



*THE NATIONAL BOARD  
OF BOILER AND PRESSURE VESSEL INSPECTORS*

Date Distributed:

# **NATIONAL BOARD INSPECTION CODE SUBCOMMITTEE INSPECTION**

## **AGENDA**

---

Meeting of January 15, 2025  
Charleston, SC

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 will call the meeting to order at 8:00 a.m. Eastern Time. For those attending in person, the meeting will be held in Grand Magnolia A on the 2nd floor of the hotel.

## 2. Introduction of Members and Visitors

## 3. Check for a Quorum

## 4. Awards/Special Recognition

- Tim Barker – 15 years on SC Inspection
- Mark Horbaczewski – 15 Years on SC Inspection

## 5. Announcements

- This meeting marks the end of Cycle A for the 2027 NBIC edition.
- The National Board will be hosting a reception on Wednesday evening from 5:30 p.m. to 7:30 p.m. at the Hyatt Place rooftop bar, the Pour Taproom.
- The National Board will be hosting breakfast and lunch on Thursday for those attending the Main Committee meeting. Breakfast will be served from 7:00 a.m. to 8:00 a.m. in Grand Magnolia Foyer, and lunch will be served from 11:30 a.m. to 12:30 p.m. in Sterling Hall Foyer.
- Meeting schedules, meeting room layouts, and other helpful information can be found on the National Board website under the **NBIC** tab → NBIC Meeting Information.
- The NBIC Committee has transitioned from NB File Share to SharePoint. Remember to add any attachments that you'd like to show during the meeting (proposals, reference documents, powerpoints, etc.) to the NBIC SharePoint site ([nationalboard.sharepoint.com/sites/NBIC](https://nationalboard.sharepoint.com/sites/NBIC)) **prior to the meeting**.
  - Note that access to the NBIC SharePoint site is limited to committee members only.
  - ALL powerpoint attachments/presentations must be sent to the NBIC Secretary for approval prior to the meeting.
  - Contact Jonathan Ellis ([nbicsecretary@nbbi.org](mailto:nbicsecretary@nbbi.org)) for any questions regarding NBIC SharePoint access.
- When possible, please submit proposals in Word format showing “strike through/underline.” Project Managers: please ensure any proposals containing text from previous NBIC editions are updated with text from the most current edition.
- If you'd like to request a new Interpretation or Action item, do so 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 two meetings prior to being put on the agenda for membership consideration. The nominee will be on the agenda for voting during their third meeting.
  - The nominee must submit the formal request along with their resume to the NBIC Secretary **PRIOR TO** the meeting. [nbicsecretary@nbbi.org](mailto: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 setup, etc. It is also a good way to make sure we have the most up-to-date contact information. Please continue to use the online registration for each meeting.

## 6. Adoption of the Agenda

## 7. Approval of the Minutes of the July 17, 2024, Meeting

The minutes can be found on the NBIC Committee Information page under the NBIC tab on NBBI.org.

## 8. Review of Rosters (Attachment Page 1)

### a. Membership Nominations

Mr. Clay Moultrie (Manufacturers) is interested in becoming a member of **Subgroup Inspection**.

### b. Membership Reappointments

- The following **Subgroup** members are up for reappointment: Mr. Tim Bolden, Mr. Venus Newton, and Mr. Brandon Wilson.
- The following **Subcommittee** members are up for reappointment: Mr. Venus Newton.

### c. Officer Appointments

## 9. Open Items Related to Inspection

### a. Part 2/3 Joint Task Group

- Item 22-06** – Part 2 task group to review Part 3 Item 21-53
- Item 23-08** – Part 2 task group to review Part 3 Item 21-67
- Item 24-28** – Applying PWHT to previously "as welded" item

### b. PRD

- Item 24-91** – Require means to prevent safety valve discharge piping blockage for LCDSV (Part 4)

### c. R&A

- Item 21-53** – Post repair inspection of weld repairs to CSEF steels. (P. Gilston as PM)
- Item 24-18** – Definition of Controlled Fill (P. Gilston as PM) – **Attachment Page 2**

## 10. Interpretations.

There are currently no open interpretation items for Part 2.

## 11. Action Items

### a. TG FRP Items

Item Number: NB16-1402	NBIC Location: Part 2, New Supplement	No Attachment
<b>General Description:</b> Life extension for high pressure FRP vessels above 20 years		
<b>Subgroup:</b> FRP <b>Task Group:</b> M. Gorman (PM)		
<b>Update from the October 2024 TG FRP Meeting:</b> The task group is finalizing the proposal for this item, and should have something ready to present at the July 2025 meeting.		

**b. TG Historical Items**

<b>Item Number: 23-85</b>	<b>NBIC Location: Part 2, S2.14.7</b>	<b>No Attachment</b>
<b>General Description:</b> Review paragraphs to replace with proper verbiage		
<b>Subgroup:</b> SG Historical <b>Task Group:</b> None assigned.		
<b>Explanation of Need:</b> There is some slang and second person (POV) verbiage throughout these paragraphs. Recommend rewording with proper terminology (such that it could be understood internationally) and changing point of view (e.g., changing "you're pulling water" to "water is being pulled"). Since I don't have the technical knowledge to know what is slang and what isn't, what I have proposed will still need to be reworded.		
<b>July 2024 Meeting Action:</b> Progress report.		

