Date Distributed: December 19th, 2019

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

NATIONAL BOARD SUBCOMMITTEE PRESSURE RELIEF DEVICES

AGENDA

Meeting of January 15th, 2020
San Diego, CA

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**

   8:00AM

2. **Introduction of Members and Visitors**

3. **Check for a Quorum**

4. **Awards/Special Recognition**

5. **Announcements**

   The National Board will be hosting a reception for all committee members and visitors on Wednesday evening at 5:30pm at The Smoking Gun. Additional information about the reception can be found on the Hotel Information webpage for the meeting: https://www.nationalboard.org/Index.aspx?pageID=456&ID=478

6. **Adoption of the Agenda**

7. **Approval of Minutes from the July 16th, 2019 Meeting**

   The minutes from the meeting can be found on the National Board's website: www.nationalboard.org

8. **Review of the Roster (Attachment Page 1)**

   a. **Nominations**
      i. Mr. Del Schirmer is interested in becoming a member of Subgroup and Subcommittee PRD under the AIA interest category. His resume can be found on Attachment Page 2.
      ii. Mr. Jon Wolf is interested in becoming a member of Subgroup and Subcommittee PRD under the AIA interest category. His resume can be found on Attachment Page 4.
      iii. Mr. Alfred Donaldson is a member of Subgroup PRD and is interested in becoming a subcommittee member as well.

   b. **Reappointments**

      i. Ms. Marianne Brodeur, Mr. Alton Cox, Mr. Denis DeMichael, Mr. Robert Donalson, Mr. Raymond McCaffrey, Mr. David McHugh, Mr. Brandon Nutter, Mr. Thakor Patel, and Mr Adam Renaldo all have memberships to Subgroup PRD that are set to expire on June 29, 2020.
      ii. Mr. Kim Beise and Mr. David McHugh have memberships to Subcommittee PRD that are set to expire on January 30, 2020.

   c. **Resignations**

9. Interpretations

10. Action Items

Item Number: NB12-0901	**NBIC Location: Part 4**	**No Attachment**
General Description: Prepare a guide for repair of tank vents **Task Group:** B. Donalson (PM), D. DeMichael, K. Simmons, K. Beise, B. Nutter, J. Little, S. Artrip, B. Pittel **July 2019 Meeting Action:** A draft was prepared. Will have a formal proposal for next meeting.		

Item Number: NB14-0602B	**NBIC Location: Part 2**	**No Attachment**
General Description: Improve index in Part 2 relating to pressure relief devices **Task Group:** D. Marek (PM), B. Donalson, D. DeMichael **July 2019 Meeting Action:** Proposal will be prepared for January meeting.		

Item Number: NB15-0108B	**NBIC Location: Part 1**	**No Attachment**
General Description: Address pressure relief devices in new supplement on high temperature hot water boilers **Task Group:** D. Marek (PM), A. Renaldo, D. McHugh, B. Nutter, A. Cox, D. Schirmer **July 2019 Meeting Action:** PM was changed to D. Marek. New task group members were added.		

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 **July 2019 Meeting Action:** Work continues on this item.		

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 **January 2019 Meeting Action:** Work continues on this item.		

Item Number: NB15-0308	NBIC Location: Part 4	No Attachment

General Description: - Create Guidelines for Installation of Pressure Relief Devices for Organic Fluid Vaporizers.

Task Group: T. Patel (PM), K. Beise, B. Nutter

July 2019 Meeting Action: Item was letter balloted to MC and failed due to lack of participation. Additionally there were some editorial comments received from SC-Installation and a conflict with requirements in ASME Section I part PVG was discovered. Item will be brought back to SG PRD and held pending resolution with ASME action item.

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 2019 Meeting Action: Work continues on this item.

Item Number: NB15-0321	NBIC Location: Part 4, 3.2.5 a) and Part 2, 2.5.7 a)	Attachment Pages 5-8

General Description: Review testing requirements for in-service testing of pressure relief devices

Task Group: A. Cox, A. Renaldo (PM), D. Marek, S. Irvin, D. DeMichael, B. Nutter, J. Ball

July 2019 Meeting Action: Passed unanimously at SG-PRD, but will be letter balloted to SC-PRD after this meeting.

Update: The proposal was balloted to SC PRD after the July meeting and was approved by the SC. It is awaiting review by the Main Committee.

Item Number: NB15-0324	NBIC Location: Part 4	Attachment Pages 9-16

General Description: Create Guidelines for Inspection and Testing Frequencies with respect to shelf life and storage of pressure relief valves.

Task Group: A. Rendaldo (PM), B. Nutter, K. Simmons, D. Marek, J. Little

July 2019 Meeting Action: Passed unanimously at SG-PRD, but will be letter balloted to SC-PRD after this meeting.

Update: Item was balloted to SC PRD but failed to receive enough approval votes. There was one negative vote and comment, which can be seen on the attachment.

Item Number: NB16-0805	**NBIC Location: Part 4, 2.6.6 and Part 1, 5.3.6**	**Attachment Pages 17-18**

General Description: Temperature ratings for discharge piping and fittings

Task Group: A. Renaldo (PM), T. Patel, D. Marek

July 2019 Meeting Action: Passed unanimously at SG-PRD, but will be letter balloted to SC-PRD after this meeting.

Update: Item was approved by SC PRD via letter ballot and is awaiting review by the Main Committee.

Item Number: 17-115	**NBIC Location: Part 4, Section 2**	**No Attachment**

General Description: Complete rewrite of Section 2 combining common requirements into a general requirements section for all pressure relief devices and look at combining with 2.4.3, 2.4.4.

Task Group: A. Renaldo (PM), D. McHugh, D. Marek

July 2019 Meeting Action: A draft proposal was presented as a progress report. This item will be letter balloted 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

January 2019 Meeting Action: It was determined that the same language was in ASME Section I. This item is on hold pending completion of ASME action item.

Item Number: 17-128	**NBIC Location: Part 4, 2.4.4.3 and Part 1, 3.9.4.3**	**No Attachment**

General Description: allows Y-base to be used while 2.4.1.6 a) prohibits. This appears to be a conflict.

Task Group: B. Nutter (PM), S. Irvin

January 2019 Meeting Action: It was determined that the same language was in ASME Section IV. This item is on hold pending completion of ASME action item.

Item Number: 17-132	**NBIC Location: Part 4, 3.2.6 and Part 2, 2.5.8**	**No Attachment**

General Description: Paragraph 3.2.6 can be put into tabular format. Review test frequencies.

Task Group: B. Nutter (PM), M. Brodeur, D. Marek, D. DeMichael, A. Cox, P. Dhobi, R. McCaffrey, T. Beirne

July 2019 Meeting Action: General description of item was revised to expand scope.

Item Number: 18-73	NBIC Location: Part 4, 2.3 and Part 1, S5.7.6	No Attachment

General Description: Update installation requirements for Thermal Fluid Heaters

Task Group: T. Patel (PM), B. Nutter

July 2019 Meeting Action: Item was letter balloted to Main Committee and failed due to lack of participation. Additionally, there were some editorial comments received from SC-Installation. Editorial comments will be incorporated and proposal will be re-balloted to Main Committee.

Update: Item was re-balloted to Main Committee but failed to receive enough approval votes. There were three negative votes and comments, which can be seen on the attachment.

Item Number: 18-80	NBIC Location: Part 4, S3.1, S4.1, S6.1	Attachment Pages 24-28

General Description: Addition of a "Scope" section to Part 4, S3.1, S4.1, and S6.1 to stay consistent with other sections

Task Group: T. Patel (PM), A. Renaldo, K. Simmons, P. Dhobi

July 2019 Meeting Action: A proposal will be letter balloted between meetings.

Update: A proposal for this item was balloted to the subgroup but failed due to lack of participation.

Item Number: 19-1	NBIC Location: Part 4, 4.8.5.4 & 4.8.6.1	No Attachment

General Description: Develop specific content and scope of annual field audits.

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

July Meeting Action: Item was changed from interpretation request to an action item for code revision. General description was revised. A task group was formed.

Item Number: 19-2	NBIC Location: Part 4, 4.9.1	No Attachment

General Description: Review and clarify requirements for documented training program for VR and T/O programs.

Task Group: A. Donaldson (PM), A. Cox, B. Donaldson, D. Marek, J. Simms

July 2019 Meeting Action: A task group was formed to work on this item. General description was revised.

Item Number: 19-14	NBIC Location: Part 4, 4.6.1	No Attachment

General Description: Add ASME Sec I, Liquid Service PRVs to VR Scope

Task Group: None

July 2019 Meeting Action: A motion was made and seconded to close this item with no action. A vote was taken and the motion passed unanimously.

Item Number: 19-18	NBIC Location: Part 4, 4.8.5.4 n) 5)	No Attachment

General Description: Implementation of QC Manual Revisions

Task Group: A. Donaldson (PM)

July 2019 Meeting Action: A task group was formed to work on this item.

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 2019 Meeting Action: A task group was formed to work on this item.

Item Number: 19-40	NBIC Location: Part 4, Figure 4.7.2-b	Attachment Pages 29-33

General Description: Move Fig. 4.7.2-b to Part 4 Supplement 6.

Task Group: T. Beirne (PM)

July 2019 Meeting Action: A proposal will be letter balloted to SG PRD and possibly SC PRD between meetings.

Update: A proposal was letter balloted to the subgroup but failed due to lack of participation.

Item Number: 19-41	NBIC Location: Part 4, 4.7.5	Attachment Pages 34-45

General Description: Review Part 4, Paragraph 4.7.5 and simplify

Task Group: T. Beirne (PM), A. Cox, D. Schirmer

July 2019 Meeting Action: A task group was formed to work on this item.

Update: A proposal was letter balloted to the subgroup but failed due to lack of participation.

11. New Business

Item Number: 19-9	NBIC Location: Part 2	No Attachment

General Description: Inspect shipping plug removal for PRDs

Subgroup: Inspection
Task Group: From Inspection: V. Scarcella (PM), J. Peterson, T. Bolden, E. Brantley

Explanation of Need: Ensuring that shipping plugs have been removed because shipping plugs have been found that are still in place on PRD's.

July 2019 Meeting Action:
Mr. Getter and Mr. Peterson recommended closing this item in Part 2, and have Part 4 open an item to address this issue. After discussion, they decided to keep this item open. The task group created at the Subgroup Inspection meeting will work more on the wording and have something to propose in January 2020.

Item Number: 19-49	**NBIC Location: Part 1, 2.9 & 3.9**	**Attachment Page 46**

General Description: Ensure shipping plugs for PRDs are removed during the installation process

Subgroup: Installation
Task Group: From Installation: R. Smith (PM) and S. Konopacki

Explanation of Need: From the January 2019 main committee meeting, the discussion of PRD Item NB17-0401 led to the decision to open an item to address requirements to remove any shipping caps or plugs from pressure relief devices during the installation process.

July Meeting Action: Proposal - A TG was assigned to be R. Smith (PM) and S. Konopacki. A break out session took place in the SG and discussions were held amongst the SG and SC. A proposal was generated, presented and discussed. There was a motion to approve the proposal to the MC for voice vote. The motion was unanimously approved.

Update: The proposal was approved unanimously by SC Installation at the July meeting. However, Main Committee decided to send the proposal back to the subgroup to include language on "wired shut" lifting levers as they are often found still attached after installation.

Item Number: 19-54	**NBIC Location: Part 4, 3.3.4 c) & S7.2 f) 1)**	**Attachment Page 47**

General Description: Reconcile Conflict regarding Sealing Adjustments of PRVs in T/O Program

Task Group: None assigned.

Explanation of Need: S7 is needed to give T/O Organizations procedural guidance for implementation of T/O requirements in Part 4, Section 3. Such guidance needs to agree with the requirements of Part 4, Section 3. The Term "all external adjustments" is taken from ASME Original Code of Construction where is most certainly applies. However, in implementation of T/O, only one of several possible external adjustments may need to be made. The T/O Seals indicate which of the possible adjustments was made.

Item Number: 19-70	**NBIC Location: Part 4, 2.6.3**	**Attachment Page 48**

General Description: Part 4, 2.6.3 references 2.1 through 2.2. Should be 2.2 through 2.4

Task Group: T. Beirne (PM),

Explanation of Need: Paragraph 2.6 and sub-paragraphs apply to pressure relief valves installed in piping. Paragraph 2.6.3 references 2.1 through 2.2 as the exceptions. However it should reference 2.2 through 2.4. This would match the exceptions in the duplicated paragraph in Part 1 (Part 1 paragraph 5.3.3).

