Date Distributed: December 17, 2012

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

SUBCOMMITTE ON INSTALLATION

AGENDA

Meeting of January 16, 2013
Mobile, Alabama

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 a.m.**

2. **Announcements**

3. **Adoption of the Agenda**

4. **Approval of Minutes of** July **18, 2012 meeting**

5. **Review of the Roster (Attachment 1)**

   Mr. Raymond Snyder's is eligible for reappointment to the Subgroup on Boilers. A vote will be taken.

6. **Public Review Comments (Attachment 2)**

PR13-0101- ***Part 1, 4.7.3 SC on Installation*** - Revise text. 4.7.3 a) Each hot water storage tank that is designed to operate at or below 210° F (99° C) and served by a hot water supply boiler shall have a temperature relief valve installed and set to relieve at or below 210 F 99 C. This valve shall be installed within the top 6 in. of the system's hot water storage tank. b) The temperature and pressure relieving device shall meet the requirements of NBIC Part 1, 4.5. (Attachment 2, pp. 1-2)

PR13-0201 ***Part 1 4.7SC on Installation-*** In 4.7.1 and 4.7.2 change "should" to "shall". Should indicates good practice. The referenced statements need to be stronger. (Attachment 2, p. 3)

PR13-0202 ***Part 1, S3.4 SC on Installation*** - Revise to read," Alarms shall be designed to activate a low level alarm at 1.5% concentration of CO2 and a high alarm level at 3% concentration of CO2. (Attachment 2, p. 4)

PR13-0203 ***Part 1, S3.5 a) SC on Installation*** - Revise instruction to say instructional. (Attachment 2, p. 5)

PR13-0204 ***Part 1, S3.6 a) SC on Installation-*** Revise a) to read : Components shall be compatible with CO2 in the phase (gas or liquid) in the applicable circuit. (Attachment 2, p. 6)

PR13-0205 ***Part 1, S3.6.1SC on Installation-***The description of the system should be at the beginning of supplement 3. Renumber S3.6.1 to S3.2 and renumber the following paragraphs appropriately. (Attachment 2, p. 7)

PR13-0206 ***Part 1, S3.6SC on Installation-*** S3.6: Relief Balves: Two comments: 1) The note concerning the discharge line does not comply with ASME Code. A line smaller in diameter than the relief valve will increase the back pressure and reduce the flow, 2) the sizing of discharge lines need to be moved to the paragraph on Safety Relief/Vent Lines. (Attachment 2, p. 8)

PR13-0501 ***Part 1, S3.2 SC on Installation-***Recommend deleting "Should not have a roof or overhead cover." In the northern US and Canada it is preferable to have an overhead cover on CO2 storage tanks that are located outside. This prevents the buildup of show and/or ice in the cold months. Having overhead cover on a gas that is heavier than air does not pose any potential hazard by allowing high concentrations to accumulate. S3.2b also allows for weather protection making the statement in S3.2 , "Should not have a roof or overhead cover.", confusing to readers. (Attachment 2, p. 9)

PR13-0502 ***Part 1, S3.2 a) SC on Installation*** -Change the following section to read: a) LCDSV's shall not be installed within 36' of the front of electrical panels. (Attachment 2, p. 10)

PR13-0503 ***Part1, S3.2 c) SC on Installation***-Recommend changing 1) a) as follows: a Shall be equipped with a gas detection system installed in accordance with paragraph S3.4, if the area that the tank is located in cannot be determined to have adequate ventilation to prevent a hazardous concentration of CO2 buildup. Because the publication defines any indoor installation as an enclosed area, there needs to be provisions in this publication that identifies indoor installations that are located in kitchens that have very high rate of ventilation that would not result in a hazardous concentration of CO2 even if a leak was to develop. (Attachment 2, p. 11)

PR13-0601 Part 1, S3.2 SC on Installation S3.2 GENERAL REQUIREMENTS STORAGE TANK LOCATION LCDSV's should be installed in an unenclosed area whenever possible. LCDSV's that do not meet all criteria for an unenclosed area shall be considered an enclosed area installation.
An unenclosed area:

- Shall be outdoors
- Shall be above grade
- ~~Should not have a roof or overhead cover~~
- Shall not obstruct more than three sides of the perimeter with supports and walls. At least 25% of the perimeter area as calculated from the maximum height of the storage container shall be open to atmosphere and openings shall be in direct conveyance with ground level.

Rationale: For the northern climates, overhead coverings are preferred in order to prevent the buildup of ice and snow. For southern climates, solar heat load affects container temperature. This statement conflicts with S3.2b of this draft standard. Note: Dissipation of carbon dioxide is not affected by a roof or cover since it is heavier than air. (Attachment 2, p. 12)

PR13-0602 Part 1, S3.2 SC on InstallationS3.6 VALVES, PIPING, TUBING AND FITTINGS 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 shall be a continuous run from the vessel PRD vent piping to the outside vent line discharge fitting, without any splices. 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. The minimum size and length of the lines shall be in accordance with table S3.6a and S3.6b. Fittings or other connections may result in a localized reduction in diameter have been factored into the lengths given by the tables S3.6a and S3.6b. Rationale: Allows the use of connectors but requires that they are seen and can be inspected (Attachment 2, p. 13)

7. Inquiries

There are no inquiries assigned to this subcommittee.

8. Action Items (Attachment 3)

NB08-0320 ***Part 1.4.3 SC Installation*** - This action item is a result of a request from the Federal Railroad Administration. Add a new paragraph in 4.3 General Requirements to address change of service for a pressure vessel. These requirements should caution installers, inspectors, owners, and jurisdictional authorities of the inherent dangers involved when changing service. A new supplement should be added to address the specific requirements for installation of pressure vessels that are being converted from one service to another. A task group has been formed from all three parts of the NBIC led by Robert Wielgoszinski. (Attachment 3, pp. 1-6)

July 2008
A progress report was given.

January 2009
A progress report was given.

July 2009
A progress report was given.

January 2010
A progress report was given.

July 2010
A progress report was given.

January 2011
A progress report was given by Bob Wielgoszinski.

July 2011
Gary Scribner presented a progress report with no action.

January 2012
Robert Wielgoszinski presented a progress report. A task group meeting was held on 1/17/2012 and a draft of a supplement has been completed. This draft is simply to serve as a guideline only and is to be added to all NBIC Parts. Reference will be made in the front of the book. Plans are to submit this out as a letter ballot to each SC. Mr. Wielgoszinski will provide Part 1 a handout to include in the handout packet in the MC meeting.

July 2012
Mr. Wielgoszinski presented a progress report with an updated handout. Discussion was held and editorial changes were noted.

January 2013
Mr. Scribner is expected to report

NB08-2101 ***Part 1 SG on Boilers*** **-** CSD-1 does not address solid fuel firing and it would appropriate for the NBIC to look into it. A task group of G. Halley (Chair), M. Richards, G. Scribner and B. Moore has been assigned. (Attachment 3, pp. 7-14)

July 2008
A progress report was given. Mr. Geoff Halley presented a handout.

January 2009
A progress report was given.

July 2009
A progress report was given.

January 2010
A progress report was given.

July 2010
Mr. Halley gave a progress report.

January 2011
Mr. Halley gave a progress report.

July 2011
Geoffrey Halley presented a progress report. A draft for review and comment was submitted to the task group. Ray Snyder and Harold Tyndall were added to the task group.

January 2012
Geoffrey Halley presented a progress report and a revised handout. The SG Boilers has agreed that it may be appropriate to propose a separate document addressing inspection and another addressing installation. Gary Scribner has been added to the task group and will assist in drafting a proposal to submit to the applicable groups for review.

July 2012
Mr. Halley presented a progress report with an updated handout. It was agreed that this document would be worked on in 4 parts being 1st – Approval of Definitions, 2nd – A Functional Description, 3rd – Installation Requirements, and 4th – Inspection Requirements. There was a motion to approve the Definitions proposed in this document. The motion was approved with 1 negative. The definitions for this item were letter balloted to the NBIC Committee. The ballot was unanimously approved and the definitions are included in the 2013 edition.

