

NATIONAL BOARD INSPECTION CODE SUBGROUP INSTALLATION

AGENDA

Meeting of January 14, 2025 Charleston, SC

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 Chair will call the meeting to order at 8:00 a.m. Eastern Time. For those attending in person, the meeting will be held in Palmetto & Carolina Room on the 2nd floor of the hotel.

2. Introduction of Members and Visitors

3. Check for a Quorum

4. Awards/Special Recognition

Todd Creacy – 10 years as a member of SG Installation

Ron Spiker – 5 years as a member of SG Installation

5. Announcements

- This meeting marks the end of Cycle A for the 2027 NBIC edition.
- The National Board will be hosting a reception on Wednesday evening from 5:30 p.m. to 7:30 p.m. at the Hyatt Place rooftop bar, the Pour Taproom.
- The National Board will be hosting breakfast and lunch on Thursday for those attending the Main Committee meeting. Breakfast will be served from 7:00 a.m. to 8:00 a.m. in Grand Magnolia Foyer, and lunch will be served from 11:30 a.m. to 12:30 p.m. in Sterling Hall Foyer.
- Meeting schedules, meeting room layouts, and other helpful information can be found on the National Board website under the **NBIC** tab → NBIC Meeting Information.
- The NBIC Committee has transitioned from NB File Share to SharePoint. Remember to add any attachments that you'd like to show during the meeting (proposals, reference documents, powerpoints, etc.) to the NBIC SharePoint site (nationalboard.sharepoint.com/sites/NBIC) prior to the meeting.
 - o Note that access to the NBIC SharePoint site is limited to committee members only.
 - ALL powerpoint attachments/presentations <u>must be sent to the NBIC Secretary for approval prior to the meeting.</u>
 - Contact Jonathan Ellis (nbicsecretary@nbbi.org) for any questions regarding NBIC SharePoint access.
- When possible, please submit proposals in Word format showing "strike through/underline." Project Managers: please ensure any proposals containing text from previous NBIC editions are updated with text from the most current edition.
- If you'd like to request a new Interpretation or Action item, do so on the National Board Business Center.
 - o Anyone, member or not, can request a new item.
- As a reminder, anyone who would like to become a member of a group or committee:
 - O Should attend at least two meetings prior to being put on the agenda for membership consideration. The nominee will be on the agenda for voting during their third meeting.
 - The nominee must submit the formal request along with their resume to the NBIC Secretary **PRIOR TO** the meeting. *nbicsecretary@nbbi.org*
 - o If needed, we can also create a ballot for voting on a new member between meetings.
- Thank you to everyone who registered online for this meeting. The online registration is very helpful for planning our reception, meals, room setup, etc. It is also a good way to make sure we have the most up-to-date contact information. Please continue to use the online registration for each meeting.

6. Adoption of the Agenda

7. Approval of the Minutes of July 16, 2024, Meeting

The minutes can be found on the National Board's website, on the NBIC Committee Information page under the NBIC tab.

8. Review of Rosters (Attachment Page 1)

a. Membership Nominations

Mr. Howard Berny is interested in joining the subgroup.

b. Membership Reappointments

The following SG Installation memberships are set to expire prior to the July 2025 meeting: Mr. Ron Spiker.

c. Officer Appointments

9. Other Committee Items Related to Installation

- a. R&A
 - i. Item 24-18 Definition of Controlled Fill (P. Gilston as PM) Attachment Page 2
- b. PRD
 - i. Item NB15-0305 Create Guidelines for Installation of Overpressure Protection by System Design D. Marek (PM).
 - ii. Item NB15-0315 Review isolation valve requirements in Part 1, 4.5.6 and 5.3.6 D. DeMichael (PM)
 - iii. Item 19-83 Address Alternate Pressure Relief Valve Mounting Permitted by ASME CC2887-1 D. Marek (PM)
 - iv. Item 24-91 Require means to prevent safety valve discharge piping blockage for LCDSV (Part 4)

10. Interpretations

There are currently no Part 1 interpretation items.

11. Action Items

Item Number: 20-86	NBIC Location: Part 1, 2.10.1 a)	No Attachment

General Description: Testing and Acceptance: Boil-out Procedure

Subgroup: SG Installation

Task Group: D. Patten (PM), S. Konopacki, and R. Spiker

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.