Item Number: 19-71	**NBIC Location: Part 4, 4.9.2 & 4.9.3**	**No attachment**

General Description: Use of Personnel from another VR Certificate Holder to perform VR Repairs

Task Group: None
Explanation of Need: NBIC SCPRD needs to address the practice of sub-contracted personnel between VR Holders. In order to maintain Quality Standards, the responsible VR Holder must verify the qualifications all personnel and maintain records per NBIC Part 4, Table 4.8.5.4 s)

Item Number: 19-72	NBIC Location: Part 4, 4.6.2	Attachment Page 49

General Description: Documentation of Steam tested on Air Correction Factor

Task Group: None assigned.

Explanation of Need: An ASME Code change in the 2019 Edition of Sec VIII-1 has made it impossible for an Owner/User VR Holder to use the CDTP Field of the VR Nameplate to document the Manufacturer's Correction Factor for a Steam Service PRV tested on Air as permitted by NBIC Part 4, Sec 4.6.2. When an Owner/User applies the aforementioned factor, it needs to be documented for the repair history of the PRV to ensure an accurately set PRV.

Item Number: 19-75	NBIC Location: Part 4, 2.2.2	Attachment Page 50

General Description: Add PRD requirements for boilers up to 4000lb/hr to Part 4; Item 19-51 added these requirements to Part 1.

Task Group: T. Beirne (PM)

Explanation of Need: Item 19-51 makes this proposed change to Part 1, 2.9.1.1, but the proposal never included changes to the duplicate section in Part 4. This item will ensure that the approved language for Part 1 gets reflected in Part 4.

Item Number: 19-76	NBIC Location: Part 4, 3.3.3.4 p)	Attachment Page 51

General Description: Paragraph 3.3.3.4 p) Incorrect Certificate of Authorization Reference

Task Group: None assigned.

Explanation of Need: Referenced paragraph refers to "VR" Certificate of Authorization for record retention. It should refer to "T/O" Certificate of Authorization since this is in the T/O quality elements section.

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

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

Task Group: None assigned.

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

Item Number: 19-85	NBIC Location: Part 4, 2.3.6 j)	No Attachment
General Description: Thermal Fluid Heaters **Task Group:** None **Explanation of Need:** Thermal Fluid heaters with no change of phase are not specifically addressed in 2.3.6 j).		

12. Future Meetings

- July 13th-16th, 2020 – Louisville, KY
- January 11th -14th, 2021 – TBD

13. Adjournment

Respectfully submitted,

Jonathan Ellis

Jonathan Ellis
NBIC Secretary

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Subcommittee Pressure Relief Devices

Last Name	First Name	Interest Category	Role	Exp. Date	More
Brodeur	Marianne	National Board Certificate Holders	Chair	01/30/2022	Details
Cox	J. Alton	General Interest	Vice Chair	01/30/2022	Details
Beirne	Thomas		Secretary	01/30/2099	Details
Beise	Kim	National Board Certificate Holders	Member	01/30/2020	Details
DeMichael	Denis	Users	Member	08/30/2021	Details
Donalson	Robert	Manufacturers	Member	08/30/2021	Details
Marek	Daniel	General Interest	Member	01/30/2022	Details
McCaffrey	Raymond	General Interest	Member	08/30/2020	Details
McHugh	David	National Board Certificate Holders	Member	01/30/2020	Details
Nutter	Brandon	National Board Certificate Holders	Member	01/30/2022	Details
Patel	Thakor	Manufacturers	Member	01/30/2022	Details
Renaldo	Adam	Users	Member	01/30/2022	Details

Delton (Del) E. Schirmer
3632 Summit Lane
Stillwater, MN 55082
del.schirmer@bpcllcga.com

WORK EXPERIENCE

7/2017 – Present Central Region Supervisor
Boiler & Property Consulting / AXA XL Insurance, 3632 Summit Lane, MN 55082

Duties: Supervise inspectors in the Central Region. Manage the day to day operations of twelve Central Region inspectors. Responsible for mentoring engineers to improve their skill sets, overseeing quality of reports, adherence to procedures and providing answers to their questions. Monitor work load for the region. Complete mid-year and annual review with each engineer to update the status of each engineer's productivity and their individual career development.
Responsible for writing and reviewing of our departments Policies and Procedures.

Contact: Venus Newton, venus.newton@bpcllcga.com 470-592-8345

2/2013 – 7 / 2017: Engineering Manager – Western Region
Liberty Mutual Insurance, 28898 Cielo Drive, CO 81211

Duties: Management of Equipment Breakdown Risk Engineering Consultants in the Western Region. Manage the day to day operations of ten Western Region engineers. Responsible for mentoring engineers to improve their skill sets, overseeing quality of reports, adherence to procedures and providing answers to their questions. Monitor work load for the region and assign various engineering requests as they arrive. Some of these engineering requests include claims investigations, risk evaluation assignments, loss control reviews and engineering cost estimates for our underwriting department, and other projects.
Complete mid-year and annual review with each engineer to update the status of each engineer's productivity and their individual career development.
Responsible for writing and reviewing of our departments Policies and Procedures.

Contact: Mr. Joey Burgess, Chief Engineer 469-242-7100

1/2010 – 2/2013 Title: Senior Risk Engineering Consultant
Liberty Mutual Insurance, 9373 Wolfe Place, Highlands Ranch, CO 80129

Duties: Responsible to schedule, perform, and report jurisdictional boiler and pressure vessel inspections. In addition, I completed Equipment Breakdown risk evaluations, phone surveys, account reviews, and claim investigations as required. My territory consisted of Minnesota, Western Wisconsin and occasional inspections in North Dakota. In late 2011, I became responsible for Colorado and in April 2012, I relocated to Colorado to fill a need that Liberty Mutual Insurance had. In addition to the duties of jurisdictional inspections and supporting our underwriting and claim departments, I have been involved with training new hire engineers on Liberty Mutual systems since July 2010. Since my involvement, I have expanded and developed a complete training program for the new hire engineers. This is an extensive training program that includes training in all LMEB Engineering Procedures. The training also covers how and why we perform risk evaluations. New engineers actually perform a mock risk evaluation and complete the customer report. This mock risk evaluation gives new engineers exposure to underwriting principles and how to complete and distribute reports.

I was involved in the testing of the new Engineers Workstation (EW) before it was rolled out for use in the field. After the deployment of the EW system, I assisted my manager in creating and assigning work requests to the field.
I also performed many of the duties of my direct manager in his absence while I was in this position.

Contact: Mr. Benjamin Calderon, Regional Manager, 630-791-6211

4/1998 – 1/2010 Title: Senior Risk Control Consultant
Travelers Property Casualty, 320 Maple Lane Court, Roseville, MN 55113
Worked in the Equipment Breakdown department performing jurisdictional inspections, Equipment Breakdown risk evaluations and assisted in training other engineers.

6/93 - 4/98 Title: Chief Engineer
Commercial Facilities Management, Inc., 8705 Country Woods Court, Indianapolis, IN 46217
Work performed at the U.S. Food and Drug Administration, 240 Hennepin Avenue, Minneapolis, MN

3/92 - 2/93 Title: Chief Engineer
Ramsey County Community Corrections, 297 Century Avenue South, St. Paul, MN 55119.

2/85 - 3/92 Title: Correctional Officer/Stationary Engineer
Ramsey County Correctional Facility, 297 Century Avenue South, St. Paul, MN 55119.

OTHER
I serve on the ASME CSD-1 Committee for about six years.

EDUCATION

Rochester Community Technical College
1962 S.E. 2nd Street
Rochester, MN 55901
May, 2010 - Associates Degree in Building Utilities Maintenance

Rochester Community Technical College
1962 S.E. 2nd Street
Rochester, MN 55901
Graduated 1980
Field: Building Utilities Maintenance

Licenses and Certificates Held:

National Board Commission, Number 12106, Original Issue Date, 5-13-98
State of Minnesota Engineer's License Chief Grade A, Number CA017256
Original Issue Date; 11-18-86
Passed National Board "A" test 11-00
Refrigeration ACCA Certified - Universal

Biography

Jon Wolf

Senior Risk Engineering Consultant

The Zurich Services Corporation

Risk Engineering

Jon has 35 years of experience in Safety and Risk Engineering concerning the fabrication and in-service inspections of boilers, pressure vessels and mechanical refrigeration systems including ammonia. He holds an AI and IS Commissions and B and R endorsements. Jon has a Bachelor of Science degree in Industrial Education and is presently employed with Zurich Services Corp. Jon has worked for the State of Wisconsin, One Beacon Insurance (conducting third party inspections for construction of new ASME pressure vessels) and Kemper Insurance doing in-service and shop inspections. He currently sits on the National Board Code Committee for Historical Boilers and has been a Team Leader for National Board 'R' Stamp Renewals. Besides doing in-service inspections and site risk assessments for Zurich he supervises to 'R' stamp certificate repair holders including an Owner User Inspection Organization for a large pharmaceutical company.

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Career history:

State of Wisconsin/Safety & Buildings
Boiler & Pressure Vessel Inspector, 2002 – 2012
Admin

CGU Insurance Co./One Beacon
Contract Inspection Services, 1998 – 2002

The Zurich Services Corporation
Senior Risk Engineering Consultant, 2012 – Present

State of Wisconsin/Safety & Buildings
Boiler & Pressure Vessel Inspector, 2002 – 2012

CGU Insurance Co./One Beacon
Contract Inspection Services, 1998 – 2002

Kemper Insurance Company
Senior Loss Control Engineer, 1988 – 1998
Machinery and Boiler Risk Engineering including Risk Assessments, Claims and Jurisdictional inspections.

Experience:

- Team Leader National Board R Stamp reviews.
- Mechanical Refrigeration Systems including ammonia
- New construction ASME pressure vessel codes
- CSD-1 and NFPA Gas Code.

Education:

Bachelor of Science – Industrial Education, University of Wisconsin Stout

Professional affiliations, designations and awards:

National Board Commissions - IS, AI and B & R endorsements
(Treasurer) Wisconsin Boiler Inspectors Association (WBIA)

NB15-0321
AMR suggested edits
7-16-19

Response to D DeMichael Comments:

3.2.4.5 b) I believe for some devices the pin is contained in an enclosure. Thus the enclosure must be opened to compare the pin markings with nameplate markings. These enclosures contain linkages that move during the activation of the pin device. I'm not familiar with the specific details of the design but do we want to provide inspection guidance for the pin that may expose an individual to a physical hazard while the enclosure cover is removed? Note that Section 3 title states "In-service Inspection" so I would think the inspection guidance would be for when the device is exposed to pressure. The manufacturer's instructions should cover how to inspect without hurting yourself.

3.2.5.2 d) The pin device is not being destructively tested. It's either the pin that is being destructively tested or the device's set pressure is verified using a pressure test. You are destructively testing the pin and testing that the valve components still work properly after being in service. I will delete the word "destructively."

3.2.5.2 e) The activation of the pin device is based on the pressure applied to the piston versus the buckling strength of the pin. Exposure of the piston to 100 psi of water provides the same force as a 100 psi of air so why the media requirement? Will be deleted

3.2.5.3 c) As written the activation test can only be done with the device installed in the service piping and then it will be difficult to perform the leak test since you probably don't have access to the back side of the disk. If you remove a disk device with a non-pretorqued holder from the service piping the leak test and activation test will no longer be accurate. Only a "should"

Having reviewed all of former Part 2, Section 2.5.7, the mandatory parts of the optional in-service test should remain mandatory. The mandates are related to safety and to not altering the relief device set pressure.

Per the expanded scope of this project, edits to Part 4 are suggested that separate out general guidance that applies to the testing of any device, and provide specific guidance (in separate subsections) for testing of relief valves, non-reclosing PRDs with pins or bars, and rupture disks.

3.2.4.4 ~~RUPTURE DISKS~~NON-RECLOSING PRESSURE RELIEF DEVICES

g) 11) For non-reclosing PRDs that use pins or bars, those components should be checked for bends/deflection, cracks, or corrosion. Pin deflection may be the results of pin fasteners being overtightened.

g) 12) For non-reclosing PRDs that use pins or bars, the markings on those components should be checked against information on the device nameplate to ensure that they are installed on the correct device. If markings are illegible or missing, the device should be taken out of service and the pin or bar should be replaced with a component specified by the manufacturer. Replacement shall not be performed while the device is pressurized.

g) 13) For non-reclosing PRDs that use pins or bars, check that there is no foreign object present that could interfere with the bar or pin, prevent proper operation of the device, hold the device shut.

g)14) It is recommended that pins or bars be replaced periodically to prevent unintended failure while in service due to deterioration of the load-bearing component.