January 2013
Mr. Halley is expected to report.

NB10-0201 ***Part 1 S3 SG on Pressure Vessels and Piping*** **-** Expand the section on installation of thermal fluid heaters. This action item is a result of splitting NB09-0501into two parts. A task group of D. Patten (Chair), M. Wadkinson, G. Halley, G. Scribner and P. Bourgeois has been assigned. (No Attachment)

January 2010
A progress report was given.

July 2010
Mr. Scribner gave a progress report.

January 2011
A progress report was given by Mr. Scribner.

July 2011
A correction was made to the task group as listed, removing G. Scribner as Chair and listing D. Patten as Chair.

January 2012
Mr. Patten had nothing to report at this time – No progress.

July 2012
Mr. Scribner and Mr. Patten presented a progress report. An update handout is planned to be distributed in the SG January 2013 meeting.

January 2013
Mr. Patten is expected to report.

NB10-1201 ***Part 1, SG Boilers*** **-** Request for a format change to Part 1 Installation. A TG of G.

Scribner (Chair), B. Moore, S. Konopacki and D. Patten was assigned. (No Attachment)

July 2010
A task group of G. Scribner (Chair), S. Torkildson, S. Konopacki, and D. Patten was assigned.

July 2011
Gary Scribner presented a progress report. A power point presentation was shown comparing power boilers and water heaters general statements to be consistent through-out. Decisions need to be made on language to give requirements. This item is being brought forward as a suggestion/clean-up to remain on the SG and moved to the SC and then the MC.

January 2012
Gary Scribner presented a progress report. A conference call was held with the participation of Mr. Patten and Mr. Konopacki. Mr. Moore will replace Mr. Torkildson on the Task Group assigned to this item.

July 2012
Mr. Scribner presented a progress report. A power point presentation is planned to go out to the group for comment from Section 2 and 3 and then look at moving to General. A motion was made to move this item to the SG Boilers agenda. The motion was unanimously approved.

January 2013
Mr. Patten is expected to report.

NB11-0802 ***Part 1, 1.4.5 SG on Boilers*** **-** Boiler installation report review. A task group of D. Patten (Chair), G. Scribner, B. Moore, M. Wadkinson, S. Konopacki and M. Richards has been assigned. (No Attachment)

January 2011
Mr. Scribner gave a progress report.

July 2011
Gary Scribner presented a progress report. The question was raised - Is what is being asked for on the Boiler Installation Report Form (I-1) necessary? Terry Parks explained the history of what went into the development of this form and its intention to address all situations. Discussion was held on the proper use of the word shall verses the word should. The group noted that it may be necessary to create specific versions of the Boiler Installation Report Form (I-1) to address specific situations.

January 2012
Gary Scribner had nothing to report at this time – No progress. Plans are to send out a survey to the jurisdictions for input.

July 2012
Mr. Scribner reported no progress at this time. The task group has been changed to include D. Patten as (Chair) in place of G. Scribner. M. Wadkinson and S. Konopacki are also assigned to this task group.

January 2013
Mr. Patten is expected to report.

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NB11-1901 ***Installation of High Pressure Composite Pressure Vessels*** The FRP Subgroup initiated this proposal to provide guidance for a safe installation of high pressure vessels operating in close proximity to the public. (No Attachment)

January 2012

Michael Richards presented a progress report. The ballot has passed and is being forwarded on to the MC for their consideration.

July 2012
Mr. Richards presented a progress report. The item was letter balloted at the Main Committee level and failed. The SG on FRP is examining the document to satisfy the negative comments.

January 2013
Mr. Richards is expected to report.

NB11-2001 ***Part 1, 2.9.4, SG on Pressure Vessels and Piping-*** Address the safe venting of isolatable economizers where the outlet is below the inlet of other communicable chambers (headers, drums, etc.). (Attachment 2, pp. 15- 23)

July 2011
Trent Miller of Victory Energy was present in the Pressure Vessels & Piping SG meeting to discuss issues with the wording of NBIC Part 1, Section 2.9.4. After discussions it was decided by the SG that Mr. Miller will resubmit his request in the correct format in accordance with NBIC Sec. 8 procedures. His request will then be reviewed which may result in further research with other manufacturers and ASME Section I & VIII.

January 2012
David Olsen of Victory Energy presented a proposed change in 2.9.4. A task group of D. Patten (Chair), S. Konopacki and D. Olsen (Representative of Victory Energy) was assigned. There was a motion to approve the proposed change and to submit as a letter ballot to the MC. The motion was unanimously approved.

The item was sent out for letter ballot and Mr. Patten decided to pull the ballot for more work after several comments were made that he felt needed to be addressed before the item moved forward.

July 2012
Mr. Patten presented the negative feedback he had received. The group revisited with Mr. Pillow on his reasoning behind his negative vote. After taking into consideration Mr. Pillow's opinion and others the group unanimously agreed that there is no conflict and makes a motion to reaffirm. The motion was unanimously approved. When this item was presented to the NBIC Committee, it was discovered that Mr. Wielgoszinski had also voted negative so the item was sent back to the SC for more work. Mr. Patten submitted an inquiry to ASME regarding this item and wants to wait for a reply before proceeding with this item.

January 2013
Mr. Patten is expected to report.

NB12-0302 ***Part 1, SG V&P*** Define installation requirements for (PVHO) hyperbaric chambers) This action item is a result of splitting NB09-0601into two parts. A task group of G. Scribner (Chair) and M. Richards has been assigned. (No Attachment)

January 2012
Gary Scribner presented a progress report.

July 2012
Mr. Scribner presented a progress report. Concentration will be aimed in defining types and then identifying installation requirements.

January 2013
Mr. Scribner is expected to report.

NB12-1401- ***Part 1, SG on Boilers*** - Reference item NB09-0204. Address the installation of Potable Water Heaters. A task group of G. Scribner, P. Bourgeois, B. Moore, and H. Tyndall was assigned. (No Attachment)

July 2012
Mr. Scribner presented a progress report. Additional detail will be provided at the January 2013 meeting.

January 2013
Mr. Scribner is expected to report.

9. New Business

10. Future Meetings

July 15-19, 2013, Columbus, Ohio
January 13-16, 2013, San Antonio, Texas

11. Adjournment

Respectfully Submitted,

Jeanne Bock
Secretary
H:\ROBIN-Active Documents\NBIC Secretarial Documents\Committees\SC on Installation\Agendas\Agenda Installation 0113.doc

ATTACHMENT 1

SC on Installation

Member	Title	Expiration Date	Interest Category
Bock, Jeanne	Secretary		
Patten, Donald		02/28/2014	Manufacturer
Konopacki, Stanley		02/28/2014	Users
Scribner, Gary		07/31/2014	Jurisdictional Authoritie
Tyndall, Harold		01/31/2015	Auth Inpection Agencie
Moore P.E., Brian W		08/31/2015	Auth Inpection Agencie
Bourgeois, Paul		08/31/2015	Auth Inpection Agencie
Snyder, Raymond		08/31/2015	Auth Inpection Agencie
Hopkins, Craig	Vice Chair	08/31/2015	NB Certificate Holders
Halley, Geoffrey		08/31/2015	Manufacturer
Richards, H. Michael	Chair	08/31/2015	Users
Total Members:		**10**	

ATTACHMENT 2

National Board of Boiler and Pressure Vessel Inspectors

National Board Inspection Code

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Comments Must be Received No Later Than: December 17, 2012

Instructions: If unable to submit electronically, please print this form and fax or mail. Print or type clearly.

