Date Distributed: July 26, 2023

THE NATIONAL BOARD
OF BOILER AND PRESSURE VESSEL INSPECTORS

NATIONAL BOARD INSPECTION CODE SUBCOMMITTEE PRESSURE RELIEF DEVICES

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MINUTES

Meeting of July 12th, 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**

Chair Adam Renaldo called the meeting to order at 8:07AM CDT on Wednesday, July 12, 2023. Members and Visitors in attendance can be found on the Attendance Sheet (Attachment Pg 1)

2. **Announcements**

- The National Board will be hosting a reception on Wednesday evening from 5:30 p.m. to 7:30 p.m. at Sports & Social St. Louis Ballpark Village next to the hotel.
- 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 Cardinal C, and lunch will be served from 11:30 a.m. to 12:30 p.m. in Cardinal C.
- Meeting schedules, meeting room layouts, and other helpful information can be found on the National Board website under the **Inspection Code** tab → NBIC Meeting Information.
- Remember to add any attachments that you'd like to show during the meeting (proposals, reference documents, power points, etc.) to the NBIC file share site (nbfileshare.org) **prior to the meeting**.
    - Note that access to the NBIC file share site is limited to committee members only.
    - ALL power point attachments/presentations must be sent to the NBIC Secretary prior to the meeting for approval.
    - Contact Jonathan Ellis (*nbicsecretary@nbbi.org*) for any questions regarding NBIC file share access.
- When possible, please submit proposals in word format showing "strike through/underline".
- 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 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*
    - 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 is also a good way to make sure we have the most up-to-date contact information.

3. **Awards/Special Recognition**

Mr. Brandon Nutter 10 Years as members of SC PRD and Mr. Thakor Patel 20 Years as members of SC PRD. Mr. Nutter and Mr. Patel were congratulated for their accomplishments by Mr. Renaldo.

4. **Adoption of the Agenda**

The agenda was revised to include recommendations for membership in Subgroup PRD for Mr. Craig Theiler and Mr. Henry Cornett, as well as request for membership in Subcommittee PRD by Mr. Thomas Tarbay. A motion was made to adopt the revised agenda dated July 12, 2023. The motion was seconded and the revised agenda was approved unanimously.

5. **Approval of Minutes from the January 11, 2023 Meeting**

A motion was made to approve the minutes from the January 11, 2023 meeting. The motion was seconded and the minutes were approved unanimously.

6. **Review of the Roster (See Attendance Sheet – Attachment Pg 1)**
   a. **Nominations**
      i. Mr. Ray Ceccarelli (AIA) was recommended to become a member of Subgroup PRD. A motion was made to appoint Mr. Cecceralli to Subgroup PRD as recommended. The motion was seconded and approved unanimously.
      ii. A motion was made to recommend to Main Committee that Mr. Thomas Tarbay (General Interest) be appointed as a member of Subcommittee PRD. The motion was seconded and was unanimously approved.
      iii. Mr. Craig Theiler (National Board Certificate Holder) was recommended to become a member of Subgroup PRD. A motion was made to appoint Mr. Theiler to Subgroup PRD as recommended. The motion was seconded and approved unanimously.
      iv. Mr. Henry Cornett (Manufacturers) was recommended to become a member of Subgroup PRD. A motion was made to appoint Mr. Theiler to Subgroup PRD as recommended. The motion was seconded and approved unanimously.

   b. **Reappointments**
      i. The following **Subgroup PRD** memberships are set to end prior to the January 2024 NBIC meeting: Mr. Kim Beise and Mr. Daniel Marek. Both intend to continue as members of the Subgroup PRD and were recommended for reappointment by Subgroup PRD. A motion was made to reappoint both Mr. Beise and Mr. Marek. The motion was seconded and unanimously approved.
      ii. The following **Subcommittee PRD** memberships are set to end prior to the January 2024 NBIC meeting: Mr. Prakash Dhobi. Mr. Dhobi intends to continue as a member. A motion was made to reappoint Mr. Dhobi. The motion was seconded and unanimously approved.
      iii. Mr. David McHugh changed employment status between meetings, and consequently, interest category. Mr. McHugh's interest category has changed from National Board Certificate Holder to General Interest. The change of category required Mr. McHugh to be reappointed to Subcommittee PRD. A motion was made to recommend to Main Committee that Mr. McHugh be reappointed to Subcommittee PRD in the category of General Interest.

   c. **Resignations**
      None

   d. **Officer Selections**
      i. Mr. Kim Beise's and Mr. Dan Marek's terms as Chair and Vice Chair of Subgroup PRD were set to end on July 30, 2023. The Subgroup nominated Dan Marek for Chair and David McHugh as Vice Chair. A motion was made to appoint Mr. Marek and Mr. McHugh as recommended. The motion was seconded and unanimously approved.

