

Date Distributed: January 4, 2021



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

NATIONAL BOARD SUBGROUP INSTALLATION

AGENDA

Meeting of January 12th, 2021
San Antonio, TX

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

8:00 AM

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.

6. Adoption of the Agenda

7. Approval of the Minutes of July 14th, 2020 Meeting

The minutes are available for review on the National Board website, www.nationalboard.org.

8. Review of Rosters (Attachment Pages 1)

a. Membership Nominations

Mr. Marvin Byrum (AIA) and Mr. Gene Tompkins (Manufacturers) are interested in becoming members of SG Installation.

b. Membership Reappointments

None.

c. Officer Appointment

9. Open PRD Items Related to Installation

- NB15-0305 – Create Guidelines for Installation of Overpressure Protection by System Design – D. Marek (PM)
- NB15-0315 – Review isolation valve requirements in Part 1, 4.5.6 and 5.3.6 – D. DeMichael (PM)
- 17-115 – Complete rewrite of Part 4, Section 2 combining common requirements into a general requirements section for all pressure relief devices – A. Renaldo (PM)
- 17-119 – Part 4, 2.2.5 states that pressure setting may exceed 10% range. Clarify by how much – T. Patel (PM). This item is on hold pending ASME action.

10. Interpretations

Item Number: 20-84	NBIC Location: Part 1, 3.7.5.1 d) 4)	Attachment Pages 2
<p>General Description: Adjustable Packing on Low Pressure Boiler Stop Valves</p> <p>Subgroup: SG Installation</p> <p>Task Group: None assigned.</p> <p>Explanation of Need: Jurisdictions need to know if this requirement applies to all low pressure boiler stop valves (steam, hot water heat, and hot water supply) so they can effectively communicate this requirement to their constituents and can enforce the code when new items are installed.</p> <p>Background Information: Most new hot water heating boilers and hot water supply boilers are being installed with appropriately-pressure/temperature-rated butterfly valves as their outlet isolation valves. Most butterfly valves that are installed do not have adjustable pressure-type packing glands. Instead, these valves are supplied with EPDM or Viton seals inside the stem housing to prevent water escape. EPDM is rated to 275 F, and Viton is rated to 300 F. It is unclear whether or not the text of the referenced code is a requirement that is specifically intended to apply to water boilers, or if it is a requirement that has simply been in the code and has carried forward through the years. It is also unclear as to the safety basis for requiring adjustable packing for low pressure hot water boiler stop valves.</p>		

11. Action Items

Item Number: 18-57	NBIC Location: Part 1	Attachment Pages 3
<p>General Description: address the use & definition of the word inspector</p> <p>Subgroup: SG Installation</p> <p>Task Group: P. Jennings (PM), R. Smith, T. Creacy, R. Spiker, M. Washington and R. Adams.</p> <p>July 2020 Meeting Action: Progress Report – P. Jennings presented a proposal. The SG held discussions and determined that further work needs to be completed on this item with regards to the capitalization of the word inspections along with inspector.</p>		

Item Number: 20-27	NBIC Location: Part 1, 1.6.9 & S6.3	No Attachment
<p>General Description: Carbon Monoxide Detector/Alarm NBIC 2019</p> <p>Subgroup: SG Installation</p> <p>Task Group: G. Tompkins (PM), R. Spiker, R. Smith, E. Wiggins, S. Konopacki and R. Austin</p> <p>Explanation of Need: These codes are being enforced by some jurisdictions on existing installations. Inspectors need to know what codes we need to enforce. Do the detectors have specific levels of CO when an alarm is to go off? Is there a requirement for an audible alarm or decibel level of the alarm? Where in the boiler room should the alarm/monitor be mounted?</p> <p>July 2020 Meeting Action: A TG was assigned of G. Tompkins (PM), R. Spiker, R. Smith, E. Wiggins, S. Konopacki, and R. Austin. It was confirmed that this item came from Part 4, Mr. Schirmer. A summary of this item was presented to the SG and discussions took place amongst the SG. The TG will work on this item accordingly.</p>		

Item Number: 20-33	NBIC Location: Part 1	No Attachment
General Description: Flow or Temp Sensing Devices forced Circulation Boilers		
Subgroup: SG Installation		
Task Group: M. Downs (PM), D. Patten, M. Wadkinson		
Explanation of Need: Incorporation of applicable CSD-1 requirements.		
July 2020 Meeting Action: The SG held discussions. M. Wadkinson noted that there is an open ballot in CSD-1 at this time and would like to keep this item open.		

Item Number: 20-34	NBIC Location: Part 1	No Attachment
General Description: Venting of gas train components		
Subgroup: SG Installation		
Task Group: P. Jennings (PM), M. Washington, R. Adams		
Explanation of Need: Incorporation of applicable CSD-1 requirements.		
July 2020 Meeting Action: P. Jennings reviewed a proposal with the SG from the January 2020 meeting. This is going to be sent out as a Review & Comment. This item will be worked on by the TG in conjunction with items 20-35 and 20-40.		