3.2.5 GENERAL CONSIDERATIONS FOR TESTING AND OPERATIONAL INSPECTION OF PRESSURE RELIEF DEVICES

a) Pressure relief ~~valves shall be tested periodically to ensure that they are free to operate and will operate~~devices shall be subject to periodic inspection and/or testing based upon the type of device. ~~in accordance with the requirements of the original code of construction. Testing should include device~~

~~set or opening pressure, reclosing pressure, where applicable, and seat leakage evaluation. Tolerances specified for these operating requirements in the original code of construction shall be used to determine the acceptability of test results.~~

b) Testing may be accomplished by the owner on the unit where the valve is installed or at a qualified test facility. In many cases, testing on the unit may be impractical, especially if the service fluid is hazardous or toxic. Testing on the unit may involve the bypassing of operating controls and should only be performed
by qualified individuals under carefully controlled conditions. It is recommended that a written procedure be available to conduct this testing.

1) The Inspector should ensure that calibrated equipment has been used to perform this test and the results should be documented by the owner.

2) If the testing ~~was~~ is performed at a test facility, the record of this test should be reviewed to ensure the ~~valve~~ device meets the requirements of the original code of construction. ~~Valves~~ Devices which have been in toxic,
flammable, or other hazardous services shall be carefully decontaminated before being tested.
In particular, the closed bonnet of valves in these services may contain fluids that are not easily removed or neutralized. If a test cannot be safely performed, the ~~valve~~ device shall be disassembled, cleaned, ~~and~~ decontaminated, repaired, and reset.

3) If a ~~valve~~ device has been removed for testing, the inlet and outlet connections should be checked for blockage by product buildup or corrosion.

3.2.5.1 TESTING AND OPERATIONAL INSPECTION OF PRESSURE RELIEF VALVES

In addition to 3.2.5, the following apply to testing and operational inspection of pressure relief valves.

a) Pressure relief valves shall be tested periodically to ensure that they are free to operate and will operate
in accordance with the requirements of the original code of construction. Testing should include device set or opening pressure, reclosing pressure, where applicable, and seat leakage evaluation. Tolerances specified for these operating requirements in the original code of construction shall be used to determine the acceptability of test results.

b) Valves may be tested using lift assist devices when testing at full pressure may cause damage to the valve being tested, or it is impractical to test at full pressure due to system design considerations. Lift assist devices apply an auxiliary load to the valve spindle or stem, and using the measured inlet pressure, applied load and other valve data allow the set pressure to be calculated. If a lift assist device is used to determine valve set pressure, the conditions of 4.6.3 shall be met. It should be noted that false set pressure readings may be obtained for valves which are leaking excessively or otherwise damaged.

~~c~~c) If valves are not tested on the system using the system fluid, the following test mediums shall be used:

1) High pressure boiler pressure relief valves, high temperature hot-water boiler pressure relief valves, low pressure steam heating boilers: steam;
2) Hot-water heating boiler pressure relief valves: steam, air, or water;
3) Hot water heater temperature and pressure relief valves: air or water;
4) Air and gas service process pressure relief valves: air, nitrogen, or other suitable gas;
5) Liquid service process pressure relief valves: water or other suitable fluid;
6) Process steam service pressure relief valves: steam or air with manufacturer's steam to air correction factor.

Note: Valves being tested after a repair must be tested on steam except as permitted by 4.6.2.

~~e~~d) As an alternative to a pressure test, the valve may be checked by the owner for freedom of operation by activating the test or "try" lever (manual check). For high pressure boiler and process valves, this test should be performed only at a pressure greater than 75% of the stamped set pressure of the valve or the lifting device may be damaged. This test will only indicate that the valve is free to operate and does not provide any information on the actual set pressure. All manual checks should be performed with some pressure under the valve in order to flush out debris from the seat that could cause leakage.

Note: The manual check at 75% or higher is based on lift lever design requirements for ASME Section I and VIII valves. Code design requirements for lifting levers for Section IV valves require that the valve be

capable of being lifted without pressure.

~~f~~e) Systems with multiple valves will require the lower set valves to be held closed to permit the higher set valves to be tested. A test clamp or “gag” should be used for this purpose. The spring compression screw shall not be tightened. It is recommended that the test clamps be applied in accordance with the valve manufacturer’s instructions when the valve is at or near the test temperature, and be applied hand tight only to avoid damage to the valve stem or spindle.

~~g~~f) Upon completion of set pressure testing, all pressure relief valve gags shall be removed. Any stop valves used to isolate lower set pressure relief devices shall be reopened (and locked, if applicable).

3.2.5.2 TESTING AND OPERATIONAL INSPECTION OF NON-RECLOSING PRESSURE RELIEF DEVICES WITH PINS OR BARS

In addition to 3.2.5, the following apply to testing and operational inspection of non-reclosing PRDs with pins or bars.

a) Periodic set point testing is not required since pins or bars are single use.

b) Periodic inspection shall be per 3.2.4.4.

c) Non-reclosing PRDs shall be periodically inspected by the owner for freedom of motion. Freedom of motion inspection frequency shall be per 3.2.6.

1) Remove pressure from the PRD, or remove the PRD from service, prior to performing this check.

2) Remove the pin or bar.

3) Manually exercise the sealing mechanism to ensure it is capable of its full range of motion.

4) Reinstall the pin or bar or replace with new. Replacement pin or bar shall be per manufacturer recommendation.

5) Restore pressure to the PRD.

6) The PRD should be checked for seat leakage following restoration of pressure.

d) The owner may elect to have a non-reclosing PRD tested periodically in order to determine service life of the device. Such tests should ensure that the PRD is free to operate and will operate in accordance with the requirements of the original code of construction. Testing should include device set or opening pressure and seat leakage evaluation. Tolerances specified for these operating requirements in the original code of construction should be used to determine the acceptability of test results.

3.2.5.3 TESTING AND OPERATIONAL INSPECTION OF RUPTURE DISKS

In addition to 3.2.5, the following apply to testing and operational inspection of rupture disks.

a) Periodic testing of rupture disks is not required

b) Rupture disks shall be subject to periodic inspection per 3.2.4.4.

c) The owner may elect to have a rupture disks tested periodically in order to determine service life. Such tests should ensure that the disk is free to operate inside its holder and will operate in accordance with the requirements of the original code of construction. Testing should include an evaluation of leakage through the disk (e.g. due to cracks or porosity), followed by device opening or burst pressure at rated temperature. Tolerances specified for these operating requirements in the original code of construction should be used to determine the acceptability of test results.

d) If PRDs are not tested on the system using the system fluid, the following test mediums shall be used:

1) Air and gas service PRDs: air, nitrogen, or other suitable gas;

2) Liquid service PRDs: water or other suitable fluid.

3.2.5.~~1~~ 4 CORRECTIVE ACTION

a) If a ~~valve~~ pressure relief valve or a non-reclosing PRD that is actuated by a pin or bar is found to be stuck closed, the system should immediately be taken out of service until the condition

can be corrected, unless special provisions have been made to operate on a temporary basis (such as additional relief capacity provided by another valve.) The owner shall be notified and corrective action such
as repairing or replacing the inoperable ~~valve~~ device shall be taken.
b) If a pressure relief device leaks, the owner shall be notified and decide what corrective action (if any) will be taken.

NB15-0324 Testing, storage, and shelf life guidelines
7-16-19

Updated to respond to comments from failed ballot

BEGIN PROPOSED CHANGE
New glossary entry

Pressure Relief Valve Shelf Life – For a pressure relief valve or pilot valve, the length of time for which the device can be stored, after it has been set and tested or repaired, prior to installation, without requiring a retest or reduced service interval.

New supplement

SUPPLEMENT S8
PRESSURE RELIEF AND PILOT VALVE STORAGE & SHELF LIFE

S8.1 SCOPE

This supplement provides guidance for proper conditions and duration of pressure relief valve storage. This guidance applies to pressure relief valves, temperature & pressure relief valves, and pilot operated pressure relief valves (including the main body valve and the pilot valve).

~~4.2.2.1~~S8.2 PRESSURE RELIEF VALVE STORAGE ~~& SHELF LIFE~~

Pressure relief valve set pressure and/or seat tightness can deviate during storage. The manufacturer's recommendations ~~shall~~ should be followed regarding shelf life. In some cases, it may be necessary to retest the relief valve prior to installation or reduce maintenance interval if the relief valve was in storage for an extended period. When storing relief valves, a first in / first out policy should be followed.

~~4.2.2.1.1~~S8.3 PRESSURE RELIEF VALVE STORAGE CONDITIONS
Relief valves ~~shall~~ should be stored per manufacturer recommendations. Where the manufacturer has no recommendations, the following guidelines should be followed.

a) Storage temperature should be between 40 and 72 °F, where practical. Minimum storage temperature should not be below the minimum operating temperature. Maximum storage temperature should not exceed the lesser of the maximum operating temperature or 125 °F.
b) Ideal relative humidity in the storage area should be 70 percent or less. For relief valves with soft seats, relative humidity should be kept between 30 and 70 percent. Some soft materials require a minimum humidity level to prevent material degradation.
c) Storage area should have a non-corrosive atmosphere. Otherwise, stored relief valves should be protected from the atmosphere.
d) Relief valves that utilize spindles or weights should be stored in a vertical position.
e) Temperature and pressure relief valves should have their probes supported to prevent bending or detachment.
f) All ports should be plugged, blanked, or capped.
g) Relief valves that have been cleaned for oxidizing gas or other specialty service should be sealed in a plastic bag. Plastic wrapping may be acceptable for larger relief valves.

h) Storage should be off the ground (e.g. on a shelf or pallet).
i) Storage area should limit exposure to direct sunlight
j) Relief valves constructed of materials subject to corrosion (such as carbon steel) should be painted or otherwise protected against the environment prior to storage.

~~4.2.2.1.2~~S8.4 PRESSURE RELIEF VALVE SHELF LIFE

Pressure Relief valve shelf life shall be determined based upon manufacturer's recommendations and performance history. Shelf life may increase or decrease based upon storage conditions and performance history. ~~If shelf life is exceeded, the valve shall either be tested prior to installation or tested using its lift lever (if applicable) following installation. Storage for a length of time less than the shelf life of the pressure relief valve does not reduce the time before the first regularly scheduled retest. Where the manufacturer has no~~In the absence of manufacturer or service provider recommendations, and performance history, the shelf life recommendations ~~in~~ per table ~~4.2.2.1.2~~S8.4 should be used when stored in accordance with S8.3. Shelf life may be increased or decreased, from the recommended values, ~~based upon~~once performance history is established. ~~and/or warranty periods offered by the manufacturer or service provider.~~

TABLE S8.4 RECOMMENDED RELIEF VALVE SHELF LIFE (IF NOT PROVIDED BY MANUFACTURER)

Pressure Relief Valve Description	Recommended Shelf Life (years)
Pressure relief valve with metal-to-metal seat	5
Pressure relief valve with nonmetal seat	~~5~~2
Temperature and pressure (T&P) relief valve	2

S8.4.1 EXCEEDING SHELF LIFE

If shelf life is exceeded, the valve shall either be tested prior to installation or tested using its lift lever (if applicable) following installation. Storage for a length of time less than the shelf life of the pressure relief valve does not reduce the time before the first regularly scheduled retest. If performance history shows that time in storage less than shelf life causes the device to function outside of acceptable tolerance, then the shelf life shall be reduced.

END OF PROPOSED CHANGE

Research/Technical Justifications for
NB15-0324 - Create Guidelines for Inspection and Testing Frequencies with respect to shelf life and storage of pressure relief valves.

Note: PRVs with metal-to-metal seats with or without o-ring body seals typically have longer shelf life. Much of the deviation in set point that occurs over time in a PRV is due to compression and creep in the soft seat. This means having o-ring body seals won't impact the shelf life of your metal-seated valve. This note does not apply to valves with o-ring seats. The guidance for soft seats would also apply to o-ring seats.

RegO: Per phone conversation with Fay, shelf life is 10 years without set pressure deviating from tolerance. There is no effect on service life or maintenance schedule if installed before expiration of shelf life. Time after shelf life would be included in maintenance schedule. This means, if you have a 5

year test frequency for your relief valve, and it sits on the shelf for 11 years, your first retest would take place 5 +(11-10) = 4 years after installation, instead of 5 years.

Generant: Per phone conversation with Dino V. D'Onofrio, shelf life is 5 years without set pressure deviating from tolerance. There is no effect on service life or maintenance schedule if installed before expiration of shelf life. Time after shelf life would be included in maintenance schedule. Generant will try to perform some sanity check tests on old inventory ~~before the January meeting. (Waiting for response)~~See results below.