July 2024 Meeting Action: Progress Report

Mr. Patten summarized the discussion from the January 2024 meeting about this being added as a supplement. After some discussion and revisions to the proposal, the committee decided to send this as a Review and Comment ballot to the subgroup. It was also decided that Mr. Patten would replace Mr. Wiggins as the project manager for this item as Mr. Wiggins is not continuing his membership with the NBIC.

Item Number: 22-28 NBIC Location: Part 1 No Attachment

General Description: Pool Heater requirements and definition

Subgroup: SG Installation

Task Group: J. Kleiss (PM), R. Spiker, T. Creacy, and M. Byrum

Explanation of Need: The NBIC Installation and Inspection Codes do not have a definition for pool heaters. There is potential for confusion regarding which NBIC requirements, if any, should apply

to pool heaters.

July 2024 Meeting Action: Progress Report

This will be letter balloted to subgroup.

Update: A proposal was balloted to the subgroup but was not approved.

Item Number: 23-52 NBIC Location: Part 1, 2.5.3.2 Attachment Page 3

and 3.5.3

General Description: Harmonize electrical requirements for all types of boilers/water heaters

Subgroup: SG Installation

Task Group: T. Clark (PM), S. Konopacki, J. Kleiss, R. Spiker, and Jon Choitz

Explanation of Need: Electrical requirements for power boilers, heating boilers, and water heaters are inconsistent, particularly regarding remote emergency shutdown switches. In some cases, the requirements are the same but worded or ordered differently. In order to promote better understanding of code requirements and consistency in their application, I propose making sections 2.5.3 and 3.5.5 as uniform as possible.

July 2024 Meeting Action: Progress Report

Mr. Clark reviewed his proposal and explained the new formatting to show what is being deleted, moved, added, etc. This will be letter balloted to the subgroup.

Update: A proposal was balloted to the subgroup, but did not receive enough approval votes to pass.

Item Number: 24-05	NBIC Location: Part 1, New	No Attachment
	Supplement	

General Description: Add Heat Pump Water Heater & Heat Pump Hydronic Heater Supplement

Subgroup: SG Installation

Task Group: J. Kleiss (PM), Bryan Ahee

Explanation of Need: Heat pump water heating and hydronic heating are growing in prevalence. Guidance for installation and inspection of these products is needed.

July 2024 Meeting Action: Progress Report

Mr. Brockman reviewed the discussion from the Executive Committee meeting. Mr. Rob Troutt will present this to the Chiefs for discussion and input at their October meeting.

Item Number: 24-26 NBIC Location: Part 1, 3.7.8 No Attachment

General Description: NBIC Requirements for ASME Modular Water Heaters

Subgroup: SG Installation

Task Group: R. Spiker (PM), M. Byrum, J. Kleiss

Explanation of Need: ASME Section IV added requirements in the 2023 Edition for modular water heaters. The NBIC currently includes requirements for modular steam-heating and hot-water heating boilers, but not for modular water heaters.

July 2024 Meeting Action: Progress Report

Mr. Clark briefly reviewed the explanation of need and the submitter's concerns. A task group was created.

Item Number: 24-56 NBIC Location: Part 1, S3.6.1 Attachment Page 6

General Description: LCDSV Systems: Add Table and Figure

Subgroup: SG Installation

Task Group: M. Byrum (PM), R. Black

Explanation of Need: In accordance with the NBIC Policy For Metrication, metric units need to be shown alongside US customary units. Table S3.6.1 and Figure S3.6.1-b both show only US customary units. I recommend adding a Table S3.6.1M and Figure S3.6.1-bM to show metric units. I've also included some additional editorial recommendations.

July 2024 Meeting Action: Proposal

A task group was created. After a breakout session, the committee reviewed the metric units that were added to the proposal and made a few further changes. A motion was made to accept the proposal as revised. The motion was seconded and unanimously approved.

During the Main Committee meeting, the Committee asked that this item be put on hold until a similar section in Part 2 could be updated.

12. New Items:

Item Number: 24-89 NBIC Location: Part 1, S3.6 d) **Attachment Page 9**

General Description: Require means to prevent safety valve discharge piping blockage for

LCDSV (Part 1)

Subgroup: SG Installation

Task Group: None assigned.