Item Number: 20-35	NBIC Location: Part 1	No Attachment
General Description: Installation requirements for Fuel Oil Trains		
Subgroup: SG Installation		
Task Group: G. Tompkins (PM), D. Patten, M. Washington		
Explanation of Need: Incorporation of applicable CSD-1 requirements.		
July 2020 Meeting Action: G. Tompkins gave a summary on this item to the SG. Discussions took place. This item will be worked on by the TG in conjunction with items 20-34 and 20-40.		

Item Number: 20-39	NBIC Location: Part 1	No Attachment
General Description: Modular Boilers		
Subgroup: SG Installation		
Task Group: T. Clark (PM), M. Downs, M. Wadkinson, D. Patten, R. Austin		
Explanation of Need: Incorporation of applicable CSD-1 requirements.		
July 2020 Meeting Action: A summary on this item (NBIC verses CSD-1) was presented to the SG. Extensive discussions took place. Tom will work on this item and see what happens w/Section IV.		

Item Number: 20-40	NBIC Location: Part 1	No Attachment
<p>General Description: Gas Train Requirements</p> <p>Subgroup: SG Installation</p> <p>Task Group: R. Adams (PM), P. Jennings, G. Tompkins</p> <p>Explanation of Need: Incorporation of applicable CSD-1 requirements.</p> <p>July 2020 Meeting Action: A summary was presented on this item to the SG. Discussions took place. This item will be worked on by the TG in conjunction with items 20-34 and 20-35.</p>		

Item Number: 20-41	NBIC Location: Part 1	Attachment Page 19
<p>General Description: Safety and Safety Relief Valves for Steam and Hot Water Heating Boilers.</p> <p>Subgroup: SG Installation</p> <p>Task Group: E. Wiggins (PM), J. Brockman, R. Spiker</p> <p>Explanation of Need: Incorporation of applicable CSD-1 requirements.</p> <p>July 2020 Meeting Action: A summary was presented on this item to the SG and SC. A working session was held in the afternoon at the SG level. A proposal was generated in which the SG and SC would like PRD to review. It was also noted that “3.9 PRESSURE RELIEF VALVES to See NBIC Part 1, 3.2 for the scope of pressure retaining items covered by these requirements” is incorrect. If you go to 3.2 it is “3.2 DEFINITIONS” not the Scope. It should say to “See NBIC Part 1, 3.1 SCOPE”. Extensive discussions were held amongst the SG on this item. The proposal will be forwarded to T. Beirne of PRD for review. This item will be worked on in conjunction with item 20-43.</p>		

Item Number: 20-43	NBIC Location: Part 1	Attachment Page 18
<p>General Description: Safety Relief valve for Hot Water Supply Boilers</p> <p>Subgroup: SG Installation</p> <p>Task Group: W. Anderson (PM), E. Wiggins, J. Brockman</p> <p>Explanation of Need: Incorporation of applicable CSD-1 requirements.</p> <p>July 2020 Meeting Action: A summary was presented on this item to the SG. A working session was held in the afternoon. A proposal was generated in which the SG would like PRD to review. Extensive discussions were held amongst the SG on this item. The proposal will be forwarded to T. Beirne of PRD for review. This item will be worked on in conjunction with item 20-41.</p>		

Item Number: 20-44	NBIC Location: Part 1	Attachment Page 19
<p>General Description: CW Vacuum Boilers</p> <p>Subgroup: SG Installation</p> <p>Task Group: K. Watson (PM), M. Washington, P. Jennings</p> <p>Explanation of Need: Incorporation of applicable CSD-1 requirements.</p> <p>July 2020 Meeting Action: A proposal was presented and discussions took place amongst the SG. It was decided to remove c) to address controls in general (open a new item to place under General Requirements). There was a motion to approve the revised proposal to the SC. The motion was unanimously approved.</p>		

12. New Items:

Item Number: 20-62	NBIC Location: Part 1, 1.4.5.1	No Attachment
General Description: Update the National Board Boiler Installation Report		
Subgroup: SG Installation		
Task Group: None assigned.		
Explanation of Need: The form has not been updated in years. The form will be part of the National Boards Jurisdictional Reporting System which is currently under development.		
January 2021 Meeting Action:		

Item Number: 20-86	NBIC Location: Part 1, 2.10.1 a)	No Attachment
General Description: Testing and Acceptance: Boiling-out Procedure		
Subgroup: SG Installation		
Task Group: None assigned.		
Explanation of Need: This was brought to my (Mr. Eddie Wiggins) attention by Ernest Brantley. Mr. Brantley indicated during an acceptance inspection, he found boiler with excessive oil on the tubes and tube sheet after boiler was delivered and installed. He could not find any reference to boil-out to remove this extraneous material.		
January 2021 Meeting Action:		

