Date Distributed: January 22, 2018

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

NATIONAL BOARD SUBGROUP PRESSURE RELIEF DEVICES

MINUTES

Meeting of January 9, 2018
New Orleans, LA

These minutes are subject to approval and are for committee use only.
They are not to be duplicated or quoted for other than committee use.

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

1. Call to Order

The meeting was called to order at 8:00 AM on Tuesday January 9, 2018 by Chair Kim Beise.

The following members and visitors were in attendance:

Members	**Affiliation**
Marrianne Brodeur	International Valve & Instrument Corp.
Kevin Simmons	Emerson
Brandon Nutter	DuPont
Sid Cammeresi	TeamFurmanite
Adam Renaldo	Praxair
Dan Marek	Mainthia Technologies
David McHugh	Allied Valve, Inc.
Kim Beise	Dowco Valve
J. Alton Cox	JAC Consulting, Inc.
Thomas P. Beirne, P.E.	National Board (Subgroup Secretary)

Members Not Present	
R.W. Donalson	Emerson
Thakor Patel	Farris Engineering
Denis DeMichael	The Chemours Company
Raymond McCaffrey	Quality Valve, Inc.

Visitors	
Joseph Ball (Teleconference)	National Board
Alfred Donaldson	Baker Hughes
Prakash Dhobi	The Valve Automation Center
Mike Vogel	State of Illinois
Tom Tarbay	TRT Consulting

2. Announcements

Mr. Beise announced the reception for Wednesday and meals provided.

3. Adoption of the Agenda

The agenda dated December 20, 2017 was presented. It was moved and seconded to approve the agenda with the additional item. The motion was unanimously approved.

4. Approval of Minutes

It was moved and seconded to approve the July 2017 minutes. The motion was unanimously approved.

5. Review of the Roster

a. Nominations

- There are no applications for membership to SG PRD.

b. Reappointments

- There are no members eligible for reappointment to SG PRD.

c. Resignations

- None

6. Interpretations

- None

7. Action Items

Item Number: NB12-0901	**NBIC Location: Part 4**	**No Attachement**
General Description: Prepare a guide for repair of tank vents **Task Group:** D. DeMichael (PM), K. Simmons, B. Donalson, K. Beise, B. Nutter **Meeting Action:** Work on the text continues and may have draft by the next meeting.		

Item Number: NB14-0602A	**NBIC Location: Part 1**	**Attachment A**
General Description: Improve index in Part 1 relating to pressure relief devices **Task Group:** M. Brodeur (PM), S. Cammeresi, K. Beise **Meeting Action:** Unanimously passed letter ballot between meetings. Moved to SC-PRD for action.		

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, B. Hart

Meeting Action: Should have proposal to letter ballot between meetings.

Item Number: NB14-0602C	NBIC Location: Part 3	No Attachment

General Description: Improve index in Part 3 relating to pressure relief devices

Task Group: B. Nutter (PM), R. McCaffrey, T. Patel, K. Simmons

Meeting Action: A final review will be conducted to see if this item can be closed with no action. Will most likely close at next 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: A. Renaldo (PM), D. Marek, D. McHugh, B. Nutter

Meeting Action: Work continues on this item.

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

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

Meeting Action: Work continues on this item. Should have draft by next meeting. K. Kraabel removed from task group.

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

Meeting Action: A draft proposal was presented. After discussion the proposal will be revised. Should have proposal ready to vote on by next meeting.

Item Number: NB15-0310	NBIC Location: Part 4, 4.4.8.5 i)3)	Attachment B

General Description: Give Guidance as to Which Spring Chart Should be used in Repairs.

Task Group: A. Cox (PM), B. Nutter, M. Brodeur, T. Patel, K. Simmons, R. McCaffrey, S. Irvin

Meeting Action: Proposal was presented. A motion was made and seconded and passed unanimously.

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

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)	No Attachment

General Description: Review testing requirements for inservice testing of pressure relief devices

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

Meeting Action: A draft proposal was presented and will be letter balloted after this meeting.

Item Number: NB15-0324	NBIC Location: Part 4	No Attachment

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

Meeting Action: Mr. Renaldo presented a draft proposal that will be letter balloted after this meeting.

