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THE NATIONAL BOARD
OF BOILER AND PRESSURE VESSEL INSPECTORS

NATIONAL BOARD INSPECTION CODE SUBCOMMITTEE PRESSURE RELIEF DEVICES

MINUTES

Meeting of July 13th, 2022
Indianapolis, IN

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The National Board of Boiler & Pressure Vessel Inspectors
1055 Crupper Avenue
Columbus, Ohio 43229-1183
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1. **Call to Order**

The meeting was called to order at 8:05 AM on Tuesday July 13, 2021 by Chair Marianne Brodeur Members and Visitors in attendance can be found on the attendance sheet (Attachments Page 1).

2. **Announcements**

- The National Board will be hosting a reception on Wednesday evening from 6:30pm to 8:30pm in the City Way Gallery.

- The National Board will be hosting breakfast and lunch on Thursday. Breakfast will be served from 7:00am to 8:00am, and lunch will be served from 11:30am to 12:30pm. Both meals will be served at the hotel in the Market Table.

- This meeting is the last meeting at which items can be included for publication in the 2023 NBIC edition

3. **Adoption of the Agenda**

The agenda dated June 30, 2022 was presented. It was noted that 21-62 was inadvertently left off and will be added back on along with new items 22-20 and 22-23. A motion was made and seconded to adopt the agenda with the additional items. A vote was taken and the motion was unanimously approved.

4. **Approval of Minutes from the January 12th, 2022 Meeting**

A motion was made and seconded and seconded to approve the January 2022 minutes. A vote was taken and the motion was unanimously approved.

5. **Review of the Roster (Attachments Page 1)**

   a. **Nominations**

      i. Mr. David Sullivan and Mr. Eben Creaser (both of Jurisdictional Authorities interest category) have expressed interest in becoming members of the Subgroup and Subcommittee. A motion was made and seconded to accept Mr. Sullivan's and Mr. Creaser's appointment to Subgroup PRD and recommend appointment to the Subcommittee PRD. After discussion a vote was taken and the motion unanimously passed.

   b. **Reappointments**

      i. Mr. Prakash Dhobi, Mr. Alfred Donaldson, and Mr. Thomas Tarbay's memberships are set to expire prior to the January 2023 meeting. A motion was made and seconded to re-appoint Mr. Dhobi, Mr. Donaldson, and Mr. Tarbay to Subgroup PRD. After discussion a vote was taken and the motion unanimously passed.

c. Resignations

6. Interpretation Requests

None.

7. Action Items

Item Number: NB15-0305	**NBIC Location: Part 4**	**No Attachment**
General Description: Create Guidelines for Installation of Overpressure Protection by System Design. **Task Group:** B. Nutter, A. Renaldo, D. Marek (PM), D. DeMichael, J. Wolf, D. Schirmer **July 2022 Meeting Action:** Comments and negatives received from the letter ballot to subcommittee PRD and Installation will be responded to by the task group and revised proposal recirculated.		

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 2022 Meeting Action:** A review and comment letter ballot is currently being circulated among the SG/SC 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 Meeting Action:** Work continues on this item. Part 4 text complete, will need to work on Part 1 text. Possible letter ballot to SG between meetings.		

Item Number: 17-119	**NBIC Location: Part 4, 2.2.5 and Part 1, 2.9.1.4**	**No Attachment**
General Description: States pressure setting may exceed 10% range. Clarify by how much. **Task Group:** T. Patel (PM), D. Marek, J. Ball, R. Donalson **July 2022 Meeting Action:** A motion was made and seconded to close the item with no action. After discussion a vote was taken and the motion unanimously passed. The rationale was that parallel item in ASME was also closed with no action. If reopened in the future, a new item will be opened for NBIC.		

Item Number: 19-37	NBIC Location: Part 4, 4.3.1 c) 4)	No Attachment

General Description: Origin of Replacement Parts for Pressure Relief Devices

Task Group: A. Cox (PM), T. Patel, P. Dhobi, J. Simms

July 2022 Meeting Action: A proposal was presented as progress report. After input received and discussion a motion was made and seconded to close the item with no action. A vote was taken and the motion unanimously passed. The rationale was that the existing text citing "sources other than the manufacturer or assembler" covered distributors and further clarification was not necessary.

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 2022 Meeting Action: The proposal was balloted to Subcommittee Installation and received three disapproval votes. The task group will respond to the negatives and if necessary, revise and recirculate the proposal.

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

General Description: Add language to Part 4, 3.2.6 to define test intervals for thermal fluid 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 2022 Meeting Action: Work continues on this item.

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), R. Donalson, 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 2022 Meeting Action: Work continues on this item.