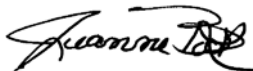
Item Number: 20-94	NBIC Location: Part 1	No Attachment
General Description: Make it mandatory to install a temperature sensor in the stack of a thermal fluid heater		
Subgroup: SG Installation		
Task Group: None assigned.		
Explanation of Need: This request came about as a result of work done for action item 19-88.		
January 2021 Meeting Action:		

13. Future Meetings

- July 12th-15th, 2021 – Cincinnati, OH
- January 10th-13th, 2022 – TBD

14. Adjournment

Respectfully submitted,



Jeanne Bock
NBIC Part 1 Secretary

Subgroup Installation

Last Name	First Name	Interest Category	Role	Exp. Date	More
Patten	Don	Manufacturers	Chair	08/30/2021	Details
Wiggins	Edward	Jurisdictional Authorities	Vice Chair	08/30/2021	Details
Bock	Jeanne		Secretary	01/30/2099	Details
Anderson	William	Jurisdictional Authorities	Member	06/29/2022	Details
Austin	Randall	Users	Member	10/30/2022	Details
Brockman	Joe	Authorized Inspection Agencies	Member	01/30/2023	Details
Creacy	Todd	Authorized Inspection Agencies	Member	01/30/2023	Details
Downs	James	Manufacturers	Member	01/30/2023	Details
Halley	Geoffrey	General Interest	Member	08/30/2021	Details
Jennings	Patrick	Authorized Inspection Agencies	Member	01/30/2023	Details
Konopacki	Stanley	Users	Member	01/30/2023	Details
Richards	H. Michael	General Interest	Member	08/30/2021	Details
Smith	Rex	Authorized Inspection Agencies	Member	01/30/2023	Details
Spiker	Ronald	Jurisdictional Authorities	Member	06/29/2022	Details
Wadkinson	Melissa	Manufacturers	Member	08/30/2021	Details
Washington	Milton	Jurisdictional Authorities	Member	07/30/2023	Details
Watson	Kenneth	Authorized Inspection Agencies	Member	01/30/2021	Details

PROPOSED INTERPRETATION

Inquiry No.	20-84
Source	Chris Cantrell, State of Nebraska Christopher.Cantrell@nebraska.gov
Subject	Adjustable Packing on Low Pressure Boiler Stop Valves Background: Most new hot water heating boilers and hot water supply boilers are being installed with appropriately-pressure/temperature-rated butterfly valves as their outlet isolation valves. Most butterfly valves that are installed do not have adjustable pressure-type packing glands. Instead, these valves are supplied with EPDM or Viton seals inside the stem housing to prevent water escape. EPDM is rated to 275 F, and Viton is rated to 300 F. It is unclear whether or not the text of the referenced code is a requirement that is specifically intended to apply to water boilers, or if it is a requirement that has simply been in the code and has carried forward through the years. It is also unclear as to the safety basis for requiring adjustable packing for low pressure hot water boiler stop valves.
Edition	Part 1, 3.7.5.1 d) 4)
Question	Does the requirement in NBIC, Part 1, Section 3, paragraph 3.7.5.1(d)(4) that all valves or cocks with stems or spindles shall have adjustable pressure-type packing glands apply to stop valves used on low pressure hot water heating or hot water supply boilers?
Reply	No. This requirement applies to stop valves used on low pressure steam boilers only.
Committee's Question	
Committee's Reply	
Rationale	

ITEM 18-57

Proposed Changes – Where highlighted, the term capitalization is proposed to be changed.

1.4.1 RESPONSIBILITY

- a) The owner is responsible for satisfying jurisdictional requirements for certification and documentation. When required by jurisdictional rules applicable to the location of installation, the boilers, pressure vessels, piping, and other pressure-retaining items shall not be operated until the required documentation has been provided by the installer to the owner and the Jurisdiction.
- b) The National Board Commissioned Inspector providing inservice **inspection** for the facility in which the pressure-retaining item is installed has the following responsibilities: 1) Verify the Boiler Installation Report (I-1 Report) has been completed and signed by the installer, when required by the Jurisdiction; 2) Verify pressure-retaining items comply with the laws and regulations of the Jurisdiction governing the specific type of boiler or pressure vessel; 3) Verify any repairs or alterations to pressure-retaining items, which are conducted prior to, or during, the initial installation, are in accordance with the NBIC; 4) Request or assign jurisdictional identification number, when required by the Jurisdiction; and 5) Complete and submit the first inservice inspection/certificate report to the Jurisdiction when required by the Jurisdiction.
- c) Unless otherwise specifically required by the Jurisdiction, the duties of the inservice **inspector** do not include the installation's compliance with manufacturer's recommendations or applicability of, or compliance with, other standards and requirements (e.g., environmental, construction, electrical, undefined industry standards, etc.) for which other regulatory agencies have authority and responsibility to oversee.

5.4 EXAMINATION, INSPECTION, AND TESTING {piping}

The owner shall ensure that all examinations, **inspections**, and tests required by the code of construction have been performed prior to operation.