7. Interpretation Requests

Item Number: 22-36	NBIC Location: Part 4, 4.2.2	Attachment Page 2

General Description: Use of Code Case 2787

Task Group: None

July 2023 Meeting Action: The proposed interpretation request was presented. A motion was made to accept the proposal. The motion was seconded and a vote was taken. The motion passed unanimously.

Item Number: 23-34	NBIC Location: Part 4, Supp. 6	Attachment Page 3

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: A proposal was presented and revised. A motion was made to accept the revised proposal. The motion was seconded and a vote was taken. The motion passed unanimously

8. Action Items

Item Number: NB15-0305	NBIC Location: Part 4	Attachment Page 4-5

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: A proposal was presented. A Motion was made to accept the proposal. The motion was seconded and a vote was taken. 4 opposed (D. Schirmer, N. Bailey, E. Creaser, D. Sullivan) and 10 approved. Reasons for the disapproved votes can be found in the Attachments (Pages 6-7). The proposal will be sent to letter ballot by Subgroup and Subcommittee Installation.

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

General Description: Create Guidelines for Repair of Pin Devices.

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

July 2023 Meeting Action: A proposal was presented. The proposal will be sent to letter ballot for Subcommittee PRD.

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

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

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

July 2023 Meeting Action: Work continues on this item.

Item Number: 19-83	NBIC Location: Part 4, Part 1	No Attachment

General Description: Address alternate pressure relief valve mounting permitted by ASME CC2887-1.

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

July 2023 Meeting Action: Progress report. A revised proposal incorporating comments from the previous letter ballot was presented as a progress report. This will be letter balloted to Subgroups Installation, Inspection, and PRD between meetings.

Item Number: 20-85	NBIC Location: Part 4, 3.2.6, Part 2 2.5.8	Attachment Page 8-10

General Description: Add language to Part 4, 3.2.6 to define test intervals for thermal fluid heaters for PRD's

Subgroup: PRD

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

Explanation of Need: Need to align Part 4 language with work done under Item 19-88.

July 2023 Meeting Action: A proposal was presented. A motion was made to accept the proposal and the motion was seconded. A vote was taken and the motion passed unanimously. The proposal will be presented to Main Committee.

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), H. Cornett, B. Nutter, K. Beise, J. Grace

Explanation of Need: The recently approved S4.4, "Weight Loaded Vents," (NB12-0901) 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: Work continues on this item.

Item Number: 21-36	NBIC Location: Part 4, 3.3.3.4 i)	Attachment Page 11

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: A proposal was presented and revised. A motion was made to accept the revised proposal and the motion was seconded. A vote was taken and the motion passed unanimously. The proposal will be presented to Main Committee.

Item Number: 21-59	NBIC Location: Part 4, 3.2.6, Part 2, 2.5.8	Attachment Page 12-13

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: A proposal was presented and a motion was made and seconded to accept the proposal. A vote was taken and the motion unanimously passed. Subcommittee Inspection also accepted the proposal. The proposal will be presented to Main Committee.

Item Number: 21-61	NBIC Location: Part 4, 3.3.4	Attachment Page 14-16

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: A proposal was presented and a motion was made to accept the proposal. The motion was seconded and a vote was taken. The motion passed unanimously and the proposal will be presented to 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: Progress report. A proposal will be letter balloted to Subgroup PRD.

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. Wolf, 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: Progress report. Work continues on 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: Progress report. Work continues on this item

Item Number: 22-15	NBIC Location: Part 4, 2.4.5 and Part 1, 3.9.5	Attachment Page 17-18

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 2023 Meeting Action: A proposal was presented and a motion was made to approve. The motion was seconded and a vote was taken. The motion passed unanimously and the proposal will be presented to Main Committee.

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: A proposal was presented to the Subcommittee. The proposal will be sent to letter ballot to Subcommittee PRD and Installation.