GENERANT Valves & Bi-Lok Fittings

Evaluation Testing Form

	Part Number
Valve 1	CRVP3-250B-K-600
Valve 2	CRVP3-500B-K-232
Valve 3	CRV-500B-K-375

Notes:

Valve 1: K11 = November 2011
Valve 2: K12 = November 2012
Valve 3: A14 = January 2014

Evaluation Date:	1/8/2016
Quantity:	3
Testing Media:	Nitrogen
Tested by:	Tim Knapp
Transducer #:	TR-09

Relief Valves			Test 1 (Initial Crack)			Test 2 (After Initial Crack)			
Valve #	DATE CODE	Nom.	First Bubble	Full Flow	Reseat	First Bubble	Full Flow	Reseat	Testing Notes
1	K11	600	603	607	566	604	607	580	4 years, 2 months
2	K12	232	233	237	212	239	239	227	3 years, 2 months
3	A14	375	389	389	352	384	384	358	2 years

Mueller: Hot water tank relief valves have 2 year shelf life

http://muellerrefrigeration.com/technical/frequently-asked-questions

What is the shelf life of a Mueller Relief Valve?

2 years.

My relief valve discharged "popped" and the setting of the valve seems to be lower!

All Relief Valves must be replaced after they pop. When a Relief Valve pops, debris can get trapped in the seal and the spring can either rotate or take what is called a "set" which can potentially relax the spring and lower the set pressure. Because of this, relief valves must be replaced in order to function properly.

FlowSafe: Per phone conversation and follow-up email from Cindi Zaragoza, shelf life is 1 year without set pressure deviating from tolerance. After that, they recommend lifting the relief valve prior to installing it.

Herose: per email valves have 10 year shelf life without set pressure change.

Anderson Greenwood: (waiting for response)

Watts: Per phone conversation, hot water tank relief valves have indefinite shelf life, but must be tested annually after installation. Hot water tank relief valves are tested immediately after initial start-up of the heater. Thus, time spent on shelf would not impact test frequency anyways. Warranty expires 1 year from date of purchase. So it would be wise not to store relief valve for more than 1 year. **Table above has a 2 year reccomendation?**

ANNUAL OPERATION OF T&P RELIEF VALVES:

WARNING: Following installation, the valve lever MUST be operated AT LEAST ONCE A YEAR by the water heater owner to ensure that waterways are clear. Certain naturally occurring mineral deposits may adhere to the valve, blocking waterways, rendering it inoperative. When the lever is operated, hot water will discharge if the waterways are clear. PRECAUTIONS MUST BE TAKEN TO AVOID PERSONAL INJURY FROM CONTACT WITH HOT WATER AND TO AVOID PROPERTY DAMAGE. Before operating lever, check to see that a discharge line is connected to this valve, directing the flow of hot water from the valve to a proper place of disposal. If no water flows when the lever is operated, replacement of the valve is required. TURN THE WATER HEATER "OFF" (see your water heater instruction manual) AND CALL A PLUMBER IMMEDIATELY.

REINSPECTION OF T&P RELIEF VALVES:

WARNING: Temperature and Pressure Relief Valves should be inspected AT LEAST ONCE EVERY THREE YEARS, and replaced, if necessary, by a licensed plumbing contractor or qualified service technician, to ensure that the product has not been affected by corrosive water conditions and to ensure that the valve and discharge line have not been altered or tampered with illegally. Certain naturally occurring conditions may corrode the valve or its components over time, rendering the valve inoperative. Such conditions can only be detected if the valve and its components are physically removed and inspected. Do not attempt to conduct an inspection on your own. Contact your plumbing contractor for a reinspection to assure continuing safety. FAILURE TO REINSPECT THIS VALVE AS DIRECTED COULD RESULT IN UNSAFE TEMPERATURE OR PRESSURE BUILD-UP WHICH CAN RESULT IN SERIOUS INJURY OR DEATH AND/OR SEVERE PROPERTY DAMAGE.

2.3 STORAGE AND HANDLING

A. STORAGE

Prior to installation, Flow Safe pressure relief valve assemblies and parts should be stored in a clean, dry environment if possible. Inlet and outlet connections should remain covered until the item is ready for installation.

For outside storage, protection from the elements is recommended particularly if plugs and flange covers are not weather-tight. Exposed carbon steel surfaces should remain coated with a suitable rust inhibitor until the assembly is ready for installation.

Even though elastomers and lubricants in the relief valve typically have a long shelf life and can be used in environments down to -40 °F/°C, operability of the main piston should be checked before placing the valve in service after extended storage. See Section 2.4.

2.4 INSTALLATION

Prior to installation, check that the set pressure on the nameplate is as required, and meets the system requirements. Lifting and handling should follow the instructions in Section 2.3.

If the valve has been in storage for a significant length of time, verify that the main piston can still freely move by pushing on it manually through the valve inlet. If it does not return to the closed position, it may be necessary to seat the piston using a pressure source connected to the field test, pilot, or main valve cap.

Herose's statement of shelf life:

- Storage temperature between +5°C (278°K) and +20°C (293°K)
- relative humidity should be bellow 70%
- not expose to direct sunlight

Ideally the safety valves remains in their original HEROSE packaging.
The max. period of storage is dependend from the used sealing material (see table).

Soft seal	Shelf life
PTFE (Teflon)	10 years
PTFE /25% Kohle	10 years
PCTFE	10 years
NBR	5 years
FPM (Viton)	10 years
EPDM	5 years
Vullkolan	4 years

From: "Little, Junior R" <jlittle@eastman.com>
To: "Adam_Renaldo@praxair.com" <Adam_Renaldo@praxair.com>
Date: 12/19/2017 01:03 PM
Subject: RE: [I] NB-15-0324 0 PRV shelf life

Adam here is some information for shelf life from Leser. I think I have sent this to you but wanted to make sure.

Regarding shelf life of the valves, depending on the valve seat and size, and also as to how they store them?

O-ring valves, if stored properly and not in a bad environment they should be good for 4 plus years as well metal seats depending on the humidity. We would recommend verification of set before installation

Responses to Survey sent out by Alton Cox

PRV Shelf Life and Pre-Test Prior to Installation Requirements Survey 2018

Background:

This Question was sent to me by an Owner/User VR Holder. I forwarded it to 27 Owner/Users with whom I have an established relationship. 10 Sent Responses. Below are the Responses.

Questioner's Comment:

NBIC for Section VIII PRVs (UV) and ASME OM code (IST applications) pre-testing Pressure Relief Valves is acceptable, but no timeframe is provided between the date of the test and date of installation.

Question 1: ***If you receive a PRV with documented test results from the Vendor (Manufacturer, Assembler or VR Shop), do typically install the PRV directly in the system and use the Vendor Test Documentation as confirmation of PRV Set pressure and Seat Tightness?***

Responder #1: We do; users are allowed to install out of the box provided the PRV is tagged with the installed date within reason of when purchased.

Responder #2: No, we have always tested new PRV's, regardless of vendor test results.

Responder #3: We test all valves for set point and seat leakage prior to install. The exception to this is very large valves that are removed, shipped to vendor for refurb and testing then shipped back and installed. If we had the ability we would test those too.

Responder #4: Yes we do. We usually install RV in a couple days of it being returned to us from a VR SHOP

Responder #5: Depends on how long it sits in our storeroom or shop prior to installation. While we have no specific timing, if we don't install for a month or more after receipt, we'll do a pre-test. We got burned on a new PRV that had a very long, vertical tail pipe. The PRV leaked until material (hot oil) filled the tail pipe and over flowed.

Responder #6: Yes.

Responder #7: Yes.

Responder #8: Since we are an on-site Owner/User VR shop, we test every valve coming directly from vendors and our storeroom to confirm set pressure, seat tightness and functionality, before it is installed. We send valves that we do not have the capabilities of testing to an outside VR shop for testing, and review their repair records for code conformity, and rely on their assessment of set pressure, seat tightness and functionality. That being said, in performing these "PRE-TESTS", we have found valves with set pressure, seat tightness or functionality nonconformity issues, which required working with Manufacturers, Vendors and VR Repair Shops to address and resolve the non-conformities.

PRV Shelf Life and Pre-Test Prior to Installation Requirements Survey 2018
Responder #9: We look at the valve to see if there has been any shipping damage to the valve and container. If all looks good, AND there is a test certificate with the valve, then we do install into the system without testing. Depending on the type of valve, if there is no test certificate, then we test. (small pull ring type do not usually get tested prior to installation.)
Responder # 10: You have to watch this one because the Section I (V) PSVs because of the time line of testing , shelf and re-install could be about 14 months. Per Our Corporate standard
==========

Question 2: *If so, how long is the Shelf Life of the PRV?*

Responder #1: 3 years is allowed.
Responder #2: Up to ~3 months, but we do not have a documented in-house requirement for shelf life. We always retest the valve before putting it in service, but if it has been less than a few months since WE (in-house) tested the valve, we may put it in service without retesting.
Responder #3: We find a high percentage of valves fail set point and/or leakage even when set and certified from the manufacture or an independent company.
Responder #4: Now we enter a different game. Valves ordered by ENG. for a project etc. can have some shelf life. My personal opinion – 6 mo. or less install , 6 mo. or more perform Test Only and RESET the Start Date. (for our PM's) Primarily basing this off our 3 year interval.
Responder #5: The shelf life is not the big concern to me as long the opening are covered and it is stored properly. My issue is with the improper storing and handling (banging, bumping, jostling etc.
Responder #6: Variable – we don't formally track or record the received-on date prior to valve installation.
Responder #7: Varies…typically ranges from 12 to 36 months.
Responder #8: Since we confirm set pressure and seat tightness on all PRV's before they are installed, we do not consider this a concern.
Responder #9: Most soft goods have a shelf life of at least 10 years (o-rings, gaskets, diaphragms, soft seats). Our maximum maintenance cycle is 4 years, so the valve could be on the shelf for 4 years, then installed for 4 years, leaving 2 years 'safety factor'. The soft items will be inspected to determine if they can last another maintenance cycle, and if in doubt are changed out.
PRV Shelf Life and Pre-Test Prior to Installation Requirements Survey 2018
Responder #10: I'm glad you are bringing this up because my failure rate of 'NEW" next day out of the box across the industry is about 95%. If I was using the vendor's test documentation all the time I wouldn't even know there was an issue. The shelf life time line doesn't change anything because they fail out the box the next day and/or new sitting on the shelf for a year. I've been raising the same issue to our lead PRD person because they don't realize how bad it is and they're trusting the vendor doc as being accurate. When I test valves after they come from another VR shop, next day and/or that's been sitting on a shelf for any length of time the failure rate is about 10%.
==========

Question 3: ***Does the "Shelf Life" Time Frame have any technical merit?***

Responder #1: Users are moving slowly to have ready to install spares.

Responder #2: We take the testing/inspection due date to be from the time it was last tested/inspected, not the installation date. We replace our ammonia valves every five years, and only perform a visual inspection of the valve installed in the field during that time; for these valves, we order NEW valves within a couple of months of when they're due to be replaced, and presumably these valves that we receive have been on the shelf for less than 6 months, but we don't have a documented requirement for shelf life.

Responder #3: Based on this we do not track shelf life unless there is an elastomer in the component.

Responder #4: Now we enter another game. With our new RBI* program, cough cough. Intervals going to 10 years – big whoop if it sat for 3 years – have 7 years left before due. This hasn't been practiced though (yet) – RBI Program is in its infancy at this time.

***NOTE:** Risk-based inspection. Risk Based Inspection (**RBI**) is an Optimal **maintenance** business process used to examine equipment such as pressure vessels, heat exchangers and piping in industrial plants.

Responder #5: Again, depends on storage set up. I think if properly stored, shelf life is not issue. I would be interested in hearing some of the other responses though. We have several PRV's that may sit on the shelf up to 5 years.

Responder #6: I can see the merit in tracking the shelf life and re-testing valves after a period of time. For properly stored valves, I would expect the "period of time" would be on the order of 5 to 7 years.

Responder #7: No - Spare valves stay on the shelf until the scheduled inspection date for the inservice
valve.

PRV Shelf Life and Pre-Test Prior to Installation Requirements Survey 2018

Responder #8: Since we are an Owner/User VR shop, Our Storerooms are controlled, and we "Pre-Test" all PRV's before installation, we do not feel that shelf life has any technical merit.

Responder # 9: Yes, it should be considered, especially for o-rings, diaphragms, and soft seats that are stored as spare parts.

Responder #10: NO RESPONSE GIVEN

NB-15-0805 ~~AMR~~ AMR edits ~~7-21~~1-22-18~~-16~~

Update language about pipe material able to handle temperature requirements, in line with IMC.

~~Note that this is already covered in 5.2. So we will be somewhat beating a dead horse~~

~~**5.2 GENERAL REQUIREMENTS**~~
~~For piping, the basic considerations are: the design temperature, the pressure retained by the pipe, the fluid~~
~~in the pipe, the load resulting from the thermal expansion or contraction, and impact or shock loads imparted~~
~~(such as water hammer, external loads, wind loads and vibration from equipment).~~

Proposed Edits (Note that we intentionally are not adding this to power boilers. Power boilers are getting their own supplement that will include PRV piping requirements specific to power boilers):

Part 1, 3.9.1.5 PRESSURE RELIEF VALVE DISCHARGE PIPING

~~i~~c) ~~The design~~ Discharge piping shall be rated for the discharge fluid conditions of pressure and temperature including a minimum and maximum design temperature. Material selection for the discharge piping shall consider the reduction in material toughness at the low end of design temperature and the reduction in material strength at the high end of design temperature[DDB1][RA2]. Rigid pipe or tubing ~~shall~~should be used for discharge lines that carry hot water or steam.