Item Number: NB16-0401	NBIC Location: Part 4	Attachment C

General Description: VR Nameplate attachment

Task Group: A. Donaldson (PM), S. Irvin, T. Patel, D. Marek, M. Brodeur, B. Nutter

Meeting Action: A proposal was presented. After discussion and revision a motion was made and seconded to accept the revised proposal. The motion passed unanimously.

Item Number: NB16-0603	NBIC Location: Part 4 S6	No Attachment

General Description: Add requirements for when the "NR" program is applied to safety related relief valves in nuclear service, came from NR task group

Task Group: NR Task Group

Meeting Action: This item is on MC letter ballot due to close 1/12/18.

Item Number: NB16-0805	NBIC Location: Part 4, 2.6.6 and Part 1, 5.3.6	No Attachment

General Description: Temperature ratings for discharge piping and fittings

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

Meeting Action: Task group work continues on this item.

Item Number: NB17-0401	NBIC Location: Part 4	No Attachment

General Description: Valve drain plug recommendations for shipping.

Task Group: (PM) K. Beise, M. Brodeur, R.McCaffrey

Meeting Action: Work continues on this item.

Item Number: NB17-0402	NBIC Location: Part 4	No Attachment

General Description: Review Part 4 Index.

Task Group: A. Cox (PM), S. Irvin, K. Beise, K. Simmons

Meeting Action: Work continues on this item.

Item Number: NB17-0403	NBIC Location: Part 4	No Attachment

General Description: Review Part 4 for including new T/O requirements.

Task Group: (PM) K. Simmons, D. McHugh, A. Cox, D. Marek, A. Donaldson

Meeting Action: Work continues on this item. A. Donaldson added to task group.

Item Number: NB17-0404	NBIC Location: Part 4	No Attachment

General Description: Add missing paragraphs g)-j) in Part 4, 2.3.6 to Part 1, S5.7.6

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

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

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

Meeting Action: Work continues on this item.

Item Number: 17-117	NBIC Location: Part 4, 2.2.1 g) and Part 1, 2.9.1 g)	Attachment D

General Description: clarify what "properly vented" means

Task Group: R. McCaffrey (PM), M. Brodeur

Meeting Action: A proposal was presented. A motion was made and seconded to accept the proposal. The motion unanimously passed.

Item Number: 17-118	NBIC Location: Part 4, 2.2.4 c) and Part 1, 2.9.1.3 c)	Attachment E

General Description: Provide metric equivalent and possibly express conversion as formula instead of paragraph.

Task Group: B. Nutter (PM)

Meeting Action: Mr. Nutter presented a proposal. A motion was made and seconded to accept the proposal. A vote was taken and the motion unanimously passed.

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

Meeting Action: It was determined that the same language was in ASME Section I. The task group decided to put this item on hold pending completion of ASME action item.

Item Number: 17-120	NBIC Location: Part 4, 2.2.10 d) and Part 1, 2.9.6 d)	Attachment F

General Description: Add Changeover valve definition in glossary and remove definition from text.

Task Group: A. Renaldo (PM)

Meeting Action: Mr. Renaldo presented a proposal. After discussion and revision, a motion was made and seconded to accept the proposal. The motion unanimously passed.

Item Number: 17-121	NBIC Location: Part 4, 2.2.10 e), h) and Part 1 2.9.6 e),h)	No Attachment

General Description: e) Language needs cleaned up. h) delete "so located or piped as to be carried clear from running boards or platforms."

Task Group: None assigned.

Meeting Action: This item is on MC letter ballot due to close 1/12/18.

Item Number: 17-122	NBIC Location: Part 4, 2.3.6 g) and Part 2, 2.2.12.7 f)	No Attachment

General Description: Clean up last sentence of main paragraph. Possibly break into two paragraphs to consider hazards at the discharge and hazards along discharge piping

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

Meeting Action: A draft proposal was presented as a progress report.

Item Number: 17-125	NBIC Location: Part 4, 2.4.2 and Part 1, 3.9.2	No Attachment

General Description: Delete last sentence "The inlet opening shall have an inside diameter equal to or greater than the seat diameter". This is a manufacturing requirement and the inspector has no way of verifying this after installation.