BACKGROUND INFORMATION – Review of Inspector, Inspect, Inspection

- 1) The proposal does not address locations where the addition of the endorsement could be considered. This includes the following:

- 4.6 – Testing and Acceptance – “the Inspector shall witness the pressure test of the completed installation...”
- Definitions – Dutchman – references “acceptable to the Inspector”

2) Two instances where the terms appear generic.

Location and Usage – Inspector – inspector	Comments
<p>1.1 Scope</p> <p>Middle of main paragraph. “Otherwise the requirements specified in NBIC part 1 provide guidance for installers, contractor, owners, <u>inspectors</u>, and jurisdictions to ensure safe and satisfactory installation of specified pressure-retaining items.</p>	<p>The first part of the paragraph states that the owner-user is responsible for ensuring that the installation meet all the requirements of the Jurisdiction at the point of installation including licensing, registration, or certification of those performing installations.</p> <p>Inspector is little i. Could mean jurisdictional or other.</p>
<p>1.4.1 Responsibility</p> <p>b) The National Board Commissioned <u>Inspector</u> providing inservice inspection for the facility in which the pressure-retaining item is installed have the following responsibilities:</p> <ol style="list-style-type: none"> 1) Verify the Boiler Installation Report (I-1 Report) has been completed and signed by the installer, when required by the jurisdiction, 2) Verify pressure-retaining items comply with the laws and regulations of the Jurisdiction governing the specific type of boiler or pressure vessel 3) Verify any repairs or alteration to pressure-retaining item, which are conducted prior to or during, the initial installation, are in accordance with the NBIC; 4) Request or assign jurisdictional identification number, when required by the Jurisdiction; and 5) Complete and service the first inservice inspection/certificate report to the Jurisdiction when required by the Jurisdiction <p>c) Unless otherwise specifically required by the Jurisdiction, the duties of the inservice <u>inspector</u> do not include the installation’s compliance to other standards and requirements (e.g., environmental, construction, electrical, undefined industry standards, etc.) for which other regulatory agencies have authority and responsibility to oversee.</p>	<p>Inservice inspector responsibilities under Part 1.</p> <p>Capital I IS endorsement</p> <p>Little I, but references a commission. This should be capitalized</p>

<p>2.10.2 Pressure Test</p> <p>Prior to initial operation, the completed boiler, including pressure piping, water columns, superheaters, economizers, stop valves, etc., shall be pressure tested in accordance with the original code of construction. Any pressure piping and fittings such as water columns, blowoff valves, feedwater regulators, superheaters, economizers, stop valves, etc., which are shipped connected to the boiler as a unit, shall be hydrostatically tested with the boiler and witnessed by an <u>Inspector</u>.</p>	<p>Capital Inspector so a Commissioned inspector</p> <p>Inservice or shop? (IS vs. R) Do we want to differentiate?</p>
<p>4.6 testing and acceptance (pressure vessels)</p> <p>b. The completed pressure vessel shall be pressure tested in the shop or in the field in accordance to the original code of construction. When required by the Jurisdiction, owner or user, the <u>Inspector</u> shall witness the pressure test of the completed installation, including piping....</p>	<p>Is this the AI?</p> <p>It is a commissioned Inspector so Capital I is appropriate, but which one?</p>
<p>Supplement 1 Installation of Yankee Dryers</p> <p>S1.2 ASSESSMENT OF INSTALLATION</p> <p>a. The <u>Inspector</u> verifies that the owner or user is properly controlling the operating conditions of the dryer. The <u>Inspector</u> does this by reviewing the owners comprehensive assessments of the complete installation.</p> <p>f. To maintain produce quality, the dryer surface is periodically refurbished by grinding.... The manufacturer, or another qualified source acceptable to the <u>Inspector</u>, instead provided a series of curves that graphically defines these maximum allowable operating parameters....</p> <p>h. If nonstandard load events (incidents) have occurred during installation, then the <u>Inspector</u> should ensure that an appropriate assessment of the structural integrity....</p>	<p>Inservice Inspector</p> <p>Capital I and context fits.</p>
<p>Supplement 2 - Pressure relief valves on the low-pressure side of steam pressure reducing valves</p> <p>S2.2 PRESSURE RELIEF VALVE CAPACITY</p> <p>b. By using the formula in NBIC Part 1, S2.3, <u>Inspectors</u> may calculate the required relieving capacities of the pressure relief valve(s) installed on the low-pressure side of the reducing valve.</p>	<p>Assume meant for inservice</p> <p>Capital I and context.</p>
<p>Supplement 5 Installation of thermal fluid heaters</p> <p>S5.8.2 PRESSURE TEST</p>	<p>Prior to operation. Capitol I</p>