Item Number: 21-18	NBIC Location: Part 4, 4.6.4	No attachment

General Description: Pressure tests for pressure relief valve parts.

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

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

July 2022 Meeting Action: A draft proposal was presented and after brief discussion it was decided that it will be letter balloted to SG-PRD between meetings.

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.

July 2022 Meeting Action: Work continues on this item.

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

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

Subgroup: PRD

Task Group: 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 2022 Meeting Action: A draft proposal was presented and after brief discussion it was decided that it will be letter balloted to SG-PRD between meetings.

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

General Description: Audit Requirements for the T/O holder

Subgroup: PRD

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

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

July 2022 Meeting Action: Work continues on this item.

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 2022 Meeting Action: Work continues on this item.

Item Number: 21-63	NBIC Location: Part 4, 4.7.2	Attachments page 2

General Description: Require unique identifier marked on Pilots in addition to main valves

Subgroup: PRD

Task Group: R. Donalson (PM), B. Nutter, D. Gonzales, J. Simms, T. Patel, D. Marek, T. Beirne

Explanation of Need: The 2021 Edition of ASME BPVC Section XIII requires pilots of pilot operated pressure relief valves be marked with a unique identifier that matches the main valve (Section I has similar approved text for the 2023 Edition). This should be addressed for VR nameplates as well since pilots can be replaced as VR operation.

July 2022 Meeting Action: A motion was made and seconded to accept the attached proposal. After discussion a vote was taken, and the motion unanimously passed. This item will be forwarded to Main Committee for action.

Item Number: 21-84	NBIC Location: Part 4, 4.7.4	Attachments page 3

General Description: Update duplicate nameplate marking requirements to reflect new Section XIII

Subgroup: PRD

Task Group: A. Cox (PM), D. Sullivan, D. Marek, P. Dhobi, B. Nutter, T. Beirne

Explanation of Need: With the new publication of Section XIII, valves that were previously constructed to Section IV or VIII Div. 1 are now constructed to Section XIII. The HV and UV designators still indicate the service, however.

July 2022 Meeting Action: A motion was made and seconded to accept the attached proposal. After discussion a vote was taken, and the motion unanimously carried. This item will be forwarded to Main Committee for action.

8. New Business

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

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

Subgroup: PRD

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

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

July 2022 Meeting Action: A task group was formed to work 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 2022 Meeting Action: A task group was formed to work on this item.

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

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

Subgroup: PRD

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

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

July 2022 Meeting Action: A task group was formed to work on this item.

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 2022 Meeting Action: A task group was formed to work on this item.

Item Number: 22-20	NBIC Location: Part 4, 4.7.4	Attachments pages 4-8

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 2022 Meeting Action: A task group was formed to work on this item. Background information is attached.

Item Number: 22-23	NBIC Location: All Parts, Section 8	Attachments Page 9

General Description: Delete Section 8 of NBIC and refer to introduction.

Subgroup: All

Task Group: G. Scribner

Explanation of Need: Section 8 contains instructions on submitting technical inquires that are out of date. Instructions are located in the introduction and on the National Board website. Therefore Section 8 is not needed.

July 2022 Meeting Action: A motion was made and seconded to delete Section 8 of Part 4 and replace with the text located in the attached proposal. After discussion a vote was taken and the motion unanimously passed.

9. Presentations

None

10. Future Meetings

- January 2023 – Charleston, SC
- July 2023 – TBD
- January 2024 – Charlotte, NC

11. Adjournment

The meeting was adjourned at 10:00 AM.

Respectfully Submitted,

Thomas P. Beirne, P.E.
Secretary, NBIC Subcommittee Pressure Relief Devices
pc: J. Amato
G. Galanes
J. Ellis

Subcommittee PRD Attendance - July 13, 2022

MEMBERS:	Interest Category	In Person	Remote	Not In Attendance
Marianne Brodeur-Chair	National Board Certificate Holders	X		
J. Alton Cox-Vice Chair	General Interest			X
Thomas Beirne - Secretary		X		
Kim Beise	National Board Certificate Holders	X		
Denis DeMichael	Users			X
Prakash Dhobi	National Board Certificate Holders	X		
Alfred Donaldson	Manufacturers	X		
Robert Donalson	Manufacturers	X		
Daniel Marek	General Interest	X		
Raymond McCaffrey	General Interest	X		
David McHugh	National Board Certificate Holders		X	
Brandon Nutter	National Board Certificate Holders		X	
Thakor Patel	Manufacturers		X	
Adam Renaldo	Users		X	
Delton Schirmer	Authorized Inspection Agencies	X		
Jon Wolf	Authorized Inspection Agencies	X		
Jay Simms	Manufacturers	X		