Date: 11/20/2012

Commenter Name: Randall Austin

Commenter Address: 800 W. Washington St., Phoenix, AZ 85007

Commenter Phone: 602-542-1648

Commenter Fax: 602-542-1614

Commenter Email: raustin@ica.state.az.us

Section/Subsection Referenced: 4.7.3 SAFETY RELIEF DEVICES

Comment/Recommendation: *Proposed Solution:* ☐ New Text ☒ Revise Text ☐ Delete Text

4.7.3 SAFETY RELIEF DEVICES

a) Each hot water storage tank ~~shall be equipped with an ASME NB approved temperature and pressure relieving device set at a pressure not to exceed the maximum allowable working pressure and 210°F.~~

b) The temperature and pressure relieving device shall meet the requirements of NBIC Part 1, 4.5.

4.7.3 SAFETY RELIEF DEVICES

a) Each hot-water storage tank that is designed to operate at or below 210°F (99°C) and served by a hot-water supply boiler, shall have a temperature relief valve installed and set to relieve at or below 210°F (99°C). This valve shall be installed within the top 6 in. (150 mm) of the system's hot-water storage tank.

b) The temperature and pressure relieving device shall meet the requirements of NBIC Part 1, 4.5.

Source: ☒ Own Experience/Idea ☒ Other Source/Article/Code/Standard CSD-1 (2012)CW-520(b) Requirements of Hot-Water Supply Boilers

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Commenter No. Issued: PR13-01

Comment No. Issued: 01

Committee Referred To: SC Installation

Reason for changing text: (proposed text was borrowed in part from ASME, CSD-1, CW-520(b), with modifications, see below.)

(Item 1)

The first part requires only ASME approved PRD, "shall be equipped with an ASME" NB "approved". When paragraph (b) requires to meet Part 1, 4.5.. Part 1, 4.5.1 (see below) requires "national or international standard", I feel there is a conflict here. At this point in time the National Board approves no PRD's other than ASME constructed and stamped objects, but that does not say next week this may change, but hot-water storage tanks could only use an ASME stamped T&P valve.

4.5.1 DEVICE REQUIREMENTS

> Pressure relief devices are to be manufactured in accordance with a national or international standard and be certified for capacity (or resistance to flow for rupture disk devices) by the National Board.

(Item 2)

Requiring all hot water storage tanks be installed with a T&P valve would restrict those tanks designed to operate above the 210°F. ASME Code Section VIII, Division 1 permits a stainless steel tank to have a MAWT of 650°F. If an owner purchases a hot water supply boiler (Section IV) with an MAWT of 250°F and a storage tank (Section VIII, Division 1) with an MAWT of 650°F because there process requires a final rinse of 230°F, they could not use a hot-water storage tank in the system, because of the T&P valve having a lift set at 210°F.

(Item 3)

Removing the reference to the MAWP was because NBIC, Part 1, 4.5.5(a) already states this requirement.

(Item 4)

NBIC, Part 1, 4.5.3 has no specific reference to the installation location of a T&P valve on hot-water storage tanks. This is the reason for the " installed within the top 6 in." reference.

CSD-1, CW-520 Requirements of Hot-Water Supply Boilers

(a) Each hot-water supply boiler shall have at least one officially rated safety relief valve mounted directly on the boiler and set to relieve at or below the maximum allowable working pressure of the boiler. The required steam-relieving capacity in Btu/hr (W) shall equal or exceed the maximum Btu/hr (W) output rating of the boiler.

(b) Each hot-water system consisting of a hot-water supply boiler and hot-water storage tank served by a hot-water supply boiler that is designed to operate at or below 210°F (99°C) shall have a temperature relief valve installed and set to relieve at or below 210°F (99°C). This valve shall be installed either in combination with that required in (a) above or within the top 6 in. (150 mm) of the system's hot-water storage tank.

(c) Safety relief valves shall be installed and tested in accordance with the ASME Boiler and Pressure Vessel Code. Temperature relief valves shall be rated, tested, and installed in accordance with ANSI Z21.22/CSA 4.4 and combination pressure-temperature relief valves in accordance with ANSI Z21.22/CSA 4.4 for temperature and the ASME Boiler and Pressure Vessel Code for pressure.

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Date: 12/5/12

Commenter Name: Francis Brown

Commenter Address: 1055 Crupper Avenue

Columbus, OH 43229

Commenter Phone: 614-431-3226

Commenter Fax: 614-431-3208

Commenter Email: fbrown@nationalboard.org

Section/Subsection Referenced: Part 1 4.7

Comment/Recommendation: *Proposed Solution:* ☐ New Text ☒ Revise Text ☐ Delete Text

In 4.7.1 and 4.7.2 change "should" to "shall". Should indicates good practice. The referenced statements need to be stronger.

Source: ☒ Own Experience/Idea ☐ Other Source/Article/Code/Standard

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Commenter No. Issued: PR13-02

Comment No. Issued: 01

Committee Referred To: SC Installation

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Commenter Name: Francis Brown

Commenter Address: 1055 Crupper Avenue
Columbus, OH 43229

Commenter Phone: 614-431-3226

Commenter Fax: 614-431-3208

Commenter Email: Part 1, S3.4

Section/Subsection Referenced:

Comment/Recommendation: *Proposed Solution:* ☐ New Text ☒ Revise Text ☐ Delete Text

Revise to read: "Alarms shall be designed to activate a low level alarm at 1.5% concentration of CO2 and a high alarm level at 3% concentration of CO2…"

Source: ☐ Own Experience/Idea ☐ Other Source/Article/Code/Standard

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Commenter No. Issued: PR13-02

Comment No. Issued: 02

Committee Referred To: SC Installation

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Commenter Address: 1055 Crupper Avenue
Columbus, OH 43229

Commenter Phone: 614-431-3226

Commenter Fax: 614-431-3208

Commenter Email: fbrown@nationalboard.org

Section/Subsection Referenced: Part 1 S3.5a)

Comment/Recommendation: *Proposed Solution:* ☐ New Text ☒ Revise Text ☐ Delete Text

Revise "instruction" to "instructional"

Source: ☒ Own Experience/Idea ☐ Other Source/Article/Code/Standard

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Commenter No. Issued: PR13-02

Comment No. Issued: 03

Committee Referred To: SC Installation

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Commenter Name: Francis Brown

Commenter Address: 1055 Crupper Avenue

Columbus, OH 43229

Commenter Phone: 614-431-3226

Commenter Fax: 614-431-3208

Commenter Email: fbrown@nationalboard.org

Section/Subsection Referenced: Part 1: S3.6a)

Comment/Recommendation: *Proposed Solution:* ☐ New Text ☒ Revise Text ☐ Delete Text

Revise a) to read: Components shall be compatible with CO2 in the phase (gas or liquid) in the applicable circuit,

Source: ☒ Own Experience/Idea ☐ Other Source/Article/Code/Standard

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Commenter No. Issued: PR13-02

Comment No. Issued: 04

Committee Referred To: SC Installation

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Date: 12/6/12

Commenter Name: Francis Brown

Commenter Address: 1055 Crupper Avenue
Columbus, OH 43229

Commenter Phone: 614-431-3226

Commenter Fax: 614-431-3208

Commenter Email: fbrown@nationalboard.org

Section/Subsection Referenced: Part 1: S3.6.1

Comment/Recommendation: *Proposed Solution:* ☐ New Text ☒ Revise Text ☐ Delete Text

The description of the system should be at the beginning of supplement 3. Renumber S3.6.1 to S3.2 and renumber following paragraphs appropriately.

Source: ☒ Own Experience/Idea ☐ Other Source/Article/Code/Standard _____

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Commenter No. Issued: PR13-02

Comment No. Issued: 05

Committee Referred To: SC Installation

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Date: 12-7-12

Commenter Name: Francis Brown

Commenter Address: 1055 Crupper Avenue

Columbus, OH 43229

Commenter Phone: 614-431-3226

Commenter Fax: 614-431-3208

Commenter Email: fbrown@nationalboard.org

Section/Subsection Referenced: Part 1 S3.6

Comment/Recommendation: *Proposed Solution:* ☐ New Text ☒ Revise Text ☐ Delete Text

S3.6: Relief Valves: Two comments: 1) The note concerning the discharge line does not comply with ASME Code. A line smaller in diameter than the relief valve will increase the back pressure and reduce the flow, 2) the sizing of discharge lines need to be moved to the paragraph on Safety Relief/Vent Lines.