Prior to initial operation, the completed thermal fluid heater system, including pressure piping, pumps, stop valves, etc. shall be pressure tested in accordance with the manufacturer's recommendations. Hydrostatic testing of the system is not recommended due to possible contamination of the system. All pressure testing should be witnessed by an <u>Inspector</u> .	Is this an in-service or shop as it is the system test. AIA typically doesn't test completed systems but in-service don't inspect prior to operation.
Definitions Confined space - ... the <u>Inspector</u> is cautioned of the need to comply with...	Any commissioned Inspector.
Dutchman - Generally limited to tube or pipe cross-section replacement. ... meeting the service requirements and installation procedures acceptable to the <u>Inspector</u> ...	Dutchman are repair – shop/repair Not in-service.
National Board Commissioned <u>Inspector</u> - An individual who holds a valid and current National Board Owner-user Commission.	Definition – No distinction between in-service and AIA
Owner-user <u>Inspector</u> - An individual who holds a valid and current National Board Commission.	Same definition as an NBIC commissioned inspector. This was originally copied from NBIC part 1 incorrectly. This is correct as shown and the definition is acceptable.
Interpretations Multiple references to <u>Inspector</u> .	Most appear to reference repairs. Some are older references and difficult to ascertain from the Subject.
Location and Usage <u>Inspection - inspection</u>	
1.4 CERTIFICATION, <u>INSPECTION</u> , AND JURISDICTIONAL REQUIREMENTS b) The National Board Commissioned Inspector providing inservice <u>inspection</u> for the facility in which the pressure-retaining item is installed has the following responsibilities: 1) Verify the Boiler Installation Report (I-1 Report) has been completed and signed by the installer,	Inspection – little i but by context should be I.

<p>when required by the Jurisdiction;</p> <p>2) Verify pressure-retaining items comply with the laws and regulations of the Jurisdiction governing the specific type of boiler or pressure vessel;</p> <p>3) Verify any repairs or alterations to pressure-retaining items, which are conducted prior to, or during, the initial installation, are in accordance with the NBIC;</p> <p>4) Request or assign jurisdictional identification number, when required by the Jurisdiction; and</p> <p>5) Complete and submit the first inservice <u>inspection</u>/certificate report to the Jurisdiction when required by the Jurisdiction.</p>	<p>Also should be I, not i.</p>
<p>1.4.2 EQUIPMENT CERTIFICATION</p> <p>b) Package boilers having external piping disassembled and shipped with the boiler shall have a method for traceability of the disassembled piping that can be verified at the time of installation and <u>inspection</u>. The manufacturer of the package boiler is responsible for determining a method of traceability.</p>	<p>Little i, but unclear.</p>
<p>1.4.4 <u>INSPECTION</u></p> <p>All boilers, pressure vessels, piping, and other pressure-retaining items shall be inspected and tested after installation and prior to commencing operation.</p> <p>1.4.5 BOILER INSTALLATION REPORT</p> <p>a) Upon completion, <u>inspection</u>, testing, and acceptance of the installation, the installer shall complete and certify the Boiler Installation Report (I-1) for all power boilers, hot-water heating boilers, steam-heating boilers, hot-water supply boilers, and potable water heaters.</p>	<p>Little i, the installation report is by the installer. Not an Inspector reference.</p>
<p>1.6.4 LADDERS AND RUNWAYS</p>	<p>Little i. Reference to generic inspection activities that may include big I Inspection.</p>

<p>a) All walkways, runways, and platforms shall be:</p> <ol style="list-style-type: none"> 1) of metal construction or equivalent material; 2) provided between or over the top of boilers, heaters, or vessels that are more than 8 ft. (2.4 m) above the operating floor to afford accessibility for normal operation, maintenance, and <u>inspection</u>; 	<p>("Generic i" in the following cases)</p>
<p>2.3.3 CLEARANCES</p> <p>a) Boiler installations shall allow for normal operation, maintenance, and <u>inspections</u>. There shall be at least 36 in. (915 mm) of clearance on each side of the boiler to enable access for maintenance and/or <u>inspection</u> activities. Boilers operated in battery shall not be installed closer than 48 in. (1220 mm) from each other. The front or rear of any boiler shall not be located nearer than 36 in. (915 mm) from any wall or structure.</p> <p>e) Boilers with a bottom opening used for <u>inspection</u> or maintenance shall have at least 12 in. (305 mm) of unobstructed clearance.</p>	<p>Generic i.</p>
<p>2.7.5 BLOWOFF</p> <p>q) Where necessary to install a blowoff tank underground, it shall be enclosed in a concrete or brick pit with a removable cover so that <u>inspection</u> of the entire shell and heads of the tank can be made.</p>	<p>Generic i.</p>
<p>2.10 TESTING AND ACCEPTANCE</p> <p>2.10.1 GENERAL</p> <p>a) Care shall be exercised during installation to prevent loose weld material, welding rods, small tools, and miscellaneous scrap metal from getting into the boiler. Where possible, an <u>inspection</u> of the interior of the boiler and its appurtenances shall be made for the presence of foreign debris prior to making the</p>	<p>Generic i.</p>

