boiler is recognized as an alternative to the replacement of a firetube and may be further limited as a method of repair by the number of tubes plugged and their location; scattered or clustered. The operational effects on the waterside pressure boundary or membrane and the effects on the combustion process throughout the boiler should be considered prior to plugging.

d) The boiler may be returned to service for a period of time agreed upon by the owner, the Inspector, and when required, the Jurisdiction.

e) The Form R 1 shall be completed for the plugging of firetubes, identifying the means of plug retention; mechanical or by welding.

Proposed Text

3.3.4.9 **TUBE PLUGGING BY WELDING IN FIRETUBE BOILERS**

When the replacement of a tube in a firetube boiler is not practicable at the time the defective tube is detected, with the concurrence of the owner, Inspector, and when required, the Jurisdiction, the tube may be plugged ~~using the following course of repair:~~.

~~a)~~ ~~The scope of work, type of plug and method of retention; whether welded or mechanical interface, shall be evaluated by the "R" Certificate Holder performing the repair and reviewed with the Inspector, and when required, the Jurisdiction.~~

~~b~~a) ~~Plugging a tube in a~~When installing a welded firetube plug, ~~boiler is recognized as an alternative to the replacement of a firetube and~~the repair may be ~~further~~ limited ~~as a method of repair~~ by the number of tubes plugged and their location~~; scattered or clustered~~. The operational effects on the ~~waterside~~ pressure boundary ~~or membrane~~ and the effects on the combustion process ~~throughout the boiler~~ should be considered prior to plugging. Competent technical advice should be obtained from the manufacturer of the pressure-retaining item or from another qualified source.

~~c~~b) Strength calculations for the size of the weld shall be in accordance with the original code of construction. The "R" Certificate Holder performing this repair shall weld the plug to the tube, or to the tube sheet, or a combination of both.

c) Cracking of ligaments due to the use of welded plugs is a common issue. To mitigate this possible occurrence the "R" Certificate Holder performing the repair shall consider actions including but not limited to the following:

1) For P-No. 1 and 3 materials, preheating to 200°F (95°C) minimum.

2) Limiting the maximum weld size to 3/8" (10 mm).

3) Limiting electrode size to 1/8" (3 mm) maximum diameter.

	4) Using a stringer bead technique. 5) Using a minimum of two passes. d) NDE in lieu of pressure testing is not permitted. ~~The boiler may be returned to service for a period of time agreed upon by the owner, the Inspector, and when required, the Jurisdiction.~~ ~~e) The Form R-1 shall be completed for the plugging of firetubes, identifying the means of plug retention; mechanical or by welding.~~

For Information, Clean Copy of Proposed Text, *changes from Rev 10 only highlighted*

3.3.4.9 **TUBE PLUGGING BY WELDING IN FIRETUBE BOILERS**

When the replacement of a tube in a firetube boiler is not practicable at the time the defective tube is detected, with the concurrence of the owner, Inspector, and when required, the Jurisdiction, the tube may be plugged.

a) When installing a welded firetube plug, the repair may be limited by the number of tubes plugged and their location. The operational effects on the pressure boundary and the effects on the combustion process should be considered prior to plugging. Competent technical advice should be obtained from the manufacturer of the pressure-retaining item or from another qualified source.

b) Strength calculations for the size of the weld shall be in accordance with the original code of construction. The "R" Certificate Holder performing this repair shall weld the plug to the tube, or to the tube sheet, or a combination of both.

c) Cracking of ligaments due to the use of welded plugs is a common issue. To mitigate this possible occurrence the "R" Certificate Holder performing the repair shall consider actions including but not limited to the following:

1) For P-No. 1 and 3 materials, preheating to 200°F (95°C) minimum.

2) Limiting the maximum weld size to 3/8" (10 mm).

3) Limiting electrode size to 1/8" (3 mm) maximum diameter.

4) Using a stringer bead technique.

5) Using a minimum of two passes.

d) NDE in lieu of pressure testing is not permitted.

~~e) The boiler may be returned to service for a period of time agreed upon by the owner, the Inservice Inspector, and when required, the Jurisdiction.~~

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

Revision to 2.2.1

- *add letters "a" and "b" to existing paragraphs and add new "c" paragraph which is wording from ASME Section I*

2.2.1 PROCEDURE SPECIFICATIONS

a) A procedure specification is a written document providing direction to the person applying the material joining process. Welding, brazing and fusing shall be performed in accordance with procedure specifications for welding (WPS), brazing (BPS), and fusing (FPS) qualified in accordance with the original code of construction or the construction standard or code selected. When this is not possible or practicable, the procedure specification may be qualified in accordance with ASME Section IX.

b) Welding procedures may be simultaneously qualified by more than one organization under the rules of ASME Section IX QG-106.4. The "R" Certificate Holder's written quality control program shall include requirements for addressing the rules of Section IX QG-106.4.

c) The "R" Certificate Holder is responsible for the selection and control of weld consumables and the welding process. Weld consumables shall be selected to provide deposited weld metal of chemical composition and mechanical properties suitable for joining the materials and for the service conditions anticipated.

5.2.2 PREPARATION OF FORM R-2 (REPORT OF ALTERATION)

a) Using the instructions found in Table S9.3 of Supplement 9, initial preparation of Form R-2, including gathering and attaching supporting documentation, shall be the responsibility of the "R" Certificate Holder responsible for the design portion of the alteration. The design organization shall complete and sign the "Design Certification" section of the Form R-2. An Inspector shall indicate acceptance of the design by signing the "Certificate of Design Change Review" section of the Form R-2.

~~a)~~b) "R" Certificate Holders whose scope is "Design Only" can perform code calculations for re-rating and alterations as defined in this Part but are prohibited from performing physical work (construction work) to the pressure retaining item except for the "R" Stamping, NDE, and/or final pressure testing~~.~~; as applicable, provided the controls are included in the Quality Management System. "R" Cert Holders who perform physical work as described above shall have controls for field activities in their "R" Cert of Auth.

c) The information describing an alteration to a pressure-retaining item shall be identified on Form R-2 with a complete description of the scope of work for physical or non-physical changes.

1. ~~–~~When the scope of work represents a change that will increase the Minimum Required Relieving Capacity (MRRC) of a pressure-retaining item, such as a change in heating surface, Maximum Designed Steaming Capacity (MDSC), or BTU/hr (W) heating capacity, the new MRRC shall be documented on Form R-2 and indicated on the appropriate nameplate of NBIC Part 3, Figure 5.7.5-b or NBIC Part 3, Figure 5.7.5-c.

d) 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)~~e) The Construction Certificate section of the form shall only be completed when construction work has been performed.

~~c)~~f) 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.

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

PROPOSED REVISION OR ADDITION

Item No. A 23-13 Rev 02	
Subject/Title **Referencing for Weld Metal, Filler Metal etc.**	
NBIC Location	
Project Manager and Task Group P Gilston (PM), J. Siefert, W. Sperko, M. Vance, T Melfi, F Johnson	
Source (Name/email) January 2023, Sub-Committee Discussion	
Statement of Need Within Part 3, welding consumables are referred to in several different ways e.g., filler metal(s) (52 times), weld metal (11 times), consumable (14 times), welding electrode (once) etc. This item is to review these references, create definitions and bring consistency for reference descriptions.	
Background Information When discussing weld metal, references can be made to the weld consumable itself, or the deposited weld metal. Often we describe the 'nominal composition' for the weld, this is normally based on the actual weld metal deposited in a weld joint. Various factors can influence the chemistry of a deposited weld metal, including, but not limited to dilution with the base metal, protective fluxes, shielding gas etc.	
Existing Text None	**Proposed Text** **9.1 DEFINITIONS** **Weld -** A weld consists of weld metal and heat affected zones (HAZ) **Weld Metal** - Metal in a fusion weld consisting of that portion of the base metal and filler metal melted during welding. When no filler metal is added this is known as an autogenous weld. **Filler Metal** - The metal that is added during a welding, brazing or soldering operation. **Weld Consumable** - Electrodes, wires and fluxes that are melted during a welding operation.

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

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

PROPOSED REVISION OR ADDITION

Item No.

23-

Subject/Title

Welding Method 4

NBIC Location

Part: Repairs and Alterations; Section: 3; Paragraphs: 2.5.3.4 a)

Project Manager and Task Group

PM – Tom White

Source (Name/email)

Tom White/thomas.white@nrg.com

Statement of Need

Reading up on Welding Method 4 in Part 3 I found the wording ambiguous and confusing. I have proposed the following rewrite for 2.5.3.4 – a)

Background Information

The second sentence states repair welds shall not penetrate the full thickness. The next sentence contradicts that statement and permits under the certain conditions. I propose the following rewrite for clarity.

Existing Text – 2.5.3.4

When using this method, the following is required:

a) This method is limited to repair welds in pressure retaining items for which the applicable rules of the original code of construction did not require notch toughness testing. The repair depth for temper bead repairs to pressure retaining items is limited to welds not penetrating though the full thickness.

Full thickness temper bead weld repairs are permitted under the following conditions:

1) ASME Section VIII, Division 2 pressure vessels, where application of PWHT on in-service vessels has been demonstrated to cause harm to vessel material.

2) For tube-to-header welds in steam service.

Full thickness weld repairs shall be completed per NBIC Part 3, 3.3.5 with the following requirements:

1) The full thickness repair shall be verified as being full penetration.

2) Volumetric examination of the full thickness weld shall be performed.

Proposed Text – 2.5.3.4

When using this method, the following is required:

a) This method is limited to repair welds in pressure retaining items for which the applicable rules of the original code of construction did not require notch toughness testing. The repair depth for temper bead
repairs to pressure retaining items shall not penetrate the full thickness except as permitted below. ~~is limited to welds not penetrating though the full thickness.~~
~~Full thickness temper bead weld repairs are permitted under the following conditions:~~

1) ASME Section VIII, Division 2 pressure vessels, where application of PWHT on in-service vessels has been demonstrated to be detrimental ~~cause harm~~ to the vessel's material, or

2) ~~For t~~Tube-to-header welds in steam service.

Full thickness weld repairs, as permitted above, shall be completed ~~per~~ in accordance with NBIC Part 3, 3.3.5 and ~~with~~ the following additional requirements:

1) The full thickness repair shall be verified as being full penetration.

2) Volumetric examination of the full thickness weld shall be performed.

	VOTE						
Committee	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

PROPOSED REVISION OR ADDITION

Item No.

A 23-25

Subject/Title

Name Plate Replacement

NBIC Location

Part: Repairs and Alterations; Section: 5; Paragraph: 11

Project Manager and Task Group

Rick Valdez

Source (Name/Email)

Kathy Moore / kathymoore@joemoorecompany.com

Statement of Need

This does not address missing name plates. NB136 is about the form, not the name plate. This needs to address missing name plates as well. There should be a reference to the Stamp holder Part 2 Par. 5.2

Background Information

Many Stamp holders complete NB136, fabricate the replacement name plate as well as hang the plate. I feel there should be clarification in Part 3.

Existing Text	Proposed Text
	See attached proposed text:

	VOTE:						
COMMITTEE	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

Proposed change NBIC Part 3, 5.11 & S6.15

New changes:

5.11 REMOVAL, LOSS, OR DUPLICATION OF ORIGINAL STAMPING OR NAMEPLATE

If it becomes necessary to remove original stamping, the Inspector shall, subject to the approval of the Jurisdiction, witness making of a facsimile of stamping, the obliteration of old stamping, and transfer of stamping to the new item. When stamping is on a nameplate, the Inspector shall witness transfer of nameplate to the new location. Any relocation shall be described on the applicable NBIC "R" Form. The re-stamping or replacement of a code symbol stamp shall be performed only as permitted by the governing code of construction.

If a nameplate or stamping is lost, indistinct, or missing entirely, a new nameplate or re-stamping shall be obtained in accordance with the governing code of construction and the guidance and requirements found in NBIC Part 2, 5.2.1 - *Indistinct Stamping or Nameplate is Lost, Illegible, or Detached, 5.2.2 - Reporting,* and 5.2.3 - *Replacement of Duplicate Nameplates.*

S6.18 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 governing Authority. Such stamping or attaching of a nameplate shall be done only with the knowledge and authorization of the Inspector. The "R" Certificate Holder responsible for 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. For application of new replacement stamping or the attachment of a new or duplicate nameplate when the original is lost, illegible, or a duplicated is desired, see NBIC Part 2, 5.2 requirements.