Source: ☒ Own Experience/Idea ☐ Other Source/Article/Code/Standard

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Commenter No. Issued: PR13-02

Comment No. Issued: 06

Committee Referred To: SC Installation

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Instructions: If unable to submit electronically, please print this form and fax or mail. Print or type clearly.

Date: 12/7/12

Commenter Name: Francis Brown

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Commenter Phone: 614-431-3226

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Section/Subsection Referenced: Part 1 S3.6

Comment/Recommendation: *Proposed Solution:* ☐ New Text ☒ Revise Text ☐ Delete Text

Safety Relief/Vent Lines: The term "PRD" is located in the third line, and is the only place in S3.6. For consistency, change "relief valves" and "relief" to "PRD", or change "PRD" to "Relief Valve".

Source: ☒ Own Experience/Idea ☐ Other Source/Article/Code/Standard _____

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Commenter No. Issued: PR13-02

Comment No. Issued: 07

Committee Referred To: SC Installation

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Comments Must be Received No Later Than: December 17, 2012
Instructions: If unable to submit electronically, please print this form and fax or mail. Print or type clearly.

Date: December 14, 2012

Commenter Name: Richard Craig, CGA Technical Director

Commenter Address: The Compressed Gas Association, Inc.

14501 George Carter Way, Suite 103, Chantilly, VA 20151

Commenter Phone: (703) 788-2730

Commenter Fax: 703-961-1831

Commenter Email: rcraig@cganet.com

Section/Subsection Referenced: Supplement 3, S3.2, General Requirements Storage Tank Location

Comment/Recommendation: *Proposed Solution:* ☐ New Text **X** Revise Text ☐ Delete Text

S3.2 GENERAL REQUIREMENTS STORAGE TANK LOCATION

LCDSV's should be installed in an unenclosed area whenever possible. LCDSV's that do not meet all criteria for an unenclosed area shall be considered an enclosed area installation.

An unenclosed area:

- Shall be outdoors
- Shall be above grade
- ~~Should not have a roof or overhead cover~~
- Shall not obstruct more than three sides of the perimeter with supports and walls. At least 25% of the perimeter area as calculated from the maximum height of the storage container shall be open to atmosphere and openings shall be in direct conveyance with ground level.

Rationale: For the northern climates, overhead coverings are preferred in order to prevent the buildup of ice and snow. For southern climates, solar heat load affects container temperature. This statement conflicts with S3.2b of this draft standard. *Note*: Dissipation of carbon dioxide is not affected by a roof or cover since it is heavier than air.

Source: **X** Own Experience/Idea ☐ Other Source/Article/Code/Standard **Submit Form To:** Robin Hough, Secretary, NBIC Committee, The National Board of Boiler & Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, OH 43229, fax 614-847-1828, email, rhough@nationalboard.org

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Commenter No. Issued: PR13-06

Comment No. Issued: 01

Committee Referred To:

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Section/Subsection Referenced: Supplement 3, S3.6, Valves, Piping, Tubing and Fittings

Comment/Recommendation: *Proposed Solution:* ☐ New Text **X** Revise Text ☐ Delete Text

S3.6 VALVES, PIPING, TUBING AND FITTINGS

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 shall be a continuous run from the vessel PRD vent piping to the outside vent line discharge fitting~~, without any splices~~. 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. The minimum size and length of the lines shall be in accordance with table S3.6a and S3.6b. Fittings or other connections may result in a localized reduction in diameter have been factored into the lengths given by the tables S3.6a and S3.6b.

Rationale: Allows the use of connectors but requires that they are seen and can be inspected for verification of integrity.

Source: **X** Own Experience/Idea ☐ Other Source/Article/Code/Standard _____

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Commenter No. Issued: PR13-06 Committee Referred To:

Comment No. Issued: 02 SC Installation

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Commenter Phone: 905-595-3795

Commenter Fax: _____

Commenter Email: VICTOR-KENNEY@PRAXAIR.COM

Section/Subsection Referenced: Part 1, S3.2

Comment/Recommendation: *Proposed Solution:* ☐ New Text ☐ Revise Text ☐ Delete Text

S3.2 GENERAL REQUIREMENTS STORAGE TANK LOCATION

Recommend deleting " Should not have a roof or overhead cover."

In the northern US and Canada it is preferable to have an overhead cover on CO2 storage tanks that are located outside. This prevents the buildup of snow and/or ice in the cold months.

Having overhead cover on a gas that is heavier than air does not pose any potential hazard by allowing high concentrations to accumulate.

S3.2 b also allows for weather protection making the statement in S3.2, " Should not have a roof or overhead cover.", confusing to readers.

Source: ☒ Own Experience/Idea ☐ Other Source/Article/Code/Standard _____

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Section/Subsection Referenced: Part 1, S3.2 a)

Comment/Recommendation: *Proposed Solution:* ☐ New Text ☐ Revise Text ☐ Delete Text

S3.2 a) General Requirements (enclosed and unenclosed areas)
Change the following section to read;
6) LCDSV's shall not be installed within 36' of ***the front of*** electrical panels.

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Commenter No. Issued: PR13-05
Comment No. Issued: 02
Committee Referred To: SC Installation

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Section/Subsection Referenced: Part 1, S3.2 c)

Comment/Recommendation: *Proposed Solution:* ☐ New Text ☐ Revise Text ☐ Delete Text

S3.2c ENCLOSED AREA LCDSV INSTALLATIONS

Recommend changing 1) a. as follows;

a. Shall be equipped with a gas detection system installed in accordance with paragraph S3.4 ***if the area that the tank is located in cannot be determined to have adequate ventilation to prevent a hazardous concentration*** *of CO2 to build up.*

Because this publication defines any indoor installation as an enclosed area, there needs to be provisions in this publication that identifies indoor installations that do not pose a hazard. As an example, there are many indoor installations today that are located in kitchens that have very high rates of ventilation that would not result in a hazardous concentration of CO2 even if a leak was to develop.

Source: ☒ Own Experience/Idea ☐ Other Source/Article/Code/Standard _____

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Comment No. Issued: 03
Committee Referred To: SC Installation

pressure retaining item. Various factors will have an impact on the reliability of the pressure retaining item in its new service environment. Changes can be successfully adopted providing there is an understanding of the effect on the pressure retaining item. However, there are some cases where changes are detrimental to the existing pressure retaining item. The owner or user should seek technical guidance of experienced personnel in appropriate areas affected by the change of service (e.g. design, metallurgy, or operations of the pressure retaining item).

The following is a listing of criteria that should be evaluated as appropriate. The criterion is not limited to that listed herein. Other factors may be considered as necessary;

1) Design Consideration:
   a) Thickness of existing vessel material
   b) Vessel or system flow rate or pressure
   c) Weight of vessel with new contents
   d) Existing or additional loads imposed on nozzles and highly stressed areas
   e) Change in pressure or temperature cycling
   f) Compliance to product or industry standards, such as ANSI K61, API 579, or NFPA 58

2) Material Consideration:
   a) Chemical and mechanical properties of existing material or any new material to be added or replaced to assure it has the required strength and toughness to withstand the pressure and temperature effects of the new environment.
   b) Effects of erosion or corrosion
   c) Time dependent effects on service life - creep or fatigue.

3) Environment
   a) Physical condition of the pressure retaining item
   b) Overpressure protection needs
   c) Regulatory environment - Verification of compliance to new or existing jurisdictional rules or regulations.