**c. TG Locomotive Items**

<b>Item Number: 24-78</b>	<b>NBIC Location: Part 2, S1.2.4.22</b>	<b>No Attachment</b>
<b>General Description:</b> Minimum Washout Plug Thread Engagement		
<b>Subgroup:</b> Locomotive <b>Task Group:</b> B. Zeigler (PM), E. Armpriester, D. Domitrovich		
<b>Explanation of Need:</b> Text should be changed to clarify how minimum thread engagement is quantified.		
<b>January 2025 Meeting Action:</b> Note that this is a new item that was opened at TG Locomotive's July 2024 meeting.		

**d. SG Inspection Items**

<b>Item Number: 21-47</b>	<b>NBIC Location: Part 2, 2.2.4 &amp; 2.2.5</b>	<b>Attachment Page 3</b>
<b>General Description:</b> To provide better guidance as it relates to carbon monoxide		
<b>Subgroup:</b> Inspection <b>Task Group:</b> W. Hackworth (PM), V. Scarcella, D. Buechel, T. Barker, T. Bolden, M. Sansone, H. Henry, J. Castle, J. Morgan, & J. Clark		
<b>Explanation of Need:</b> Need to provide more comprehensive items to be reviewed to guide the inspector on carbon monoxide and combustion air.		
<b>July 2024 Meeting Action:</b> Ms. Metzmaier gave an update on this item stating, per Mr. Ellis, this item went out to MC letter ballot (LB) for vote, and Mr. Galanes pulled it back because he wanted to discuss the comments from the previous ballot in person to make sure everyone's comments were addressed before voting. He also noted he has some minor editorial suggestions he will bring up during the MC meeting. He plans to do a voice vote during the MC meeting. No action was taken by the SC.		

<b>Item Number: 22-26</b>	<b>NBIC Location: Part 2, 2.3.6.8</b>	<b>No Attachment</b>
<b>General Description:</b> Addition of cast acrylic as a pressure vessel material  <b>Subgroup:</b> Inspection <b>Task Group:</b> J. Calvert (PM), V. Newton, D. Buechel, D. Rose <b>Submitted by:</b> J. Calvert  <b>Explanation of Need:</b> Provide inspectors with the criteria necessary to competently inspect vessels like acrylic chromatography columns.  <b>July 2024 Meeting Action:</b> PM was not present, no report given.		

<b>Item Number: 23-27</b>	<b>NBIC Location: Part 2, 1.5.1</b>	<b>No Attachment</b>
<b>General Description:</b> Addition of requirement for Inspector to be present for inspections.  <b>Subgroup:</b> Inspection <b>Task Group:</b> V. Newton (PM), V. Scarcella, T. Bolden, J. Morgan, J. Smith, T. Barker, C. Becker, C. Hartford <b>Submitted by:</b> D. Kinney  <b>Explanation of Need:</b> 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.  <b>July 2024 Meeting Action:</b> Progress Report was given at the SG meeting.		

<b>Item Number: 23-81</b>	<b>NBIC Location: Part 2, 4.4.3 b)</b>	<b>No Attachment</b>
<b>General Description:</b> Evaluate Inspector responsibilities relating to 4.4.3 FFS  <b>Subgroup:</b> Inspection <b>Task Group:</b> V. Scarcella (PM), M. Horbaczewski, J. Clark, B. Ray, J. Ferreira, J. Sowinski <b>Submitted by:</b> R. Underwood  <b>Explanation of Need:</b> Currently, 4.4.3-b states the Inspector shall review the condition assessment methodology and ensure the inspection data and documentation are in accordance with Section 4. This proposal would redefine the role and responsibility of the Inspector.  <b>January 2024 Meeting Action:</b> Progress Report was given at the SG meeting. Mr. Horbaczewski discussed this item with the SC. The original proposal was reviewed and after a lot of discussion and revisions to the proposal, the SC decided this proposal needed to go back to the TG for further work.		

<b>Item Number: 24-03</b>	<b>NBIC Location: Part 2, Supplement 6</b>	<b>No Attachment</b>
<b>General Description:</b> Revise "Inspector" terminology and requirements in Supplement 6  <b>Subgroup:</b> Inspection <b>Task Group:</b> B. Wilson (PM), R. Kennedy, and J. Smith <b>Submitted by:</b> R. Underwood  <b>Explanation of Need:</b> Part 2 Supplement 6 should be revised to align with Part 3, Suppl 6 and the DOT. A few references are S6.4.2 a), S6.4.2 c), S6.4.4, S6.4.5, S6.4.6, and S6.4.6.1. However, this may not be an all-inclusive list.		
<b>July 2024 Meeting Action:</b> Progress Report was given in the SG meeting.		