VISITORS:	Company/Title/Interest	In Person	Remote
Luis Ponce	NBBI	X	
Hank Cornett	Emerson Automation Solutions	X	
Dave Sullivan	State of Arkansas	X	
Jermemy Grace	Chemours		X
Joe Ball	NBBI	X	
Tom Tarbay	TRT Consultants	X	
Eben Creaser	Province of New Brunswick	X	
Charlie Beair	BS&B Safety Systems		X
Archie England	Law Valve of Texas		X
Craig Theiler	Law Valve of Texas	X	
Clark Turner	Calder Testers		X
Gary Scribner	NBBI	X	
Rob Troutt	State of Texas	X	

Item 21-63 Proposal 7-12-22

Part 4, 4.8.5.4 i)2)

The document referred to above shall describe the original nameplate information, including the ASME Code symbol stamping and the repair nameplate information, if applicable. For pilot operated valves, the manufacturer's unique identifier on the pilot and main valve shall also be recorded. In addition, ~~it~~ the document shall include material checks, replacement parts, conversion parts (or both), reference to items such as the welding procedure specifications (WPS), fit up, NDE technique, heat treatment, and pressure test methods to be used. Application of the "VR" stamp to the repair nameplate shall be recorded in this document. Specific conversions performed with the new Type/Model number shall be recorded on the document. There shall be a space for "signoffs" at each operation to verify that each step has been properly performed.

ITEM 21-84 7/12/22

Part 4

4.7.4 ILLEGIBLE OR MISSING NAMEPLATES

The VR Certificate Holder shall not perform repairs under the VR Program on any pressure relief valve (PRV) that cannot be positively identified by the manufacturer or through in-house sources. Such identification shall include the verification of the original ASME Stamping. Pressure relief valves that have missing or illegible nameplates and can be positively identified shall be equipped with a nameplate marked “DUPLICATE”, which contains all original nameplate data. The duplicate nameplate shall not bear the “NB” Mark or the ASME Certification Mark. ~~with the “V”, “HV”, or “UV” Designator or the supplanted “V”, “HV”, or “UV” Symbol. Instead, the~~ To indicate the original designator or code stamping, the duplicate nameplate shall be stamped with a “V“, “HV“, or “UV“, ~~“Sec. I”, “Sec. IV”, or “Sec. VIII”,~~ as applicable. ~~, to indicate the original stamping.~~ Illegible nameplates, if applicable, shall not be removed.

MEMORANDUM

TO: Secretary, National Board Inspection Code

SUBJECT: Request for NBIC Code Changes

Submitted by: *Joseph F. Ball*, P. E.

DATE: July 6, 2022

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

I am requesting that the NBIC Committee look at two related issues concerning in-service inspection and testing of pressure relief valves that have come up frequently in reviews of Test Only (T/O) organizations.

Purpose: Clarify in-service inspection and testing as implemented by T/O organizations.

Background: As the Test Only program becomes more widely used there are two issues where there may be differences between NBIC requirements and industry practices.

1. Testing of Isolated Pressure Relief Valves

A common practice in the "oilfield" is to install isolation valves (usually a ball valve) under pressure relief valves (PRV's). This practice, which is recognized in Section VIII Appendix M is specified as a method of removing a PRV for repair or inspection without shutting down the system.

The practice has been modified by equipping the space between the ball valve and the PRV with a small instrument valve that allows a pressure source to be attached to the chamber created between the ball valve and the PRV when the ball valve is closed. Pressure is introduced into the chamber from a nitrogen bottle and increased until the pressure relief valve opens. A pressure gage is attached to the instrument valve or a tee in the supply line (not good gage practice) to measure the PRV opening pressure.

The NBIC provision sometimes used to justify this testing is NBIC Part 4, par. 3.2.5 b) which indicates:

"Testing may be accomplished by the owner *on the unit where the valve is installed* …."

I believe the intent of that requirement is to allow the testing of a PRV using by increasing system pressure to actuate it, which not only demonstrates the true valve opening pressure (pop pressure) but will also show if there are issues caused by the piping or unstable operation.

When the PRV is tested above an isolated ball valve, the test conditions are very different from how the valve is actually used. The tester has essentially created a temporary test stand with a very small test vessel (usually no longer than 1 or 2 pipe diameters). With the very small volume it is questionable if the true set pressure definition is being demonstrated, and the "test stand" being used has not been qualified.