4) Operational History
   a) A review of current and past operational logs or records should be made to assure that no conditions existed where any further use would render the pressure retaining item hazardous or otherwise unsafe.
   b) Records to be obtained and reviewed would include Data Reports, Repair and Alteration Forms, Inspection reports.

5) Repairs and Alterations Made:

a) A review of any repairs, alterations, reratings, or reconfigurations that have been performed on the pressure retaining item , so as to assure that they will not have a detrimental impact on the intended use.

6) Proposed rework
   a) Any physical work to be performed to restore the material to the existing or intended state or to meet any requirements for the new operating conditions.
   b) Repairs and alterations shall be performed in accordance with NBIC, Part 3.
   c) The effects of heat applied as a result of welding or heat treatment on the material or shaped parts.
   d) The method and extent of any physical or non destructive examination should be considered.
   e) Any physical testing or pressure testing to be performed to determine of verify leak tightness or structural integrity of the pressure retaining item.
   f) The pressure retaining item shall meet the Code requirements for the new environment at the time of change.

7) Documentation
   a) Review existing records that are required to satisfy customer, user, or legal requirements.
   b) Review the need for any marking, stamping, or labeling required for the intended service.

S9.4 Some Examples for Change of Service

The following is a typical list of examples of what constitutes a change in service and some factors to consider. Note: This list is not all inclusive. There may other service changes not mentioned.

Also, the listing of "Factors to Consider" is also not all inclusive. There may be other there are other elements that can influence the safe and reliable operation.

The Owner, the Jurisdiction where the pressure retaining item is to operate in the new environment, and local building Codes, laws, and regulations should be reviewed for additional requirements or prohibitions against a change of service.

Change	Some Factors to Consider
LP gas to ammonia	• PWHT of vessel during construction • Wet-fluorescent magnetic particle testing (WFMT) on all internal surfaces • Internal access of vessel is necessary. May need to install manhole.

Change	Some Factors to Consider
Ammonia to LP gas	• NFPA-58 should be consulted. i.e. restriction on maximum volume • Wet-fluorescent magnetic particle testing (WFMT) on all internal surfaces • Internal access of vessel is necessary. May need to install manhole. • Also see, NBIC Part 2, 2.3.6.4
LP gas service: from above ground to underground	• Requires alterations (additional nozzles). • Corrosion protection • See NFPA 58
LP gas to air receiver	• Assurance of vessel cleanliness. i.e. removal of mercaptan. • Appropriateness and number of inspection and drain openings. • Corrosion allowance
Boiler service: Steam to Hot Water	• May require replacement of smaller steam outlet nozzle with larger nozzle to accommodate condensate carryover
Sulfur dioxide service. Sweet to sour gas service.	• Concern over hydrogen cracking
Lethal service to non-lethal	• Design conditions and suitability for service
DOT railcars or ICC transport tanks to stationary service	• Prohibited by DOT regulations (49 CFR 180) for permanent service. • Temporary stationary service permitted as per NFPA 58 • Inspection for damage mechanisms that may be present from previous service life that is detrimental to the vessel in the new environment.

S9.5 Documentation of Change of Service

Any records, forms, or reports required documenting the change of service event that may be required by contract or the jurisdiction where the pressure retaining item operates shall be completed as specified.

NBIC Part 2

Add new paragraph:

1.6 Change of Service

Supplement 9 provides requirements and guidelines to be followed when a change of service or service type is made to a pressure retaining item.

Whenever there is a change of service, the local jurisdiction where the pressure retaining item is to be operated, shall be notified for acceptance, when applicable. Any specific jurisdictional requirements shall be met.

NBIC Part 1

Add new paragraph:

1.5 Change of Service

See NBIC Part 2, Supplement 9 for requirements and guidelines to be followed when a change of service or service type is made to a pressure retaining item.

Whenever there is a change of service, the local jurisdiction where the pressure retaining item is to be operated, shall be notified for acceptance, when applicable. Any specific jurisdictional requirements shall be met.

NBIC Part 3

Add new paragraph:

1.9 Change of Service

See NBIC Part 2, Supplement 9 for requirements and guidelines to be followed when a change of service or service type is made to a pressure retaining item.

Whenever there is a change of service, the local jurisdiction where the pressure retaining item is to be operated, shall be notified for acceptance, when applicable. Any specific jurisdictional requirements shall be met.

NB08-2101

Part 1, Section 6
Supplement 3

Installation and Control of Solid Fuel (Wood/Biomass) Fired Boilers

(Draft for Review and Comment 6/29/12)

S3.1 – Scope

a) This supplement is intended to provide guidance for the installation and control of boilers which use biomass as a major fuel component. In this context Biomass is intended to mean various types of wood wastes, or wood byproducts.
Many of the requirements of the earlier Sections of Part 1 are common to all boiler installations irrespective of the fuel being fired; therefore this supplement will address the differences that occur when solid fuels, such as Biomass, are being used. Thus the primary thrust of this section will be directed toward the control of the fuel handling and distribution systems.

b) Fuels will vary widely depending upon source, moisture content, particle size and distribution, however once the fuel has been established, good practice dictates that the specification be adhered to as closely as possible in order to minimize handling, combustion and emissions problems.

c) Additionally the emissions control equipment is designed around the initial fuel specification. Any changes in fuel fired will impact on the performance of the various elements of the emissions control system.

d) The typical biomass fired boiler room will comprise not only the boiler with the normal water treatment and feed systems, blow off systems, condensate return systems, steam or hot water systems, but also may include

- Transportation of the fuel from a storage facility to a metering device within the boiler room
- Transportation of the metered fuel to the boiler, for distribution to a combustion system whether it be a grate upon which the combustion takes place, a bubbling fluidized bed, circulating fluidized bed or suspension burner.
- In grate based combustion systems combustion air is typically divided into an underfire air system and an overfire air system, each of which must be closely controlled in order to produce clean, efficient combustion.

- Induced draft fans to overcome the pressure drop of the emissions control equipment
- A fly ash or carbons recycle system, to return unburned carbon to the combustion zone.

S3.2 – Assessment of Installation

a) A general assessment of the complete installation shall be undertaken, in terms of observable results of operating and maintenance practices. Indicators include the general boiler room cleanliness, for example significant quantities of fuel particles (dust) should not be apparent in the boiler room.

b) The combustion air inlet shall be free of any debris or dust particle build up, and where moveable louvered intakes exist, the actuating mechanisms shall be clean and operate freely. Corrective action is required when non-compliance is noted.

c) The flue gas venting system shall be checked for tightness, with no observable signs of leakage. Corrective action is required if leakage is noted.

d) The intakes of the various fans or blowers shall be free of fuel particle build up or signs of other debris. Corrective action in terms of cleaning is required when discrepancies are noted.

e) The fuel metering equipment and the fuel transportation system shall be free from signs of particulate or dust leakage. Corrective action in terms of cleaning and repair work is required as necessary.

f) Electrical equipment and controls shall be properly protected from the ingress of dust, by ensuring that all cover plates are properly installed and all panel doors are intact, operable and closed.

g) Verify that all guards for rotating equipment (shafts, bearings, drives) are correctly installed and fan inlet screens are in place.

h) On the boiler, generally check for signs of potential problems, including;

- Water leaks
- Missing or misaligned pieces or parts
- Condition of support systems
- Provision of "Danger" or "Caution" signs
- Excess vibration
- Excess noise

i) Verify that the Owner/User has established function test, inspection requirements, maintenance and testing of all controls and safety devices in accordance with the manufacturer's recommendations. Verify that these activities are conducted at assigned intervals in accordance with written procedures, non-conformances which impact continued safe operation of the boiler are corrected and the results are properly documented. These activities shall be at a frequency recommended by the manufacturer, or frequency required by the jurisdiction. Where no frequencies are recommended, or prescribed, the activity should be conducted at least annually.

