

Date Distributed:



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

NATIONAL BOARD SUBGROUP INSPECTION

MINUTES

Meeting of January 12, 2021
San Antonio, TX

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

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

1. Call to Order

Chairman, Darrell Graf called the meeting to order at 8:02 am (CST)

2. Introduction of Members and Visitors

Secretary, Jodi Metzmaier, took a roll call for all members and visitors. All members stated “here” and all visitors stated their name and their company/interest. The members and visitors are listed on the attendance sheet (**Attachment Page 1**).

William Hackworth sat as an alternate for Paul Welch.

3. Check for a Quorum

With the members in attendance, both in person and remotely, a quorum was established.

4. Awards/Special Recognition

There were no awards/special recognitions given at this meeting.

5. Announcements

Secretary, Jodi Metzmaier made announcements to the group (**Attachment Pages 2-3**).

6. Adoption of the Agenda

Motion was made to adopt the agenda as presented. The motion was seconded and **unanimously approved**.

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

A motion was made to approve the minutes from the Subgroup Inspection Meeting on July 14, 2020. The motion was seconded and **unanimously approved**.

8. Review of Rosters

a. Membership Nominations - None

b. Membership Reappointments

Mr. Matt Sansone and Mr. Tim Barker have memberships to Subgroup Inspection that are set to expire on January 30, 2021.

Both members would like to continue their membership in Subgroup Inspection. A motion was made to reappoint both members. The motion was seconded and **unanimously approved**.

c. Officer Appointments - None

9. Open PRD Items Related to Inspection - There are currently no open PRD items related to Inspection.

10. Interpretations - There are no Interpretations for Subgroup Inspection.

11. Action Items

Item Number: 18-43	NBIC Location: Part 2, Section 5	No Attachment
General Description: Permanent nameplate removal from pressure vessel being removed from service		
Subgroup: Inspection		
Task Group: J. Roberts (PM), J. Burgess, J. Calvert, T. Shernisky , J. Clark, M. Sansone		
January 2021 Action:		
Progress Report: Mr. Roberts presented this item with the Subgroup. The Subgroup read through and discussed some of the disapproval comments from the Main Committee Letter Ballot. The Subgroup made a few changes to the proposal. The task group has decided to go back, address all the disapproval comments and revise the proposal as needed. They are hoping to have a revised proposal to present to the Subgroup after a breakout session or at the Subcommittee Inspection meeting.		
Remove T. Shernisky from the task group.		

Item Number: 18-63	NBIC Location: Part 2	Attachment Pages 4-7
General Description: Review inspection requirements for pressure vessels designed for high pressures		
Subgroup: Inspection		
Task Group: V. Scarcella (PM), J. Mangas, J. Peterson, T. Bolden and J. Castle		
January 2021 Action:		
Mr. Scarcella presented this item to the group along with a proposal. The group had a few questions for the task group which were addressed. After further discussion, a motion was made to approve the proposal as presented. The motion was seconded and passed with 3 “disapproval” votes and 1 “not voting” vote . The disapproval responses are attached with the proposal.		

Item Number: 19-46	NBIC Location: Part 2, S5.1	No Attachment
General Description: Revisions to Yankee dryer supplement in Part 2 (Scope)		
Subgroup: Inspection		
Task Group: V. Newton (PM), T. Barker, D. Lesage, J. Jessick		
Explanation of Need: Ensure that wording in Part 2, S5.1, is identical to that found in Part 1, S1.1.		
January 2021 Action:		
Progress Report: Mr. Newton stated that Mr. Jessick is no longer in the position to be a part of the task group. Mr. Newton asked Mr. Barker to give a report on the item. Mr. Barker has stated there is a document that was revised, and not yet published, from TAPPI (Technical Association of the Pulp and Paper Industry) which is related to this subject. He would like to hold off on making any further changes until they review the revised document from TAPPI.		
Remove J. Jessick from the task group.		
Change the PM to T. Barker		