~~k)~~
~~lreduction in mechanical strength (e.g.threads/flanges/components), bonding strength of joints, exposure to discharge media,~~d) Plastic discharge pipe and fittings are permitted (when compatible with the process fluid, system design temperatures, and other ambient conditions such as light and humidity) and shall conform to NSF/ANSI 14 Plastics Piping System Components and Related Materials.[DDB3][RA4]
~~m~~
e~~n~~) Discharge piping shall be rated for any static pressure present and the back pressure that may develop when the pressure relief device is at full capacity[DDB5][RA6]. Where multiple pressure relief devices or vents discharge into common piping, the back pressure that could develop due to simultaneous flow from all sources shall be considered.

Repeat the same addition to the following paragraphs (note that the letters change)

Part 1, 3.9.4.7 TEMPERATURE AND PRESSURE RELIEF VALVE DISCHARGE PIPING
~~i The design Material selection for the~~

~~k) lreduction in mechanical strength (e.g.threads/flanges/components), bonding strength of joints, exposure to discharge media,mn designcapacitycommond)~~
e)
f)

Part 4, 2.4.1.5 PRESSURE RELIEF VALVE DISCHARGE PIPING
c)
d)

e)

Part 4, 2.4.4.7 TEMPERATURE AND PRESSURE RELIEF VALVE DISCHARGE PIPING

c)
d)
e)

~~i) The design~~ ~~Material selection for the~~

~~k) lreduction in mechanical strength (e.g.threads/flanges/components), bonding strength of joints, exposure to discharge media,mn designcapacitycommon~~ j)
k)
l)

Item #NB 18-73 Rev 7/22/19

Proposal:

PART 4

2.3 OVER PRESSURE PROTECTION FOR THERMAL FLUID HEATERS

2.3.1 GENERAL

Thermal fluid heaters shall be provided with overpressure protection in accordance with the code of construction.

2.3.2 PRESSURE RELIEF ~~DEVICES~~ VALVES

Thermal fluid heaters shall be equipped with one or more pressure relief ~~devices~~ valves unless the option for overpressure protection by system design is utilized (when permitted by the original code of construction).

When pressure relief ~~devices~~ valves are used, the following shall apply:

a) Pressure relief valve(s) shall be of a totally enclosed type. ~~A body drain is not required~~

~~b) Rupture disks may be installed upstream or downstream of the pressure relief valve(s) in accordance with the original code of construction.~~

b) A lifting lever shall not be used in Pressure relief valve(s). A body drain is not required.

c) Pressure relief valves ~~and rupture disks~~ shall be in accordance with the code of construction and designed for liquid, vapor, or combination service as required for the specific installation, service fluids, and overpressure conditions.

d) Cast iron fittings shall not be used.

e) Copper and copper alloys shall not be used.

f) The inlet connection to the valve shall be not less than NPS ½ (DN 15).

2.3.3 LOCATION

a) Pressure relief ~~devices~~ valves shall be connected to the heater in accordance with the original code of construction.

2.3.4 CAPACITY

a) The pressure relief ~~device(s)~~ valves shall have sufficient capacity to prevent the pressure vessel from exceeding the maximum pressure specified in the vessel code of construction.

2.3.5 SET PRESSURE

a) When a single relief ~~device~~ valve is used, the set pressure marked on the ~~device~~ valve shall not exceed the maximum allowable working pressure.

b) When more than one pressure relief ~~device~~ valve is provided to obtain the required capacity, only one pressure relief ~~device~~ valve set pressure needs to be set at or below the maximum allowable working pressure. The set pressure of the additional relief ~~devices~~ valves shall be such that the pressure cannot exceed the maximum pressure permitted by the code of construction.

2.3.6 INSTALLATION

Pressure relief valves and the associated discharge piping shall be installed in accordance with the heater Manufacturer's recommendations. The installation of the pressure relief valves required for Thermal Fluid Heaters shall include but not be limited to following requirements.

a) The pressure relief valve shall be provided with discharge piping. ~~When a discharge pipe is used,~~ The cross-sectional area of discharge piping shall not be less than the full area of the valve outlet. The size of the discharge lines shall be such that any pressure that may exist or develop will not reduce the relieving capacity or adversely affect the operation of the attached pressure vessel relief ~~devices~~ valves. Discharge piping shall be as short and straight as possible and arranged to avoid undue stress on the pressure relief

~~device~~ valve.

b) The pressure relief valve or valves shall be connected to the pressure vessel independent of any other connection, and shall be attached as close as possible without any unnecessary intervening pipe or fitting.

c) The cross sectional area of the piping between the heater and the relief ~~device~~ valve shall be sized either to avoid restricting the flow to the pressure relief ~~devices~~ valves or made at least equal to the inlet area of the pressure relief ~~devices~~ valves connected to it.

d) When two or more required pressure relief ~~devices~~ valves are placed on one connection, the inlet cross-sectional area of this connection shall be sized either to avoid restricting the flow to the pressure relief ~~devices~~ valves or made at least equal to the combined inlet areas of the pressure relief ~~devices~~ valves connected to it.

e) Unless permitted by the code of construction, there shall be no intervening stop valve between the vessel and its pressure relief ~~device(s)~~ valves, or between the pressure relief ~~device~~ valve and the point of discharge.

f) Pressure relief ~~device~~ valve discharges shall be arranged such that they are not a hazard to personnel or other equipment and, when necessary, lead to a safe location, such as a catchment tank, for the disposal of fluids being relieved.

g) The pressure relief discharge ~~should~~ shall be connected to a closed, vented storage tank or blowdown tank with solid piping (no drip pan elbow~~,~~ or other air gap).

When outdoor discharge is used, the following ~~should~~ shall be considered for discharge piping hazards.

At the point of discharge:

1) Both thermal and chemical reactions (personnel hazard)

2) Combustible materials (fire hazard)

3) Surface drains (pollution and fire hazard)

4) ~~Loop seal or~~ Rain cap on the discharge ~~(keep both air and water out of the system)~~, if installed the opening cross sectional area shall be equal to or greater than the discharge piping.

Along the discharge piping:

5) Drip leg near device and anywhere ~~into loop~~ along the discharge line ~~point~~ (prevent liquid collection)

6) Heat tracing for systems using high freeze point fluids (prevent blockage)

h) Discharge lines from pressure relief ~~devices~~ valves shall be designed to facilitate drainage or be fitted with low point or valve body drains to prevent liquid from collecting in the discharge side of a pressure relief ~~device~~ valve. Drain piping shall discharge to a safe location for the disposal of the fluids being relieved. The possibility of solidification of fluid leakage into the discharge piping system shall be considered.

~~h) A suitable condenser that will condense all the vapors discharged from the pressure relief valve may be used in lieu of piping the vapors to the atmosphere.~~

~~i) In order to minimize the loss by leakage of material through the pressure relief valve, a rupture disk may be installed between the pressure relief valve and the vaporizer, provided the following requirements are met:~~

~~1). The cross-sectional area of the connection to a vaporizer shall be not less than the required relief area of the rupture disk.~~

~~2) The maximum pressure of the range for which the disk is designed to rupture shall not exceed the opening pressure for which the pressure relief valve is set or the maximum allowable working pressure of the vessel.~~

~~3) The opening provided through the rupture disk, after breakage, shall be sufficient to permit a flow equal to the capacity of the attached valve, and there is no chance of interference with the proper functioning of the valve, but in no case shall this area be less than the inlet area of the valve.~~

~~4) The space between a rupture disk and the valve shall be provided with a pressure gage, try cock, free vent, or a suitable telltale indicator. This arrangement permits the detection of disk rupture or leakage.~~

i) Pressure relief valve discharge capacity for liquid service shall be determined from the following equation:

For Liquid
U.S. Customary Units
$W = 2{,}407KA \sqrt{(P - Pd)w}$

SI Units
$W =$ ~~5092~~ $5.092\ KA \sqrt{(P - Pd)w}$

Where.
W = Liquid Capacity in lb/hr (kg/hr).
A = Discharge Area of Pressure relief Valve, in² (mm²)
K = coefficient of discharge for valve design
P = (Set pressure + OP + Atmosphere pressure, psia (Mpa)
OP = Overpressure required for Pressure Relief Valve to reach capacity specified in code of construction
Pd = Pressure at discharge of valve, psia (Mpa)
w = Specific ~~liquid~~ weight of liquid at inlet condition lb/ft³ (kg/m³)

To convert lb/hr of water to gal/min, multiply the capacity in lb/hr by 1/500.

!!!!!!! (SEE PART 1 PROPOSAL ON NEXT PAGE) !!!!!!!

PROPOSAL:

Part 1 SUPPLEMENT 5

S5.7.6 INSTALLATION

Pressure relief valves and the associated discharge piping shall be installed in accordance with the heater Manufacturer's recommendations. The installation of the pressure relief valves required for Thermal Fluid Heaters shall include but not be limited to following requirements.

a) The pressure relief valve shall be provided with discharge piping. ~~When a discharge pipe is used,~~ The cross-sectional area of discharge piping shall not be less than the full area of the valve outlet. The size of the discharge lines shall be such that any pressure that may exist or develop will not reduce the relieving capacity or adversely affect the operation of the attached pressure vessel relief ~~devices~~ valves. Discharge piping shall be as short and straight as possible and arranged to avoid undue stress on the pressure relief ~~device~~ valve.

b) The pressure relief valve or valves shall be connected to the pressure vessel independent of any other connection, and shall be attached as close as possible without any unnecessary intervening pipe or fitting.

c) The cross sectional area of the piping between the heater and the relief ~~device~~ valve shall be sized either to avoid restricting the flow to the pressure relief ~~devices~~ valves or made at least equal to the inlet area of the pressure relief ~~devices~~ valves connected to it.

d) When two or more required pressure relief ~~devices~~ valves are placed on one connection, the inlet cross-sectional area of this connection shall be sized either to avoid restricting the flow to the pressure relief ~~devices~~ valves or made at least equal to the combined inlet areas of the pressure relief ~~devices~~ valves connected to it.

e) Unless permitted by the code of construction, there shall be no intervening stop valve between the vessel and its pressure relief ~~device(s)~~ valves, or between the pressure relief ~~device~~ valve and the point of discharge.

f) Pressure relief ~~device~~ valve discharges shall be arranged such that they are not a hazard to personnel or other equipment and, when necessary, lead to a safe location, such as a catchment tank, for the disposal of fluids being relieved.

g) The pressure relief valve discharge shall be connected to a closed, vented storage tank or blowdown tank with solid piping (no drip pan elbow or other air gap).

When outdoor discharge is used, the following shall be considered for discharge piping hazards.

At the point of discharge:

1) Both thermal and chemical reactions (personnel hazard).

2) Combustible materials (fire hazard)

3) Surface drains (pollution and fire hazard)

4) Rain cap on the discharge, if installed the opening cross sectional area shall be equal to or greater than the discharge piping.

Along discharge piping:

5) Drip leg near device and anywhere along the discharge line (prevent liquid collection)

6) Heat tracing for systems using high freeze point fluids (prevent blockage)

h) Discharge lines from pressure relief valves shall be designed to facilitate drainage or be fitted with low point or valve body drains to prevent liquid from collecting in the discharge side of a pressure relief valve. Drain piping shall discharge to a safe location for the disposal of the fluids being relieved. The possibility of solidification of fluid leakage into the discharge piping system shall be considered.

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PART 4

SUPPLEMENT 4
RECOMMENDED PROCEDURES FOR REPAIRING PRESSURE RELIEF VALVES

S4.1 ~~INTRODUCTION~~SCOPE

This supplement contains recommended procedures for the repair, packaging, shipping and transportation of pressure relief valves. S4.2 contains recommended procedures for the repair of spring-loaded pressure relief valves.~~, and~~ S4.3
contains recommended procedures for the repair of pilot operated types of pressure relief valves. S4.4 contains ~~I~~information
on packaging, shipping and transportation. ~~is included as S4.5.~~

~~a)~~ It is essential that the repair organization establish basic, specific procedures for the repair of pressure relief valves. The purpose of these recommended procedures is to provide the repair organization with guidelines for this important aspect of valve repair. It is realized that there are many types of valves and conditions under which they are repaired and, for this reason, the specific items in these recommended procedures may not apply, or they may be inadequate for each of those types or to the detailed repairs that may be required for each valve.