<b>Item Number: 24-37</b>	<b>NBIC Location: Part 2, 2.2.10</b>	<b>Attachment Page 4</b>
<b>General Description:</b> Add language in the event boiler can't be secured at the time of inspection  <b>Subgroup:</b> Inspection <b>Task Group:</b> None assigned. <b>Submitted by:</b> V. Scarcella  <b>Explanation of Need:</b> In some circumstances boilers cannot be shut down and a dead man switch is not allowed.		
<b>July 2024 Meeting Action:</b> A TG was created during SG meeting.		

<b>Item Number: 24-42</b>	<b>NBIC Location: Part 2, 2.4.1 and 2.4.4</b>	<b>No Attachment</b>
<b>General Description:</b> Add language to NBIC Part 2 in regards to piping inspections  <b>Subgroup:</b> Inspection <b>Task Group:</b> None assigned. <b>Submitted by:</b> V. Scarcella  <b>Explanation of Need:</b> Two fatal incidents resultant from radiator failure prompted an ask for these changes.		
<b>July 2024 Meeting Action:</b> A TG was created during SG meeting.		

<b>Item Number: 24-62</b>	<b>NBIC Location: Part 2, Section 2</b>	<b>No Attachment</b>
<b>General Description:</b> Temporary Boiler Inspection  <b>Subgroup:</b> Inspection <b>Task Group:</b> None assigned. <b>Submitted by:</b> V. Scarcella  <b>Explanation of Need:</b> No guidance for inspectors for temporary boiler inspections.		
<b>July 2024 Meeting Action:</b> A TG was created during the SG meeting. The SC asked the TG to make sure they involve Part 1 with this item.		

## 12. New Items

<b>Item Number: 24-75</b>	<b>NBIC Location: Part 2, Table 2.5.8</b>	<b>No Attachment</b>
<b>General Description:</b> NBIC Part II Review table 2.5.8, suggest changes to align with NBIC Part 4  <b>Subgroup:</b> Inspection <b>Task Group:</b> None assigned. <b>Submitted by:</b> V. Scarcella  <b>Explanation of Need:</b> Tim Baker and Tim Bolden raised needed changes to NBIC Part II in table 2.5.8, the table needs review and alignment with the table in Part 4 3.2.6		
<b>January 2025 Meeting Action:</b>		

<b>Item Number: 24-76</b>	<b>NBIC Location: Part 2, S7.9</b>	<b>Attachment Page 8</b>
<b>General Description:</b> Revision to Part 2, S7.9  <b>Subgroup:</b> Inspection <b>Task Group:</b> None assigned. <b>Submitted by:</b> James Roberts  <b>Explanation of Need:</b> Currently commercially refurbishers can inspect pressure vessels per NBIC S7.8.1 through S7.8.5 and place back into service without any statement this inspection was completed and by who.		
<b>January 2025 Meeting Action:</b>		

<b>Item Number: 24-84</b>	<b>NBIC Location: Part 2, 2.3.6.10 and 2.3.6.11</b>	<b>Attachment Page 9</b>
<b>General Description:</b> Vessels above 10,000 psi reevaluation of remaining life  <b>Subgroup:</b> Inspection <b>Task Group:</b> None assigned. <b>Submitted by:</b> Craig Bierl  <b>Explanation of Need:</b> Inspectors need to be able to have a paper trail of the code integrity of these vessels. Changing the original data (in this case, designed cycle life) should ONLY be completed with the involvement of an authorized inspector and MUST be documented on a National Board form in order to be audited by the inservice inspector.		
<b>January 2025 Meeting Action:</b>		

<b>Item Number: 24-90</b>	<b>NBIC Location: Part 2, S12.7 d)</b>	<b>Attachment Page 11</b>
<b>General Description:</b> Require means to prevent safety valve discharge piping blockage for LCDSV (Part 2)  <b>Subgroup:</b> Inspection <b>Task Group:</b> None assigned. <b>Submitted by:</b> Mark Edwards  <b>Explanation of Need:</b> Adding verbiage to the NBIC Part 1, Part 2 and Part 4 to require a means to prevent foreign material introduction to the safety valve discharge pipe.		
<b>January 2025 Meeting Action:</b>		

<b>Item Number: 24-94</b>	<b>NBIC Location: Part 2, 2.3.6.8</b>	<b>Attachment Page 12</b>
<b>General Description:</b> Part 2, 2.3.6.8 ASME PVHO Forms call out the 2016 Edition.  <b>Subgroup:</b> Inspection <b>Task Group:</b> None assigned. <b>Submitted by:</b> Luis Ponce  <b>Explanation of Need:</b> It is counterproductive to limit another standard to a specific Edition because revision will be required whenever a new one is issued.		
<b>January 2025 Meeting Action:</b>		



<b>Item Number: 24-100</b>	<b>NBIC Location: Part 2, Section 5</b>	<b>Attachment Page 14</b>
<b>General Description:</b> Add field to NB 6 & NB 7 from JRS Team  <b>Subgroup:</b> Inspection <b>Task Group:</b> None assigned. <b>Submitted by:</b> V. Scarcella  <b>Explanation of Need:</b> Repeatedly came up in investigations and in discussions that after reviewing an inspection form the reader has no idea if the object was operating. <b>January 2025 Meeting Action:</b>		