S3.3 – Determination of Allowable Operating Parameters

a) In the case of the combustion side of biomass fired boilers the determination of the allowable operating parameters is most often mandated by the local Air Pollution Control Authority. Thus provided that the defined fuel requirements are adhered to consistently, there is little for the inspector to get involved in.

b) The pressure vessel operating parameters are defined by its design working pressure, rated capacity and safety valve, or relief valve, capacity and thus is no different than boilers fired by more traditional fuels, it terms of inspection requirements.

c) All areas subject to corrosion and erosion shall be closely reviewed. Appropriate repairs shall be undertaken as necessary.

S3.4 – Boiler Installation Requirements

a) Power boilers shall be installed in accordance with the requirements of Section 2 of this Standard. Additionally the requirements of paragraphs S3.5 and S3.6, below should be followed.

b) Steam Heating and Hot Water Heating Boilers shall be installed in accordance with the requirements of Section 3 of this Standard. Additionally the requirements of paragraphs S3.5 and S3.6, below, should be followed.

S3.5 – Fuel System Requirements and Controls

a) Fuel Transport Systems irrespective of type should address certain requirements, including preserving fuel particle size distribution, the prevention of the possibility of fire and the suppression of fires or explosions.
In a single installation various types of fuel transportation systems may co-exist, as follows:

- Conveyor systems
  In these systems fuel is dropped onto a moving belt, bucket elevator, drag link conveyor or a screw or auger mechanism. Speed of the conveyor may be varied to meet fuel demand.
- Lean phase pneumatic systems
  In these systems fuel is dropped into a moving airstream, mixes with the air, and travels through a pipe at a velocity of approximately 5000 ft/min. Air pressures are in the region of 25 inches water column.

b) Solid Fuel Metering Systems may take a variety of forms depending upon the fuel used and the particle size distribution, as follows:

- Variable speed augers
  Variable speed, helically flighted, augers can be located in the bottom of a fuel metering bin. Alternatively they could be a part of a retort type stoker. The auger dimensions, flighting, and speed range are selected on the basis of fuel being burned, its size range, heating value and required boiler turndown range. The metered fuel typically is then dropped into the throat of a venturi, (or in some cases a plain pipe) though which the fuel transport air flows to carry the fuel into the boiler combustion zone, for distribution on a grate, upon which the burning of the fuel takes place.
- Variable speed air-lock valves
  This valve is basically a rotating slotted cylinder, operating within an outer cylinder, suitably sealed to prevent leakage. Rotational speed and slot dimensions can be varied to accommodate changes in fuel flowrate. The fuel passing through the valve, typically, is deposited onto a moving grate type stoker.
- Variable stroke rams
  This is another device that can be located on the bottom of a metering bin, is typically used on smaller units and is essentially a batch feed mechanism. The stroke of the ram is adjusted to set fuel flowrate.

S3.6 – Combustion Requirements

a) Overfire Air/Underfire Air Distribution

When solid fuels are burned on a grate, rather than in fluidized bed units or in suspension, it is normal practice to introduce some of the combustion air under the grate, or bed, and the remainder over the bed. In many cases fuel transport air becomes a part of the over-the-bed combustion air. The proportioning of the overfire to underfire airflow rates is dependent upon several factors, such as fuel particle size, fuel density, burn rate and volatiles. In general the objective is to get as complete a burn on the grate as possible, without creating large quantities of particulate emissions, and then using the overfire air to complete burning of the volatile and small particulate matter, leaving the fuel bed.

Loss of combustion air from either the underfire or overfire source shall cause shutoff of the fuel supply.

The control system shall be capable of maintaining the correct relationship between underfire air and overfire air, over the complete firing range of the boiler, while promoting complete burning with minimum particulate emissions.

b) Programming Controls

Programming controls may be relay based, or on more current units, PLC based. Interactive graphics displays may also be incorporated into the system.
Access to PLC based controls and interactive graphic displays shall be limited to qualified individuals and password protected. PLC functions shall be confined to the normal boiler operating logic, covering startup, interlocks, and normal shutdown sequences.
Safety controls, which cause boiler safety shutdown when activated, shall not be interfered with by the PLC logic.
Consideration should be given to having the PLC logic comply with the requirements of NFPA-85

c) Pre-firing Checks/interlocks

In addition to the Safety Controls defined in Section 3, proof that the various air handling fans or blowers are operating properly is required. This includes:

- Induced draft fans
- Fuel transport fans
- Underfire air and Overfire air fans, and
- Carbon, or flyash, re-injection fans.

In cases where variable speed drives are used on fans, the combustion system manufacturer's instructions shall be followed in terms of the allowable upper and lower limits of the power supply frequency (Hz).

d) Pre-purging

While the need for pre-purging the boiler and its venting system is not as critical in solid fuel fired boilers, as it is in boilers firing the more volatile gaseous or liquid fuels, it is still a requirement. Unless defined otherwise by the manufacturer of the fuel burning equipment, the pre-purge can be achieved by operating the induced draft fan prior to starting the remaining fans in the installation.
Purge air volume shall be set during commissioning by the combustion system manufacturer, or the manufacturer's representative, in accordance with applicable Codes or Standards and shall not be capable of being reset by operating personnel.

e) Ignition Systems

Solid fuel ignition systems, or methods, can vary from the placement of manually ignited, oil soaked rags on the fuel bed, to gas or oil fired pilot burners or lances.

f) Firing Rate Control and Fuel/Air Ratio Control
The control system shall be capable of maintaining the desired air to fuel ratio over the entire firing range of the boiler, while promoting clean, stable combustion.

g) Re-injection Systems
In installations where fly ash is re-injected from a multi-cyclone collector into the combustion zone for carbon re-burn; precautions should be taken to ensure that plugging of the reinjection pipe work does not occur. Consideration should be given to installing cleanouts in the pipe work.

h) Shutdown and Post Purge
Unless the boiler manufacturer's instructions state otherwise, the fuel supply shall be terminated at shutdown, and the overfire air should remain on until the fuel bed is burned out, and the residue cooled.

S3.7 – Boiler Room Cleanliness

a) While boiler room cleanliness is of primary importance in all boiler rooms it is of particular importance in biomass fired boiler rooms. Biomass can contain fine particulate, which if allowed to leak from the transportation system into the surrounding boiler room, will eventually be drawn into fans, resulting in the possibility of combustion air systems becoming plugged.

b) Boiler rooms containing quantities of fine dusts are susceptible to fire or explosion, again emphasizing the need for high standards of cleanliness.

S3.8 – Emission Control Requirements

a) Emission control is dependent upon the fuel being fired and the emission requirements prevailing at the location of the boiler installation. As such they are a part of the initial design and installation process, and apart from ensuring that they are kept in top working condition, so that emission requirements are not violated; there is little that can be done from the inspector's point of view.

b) When Continuous Emissions Monitors (CEM's) are in use, they should be demonstrated to be functioning properly and have a current calibration sticker.

c) Delta-P pressure gauges which measure the pressure drop across the various elements of the emission control system should all be functioning correctly.

d) There should be no sign of erosion caused by entrained particulate matter, in any part of the breaching, ductwork, stack or the individual emission control elements.

e) In systems in which the emissions control system incorporates a baghouse, appropriate fire detection and suppression systems shall be incorporated and functioning properly.

Definitions

The following definitions are to be added to the Glossary:

Biomass – Fuels which result from biological sources requiring a relatively short time for replenishment: Wood and bagasse are typical examples.

Emissions – The discharge of various Federal or State defined air pollutants into the surrounding atmosphere during a given time period.

Emissions Control System – An arrangement of devices, usually in series, used to capture various air pollutants and thereby reduce the amount of these materials, or gases, being admitted to the surrounding atmosphere, below Federal or State defined standards.

Metering Device – A method of controlling the amount of fuel, or air, flowing into the combustion zone.

Grate – The surface on which fuel is supported and burned and through which air is passed for combustion.

Fluidized Bed – A process in which a bed of granulated particles are maintained in a mobile suspension by an upward flow of air or gas.