Item Number: 19-63	NBIC Location: Part 2, S5.2	No Attachment
General Description: Changes to the Yankee Dryer Supplement (ASSESSMENT OF INSTALLATION)		
Subgroup: Inspection		
Task Group: V. Newton (PM), T. Barker, D. Lesage, J. Jessick		
Explanation of Need: Ensure that wording in Part 2, S5.2, is identical to that found in Part 1, S1.2. Note that wording will be the same, but paragraph numberings will be different.		
January 2021 Action:		
Progress Report: Mr. Newton stated that Mr. Jessick is no longer in the position to be a part of the task group. Mr. Newton asked Mr. Barker to give a report on the item. Mr. Barker has stated there is a document that was revised, and not yet published, from TAPPI (Technical Association of the Pulp and Paper Industry) which is related to this subject. He would like to hold off on making any further changes until they review the revised document from TAPPI.		
Remove J. Jessick from the task group.		
Change the PM to T. Barker		

Item Number: 19-64	NBIC Location: Part 2, S5.2.1	No Attachment
<p>General Description: Changes to the Yankee Dryer Supplement (DETERMINATION OF ALLOWABLE OPERATING PARAMETERS)</p> <p>Subgroup: Inspection Task Group: V. Newton (PM), T. Barker, D. LeSage, J. Jessick</p> <p>Explanation of Need: Ensure that wording in Part 2, S5.2.1, is identical to that found in Part 1, S1.3. Note that wording will be the same, but paragraph numberings will be different.</p>		
<p>January 2021 Action:</p> <p>Progress Report: Mr. Newton stated that Mr. Jessick is no longer in the position to be a part of the task group. Mr. Newton asked Mr. Barker to give a report on the item. Mr. Barker has stated there is a document that was revised, and not yet published, from TAPPI (Technical Association of the Pulp and Paper Industry) which is related to this subject. He would like to hold off on making any further changes until they review the revised document from TAPPI.</p> <p>Remove J. Jessick from the task group. Change the PM to T. Barker</p>		

Item Number: 19-88	NBIC Location: Part 2, 2.2.12.7 c) 2)	Attachment Pages 8-10
<p>General Description: At NBIC Part II propose the following be added to Thermal Fluid Heater</p> <p>Subgroup: Inspection Task Group: V. Scarcella (PM), M. Sansone, M. Wadkinson & T. Bolden</p> <p>Explanation of Need: These items are essential to preventing catastrophic loss and are low cost items.</p>		
<p>January 2021 Action:</p> <p>Tim Bolden presented a proposal to the group. The changes were reviewed and discussed by the group. Mr. Scarcella stated that Ms. Watkinson was part of the task group discussions. A few changes were made to the proposal and a motion was made to accept the revised proposal, with the condition that these changes will also be sent to Part 1 and Part 4, as applicable, for comment, clarification, and confirmation. If Part 1 or Part 4 have comments or changes they want to make, the group decided we will make those at the Subcommittee level. The motion was seconded and unanimously approved.</p> <p>The document that was unanimously approved at the SG Inspection meeting was sent to the Part 1 (Subgroup Installation) and Part 4 (R & A Subgroup) for review and comment. The proposal was returned to Subgroup Inspection prior to the meeting end. Part 1 agreed with the change applicable to them and had no comments. Part 4 made a few changes to Part 2, 2.2.12.7 c)1f. The changes made by Part 4 were reviewed by Subgroup Inspection, and they agreed with the changes. The member who made the original motion, revised their motion to approve the revised proposal. The seconder to the original motion seconded the motion of the revised proposal. Another vote was taken and approved unanimously.</p>		

Item Number: 20-5	NBIC Location: Part 2, 4.1 – 4.4	No Attachment
General Description: Add language in NBIC Pt2/Pt3 to minimize CSEs by allowing remote NDE.		
Subgroup: Inspection		
Task Group: V. Newton (PM), J. Morgan, M. Horbaczewski, D. Graf, D. LeSage, D. Rose		
Explanation of Need: In order to minimize higher-risk work, specifically Confined Space Entries, remote NDE methodologies should be specifically allowed by the NBIC, at the discretion of the people performing the inspections.		
January 2021 Action:		
Progress Report: Mr. Newton and Mr. Graf gave a progress report for this item.		