Explanation of Need: Adding verbiage to the NBIC Part 1, Part 2 and Part 4 to require a means to

prevent foreign material introduction to the safety valve discharge pipe.

January 2025 Meeting Action:

Item Number: 24-97 NBIC Location: Part 1, 2.7.5 **Attachment Page 10**

General Description: Anchoring of Threaded Blowdown Piping

Subgroup: SG Installation

Task Group: None assigned.

Explanation of Need: An operator opened a blowdown valve located between a 90-degree elbow and the floor drain. The pressure released caused the piping to rotate at the elbow striking the operator and pressing him to the ground which resulted in his death. This could have been avoided

if the piping was anchored at a point between the elbow and the discharge.

January 2025 Meeting Action:

Item Number: 24-102 NBIC Location: Part 1, 1.6.9 **Attachment Page 11**

General Description: Strengthen requirements for Carbon monoxide monitoring

Subgroup: SG Installation

Task Group: None assigned.

Explanation of Need: Approximately 50 to 75 percent of the Chief Boiler Inspectors have requested some version of the proposed text above to be included in the NBIC Part 1. Since this has not happened, in many jurisdictions the Chief Inspector has had to include requirements for interlocking Carbon Monoxide detectors with boilers to secure the burners when the detector senses CO. The NBIC is a Health and Safety Code and therefore should provide requirements that prevent the many injuries and deaths the Chief Boiler Inspectors across the U.S. have had to investigate.

January 2025 Meeting Action:

13. Future Meetings

- July 7-10, 2025 Cincinnati, OH
- January 12-15, 2026 New Orleans, LA

14. Adjournment

Respectfully submitted,

Michelle Vance

Subgroup Installation Secretary

Subgroup Installation

Last Name	First Name	Interest Category	Role	Exp. Date	Моге
Brockman	Joe	Authorized Inspection Agencies	Chair	07/31/2025	Details
Clark	Tom	Jurisdictional Authorities	Vice Chair	08/19/2027	Details
Vance	Michelle		Secretary	12/31/2099	Details
Adams	Rodger	Authorized Inspection Agencies	Member	07/31/2025	Details
Black	Robert	Manufacturers	Member	01/31/2027	Details
Byrum	Marvin	Authorized Inspection Agencies	Member	08/19/2027	Details
Choitz	Jonathan	Authorized Inspection Agencies	Member	08/30/2027	Details
Creacy	Todd	Authorized Inspection Agencies	Member	01/31/2026	Details
Downs	James	Manufacturers	Member	01/31/2026	Details
Kleiss	Jeff	Manufacturers	Member	07/31/2025	Details
Konopacki	Stanley	Users	Member	01/31/2026	Details
Patten	Don	National Board Certificate Holders	Member	08/19/2027	Details
Richards	H. Michael	General Interest	Member	08/19/2027	Details
Smith	Robert	General Interest	Member	01/31/2027	Details
Spiker	Ronald	Jurisdictional Authorities	Member	06/30/2025	Details
Wadkinson	Melissa	Manufacturers	Member	08/19/2027	Details



PROPOSED REVISION OR ADDITION

It	em	ı N	lo.

A 24-18 Rev 01

Subject/Title

Controlled Fill Definition

NBIC Location

All Parts, Section 9, Glossary of Terms

Project Manager and Task Group

Philip Gilston (PM), A. Triplett

Source (Name/email)

Philip Gilston (philip_gilston@hsb.com)

Statement of Need

There is no definition of the term 'controlled fill'.

Background Information

Interpretation item I 23-79 addresses the use of the term 'controlled fill' in NBIC Part 3, 2.5.3 d in relation to Welding Method 6 for Grade 91 material.

While the term 'controlled fill' is not specifically used in the text of Welding Method 6 (2.5.3.6), directions are given for such variables as typical preheats, electrode size for SMAW, and the use of stringer beads only. The term is used explicitly in Supplement 8 for CSEF repairs, where S8.3.b says that "To control heat input the weld repair shall be performed using a "controlled fill" technique"; details are also given on such items as preheats, electrode size, required fill pass overlap, etc., and a lot of detail is provided in schematics including specifics on weld bead placement.