(Table of Contents associated change)

Current:

New:

Proposal 23-25 Background:

<u>Existing</u> relevant wording/Sections/Paragraphs:

PART 2, SECTION 5
REPAIRS AND ALTERATIONS — CERTIFICATION/DOCUMENTATION AND STAMPING

5.2.1 INDISTINCT STAMPING OR NAMEPLATE IS LOST, ILLEGIBLE, OR DETACHED.

a) When the stamping on a pressure –retaining item becomes indistinct or the nameplate is lost, illegible or detached, but traceability to the original pressure-retaining item is still possible the Inspector shall instruct the owner or user to have the nameplate or stamped data replaced. All re-stamping shall be done in accordance with the original code of construction, except as modified herein. Request for permission to re-stamp data or replace nameplates shall be made to the Jurisdiction in which the nameplate or stamping is reapplied for approval. Application shall be made on the *Replacement of Stamped Data Form,* NB-136 (see 5.3.2) which is available on the National Board website (www.nationalboard.org). Proof of traceability to the original nameplate or stamping and other such data, as is available, shall be furnished with the request. The manufacturer of the pressure-retaining item, if available, shall be contacted prior to replacing a nameplate or stamped data in order to verify applicable code requirements.
b) When there is no Jurisdiction, documentation used to verify traceability, and the *Replacement of Stamped Data Form,* NB-136 shall be submitted to a National Board Commissioned Inspector for approval.
c) All re-stamping or replacement of nameplates shall be witnessed by a National Board Commissioned Inspector.
d) When the nameplate is welded to the pressure retaining boundary, the welding must be done by a National Board "R" Stamp Holder.
e) Permission from the Jurisdiction or National Board Commissioned Inspector is not required for the reattachment of nameplates that are partially attached.
f) The re-stamping or replacement of a code symbol stamp shall be performed only as permitted by the governing code of construction.
g) Replacement nameplates or stamped data shall be clearly marked "Replacement".
h) When traceability cannot be established, the Jurisdiction where the pressure retaining item is installed shall be contacted for approval prior to replacing a nameplate or re-applying stamping.

5.2.2 REPORTING

a) The completed Form NB-136 with a facsimile of the replacement stamping or nameplate applied and appropriate signatures shall be filed with the Jurisdiction, if applicable and the National Board by the owner, user or "R" Stamp Holder.

b) The owner or user shall retain all documentation provided for traceability with the completed form NB-136 for as long as the pressure-retaining item is in their ownership or use. If the pressure-retaining item is sold, Form NB-136 along with the supporting documentation shall be provided to the new owner. If it becomes necessary to remove original stamping, the Inspector shall, subject to the approval of the Jurisdiction, witness making of a facsimile of stamping, the obliteration of old stamping, and transfer of stamping to the new item. When stamping is on a nameplate, the Inspector shall witness transfer of nameplate to the new location. Any relocation shall be described on the applicable NBIC "R" Form. The re-stamping or replacement of a code symbol stamp shall be performed only as permitted by the governing code of construction.

5.7 STAMPING REQUIREMENTS FOR REPAIRS AND ALTERATIONS
5.7.1 GENERAL

The stamping of or attachment of a nameplate to a pressure-retaining item shall indicate that the work was performed in accordance with the requirements of this code. Such stamping or attaching of a nameplate shall be done only with the knowledge and authorization of the Inspector. The "R" Certificate Holder responsible for repair or the construction portion of the alteration shall apply stamping. For a re-rating where no physical changes are made to the pressure-retaining item, the "R" Certificate Holder responsible for design shall apply stamping.

5.11 REMOVAL OF ORIGINAL STAMPING OR NAMEPLATE

If it becomes necessary to remove original stamping, the Inspector shall, subject to the approval of the Jurisdiction, witness making of a facsimile of stamping, the obliteration of old stamping, and transfer of stamping to the new item. When stamping is on a nameplate, the Inspector shall witness transfer of nameplate to the new location. Any relocation shall be described on the applicable NBIC “R” Form. The re-stamping or replacement of a code symbol stamp shall be performed only as permitted by the governing code of construction.

S6.15 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.

Item A23-33 (Update Table 2.3)

2.3 STANDARD WELDING PROCEDURE SPECIFICATIONS (SWPS)

a) One or more SWPSs from NBIC Part 3, Table 2.3 may be used as an alternative to one or more WPS documents qualified by the organization making the repair or alteration, provided the organization accepts by certification (contained therein) full responsibility for the application of the SWPS in conformance with the Requirements for Application of SWPSs as stated in the SWPS. When using SWPSs, all variables listed on the Standard Welding Procedure are considered essential and, therefore, the repair organization cannot deviate, modify, amend, or revise any SWPS. US Customary Units or metric units may be used for all SWPSs in NBIC Part 3, Table 2.3, but one system shall be used for application of the entire SWPS in accordance with the metric conversions contained in the SWPS. The user may issue supplementary instructions as allowed by the SWPS. Standard Welding Procedures Specifications shall not be used in the same product joint together with the other Standard Welding Procedure Specifications or other welding procedure specifications qualified by the organization. SWPSs may be purchase at the AWS Bookstore at https://pubs.aws.org.

b) The AWS reaffirms, amends or revises SWPSs in accordance with ANSI procedures.

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

TABLE 2.3

SWPS DESIGNATION: ~~YEAR~~

~~B2.1-1-001: 2020~~	~~B2.1-1-201: 2019~~	~~B2.1-8-215: 2012~~	~~B2.1-1/8-229: 2013~~
~~B2.1-1-002: 2020~~	~~B2.1-1-202: 2019~~	~~B2.1-8-216: 2012~~	~~B2.1-1/8-230: 2013~~
~~B2.1-1-016: 2018~~	~~B2.1-1-203: 2019~~	~~B2.1-4-217: 2021~~	~~B2.1-1/8-231: 2015~~
~~B2.1-1-017: 2018~~	~~B2.1-1-204: 2019~~	~~B2.1-4-218: 2021~~	~~B2.1-1-232: 2020~~
~~B2.1-1-018: 2020~~	~~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: 2020~~
~~B2.1-1-020: 2018~~	~~B2.1-1-207: 2019~~	~~B2.1-4-221: 2021~~	~~B2.1-1-235: 2020~~
~~B2.1-1-021: 2018~~	~~B2.1-1-208: 2019~~	~~B2.1-5A-222: 2022~~	
~~B2.1-1-022: 2018~~	~~B2.1-1-209: 2019~~	~~B2.1-5A-223: 2022~~	
~~B2.1-8-023: 2018~~	~~B2.1-1-210: 2012~~	~~B2.1-5A-224: 2022~~	
~~B2.1-8-024: 2012~~	~~B2.1-1-211: 2012~~	~~B2.1-5A-225: 2022~~	
~~B2.1-8-025: 2012~~	~~B2.1-8-212: 2012~~	~~B2.1-5A-226: 2022~~	
~~B2.1-1-026: 2018~~	~~B2.1-8-213: 2012~~	~~B2.1-1/8-227: 2013~~	
~~B2.1-1-027: 2018~~	~~B2.1-8-214: 2012~~	~~B2.1-1/8-228: 2013~~	

TABLE 2.3

SWPS DESIGNATION:

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

2.4 AWS REFERENCE STANDARDS

The following AWS Standards have been adopted by the NBIC for use as referenced below:

a) AWS B2.1 - Specification for Welding Procedure and Performance Qualification.

b) AWS B2.1 BMG - Base Metal Grouping for Welding Procedure and Performance Qualification

PROPOSED REVISION OR ADDITION

Item No.

A 23-36

Subject/Title

Clarifying Rules for Using Alternative NDE Methods

NBIC Location

Part: Repairs and Alterations & Repairs and Alterations; Section: 4 & 4; Paragraph: 4.2 a) & 4.4 b)

Project Manager and Task Group

Source (Name/Email)

Gary Scribner / gscribner@nbbi.org

Statement of Need

It has been determined that there may be some confusion regarding allowable NDE methods for repairs and alterations. The existing language of 4.2 a) tells the reader that alternative NDE methods acceptable to the Inspector and, where required, the Jurisdiction, may be used provided the requirements of Section 4 are met. However, it is possible that a reader may not familiarize themselves with all of the requirements of Section 4 prior to proposing an alternative NDE method. This change will help clarify and reinforce the requirements for alternative NDE methods for repairs and alterations.

Background Information

This change is being proposed as a result of the U.S. Chemical Safety Bureau's investigation of the Loy Lange Box Company pressure vessel explosion.

Existing Text

4.2 NONDESTRUCTIVE EXAMINATION
a) Nondestructive examination (NDE) requirements, including technique, 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). Weld repairs and alterations 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 Jurisdiction where the pressure-retaining item is installed, where required, may be used, provided that all other requirements of this section are met.

4.4 Examination and Test for Repairs and Alterations
a) The integrity of repairs, alterations, and replacement parts used in repairs and alterations shall be verified by examination or test;

b) Testing methods used shall be suitable for providing meaningful results to verify the integrity of the repair or alteration. Any insulation, coatings, or coverings that may inhibit or compromise a meaningful test method shall be removed, to the extent identified by the Inspector;

Proposed Text

4.2 NONDESTRUCTIVE EXAMINATION
a) Nondestructive examination (NDE) requirements, including technique, 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). Weld repairs and alterations 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 Jurisdiction where the pressure-retaining item is installed, where required, may be used, provided that the following requirements are met:~~provided that all other requirements of this section are met.~~
1) Testing methods used shall be suitable for providing meaningful results to verify the integrity of the repair or alteration;

2) Alternative NDE methods used for repairs shall be limited to those listed in Part 3, 4.4.1; and

3) Alternative NDE methods used for alterations shall be limited to those listed in Part 3, 4.4.2.

4.4 Examination and Test for Repairs and Alterations
a) The integrity of repairs, alterations, and replacement parts used in repairs and alterations shall be verified by examination or test;

b) ~~Testing methods used shall be suitable for providing meaningful results to verify the integrity of the repair or alteration.~~ Any insulation, coatings, or coverings that may inhibit or compromise a meaningful test method shall be removed, to the extent identified by the Inspector;

a) Title Page

The title page shall contain the Certificate Holder's ~~legal~~ company name, physical address, and scope of work.

The scope of work shall clearly indicate the type of repairs and/or alterations the Certificate Holder is capable of and intends to carry out. The scope of work indicated shall include the following, as applicable.

1) Repairs Only at either Shop or Field or Both

2) Alterations Only at either Shop or Field or Both

3) Repairs and Alterations at either Shop or Field or Both

4) Metallic Repairs

5) Non-Metallic Repairs

6) Design Only

b) Contents Page

The Quality System shall contain a page listing the contents of the manual by section, number (if applicable), revision level, and date of each section, as required for manual control.

c) Statement of Authority and Responsibility

A dated *Statement of Authority and Responsibility* shall clearly identify that the Quality System has the full support of management and endorsed by signature of a senior management official. The *Statement* shall also include:

1) A statement that all repairs or alterations carried out by the Certificate Holder shall meet the requirements of the NBIC and the Jurisdiction, as applicable;

2) The title of individual who has the authority and responsibility charged with the development and implementation of the Quality System and the freedom to identify quality problems, and to initiate, recommend and provide solutions and where required, stop or prohibit work from continuing; and

3) A statement that conflicts or disagrees with in the implementation of the Quality System shall be brought to the attention of the Certificate Holder's senior management official for a resolution that will not conflict with code, jurisdiction/regulatory authority, or Quality System requirements.

d) Quality System Control

The Quality System shall define how revisions of individual sections, exhibits or documents will be identified, and how distribution and retrieval will be achieved to ensure only the latest accepted revisions are available for use. In addition, the following shall be documented:

1) The title of the individual responsible for the preparation and approval of the Quality System including review of code editions, standards, and jurisdictional requirements.

2) Acceptance from the Authorized Inspection Agency prior to issuance and implementation of the Quality System.

e) Certification

When electronic certification of documents is used, the Quality System shall include provisions describing the controls and safeguards that are employed to ensure the integrity of the certification.

Subject: Use of Code Case 2787 in Repairs

Edition 2021

Question: Under the provisions of paragraph 4.2.2, is it permissible to apply Code Case 2787 and convert a pressure relief valve by adding more than one certified capacity on the pressure relief valve or nameplate?

Proposed Reply: Yes, provided that the "VR" Certificate Holder verifies that:

1. The requirements of ASME Code Case 2787 are met, and
2. The requirements of the NBIC concerning conversions, and specifically paragraph 4.7.3 are met.

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 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. Updated language to 4.2.2 currently balloted at the Main Committee under item 23-18 will change the need for the NBIC Committee to adopt code cases.

PROPOSED INTERPRETATION

Item No.

23-34

Subject/Title

Sealing of Nuclear Class Relief Valves

Project Manager and Task Group

Source (Name/Email)

Eben Creaser / eben.creaser@gnb.ca

Statement of Need

Provisions in NBIC Part 4 for “test only” activities do not provide direction for the periodic testing, adjustment and sealing of nuclear class valves. As the practice of involving the ANI is not described for sealing of a nuclear class valve without ANI witnessing is not explicitly prohibited the process of testing and sealing of nuclear class valves that were not repaired needs to be clarified.

Background Information

An owner user of a nuclear power plant having in-house repair program is mandated by the nuclear regulator to perform periodic set point verification and inspection of all relief valves both conventional and nuclear class. NBIC is not clear on the requirements for ANI involvement when a nuclear class valve has not been repaired but the seals were removed and the valve needs to be resealed.

Proposed Question

When an ASME nuclear class valve has been removed from service to perform a periodic set point check and for the purposes of removal of radiological contamination the seals on the valve need to be removed, is it a requirement that the ANI is present for the testing and resealing of the valve if the valve was not disassembled, repaired, or adjusted?

Proposed Reply

Test Only activities for ASME Section III Pressure Relief Devices are not addressed in NBIC Part 4.