Item Number: 20-46	NBIC Location: Part 2, 5.3.2	No Attachment
General Description: Updates to Forms NB-5, NB-6, & NB-7.		
Subgroup: Inspection		
Task Group: D. Buechel (PM), M. Sansone, V. Scarcella		
Explanation of Need: On the current forms NB-5, NB-6, & NB-7 there are fields that are already on the ASME Manufactures Data Report making them repetitive. Other fields that ask for in- depth technical information would be hard if not impossible for an inspector to determine and are irrelevant to the inspection process.		
January 2021 Action:		
Progress Report: Mr. Buechel shared the information he has collected on the forms, and reported the changes he wants to make. He will be putting a list of the changes together, and the task group will work to create proposed forms showing all the changes. The group discussed how these forms are used, and if they are still used/needed. Mr. Buechel stated there are still a handful of Jurisdictions that use the forms. Mr. Sansone and Mr. LeSage will discuss these forms with the JRS group at their next meeting to get their input. They will then work with the task group so everyone is on the same page with how to move forward.		
Add D. LeSage to the task group		

New Items:

Item Number: 20-57	NBIC Location: Part 2, 4.4.1 a)	No Attachment
<p>General Description: Evaluate revision to Part 2, 4.4 FFS scope roles and responsibilities (submitted by Mr. George Galanes).</p> <p>Subgroup: Inspection Task Group: None assigned</p> <p>Explanation of Need: Currently, there is confusion surrounding implementation of FFS for Part 2 inspection activities, where the FFS form is located and Part 3 activities regarding Part 3, 3.3.4.8 because it references Part 2 for FFS. In addition, we need to have a Part 2 Inspection member to be assigned to assist in the development of roles and responsibilities.</p>		
<p>January 2021 Action:</p> <p>Chairman, Mr. Graf has presented this item to the group. After discussion, the group decided to create a Task Group.</p> <p>Task Group: M. Horbaczewski (PM) and B. Ray.</p>		

Item Number: 20-59	NBIC Location: Part 2, 5.2.1 a)	No Attachment
<p>General Description: Temporary nameplate removal for external inspection (submitted by Mr. Doug Biggar).</p> <p>Subgroup: Inspection Task Group: None assigned</p> <p>Explanation of Need: What is being added to NBIC part 2 (item 19-30) for NBIC 2021 edition: [(e) removal and re-attachment of the original manufacturer's nameplate shall only be done in accordance with NBIC Part 3, 5.11]. To have an inspector present onsite each time we need to have a nameplate temporarily removed has a cost that a commercial refurbisher such as ourselves would need to pass onto the customer as well as dramatically affect the efficiency of our assembly line.</p>		
<p>January 2021 Action:</p> <p>Chairman, Mr. Graf has presented this item to the group. The group reviewed the proposal. They discussed whether this item should be moved to Part 3 as opposed to Part 2. Mr. Wielgoszinski stated he does not believe the item should be moved to Part 3 because it is generally an inspection issue where this occurs. The group has decided to create a task group to see if the current wording in a) needs to be broken out, and they will also look into adding information into this section to address "Detached Nameplates".</p> <p>Task Group: T. Vandini (PM), B. Ray, J. Roberts, V. Newton, M. Sansone</p>		

Item Number: 20-82	NBIC Location: Part 2, 5.2.2 a) & 5.3.3	Attachment Pages 11-15
General Description: Reporting of Form NB-136 (submitted by Mr. Bob Underwood)		
Subgroup: Inspection		
Task Group: None assigned		
Explanation of Need: Revise NB-136 Reporting requirements to permit the original manufacturer of the pressure retaining item to prepare and submit the form.		
January 2021 Action:		
Secretary, Ms. Metzmaier read through the proposed changes in the text, to the form, and to the instructions for the form. Mr. Ponce spoke to this item stating he worked with Mr. Underwood to create this proposal. The group made some editorial changes to the document. A motion was made to accept the proposal as revised. The motion was seconded and unanimously approved.		

12. Future Meetings

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

Chairman, Mr. Graf, and Mr. Ponce discussed the future meetings with the group.