~~b) S4.2 contains recommended procedures for the repair of spring-loaded pressure relief valves, and S4.3~~
~~contains recommended procedures for the repair of pilot operated types of pressure relief valves. Information~~
~~on packaging, shipping and transportation is included as S4.5.~~

S4.2 SPRING-LOADED PRESSURE RELIEF VALVES

Prior to removal of a valve from a system for a repair or any disassembly, ensure that all sources of pressure
have been removed from the valve.

a) Visual inspection as received

1) This information is to be recorded:

a. Record user (customer) identification number;

b. Complete original PRV nameplate data, previous repair nameplate data, plus any important information received from customer;

c. Check external adjustment seals for warranty repair;

d. Check bonnet for venting on bellows type valves; and

e. Check appearance for any unusual damage, missing, or misapplied parts.

2) If sufficient damage or other unusual conditions are detected that may pose a safety risk during preliminary testing, then proceed directly to S4.2 c)

3) Valves that are to be repaired in place proceed to S4.2 c) unless preliminary testing has been authorized
by the owner.

b) Preliminary test as received

1) Information from the recommended preliminary performance test and subsequent disassembly and inspections will provide a basis for any repair interval change that should be necessary to ensure that the valve will function as intended.

2) Determine set pressure or Cold Differential Test Pressure (CDTP) in accordance with manufacturer's recommendations and appropriate ASME Code Section. Do not allow test pressure to exceed 116% of set pressure unless otherwise specified by the owner. A minimum of three tests is usually required to obtain consistent results.

3) If results do not correlate with field performance, then steps to duplicate field conditions (fluid and temperature) may be necessary.

4) Record preliminary test results and test bench identification data.

c) Disassembly

1) Remove cap and lever assembly, if applicable.
2) Remove release nut assembly, if applicable.
3) Loosen jam nut on adjusting (compression) screw.
4) Record measurement and remove adjusting (compression) screw.
5) Remove bonnet or yoke.
6) Remove spring and washers, and tag (identify) including upper and lower washers, as appropriate.
7) Remove spindle and disk assembly.
8) Remove ring pins.
9) Record measurement and remove adjusting rings, nozzle, and guide, as applicable.
d) Cleaning
1) Wire all small parts together and clean. (Caution: do not use a cleaning method that will damage the parts.)
2) Do not clean in a chemical solution except under acceptable circumstances.
3) Protect seating surfaces and nameplates prior to cleaning.
e) Inspection
1) Check spring for correct range, damage such as erosion, corrosion, cracking, or compression below free height.
2) Check nozzle for cracks (NDE as applicable) or unusual wear.
3) Check disk assembly for cracks (NDE as applicable) or unusual wear.
4) Check spindle for trueness, bearing areas, and thread condition.
5) Check guide for wear and galling.
6) Check adjusting ring(s) for worn threads and wear.
7) Check ring pins for bent or broken pin and thread condition.
8) Check bellows, if provided, for pinholes and corrosion.
9) Check flange gasket facings for wear and cuts.
f) Machining
Machine nozzle and disk as necessary to the manufacturer’s critical dimension charts.
g) Lapping
1) Machine or hand lap disk and nozzle to be sure of flatness.
2) Lap bevel seats to a grey finish; then re-machine disk or plug to the manufacturer’s critical dimension.
h) Bearing Points
Grind all bearing areas with grinding compound to make sure they are round and true.
i) Assembly
1) Install nozzle
2) Install lower ring and guide ring to the measurement from c) 9) above or to manufacturer’s specifications.
3) Install guide
4) Install disc and holder
5) Install spindle
6) Install spring washers
7) Install bonnet
8) Install bonnet bolting
9) Install adjusting screw and lock nut to the measurement from c) 4) above,
10) Install release nut and lock nut, and cap and lever assembly, and
11) Document installation of replacement parts.
j) Testing
Test data shall be recorded. Testing will be done in accordance with manufacturer’s recommendations and appropriate ASME Code section. To preclude unsafe and unstable valve operations or erroneous performance test results, it is recommended that low volume testing equipment (e.g., gas cylinders without
a test vessel, hand pumps, tubing) should be avoided.
k) Sealing
After final adjusting and acceptance by quality control inspection, all external adjustments shall be sealed with a safety seal providing a means of identification of the organization performing the repair.
l) Nameplate

The repairer will place a repair nameplate on each repaired valve. The nameplate shall, as a minimum, meet the requirements of 4.7.1.

S4.3 PILOT OPERATED PRESSURE RELIEF VALVES

a) Visual Inspection as Received
1) This information is to be recorded:
a. Complete nameplate data, plus any other important information received from the customer;
b. User identification number, if applicable;
c. Seals on external adjustments (ensure seals are intact);
d. Identification on seal; and
e. Obvious damage and external condition including missing or misapplied parts.
b) Disassembly
1) Remove pilot and disassemble per manufacturer's maintenance instruction.
2) Disassemble main valve. Where lift adjustments are provided, do not remove the locking device or change the lift unless it is required as part of conversion.
3) Remove the nozzle if recommended by the manufacturer's maintenance instructions and/or when required as part of conversion.
c) Cleaning
1) Pilot — Components of pilot are small and must be handled carefully to prevent damage or loss. Clean parts and nameplates with solvents that will not affect the parent metal and/or polish with 500 grit paper.
2) Main Valve — Clean by appropriate means such as abrasive blast. Finishes of machined surfaces must not be affected. (Caution: Do not use a cleaning method that will damage the parts or nameplates.)
d) Inspection
1) Pilot
a. Check spring for damage such as corrosion, cracks, out of square ends, etc.
b. Inspect all parts for damage. Small burrs or scratches may be removed by polishing. Severely damaged parts should be replaced. (Internal components or pilots should not be repaired by machining as the functions of the pilot could easily be impaired.)
c. Check strainers and filters on inlet and outlet lines.
d. Replace all soft goods per manufacturer's recommendation.
2) Main Valve
a. Check nozzle seating surface for nicks. These can be removed by machining or lapping as required.
b. Check the piston and liner (or other moving member) for galling or excessive wear. The piston should move freely in the liner.
c. Replace soft goods or re-lap disk as required.
d. Where lift adjustments are provided, measure the lift per the manufacturer's specifications.
e) Testing
Test data shall be recorded. Testing will be done in accordance with the manufacturer's recommendation and in accordance with the applicable ASME Code section. To preclude unsafe and unstable valve operations
or erroneous performance test results, it is recommended that low volume testing equipment (e.g., gas cylinders without a test vessel, hand pumps, tubing) should be avoided.
f) Sealing
After final adjustment and acceptance by quality control, all external adjustments shall be sealed by means assuring positive identification of the organization performing the repair.
g) Nameplate
The repairer will place a repair nameplate on each repaired valve. The nameplate, as a minimum, shall meet
the requirements of 4.7.1.

S4.4 PACKAGING, SHIPPING AND TRANSPORTATION OF PRESSURE RELIEF DEVICES

a) The improper packaging, shipment, and transport of pressure relief devices can have detrimental effects on device operation. Pressure relief devices should be treated with the same precautions as instrumentation, with care taken to avoid rough handling or contamination prior to installation.
b) The following practices are recommended:
1) Valves should be securely fastened to pallets in the vertical position to avoid side loads on guiding surfaces except threaded and socket-weld valves up to NPS 2 (DN 50) may be securely packaged and cushioned during transport.
2) Valve inlet and outlet connection, drain connections, and bonnet vents should be protected during shipment and storage to avoid internal contamination of the valve. Ensure all covers and/or plugs are removed prior to installation.
3) The valve should not be picked up or carried using the lifting lever. Lifting levers should be wired or secured so they cannot be moved while the valve is being shipped or stored. These wires shall be removed before the valve is placed in service.
4) Pilot valve tubing should be protected during shipment and storage to avoid damage and/or breakage.
5) Valves for special services, including but not limited to oxygen, chlorine, and hydrogen peroxide, should be packaged in accordance with appropriate standards and/or owner procurement requirements.

SUPPLEMENT 5

RECOMMENDED GUIDE FOR THE DESIGN OF A TEST SYSTEM FOR PRESSURE RELIEF DEVICES IN COMPRESSIBLE FLUID SERVICE

S5.1 SCOPE

This supplement provides guidance for the design of a test system using compressible fluids (e.g., steam or
air/gas) and permits the determination of pressure relief valve set pressure and valve operating characteristics
such as blowdown.
The size of the test vessel needed depends on the size of the valve, its set pressure, the design of the test
system, and whether blowdown must be demonstrated. A repair organization may use the information provided
in this supplement to determine the minimum size test vessel needed so that the measured performance is characteristic of the valve and not the test system.

~~S5.2 GENERAL~~

a) The National Board administrative rules and procedures for the "VR" *Certificate of Authorization* and symbol stamp require that pressure relief valves, after repair, be tested in accordance with the manufacturer's
recommendations and the applicable ASME Code. The purpose of this testing is to provide reasonable assurance that valves will perform according to design when they are returned to service.
b) It is recognized that a full evaluation of the performance of some pressure relief valve designs requires testing at maximum allowable overpressure. However, it is beyond the scope of this supplement to define test equipment or facilities for such testing.
c) Section 6 of this part provides a glossary, S5.3 describes typical test equipment, and S5.4 provides data
for estimating the size of test vessels required.

(Renumber all remaining sections)

SUPPLEMENT 6

PROCEDURES FOR REPAIRS TO ASME "NV" STAMPED PRESSURE RELIEF DEVICES

S6.1 ~~INTRODUCTION~~SCOPE

This supplement provides procedures and requirements for repair of ASME Code "NV" Class 1, 2, or 3 stamped pressure relief devices, which have been capacity certified by the
National Board~~, may be repaired provided the following requirements are met~~.

(19) 4.7.2 REPAIR NAMEPLATE

When a pressure relief valve is repaired, a metal repair nameplate stamped with the information required below shall be securely attached to the valve adjacent to the original manufacturer's stamping or nameplate. If not installed directly on the valve, the nameplate shall be securely attached to the valve independent of the external adjustment seals in a manner that does not interfere with valve operation and sealed in accordance with the quality system.

a) Prior to attachment of the repair nameplate, the previous repair nameplate, if applicable, shall be removed from the repaired valve.

b) As a minimum, the information on the valve repair nameplate (see Figure 4.7.2-a) shall include:

1) The name of the repair organization preceded by the words "repaired by";

2) The "VR" repair symbol stamp and the "VR" certificate number;

3) Unique identifier (e.g., repair serial number, shop order number, etc.);

4) Date of repair;

5) Set pressure;

6) Capacity and capacity units (if changed from original nameplate due to set pressure or service fluid change);

7) Type/Model number (if changed from original nameplate by a conversion. See 4.2); and

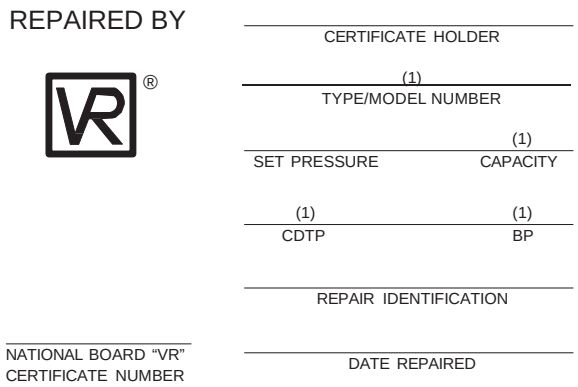
8) When an adjustment is made to correct for service conditions of superimposed back pressure and/or temperature or the differential between popping pressure between steam and air (see 4.6.2), the information on the valve repair nameplate shall include the:

a. Cold Differential Test Pressure (CDTP); and

b. Superimposed Back Pressure (BP) (only when applicable).

FIGURE 4.7.2-a

EXAMPLE LAYOUT OF REQUIRED MARKINGS FOR REPAIR OF ASME/NATIONAL BOARD "V," "UV," AND "HV"- STAMPED PRESSURE RELIEF VALVES



Note:. To be indicated only when changed.