Committee's Question 1

Committee's Reply 1

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.

shortened until acceptable inspection results are obtained. Where test records and/or inspection history are not available, the following inspection and test frequencies are suggested:

TABLE 3.2.6 (21)

Service	Inspection Type/Frequency
Power boilers less than 400 psi (2.76 MPa)	Lift lever test every six months, set pressure test annually or prior to planned boiler shutdown
Power boilers 400 psi (2.76 MPa) or greater	Set pressure test every three years or prior to planned boiler shutdown
High-temperature hot water boilers (See Note 1)	Set pressure test annually
Low-pressure steam heating boilers	Lift lever test quarterly, set pressure test annually prior to heating season
Organic Fluid Vaporizers	Remove, inspect, and set pressure test annually
Hot water heating boilers (See Note 2)	Lift lever test quarterly, set pressure test annually prior to heating season
Water heaters (See Note 3)	Lift lever test every two months, remove and inspect temperature probe for damage, buildup or corrosion every three years.
Pressure vessels/piping-steam service	Set pressure test annually
Pressure vessels/piping-air/clean, dry gas	Set pressure test every three years
Pressure vessels/piping-propane/refrigerant	Set pressure test every five years
Pressure relief valves in combination with rupture disks	Set pressure test every five years
All Others	Per inspection history

Note 1:

For safety reasons, removal and testing on a steam test bench is recommended. Such testing will avoid damaging the pressure relief valve by discharge of a steam water mixture, which could occur if the valve is tested in place.

Note 2:

The frequencies specified for the testing of pressure relief valves on boilers is primarily based on differences between high pressure boilers that are continuously manned, and lower pressure automatically controlled boilers that are not monitored by a boiler operator at all times. When any boiler experiences an overpressure condition such that the pressure relief valves actuate, the valves should be inspected for seat leakage and other damage as soon as possible and any deficiencies corrected.

Note 3:

The temperature probe shall be checked for the condition of the coating material and freedom of movement without detaching. If the probe pulls out or falls off during inspection, the valve shall be repaired or replaced. Due to the relatively low cost of temperature and pressure relief valves for this service, it is recommended that a defective valve be replaced with a new valve if a repair or resetting is indicated.

Thermal fluid heaters | Remove, inspect, and set pressure test annually

acceptable inspection results are obtained. Where test records and/or inspection history are not available, the inspection frequencies in Table 2.5.8 are suggested.

(21) **TABLE 2.5.8**

Service	Inspection Frequency
Power boilers less than 400 psi (2.76 MPa)	Lift lever test every six months, set pressure test annually or prior to planned boiler shutdown
Power boilers 400 psi (2.76 MPa) or greater	Set pressure test every three years or prior to planned boiler shutdown
High-temperature hot water boilers (See Note 1)	Set pressure test annually
Low-pressure steam heating boilers	Lift lever test quarterly, set pressure test annually prior to heating season
Organic Fluid Vaporizers	Remove, inspect, and set pressure test annually
Hot water heating boilers (See Note 2)	Lift lever test quarterly, set pressure test annually prior to heating season
Water heaters (See Note 3)	Lift lever test every two months, remove and inspect temperature probe for damage, buildup or corrosion every three years.
Pressure vessels/piping-steam service	Set pressure test annually
Pressure vessels/piping-air/clean, dry gas	Set pressure test every three years
Pressure vessels/piping-propane/refrigerant	Set pressure test every five years
Pressure relief valves in combination with rupture disks	Set pressure test every five years
All others	Per inspection history

Note 1:

For safety reasons, removal and testing on a steam test bench is recommended. Such testing will avoid damaging the pressure relief valve by discharge of a steam water mixture, which could occur if the valve is tested in place.

Note 2:

The frequencies specified for the testing of pressure relief valves on boilers is primarily based on differences between high pressure boilers that are continuously manned, and lower pressure automatically controlled boilers that are not monitored by a boiler operator at all times. When any boiler experiences an overpressure condition such that the pressure relief valves actuate, the valves should be inspected for seat leakage and other damage as soon as possible and any deficiencies corrected.

Note 3:

The temperature probe shall be checked for the condition of the coating material and freedom of movement without detaching. If the probe pulls out or falls off during inspection, the valve shall be repaired or replaced. Due to the relatively low cost of temperature and pressure relief valves for this service, it is recommended that a defective valve be replaced with a new valve if a repair or resetting is indicated.

2.5.8.1 ESTABLISHMENT OF INSPECTION AND TEST INTERVALS

Where a recommended test frequency is not listed, the valve user and Inspector must determine and agree on a suitable interval for inspection and test. Some items to be considered in making this determination are:

a) Jurisdictional requirements;

Thermal fluid heaters | Remove, inspect, and set pressure test annually

FOR REFERENCE ONLY (NOT PART OF THIS ACTION ITEM)

Excerpt from Item 19-88 (MC Approved)
Revision Date: January 6, 2021

2.2.12.7 THERMAL FLUID HEATERS

c) Inspection

f. Pressure relief valves — Pressure relief valves shall be a closed bonnet design with no manual lift lever. Pressure relief valves shall be periodically tested by a VR or T/O Certificate Holder with a frequency in accordance with jurisdictional requirements or an initial frequency of 1 year or less. Testing intervals shall be evaluated and may be adjusted based on inspection history up to a maximum of 3 years. The pressure relief valve installation shall meet the requirements of NBIC Part 4, 2.3. Inspection and testing of the pressure relief valve shall meet the requirements of NBIC Part 4, 3.0.

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: D. Marek (PM), A. Cox, P. Dhobi, T. Patel

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.

January 2023 Meeting Action: Work continues on this item.

i) Valve Testing, Adjustment and Sealing

1) *Pressure relief valves shall be tested either in service, using the service-fluid, or on test equipment accredited to 3.3.3.4(n) using the test medium specified in 3.2.5.1(c). Steam testing on air shall be in accordance with 4.6.2. The seat tightness test shall be performed after set pressure testing.*

~~1)~~2) The system shall include provisions that each pressure relief valve requiring adjustment as permit-ted by 3.2.5.5 shall have existing seal(s) removed only for the required adjustment(s), be tested, set, and external adjustment(s) re-sealed according to the requirements of the applicable ASME Code Section and the NBIC. The seal shall identify the "T/O" Certificate Holder performing the test or making the adjustment. Abbreviations or initials are permitted, provided such identification is defined in the quality system and acceptable to the National Board.

~~2)~~3) The system shall include provisions that each pressure relief valve requiring the use of a Lift Assist Device for testing as permitted by 3.2.5 c) may have the seal(s) removed for testing. Upon completion of testing, external adjustments shall be re-sealed in accordance with i) ~~1)~~ 2) above *and 3.3.6.2~~5.2~~*.

PART 2
TABLE 2.5.8

Service	Recommended Inspection Type/Frequency (See Note 4)
Power boilers less than 400 psi (2.76 MPa)	Lift lever test every six months, set pressure test annually or prior to planned boiler shutdown
Power boilers 400 psi (2.76 MPa) or greater	Set pressure test every three years or prior to planned boiler shutdown
High-temperature hot water boilers (See Note 1)	Set pressure test annually
Low-pressure steam heating boilers	Lift lever test quarterly, set pressure test annually prior to heating season
Organic Fluid Vaporizers	Remove, inspect, and set pressure test annually
Hot water heating boilers (See Note 2)	Lift lever test quarterly, set pressure test annually prior to heating season
Water heaters (See Note 3)	Lift lever test every two months, remove and inspect temperature probe for damage, buildup or corrosion every three years.
Pressure vessels/piping-steam service	Set pressure test annually
Pressure vessels/piping-air/clean, dry gas	Set pressure test every three years
Pressure vessels/piping-propane/refrigerant	Set pressure test every five years
Pressure relief valves in combination with rupture disks	Set pressure test every five years
All Others	Per inspection history

Note 1:

For safety reasons, removal and testing on a steam test bench is recommended. Such testing will avoid damaging the pressure relief valve by discharge of a steam water mixture, which could occur if the valve is tested in place.

Note 2:

The frequencies specified for the testing of pressure relief valves on boilers is primarily based on differences between high pressure boilers that are continuously manned, and lower pressure automatically controlled boilers that are not monitored by a boiler operator at all times. When any boiler experiences an overpressure condition such that the pressure relief valves actuate, the valves should be inspected for seat leakage and other damage as soon as possible and any deficiencies corrected.

Note 3:

The temperature probe shall be checked for the condition of the coating material and freedom of movement without detaching. If the probe pulls out or falls off during inspection, the valve shall be repaired or replaced. Due to the relatively low cost of temperature and pressure relief valves for this service, it is recommended that a defective valve be replaced with a new valve if a repair or resetting is indicated.

Note 4:

Where the Jurisdiction has adopted other Standards for specific applications, those Standards shall be used.

PART 4
TABLE 3.2.6

Service	Recommended Inspection Type/Frequency (See Note 4)
Power boilers less than 400 psi (2.76 MPa)	Lift lever test every six months, set pressure test annually or prior to planned boiler shutdown
Power boilers 400 psi (2.76 MPa) or greater	Set pressure test every three years or prior to planned boiler shutdown
High-temperature hot water boilers (See Note 1)	Set pressure test annually
Low-pressure steam heating boilers	Lift lever test quarterly, set pressure test annually prior to heating season
Organic Fluid Vaporizers	Remove, inspect, and set pressure test annually
Hot water heating boilers (See Note 2)	Lift lever test quarterly, set pressure test annually prior to heating season
Water heaters (See Note 3)	Lift lever test every two months, remove and inspect temperature probe for damage, buildup or corrosion every three years.
Pressure vessels/piping-steam service	Set pressure test annually
Pressure vessels/piping-air/clean, dry gas	Set pressure test every three years
Pressure vessels/piping-propane/refrigerant	Set pressure test every five years
Pressure relief valves in combination with rupture disks	Set pressure test every five years
All Others	Per inspection history

Note 1:

For safety reasons, removal and testing on a steam test bench is recommended. Such testing will avoid damaging the pressure relief valve by discharge of a steam water mixture, which could occur if the valve is tested in place.

Note 2:

The frequencies specified for the testing of pressure relief valves on boilers is primarily based on differences between high pressure boilers that are continuously manned, and lower pressure automatically controlled boilers that are not monitored by a boiler operator at all times. When any boiler experiences an overpressure condition such that the pressure relief valves actuate, the valves should be inspected for seat leakage and other damage as soon as possible and any deficiencies corrected.

Note 3:

The temperature probe shall be checked for the condition of the coating material and freedom of movement without detaching. If the probe pulls out or falls off during inspection, the valve shall be repaired or replaced. Due to the relatively low cost of temperature and pressure relief valves for this service, it is recommended that a defective valve be replaced with a new valve if a repair or resetting is indicated.

Note 4:

Where the Jurisdiction has adopted other Standards for specific applications, those Standards shall be used.

SC-PRD Item 21-61 Audit Requirements in TO Program

3.3.3.4 OUTLINE OF REQUIREMENTS FOR A QUALITY SYSTEM

o) Field Testing

If field testing is included in the scope of work, the system shall address any differences or additions to the quality system required to properly control this activity, including the following:

~~1) Provisions for annual audits of field activities shall be included;~~

~~2)~~1) Provisions for use of owner-user measurement and test equipment, if applicable, shall be addressed.

TABLE 3.3.3.4 P)

Reports, Records, or Documents for "T/O" Certificate Holders	Instructions	Minimum Retention Period
a) Record of testing or inspection	The testing and inspection program section shall include reference to a document (such as a report, traveler, or checklist) that outlines the specific testing and inspection procedures used in the testing of pressure relief valves.	5 years
b) Records related to equipment qualification and instrument calibration	Prior to use, all performance testing equipment shall be qualified by the certificate holder to ensure that the equipment and testing procedures will provide accurate results when used within the ranges established for that equipment. This qualification may be accomplished by benchmark testing, comparisons to equipment used for verification testing as specified in the quality system, or comparisons to field performance.	5 years after the subject piece of equipment or instrument is retired.
c) Record of lift assist device qualification	Prior to use, all lift assist devices shall be qualified by the certificate holder to ensure that the equipment and testing procedures will provide accurate results when used within the ranges established for that equipment used for verification testing as specified in the quality system or comparisons to field performance. This qualification shall be documented.	5 years after the lift assist device is retired.
d) Records of employee training and qualification	Each testing organization shall establish minimum qualification requirements for those positions within the organization as they directly relate to pressure relief valve testing. Each testing organization shall document the	5 years after termination of employment.

	evaluation and acceptance of an individual's qualification for the applicable position.	
e) Records of audits of the Quality Program	The testing organization shall audit the Quality System on an annual basis. Audit results and exceptions shall be documented ~~and any exclusions shall be noted.~~	5 Years

3.3.4 TESTING & ADJUSTMENT

a) Each Pressure Relief Valve to be tested shall be inspected in accordance with Section 3.2.2.
b) Pressure Relief Valves with missing or illegible nameplates shall not be tested under the T/O program and shall be referred to a "VR" Certificate Holder or replaced.
c) Pressure Relief Valves shall be tested to confirm that the Set Pressure (defined as the average of at least three consecutive tests) is within the allowable tolerance specified by the applicable ASME Code Section and NBIC. Test Results, including Test Gauge Identification, shall be recorded on the document referred to above. Pressure Relief Valve seals shall not be removed unless required for adjustment or testing using a lift assist device.
d) Testing organizations may obtain a "T/O" Certificate of Authorization for field testing, either as an extension to their in-shop/plant scope, or as a field-only scope, provided that the Quality System includes the following provisions:
    1) Qualified technicians in the employ of the certificate holder perform such testing;
    2) An acceptable quality system covering field testing, ~~including field audits~~ is maintained; and
    3) Functions affecting the quality of the tested valves are supervised from the address of record where the "T/O" certification is issued.