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: Progress report. Work continues on this item.

9. New Business

Item Number: 23-18	NBIC Location: Part 4, 4.2.2	Attachment Page 19

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: A proposal was letter balloted to Subgroup and Subcommittee PRD and passed both. The proposal will be presented to 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: A task group was assigned

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:** A task group was assigned		

10. Presentations

None

11. Future Meetings

Mr. Renaldo discussed future meetings. The currently scheduled meetings are as follows:

- January 8-11, 2024 – Charlotte, NC
- July 2024 – TBD

12. Adjournment

A motion was made to adjourn the meeting. The motion was seconded and approved unanimously, and the meeting was adjourned at 11:31AM CDT

Respectfully Submitted,

Robert Viers
Secretary, Subcommittee Pressure Relief Devices

Subcommittee PRD Attendees - July 2023

MEMBERS:	Interest Category	Registered For	In Person	Remote	Not In Attendance
Adam Renaldo	Users	In Person	x		
Jay Simms	Manufacturers	In Person	x		
Robert Viers	Secretary	In Person	x		
Kim Beise	National Board Certificate Holders	In Person	x		
Nick Bailey*	General Interest		x		
Eben Creaser	Jurisdictional Authorities	In Person	x		
Denis DeMichael	Users	Remote		x	
Prakash Dhobi	National Board Certificate Holders	In Person	x		
Alfred Donaldson	Manufacturers	Remote		x	
Daniel Marek	General Interest	Remote		x	
David McHugh	National Board Certificate Holders	In Person	x		
Brandon Nutter	National Board Certificate Holders			x	
Thakor Patel	Manufacturers	Remote		x	
Delton Schirmer	Authorized Inspection Agencies		x		
David Sullivan	Jurisdictional Authorities		x		
Jon Wolf	Authorized Inspection Agencies		x		

*Representing Alton Cox

VISITORS:	Company/Title/Interest	Registered For	In Person	Remote
Darris Mosley	Occidental Petroleum	Remote		x
Luis Ponce	National Board of Boiler & Pressure Vessel Inspectors	In Person	x	
Clark Turner	Calder	In Person	x	
Tusharkumar Patel	TUV India PVT LTD	Remote		
Henry Cornett	Emerson Automation Solutions US LP	In Person	x	
Jeremy Grace	Chemours	Remote		x
Gabe Salwan	Quality Valve	Remote		x
Ray Ceccarelli	FM Global	In Person		x
M.A. Shah	ABM Industrial Services Inc.	Remote		x
Craig Theiler	ERL, Inc.	Remote		
Thomas Beirne	National Board of Boiler & Pressure Vessel Inspectors	Remote		
Erik Heck	ARI-Armaturen	In Person	x	
Harrington Henry	ARISE Inc.	Remote		x
Thomas White				x
Jeff Churchill	Cargill		x	
Thomas Tarbay	TRT Consultants		x	

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

PART 1
4.5 ~~PRESSURE RELIEF DEVICES~~OVERPRESSURE PROTECTION

See NBIC Part 1, 4.1 for the scope of pressure vessels covered by these requirements.

~~Pressure relief devices protecting pressure vessels shall meet the following requirements.~~When overpressure protection is provided by a pressure relief device or devices, the requirements in 4.5.1 through 4.5.6 apply. If overpressure protection is provided by Overpressure Protection by System Design in lieu of a pressure relief device or devices, the requirements in 4.5.7 apply.

4.5.7 OVERPRESSURE PROTECTION BY SYSTEM DESIGN

See NBIC Part 4, 2.5.8.

PART 2

2.3.5 INSPECTION OF PRESSURE VESSEL PARTS AND APPURTENANCES

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) and NBIC Part 2, 2.6 for Overpressure Protection by System Design in lieu of a pressure relief device or devices used to prevent the overpressure of pressure vessels.

2.6 OVERPRESSURE PROTECTION BY SYSTEM DESIGN

See NBIC Part 4, 2.5.8.

PART 4
2.5 PRESSURE VESSEL ~~PRESSURE RELIEF DEVICES~~OVERPRESSURE PROTECTION

See NBIC Part 1, 4.1 for the scope of pressure vessels covered by the requirements of Part 4, 2.5.