13. Adjournment

A motion was made and seconded to adjourn the meeting at 11:49 pm (CST)

Respectfully submitted,



Jodi Metzmaier
Subgroup Inspection Secretary

Subgroup Inspection Attendance

MEMBERS:	Interest Category	HERE	In Person	Remote	Not In Attendance
Darrell Graf - Chair	National Board Certificate Holders	x	x		
Jim Getter - Vice Chair	Manufacturers	x		x	
Tim Barker	Authorized Inspection Agencies	x		x	
Ernest Brantley	Authorized Inspection Agencies	x	x		
David Buechel	Authorized Inspection Agencies	x		x	
James Calvert	National Board Certificate Holders	x		x	
James Clark	Manufacturers	x		x	
Mark Horbaczewski	Users	x		x	
Donnie LeSage	Jurisdictional Authorities	x		x	
John Mangas	General Interest	x		x	
Venus Newton	Authorized Inspection Agencies	x	x		
Jeffrey Petersen	Users	x		x	
Brent Ray	Users	x		x	
James Roberts	Manufacturers	x		x	
David Rose	Users	x		x	
Jason Safarz	General Interest	x		x	
Matt Sansone	Jurisdictional Authorities	x		x	
Vincent Scarella	Authorized Inspection Agencies	x		x	
Thomas Vandini	National Board Certificate Holders	x		x	
Paul Welch	Authorized Inspection Agencies				x
William Hackworth (Alternate)	Authorized Inspection Agencies	x		x	

VISITORS:	Company/Title/Interest	HERE	In Person	Remote
Adrian Gibbs	Boiler Inspector with WI	x		x
David Warshall	NYC Department of Buildings	x		x
M.A. Shah	ABM Industrial Services Inc. located in Canada	x		x
Mike Whitlock	Field Service Supervisor with HSB	x		x
Tim Memmer	Senior Design Eng. At Quality Steel	x		x
Chris Derks	Mechanical Safety Consultant with WI	x		x
Jeff Castle	Zurich	x		x
Tim Bolden	CNA Insurance	x		x
Joel Amato	NBBI		x	
Luis ponce	NBBI	x	x	
Gary Scribner	NBBI	x	x	
Bob Wielgoszinski	NBIC Main Committee Chariman	x		x

Announcements

- Zoom Notes:
 - Make sure all participants have their actual name on their zoom account.
 - Request attendees to add an “M” for Member, “V” for Visitor, or “S” for Staff at the end of their name
 - Click “Participants”, click “more” next to your name, click “rename,” and add the applicable letter.
 - Make Chair “co-host” if they are signed in on zoom.
 - Remind everyone to stay muted until they would like to speak.
 - We can use “raise hand” feature if needed.
- The National Board will be hosting a reception for committee members and visitors on Wednesday, January 13, from 5:30 PM - 7:30 PM at Michelinos Restaurant, located at 521 Riverwalk, San Antonio. Mexican cuisine will be served.
- Breakfast (7am) and Lunch (11:30 -12:30) will be provided to NBIC Committee members and visitors on Thursday in Magnolia/Blue Bonnet.
- We will take a short break around 9:30-10:00 for task groups to work on items, and to allow time for coffee/snack/beverage break.
 - Coffee/snacks/beverages will be located on the 3rd floor
- Meetings schedule, meeting room layouts, and other helpful information can be found on the National Board website under the National Board Inspection Code tab → NBIC Meeting Information.
- If the meeting ends early use the extra time to work with your task groups.
 - This can be done through Zoom/WebEx if needed.
- Remember to add any attachments that you’d like to show during the meeting, (proposals, reference documents, power point, etc.) to the cloud prior to the meeting.
 - If needed we can go over how to do this.
- Always submit attachments in word format showing “strike through/underline”
 - Does anyone need to know how to do this?
- Naming format reminder:
 - *Item number - person who made the revision - date update*

Announcements

- 2021 NBIC will be available for purchase on July 1, 2021, and will become mandatory on January 1, 2022.
- **We will do a voice voting for the negatives, not voting, and abstentions only.** Once the motion and second have been established, the chair will ask for any negatives, not voting and abstentions.
- **For new member voting,** we will let the nominees speak on their behalf, and then send them to a “breakout room” while the group has a discussion and vote. Once the vote is completed, the nominees will be allowed back into the main meeting “room”.
- As a reminder, anyone who would like to become a member of a group or committee:
 - must attend at least 2 meetings prior to being put on the agenda for membership consideration. The nominee will be on the agenda for voting during their 3rd meeting.
 - The nominee should submit the formal request along with their resume to Jonathan PRIOR TO the meeting. nbicsecretary@nationalboard.org
 - If needed, we can also create a ballot for voting on a new member between meetings. To do this, you will need to contact Jonathan.