~~**3.3.4.1 AUDIT REQUIREMENTS**~~

~~Upon issuance of a *Certificate of Authorization*, provided field tests are performed, annual audits of the work carried out in the field shall be performed to ensure that the requirements of the certificate holder's quality system are met. The audit shall include, but not be limited to, performance testing, in accordance with paragraph 4.6, of valve(s) that were tested in the field. The audits shall be documented.~~

3.6 Annual Audits

Upon Issuance of a Certificate of Authorization, the testing organization shall audit the Quality System of the testing program on an annual basis. The quality manual shall define the auditing criteria, scope, frequency, and methods to ensure the requirements of the NBIC and Certificate Holder's Quality System are effectively implemented. The scope shall include but not be limited to:

a) Specification Control 3.3.3.4 g)
b) Inspection and Testing Program 3.3.3.4 h)
c) Valve Adjustment and Sealing 3.3.3.4 i)

SC-PRD Item 21-61 Audit Requirements in TO Program

d) Test Only Nameplates 3.3.3.4 j)
e) Calibration 3.3.3.4 k)
f) Manual Control/Procedures 3.3.3.4 l)
g) Nonconformities 3.3.3.4 m)
h) Testing Equipment 3.3.3.4 n)
i) Field Testing 3.3.3.4 o)
j) Records Retention 3.3.3.4 p)
k) Competency, Training and Qualification of Personnel 3.4

The audit results shall be documented. Mandatory items ~~outside~~ in the repair organization's scope ~~or items that have~~ not ~~been~~ performed during the annual audit period shall be documented as exceptions in the audit results.

Commented [DA1]: Note that the title of 3.4 is an approved change for the 2022 Edition

ITEM 22-15 1/10/23

PART 4

2.4.5 PRESSURE RELIEF VALVES FOR TANKS AND HEAT EXCHANGERS

2.4.5.1 STEAM TO HOT-WATER SUPPLY

When a hot-water supply is heated indirectly by steam in a coil or pipe ~~within the service limitations set forth in Part 1, 3.2, *Definitions*~~, the pressure of the steam used shall not exceed the safe working pressure of the hot water tank, and a pressure relief valve at least NPS 1 (DN 25), set to relieve at or below the maximum allowable working pressure of the tank, shall be applied on the tank.

2.4.5.2 HIGH TEMPERATURE WATER TO WATER HEAT EXCHANGER

When high temperature water is circulated through the coils or tubes of a heat exchanger to warm water for space heating or hot-water supply, ~~within the service limitations set forth in Part 1, 3.2, *Definitions*,~~ the heat exchanger shall be equipped with one or more National Board capacity certified pressure relief valves set to relieve at or below the maximum allowable working pressure of the heat exchanger, and of sufficient rated capacity to prevent the heat exchanger pressure from rising more than 10% above the maximum allowable working pressure of the vessel.

2.4.5.3 HIGH TEMPERATURE WATER TO STEAM HEAT EXCHANGER

When high temperature water is circulated through the coils or tubes of a heat exchanger to generate low pressure steam, ~~within the service limitations set forth in Part 1, 3.2, *Definitions*,~~ the heat exchanger shall be equipped with one or more National Board capacity certified pressure relief valves set to relieve at a pressure not to exceed 15 psig (100 kPa), and of sufficient rated capacity to prevent the heat exchanger pressure from rising more than 5 psig (34 kPa) above the maximum allowable working pressure of the vessel. For heat exchangers requiring steam pressures greater than 15 psig (100 kPa), refer to NBIC Part 1, Section 2 or Section 4.

PART 1

3.9.5 PRESSURE RELIEF VALVES FOR TANKS AND HEAT EXCHANGERS

3.9.5.1 STEAM TO HOT-WATER SUPPLY

When a hot-water supply is heated indirectly by steam in a coil or pipe ~~within the service limitations set forth in Part 1, 3.2, *Definitions*~~, the pressure of the steam used shall not exceed the safe working pressure of the hot water tank, and a pressure relief valve at least NPS 1 (DN 25), set to relieve at or below the maximum allowable working pressure of the tank, shall be applied on the tank.

3.9.5.2 HIGH TEMPERATURE WATER TO WATER HEAT EXCHANGER

When high temperature water is circulated through the coils or tubes of a heat exchanger to warm water for space heating or hot-water supply~~, within the service limitations set forth in Part 1, 3.2, *Definitions*~~, the heat exchanger shall be equipped with one or more National Board capacity certified pressure relief

valves set to relieve at or below the maximum allowable working pressure of the heat exchanger, and of sufficient rated capacity to prevent the heat exchanger pressure from rising more than 10% above the maximum allowable working pressure of the vessel.

3.9.5.3 HIGH TEMPERATURE WATER TO STEAM HEAT EXCHANGER

When high temperature water is circulated through the coils or tubes of a heat exchanger to generate low pressure steam, ~~within the service limitations set forth in Part 1, 3.2, *Definitions*,~~ the heat exchanger shall be equipped with one or more National Board capacity certified pressure relief valves set to relieve at a pressure not to exceed 15 psig (100 kPa), and of sufficient rated capacity to prevent the heat exchanger pressure from rising more than 5 psig (34 kPa) above the maximum allowable working pressure of the vessel. For heat exchangers requiring steam pressures greater than 15 psig (100 kPa), refer to NBIC Part 1, Section 2 or Section 4.

23-18 A. Donaldson

4.2.2 CONSTRUCTION STANDARDS FOR PRESSURE RELIEF DEVICES

For the repair of pressure relief devices, the following construction standards shall apply:

a) Tthe applicable new construction standard ~~to be~~ used for reference during repairs shall be the original code of construction.~~is the ASME Code.~~

b) Applicable ASME Code Cases shall be used for reference during repairs when:

1) The device complies with an ASME Code Case or, can ~~they were used in the original construction of the valve.~~

2) The device undergoes a conversion to comply with an ASME Code Case. ~~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.~~

c) A device that complies with an ASME Code Case may be converted to comply with the original code of construction.

d) For pressure relief devices repaired per 4.2.2 b)1 or converted per 4.2.2 b)2, the ASME Code Case number shall be noted on the repair document and~~, when required by the code case,~~ stamped on the repair nameplate.

e) For pressure relief devices converted per 4.2.2 c), the ASME Code Case number shall be noted on the repair document but shall not be stamped on the repair nameplate. References to that ASME Code case shall be marked out but left legible on the original nameplate.

f) ~~b)~~ The Jurisdiction where the pressure retaining item is installed shall be consulted for any unique requirements it may have established including construction standards and ASME Code Cases.

ITEM 22-30 – Glycol

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.		

Suggested Proposal.

3.6.3 DRAINS

Drain systems shall be installed in accordance with jurisdictional and environmental requirements, manufacturer's recommendations, and/or industry standards, as applicable. Unobstructed ~~floor~~ drains, properly located in the equipment room, will facilitate proper cleaning of the equipment room. ~~Floor d~~Drains that are used infrequently should have water poured into them periodically to prevent the entrance of sewer gasses and odors. If there is a possibility of freezing, an environmentally safe antifreeze mixture should be used in the drain traps. Drains receiving blowdown water should be connected to the sanitary sewer by way of an acceptable blowdown tank or separator or an air gap that will allow the blowdown water to cool to at least 140°F (60°C) and reduce the pressure to 5 psig (34 kPa) or less.

3.7.7 BOTTOM BLOWOFF AND DRAIN VALVES

3.7.7.1 STEAM HEATING, HOT-WATER HEATING, AND HOT-WATER SUPPLY BOILERS

a) Bottom Blowoffs

1) Each steam boiler shall have a bottom blowoff connection fitted with a valve or cock connected to the lowest water space practicable with a minimum size as shown in NBIC Part 1, Table 3.7.7.1. The discharge piping shall be full size to the point of discharge.

2) Boilers having a capacity of 25 gallons (95 l) or less are exempt from the above requirements, except that they shall have a NPS 3/4 (DN 20) minimum drain valve.

b) Drains

1) Each steam or hot-water boiler shall have one or more drain connections, fitted with valves or cocks connecting to the lowest water containing spaces. All parts of the boiler must be capable of

being drained (the boiler design will dictate the number and size of drains). The minimum size of the drain piping, valves, and cocks shall be NPS 3/4 (DN 20). The discharge piping shall be full size to the point of discharge.

2) For hot-water boilers with potentially hazardous fluids, such as ethylene glycol, discharge to drains should consider any environmental requirements.

3) When the blowoff connection is located at the lowest water containing space, a separate drain connection is not required.

3.9.1.5 PRESSURE RELIEF VALVE DISCHARGE PIPING

a) A discharge pipe shall be used. Its internal cross-sectional area shall be not less than the full area of the valve outlet or of the total of the valve outlets discharging thereinto, and shall be as short and straight as possible and arranged as to avoid undue stress on the valve or valves. A union may be installed in the discharge piping close to the valve outlet. When an elbow is placed on a pressure relief valve discharge pipe, it shall be located close to the valve outlet downstream of the union to minimize reaction moment stress.

b) The discharge from pressure relief valves shall be so arranged that there will be no danger of scalding attendants. The pressure relief valve discharge shall be piped away from the boiler to a safe point of discharge, and there shall be provisions made for properly draining the piping. The size and arrangement of discharge piping shall be such that any pressure that may exist or develop will not reduce the relieving capacity of the relieving devices below that required to protect the boiler.

c) Discharge piping shall be rated for the discharge fluid conditions of pressure and temperature including a minimum and maximum design temperature. Material selection for the discharge piping shall consider the reduction in material toughness at the low end of design temperature and the reduction in material strength at the high end of design temperature. Rigid pipe or tubing should be used for discharge lines that carry hot water or steam.

d) Plastic discharge pipe and fittings are permitted (when compatible with the process fluid, system design temperatures, and other ambient conditions such as light and humidity) and shall conform to NSF/ANSI 14 Plastics Piping System Components and Related Materials.

e) Discharge piping shall be rated for any static pressure present and the back pressure that may develop when the pressure relief device is at full capacity. Where multiple pressure relief devices or vents discharge into common piping, the back pressure that could develop due to simultaneous flow from all sources shall be considered.

f) For hot-water boilers with potentially hazardous fluids, such as ethylene glycol, discharge to drains should consider any environmental requirements.

NOTES – The following are explanatory and are not part of the proposal

There are three appropriate places to address the issue of discharge of glycol or other hazardous fluids in heating boilers:

1) floor drains – Conform this section to other sections where environmental requirements are discussed.
2) Bottom blowdown discharge piping – Add a “should consider”
3) Relief valve discharge piping – Add a “should consider” for glycol

FOR DRAINS

COMMENT – The proposed language already exists in the book.

1.6.5 FUEL

All fuel systems shall be installed in accordance with jurisdictional and environmental requirements, manufacturer’s recommendations, and/or industry standards, such as ASME CSD-1; ANSI Z/CSA; NFPA 85; Boiler and Combustion Systems Hazards Codes; or others as applicable. The following are requirements for Natural Gas, Propane, and #2 fuel oil.

a) Natural Gas and Propane

2.5.3.3 also and 2.6.2

2.6.2 ASH REMOVAL

Ash removal systems shall be installed in accordance with jurisdictional and environmental requirements, manufacturer’s recommendations, and/or industry standards, as applicable.

2.8.5 AUTOMATIC LOW-WATER FUEL CUTOFF AND/OR WATER FEEDING DEVICE FOR STEAM OR VAPOR SYSTEM BOILERS

a) Each automatically fired steam-or vapor-system boiler shall have an automatic low-water fuel cutoff so located as to automatically cut off the fuel supply when the surface of the water falls to the lowest visible part of the water-gage glass. If a water feeding device is installed, it shall be so constructed that the water inlet valve cannot feed water into the boiler through the float chamber and so located as to supply requisite feedwater.

b) Such a fuel cutoff or water feeding device may be attached directly to a boiler. A fuel cutoff or water feeding device may also be installed in the tapped openings available for attaching a water glass directly to a boiler, provided the connections are made to the boiler with nonferrous tees or Y's not less than NPS 1/2 (DN 15) between the boiler and water glass so that the water glass is attached directly and as close as possible to the boiler; the run of the tee or Y shall take the water glass fittings, and the side outlet or branch of the tee or Y shall take the fuel cutoff or water feeding device. The ends of all nipples shall be reamed to full-size diameter.

c) In addition to the requirements in a) and b) above, a secondary low-water fuel cutoff with manual reset shall be provided on each automatically fired steam or vapor system boiler.

d) When installed external to the boiler, low-water fuel cutoffs shall be installed in separate water columns or chambers, which shall be connected to the boiler by piping connections below the waterline. A shared steam piping connection is permissible.