Existing Text Proposed Text Clean Copy None Controlled Fill – control of weld Changes form Rev 00 shown technique for a repair process to Controlled Fill - requirements ensure satisfactory weld properties by specified control of weld technique for a controlling distortion, promoting permitted weld repair process in order tempering and minimizing the risk of to manage heat input to ensure cracking by addressing variables satisfactory weld properties by including but not limited to heat input. controlling distortion, promoting preheat and interpass temperature, tempering and minimizing the risk of weld consumable type and size, weld cracking by addressing variables technique (string or weave) and bead including but not limited to heat input, placement. such as preheat and interpass temperature, weld consumable type and diametersize, weld technique (string or weave), and bead placement etc.

		VO	ΓΕ				
Committee	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

2.5.3 ELECTRICAL

A disconnecting means capable of being locked in the open position shall be installed at an accessible location at the boiler so that the boiler can be disconnected from all sources of potential energy. This disconnecting means shall be an integral part of the boiler or adjacent to it.

2.5.3.1 WIRING

All wiring for controls, heat generating apparatus, and other appurtenances necessary for the operation of the boiler or boilers should be installed in accordance with the provisions of national or international standards and comply with the applicable local electrical codes.

2.5.3.2 REMOTE EMERGENCY SHUTDOWN SWITCHES

a) A manually operated remote <u>emergency</u> shutdown switch(<u>es)</u> or circuit breaker shall be <u>located just</u> <u>outside the equipment room door provided</u> and marked for easy identification. <u>Consideration should also be given to the type</u>

and location of the switch(es) in order to safeguard against tampering. Where approved by the Jurisdiction, alternate locations of remote emergency switch(es) may be provided.

- a) The default location for the switch or circuit breaker should be just outside the boiler room door, though the following factors must be considered when determining the appropriate location and number of switches to be installed:
 - 1) If the equipment room door is on the building exterior, the switch should be located just inside the door.
 - 2) b) For equipment rooms exceeding 500 ft.2 (46 m₂) floor area or containing one or more boilers having a combined fuel capacity of 1,000,000 Btu/hr. (293 kW) or more, additional manually operated remote emergency shutdown switches shall be located at suitably identified points of egress acceptable to the Jurisdiction.
 - 3) e) Where a boiler is located indoors in a facility and not in an equipment room, a remote emergency shutdown switch shall be located within 50 ft. (15 m) of the boiler along the primary egress route from the boiler area.
 - 4) For utility boilers or other large scale units operated from a control room, the switch should be installed in a location immediately accessible to the operator.
 - d) b) For atmospheric-gas burners and for oil burners where a fan is on the common shaft with the oil pump, the emergency remote shutdown switch(es) or circuit breaker(s) must disconnect all power to the burner controls.
 - e) c) For power burners with detached auxiliaries, the emergency remote shutdown switch(es) or circuit breaker(s) need only shut off the fuel input to the burner.
 - f) When existing boiler installations do not include remote emergency shutdown switches, it is not required that these switches be retroactively installed unless required by the Jurisdiction.

3.5.3 ELECTRICAL

A disconnecting means capable of being locked in the open position shall be installed at an accessible location at the boiler or water heater so that the boiler or water heater can be disconnected from all sources of potential energy. This disconnecting means shall be an integral part of the boiler or water heater or adjacent to it.

3.5.3.1 WIRING

All wiring for controls, heat generating apparatus, and other appurtenances necessary for the operation of the boiler(s) or water heater(s) should be installed in accordance with the provisions of national or international standards and comply with the applicable local electrical codes.