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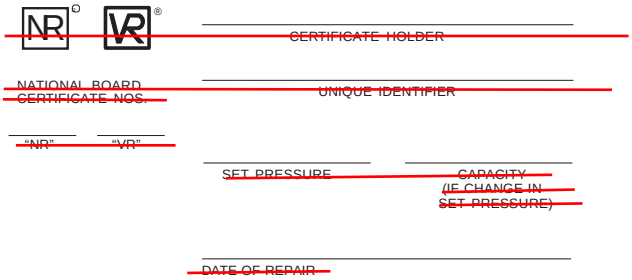
~~FIGURE 4.7.2-b~~

~~REQUIRED MARKINGS FOR REPAIR OF NUCLEAR PRESSURE RELIEF VALVES~~



Relocate to Supplement 6

4.7.3 CHANGES TO ORIGINAL PRESSURE RELIEF VALVE NAMEPLATE INFORMATION

a) If the set pressure is changed, the set pressure, capacity, and blowdown, if applicable, on the original nameplate or stamping shall be marked out but left legible. The new capacity shall be based on that for which the valve was originally certified.

b) If the service fluid is changed, the capacity, including units, on the original nameplate or stamping shall be marked out but left legible. The new capacity shall be based on that for which the valve was originally certified, or if a conversion has been made, as described in 4.2 on the capacity certification for the valve as converted.

c) If the Type/Model number is changed, the Type/Model number on the original nameplate or stamping shall be marked out but left legible.

d) If the blowdown is changed, the blowdown, if shown on the original nameplate or stamping, shall be marked out but left legible. The new blowdown may be based on the current ASME Code requirements.

e) Repair organizations shall verify the Type/Model number, inlet size, set pressure, and capacity on the original nameplate or stamping that is not marked out. Incorrect information on the original manufacturer's nameplate or stamping shall be marked out but left legible. Corrected information shall be indicated on the repair nameplate and noted on the document as required by the quality system.

4.7.4 REPLACEMENT OF ILLEGIBLE OR MISSING NAMEPLATES

a) Illegible Nameplates

When the information on the original manufacturer's or assembler's nameplate or stamping is illegible, but traceability can be confirmed, the nameplate or stamping shall be augmented by a nameplate furnished by the "VR" stamp holder stamped "Duplicate." It shall contain all information that originally appeared on the nameplate or valve, as required by the applicable section of the ASME Code, except the "V," "HV," or "UV" symbol and the National Board mark. The repair organization's nameplate, with the "VR" stamp and other required data specified in 4.7.2, will make the repairer responsible to the owner and the Jurisdiction that the information on the duplicate nameplate is correct.

b) Missing Nameplates

When the original valve nameplate is missing, the repair organization is not authorized to perform repairs to the valve under the "VR" program, unless positive identification can be made to that specific valve and verification that the valve was originally stamped with an ASME "V" or UV" symbol or marked with an ASME "HV" symbol. Valves that can be positively identified shall be equipped with a duplicate nameplate,

SUPPLEMENT 6
PROCEDURES FOR REPAIRS OF NUCLEAR SAFETY RELATED PRESSURE RELIEF VAVLES

S6.1 SCOPE

Nuclear safety related pressure relief valves and power actuated pressure relief valves may be repaired provided the following requirements are met. Valves being repaired under these provisions are intended to be those protecting the nuclear pressure boundary. Other pressure relief valves in the nuclear power plant (such as pressure relief valves on air compressors and auxiliary boilers) shall be repaired as required by the applicable Jurisdiction.

S6.2 DEFINITIONS

Safety Related – As used in this supplement and when applied to nuclear power plants, safety related means a structure, system, or component or part thereof that affects its safety function necessary to assure:

a) The integrity of the reactor coolant pressure boundary;

b) The capability to shut down the reactor and maintain it in a safe shutdown condition; or

c) The capability to prevent or mitigate the consequence of accidents which could result in potential offsite exposures.

S6.3 NUCLEAR SAFETY RELATED VALVE GROUPS

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

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

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

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

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

S6.4 ADMINISTRATIVE PROCEDURES

a) The repair organization shall obtain a “VR” *Certificate of Authorization*.

b) The repair organization shall obtain a National Board “NR” *Certificate of Authorization.* The requirements for said certificate include, but is not limited to, the following. The repair organization shall:

1) Maintain a documented quality assurance program that meets the applicable requirements of NBIC Part 3, 1.6. This program shall also include all the applicable requirements for the use of the “VR” stamp;

2) Have a contract or agreement with an Authorized Nuclear Inspection Agency that is qualified in accordance with the requirements of ASME QAI-1, *Qualifications for Authorized Inspection* to provide inspection of repaired nuclear pressure relief valves;

3) Successfully complete a survey of the quality assurance program and its implementation. This survey shall be conducted by representatives of the National Board, the Jurisdiction wherein the applicant's repair facilities are located, and the applicant's Authorized Inspection Agency. Further verification of such implementation by the survey team may not be necessary if the applicant holds a valid ASME "NV" certificate and can verify by documentation the capability of implementing the quality assurance program for repair of "NV"-stamped pressure relief valves, covered by the applicant's ASME "NV" certificate.

c) The application of the "NR" *Certificate of Authorization* and stamp shall clearly define the scope of intended activities with respect to the repair of nuclear pressure relief valves.

d) Revisions to the quality assurance program shall be acceptable to the Authorized Nuclear Inspector Supervisor and the National Board before being implemented.

e) The scope of the "VR" *Certificate of Authorization* shall include repair of nuclear pressure relief valves (denoted on the "VR" Certificate as Section III).

f) Verification testing of valves repaired by the applicant shall not be required provided such testing has been successfully completed under the applicant's "VR" certification program for the applicable test fluids.

g) A survey of the applicant for the "VR" *Certificate of Authorization* and endorsement of the repair of nuclear pressure relief valves may be made concurrently.

S6.5 GENERAL RULES

a) Group 1 and Group 2 pressure relief valves which have been repaired in accordance with these rules, shall be stamped with both the "VR" and "NR" stamps. They shall be classified as either "NR" Category 1 or Category 2 as applicable. Group 3 pressure relief valves which have been repaired in accordance with these rules shall be stamped with the "NR" stamp. They shall be classified as either "NR" Category 2 or Category 3 as applicable.

b) The "VR" and "NR" stamps shall be applied only to nuclear safety related pressure relief valves that have been disassembled, inspected, and repaired as necessary, such that the valves' condition and performance are equivalent to the standards for new valves. As a minimum, the information on the valve repair nameplate (see Figure S6.5-a) shall include:

1) The name of the certificate holder;
2) The "VR" and "NR" sybol stamps and certificate numbers;
3) Unique identifier (e.g., repair serial number, shop order number, etc.);
4) Date of repair;
5) Set pressure;
6) Capacity and capacity units (if changed from the original nameplate due to set pressure)

c) All measuring and test equipment used in the repair of pressure relief valves shall be calibrated against certified equipment having known valid relationships to nationally recognized standards.

d) Documentation of the repair of nuclear safety related pressure relief valves shall be recorded on the National Board Form NVR-1, *Report of Repair/ Replacement Activities for Nuclear Pressure Relief Devices*, in accordance with the requirements of NBIC Part 3, 1.6. The original code of construction and capacity certification status shall be identified on the NVR-1 form.

e) When an ASME "V", "UV" or "NV" stamped pressure relief device requires a duplicate nameplate because the original nameplate is illegible or missing, it may be applied using the procedures of NBIC Part 4, 4.7.5 provided concurrence is obtained from the Authorized Nuclear Inspector and Jurisdiction. In this case the nameplate shall be marked "SEC. I", "SEC. III", or "SEC. VIII" to indicate original ASME Code stamping.

f) Repair activities for pressure relief valves shall not include rerating of the device. Set pressure changes within the range of the valve manufacturer's capacity certification and the design pressure of the valve (see NBIC Part 4, 4.7.3) are permitted, provided the new set pressure and capacity rating are reconciled with the design of the system where the device will be used. These changes are not considered to be rerating.

g) Conversions of pressure relief valves as described in NBIC Part 4, 4.2 b) are permitted as part of repair activities.

h) Set pressure changes or conversions of pressure relief valves shall be described in the "Remarks" section of Form NVR-1.

FIGURE ~~4.7.2-b~~S6.5-a

EXAMPLE LAYOUT OF REQUIRED MARKINGS FOR REPAIR OF NUCLEAR PRESSURE RELIEF VALVES

NR ® O VR ®

CERTIFICATE HOLDER

NATIONAL BOARD CERTIFICATE NOS.

UNIQUE IDENTIFIER

"NR" "VR"

SET PRESSURE

CAPACITY (IF CHANGE IN SET PRESSURE)

DATE OF REPAIR

Relocate from from 4.7.2-b

4.7.3 CHANGES TO ORIGINAL PRESSURE RELIEF VALVE NAMEPLATE INFORMATION

a) If the set pressure is changed, the set pressure, capacity, and blowdown, if applicable, on the original nameplate or stamping shall be marked out but left legible. The new capacity shall be based on that for which the valve was originally certified.

b) If the service fluid is changed, the capacity, including units, on the original nameplate or stamping shall be marked out but left legible. The new capacity shall be based on that for which the valve was origi- nally certified, or if a conversion has been made, as described in 4.2 on the capacity certification for the valve as converted.

c) If the Type/Model number is changed, the Type/Model number on the original nameplate or stamping shall be marked out but left legible.

d) If the blowdown is changed, the blowdown, if shown on the original nameplate or stamping, shall be marked out but left legible. The new blowdown may be based on the current ASME Code requirements.

e) Repair organizations shall verify the Type/Model number, inlet size, set pressure, and capacity on the original nameplate or stamping that is not marked out. Incorrect information on the original manufacturer's nameplate or stamping shall be marked out but left legible. Corrected information shall be indicated on the repair nameplate and noted on the document as required by the quality system.

4.7.4 REPLACEMENT OF ILLEGIBLE OR MISSING NAMEPLATES

The VR Certificate Holder shall not perform repairs under the VR Program on any 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 new nameplate marked "DUPLICATE", which contains all original nameplate data. The replacement 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 nameplate shall be stamped "Sec. I", "Sec. IV", or "Sec. VIII", as applicable, to indicate the original stamping. Illegible nameplates, if applicable, shall not be removed.

~~a) Illegible Nameplates~~

~~When the information on the original manufacturer's or assembler's nameplate or stamping is illegible, but traceability can be confirmed, the nameplate or stamping shall be augmented by a nameplate furnished by the "VR" stamp holder stamped "Duplicate." It shall contain all information that originally appeared on the nameplate or valve, as required by the applicable section of the ASME Code, except the "V," "HV," or "UV" symbol and the National Board mark. The repair organization's nameplate, with the "VR" stamp and other required data specified in 4.7.2, will make the repairer responsible to the owner and the Jurisdiction that the information on the duplicate nameplate is correct.~~

~~b) Missing Nameplates~~

~~When the original valve nameplate is missing, the repair organization is not authorized to perform repairs to the valve under the "VR" program, unless positive identification can be made to that specific valve and verification that the valve was originally stamped with an ASME "V" or UV" symbol or marked with an ASME "HV" symbol. Valves that can be positively identified shall be equipped with a duplicate nameplate,~~

~~as described in this section, in addition to the repairer's "VR"-stamped nameplate. The repairer's respon- sibilities for accurate data, as defined in 4.7.5 a) shall apply.~~

~~c) Marking of Original Code Stamp~~

~~When a duplicate nameplate is affixed to a valve, as required by this section, it shall be marked "Sec. I," "Sec. IV," or "Sec. VIII," as applicable, to indicate the original ASME Code stamping.~~

~~(19) 4.7.5 REPLACEMENT OF ILLEGIBLE OR MISSING NAMEPLATES~~

~~a) Illegible Nameplates~~

~~When the information on the original manufacturer's or assembler's nameplate or stamping is illegible, but traceability can be confirmed, the nameplate or stamping shall be augmented by a nameplate furnished by the "VR" stamp holder stamped "Duplicate." It shall contain all information that originally appeared on the nameplate or valve, as required by the applicable section of the ASME Code, except the ASME Certification Mark and the "V", "UV", or "HV" Designator or the supplanted "V", "UV", or "HV" symbol and the National Board mark. The repair organization's nameplate, with the "VR" stamp and other required data specified in 4.7.2, will make the repairer responsible to the owner and the Jurisdiction that the information on the duplicate nameplate is correct.~~

~~b) Missing Nameplates~~

~~When the original valve nameplate is missing, the repair organization is not authorized to perform repairs to the valve under the "VR" program, unless positive identification can be made to that specific valve and verification that the valve was originally marked with the ASME Certification Mark and the "V", "UV", or "HV" Designator or the supplanted ASME "V" , "UV" or "HV" symbol. Valves that can be positively identified shall be equipped with a duplicate nameplate, as described in this section, in addition to the repairer's "VR"-stamped nameplate. The repairer's responsibilities for accurate data, as defined in 4.7.5(a) (Illegible Nameplates), shall apply.~~

~~c) Marking of Original Code Stamp~~

~~When a duplicate nameplate is affixed to a valve, as required by this section, it shall be marked "Sec. I", "Sec. IV", or "Sec. VIII", as applicable, to indicate the original ASME Code marking.~~

4.8 ACCREDITATION OF "VR" REPAIR ORGANIZATIONS

4.8.1 SCOPE

a) This section provides requirements that must be met for an organization to obtain a National Board *Certificate of Authorization* to use the "VR" Symbol Stamp for repair activities of pressure relief devices constructed in accordance with the requirements of the ASME Code.

b) For administrative requirements to obtain or renew a National Board "VR" *Certificate of Authorization* and "VR" Symbol Stamp, refer to NB-514, *Accreditation of "VR" Repair Organizations*.