Task Group: None assigned.

Meeting Action: This item is on MC letter ballot due to close 1/12/18.

Item Number: 17-126	NBIC Location: Part 4, 2.4.2 and Part 1, 3.9.2	No Attachment

General Description: Determination of the valve capacity using the maximum output method needs to be described or delete reference.

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

Meeting Action: Work continues on this item.

Item Number: 17-127	NBIC Location: Part 4, 2.4.4.1 and Part 1, 3.9.4.1	No Attachment

General Description: rewrite to state "Temperature and pressure relief valves shall be installed by either the manufacturer or the equipment installer before a water heater is placed in operation."

Task Group: None assigned.

Meeting Action: This item is on MC letter ballot due to close 1/12/18.

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

Meeting Action: Work continues on this item.

Item Number: 17-130	NBIC Location: Part 4,2.5.6 f) and Part 1, 4.5.6 f)	No Attachment

General Description: This could just point to safe point of discharge since we have a definition

Task Group: None assigned.

Meeting Action: This item is on MC letter ballot due to close 1/12/18.

Item Number: 17-131	NBIC Location: Part 4, 2.5.7 a) and Part 1, 4.7.3 a)	No Attachment

General Description: Review overpressure protection requirements for hot water storage tanks that exceed 160 psi.

Task Group: J. Ball (PM)

Meeting Action: Work continues on this 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.

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

Meeting Action: This item was letter balloted between meetings and received several negatives and comments. A task group was formed to work on this item and bring it back for first consideration.

8. New Business

- None

9. Presentations

- None

10. Future Meetings

July 17, 2018 – Columbus, Ohio
January 15, 2019 Florida

11. Adjournment

A motion was made, seconded, voted on, and unanimously passed to adjourn the meeting at approximately 4:40 PM.

Respectfully Submitted,

Thomas P. Beirne, P.E.

Secretary, NBIC Subgroup Pressure Relief Devices

pc: D. Douin
D. Cook
J. Metzmaier

November 17, 2017

NB14-0602A- IMPROVE INDEX PART I

SUGGESTED CHANGES: PRESSURE RELIEF DEVICES

(1.4.5.1.1) 23,24,25,26 specific to PRV's
(2.9.6) delete refer to (2.9)
(4.4.2) delete refers to pressure gauge
(4.5.1)-(4.5.6) delete refer to (4.5)
(5.3.1)-(5.3.6) delete refer to (5.3)
(S5.5.2)
(S5.7.2)-(S5.4.6) delete refer to (S5.7)

NEW INDEX PRESSURE RELIEF DEVICES

(1.4.5.1.1) 23,24,25,26 (2.9) (4.5) (5.3) (S5.7)

SUGGESTED CHANGES-MOUNTING

(3.9) add in
(3.9.1) delete note word mounting should say installing & connecting only
(3.9.1.1.1) (3.9.1.3) (3.9.4.2) (3.9.4.5) delete
Refer to (3.9) note use of word mounting should be changed to installation.

NEW INDEX

(3.9)

SUGGESTED CHANGES
SAFETY /SAFETY RELEIF VALVES

(1.4.5.1.1) Guide for completing National Board Boiler Installation Report
(2.5.1.1) Volume
(2.9) Pressure Relief Valves
(2.9.1) Valve Requirements-General-delete
(2.9.1.1) (2.9.1.2) (2.9.1.3) (2.9.1.4) delete
All covered under (2.9)
(2.9.3) Super heaters- delete
(2.9.4) Economizers-delete
(2.9.5) Pressure Reducing Valves- delete
(2.9.6) Mounting & Discharge Requirements
(Installation) delete
All covered on 2.9