I am supplying a recommended change to the NBIC that I fully expect to be reviewed and revised. With whatever change is finally taken, I believe the Pressure Relief Devices subcommittee should study this issue and clarify the NBIC so that all VR or T/O applicants are doing this work in a uniform way that will produce accurate results. I will offer the NBTL for the purpose of doing some tests of valves using this procedure as an example of its capability. We have tested several valves tested this way by T/O organizations with mixed results.

A proposed change related to inspections of PRVs during periodic testing may resolve the problem in another way.

2. Inspection of PRV Inlets and Outlets

Beside the accuracy of the test results, the other concern during tests done above an isolation valve is that there is no inspection of the valve inlet for deposits or obstructions. The discharge piping is usually

not removed so the interior of the valve outlet is not inspected either. A PRV could have significant material clogging the inlet but when tested on the low volume above an isolation valve, this will probably not be detected.

If the outlet piping is not removed, interior corrosion, deposits or obstructions may not be observed. A steam valve removed from service at the National Board lab was found with several dead birds in the outlet.

When performing a periodic inspection, failure to inspect PRV's for obstructions, deposits or other internal problems leave a significant question open about the valve's ability to protect the system.

Therefore, I request the PRD Subcommittee consider the following NBIC revisions to address this concern. My proposed change is written to recognize that not all services are the same and requiring all valves to be inspected in this manner could cause problems in implementation of a blanket requirement.

I would be glad to participate on a task group assigned to these items.

CC: Tom Beirne

File: TO issue for NBIC

PART 4, SECTION 3
PRESSURE RELIEF DEVICES — IN-SERVICE INSPECTION OF PRESSURE RELIEF DEVICES

3.1 SCOPE

This section provides general guidelines and requirements for conducting in-service inspection and testing of pressure relief devices.

The inspection of pressure relief devices is often coordinated with the inspection of the system. See NBIC Part 2 for in-service inspection requirements and procedures for other portions of the equipment not discussed in this section.

3.2 GENERAL

a) The most important appurtenances on any pressurized system are the pressure relief devices provided for overpressure protection of that system. These are devices such as pressure relief valves, rupture disks, and other non-reclosing devices that are called upon to operate and reduce an overpressure condition.

b) These devices are not designed or intended to control the pressure in the system during normal operation. Instead, they are intended to function when normal operating controls fail or abnormal system conditions are encountered.

c) Periodic inspection and maintenance of these important safety devices is critical to ensure their continued functioning and to provide assurance that they will be available when called upon to operate. See 3.2.6 for recommended testing frequency for PRDs.

d) Inspection areas of concern include:

1) Correct set pressure (matching of set pressure to MAWP);

2) Safety considerations;

3) Device data;

4) Condition of the device;

5) Condition of the installation; and

6) Testing and operational inspection.

3.2.1 PRESSURE RELIEF DEVICE DATA

a) Nameplate marking or stamping of the device should be compared to stamping on the protected pressure-retaining item. For a single device, the set pressure shall be no higher than the maximum allowable working pressure (MAWP) marked on the protected pressure-retaining item or system.

b) When more than one pressure relief device is provided to obtain the required capacity, only one pressure relief device set pressure need be at or below the maximum allowable working pressure. The set pressure of additional devices may exceed the MAWP, as permitted by the original code of construction.

c) Verify nameplate capacity and, if possible, compare to system capacity requirements.

d) Check identification on seals and ensure they match nameplates or other identification (repair or reset nameplate) on the valve or device.

3.2.2 INSPECTION REQUIREMENTS FOR DEVICE CONDITION

a) The valve or device shall be checked for evidence that it is leaking or not sealing properly. Evidence of leakage through pressure-relief valves may indicate that the system is being operated at a pressure that is too close to the valve's set pressure. (See Supplement 2 for guidance on the pressure differential between the pressure relief valve set pressure and system operating pressure.)

b) Seals for adjustments shall be intact and show no evidence of tampering.

c) Connecting bolting should be tight and all bolts intact.

d) The valve or device should be examined for deposits or material buildup.

e) The valve or device shall be checked for evidence of rust or corrosion.

f) The valve or device shall be checked for damaged or misapplied parts.

g) If a drain hole is visible, the valve or device should be checked to ensure it is not clogged with debris or deposits.

h) The valve or device shall be checked for test gags left in place after pressure testing of the unit.

i) Bellows valves shall be checked to ensure the bonnet vent is open or piped to a safe location. The vent shall not be plugged since this will cause the valve set pressure to be high if the bellows develops a leak. Leakage noted from the vent indicates the bellows is damaged and will no longer protect the valve from the effects of back pressure.