Fluidized Bed (Bubbling) – A fluidized bed in which the fluidizing velocity is less than the terminal velocity of individual bed particles where part of the fluidizing gas passes through as bubbles.

Fluidized Bed (Circulating) - A fluidized bed in which the fluidizing velocities exceed the terminal velocity of the individual bed particles.

Suspension Burner – A combustion system in which the fuel is in the form of relatively small particles, Their buoyancy is maintained in the transport airstream and the fuel/air mixture flow stream, until combustion is completed.

Underfire Air – A method of introducing air beneath the grate surface/fuel bed.

Overfire Air – Air admitted to the furnace above the grate surface /fuel bed. Used to complete the combustion of fine particles, in suspension. Also aids in reducing NOx formation.

Induced Draft Fan – A fan exhausting hot gases from the heat absorbing equipment.

Flyash – Suspended ash particles carried in the flue gas.

Flyash collector – A device designed to remove flyash in the dry form from the flue gas.

Flyash Recycle – The reintroduction of flyash/unburned carbon from the flyash collector into the combustion zone, in order to complete the combustion of unburned fuel, thereby improving efficiency.

Carbons Recycle – See Flyash Recycle

Fuel Transport Fan – A fan which generates airflow capable of moving fuel particles, in suspension, from a metering device to the combustion zone.

Fw: LB NB11-2001
Robin Hough to: Jeanne Bock 07/24/2012 03:59 PM

From: Robin Hough/NationalBoard
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----- Forwarded by Robin Hough/NationalBoard on 07/24/2012 03:59 PM -----

From: Robin Hough/NationalBoard
To: bryan.schulte@nrgenergy.com, chopkins@seattleboiler.com, david.parrish@fmglobal.com, canonicod@epbfi.com., DCook@dir.ca.gov, fhart@furmanite.com, Gary.Scribner@dfs.dps.mo.gov, ggalanes@MWGen.com, HMICHAELRICHARDS.PE@GMAIL.COM, Paul Welch <Paul.Welch@dol.state.ga.us>, banthony@dlt.state.ri.us, jim.riley@conocophillips.com, "Pate, Ralph" <Ralph.Pate@labor.alabama.gov>, jpillow@commonarc.com, jsekely@comcast.net, jwrichar@aol.com, pcbourge@travelers.com, paul.edwards@shawgrp.com, raymond.snyder@arlseinc.com, breetz@state.nd.us, Robert_Wielgoszinski@hsbct.com, RLPulliam@babcock.com, stanleys@dot.gov, Terry Parks/NationalBoard@NationalBoard, mike.webb@xcelenergy.com, Lmac@gLabap.com
Cc: Don.Patten@RFMacDonald.com
Date: 04/16/2012 10:47 AM
Subject: LB NB11-2001

Gentlemen:

The subject letter ballot has now closed. The ballot has passed but due to the concerns of the negative voters the project chair, Don Patten, has decided to withdraw the ballot and take it back to the subcommittee for more work. This item will appear on the agendas for the July meeting.

Thank you,

Robin Hough
NBIC Committee Coordinator
The National Board of Boiler and Pressure Vessel Inspectors
1055 Crupper Avenue
Columbus, OH 43229
614-888-8320 x 228
614-431-3236 Direct Line

COMMITTEE CORRESPONDENCE

COMMITTEE: NBIC

TO: NBIC Committee

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

FROM: Robin Hough
NBIC Secretary

SUBJECT: Letter Ballot NB11-2001 MC

DATE: March 30, 2012

Committee Members,

Letter ballot NB11-2001 MC has now closed. The ballot was approved. The voting results are:

20	Approved
1	Disapproved
1	Abstained
1	Not Voting
3	Not Returned

Per the NBIC Procedures 7.3.2:

"NBIC Committee or subcommittee members shall be apprised of any unresolved comments and given two (2) weeks from notification to reconsider their original vote."

The ballot will remain open until April 13, 2012 for your reconsideration.

:rmh

Ballot Votes NB11-2001 MC

Name	Email	Votes	Vote Date
Paul Edwards	paul.edwards@shawgrp.com	Abstention	03/26/12
Benjamin Anthony	banthony@dlt.state.ri.us	Approve	03/20/12
Bob Reetz	breetz@nd.gov	Approve	03/06/12
Bryan Schulte	bryan.schulte@nrgenergy.com	Approve	03/21/12
Dave Parrish	david.parrish@fmglobal.com	Approve	03/01/12
Domenic canonico	canonicod@epbfi.com	Approve	02/29/12
Don Cook	dcook@hq.dir.ca.gov	Approve	03/01/12
Frank Hart	fhart@furmanite.com	Approve	02/29/12
Gary Scribner	Gary.Scribner@dfs.dps.mo.gov	Approve	03/05/12
George Galanes, PE	ggalanes@mwgen.com	Approve	03/02/12
Jim Riley	jim.riley@conocophillips.com	Approve	03/02/12
Jim Sekely	jsekely@comcast.net	Approve	02/29/12
John Richardson	jwrichar@aol.com	Approve	03/07/12
Lawrence McManamon	lmac@glabap.com	Approve	03/02/12
Michael Richards	hmrichar@southernco.com	Approve	03/02/12
Michael Webb	mike.webb@xcelenergy.com	Approve	03/01/12
Paul Bourgeois	pcbourge@travelers.com	Approve	03/08/12
Paul Welch	paul.welch@dol.state.ga.us	Approve	03/20/12
Raymond Snyder	raymond.snyder@ariseinc.com	Approve	03/01/12
Ronald Pulliam	rlpulliam@babcock.com	Approve	03/04/12
Stanley Staniszewski	stanley.staniszewski@dot.gov	Approve	03/21/12
James Pillow	jpillow@commonarc.com	Disapprove	03/21/12
Craig Hopkins	chopkins@seattleboiler.com	Not Voted	N/A
Ralph Pate	ralph.pate@labor.alabama.gov	Not Voted	N/A
Robert Wielgoszinski	Robert_Wielgoszinski@hsbct.com	Not Voted	N/A
Terry Parks	tparks@nationalboard.org	Not Voting	02/29/12

Ballot Comments NB11-2001 MC

Ballot Comments

Name	Document	Comment	Date Created
Donald Patten	NB11-2001	I looked at ASME 2007 edition Addenda 2009 and found nothing stipulating the location of a relief valve for isolable economizers. Please see a copy of the attached from said edition. If anyone can point me in the direction of where I can find this information I would greatly appreciate it.	03/27/2012
Donald Patten	NB11-2001	I responded with a copy of the attached from ASME. I could not find any stipulation for isolable economizers relief valve location. I had asked Mr. Pillows to please provide this information so I could review.	03/27/2012
Donald Patten	NB11-2001	I look at ASME Section 1 2007 Addenda 2009. I could not find any stipulation of relief valve location. See attached copy of PG 67.2.6. If you could point me to the section that designates or stipulates installation location of a relief valve for an isolable economizer I would greatly appreciate it.	03/27/2012
Paul Edwards		I would like to see a response to Mr. Pillow's concern.	03/26/2012
James Pillow		Jpillow 3/21/12 I disapprove because the proposal is an attempt to re-write ASME Section I rules that already address mounting of pressure relief valves. Section I does not allow the mounting of the valves "as recommended by the Manufacturer". Keep in mind that Part 1 of the NBIC does not overrule the Section I rules.	03/21/2012
Donald Patten		Mr. Richardson, I queried Mr. Olson at Victory Energy and below is his comments: Locating the PSV at the outlet without specifying an outlet location does not support an idea that the outlet of an isolated economizer is the strategic location for the PSV. The commenter is correct that, when the economizer is isolated, rarified fluid will immediately begin to collect at the upper areas. Due to the fact that the PSV can be set very close to operating pressures, the time element may not always come into affect. Anyway we look at it, allowing or the PSV location to be determined by the Designer is most beneficial. Regards, David Olson	03/21/2012
John Richardson		I approve this ballot with some hesitation. During normal operation the cooler, more dense fluid if. water or wet steam would be entering the top of the exchanger. The valve is apparently sized for steam but is the slower discharge rate advisable ?? When isolation occurs a sudden transient would follow in which the more rarified fluid would collect at the top. Is it possible that the original requirement to place the PRV at or near the outlet was due to the time element?? How rapid is the pressure rise in the heat	03/07/2012

	exchanger?? How long does the heat input continue?? I trust Victory Energy has looked at all the credible scenarios. Perhaps I will have a chance to look at this a bit closer before the ballot closes.	
George Galanes, PE	This is more of an editorial comment, but I believe it would be better stated below; The safety valve shall be installed in a location either recommended by the manufacturer, or if no recommendation is provided shall be located as close as practical to the economizer outlet.	03/02/2012