(3.7.4) Feedwater, Makeup Water & Water Supply
(3.7.5) Stop Valves- delete – There is no reference to Pressure Relief Valves
(3.7.7.1) Steam Heating, Hot Water Heating,
Hot Water Supply Boilers
(3.7.8.1) Individual Modules
(3.7.9.1) Expansion Tanks
(3.8.2.1) Pressure or Altitude Gages
(3.9.1.1) delete refer to 3.9-note remove word mounting
(3.9.1.1.1) Permissible Mounting (Installation)
delete refer to 3.9
(3.9.1.1.2) delete refer to 3.9
(3.9.1.3) delete refer to 3.9
(3.9.1.4) listed twice refer to 3.9
(3.9.1.6) delete
(3.9.3) (3.9.4) delete refer to 3.9
(3.9.4.1) (3.9.4.7) delete refer to 3.9
(3.9.5) (3.9.5.1) (3.9.5.2) delete refer to 3.9
(S1.2) (S2.5) (S3.6) (S5.5.2)
(S5.5.7) delete –not applicable-electrical

NEW INDEX SAFETY/RELIEF VALVES

(1.4.5.1.1) (2.5.1.1) (2.9) (3.7.4) (3.7.7.1) (3.7.8.1) (3.7.9.1) (3.8.2.1) (3.9) (S1.2) (S2.5) (S2.6) (S5.5.2) (9.1)

SAFETY VALVE CAPACITY

(3.7.7.1) (3.9.2) (S2.2) No change

SUGGESTED CHANGES – SET PRESSURE

(1.4.5.1) (1.4.5.1.1)
(2.73) (2.75) (2.8.1) delete refer to (2.7)
(2.9.1.4) (2.9.2) (2.9.3) delete refer to (2.9)
(3.7.4) (3.9.4) delete refer to (3.9)
(4.4.2)
(4.4.5) delete located in Part 2
(4.5.5) (5.3.5) (S5.7.5) (9.1)

NEW INDEX- SET PRESSURE

(1.4.5.1) (1.4.5.1.1) (2.7) (2.9) (3.9)
(4.4.2) (4.5.5) (5.3.5) (S5.7.5) (9.1)

SUGGESTED CHANGES- CAPACITY

(1.4.5.1) (1.4.5.1.1) (2.4.1) (2.5.1.1) (2.5.1.3)
(2.5.3.2) (2.5.4)
(2.9.1.1) (2.9.1.3) (2.9.2) (2.9.3) (2.9.4) (2.9.5)
(2.9.6) delete refer to 2.9
(3.4.1) delete refers to fuel
(3.4.5) doesn't exist in Part 1. It is located in Part 2
(3.5.4) (3.7.6) (3.7.7.1) (3.7.9.1) (3.7.9.2)
(3.9.1.1.2) (3.9.1.5) (3.9.1.6)
(3.9.2) (3.9.3) (3.9.4) delete refer to (3.9)
(3.9.4.3) (3.9.4.7) (3.9.5.2) (3.9.5.3)
(4.5.1) (4.5.4) (4.5.5) (4.5.6) delete
Refer to (4.5)
(5.3.1) (5.3.4) (5.3.5) (5.3.6) delete refer to (5.3)
(S2.1) (S2.2) (S2.3) (S2.4)
(S3.6) (S2.8.1) (S2.11) (S2.15)) (S5.3.1)
(S5.7.4) (S5.7.5) (S5.7.6)) delete
All covered under (S5.7)
(S6.8) (S6.13.9) (S6.13.11.2) delete
All are located in Part 2
(9.1)

NEW INDEX CAPACITY

(1.4.5.1) (1.4.5.1.1) (2.4.1) (2.5.1.1) (2.5.1.3)
(2.5.3.2) (2.5.4) (2.9)
(3.5.4) (3.7.6) (3.7.7.1) (3.7.9.1) (3.7.9.2)
(3.9.1.1.2) (3.9.1.5) (3.9.1.6) (3.9)
(3.9.4.3) (3.9.4.7) (3.9.5.2) (3.9.5.3)
(4.5) (5.3) (S2.1) (S2.2) (S2.3) (S2.4)
(S3.6) (S2.8.1) (S2.11) (S2.15)
(S5.3.3) (S5.7) (9.1)

COMMITTEE CORRESPONDENCE

COMMITTEE: National Board Inspection Code
Subcommittee Pressure Relief Devices

ADDRESS WRITER CARE OF:
JAC Consulting, Inc.
213 Park View Drive
Belmont, NC 28012
Phone: (704)301-8532
E-mail: alton@jaltoncox.com