Item 18-63

Proposed NBIC Part II Section 2.3.6.11.

2.3.6.11 INSPECTION OF VESSELS FOR PRESSURES AT AND ABOVE 10,000 PSI

- a) This section provides guidelines for the inspection of pressure vessels designed for pressures at or above 10,000 PSI.
- b) Inspector shall verify the vessel is constructed to a standard acceptable to the jurisdiction.
- c) The inspector shall verify the following requirements as part of the inspection:
 - 1) Records are being kept of cycles;
 - 2) Complete documentation of installation of safety interlocks required by the manufacturer and the jurisdiction for the vessel with listed set points, readily available to the operator and inspector. All devices must be listed;
 - 3) Documentation safety device alarms and interlock checks are being completed on each protective device and controls are calibrated in accordance with manufacturers specifications;
 - 4) Operators and maintenance personnel are trained for the inspection, maintenance and operation of the vessel and systems; and
 - 5) Documentation of pressure relief device inspection and testing.
- d) Vessels constructed for a set number of cycles, as defined by the code of construction, which have reached the end of those cycles, must be removed from service or requalified for continued use. Any requalification for continued service must be completed in accordance with the requirements of the jurisdiction, where applicable. The inspector shall verify that documentation of any requalification is retained.
- e) Requalification of any vessel shall either be completed by the original manufacturer or a manufacturer familiar with the construction of pressure vessels at and above 10,000 PSI. Guidance for completing requalification can be found in ASME PCC-3, *Inspection Planning and Using Risk-Based Methods*.



To: Jodi Metzmaier/NationalBoard@NationalBoard,
Cc:
Bcc:
Subject: Fw: No vote 18-63
From: Jonathan Ellis/NationalBoard - Wednesday 01/20/2021 09:39 AM

From: "Graf,Darrell R." <GRAFDR@airproducts.com>
To: "JEllis@nationalboard.org" <JEllis@nationalboard.org>, "Vincent.Scarcella@cna.com" <Vincent.Scarcella@cna.com>
Cc: "Mangas,John" <MANGASJC@airproducts.com>
Date: 01/12/2021 06:45 PM
Subject: No vote

Hi Jonathon

I voted no today on item 18-63

General Description: Review inspection requirements for pressure vessels designed for high pressures

Reason for the no vote see below:

Proposed NBIC Part II Section 2.3.6.11. Task 18-63

2.3.6.11 Inspection of Vessels for pressures at and above 10,000 PSI

a) This section provides guidelines for the inspection of pressure vessels designed for pressures at or above 10,000 PSI.

b) Inspector shall verify the vessel is constructed to a standard acceptable to the jurisdiction.

c) The inspector shall verify the following these requirements as part of the inspection:

1. Records are being kept of cycles

would like additional info / definition of cycles count

2. Complete documentation of installation of safety interlocks required by the manufacturer and the jurisdiction for the vessel with listed set points, readily available to the operator and inspector. All devices must be listed.

3. Documentation safety device alarms and interlock checks are being completed on each protective device and controls are calibrated in accordance with manufacturers specifications

4. Operators and maintenance personal are trained for the inspection, maintenance and operation of the vessel and systems

5. Documentation of pressure relief device inspection and testing

d) Vessels constructed for a set number of cycles, as defined by the code of construction, which have reached the end of those cycles, must be removed from service or requalified for continued use. Any requalification for continued service must be completed in accordance with the requirements of the jurisdiction. The inspector shall verify that documentation of any requalification is retained.

e) Requalification of any vessel shall either be completed by the original manufacturer or a manufacturer familiar with the construction of pressure vessels at and above 10,000 PSI. Guidance for completing requalification can be found in ASME PCC-3, Inspection Planning and Using Risk-Based Methods.



To: Jodi Metzmaier/NationalBoard@NationalBoard,
Cc:
Bcc:
Subject: Fw: No vote on 18-63
From: Jonathan Ellis/NationalBoard - Wednesday 01/20/2021 09:39 AM

From: "Venus Newton" <venus.newton@bpcllca.com>
To: Vincent.Scarcella@cna.com, NBICSecretary@nationalboard.org
Date: 01/12/2021 06:04 PM
Subject: No vote on 18-63

Vinny,

I feel that we need to include the following in some form or fashion:

- 1) Records are being kept of cycles, ensuring that the max number of cycles as per the mfg. have not been exceeded. If they have been exceeded then proceed to d) below.