4.8.2 JURISDICTIONAL PARTICIPATION

The National Board member Jurisdiction in which the "VR" organization is located is encouraged to participate in the review and demonstration of the applicant's quality system. The Jurisdiction may require participation in the review of the repair organization and the demonstration and acceptance of the repair organization's quality system manual.

2) Have a contract or agreement with an Authorized Nuclear Inspection Agency that is qualified in accordance with the requirements of ASME QAI-1, *Qualifications for Authorized Inspection* to provide inspection of repaired nuclear pressure relief valves;

3) Successfully complete a survey of the quality assurance program and its implementation. This survey shall be conducted by representatives of the National Board, the Jurisdiction wherein the applicant's repair facilities are located, and the applicant's Authorized Inspection Agency. Further verification of such implementation by the survey team may not be necessary if the applicant holds a valid ASME "NV" certificate and can verify by documentation the capability of implementing the quality assurance program for repair of "NV"-stamped pressure relief valves, covered by the applicant's ASME "NV" certificate.

c) The application of the "NR" *Certificate of Authorization* and stamp shall clearly define the scope of intended activities with respect to the repair of nuclear pressure relief valves.

d) Revisions to the quality assurance program shall be acceptable to the Authorized Nuclear Inspector Supervisor and the National Board before being implemented.

e) The scope of the "VR" *Certificate of Authorization* shall include repair of nuclear pressure relief valves (denoted on the "VR" Certificate as Section III).

f) Verification testing of valves repaired by the applicant shall not be required provided such testing has been successfully completed under the applicant's "VR" certification program for the applicable test fluids.

g) A survey of the applicant for the "VR" *Certificate of Authorization* and endorsement of the repair of nuclear pressure relief valves may be made concurrently.

S6.5 GENERAL RULES (19)

a) Group 1 and Group 2 pressure relief valves which have been repaired in accordance with these rules, shall be stamped with both the "VR" and "NR" stamps. They shall be classified as either "NR" Category 1 or Category 2 as applicable. Group 3 pressure relief valves which have been repaired in accordance with these rules shall be stamped with the "NR" stamp. They shall be classified as either "NR" Category 2 or Category 3 as applicable.

b) The "VR" and "NR" stamps shall be applied only to nuclear safety related pressure relief valves that have been disassembled, inspected, and repaired as necessary, such that the valves' condition and performance are equivalent to the standards for new valves.

c) All measuring and test equipment used in the repair of pressure relief valves shall be calibrated against certified equipment having known valid relationships to nationally recognized standards.

d) Documentation of the repair of nuclear safety related pressure relief valves shall be recorded on the National Board Form NVR-1, *Report of Repair/ Replacement Activities for Nuclear Pressure Relief Devices*, in accordance with the requirements of NBIC Part 3, 1.6. The original code of construction and capacity certification status shall be identified on the NVR-1 form.

e) When an ASME "V", "UV" or "NV" stamped pressure relief device requires a duplicate nameplate because the original nameplate is illegible or missing, it may be applied using the procedures of NBIC Part 4, ~~4.7.5~~4.7.4 provided concurrence is obtained from the Authorized Nuclear Inspector and Jurisdiction. In this case the nameplate shall be marked "SEC. I", "SEC. III", or "SEC. VIII" to indicate original ASME Code stamping.

f) Repair activities for pressure relief valves shall not include rerating of the device. Set pressure changes within the range of the valve manufacturer's capacity certification and the design pressure of the valve

SUPPLEMENT 7 (19)

RECOMMENDED PROCEDURES FOR TEST ONLY OF PRESSURE RELIEF VALVES

S7.1 INTRODUCTION (19)

a) It is essential that the test only organization establish basic, specific procedures for the testing of pressure relief valves. The purpose of these recommended procedures is to provide the test only organization with guidelines for this important aspect of valve testing. It is realized that there are many types of valves and conditions under which they are tested and, for this reason, the specific items in these recommended procedures may not apply, or they may be inadequate for each of those types or for the detailed test procedures that may be required for each valve.

b) If the valve is to be bench tested, ensure that all sources of pressure have been removed from the valve prior to removal from service. If the valve is to be field tested using system pressure, ensure that all sources of pressure are under the control of the person performing the test.

c) S7.2 contains recommended procedures for the test only of spring-loaded and pilot operated pressure relief valves.

S7.2 PRESSURE RELIEF VALVES (19)

a) Visual inspection

1) This information is to be recorded

a. User (customer) identification number;

b. Complete original pressure relief valve nameplate data, previous "VR" repair nameplate data, previous "T/O" test only nameplate data plus any important information received from customer.

c. If nameplate is missing, illegible or has incorrect information, the pressure relief valve shall not be tested. Relief valve should be sent to "VR" repair shop per paragraph ~~4.7.5~~4.7.4

2) Verify external adjustment seals are installed and match manufacturer and/or "VR" - "T/O" nameplate.

3) Check bonnet for venting on bellows type valves.

4) Check appearance for any unusual damage, missing, or misapplied parts. If sufficient damage or other unusual conditions are detected that may pose a safety risk during testing, set aside for review by the Quality Department.

b) Existing Nameplate

1) An existing "VR" Nameplate, if applicable, shall not be removed from the relief valve.

2) An existing "T/O" Nameplate shall be removed from the relief valve.

c) Relief Valve Data

1) “Set Pressure Definition” shall be obtained from National Board Document # NB-18.

2) Manufacturer’s steam to air correction factor, if applicable, shall be obtained from Manufacturer.

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NBIC Part 1 Item 19-49

2.9.1 VALVE REQUIREMENTS – GENERAL (19)

a) Only direct spring loaded, pilot operated, or power actuated pressure relief valves designed to relieve steam shall be used for steam service.

b) Pressure relief valves shall be manufactured in accordance with a national or international standard.

c) Deadweight or weighted-lever pressure relief valves shall not be used.

d) For high-temperature water boilers, safety relief valves shall have a closed bonnet, and valve bodies shall not be constructed of cast iron.

e) Pressure relief valves with an inlet connection greater than NPS 3 (DN 80) used for pressure greater than 15 psig (103 kPa), shall have a flange or a welded inlet connection. The dimensions of flanges subjected to boiler pressure shall conform to the applicable standards.

f) When a pressure relief valve is exposed to outdoor elements that may affect operation of the valve, the valve may be shielded with a cover. The cover shall be vented and arranged to permit servicing and normal operation of the valve.

g) Shipping caps or plugs shall be removed prior to installation.

3.9.1 PRESSURE RELIEF VALVE REQUIREMENTS – GENERAL

The following general requirements pertain to installing, mounting, and connecting pressure relief valves on heating boilers.

a) Shipping caps or plugs shall be removed prior to installation.

Item 19-54: Request for Revision to NBIC Part 4, S7.2 f) 1)

Purpose	S7 is needed to give T/O Organizations procedural guidance for implementation of T/O requirements in Part 4, Section 3. Such guidance needs to agree with the requirements of Part 4, Section 3.
Scope:	Part: Pressure Relief Devices & Pressure Relief Devices; Section: 3 & S7; Paragraph: 3.3.4 c) & S7.2 f) 1)
Background:	The Term "all external adjustments" is taken from ASME Original Code of Construction where is most certainly applies. However, in implementation of T/O, only one of several possible external adjustments may need to be made. The T/O Seals indicate which of the possible adjustments was made.
Proposed Revision:	See below for the proposed revision.

S7.2 PRESSURE RELIEF VALVES

f) Sealing

1) After completion of set pressure test, set pressure restoration (if applicable) and seat tightness testing, only seals removed for adjustment or testing using a lift assist device ~~all external adjustments~~ shall be sealed in accordance with the original code of construction with a seal providing a means of identification of the organization performing the set pressure test.

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Part 4

2.6.3 LOCATION

Pressure relief devices, except those covered by NBIC Part 4, 2.~~1~~ 2 through 2.~~2~~4, may be installed at any location in the system provided the pressure in any portion of the system cannot exceed the maximum overpressure permitted by the original code of construction. Pressure drop to the pressure relief device under flowing conditions shall be considered when determining pressure relief device location. The pressure-relief device shall not be isolated from the piping system except as permitted by 2.6.6 e).

Item 19-72: Request for Revision to NBIC Part 4, 4.6.2

Purpose	An ASME Code change in the 2019 Edition of Sec VIII-1 has made it impossible for an Owner/User VR Holder to use the CDTP Field of the VR Nameplate to document the Manufacturer's Correction Factor for a Steam Service PRV tested on Air as permitted by NBIC Part 4, Sec 4.6.2. When an Owner/User applies the aforementioned factor, it needs to be documented for the repair history of the PRV to ensure an accurately set PRV.
Scope:	Part: Pressure Relief Devices; Section: 4.6; Paragraph: 4.6.2
Background:	Due to changes in ASME Sec VIII-1, Para UG-129(a) and UG-136(d)(4) regarding separation of CDTP and the Manufacturer's correction for differential in set pressure between steam and air, the CDTP on the VR Repair Nameplate will no longer serve as the indication of the use of the Manufacturer's correction for differential in set pressure between steam and air. Consequently, the Correction Factor should be documented on the VR Traveler required by NBIC Part 4, Sec 4.8.5.4 i) to indicate use of the Correction Factor.
Proposed Revision:	See below for the proposed revision.

4.6.2 OWNER-USER ASME CODE SECTION VIII STEAM TESTING

When ASME Code Section VIII valves are repaired by the owner for the owner's own use, valves for steam service may be tested on air for set pressure and, if possible, blowdown adjustment, provided the valve manufacturer's corrections for differential in set pressure between steam and air are applied to the set pressure. When applied, the manufacturer's correction for differential in set pressure between steam and air shall be indicated on the repair document described in 4.8.5.4 i).

Item 19-75: Part 4, 2.2.2

Proposed Change to Part 4:
2.2.2 NUMBER
At least one National Board capacity certified pressure relief valve shall be installed on the boiler. If the boiler has more than 500 ft2 (46 m2) of heating surface, or if an electric boiler has a power input of more than 3.76 million BTU/hr (1100 kW), two or more National Board capacity certified pressure relief valves shall be installed. For a boiler with combined bare tube and extended water-heating surface exceeding 500 ft2 (47 m2), two or more pressure relief valves are required only if the maximum designed steaming capacity of the boiler exceeds 4,000 lb/hr (1 800 kg/h).

Explanation of Need: Item 19-51 makes this proposed change to Part 1, 2.9.1.1, but the proposal never included changes to the duplicate section in Part 4. This item will ensure that the approved language for Part 1 gets reflected in Part 4.

Background: There is a discrepancy between ASME Section I, PG-67.1, NBIC Part 1, 2.9.1.1, and NBIC Part 4, 2.2.2. ASME requires 2 or more safety valves if over 500 sq. ft. If there is combined bare tube and extended heating surface exceeding 500 sq. ft., 2 or more safety valves are required only if the boiler exceeds 4000 lbs./hr. NBIC requires 2 or more safety valves if over 500 sq. ft. It does not make allowances for extended heating surface and generating capacity up to 4000 lbs./hr.

Approved Change to Part 1 (for reference):
2.9.1.1 NUMBER
At least one National Board capacity certified pressure relief valve shall be installed on the boiler. If the boiler has more than 500 ft2. (46.5 m2) of heating surface, or if an electric boiler has a power input of more than 3.76 million Btu/hr (1,100 kW), two or more National Board capacity certified pressure relief valves shall be installed. For a boiler with combined bare tube and extended water-heating surface exceeding 500 ft2 (47 m2), two or more pressure relief valves are required only if the maximum designed steaming capacity of the boiler exceeds 4,000 lb/hr (1 800 kg/h).

Item 19-76: Request for Revision to NBIC Part 4, 3.3.3.4 p)

Purpose	Referenced paragraph refers to "VR" Certificate of Authorization for record retention. It should refer to "T/O" Certificate of Authorization since this is in the T/O quality elements section.
Scope:	Part: Pressure Relief Devices; Section: 3; Paragraph: 3.3.3.4 p)
Background:	See purpose.
Proposed Revision:	See below for the proposed revision.

3.3.3.4 OUTLINE OF REQUIREMENTS FOR A QUALITY SYSTEM

p) Records Retention

The quality manual shall describe a system for filing, maintaining, and easily retrieving records supporting or substantiating the administration of the Quality System within the scope of the "~~VR~~T/O" *Certificate of Authorization*. The record retention schedule described in the Quality System Manual is to follow the instructions identified in Table 3.3.3.4 p).