<b>Item Number: 24-104</b>	<b>NBIC Location: Part 2, 2.1</b>	<b>Attachment Page 15</b>
<b>General Description:</b> Add language clarifying the limitation of inspections presented by design.  <b>Subgroup:</b> Inspection <b>Task Group:</b> None assigned. <b>Submitted by:</b> V. Scarcella  <b>Explanation of Need:</b> Currently an inspector could be held responsible for conditions they could not reasonably access. <b>January 2025 Meeting Action:</b>		

<b>Item Number: 24-105</b>	<b>NBIC Location: Part 2, 1.5.1</b>	<b>Attachment Page 16</b>
<b>General Description:</b> Need to restrict signatures to inspections for which the inspector was present  <b>Subgroup:</b> Inspection <b>Task Group:</b> None assigned. <b>Submitted by:</b> V. Scarcella  <b>Explanation of Need:</b> It has become practice in one jurisdiction for inspectors to sign inspection reports for apprentices. <b>January 2025 Meeting Action:</b>		

### 13. Future Meetings

- July 7-10, 2025 – Cincinnati, OH
- January 12-15, 2026 – New Orleans, LA

### 14. Adjournment

Respectfully submitted,



Jodi Metzmaier  
Subcommittee Inspection Secretary

Subcommittee Inspection

Last Name	First Name	Interest Category	Role	Exp. Date	More
Horbaczewski	Mark	Users	Chair	08/19/2027	<a href="#">Details</a>
Graf	Darrell	National Board Certificate Holders	Vice Chair	08/19/2027	<a href="#">Details</a>
Metzmaier	Jodi		Secretary	01/31/2099	<a href="#">Details</a>
Barker	Timothy	Authorized Inspection Agencies	Member	01/31/2027	<a href="#">Details</a>
Beauregard	Joseph	Users	Member	08/19/2027	<a href="#">Details</a>
Becker	Chuck	Authorized Inspection Agencies	Member	08/19/2027	<a href="#">Details</a>
Buechel	David	Authorized Inspection Agencies	Member	07/31/2025	<a href="#">Details</a>
Burton	Damon	National Board Certificate Holders	Member	01/31/2026	<a href="#">Details</a>
Clark	James	Manufacturers	Member	07/31/2025	<a href="#">Details</a>
Dexter	David	Users	Member	01/31/2027	<a href="#">Details</a>
Hackworth	William	Authorized Inspection Agencies	Member	08/19/2027	<a href="#">Details</a>
Jessick	Jerry	Users	Member	08/19/2027	<a href="#">Details</a>
Mangas	John	General Interest	Member	08/19/2027	<a href="#">Details</a>
Newton	Venus	Authorized Inspection Agencies	Member	01/31/2025	<a href="#">Details</a>
Petersen	Jeffrey	Users	Member	01/31/2026	<a href="#">Details</a>
Polick	Patrick	Jurisdictional Authorities	Member	07/31/2025	<a href="#">Details</a>
Ray	Brent	Users	Member	08/22/2026	<a href="#">Details</a>
Roberts	James	Manufacturers	Member	08/22/2026	<a href="#">Details</a>
Rose	David	Users	Member	07/31/2025	<a href="#">Details</a>
Safarz	Jason	General Interest	Member	08/22/2026	<a href="#">Details</a>
Scarcella	Vincent	Authorized Inspection Agencies	Member	01/31/2026	<a href="#">Details</a>
Vandini	Thomas	Manufacturers	Member	01/31/2026	<a href="#">Details</a>
Whitlock	Gerald	Authorized Inspection Agencies	Member	01/31/2027	<a href="#">Details</a>



THE NATIONAL BOARD  
OF BOILER AND PRESSURE VESSEL INSPECTORS

### PROPOSED REVISION OR ADDITION

<b>Item No.</b> A 24-18 Rev 01		
<b>Subject/Title</b> Controlled Fill Definition		
<b>NBIC Location</b> All Parts, Section 9, Glossary of Terms		
<b>Project Manager and Task Group</b> Philip Gilston (PM), A. Triplett		
<b>Source (Name/email)</b> Philip Gilston (philip_gilston@hsb.com)		
<b>Statement of Need</b> There is no definition of the term 'controlled fill'.		
<b>Background Information</b> <p>Interpretation item I 23-79 addresses the use of the term 'controlled fill' in NBIC Part 3, 2.5.3 d in relation to Welding Method 6 for Grade 91 material.</p> <p>While the term 'controlled fill' is not specifically used in the text of Welding Method 6 (2.5.3.6), directions are given for such variables as typical preheats, electrode size for SMAW, and the use of stringer beads only. The term is used explicitly in Supplement 8 for CSEF repairs, where S8.3.b says that "To control heat input the weld repair shall be performed using a "controlled fill" technique"; details are also given on such items as preheats, electrode size, required fill pass overlap, etc., and a lot of detail is provided in schematics including specifics on weld bead placement.</p>		
<b>Existing Text</b> None	<b>Proposed Text</b> <u>Changes from Rev 00 shown</u> <b>Controlled Fill</b> – <del>requirements specified</del> <u>control of weld technique</u> for a <del>permitted weld</del> repair process <del>in order to manage heat input to ensure</del> <u>satisfactory weld properties by controlling distortion, promoting tempering and minimizing the risk of cracking by</u> addressing variables <del>including but not limited to heat input, such as</del> preheat and interpass temperature, weld consumable type and <del>diameter</del> <u>size</u> , weld technique (string or weave), <u>and</u> bead placement <del>etc.</del>	<b>Clean Copy</b> <b>Controlled Fill</b> – control of weld technique for a repair process to ensure satisfactory weld properties by controlling distortion, promoting tempering and minimizing the risk of cracking by addressing variables including but not limited to heat input, preheat and interpass temperature, weld consumable type and size, weld technique (string or weave) and bead placement.