- 5) Operators and maintenance personnel are trained for the inspection, maintenance and operation of the vessel and systems as per the MFG recommendations or something to that effect. Asking an Inspector to verify someone is trained without any guidance on what kind of training leaves the Inspector and their Company exposed to liability for verifying that the training is adequate.

I cannot agree to this proposal unless and until these concerns are addressed.

Be Safe,
Venus Newton
President
Boiler & Property Consulting, LLC
Venus.newton@boilerproperty.com
Cell: 404-710-8626

AXA XL Risk Consulting
AXA XL, a division of AXA
5018 Bristol Industrial Way
Suite 203
Buford, Georgia 30518
Phone: +1-770-614-3111, Fax: +1-470-592-8437



To: Jodi Metzmaier/NationalBoard@NationalBoard,
 Cc:
 Bcc:
 Subject: Fw: NBIC SG Inspection Part 2 Item18-63
 From: Jonathan Ellis/NationalBoard - Wednesday 01/20/2021 10:29 AM

From: "Donnie Lesage" <Donnie.Lesage@la.gov>
 To: "NBICSecretary@NationalBoard.org" <NBICSecretary@NationalBoard.org>, "Vincent Scarcella - CNA Insurance Company" <Vincent.Scarcella@CNA.com>
 Date: 01/12/2021 05:53 PM
 Subject: NBIC SG Inspection Part 2 Item#18-63

Hi Vinny, my position on this proposal today was actually neutral. However, I felt a vote in favor or an abstention would just pass it along lacking critical information required for the inspector. I am in favor of providing the much needed guidance to the Inspector for these types of vessels , I'm just not sure this proposal is clear enough to get past the Main Committee. I look at it from my simple minds prospective and figure if I can make it read so I can understand its requirements, then everyone else should have no problems understanding it as well. Also, please take into account I do not possess a copy of the ASME PCC-3, Inspection Planning and Using Risk-Based Methods document and I am not familiar with it. I wasn't sure how detailed I needed to be so, I've simply made some suggestions in red below for your consideration. I would be happy to discuss over a phone call or please let me know if any further information is needed. Regards,

Proposed NBIC Part II Section 2.3.6.11. Task 18-63

2.3.6.11 Inspection of Vessels for pressures at and above 10,000 PSI

a)This section provides guidelines for the inspection of pressure vessels (PRI Pressure Retaining Items?) designed for pressures at or above 10,000 PSI.

b) The Inspector shall verify the vessel is constructed to a standard acceptable to the jurisdiction where applicable.

c)The inspector shall verify the following requirements as part of the inspection:

1.Historic records are being kept of the number of cycles the pressure vessel (or PRI) has experienced. A cycle shall be defined by either the code of construction, the manufacturer or the owner.

2.Complete documentation of installation of safety interlocks required by the manufacturer and the jurisdiction for the vessel (PRI?) with listed set points, readily available to the operator and inspector. All devices must be listed.

3.Documentation of safety device alarms and interlock checks are being completed on each protective device and controls are calibrated in accordance with manufacturers specifications

4.Operators and maintenance personal are trained for the inspection, maintenance and operation of the vessel and systems

5.Documentation of pressure relief device inspection and testing

d)Vessels (PRI's?) constructed for a set number of cycles, as defined by the code of construction, which have reached the end of those cycles, must be removed from service or requalified for continued use. Any requalification for continued service must be completed in accordance with the requirements of the jurisdiction where applicable. The inspector shall verify that documentation of any requalification is retained.

e)Requalification of any vessel shall either be completed by the original manufacturer or a manufacturer familiar with the construction of pressure vessels at and above 10,000 PSI. Guidance for completing requalification can be found in ASME PCC-3, Inspection Planning and Using Risk-Based Methods.