3.5.3.2 REMOTE EMERGENCY SHUTDOWN SWITCHES 3.5.3.1 STEAM HEATING, HOT WATER HEATING, AND HOT WATER SUPPLY BOILERS

- a) All wiring for controls, heat generating apparatus, and other appurtenances necessary for the operation of the boiler or boilers shall be installed in accordance with the provisions of national or international standards and comply with the applicable local electrical codes.
- b) A disconnecting means capable of being locked in the open position shall be installed at an accessible location at the boiler so that the boiler can be disconnected from all sources of potential. This disconnecting means shall be an integral part of the boiler or adjacent to it.
- c) A manually operated remote shutdown switch or circuit breaker shall be located just outside the equipment room door and marked for easy identification. Consideration should also be given to the type and location of the switch to safeguard against tampering.
- a) The default location for the switch or circuit breaker should be just outside the boiler room door, though the following factors must be considered when determining the appropriate location and number of switches to be installed:
 - 1) d) If the equipment room door is on the building exterior, the switch should be located just inside the door. If there is more than one door to the equipment room, there should be a switch located at each door of egress.
 - 2) For equipment rooms exceeding 500 ft.2 (46 m₂) floor area or containing one or more boilers and/or water heaters having a combined fuel capacity greater than or equal to 1,000,000 Btu/hr. (293 kW), additional manually operated remote emergency shutdown switches shall be located at suitably identified points of egress acceptable to the Jurisdiction.
 - 3) Where a boiler or water heater is located indoors in a facility and not in an equipment room, a remote emergency shutdown switch shall be located within 50 ft. (15 m) of the boiler along the primary egress route from the equipment area.
 - 4) Additional consideration should be given to the type and location of the switch(es) in order to facilitate proper operation and safeguard against tampering. Where approved by the Jurisdiction, alternate locations of remote emergency switch(es) may be provided.

1) b) For atmospheric-gas burners, and oil burners where a fan is on a common shaft with the oil pump, the complete burner and controls should be shut off.

2)c)For power burners with detached auxiliaries, only the fuel input supply to the firebox need to be shut off

3.5.3.2 POTABLE WATER HEATERS

- a) All wiring for controls, heat generating apparatus, and other appurtenances necessary for the operation of the potable water heaters shall be installed in accordance with the provisions of national or international standards and comply with the applicable local electrical codes.
- b) A manually operated remote shutdown switch or circuit breaker shall be located just outside the equipment room door and marked for easy identification. Consideration should also be given to the type and location of the switch to safeguard against tampering.
- c) A disconnecting means capable of being locked in the open position shall be installed at an accessible location at the heater so that the heater can be disconnected from all sources of potential. This disconnecting means shall be an integral part of the heater or adjacent to it.
- d) If the equipment room door is on the building exterior, the switch should be located just inside the door. If there is more than one door to the equipment room, there should be a switch located at each door of egress.
- 1) For atmospheric-gas burners, and oil burners where a fan is on a common shaft with the oil pump, the complete burner and controls should be shut off.
- 2) For power burners with detached auxiliaries, only the fuel input supply needs be shut off.

Item 24-56 Michelle Vance 5/1/2024

Part 1

S3.6.1 SYSTEM DESCRIPTION

The Liquid Liquid Carbon-carbon Dioxide dioxide Beverage systems include the Liquid Carbon-Dioxide Storage VesselLCDSV or LCDSV (tank) and associated sub-system circuits: a Liquid-liquid carbon dioxide CO² (CO₂) fill circuit, and associated sub-system circuits, and a pressure relief / vent line circuit. The LCDSVs are vacuum-insulated pressure vessels, constructed of stainless steel, with Super-Insulation wrapping between the inner pressure vessel and the outer vacuum jacket. (See Figure S3.6.1-a₂) These pressure vessels are typically designed for a maximum allowable working pressure (MAWP) of either 300 psig (2,068 kPa) or 283 psig (1,951 kPa). The LCDSV comes equipped with an ASME/NB certified "UV" Primary primary Relief relief Vyalve (PRV) set at or below the MAWP of the vessel. Additionally, as recommended by the Compressed Gas Association pamphlet CGA S-1.3, (Pressure Relief Device Standards Part 3 — Stationary Storage Containers Forfor Compressed Gasses), a secondary pressure relief valve may be installed. This secondary pressure relief valve is beyond the scope of ASME Section VIII, Division 1 and is not required to be ASME/NB stamped and certified. This additional PRV-pressure relief valve is typically rated no higher than 1.5 times the vessel MAWP.

Operating conditions of the system, components, and inner pressure vessel can vary causing temperatures and pressures to range from 90 psig (-56°F) to 300 psig (+2°F) {620 kPa (-49°C) to 2,068 kPa (-16°C)}. Below about 60 psig (413 kPa) in the tank, liquid CO₂ begins changing totransitioning into a solid phase (dry ice). If the tank becomes completely depressurized to 0 psig, temperatures inside the tank could reach -109°F (-78°C), and thus create (solid dry ice). When liquid CO₂ turns to solid dry ice in a completely depressurized tank, all CO₂ as flow in the system ceases and the tank becomes nonfunctional.