VOTE							
Committee	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

## **PART 2, SUPPLEMENT 15**

### **Concerns Regarding Carbon Monoxide During Boiler Inspections**

#### **S15.1 SCOPE**

- a) This supplement provides a guideline for evaluating potential carbon monoxide concerns.
- b) It is well documented and internationally recognized that carbon monoxide is a serious health concern. Annually, there are over 40,000 cases of Carbon Monoxide (CO) poisoning in North America. Boiler and fired pressure vessel inspections involve equipment that is an exposure to the inspector and occupants of buildings. National Board Inspection Code Part 1 calls for carbon monoxide detectors (NBIC Part 1, 1.6.9) where required.
- c) A review of service and maintenance records (NBIC Part 2, 2.2.11), verification that combustion air is supplied to the boiler room (NBIC Part 2, 2.2.20.6 c and NBIC Part 1, 1.6.6) and inspecting for combustion air leaks (NBIC Part 2, 2.2.5 d) are important parts of the inspection that help prevent carbon monoxide from becoming a problem. Installers and service technicians must follow the manufacturers' and jurisdiction's requirements during the installation and servicing of the equipment.

#### **S15.2 Inspection points that should be included in the inspection of the object.**

- a) Assessment of conditions that may indicate a carbon monoxide condition exists outside of the combustion chamber include:
  - 1) Unstable pilot or main flame
  - 2) Yellow flame
  - 3) Smoke from stack
  - 4) Discoloration around burner or casing
  - 5) The presence of soot on any surface
  - 6) Any flue leakage or blockage
  - 7) Fresh air intake blocked
  - 8) Negative pressure in boiler room, resistance when you go to open door, air rushes in when you open door
  - 9) Lack of maintenance on burner/boiler
  - 10) Condensation in boiler room

- b) If any condition is observed which indicates a lack of combustion air, further investigation by a boiler service technician is required.

#### **S15.3 Equipment recommended to inspect the objects safely.**

- a) It is highly recommended that inspectors carry a carbon monoxide detector. They are inexpensive and easy to use.

### 2.2.5 EXTERNAL INSPECTION

The external inspection of a boiler is made while in operation to determine if it is in a safe operating condition ~~to operate safely~~. Some items to consider are:

- a) The boiler fittings, valves, and piping should be checked for compliance with ASME Code or other standards or equivalent requirements. Particular attention should be paid to pressure relief devices and other safety controls;
- b) Firing equipment controls;
- c) Adequacy of structure, boiler supports, and any associated support steel;
- d) Boiler casing should be free from cracks, combustion gas or fluid leaks, excessive corrosion or other degradation that could interfere with proper operation;
- e) Soot blowers, valves, and actuating mechanisms;
- f) Gaskets on observation doors, access doors, drums, handhole and manhole covers and caps;
- g) Valves and actuators, either chains, motors, and/or handwheels; and
- h) Leakage of fluids or combustion gases.

### 2.2.10.6 CONTROLS

Establishing proper operation and maintenance of controls and safety devices is essential to safe boiler operation. Owners or users are responsible for establishing and implementing management programs which will ensure such action is taken. In addition, any repairs to controls and safety devices must only be made by qualified individuals or organizations. Documentation of compliance with these management systems and repairs is an essential element of demonstrating the effectiveness of such systems.

When required by the Jurisdiction, the following guidelines are provided to aid the Inspector in the evaluation of installed operating control devices:

- a) Verify that the burner is labeled and listed by a recognized testing agency, that piping and wiring diagrams exist, that commissioning tests have been conducted and that a contractor/manufacturer's installation report has been completed and is available for review.
- b) Verify that the owner or user has established function tests, inspection requirements, maintenance and testing of all controls and safety devices in accordance with manufacturer's recommendations. Verify that these activities are conducted at assigned intervals in accordance with a written procedure, that non-conformances which impact continued safe operation of the boiler are corrected, and that the results are properly documented. These activities shall be conducted at a frequency recommended by the manufacturer or the frequency required by the jurisdiction. Where no frequencies are recommended or prescribed, the activity should be conducted at least annually.

**Commented [TB1]:** I think we need to differentiate between the internal in-service inspection and the external operating inspection as they are both in-service inspections. Good key word might be "Operating"

**Commented [TB2R1]:**

Where allowed by the jurisdiction, Performance Evaluation may be used to increase or decrease the frequencies based on document review and approval by an appropriate engineer.