(21) **3.2.3**

j) Valves that are not in services with known clean dry fluids, and are not welded to the system shall be removed for inspection of the interior of the inlet and outlet for deposits, clogging or corrosion. Previous documented inspections where the valve was removed demonstrating a clean system with no inlet or outlet interior concerns may be used to eliminate this inspection.

a) Ens

b) Inle
For pressure relief valves, the inlet pipe shall be checked to ensure the inlet pipe size is not smaller than the device inlet size.

c) Discharge piping shall be inspected to ensure it meets the original code of construction. For pressure relief valves, the discharge pipe shall be checked to ensure the discharge pipe size is not smaller than the device outlet size.

d) The valve drain piping shall be checked to ensure the piping is open.

e) The discharge piping shall be checked to ensure it drains properly.

f) The inlet and discharge piping shall be checked to ensure they are not binding or placing excessive stress on the valve body, which can lead to distortion of the valve body and leakage or malfunction.

g) The condition and adequacy of the pipe supports shall be inspected. Discharge piping should be supported independent of the device itself.

h) The valve discharge and discharge pipe shall be checked for possible hazards to personnel.

i) The installation shall be checked to ensure that there are no intervening isolation valves between the pressure source and the valve inlet or between the valve outlet and its point of discharge. Isolation valves may be permitted in some pressure vessel service. (See 2.5.6 e)), and Jurisdictional requirements. Isolation valves shall not be used for power boilers, heating boilers, or water heaters.

j) A ch
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Isolation valves shall be used only for removal of the pressure relief valve for inspection and testing on a test stand. The test stand shall meet the requirements of NBIC Part 4, par. 4.6.1 b)1) and 2).

is arranged such that there is no intermediate position that will isolate both pressure relief devices from the protected system. Change-over valves should be carefully evaluated to ensure they do not have excessive pressure drop that could affect the pressure relief device operation or capacity. These devices are commonly used in pressure vessel service. They may also be used in some boiler applications. It is recommended that the Jurisdiction be contacted to determine their acceptability on boiler applications.

3.2.4 ADDITIONAL INSPECTION REQUIREMENTS

The following are additional items that should be considered for the specified types of installations or services.

3.2.4.1 POWER BOILERS

If boilers are piped together with maximum allowable working pressures differing by more than 6%, additional protective devices may be required on the lower pressure units to protect them from overpressure from the higher pressure unit.

3.2.4.2 HOT-WATER HEATING BOILERS, HOT WATER SUPPLY BOILERS, AND WATER HEATERS

a) These units generally do not use any water treatment and therefore may be more prone to problems with deposits forming that may impair a safety device's operation. Particular attention should be paid to signs of leakage through valves or buildups of deposits.

b) Hot-water boilers tend to have buildups of corrosion products since the system is closed with little makeup. These products can foul or block the valve inlet.

c) Water heaters will have cleaner water due to continuous makeup. However, these valves usually have a thermal element that will cause the valve to open slightly when the water is heated and the heat is not removed from the system. When this hot water evaporates in the discharge piping, scale deposits may tend to form in the valve inlet and outlet.

3.2.4.3 PRESSURE VESSELS AND PIPING

Standard practice for overpressure protection devices is to not permit any type of isolation valve either before or after the device. However, some pressure vessel standards permit isolation valves under certain controlled conditions when shutting down the vessel to repair a damaged or leaking valve. If isolation block valves are employed, their use should be carefully controlled by written procedures. Block valves should have provisions to be either car-sealed or locked in an open position when not being used. For ASME Section VIII, Div. 1 pressure vessels, see UG-135, Appendix M, and Jurisdictional rules for more information.

3.2.4.4 RUPTURE DISKS

a) Rupture disks or other non-reclosing devices may be used as sole relieving devices or in combination with pressure relief valves to protect pressure vessels.

b) The selection of the correct rupture disk device for the intended service is critical to obtaining acceptable disk performance. Different disk designs are intended for constant pressure, varying pressure, or pulsating pressure. Some designs include features that make them suitable for back pressure and/or internal vacuum in the pressure vessel.

c) The margin between the operating pressure and the burst pressure is an important factor in obtaining acceptable performance and service life of the disk. Flat and prebulged solid metal disks are typically

Item 22-23

Subject: Removing Section 8 from all 4 Parts of the NBIC

Explanation of Need: The current wording in Section 8 is obsolete and the actual process for submitting Interpretations, Code Revisions, and Code Additions is now located in the Introduction of the NBIC.

Project Manager: Gary Scribner

Proposed Change:

All text in Section 8 will be deleted and replaced with the following:

The process for submitting requests for Interpretations, Code Revisions, and Code Additions has been moved to the Introduction of this book.