See the attached Figure S3.6.1-b for a CO₂ phase diagram CO₂ Phase Diagram NBIC Part 1; Figure S3.6.1-b, showing the typical operating range of these systems. Components external to the LCDSV inner tank pressure vessel may encounter pressures and temperatures between 90 psig, and -56°F, to 300 psig and ±2°F, respectively {between 620 kPa, and -49°C, to 2,068 kPa and -16°C, respectively}._Typical operating pressures and temperatures vary in each of the associated sub-system circuits. (See NBIC Part 1, Table S3.6.1.)

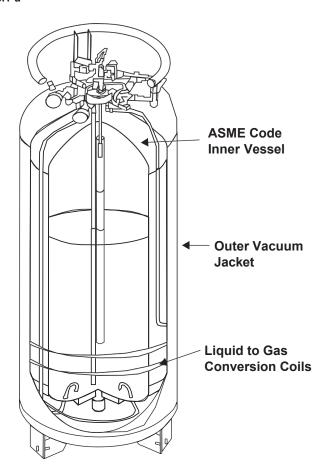
TABLE S3.6.1TYPICAL OPERATING PRESSURES & AND TEMPERATURES OF LCDSV SYSTEMS

System Component	Operating Pressure	Operating Temperature
Storage Vessel (tank internal conditions)	90 – 300 psig/ <u>620 – 2,068 kPa</u>	-56°F to +2°F/ <u>-49°C to -16°C</u>
Liquid CO2 - <u>CO</u> 2 Fill Line	150 – 300 psig/ <u>1,034 – 2,068 kPa</u>	-34°F to +2°F/ <u>-36°C to -16°C</u>
Pressure Relief Gas Vent Line	0 – 120 psig/ <u>0 – 827 kPa</u>	Ambient to -50°F/Ambient to -45°C

SECTION 6

Item 24-56 Michelle Vance 5/1/2024

FIGURE S3.6.1-a



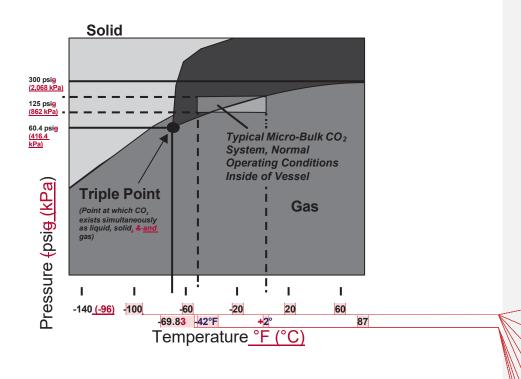
88 SECTION 6

Item 24-56 Michelle Vance 5/1/2024

FIGURE S3.6.1-b

CO₂ PHASE DIAGRAM

Commented [MV1]: Note: the comments below are the equivalent Celsius temperatures to add next to or below the Fahrenheit temps



1

Commented [MV10]: 30

Commented [MV2]: Add -(73) to this

Commented [MV3]: -51

Commented [MV4]: -29

Commented [MV5]: -7

Commented [MV6]: 16

Commented [MV7]: 56.6

Commented [MV8]: -41

Commented [MV9]: 7

SECTION 6



THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

Subject:	Require means to prevent safety valve discharge piping blockage for LCDSV (Part 1)
NBIC Location:	2023 NBIC, Part 1, S3.6 d)
Statement of Need:	Adding verbiage to the NBIC Part 1, Part 2 and Part 4 to require a means to prevent foreign material introduction to the safety valve discharge pipe.
Background Information:	Inspection of CO2 tanks (bulk liquid carbon dioxide storage vessels LCDSV) has shown some areas of the country where insects have built nests in the discharge piping of the safety valve. Once the vessel reaches 300 psi and the safety valve should begin venting, product flow is fully blocked and cannot vent the vessel pressure. In some instances, the pressure has been found to be as high as 350 psi while safety valve outlet discharge is fully restricted. (The vessel MAWP in this example was 300 psi.) An example is dirt dobber bees can block the discharge line and pushing an ink pen through the dirt will allow for sudden venting of the vessel's built-up pressure. The sudden burst of flow from the discharge does present a potential hazard.