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Robin Hough		This commnet comes from Donald Patten: I was unaware of any conflicts with ASME. When we as the subcommitte voted we all voted for the submitted change. Now that there is a conflict. I agree that this should be sent back to us and I will submit to the ASME on this subject. 04/13/2012	04/13/2012
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Robert Wielgoszinski		I vote negative on this in support of the other negative ballotors. First, was this item discussed at the Part 1 Installation subcommittee meeting? If so, what was the result of the deliberation? Was there a vote taken? What was the result of that vote? Secondly, this proposal conflicts with the intent of the ASME Code Section I and inclusion in the NBIC would usurp the completion of ASME Code requirements. If this valve alignment is something that is allowed or common in other international boiler standards, then perhaps the	04/11/2012

		proposal should be revised accordingly.	
Michael Webb		To Jim Pillow's comment: Seemingly the original code of construction may be circumvented. As indicated by the statement of need, there is no intent to deviate from the requirements of ASME Section 1 or Section VIII, Div.I as applicable; but the proposed language as stated does not align the manufacturer to the original code of construction. In my opinion, Mr. Pillow's comment needs to be addressed and the language refined to reflect an alignment to the original code of construction. M. Webb	04/11/2012
George Galanes, PE		GWG 4/11/12; I am changing my vote from approve to disapprove. After further re-consideration and no follow-up response to Mr. Pillow's original comment regarding Section I rules by the PM, I believe the proposed change is unnecessary because the NBIC is not a construction code. There is no need to reference the Manufacturer's recommendation in locating a PRD. The original wording is acceptable and does not conflict with Section I.	04/11/2012
Bob Reetz		I would like to change my vote from approve to disapprove after viewing Mr. James Pillow's comments. We should not be addressing this issue as it is the jurisdiction of Section I and should be handled there. Part I of the NBIC cannot be used to overrule Section I. The request should be handled by Section I. Section I, Figure PG 58.3.1(b), shows the location of a safety valve for an isolable economizer to be the outlet and not the inlet. I am not sure if Donald Patten has viewed this section.	04/02/2012
Donald Patten	NB11-2001	I looked at ASME 2007 edition Addenda 2009 and found nothing stipulating the location of a releif valve for isolable economizers. Please see acopy of the attached from said edition. If anyone can point me in the direction of wher I can find this information I would greatly appreciate it.	03/27/2012
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Don Patten Comment

Copy from ASME Section 1 – 2007 Edition Addenda 2009

PG-67.2.6 Any economizer that may be shut off from the boiler, thereby permitting the economizer to become a fired pressure vessel, shall have one or more pressure relief valves with a total discharge capacity, in lb /hr (kg/hr), calculated from the maximum expected heat absorption in Btu/hr (W), as determined by the Manufacturer, divided by 1,000 (646). This absorption shall be stated in the stamping (PG-106.4). For overpressure conditions where the fluid relieved is water, the discharge capacity of the pressure relief valve, or valves shall be sufficient to prevent the pressure from exceeding the limits of PG-67.2.

NB 11-2001 ***Part 1, 2.9.4 SG Pressure Vessels and Piping*** - Address the safe venting isolatable economizers where the outlet is below the inlet of other communicable chambers (Headers, drums, etc.)

Current Language:

2.9.4 ECONOMIZERS

An economizer that may not be isolated from a boiler does not require a safety relief valve. Economizers that may be isolated from a boiler or other heat transfer device, allowing the economizer to become a fired pressure vessel, shall have a minimum of one safety relief valve. Discharge capacity, rated in lbs/hr (kg/hr), of the safety relief valve or valves shall be calculated from the maximum expected heat absorption rate in Btu/hr (Joules/hr) of the economizer, and will be determined from manufacturer data, divided by 1000. The safety relief valve shall be located as close as possible to the economizer outlet.

Proposed Language:

2.9.4 ECONOMIZERS

An economizer that may not be isolated from a boiler does not require a safety relief valve. Economizers that may be isolated from a boiler or other heat transfer device, allowing the economizer to become a fired pressure vessel, shall have a minimum of one safety relief valve. Discharge capacity, rated in lbs/hr (kg/hr), of the safety relief valve or valves shall be calculated from the maximum expected heat absorption rate in Btu/hr (Joules/hr) of the economizer, and will be determined from manufacturer data, divided by 1000. The safety relief valve shall be installed in a locationed recommended by the manufacturer, when no recommendation exists the location shall be as close as practical possibleto the economizer outlet.

Statement of Need

Victory Energy intends to design isolatable economizers, in accordance with ASME Section I and VIII Div1, and have the PSV located on the uppermost chamber instead of the Outlet connection. ASME requirements for PSVs ensure that the PSV is large enough to vent the energy in the form of steam. The same size PSV venting hot water potentially releases many more times the energy as venting steam. The amount of energy released in a given time is often excessive for vent piping, condensate tanks, and drains to handle. It is preferred to vent the energy as steam, over a longer period of time. Rapid draining of the economizer also allows the economizer to rapidly increase in temperature, causing undue stress. Furthermore, this request should serve to more closely align this part of the code with the ASME codes.

Background Information

An example would be a vertical counterflow economizer where the inlet header is located above the outlet (as in Figure 1) If the designer can specify where the PSV be located then the PSV may be placed such that the release of energy, via steam, happens more slowly through the same size PSV.

Figure 1 illustrates a counter-flow economizer, in a vertical up gas path, having horizontal headers, with the outlet header below the inlet. When this type of economizer is isolated during operation, and the PSV is tripped, steam will begin to collect in the upper "inlet" header. This design allows a more controlled venting of isolatable economizers by venting steam instead of hot water. Figure 1 also illustrates moving the safety relief valve from the outlet to the preferred location.

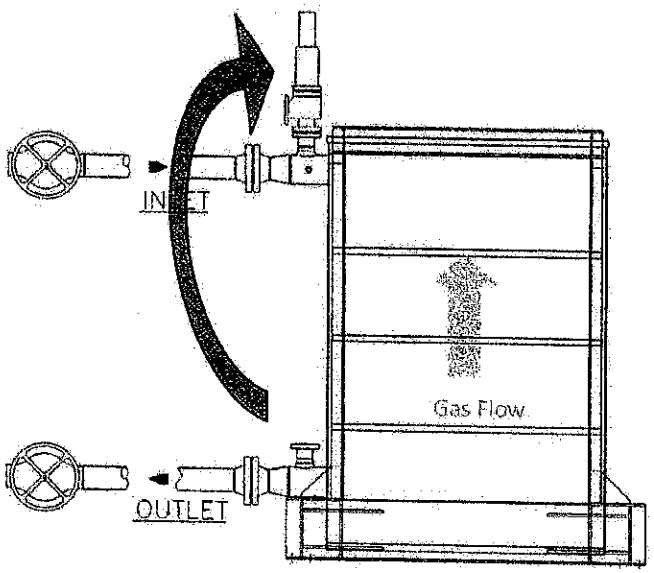

Figure 1

David Olson

QCM

Victory Energy Operations, LLC

918-340-9942