final closure.	
<p>2.10.6 BOILER INSTALLATION REPORT</p> <p>a) Upon completion, <u>inspection</u>, and acceptance of the installation, the installer shall complete and certify the Boiler Installation Report I-1. See NBIC Part 1, 1.4.5.1.</p>	Not an Inspector. Little i. ?
<p>3.3.4 CLEARANCES</p> <p>c) Heating boilers shall be located so that adequate space is provided for proper operation, maintenance, and <u>inspection</u> of equipment and appurtenances, which shall include the removal of tubes if applicable.</p>	Generic i.
<p>3.7.4 FEEDWATER, MAKEUP WATER, AND WATER SUPPLY</p> <p>a) Steam Boilers Feedwater or water treatment shall be introduced into a boiler through the return piping system. Alternatively, feedwater or water treatment shall be introduced through an independent connection. The water flow from the independent connection shall not discharge directly against parts of the boiler exposed to direct radiant heat from the fire. Feedwater or water treatment shall not be introduced through openings or connections provided for <u>inspection</u> or cleaning, safety valve, water column, water-gage glass, or pressure gage. The feedwater pipe shall be provided with a check valve, or a backflow preventer containing a check valve, near the boiler and a stop valve or cock between the check valve and the boiler, or between the check valve and the return pipe system.</p> <p>b) Hot-Water Boilers Makeup water may be introduced into a boiler through the piping system or through an independent connection. The water flow from the independent connection shall not discharge directly against parts</p>	Generic i

<p>of the boiler exposed to direct radiant heat from the fire. Makeup water shall not be introduced through openings or connections provided exclusively for <u>inspection</u> or cleaning, safety relief valve, pressure gage, or temperature gage. The makeup water pipe shall be provided with a check valve, or a backflow preventer containing a check valve, near the boiler and a stop valve or cock between the check valve and the boiler, or between the check valve and the piping system.</p>	
<p>3.10.3 BOILER INSTALLATION REPORT</p> <p>a) Upon completion, <u>inspection</u>, and acceptance of the installation, the installer shall complete and certify the Boiler Installation Report I-1. See NBIC Part 1, 1.4.5.1.</p> <p>4.3.2 CLEARANCES</p> <p>a) All pressure vessel installations must allow sufficient clearance for normal operation, maintenance, and <u>inspection</u> (internal and external).</p>	<p>Not the in-service inspector prior to first "inspection"</p>
<p>4.5.6 INSTALLATION AND DISCHARGE PIPING REQUIREMENTS</p> <p>e) There shall be no intervening stop valves...except under the following conditions:</p> <p>2) Upon specific acceptance of the Jurisdiction, when necessary for the continuous operation of processing equipment of such a complex nature that shutdown of any part is not feasible, a full area stop valve between a pressure vessel and its pressure relief device may be provided for <u>inspection</u> and repair purposes only. This stop valve shall be arranged so that it can be locked or sealed open, and it shall not be closed except by an authorized person who shall remain stationed there during that period of operation while the valve remains closed. The valve shall be locked or sealed in the</p>	<p>Generic i.</p>

<p>open position before the authorized person leaves the station.</p> <p>3) A full area stop valve may also be placed on the discharge side of a pressure relief device when its discharge is connected to a common header for pressure relief devices to prevent discharges from these other devices from flowing back to the first device during <u>inspection</u> and repair. This stop valve shall be arranged so that it can be locked or sealed open, and it shall not be closed except by an authorized person who shall remain stationed there during that period of operation while the valve remains closed. The valve shall be locked and sealed in the open position before the authorized person leaves the station. This valve shall only be used when a stop valve on the inlet side of the pressure relief device is first closed.</p> <p>h) Pressure relief devices shall be installed so they are readily accessible for <u>inspection</u>, repair, or replacement.</p>	
<p>4.7.2 CLEARANCE AND ACCEPTABILITY</p> <p>a) The required nameplate (marking or stamping) should be exposed and accessible.</p> <p>b) The openings when required should be accessible to allow for entry for <u>inspection</u> and maintenance.</p>	Generic i.
<p>5.3.6 INLET AND DISCHARGE PIPING REQUIREMENTS</p> <p>e) There shall be no intervening stop valves ... except under the following conditions:</p> <p>2) Upon specific acceptance of the Jurisdiction, when necessary for the continuous operation of processing equipment of such a complex nature that shutdown of any part is not feasible, a full area stop valve between a piping system and its pressure relief device may be provided for <u>inspection</u></p>	Generic i.