~~d)~~e) Fuel cutoffs and water feeding devices embodying a separate chamber shall have a vertical drain pipe, extended to a safe point of discharge, and a blowoff valve not less than NPS 3/4 (DN 20), located at the lowest point in the water equalizing pipe connections so that the chamber and the equalizing pipe can be flushed and the device tested.

~~e)~~f) Each electric steam boiler of the resistance element type shall be equipped with an automatic low-water cutoff so located as to automatically cut off the power supply to the heating elements before the surface of the water falls below the visible part of the glass. No low-water cutoff is required for electrode-type boilers.

3.8.1.5 AUTOMATIC LOW-WATER FUEL CUTOFF AND/OR WATER FEEDING DEVICE

a) Each automatically fired steam boiler shall have an automatic low-water fuel cutoff. The low-water fuel cutoffs must be located to automatically cut off the fuel supply when the surface of the water falls to a level not lower than the lowest visible part of the water-gage glass. If a water feeding device is installed, it shall be so constructed that the water inlet valve cannot feed water into the boiler through the float chamber and so located as to supply requisite feedwater.

b) Such a fuel cutoff or water feeding device may be attached directly to a boiler. A fuel cutoff or water feeding device may also be installed in the tapped openings available for attaching a water-gage glass directly to a boiler, provided the connections are made to the boiler with nonferrous tees or Y's not less than NPS 1/2 (DN 15) between the boiler and water glass so that the water glass is attached directly and as close as possible to the boiler; the run of the tee or Y shall take the water glass fittings, and the side outlet or branch of the tee or Y shall take the fuel cutoff or water feeding device. The ends of all nipples shall be reamed to full-size diameter.

c) In addition to the requirements in a) and b) above, a secondary low-water fuel cutoff with manual reset shall be provided on each automatically fired steam boiler.

d) When installed external to the boiler, low-water fuel cutoffs shall be installed in separate water columns or chambers, which shall be connected to the boiler by piping connections below the waterline. A shared steam piping connection is permissible.

~~d)~~e) Fuel cutoffs and water feeding devices embodying a separate chamber shall have a vertical drain pipe and a blowoff valve not less than NPS 3/4 (DN 20), located at the lowest point in the water equalizing pipe connections so that the chamber and the equalizing pipe can be flushed and the device tested.

CW-120 Requirements for Water Level Controls for Low-Pressure Steam Boilers

(a) Each automatically fired, low-pressure steam boiler shall have at least two automatic low-water fuel cutoffs, one of which may be a combined feeder/cutoff device. When installed external to the boiler, each device shall be installed in individual chambers (water columns), which shall be attached to the boiler by separate pipe connections below the waterline. A common steam connection is permissible. Each cutoff device shall be installed to prevent start-up and to cut off the boiler fuel or energy supply automatically, prior to the fall of the surface of the water below the level of the lowest visible part of the gage glass (see CW-210).

EXCEPTION: Only one low-water cutoff is required on gravity return units installed in residences, as defined by the authority having jurisdiction.

A water feeding device, when used, shall be constructed and installed so that the water inlet valve cannot feed water into the boiler through the float chamber or its connections to the boiler. The water feeding device shall be located to maintain the operating water level.

CW-140 Requirements for Water Level Controls for High-Pressure Steam Boilers

(a) Each automatically fired, high-pressure steam boiler, except miniature boilers, shall have at least two automatic low-water fuel cutoff devices. When installed external to the boiler, each device shall be installed in individual chambers (water columns), which shall be attached to the boiler by separate pipe connections below the waterline. A common steam connection is permissible. Each cutoff device shall be installed to prevent start-up and cut off the boiler fuel or energy supply automatically when the surface of the water falls to a level not lower than the lowest visible part of the gage glass. One control shall be set to function ahead of the other.

d) Items requested by the Inspector, such as manhole and handhole plates, washout plugs, inspection plugs, and any other items shall be removed;

e) The Inspector shall not enter a vessel until all safety precautions have been taken. The temperature of the vessel shall be such that the inspecting personnel will not be exposed to excessive heat. Vessel surfaces should be cleaned as necessary so as to preclude entrant exposure to any toxic or hazardous materials;

f) If requested by the Inspector or required by regulation or procedure, a responsible attendant shall remain outside the vessel at the point of entry while the Inspector is inside and shall monitor activity inside and outside and communicate with the Inspector as necessary. The attendant shall have a means of summoning rescue assistance, if needed, and to facilitate rescue procedures for all entrants without personally entering the vessel.

Note: If a vessel has not been properly prepared for an internal inspection, the Inspector shall decline to make the inspection.

1.5.4 POST-INSPECTION ACTIVITIES

a) During any inspections or tests of pressure-retaining items, the actual operating and maintenance practices should be noted by the Inspector and a determination made as to their acceptability.

b) Any defects or deficiencies in the condition, operating, and maintenance practices of the pressure-retaining item shall be discussed with the owner or user at the time of inspection and recommendations made for correction. Follow-up inspections should be performed as needed to determine if deficiencies have been corrected satisfactorily.

c) Documentation of inspection shall contain pertinent data such as description of item, classification, identification numbers, inspection intervals, date inspected, type of inspection, and test performed, and any other information required by the inspection agency, jurisdiction, and/or owner or user. The Inspector shall sign, date, and note any deficiencies, comments, or recommendations on the inspection report. The Inspector should retain and distribute copies of the inspection report, as required.

d) The form and format of the inspection report shall be as required by the Jurisdiction. Where no Jurisdiction exists, forms ~~NB-5,~~ NB-6~~,~~ or NB-7 (see NBIC Part 2, 5.3) or any other form(s) required by the inspection agency or owner or user may be used as appropriate.

1.6 CHANGE OF SERVICE

Supplement 9 of this part provides requirements and guidelines to be followed when a change of service or service type is made to a pressure-retaining item.

Whenever there is a change of service, the Jurisdiction where the pressure-retaining item is to be operated, shall be notified for acceptance, when applicable. Any specific jurisdictional requirements shall be met.

(23) 1.7 SCRAPPING PRESSURE RETAINING ITEMS

The owner or user should deface beyond recognition and remove the code nameplate(s) or stamping of any pressure-retaining item that is scrapped. The removal or defacement of the Code nameplate(s) should be verified by the Inspector, and the National Board form NB-480 should be completed and submitted to the National Board, and Jurisdiction if required.

2.3.5.2 SAFETY DEVICES

See NBIC Part 2, 2.5 for the inspection of safety devices (pressure relief valves and non-closing devices such as rupture disks) used to prevent the overpressure of pressure vessels.

2.3.5.3 CONTROLS/DEVICES

a) Any control device attached to a vessel should be demonstrated by operation or the Inspector should review the procedures and records for verification of proper operation.

b) Temperature measuring devices shall be checked for accuracy and general condition.

2.3.5.4 RECORDS REVIEW

a) The Inspector shall review any pressure vessel log, record of maintenance, corrosion rate record, or any other examination results. The Inspector should consult with the owner or user regarding repairs or alterations made, if any, since the last internal inspection. The Inspector shall review the records of such repairs or alterations for compliance with applicable requirements.

b) A permanent record shall be maintained for each pressure vessel. This record should include the following:

1) An ASME *Manufacturer's Data Report* or, if the vessel is not ASME Code stamped, other equivalent specifications or reports;

2) Form NB-6, *Boiler-Fired Pressure Vessel Report of* Inspection, or Form NB-7, *Pressure Vessels Report of* Inspection~~5, *Boiler or Pressure Vessel Data Report — First Internal Inspection*~~, may be used for this purpose. It shall show the following identification numbers as applicable:

a. National Board No.

b. Jurisdiction No.

c. Manufacturer Serial No.

d. Owner or User No.

3) Complete pressure-relieving device information, including safety or safety relief valve spring data, or rupture disk data and date of latest inspection;

4) Progressive record including, but not limited to, the following:

a. Location and thickness of monitor samples and other critical inspection locations;

b. Limiting metal temperature and location on the vessel when this is a factor in establishing the minimum allowable thickness;

c. Computed required metal thicknesses and maximum allowable working pressure for the design temperature and pressure-relieving device opening pressure, static head, and other loadings;

d. Test pressure, if tested at the time of inspection; and

e. Required date of next inspection.

5) Date of installation and date of any significant change in service conditions (pressure, temperature, character of contents, or rate of corrosion); and

able to take water out of either feedwater tank. Pumped feedwater shall be preheated prior to entering the boiler;

b) Demonstration of operable try-cocks that show a level of water that correlates with that shown in the gage glass;

c) Demonstration of operating gage glass upper and lower shutoff valves;

d) Demonstration of an operating gage glass blowdown valve;

e) Check that the gage glass is visually clear and fully operational;

f) Visual inspection for leaks; and

g) Safety valves shall be tested by having the operator raise boiler pressure to the safety valve popping point. Popping point pressure and blowdown will be observed to ensure they are within tolerances (see NBIC Part 2, S2.8). Alternatively, a certification acceptable to the Jurisdiction may be used for verification of set pressures.

S2.7.2 INSERVICE INSPECTION DOCUMENTATION

Inservice inspection shall be documented as required by the Jurisdiction where the boiler is operated, or Form ~~NB-5~~NB-6, NB-7, or similar form may be used.

S2.7.3 INSPECTION INTERVALS

S2.7.3.1 INITIAL INSPECTION

a) Initial inspections shall be performed to determine baseline criteria needed for the operating life of the boiler. The owner or user shall maintain documentation and inspection results, as required by this section. In addition to the required Jurisdiction inservice inspection report identified in NBIC Part 2, S2.7.2, Form C-1 (See NBIC Part 2, S2.12) may be used for the documentation of initial examinations and inspections.

b) Boilers initially evaluated in accordance with this inspection code shall be subject to the following examinations and tests:

1) A visual internal examination per NBIC Part 2, S2.5.2;

2) A visual inservice examination per NBIC Part 2, S2.7.1;

3) Initial UT test requirements per NBIC Part 2, S2.6.2;

4) MAWP calculation per NBIC Part 2, S2.10;

5) Hydrostatic Pressure Testing per NBIC Part 2, S2.6.1; and

6) Other examinations (UT, PT, MT) as required by the Jurisdiction or Inspector to determine boiler integrity.

c) For new boilers constructed to a design code acceptable to the Jurisdiction, the initial inspection shall be a visual inservice exam per NBIC Part 2, S2. 7. 1. Subject to jurisdictional acceptance, the other initial inspection items above may be omitted. These new boilers may be mounted on existing running gear or settings and may include the original appurtenances.

THE NATIONAL BOARD OF BOILER
AND PRESSURE VESSEL INSPECTORS

ASME CODE WEEK SUMMARY REPORT

May 14 – 19, 2023
Las Vegas, NV

ASME Committee/Subcommittee or WG: **Section IV, Subgroup on Water Heaters**

Submitted by: **Milton Washington**

Record Number: **22-2154**

Summary: **Input for Electric Boilers and Water Heaters in kW, BTU/hr, or both**

HLW-602.1- Marking Requirements for Vessels.

Upon noting the proposal, a request for clarification was presented to the Chair on why the current Code text uses 3,500 Btu/hr/kW when current engineering publications and tables define 1 kW to equal 3412.14 Btu/hr. After a brief discussion it was determined that the existing Code language should be adjusted.

Paragraph HLW-602.1 (a) (4)

(4) maximum allowable input in Btu/hr; electric heaters may use kW or Btu/hr ~~(expressed at the rate of 3,500 Btu/hr/kW)~~ or both. In lieu of the input markings storage tanks shall be marked, “Storage Only.”

This is now a first consideration Ballot 23-1689 and includes Record Numbers 22-2154 and 23-663. The ballot opened on June 1, 2023.

ASME Committee/Subcommittee or WG: **Section IV, Subgroup Welded Boilers**

Submitted by: **Milton Washington**

Record Number: **23-663**

Summary: Revise paragraph HG-705(c) to require the temperature ratings of check valves, stop valves, cocks, or backflow preventers to be at least equal to the maximum allowable water temperature marked on the boiler rating plate, or 250°F (120°C) if no temperature is marked.

Delete the words "not less than 250°F (120°C)" from paragraph HG-705(c). Add the wording "at least equal to the maximum water temperature marked on the boiler rating plate or 250°F (120°C) if no temperature is marked" to paragraph HG-705(c).

This proposal utilizes existing language used in paragraph HG-701.6(d).

This is now a first consideration Ballot 23-1689 and includes Record Numbers 22-2154 and 23-663. The ballot opened on June 1, 2023.

ASME CODE WEEK SUMMARY REPORT

May 14 – 19, 2023
Las Vegas, NV

ASME Committee/Subcommittee or WG: Section V

Submitted by: Mike Burns

- **Record Number: 23-0870**

Summary: **BPV Section V - 2021 (INQUIRY): Article 1, MA-III, Para. III-112.7(b); Training program**

The following was approved by voice vote during the ASME Section V- Standards Committee meeting.

Question (1): Are the examinations invoked by Para. III-112.7(b) additional to the qualification examinations as per Para. III-112.8(c), (d) and (e)?

Reply (1): Yes.