- c) Verify that combustion air is supplied to the boiler room as required by the jurisdiction or if no jurisdictional requirements exist see NBIC, Part 1, 2-5.4 1.6.6 and 3-5.4 for additional guidance.
- d) Verify that a manually operated remote boiler emergency stop button exists at each boiler room exit door, when required by the jurisdiction.
- e) Verify operation of low water protection devices by either record review if the boiler cannot be taken out of service or by observing the blowdown of these controls or the actual lowering of boiler water level under carefully controlled conditions with the burner operating. This test should shut off the heat source to the boiler. The return to normal condition such as the restart of the burner, the silencing of an alarm, or stopping of a feed pump should be noted. A sluggish response of the water level after blowdown could indicate an obstruction in the connections to the boiler.
- f) The operation of a submerged low-water fuel cutoff mounted directly in a steam boiler shell ~~should~~ shall be verified to be operational either by record review if the boiler cannot be taken out of service or by observing the ~~be testing of this control~~ ed by lowering the boiler water level carefully. This ~~shall~~ ould be done only after being assured that the water level gage glass is indicating correctly and there is no sluggish response after column blowdown.
- g) On a ~~high temperature water boiler~~ hot water heating boilers, it is often not possible to test the control by cutoff indication, but where the control is of the float type, externally mounted, the float chamber ~~should shall~~ be drained to check for the accumulation of sediment.
- h) On forced circulation boilers, the flow sensing device shall be verified to be operational either by record review if the boiler cannot be taken out of service or by actual observing the testing of the control ~~ed~~ to verify that the burner will shut down the boiler on a loss of flow.
- i) On electric boilers, it ~~should shall~~ be verified that the boiler is protected from a low water condition either by construction or a low water cutoff or a low flow sensing device.
- j) In the event controls are inoperative or the correct water level is not indicated, the boiler shall be taken out of service until the unsafe condition has been corrected.
- k) All automatic low-water fuel cutoff and water-feeding devices ~~should shall~~ -be examined by the Inspector to ensure that they are properly installed. The Inspector shall should have the float chamber types of control devices disassembled and the float linkage and connections examined for wear. The float chamber shall should be examined to ensure that it is free of sludge or other accumulation. Any necessary corrective action shall be taken before the device is placed back into service. The Inspector shall should check that the operating instructions for the devices are readily available.
- l) Check that the following controls/devices are ~~provided~~ properly installed, maintained, and tested in accordance with the Manufacturer's recommendations or an industry standard :
  - 1) Each automatically fired steam boiler is protected from overpressure by not less than two pressure operated controls, one of which may be an operating control.

**Commented [B3]:** Part 1 2.5.4 states See NBIC Part 1, Section 1.6.6, Ventilation and Combustion Air as does 3.5.4

**Commented [TB4R3]:** Makes sense. More direct

**Commented [TB5]:** This applies to all water boilers doesn't it? I am also not sure how one visually checks for the accumulation of sediment.

**Commented [B6R5]:** Change High temperature water boilers to hot water heating boilers to match CSD-1, consider deleting this entire sentence.

**Commented [TB7]:** Regarding "construction" are we talking about electrode type boilers?

**Commented [TB8R7]:** Yes per NBIC Part 1 2.8.5 e

**Commented [TB9]:** This is now talking about the internal inspection

**Commented [TB10]:** Delete provided and replaced with installed properly

When required by the code of construction or the jurisdiction, the high pressure limit control shall be of the manual reset type.

- 2) Each automatically fired hot-water boiler or hot-water boiler system is protected from over-temperature by not less than two temperature operating controls, one of which may be an operating control.

When required by the code of construction or the jurisdiction, the high temperature limit control shall be of the manual reset type.

- 3) Each hot-water boiler is fitted with a thermometer that will at all times, indicate the water temperature at or near the boiler outlet.
- m) Verify that any repair, alteration, or replacement of a control or safety device complies with the following:
- 1) The requirements of the original installation code or jurisdiction, as appropriate.
  - 2) The work is conducted by trained and qualified individuals, with any additional certification as required by the jurisdiction.
  - 3) The work is documented.

**Commented [B11]:** Trained and qualified individual is not defined

**Commented [TB12R11]:** CM-120 in CSD-1

**Commented [TB13R11]:** Luis is looking into making a task group to address this.

3)4) \_\_\_\_\_



## **S7.9 ASME LPG PRESSURE VESSELS LESS THAN 2000 GALLONS BEING REFURBISHED BY A COMMERCIAL SOURCE**

Commercially refurbished pressure vessels are used pressure vessels that are temporarily taken out of service for repair and or renewal and sent to a company which specializes in this type of work. Because the history of some of these pressure vessels is unknown, special attention shall be given to inspection and repair before returning any of these pressure vessels back to service. ASME LPG pressure vessels less than 2,000 gal. (7,570 l) may be refurbished subject to the following conditions:

a) A complete external inspection shall be completed under the guidelines of this supplement. If any defects are found, as defined in S7.8.1 through S7.8.5, the defect shall be repaired under NBIC Part 3, Repairs and Alterations, by qualified personnel or permanently removed from service;

b) Pressure vessels of this size that have been previously used in anhydrous ammonia service shall not be converted to LPG service. See NBIC Part 2, S7.8.6;

c) The coating on the outside of the pressure vessel shall be removed down to bare metal so that an inspection can be performed under the guidelines of this supplement; and

d) Verify that there is no internal corrosion if the pressure vessel has had its valves removed or is known to have been out of service for an extended period.