Proposed Text:

S3.6 VALVES, PIPING, TUBING, AND FITTINGS

d) Safety Relief/Vent Lines – Safety relief/vent lines shall be as short and straight as possible with a continuous routing to an unenclosed area outside the building and installed in accordance with the manufacturer's instructions. The vent line(s) shall be a continuous run from the vessel pressure relief device vent piping to the outside vent line discharge fitting. Mechanical joints in metallic piping and tubing shall be visible and inspectable. Any splices in plastic or polymeric tubing shall be done within three feet of the vessel and must be visible and inspectable. These lines shall be free of physical defects such as cracking or kinking and all connections shall be securely fastened to the LCDSV and the fill box. All safety relief/vent lines shall be protected to prevent penetration by nail, projectile, or other foreign object when routed through a wall, floor, or ceiling. Additionally, all safety relief/vent line discharge shall be protected to prevent stoppage of the lines by foreign material, moisture, or insects. The minimum size and length of the lines shall be in accordance with NBIC Part 1, Tables S3.6-a and S3.6-b. Fittings or other connections may result in a localized reduction.

NBIC Action Item A24-97 Submitted by Edward Wiggins (Edward.Wiggins@labor.alabama.gov) November 1, 2024



THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

Subject:	Anchoring of Threaded Blowdown Piping
NBIC Location:	2023 NBIC, Part 1, 2.7.5
Statement of Need:	An operator opened a blowdown valve located between a 90-degree elbow and the floor drain. The pressure released caused the piping to rotate at the elbow striking the operator and pressing him to the ground which resulted in his death. This could have been avoided if the piping was anchored at a point between the elbow and the discharge.
Background Information:	Boiler recently installed, operating less than a week.

Proposed Text:

2.7.5 BLOWOFF

s) All threaded blowdown piping discharging into a floor drain shall be anchored to the floor or other structural element.



THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

Subject:	Strengthen requirements for Carbon monoxide monitoring
NBIC Location:	2023 NBIC, Part 1, 1.6.9
Statement of Need:	Approximately 50 to 75 percent of the Chief Boiler Inspectors have requested some version of the proposed text above to be included in the NBIC Part 1. Since this has not happened, in many jurisdictions the Chief Inspector has had to include requirements for interlocking Carbon Monoxide detectors with boilers to secure the burners when the detector senses CO. The NBIC is a Health and Safety Code and therefore should provide requirements that prevent the many injuries and deaths the Chief Boiler Inspectors across the U.S. have had to investigate.
Background Information:	As the Chief Inspector of Texas, this is not the first time I have made this request. In the past I was told the biggest concern is that of a nuance trip during the winter. I have had this requirement in place in Texas since Sept. 2020, to date I have not received any reports of a nuance trip of the boiler due to CO. In fact, I have received many notifications of where this requirement has saved lives due to tripping the boiler when there was a CO leak in the boiler room. Furthermore, this item was brought up at the NB Oct. Chief Meeting in Columbus when the Chair and Vice Chair of the Main Committee were present to see the desires of the Chief Inspectors.

Proposed Text:

1.6.9 CARBON MONOXIDE (CO) DETECTOR/ALARM

Each boiler room containing one or more boilers from which carbon monoxide (CO) can be produced shall be equipped with a CO detector with a manual reset.

- a) The CO detector shall have a display that indicates the current level of CO in parts per million (ppm) that is present in the boiler room.
- b) The CO detector and boiler(s) shall be interlocked to disable the burners when the measured level of CO rises above 50 ppm.
- c) The owner or operator may choose to use a remote monitoring system. When the CO detector is remotely monitored:

NBIC Action Item A24-100 Submitted by Rob Troutt (rob.troutt@tdlr.texas.gov) November 21, 2024

- 1) it must be set to alarm personnel at the boiler location and at the remote location at a measured level of 50 ppm of CO;
- 2) the alarm at the boiler location must not be capable of being disabled until the measured level of CO falls below 50 ppm; and
- 3) the detector must be interlocked to disable the burners when the CO level in the boiler room reaches a measured level of 200 ppm.
- d) The CO detector shall disable the burners upon loss of power to the detector.
- e) The CO detector shall be calibrated in accordance with the manufacturer's recommendations or every eighteen months after installation of the detector, whichever is less. A record of calibration shall be posted at or near the boiler, or be readily accessible to an inspector. The owner or user shall install a carbon monoxide (CO) detector/alarm in equipment rooms where fuel fired boilers and/or fuel fired pressure vessels are located in accordance with the authority having Jurisdiction.