Question (2): Does Article 1 Mandatory Appendix III specify details for the examinations invoked by Para. III-112.7(b)?

Reply (2): No.

Explanation:
According to Para. III-112.7(b) the training program shall include examinations to ensure student's understanding of the information.

The proposed questions and replies make it clear that the examinations invoked by Para. III-112.7(b):
- are not the qualification examinations from III-112.8(c), (d) and (e).
- are not defined in Mandatory Appendix III.

- **Record Number: 23-475**

Summary: **BPV Section V - 2021 (INQUIRY): Article 1 III-112.2(a) / III-112.8(g)(3)(-a); NDE Outside Agency Certification (Paul Lang of ASNT Project Manager)**

The following was approved by voice vote during the ASME Section V Standards Committee meeting.

Question 1:
When an employer wants to utilize an outside agency as their Level III for the purposes of qualifying NDE personnel, in accordance with the requirements of 2021 ASME Section V, Article 1, Mandatory Appendix III for use of ASNT SNT-TC-1a (2016), is the Level III from the outside agency required to be certified within the employers written practice?

Reply 1: No.

Question 2:
When utilizing an outside agency as an NDE Level III for the purposes of administering NDE personnel practical examinations, is the NDE Level III required to be certified in the method/technique?

Reply 2: Yes.

ASME CODE WEEK SUMMARY REPORT

May 14 – 19, 2023
Las Vegas, NV

ASME Committee/Subcommittee or WG: **Section VIII, Subgroup on Fabrication and Examination**

Submitted by: **Mike Burns**

Record Number: **19-405**

Summary: **Proposal - Delete or revise references to unfired steam boilers and affected paragraphs where they appear, removing any reference to Unfired Steam Boilers from Division 1.**

Explanation: In the absence of a clear definition of an unfired steam boiler, there has been a lot of confusion about when the rules for constructing one are applicable. A previously issued Section I Interpretation (I-81-01; see below) establishes a definition for an unfired steam boiler, but this definition is not well known. There are also words in the Preamble of Section I which partly define an unfired steam boiler and recognize certain types of vessels that are not considered unfired steam boilers. This latest proposal recognizes the prerogative of Section I to define an unfired steam boiler. Section I has been requested to make necessary changes to their Code to assume all responsibility for establishing requirements for Unfired Steam Boilers in Part PA. The latest proposal for Division 1 is to remove all references and requirements associated with Unfired Steam Boilers from Division 1. These objects may still be constructed under the rules of Section VIII, Division 1, but will require the user to communicate the details necessary to comply with Part PA of Section I to the vessel manufacturer. If approved, this item shall be held to await complementary revisions to Section I to be approved, allowing a harmonization of these actions to move forward together for publication.

2018/11/2 https://cstools.asme.org/Interpretation/InterpretationDetail.cfm?TrackingNumber=1256

Interpretation Detail

Standard Designation: BPV Section I
Edition/Addenda:
Para./Fig./Table No:
Subject Description: Section I, Preamble
Date Issued: 01/20/1981
Record Number: BC-80-265
Interpretation Number : I-81-01
Question(s) and Reply(ies):

Question: The Preamble of Section I defines an electric boiler as "a power boiler or a high temperature water boiler in which the source of heat is electricity." Would you define whether or not an electric boiler is considered to be a fired or an unfired steam boiler?

Reply: PEB-2 provides criteria for determining if an electric boiler is considered to be a fired or an unfired steam boiler. An electric boiler where heat is applied to the boiler pressure vessel externally by electric heating elements, induction coils, or other electrical means is considered to be a fired steam boiler. An electric boiler where the medium (water) is directly heated by the energy source (electrode type or electric immersion element type) is considered to be an unfired steam boiler.

ASME CODE WEEK SUMMARY REPORT

May 14 – 19, 2023
Las Vegas, NV

ASME Committee/Subcommittee or WG: **Section VIII**

Submitted by: **Djordje Srnic**

Record Number: **06-1190**

Summary: **Section VIII, Division 2; Allowable Stress Criteria was added for Heat Exchanger Pressure Tests**

Allowable stress criteria was added to paragraph 4.18.13 for the heat exchanger test condition, and the pressure test calculation was made mandatory in 4.18.5.3(a), 4.18.7.3(a)(3), 4.18.8.3(a)(3), and 4.18.9.3(b)(3).

The design rules for shell-and-tube heat exchangers in 4.18 require that the designer take appropriate consideration of the stresses resulting from the pressure test. The current rules in paragraph 4.1.6.2 do not contain criteria to protect the exchanger from overstress conditions due to tubesheet shear and do not consider the need for elastic-plastic analysis.

The tubesheet test pressure stress limits proposed in 4.18.13 are based on those in 4.1.6.2 and 4.18, substituting 0.95Sy for S for the hydrostatic test condition, and 0.80Sy for S for the pneumatic test condition.

Similar to this new rule in Section VIII, Division 2, both French CODAP and European EN 13 445 already require the pressure test calculations for the hydrostatic test.

ASME Committee/Subcommittee or WG: **Qualifications for Authorized Inspection (QAI-1)**

Submitted by: **Gary L. Scribner**

Record Number: **Ballot 23-1729**

Summary: This ballot contains all records associated with the rewrite of QAI-1. It is a procedural vote at the Board on Conformity Assessment. The ballot is due to close on July 1, 2023. With no issues, it should be published by the end of September. All ASME AIAs will have six months from the release date to incorporate the new requirements into their Quality Systems.

ASME Committee/Subcommittee or WG: **Technical Oversight Management Committee (TOMC)**

Submitted by: **Gary L. Scribner**

Record Number: **N/A**

Summary: The ASME BPVC Standards Committees provide TOMC with annual presentations on their committee activities. Some of the February 2023 presentations to TOMC were not published at the time of the distribution of the February 2023 Code Week Summary Report. Attachments 1-4 contain the reports from Sections V, VIII, and XIII, as well as Conformity Assessment discussed in February's TOMC meeting.

The May 2023 TOMC meeting was cancelled.

ASME Section V
Nondestructive Examination

Presentation to:
TOMC
Virtual Meeting

February 10, 2023

Presented by:
Ned Finney
Chairman of BPV Section V Standards Committee

ASME
SETTING THE STANDARD

TABLE OF CONTENTS

MEMBERSHIP

- BPV Section V Standards Committee Roster includes:
  - 27 Total Members
  - 16 Voting Member
  - 9 Contributing Members
  - 2 Honorary Members

- International Working Groups:
  - Germany IWG has 7 Members (NEW)
  - Italy IWG has 17 Members and 4 Contributing Members
  - India IWG has 9 Members (NEW)
  - Interest has been expressed by Saudi Arabia

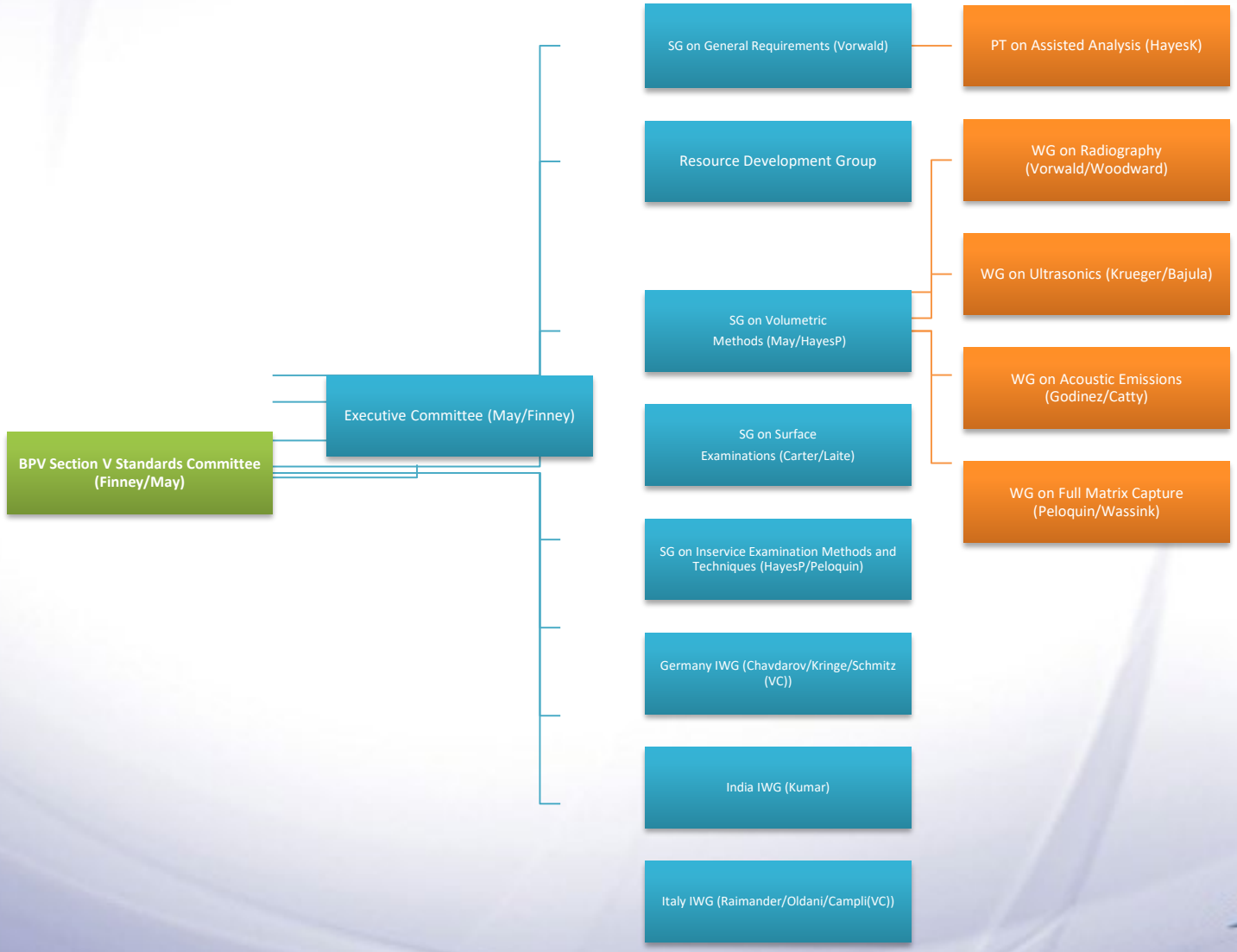
- Creation of a new Subgroup on Inservice Examination Methods and Techniques

MEMBERSHIP

- Standard Committee Balance of Interest:

BPV Section V Balance of Interest	# of Members
AC (Designer/Constructor)	1
AF (General Interest)	2
AH (Insurance/Inspection)	1
AK (Manufacturer)	3
AM (Material Manufacturer)	1
AT (Regulatory)	1
AW (User)	5
AX (Utility)	2

COMMITTEE HIERARCHY



HONORS & AWARDS

- 2021
  - BPV V Vanguard Pioneer Medal awarded to Mr. G. Wayne Hembree
- 2022
  - BPV V Vanguard Pioneer Medal awarded to Mr. Ned Finney
  - Certificate of Appreciation was awarded to numerous member who has completed 10 years of service.
  - Leadership Awards were awarded to numerous members for their dedication and work as Chair/Vice Chair of a BPV Section V Committee

MAJOR CHANGES in the 2023 Edition

- Article 1, T-120(e) has been modified to include exceptions made to SNT-TC-1A and CP-189
  - This eliminated the need for Mandatory Appendices III & IV, which were removed.

- Added a new Mandatory Appendix for Article 12 on the evaluation of the sensitivity of acoustic emission instrumentation

- Adopted updated ASTM specification documents and standard references including ASTM E273-2020, E999-2020, E1030-2021, E1114-2020, E1165-2020, E2491-2013(R2018), E213-2022, A745-2020, E2491-2018, E2700-2020, D7091-2021, E243-2018, E797-2021, E976-2021, E1067-2018, E1118-2020, E1419-00, E2075-2020, and E2261-2021

- Revised para. T-953, Remote Visual, to accommodate deployment mechanisms like unmanned aircraft vehicles & systems

- This new Nonmandatory Appendix provide pulse-echo methods of examination for brazed joints using contact or immersion testing

New Activities

- New Subgroup on Inservice Examination Methods and Techniques
  - This committee is tasked with creating a new Subsection C for Inservice Examination Methods. The following items were opened during this BCW:

23-0261	New Subsection C, Article A100 – General Requirements
23-0262	New Subsection C, Article A200 – Radiographic Examination
23-0263	New Subsection C, Article A300 – Advanced Ultrasonic Examination
23-0264	New Subsection C, Article A400 – Ultrasonic Examination
23-0265	New Subsection C, Article A600 – Surface Examinations
23-0266	New Subsection C, Article A800 – Eddy Current Examinations
23-0267	New Subsection C, Article A900 – Visual Examinations
23-0268	New Subsection C, Article A1000 – Leak Testing
23-0269	New Subsection C, Article A1100 – Acoustic Emission
23-0270	New Subsection C, Article A1600 – Magnetic Flux Leakage
23-0271	New Subsection C, Article A1900 – Guided Wave
23-0272	New Subsection C, Article A2200 – Thermography
23-0273	New Subsection C, Article A2300 – Installed Sensors

COLLABORATION WITH OTHER ASME COMMITTEES

- Additive Manufacturing (AM)
  - BPV Section V has a representative on Committee to address Computed Tomography (CT)
- Additional volunteers to support NDE method development and improvements including several members attending Section XI Committees
- MUS (Mobile Unmanned Systems) Standards Committee
- Members are also attending Post Construction Committees
- Considerable improvements in communications with the ASNT in developing future editions of SNT-TC-1A and CP-189

RESEARCH AND DEVELOPMENT PROJECTS

- Development of FMC/TFM Training Manual
  - The PT submitted the final draft to ASME on January 2, 2023, and is currently under review by a copy editor contracted by ASME ST-LLC. Document is scheduled to be published by May BCW.
- Development of BPV V requirements for training, experience, qualification and certification of NDE Personnel
- Update Analytics for BPV V, Article 14, NIST is funding and working on a limited rewrite of Article 14 Analytics for POD

Questions/Comments?