e) Removal and re-attachment of the original manufacturer's nameplate shall only be done in accordance with NBIC Part 2, 5.2.4.

f) The refurbished commercial source shall apply a tag or label to the vessel with the following information:

- A. Name of commercial source
- B. Address of commercial source
- C. Year of the tank was refurbished.
- D. This pressure vessel was refurbished per NBIC S7.9



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

<b>Subject:</b>	Vessels above 10,000 psi reevaluation of remaining life
<b>NBIC Location:</b>	2023 NBIC, Part 2, 2.3.6.10 c) 1), and 2.3.6.11 c) and d)
<b>Statement of Need:</b>	Inspectors need to be able to have a paper trail of the code integrity of these vessels. Changing the original data (in this case, designed cycle life) should ONLY be completed with the involvement of an authorized inspector and MUST be documented on a National Board form in order to be audited by the inservice inspector.
<b>Background Information:</b>	Currently owner/users of these vessels are conducting requalification of the vessels with no inspector involvement. In most cases, they are only requalifying the vessel and putting it into an existing yoke and frame that has not been evaluated. In addition, all of the "requalification" is done without inspector involvement, essentially, changing the data report "life cycles" with no code accountability.

**Proposed Text:**

**2.3.6.10 INSPECTION OF WIRE WOUND PRESSURE VESSELS**

**c) Record keeping**

- 1) Since these vessels have a finite fatigue life, a record shall be maintained of each operating cycle, recording both temperature and pressure. Deviation beyond design limits is cause for suspending operation and reevaluation of remaining fatigue life which must be documented using the National Board Alteration process, including sign off by an authorized inspector. Vessels having no operating record should be inspected and a fracture mechanics evaluation with a fatigue analysis test be performed to establish remaining life before resuming operation. Vessels having no operating record shall not be used for service until such time as previous operating history can be determined.

#### **2.3.6.11 INSPECTION OF VESSELS FOR PRESSURES AT AND ABOVE 10,000 PSI**

c) Vessels constructed for a set number of cycles, as defined by the code of construction, which have reached the end of those cycles, must be removed from service or requalified for continued use. Any requalification for continued service must be completed and documented in accordance with the National Board Alteration process. ~~in accordance with the requirements of the jurisdiction where applicable.~~ The Inspector shall verify that documentation of any requalification is retained and complies with the National Board Alteration process.

d) Requalification of any vessel shall either be completed by the original manufacturer or a manufacturer familiar with the construction of pressure vessels at and above 10,000 PSI (68.95 MPa). Guidance for completing requalification can be found in ASME PCC-3, *Inspection Planning and Using Risk-Based Methods*. The requalification of a vessel must be documented using the National Board Alteration process, including sign off by an authorized inspector.

e) Vessel requalification must also include an evaluation and examination of the Yoke, Frame and vessel closures



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

<b>Subject:</b>	Require means to prevent safety valve discharge piping blockage for LCDSV (Part 2)
<b>NBIC Location:</b>	2023 NBIC, Part 2, S12.7 d)
<b>Statement of Need:</b>	Adding verbiage to the NBIC Part 1, Part 2 and Part 4 to require a means to prevent foreign material introduction to the safety valve discharge pipe.
<b>Background Information:</b>	Inspection of CO2 tanks (bulk liquid carbon dioxide storage vessels LCDSV) has shown some areas of the country where insects have built nests in the discharge piping of the safety valve. Once the vessel reaches 300 psi and the safety valve should begin venting, product flow is fully blocked and cannot vent the vessel pressure. In some instances, the pressure has been found to be as high as 350 psi while safety valve outlet discharge is fully restricted. (The vessel MAWP in this example was 300 psi.) An example is dirt dobber bees can block the discharge line and pushing an ink pen through the dirt will allow for sudden venting of the vessel's built-up pressure. The sudden burst of flow from the discharge does present a potential hazard.

**Proposed Text:**

**S12.7 VALVES, PIPING, TUBING AND FITTINGS**

d) Safety Relief/Vent Lines – The inspection, where possible, should verify the integrity of the pressure relief/vent line from the pressure relief valve to outside vent line discharge fitting.

Additionally, all safety relief/vent line discharge shall be protected to prevent stoppage of the lines by foreign material, moisture, or insects. All connections shall be securely fastened to the LCDSV. The minimum size and length of the lines shall be in accordance with NBIC Part 2, Tables S12.7-a and S12.7-b. Fittings or other connections may result in a localized reduction in diameter have been factored into the lengths given by the NBIC Part 2, Tables S12.7-a and S12.7-b.