<p>and repair purposes only. This stop valve shall be arranged so that it can be locked or sealed open and it shall not be closed except by an authorized person who shall remain stationed there during that period of operation while the valve remains closed. The valve shall be locked or sealed in the open position before the authorized person leaves the station;</p> <p>3) A full area stop valve may be placed on the discharge side of a pressure relief device when its discharge is connected to a common header for pressure relief devices to prevent discharges from these other devices from flowing back to the first device during <u>inspection</u> and repair. This stop valve shall be arranged so that it can be locked or sealed open, and it shall not be closed except by an authorized person who shall remain stationed there during that period of operation while the valve remains closed. The valve shall be locked or sealed in the open position before the authorized person leaves the station. This valve shall only be used when a stop valve on the inlet side of the pressure relief device is first closed; or</p> <p>i) Pressure relief devices shall be installed so they are accessible for <u>inspection</u>, repair, or replacement. These stop valves shall be so constructed or positively controlled that the closing of the maximum number of block valves at one time will not reduce the pressure relieving capacity below the required relieving capacity.</p>	
<p>5.4 EXAMINATION, <u>INSPECTION</u>, AND TESTING</p> <p>The owner shall ensure that all examinations, <u>inspections</u>, and tests required by the code of construction have been performed prior to operation.</p>	<p>As it is required by the code of construction, should this be a capitol I? Why both examinations and inspections.</p>
<p>S3.2.1 GENERAL REQUIREMENTS (ENCLOSED AND UNENCLOSED AREAS)</p>	

<p>a) LCDSVs shall not be located within 10 feet (3,050 mm) of elevators, unprotected platform ledges, or other areas where falling would result in dropping distances exceeding half the container height.</p> <p>b) LCDSVs shall be installed with sufficient clearance for filling, operation, maintenance, <u>inspection</u>, and replacement.</p>	Generic i
<p>S5.3.4 CLEARANCES</p> <p>a) Thermal fluid heater installations shall allow for normal operation, maintenance, and <u>inspections</u>. There shall be at least 18 in. (460 mm) of clearance on each side of the thermal fluid heater to enable access for maintenance and/or <u>inspection</u> activities. Thermal fluid heaters operated in battery shall not be installed closer than 18 in. (460 mm) from each other. The front or rear of any thermal fluid heater shall not be located nearer than 36 in. (915 mm) from any wall or structure.</p> <p>c) Heaters with a bottom opening used for <u>inspection</u> or maintenance shall have at least 18 in. (460 mm) of unobstructed clearance.</p>	Generic i
<p>S5.8.1 GENERAL</p> <p>a) Care shall be exercised during installation to prevent loose weld material, welding rods, small tools, and miscellaneous scrap metal from getting into the thermal fluid system. Where possible, an <u>inspection</u> of the interior of the thermal fluid heater and its appurtenances shall be made for the presence of foreign debris prior to making the final closure.</p>	Generic i
<p>S5.8.6 INSTALLATION REPORT</p>	Generic i?

<p>a) Upon completion, <u>inspection</u>, and acceptance of the installation, the installer should complete and certify the Boiler Installation Report I-1. See 1.4.5.1.</p>	
<p>S7.3.1 RECEIVING AND INITIAL <u>INSPECTION</u> OF GRAPHITE PRESSURE EQUIPMENT</p> <p>Graphite equipment should be thoroughly inspected and tested as it is received in order to identify any in transit damage. Whenever possible, this <u>inspection</u> should be made before the exchanger is removed from the carrier. To verify the unit has arrived in an undamaged condition, a pressure test may be performed. The bolt torques and spring heights should be verified prior to a pressure test. This pressure test shall not exceed the MAWP of the vessel....</p>	<p>This is not a Inspector responsibility?</p>
<p>PART 1, SECTION 8 INSTALLATION — PREPARATION OF TECHNICAL INQUIRIES TO THE NATIONAL BOARD INSPECTION CODE COMMITTEE</p> <p><u>SKIPPED INSPECTION IN THIS SECTION</u></p>	
<p>Authorized <u>Inspection</u> Agency (AIA)</p> <p>Inservice: An Authorized <u>Inspection</u> Agency is either:</p> <p>a) a jurisdictional authority as defined in the National Board Constitution; or b) an entity that is accredited by the National Board meeting NB-369, Accreditation of Authorized <u>Inspection</u> Agencies Performing Inservice <u>Inspection</u> Activities; NB-371, Accreditation of Owner-User <u>Inspection</u> Organizations (OUIO); or NB-390, Qualifications and duties for Federal <u>Inspection</u> Agencies (FIAs) Performing Inservice <u>Inspection</u> Activities.</p> <p>New Construction: An Authorized <u>Inspection</u> Agency is one that is accredited by the National Board meeting the qualification and duties of NB-360, Criteria for Acceptance of Authorized <u>Inspection</u> Agencies for New Construction.</p> <p>Authorized Nuclear <u>Inspection</u> Agency — An Authorized <u>Inspection</u> Agency intending to perform nuclear</p>	