Summary of BPV VIII

Steven C. Roberts, P.E.
Chair of BPV Section VIII Committee
on Pressure Vessels

February 10, 2023
via Zoom

Status of Section VIII

Organizational Issues

Awards

Major Technical Topics/R&D Projects

Help from Other Committees

R&D Projects

IWGs

Status of Section VIII Divisions 1 & 2

- Task Group Scope
- BPV VIII Project Reshape

Task Group Scope

- Item record 07-245 – Div. 2 Parking Lot item
- Items approved for 2019 Edition were withdrawn
  - Major comments received from HVAC and small vessel Manufacturers
- Call out to industry organizations to help populate the Task Group
  - ASHRAE / Cooling Tower Institute / American Heating Refrigeration Institute
- TG has addressed all comments received from industry in 2020
- The TG was revised to include as members individuals from the HVAC industry and is to resolve the comments
- Primarily associated with:
  - ≤ 6 inch diameter
  - Water under storage
- Proposal development still in progress
  - Latest Ballot 23-121

BPV VIII Reshape

- **Executive Summary**
- In October 2020, the officers of BPV Section VIII Standards Committee undertook action to develop and implement a program to fundamentally change both the BPV Section VIII Standards Committee and the book Section VIII, Division 1.

BPV VIII Reshape Purpose

- To create and easier to use and understand Division 1
- To provide stability within industry for use of Division 1
- To provide a delivery method for Division 1 that industry and users believe is fit-for-purpose
- To provide a simpler approach for the BPV Section VIII Standards Committee to approve new editions of Division 1
- To create a greater use of Division 2

BPV VIII Reshape Project Approach

- The project will commence in four phases:

1. Identify and Select – Development of project teams, committee structure developed, communications initiated

2. Front End Development – Initiation of project teams, public engagement, scope development, material use identified

3. Execute – Development of the final product, balloting

4. Commissioning – Publication, initiation of new book maintenance

- It is projected the project will result in significant content and process changes for 2025.

BPV VIII Reshape Project Teams

- Project Team Management
  - Oversight of the project
- Project Team Communications
  - Communicate to Committees, Board, Council, Staff and Public
  - User survey
- Project Team Rewrite
  - Continuation of Clarity Rewrite

Mark Lower

Steven Roberts

Gabriel Aurioles

BPV VIII Reshape Project Teams

- Project Team Scope
  - Develop scope charter for Division 1
- Project Team Materials
  - Determine if rarely used materials can be removed from Div. 1
  - Investigate toughness requirements
- Project Team Use of Div. 1
  - Identify using Div. 1 including conformity assessment requirements when combining with Div. 2 via UG-16(a)

George Rawls

Mitch Kowalczk

Pete Matkovics

BPV VIII Reshape Scope

- **Reshape Scope Development – For 2025 Edition**

1. Provide Clarity Rewrite for VIII-1
2. Create new Subsection D – “Requirements for Specific Pressure Vessels and Components”
   A. Part UHX
   B. Part UIG
   C. Various Mandatory and Nonmandatory Appendices
3. Utilize Common Rules by referring to Division 2 for specific Design Rules
   A. Part UHX and Appendix 26 set for 2023 Edition
   B. Additional work for 2025 Edition
4. Technology Upgrades
   A. Load combinations
   B. External Loads
5. Complete transition of Accreditation, Quality and Nameplate requirements to CA-1
6. Combine Part UHA and Part UNF into a single Part

BPV VIII Reshape Scope

- Provide clarity rewrites to identified paragraphs in Division 1.

Section	Description
UG-11	Prefabricated or Preformed Pressure Parts Furnished Without a Certification Mark
UG-14	Rods and Bars
UG-16	General
UG-20	Design Temperature
UG-24	Castings
UG-77	Material Identification
UG-84	Charpy Impact Tests
UW-11	Radiographic and Ultrasonic Examination
UW-12	Joint Efficiencies
UW-14	Openings in or Adjacent to Welds
UW-16	Minimum Requirements for Attachment Welds at Openings
UW-40	Procedures for Postweld Heat Treatment
UCS-56	Requirements for Postweld Heat Treatment
UCS-65	Scope
UCS-66	Materials
UCS-67	Impact Tests of Welding Procedures
UCS-68	Design
UCS-85	Heat Treatment of Test Specimens
UHA-51	Impact Tests

BPV VIII Reshape Scope

- Alignment with Common Rules in Division 2 (Minimum Change)
  - Part UHX to Division 2 Part 4.18
  - Appendix 2 Bolted Flanges to Division 2 Part 4.16
  - Appendix 5 Flexible Shell Element Expansion Joint to Division 2 Part 4.20
  - Appendix 9 Jacketed Vessels to Division 2 Part 4.11
  - Appendix 13 Vessels of Noncircular Cross Section to Division 2 Part 4.12
  - Appendix 14 Integral Flat Heads With Large Single Centrally Located Opening
  - Appendix 24 Design Rules for Clamped Connections to Division 2 Part 4.17
  - Appendix 26 Bellows Expansion Joints to Division 2 Part 4.19
  - Appendix EE Half-Pipe Jackets to Division 2 Part 4.11
  - Appendix FF Guidance for Quick-Actuating Closures to Division 2 Part 4.8
  - Appendix LL Graphical Representation of $F_{t,mim}$ and $F_{t,max}$
- Additional Division 1 sections are being evaluated for common rule implementation.

BPV VIII Reshape Scope

- **Technology Upgrades to Division 1.**
  - **UG-22**
    - Add Load Combinations Equations
      - Reference Division 2 for Supplemental Loads
      - Resolves issues with ASCE-7
  - **UG-23**
    - Add Equation for A Value to Replace Table G in Section II.
    - Replace Current A-B Charts with Curve Fits Based on ASME VIII-2 Tangent Modulus from Division 2 Annex 3-D.5

BPV VIII Reshape Scope

Create a new Subsection D, Requirements for Specific Types of Pressure Vessels.

- Reference to Part UHX
- Part UIG
  - Move Mandatory Appendices 36 through 40 to the end of Part UIG
- Mandatory Appendix 5
- Mandatory Appendix 13
- Mandatory Appendix 17
- Mandatory Appendix 19
- Mandatory Appendix 22
- Mandatory Appendix 26
- Mandatory Appendix 27
- Mandatory Appendix 45
- Nonmandatory Appendix EE
- Nonmandatory Appendix FF

Div. 1 Clarity Rewrite

- Scope
  - Provide proposals that will result in clearer, more easily understood requirements in Section VIII, Division 1 without introducing new rules or requirements nor revise existing rules or requirements
- Metrics
  - Flesch-Kinkaid or similar
- Deliverables
  - Schedule of priorities
  - Progress reports to ExCom
  - Completion for the 2025 Edition
    - Complete items to be published as they become ready
- Chaired by Gabriel Aurioles

Active Rewrite Items

Section	Description
UG-11	Prefabricated or Preformed Pressure Parts Furnished Without a Certification Mark
UG-14	Rods and Bars
UG-16	General
UG-20	Design Temperature
UG-24	Castings
UG-77	Material Identification
UG-84	Charpy Impact Tests
UW-11	Radiographic and Ultrasonic Examination
UW-12	Joint Efficiencies
UW-14	Openings in or Adjacent to Welds
UW-16	Minimum Requirements for Attachment Welds at Openings
UW-40	Procedures for Postweld Heat Treatment
UCS-56	Requirements for Postweld Heat Treatment
UCS-65	Scope
UCS-66	Materials
UCS-67	Impact Tests of Welding Procedures
UCS-68	Design
UCS-85	Heat Treatment of Test Specimens
UHA-51	Impact Tests

BPV VIII Reshape Scope

- **Phase 2 2027 Edition**
  - Fix any issues in 2025 Edition
  - Additional clarity rewrites and common rule changes.
  - Pressure Limit – ASME B16.5 Class 2500
  - Temperature Limit – No Creep
  - Evaluate compatibility between Section VIII Division 1 with API 579/ASME FFS-1.
- Phase 3 starts in 2023
  - Form a Project Team to determine suitability of Division 1 becoming a “simple pressure vessel Code”

Organizational Issues

- Awards
- Membership reports
- Sub-Tier Groups
- International Working Groups
- Training

Awards

- XXX XXXXX is the recipient of the 2022 Pressure Vessel Legacy Award
  - Presented at the February 2022 BPV Section VIII Committee Meeting
  - Previous Recipients
    - Clyde Neely 2015
    - Urey Miller 2017
    - Thomas Pastor 2018
    - Wesley Jacobs 2019
    - Mahendra Rana 2020
    - Anne Chaudouet 2021

Membership Report

- BPV VIII presently has 34 members (maximum allowed is 40)
- Four Delegates
  - Australia
  - Germany
  - Italy
  - Japan
- Six Contributing Members
- 2 Honorary Members
  - Ken Tam
  - Guido Karcher
- 26 persons on Resource Development Group

Balance of Interest

Interest Category	Code	Number	% of Total
Designer	AB	1	3%
Designer – Constructor	AC	6	17%
General	AF	5	15%
Insurance Inspection	AH	5	15%
Manufacturers	AK	4	12%
Material Manufacturers	AM	1	3%
Oil Refining	AR	4	11%
Regulatory	AT	2	6%
Users	AW	6	17%
Total		34	100%

Sub-Tier Groups

- 8 Subgroups
- 5 IWGs
- 1 Special Committee – Interpretations
- 1 Special Working Group
- 4 Working Groups
- 5 Task Groups

- Subgroup performance plan program initiated

International Working Groups

- Italy, Germany, India and Argentina IWG's are fully functional and providing valuable input to items under discussion and proposing new items for consideration.

- Not much from China; partially due to Covid

- Liaisons named and embedded with IWG's
  - Argentina – Gabriel Aurioles
  - Germany – Michael Clark
  - Italy – Parvon Chadarov
  - India – Kannan Subramanian
  - China – Kang Xu

- ArIWG Code Week for October 2023
  - Combined meetings with all Section IWG's
  - Planned kick-off of Post Construction IWG

International Working Groups

IWG	ArIWG	CIWG	GIWG	InIWG	ItIWG
Performance Plan	Yes	Yes	Yes	Yes	Yes
Annual Report	Yes 2020 through 2021	Last received 2019	Yes 2017; 2018; 2019; 2020; 2021	Yes 2019-2020 2020-2021 2021-2022	Yes 2018 2019
Evaluation	Yes	Yes 2019	Yes 2019 2020 2021	Yes 2020 2021 2022	Yes 2019
Performance	Excellent	Needs Improvement	Excellent	Very Good Trending to Excellent	Annual Reports lagging

Training

- 1 hour of training performed each Code Week after the open meeting
- Completed:
  - Module C
  - Module A
  - Module B
    - B1
    - B2
    - B3
    - B4
    - B5
    - B5A
    - B6
  - ASME Society Polices
  - Constitution & Bylaws
  - C&S Polices
  - ANSI Accredited Procedures

Major Technical Topics/R&D Projects

- PTB Example Problem Manual updates
  - Division 1 complete
  - Division 2 complete
- Review of Completed Research for Code incorporation
  - Subgroup Design has completed their review
- New Research Projects
  - Reduction of MDMT on B16 bolts is underway

Help from Other Committees

- Nothing at this time

The End

Questions and or comments?