TO: Task Group Members **DATE:** January 11, 2018

SUBJECT: N15-0310, Give Guidance as to Which Spring Chart Should be used in Repairs

Task Group Discussion:

BACKGROUND / RATIONALE:
NBIC PART 4, SEC 4.8.5.4, i) 3) requires identification of the spring in a PRV during a VR Repair. However, this requirement does not specifically mention use of Manufacturer's Spring Charts. The method of determining the correct spring is a matter of interpretation of the code by the VR Holder. Spring identification during PRV Repair is critical to the proper operation of the PRV in service.

Existing Words	**Suggested Revision**
The system shall include a method of controlling the repair or replacement of critical valve parts. The method of identifying each spring shall be indicated.	The system shall include a method of controlling the repair or replacement of critical valve parts. The method of identifying each spring shall be indicated *on the repair document described in 4.8.5.4 i). Such identification shall be based on the Manufacturer's spring chart current at the time of the repair, except that the spring removed from the valve during the repair bearing different identification may be reinstalled provided the "VR" Certificate Holder has verified the spring is acceptable to the Manufacturer. Such verification shall be documented on the repair document described in 4.8.5.4 i).*

Best Regards,

J. Alton Cox

ITEM NB16-0401 1/10/18

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 ~~so as~~ not ~~to~~ interfere with valve operation and sealed in accordance with the quality system.

ITEM 17-117 Proposal 1/9/18

Part 4, 2.2.1 GENERAL REQUIREMENTS

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

b) Pressure relief valves are valves designed to relieve either steam or water, depending on the application.

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

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

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

f) Pressure relief valves with an inlet connection greater than NPS 3 (DN 80) and used for pressure greater than 15 psig (100 kPa), shall have a flanged or a welded inlet connection. The dimensions of flanges subjected to boiler pressure shall conform to the applicable standards.

g) 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 ~~properly~~ vented and arranged to permit servicing and normal operation of the valve.

Part 1, 2.9.1 VALVE REQUIREMENTS – GENERAL

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

b) Pressure relief valves are valves designed to relieve either steam or water, depending on the application.

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

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

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

f) Pressure relief valves with an inlet connection greater than NPS 3 (DN 80) and used for pressure greater than 15 psig (100 kPa), shall have a flanged or a welded inlet connection. The dimensions of flanges subjected to boiler pressure shall conform to the applicable standards.

g) 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 ~~properly~~ vented and arranged to permit servicing and normal operation of the valve.

c) Pressure relief valves shall be connected to the boiler independent of any other connection without any unnecessary intervening pipe or fittings. Such intervening pipe or fittings shall not be longer than the face-to-face dimension of the corresponding tee fitting of the same diameter and pressure rating as listed in the applicable standards.

2.2.4 CAPACITY

a) The pressure relief valve capacity for each boiler shall be such that the valve or valves will discharge all the steam that can be generated by the boiler without allowing the pressure to rise more than 6% above the highest pressure at which any valve is set and in no case to more than 6% above the maximum allowable working pressure of the boiler.

b) The minimum relieving capacity for other than electric boilers and forced-flow steam generators with no fixed steam line and waterline shall be estimated for the boiler and waterwall heating surfaces as given in Table 2.2.4.1, but in no case shall the minimum relieving capacity be less than the maximum designed steaming capacity as determined by the manufacturer.

c) ~~The required relieving capacity in lbs/hr of the pressure relief valves on a high temperature water boiler shall be determined by dividing the maximum output in Btu at the boiler nozzle obtained by the firing of any fuel for which the unit is designed by one thousand.~~

d) The minimum pressure relief valve relieving capacity for electric boilers shall not be less than 3.5 lbs/hr/kW (1.6 kg/hr/kW) input.

e) If the pressure relief valve capacity cannot be computed, or if it is desirable to prove the computations, it should be checked by any one of the following methods; and if found insufficient, additional relieving capacity shall be provided:

1) By performing an accumulation test, that is, by shutting off all other steam discharge outlets from the boiler and forcing the fires to the maximum. This method should not be used on a boiler with a superheater or reheater or on a high-temperature water boiler.