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

<b>Subject:</b>	Part 2, 2.3.6.8 ASME PVHO Forms call out the 2016 Edition
<b>NBIC Location:</b>	2023 NBIC, Part 2, 2.3.6.8 e) and g)
<b>Statement of Need:</b>	It is counterproductive to limit another standard to a specific Edition because revision will be required whenever a new one is issued.
<b>Background Information:</b>	An Inservice student at the National Board asked the question, "Why is the NBIC limiting the ASME PVHO standard in the affected paragraphs to the 2016 Edition when Part 2, 1.3 g) does not?" The forms available should reflect the year the PVHO was manufactured, not necessarily the latest version of the form.

**Proposed Text:**

**2.3.6.8 INSPECTION OF PRESSURE VESSELS FOR HUMAN OCCUPANCY (PVHO's)**

**e) Inspection of view ports/windows**

- 1) Each window should be individually identified and be marked in accordance with ASME PVHO-1.
- 2) If there are any penetrations through windows, they must be circular in accordance with ASME PVHO-1 requirements.
- 3) Windows must be free of crazing, cracks and scratches that exceed "superficial" defects as defined by ASME PVHO-2.
- 4) Windows and viewports have a maximum interval for seat/seal inspection and refurbishment. Documentation should be checked to ensure compliance with ASME PVHO-2, Section 2-4.4.
- 5) Windows have a maximum service life ranging from 10 to 20 years depending on the type of window and service conditions.
- 6) Documentation should be checked to ensure compliance with ASME PVHO-2 inspection and refurbishment requirements (ASME PVHO-2-~~2016~~, Tables 2-4.3-1 and 2-4.3-2) and service life limitations (ASME PVHO-2-~~2016~~, Section 2-4.4).

g) Acceptance criteria

The following forms are required to be available for review:

- 1) ASME BPV Forms U-1, U-1A or U-2 as appropriate for vessels built to ASME B&PV Code Section VIII. For vessels built to other rule sets, the equivalent forms shall be available;
- 2) ASME PVHO-1-~~2016~~ Form GR-1 Manufacturer's Data Report for Pressure Vessels for Human Occupancy;
- 3) ASME PVHO-1-~~2016~~ Form VP-1 Fabrication Certification for Acrylic Windows (one for each window);
- 4) ASME PVHO-1-~~2016~~ Form VP-2 Design Certification for Acrylic Windows (one for each window);
- 5) ASME PVHO-2-~~2016~~ Form VM-1 Viewport Inspection (one for each window, current within ASME PVHO-2 inspection interval requirements); and
- 6) For any repaired windows, ASME PVHO-2-~~2016~~ Form VM-2 Acrylic Window Repair Certificate for Windows. Repaired by the User (or his Authorized Agent) or ASME PVHO-2-~~2016~~ Form VM-3 Acrylic Window Repair Certificate for Severely Damaged Windows.



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

<b>Subject:</b>	Add field to NB 6 & NB 7 from JRS Team
<b>NBIC Location:</b>	2023 NBIC, Part 2, 5.3.2 c) and d)
<b>Statement of Need:</b>	Repeatedly came up in investigations and in discussions that after reviewing an inspection form the reader has no idea if the object was operating.
<b>Background Information:</b>	See statement of need.

**Proposed Text:**

Add to the NB 6 & 7 "Equipment Operating at the time of inspection with yes no box.



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

<b>Subject:</b>	Add language clarifying the limitation of inspections presented by design.
<b>NBIC Location:</b>	2023 NBIC, Part 2, 2.1
<b>Statement of Need:</b>	Currently an inspector could be held responsible for conditions they could not reasonably access.
<b>Background Information:</b>	Without a statement explaining the limitations persons not familiar with code construction may erroneously believe and inspector can access all surfaces of a boiler.

**Proposed Text:**

**2.1 SCOPE**

This section provides general and detailed inspection requirements and guidelines for pressure-retaining items to determine corrosion deterioration and possible prevention of failures for boilers, pressure vessels, piping, and pressure relief devices.

Materials to be inspected shall be suitably prepared so that surface irregularities will not be confused with or mask any defects. Material conditioning such as cleaning, buffing, wire brushing, or grinding may be required by procedure or, if requested, by the Inspector. The Inspector may require insulation or component parts to be removed.

Inspectors are not always able to see all parts of the boiler during an inspection. The construction of the boiler can limit the scope of inspection. Boilers without handholes and manholes limit visual access to water and steam side surfaces.





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

<b>Subject:</b>	Need to restrict signatures to inspections for which the inspector was present
<b>NBIC Location:</b>	2023 NBIC, Part 2, 1.5.1
<b>Statement of Need:</b>	It has become practice in one jurisdiction for inspectors to sign inspection reports for apprentices.
<b>Background Information:</b>	See statement of need.

**Proposed Text:**

**1.5.1 INSERVICE INSPECTION ACTIVITIES**

Any defect or deficiency in the condition, operating, and maintenance practices of a boiler, pressure vessel, piping system, and pressure relief devices noted by the Inspector shall be discussed with the owner or user at the time of inspection and recommendations made for the correction of such defect or deficiency shall be documented. Use of a checklist to perform inservice inspections is recommended. The inspector is required to be present during the inspection and should only sign documents pertaining to inspections at which they were in attendance.