ASME BPVC Section XIII – Rules for Overpressure Protection

TOMC Report

February 10, 2023

BPV XIII Committee Structure and Membership

- Standards Committee
  - Vice Chair – Alfred Donaldson
  - Staff Secretary – Colleen Rodrigues
- SG-Design & Material – Dean Miller
- SG-General Requirements – Alfred Donaldson
- SG-Testing – Brandon Nutter
- SG-Nuclear – Kevin May
- U.S. TAG / ISO TC 185 – Dean Miller
  - Staff Secretary – Colleen Rodrigues
- All SG's have Vice Chairs and Secretaries

BPV XIII Committee Structure and Membership

Number of Members (Contributing Members)

Committee	BPVC XIII
Standards Committee	14 (18)
SG- General Requirements	24 (18)
SG- Design & Materials	13 (8)
SG - Testing	12 (6)
SG - Nuclear	11 (2)

BPV XIII Committee Structure and Membership

Balance

Interest Category	BPVC XIII	US TAG
Manufacturer – AK	0	4
General Interest – AF	2	3
User – AW	4	3
PRD Mfg. – OP	4	0
Repair / Mfg. – RM	1	0
Insurance/Inspection – AH	2	0
Regulator – AT	1	1
Total	14	11

BPV XIII Committee Structure and Membership

- No IWGs
- International Members and Contributing Members from:
  - Canada
  - Egypt
  - Germany
  - Italy
  - Japan
  - Spain
  - United Kingdom

Major Activities and Technical Items

- Code Cases - Completed
  - Added BPVC XIII
  - Changed Code Text References
- B31 Incorporation of BPVC XIII
- Future Items List
  - Ballot Comments
- Liaisons
  - National Board of Boiler and Pressure Vessel Inspectors
  - API Subcommittee Pressure Relieving Systems
  - AIChE Design Institute for Emergency Relief Systems

Major Activities and Technical Items

- Double disk devices and series rupture disks
- Redundant Pressure Relief Valves (LOPA)
- Strategic Items List – Approved by Standards Committee
  - Relief Device Parts Program – Certificate Holder
  - Capacity certification of devices < 15 psig (1 barg)
  - Inlet / Outlet size limits relative to nozzle/orifice size
  - Develop structural integrity design rules for relief devices
  - Design requirements for PRV pilots and related components
  - Replacement of Code Case 1750
  - Guidance for two phase flow
  - Develop guidance for PRV inlet line stability

What We Need Help With

- Construction Codes to be Listed on Section XIII Code Cases
  - Mr. DeMichael queried TOMC in February 2022 and gained alignment that all pertinent construction codes need to be listed on each Section XIII code case involving any XIII requirements for the devices used by that construction code
  - Since then, Section XIII has been following this practice
  - When a recent XIII Code Case was sent for ballot to the construction code sections affected and listed on the Code Case, one construction code objected stating that they should not be listed on the Code Case
- Assuming the policy hasn't changed, what can TOMC do to help prevent these objections in the future?

U.S. TAG / TC 185 – ISO 4126 – ***Updates***

- Part 1 : Safety valves – ***Confirmed 2019-04-22***
- Part 2 : Bursting disc safety devices – ***Published 2018-11-29***
- Part 3 : Safety valves and bursting disc safety devices in combination – ***Published 2020-09-15***
- Part 4 : Pilot operated safety valves – ***Confirmed 2019-04-22***
- Part 5 : Controlled safety pressure relief systems (CSPRS) – ***Confirmed 2019-04-22***
- Part 6 : Application, selection and installation of bursting disc safety devices – ***New project approved 2020-03-15 (WG19)***
- Part 7 : Common data – ***Confirmed 2019-04-22***

U.S. TAG / TC 185 – ISO 4126 – ***Updates***

- Part 9 : Application and installation of safety devices excluding stand-alone bursting disc safety devices – ***New Project approved 2021-03-16 (WG17)***
- Part 10 : Sizing of safety valves and connected inlet and outlet lines for gas/liquid two-phase flow – ***DIS Approved – Comments being considered by WG1; FDIS will be needed; CEN assessment was unfavorable; revisions are being prepared.***
- Part 11: Performance Testing – ***New Project Approved 2021-04-30 (WG18) – new proposal for initiation of work is out for ballot to U.S. TAG now***

Questions and Discussion

Conformity Assessment Report

TOMC Meeting
February 10, 2023

Presentation Objectives

- Conformity Assessment Organization and Responsibilities
- Update on CA Initiatives and Programs
- Combine CA Reports on TOMC Agenda

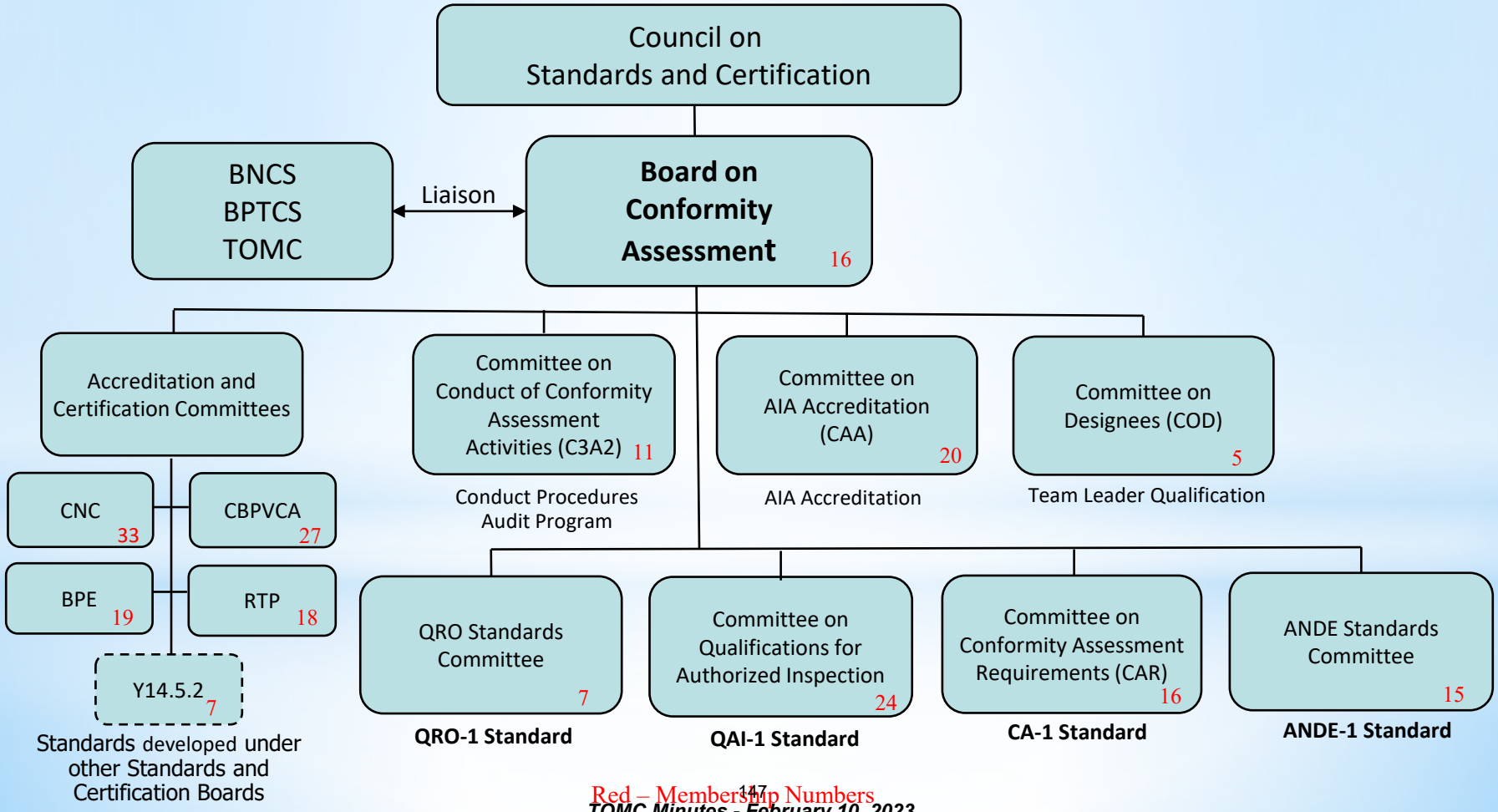
What sets ASME Conformity Assessment Apart?

- Compliance required by Regulatory and Jurisdictional Authorities
- Proven design requirements for construction
- Involvement of Designated Oversight
- ASME accreditation of the Quality Program, via Certificates of Authorization
- Physical evidence of Code compliance, via product certification and stamping
- Established procedures for confidentiality, due process, and appeal
- Symbiotic relationship between ASME Standards and Conformity Assessment

BCA Responsibilities

- Supervise ASME Conformity Assessment Programs
- Establish policies for protection of the ASME Mark
- Supervisory Board for designated Standards
- Interface with BNCS, BPTCS, TOMC, and Standards Committees on accreditation and certification issues
- Approve criteria for Team Leaders, conduct of CA activities, and internal audits
- Monitor CA program implementation and due process
- Provide an Appeals Panel for Conformity Assessment issues appealed at the Board level

ASME Conformity Assessment Organization



Red – Membership Numbers

Conformity Assessment Programs

Program	Scope	Status
Total Certs		11,594 certificates (-140) 6841 companies (-53)
BPV	I, IV, VIII, X, XII, PRD	11038 certificates (-117)
Nuclear	Components Materials Owners NQA-1	425 certificates (-23) 62 certificates (-3) 1 utility; certificate 1 company; certificate (-1)
QAI-1	Authorized Inspection Agencies	35 certificates (10 jurisdictions) (-1)
RTP-1	Reinforced Thermoset Plastic	9 companies; certificates (-1)
BPE	Bioprocessing Equipment	23 companies; certificates (+6) 35%
Q Personnel	QRO-1 Y14.5.2	766 Operator & Provisional (-13) 1389 GDTP Technologist & Senior (+3)

Recent CA Developments

- Working to incorporate all CAP policies into existing documents.
- CAP-23 issued to provide criteria for Designated Oversight via electronic means during times of natural disaster, public health crisis, regional instability, or government-imposed restrictions
- Procedures established for remote conduct of surveys, joint reviews, audits, and investigations
- Ongoing discussions regarding nameplates that imply compliance with an ASME Standard by using “ASME” without the ASME Mark
- Certificates required to be issued must contain the legal company name

CA Developments (Continued)

- CA Resource Development Group established to expand volunteer opportunities
- Informational videos available on ASME Website and C&S Connect
- CA participation on TOMC Strategic Initiatives TG on Remote Inspections
- Honors & Awards
  - CA Dedicated Service Award

CA-1 Standard – Conformity Assessment Requirements

- CA-1
  - 2022 Edition going to the publisher this week
    - Provides errata revisions to CA-1 2020 Edition
    - Provides guidance with respect to the acceptance of the QMS manual as well as filing with ASME
    - Corrected Safety Relief Valve to Pressure Relief Valve and updated the governing standard to ASME Section XIII
- Ongoing work:
  - The use of language other than English in Direct Stamping.
  - Allowing any National Board Commissioned Inspector to witness the re-stamping of the ASME Single Certification Mark.
  - Temporary Location Requirements.
  - Authorized Representatives, not addressed in CA-1.
  - Transferring QAI-1 Part 7 to CA-1.
  - Interpretation on the use of Sub-Contracters.
  - Adding the definitions of Should, Shall and May to the forward of CA-1.

Boiler & Pressure Vessel Conformity Assessment

- 11,038 total certificates
  - ~ 59 % outside of the United States (+3.5%)
  - ~ 2200 QRRs processed annually
  - ASME Staff does the “heavy lifting”
- C-BPVCA focus on resolving Code allegations and noncompliance, for both program and hardware issues
- PRT program continues to gain acceptance
  - 148 certificates issued (+30)
  - Proposal for PRT Designator to identify Code Section
  - Scope Statements to include multiple Code Sections
- Interim process established for certificate extension in areas of political/social unrest
- Procedures updated addressing field sites and temporary locations

Nuclear Certification

- 487 certificates issued (N-type and QSC)
- ~ 55 % outside of the Unites States
- *Issued an applicant Information Handbook*, providing clarifications and expectations of the survey process
- Issued new guidelines for requirements for contracting services to be included in Scope Statements
- Updated the application to include G and GC Scope Statements for ASME III Division 5 (Published)
- ASME issued a letter in April 2022 to all Certificate Holders with a Div. 1 Class 1 scope offering a Div. 5 Class A or B addition based on an ASME QA Manual Review only with the implementation review differed until their next renewal survey

AIA Accreditation

- QAI Case 6 extended for performance of remote inspections by the AI
- QAI Case 7 approved for remote AIA supervisory audits
- Action approved for AIA notification to ASME of unresolved Code or Program nonconformances
- QAI Conference Committee established with representatives from accredited AIAs
- Ongoing work:
  - Establish eye examination requirements for Inspectors
  - Clarify CI responsibilities consistent with CSP-53
  - Major reorganization of the QAI-1 Standard
  - Task Group continuing work on development of uniform AI / ANI inspection requirements
  - Address situations where the AIA provides both inspection and consulting services

TOMC / CA Interface

- Promote consistency in Standards by Committee implementation of approved CA initiatives
- Communicate Standards Committee feedback on CA issues
- Identify potential CA derivative opportunities

Questions / Discussion

Gary Scribner- gscribner@nationalboard.org

Matt Vazquez – vazquezm@asme.org

The B2 committee completed the 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.

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

Efforts (within the AWS B2D subcommittee) are also underway to develop a complement of the follow SWPSs:

- Aluminum using, the GTAW, GMAW and GMAW-S processes
- P-91 and P-92 materials using GTAW, SMAW and (based on the availability pf supporting PQRs donated by industry); the GMAW, FCAW and SAW Processes.
- Mechanized (GMAW, FCAW and SAW) for Chrome Moly and Stainless-Steel materials

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

The present format of Table 2.3 was updated, balloted, and in process of approved by the NBIC; see Item A23-33 for details.

Regards,

Jim Sekely
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