2) By measuring the maximum amount of fuel that can be burned and computing the corresponding evaporative capacity upon the basis of the heating value of the fuel.

3) By determining the maximum evaporative capacity by measuring the feedwater. The sum of the pressure relief valve capacities marked on the valves shall be equal to or greater than the maximum evaporative capacity of the boiler. This method should not be used on high-temperature water boilers.

The required relieving capacity, C, of the pressure relief valves on a high temperature water boiler shall be determined as follows:

$$C = Q/L$$

where,

C = required relieving capacity in lbs/hr (kg/hr)
Q = maximum output in BTU/hr (W) at the boiler nozzle obtained by the firing of any fuel for which the unit is designed
L = 1000 BTU/lb (646 W·hr/kg)

in NBIC Part 1, Table 2.9.1.3, but in no case shall the minimum relieving capacity be less than the maximum designed steaming capacity as determined by the manufacturer.

c) ~~The required relieving capacity in pounds per hour of the pressure relief valves on a high temperature water boiler shall be determined by dividing the maximum output in Btu at the boiler nozzle obtained by the firing of any fuel for which the unit is designed by one thousand.~~

d) The minimum pressure relief valve relieving capacity for electric boilers shall not be less than 3.5 lbs/hr/kW (1.6 kg/hr/kW) input.

e) If the pressure relief valve capacity cannot be computed, or if it is desirable to prove the computations, it should be checked by any one of the following methods; and if found insufficient, additional relieving capacity shall be provided:

1) By performing an accumulation test, that is, by shutting off all other steam discharge outlets from the boiler and forcing the fires to the maximum. This method should not be used on a boiler with a superheater or reheater, or on a high-temperature water boiler;

2) By measuring the maximum amount of fuel that can be burned and computing the corresponding evaporative capacity upon the basis of the heating value of the fuel;

3) By determining the maximum evaporative capacity by measuring the feedwater. The sum of the pressure relief valve capacities marked on the valves shall be equal to or greater than the maximum evaporative capacity of the boiler. This method should not be used on high-temperature water boilers.

The required relieving capacity, C, of the pressure relief valves on a high temperature water boiler shall be determined as follows:

$$C = Q/L$$

where,

C = required relieving capacity in lbs/hr (kg/hr)
Q = maximum output in BTU/hr (W) at the boiler nozzle obtained by the firing of any fuel for which the unit is designed
L = 1000 BTU/lb (646 W·hr/kg)

NB17-120 changeover valve definition

Adam Renaldo proposed edits

1-11-18

Part 4, 2.2.10

d) No valves of any type except a changeover valve ~~as defined below~~ shall be placed between the pressure relief valves and the boiler, nor on the discharge pipe between the pressure relief valves and the atmosphere. A changeover valve, ~~which allows two redundant pressure relief valves to be installed for the purpose of changing from one pressure relief valve to the other while the boiler is operating,~~ may be used provided the changeover valve is in accordance with the original code of construction. It is recommended that the ~~-~~Jurisdiction be contacted to determine the acceptability of the changeover valves on boiler applications. ~~The changeover valve shall be designed such that there is no intermediate position where both pressure relief valves are isolated from the boiler.~~

Part 1, 2.9.6

d) No valves of any type except a changeover valve ~~as defined below~~ shall be placed between the pressure relief valves and the boiler, nor on the discharge pipe between the pressure relief valves and the atmosphere. A changeover valve, ~~which allows two redundant pressure relief valves to be installed for the purpose of changing from one pressure relief valve to the other while the boiler is operating,~~ may be used provided the changeover valve is in accordance with the original code of construction. It is recommended that the Jurisdiction be contacted to determine the acceptability of the changeover valves on boiler applications. ~~The changeover valve shall be designed such that there is no intermediate position where both pressure relief valves are isolated from the boiler.~~

New Glossary Term…

Changeover valve – A three-way stop (or diverter) valve with one inlet port and two outlet ports designed to isolate either one of the two outlet ports from the inlet port, but not both simultaneously during any mode of operation.