When overpressure protection is provided by a pressure relief device or devices the requirements in 2.5.1 through 2.5.7 apply. If overpressure protection is provided by Overpressure Protection by System Design in lieu of a pressure relief device or devices, then the requirements in 2.5.8 apply.~~Pressure relief devices protecting pressure vessels shall meet the following requirements:~~

2.5.8 OVERPRESSURE PROTECTION BY SYSTEM DESIGN

Overpressure protection by system design may be used in lieu of a pressure relief device or devices if permitted by the Jurisdiction and the applicable Section of the ASME BPV Code. Compliance with the pressure vessel code requirements shall be documented in a report that includes as a minimum:

a) For pressure vessels for which the pressure is self-limiting
   1) The signature of the individual in responsible charge of the management of the operation of the vessel
   2) Detailed process and instrument flow diagrams, showing all pertinent elements of the system associated with the vessel
   3) A description of all operating and upset scenarios, including scenarios involving fire and those that result from operator error, and equipment and/or instrumentation malfunctions
   4) An analysis showing the maximum coincident pressure and temperature that can result from each of the scenarios listed in item 3) above does not exceed the MAWP at that temperature

5) For a new vessel, a copy of the vessel's Manufacturer's data report stating that overpressure protection is provided by system design
6) For an existing vessel whose Manufacturer's data report does not state overpressure by system design, a copy of the Manufacturer's data report with an attachment signed by the user indicating that overpressure protection is being provided by system design.

b) For pressure vessels for which the pressure is not self-limiting
1) The signature of the individual in responsible charge of the management of the operation of the vessel
2) Detailed process and instrument flow diagrams (P&IDs), showing all pertinent elements of the system associated with the vessel
3) A description of all operating and upset scenarios, including those involving fire and those that result from operator error, and equipment and/or instrumentation malfunctions
4) A detailed description of any safety critical instrumentation used to limit the system pressure, including the identification of all truly independent redundancies and a reliability evaluation (qualitative or quantitative) of the overall safety system
5) An analysis showing the maximum pressure that can result from each of the scenarios in Item 3) above does not exceed the maximum pressure allowed at the scenario temperature per the vessel code of construction
6) For a new vessel, a copy of the vessel's Manufacturer's data report stating that overpressure protection is provided by system design
7) For an existing vessel whose Manufacturer's data report does not state overpressure by system design, a copy of the Manufacturer's data report with an attachment signed by the user indicating that overpressure protection is being provided by system design

Commented [TB1]: Added from original letter ballot

Provided Via Email

David Sullivan:

NB15-0305 Over pressure protection by system design.

I voted no on this item because I believe it is out of the scope of Part 4. Also there is no 'device' included which is what is covered in Part 4.
I am also concerned that if it is in the NBIC, users will try to site this rule for existing systems.
I do not doubt that it needs to be addressed somewhere. Part 4 as written is not the place at this time.

Dave Sullivan
Chief Boiler Inspector
State of Arkansas
501-682-4515-office
501-690-6194-mobile

Eben Creaser:

My negative vote on item NB15-0305 is based on the fact that Part 4, Paragraph 1.1 Scope does not include the topic. The subject of "over pressure protection by system design" and a decision on weather or not the subject should be included in NBIC has not been made. If it is decided by who ever it is that has the authority to make this type of decision, the scope would in my opinion be better placed in Part 1.

Eben

Nick Bailey (Representing J. Alton Cox):

Reason for Opposed Vote NB15-0305
NBIC Part 4 Provides Information and Guidance to perform, verify, and document the installation, inspection and repair of Pressure Relief Devices. Overpressure Protection by system design is simply beyond the Scope .

Thanks
Nick Bailey
918-798-5712

Delton Schirmer:

Hello,
I voted no on NB15-0305 because no PRD doesn't fit the Scope of NBIC Part 4. To be included in Part 4 there should be a PRD or we need to adjust the scope and title of Part 4.

Be Safe,

Del Schirmer
Central Region Supervisor
Boiler & Property Consulting | XL Insurance America, Inc.
5018 Bristol Industrial Way, Suite 203, Buford, Georgia 30518
Direct: 651-666-9824 | Home Office: 770-614-3111
Email: Del.Schirmer@BoilerProperty.com
www.BoilerProperty.com

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.

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)
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

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.

4.2.2 CONSTRUCTION STANDARDS FOR PRESSURE RELIEF DEVICES

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

a) T~~t~~he 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.