<u>inspection</u> activities and employing nuclear Inspectors / Supervisors	
Inspection — A process of review to ensure engineering design, materials, assembly, examination, and testing requirements have been met and are compliant with the code.	Capitol I Inspection.
Jurisdiction — The National Board member Jurisdiction where the organization is located. Alternatively, where the Jurisdiction elects not to perform the review or where there is no Jurisdiction or where the Jurisdiction is the organization's Authorized <u>Inspection</u> Agency, The National Board of Boiler and Pressure Vessel Inspectors will represent the Jurisdiction. At the Jurisdiction's discretion, the Jurisdiction may choose to be a member of the review team if the Jurisdiction chooses not to be the team leader.	
NBIC — The National Board <u>Inspection</u> Code published by The National Board of Boiler and Pressure Vessel Inspectors.	
Owner-User <u>Inspection</u> Organization — An owner or user of pressure-retaining items that maintains an established <u>inspection</u> program, whose organization and <u>inspection</u> procedures meet the requirements of the National Board rules and are acceptable to the jurisdiction or jurisdictional authority wherein the owner or user is located.	
Some in Interpretations	
Index	

<p><u>Inservice Inspection</u> (Introduction), (1.4.1), (8.1), (9.1)</p> <p><u>Inspection</u> (Foreword), (Introduction), (1.4), (1.4.1), (1.4.2), (1.4.4), (1.4.5), (1.6.4), (2.3.3), (2.7.5), (2.10.1), (2.10.6), (3.3.4), (3.7.4), (3.10.3), (4.3.2), (4.5.6), (4.7.2), (5.3.6), (5.4), (S1.2), (S3.2.1), (S5.3.4), (S5.8.1), (S5.8.6), (7.1), (8.4), (9.1)</p> <p><u>Owner-User Inspection Organization</u> (Introduction), (9.1)</p>	
---	--

Item Number: 20-41

ASME CSD-1 2018 Edition

CW-510 Requirements for Steam and Hot-Water Heating Boilers

The safety and safety relief valves of all steam and hot-water heating boilers shall conform to the ASME Boiler and Pressure Vessel Code, Section I or Section IV, as applicable.

NBIC Part I 2019 Edition

2.9.1 (e) ^[TB1] Pressure relief valve shall be manufactured in accordance with a national or international standard and be certified for capacity or flow resistance ^[TB2] by the National Board.

3.9.2 (a) ^[TB3] Pressure Relief Valve requirements for steam heating boilers

(a) Pressure relief valve shall be manufactured in accordance with a national or international standard and be certified for capacity or flow resistance ^[TB4] by the National Board.

(b) The following general requirements pertain to installing, mounting and connecting pressure relief valves on heating boilers. ^[TB5]

(Note: certified for capacity or flow resistance by the NB is referenced in 4.5.1(a)) ^[TB6]

NBIC Part 4 2019 Edition

2.2.1b) Pressure relief valves shall be manufactured in accordance with a national or international standard and be certified for capacity by the National Board.

2.4.2 a) Pressure relief valves shall be manufactured in accordance with a national or international standard and be certified for capacity by the National Board.

Item Number: 20-43

ASME CSD-1 2018 Edition

CW-510 Requirements for Hot-Water Supply Boilers

The safety and safety relief valves of all hot-water supply boilers shall conform to the ASME Boiler and Pressure Vessel Code, Section I or Section IV, as applicable.

Part 1, 2019 Ed.

3.9.3 (a) Pressure relief valve shall be manufactured in accordance with a national or international standard and be certified for capacity or flow resistance ^[TB1] by the National Board.

(Note: certified for capacity or flow resistance by the NB is referenced in Part 1, 4.5.1(a)) ^[TB2]

Part 4, 2019 Ed.

2.4.3 a) Pressure relief valves shall be manufactured in accordance with a national or international standard and be certified for capacity by the National Board.

It is intended that the number be 3.8.1.7 and that the item currently 3.8.1.7 becomes 3.8.1.8

3.8.1.7 Vacuum Boilers

Vacuum Boilers shall be provided with instruments, fittings and controls in accordance with Section 3.8 but are exempt from the following requirements if pressure and temperature controls are installed as described in 3.8.1.7 below:

<u>3.8.1.2</u>	<u>Water-Gage Glasses</u>
<u>3.8.1.3</u>	<u>Water Column and Water Level Control Piping</u>
<u>3.8.1.4</u>	<u>Pressure Control</u>
<u>3.8.1.5</u>	<u>Auto Low Water Cut-Off and /or Water feeding device</u>
<u>3.7.7</u>	<u>Blow Off and Drain Valves</u>

The exemptions are allowed only when the following controls are installed:

- a) Pressure Control – Each boiler shall have a pressure control that interrupts the burner operation in response to boiler pressure. This pressure control shall be set from 2.5 psig (17 kpa) to 14.7 psig (101 kpa).
- b) Temperature Control- Each boiler shall have two temperature controls responsive to boiler temperature that interrupt burner operation. One shall operate at a temperature below 210°F (99°C). The other shall at a temperature not exceeding 210°F (99°C) and shall cause a safety shutdown and lockout.
- c) Safety Relief Valves - Each boiler shall have a properly sized safety valve and shall conform to the following.
 - 1. Have no test lever
 - 2. Be set to a maximum pressure of 7.1 psig (49 kpa).
 - 3. ASME Boiler and Pressure Vessel Code Section IV