Donnie LeSage
 Louisiana State Fire Marshal Office
 Support Services Captain / Chief Boiler Inspector
 Office: 225-925-4572
 Cell: 225-268-5549

Revision Date: January 6, 2021

2.2.12.7 THERMAL FLUID HEATERS

a) Design and Operating Features

- 1) Many thermal fluid heaters are pressure vessels in which a synthetic or organic fluid is heated or vaporized. Some thermal fluid heaters operate at atmospheric pressure. The fluids are typically flammable, are heated above the liquid flash point, and may be heated above the liquid boiling point. The heaters are commonly direct-fired by combustion of a fuel or by electric resistance elements. Heater design may be similar to an electric resistance heated boiler, to a firetube boiler or, more commonly, to a watertube boiler. Depending on process heating requirements, the fluid may be vaporized with a natural circulation, but more often, the fluid is heated and circulated by pumping the liquid. Use of thermal fluid heating permits heating at a high temperature with a low system pressure (600°F to 700°F [316°C to 371°C] at pressures just above atmospheric). To heat water to those temperatures would require pressures of at least 1,530 psig (10.6 MPa).
- 2) Nearly all thermal heating fluids are flammable. Leaks within a fired heater can result in destruction of the heater. Leaks in external piping can result in fire and may result in an explosion. Water accumulation in a thermal heating system may cause upsets and possible fluid release from the system if the water contacts heated fluid (remember, flashing water expands approximately 1,600 times). It is essential for safe system operation to have installed and to maintain appropriate fluid level, temperature and flow controls for liquid systems, and level, temperature, and pressure controls for vapor systems. Expansion tanks used in thermal heater systems, including vented systems, should be designed and constructed to a recognized standard such as ASME Section VIII, Div. 1, to withstand pressure surges that may occur during process upsets. This is due to the rapid expansion of water exceeding the venting capability.
- 3) Because heat transfer fluids contract and become more viscous when cooled, proper controls and expansion tank venting are required to prevent low fluid level and collapse of the tank. Some commonly used fluids will solidify at temperatures as high as 54°F (12°C). Others do not become solid until -40°F (-40°C) or even lower. The fluids that become viscous will also become difficult to pump when cooled. Increased viscosity could cause low flow rates through the heater. The heater manufacturer recommendations and the fluid manufacturer's Material Safety Data Sheets (MSDS) should be reviewed for heat tracing requirements.

4) Verify the thermal fluid heaters have stack gas temperature indicators, alarms and safety shut down devices. Stack gas temperatures shall be monitored and recorded daily while in operation.

b) Industrial Applications

Thermal fluid heaters, often called boilers, are used in a variety of industrial applications such as solid wood products manufacturing, resins, turpentine~~s~~, and various types of chemicals, drugs, plastics, corrugating plants, and wherever high temperatures are required. They are also frequently found in asphalt plants for heating of oils, tars, asphalt pitches, and other viscous materials. Many chemical plants use this type of heater in jacketed reactors or other types of heat exchangers.

Revision Date: January 6, 2021

c) Inspection

~~1) Inspection of thermal fluid heaters typically is done in either the operating mode or the shutdown mode. Internal inspections, however, are rarely possible due to the characteristics of the fluids and the need to drain and store the fluid. Reliable and safe operation of a heater requires frequent analysis of the fluid to determine that its condition is satisfactory for continued operation. If the fluid begins to break down, carbon will form and collect on heat transfer surfaces within the heater. Overheating and pressure boundary failure may result. Review of fluid test results and control and safety device maintenance records are essential in determining satisfactory conditions for continued safe heater operation.~~

2)1) Due to the unique design and material considerations of thermal fluid heaters and vaporizers, common areas of inspection are:

- a. Design — Specific requirements outlined in construction codes must be met. Some jurisdictions may require ASME Section I or Section VIII construction. Code requirements for the particular Jurisdiction should be reviewed for specific design criteria;
- b. Materials — For some thermal fluids, the use of aluminum or zinc anywhere in the system is not advisable. Aluminum acts as a catalyst that will hasten decomposition of the fluid. In addition, some fluids when hot will cause aluminum to corrode rapidly or will dissolve zinc. The zinc will then form a precipitate that can cause localized corrosion or plug instrumentation, valves, or even piping in extreme cases. These fluids should not be used in systems containing aluminum or galvanized pipe. The fluid specifications will list such restrictions;

Note: Some manufacturers of these fluids recommend not using aluminum paint on valves or fittings in the heat transfer system.

- c. Corrosion — When used in applications and installations recommended by fluid manufacturer, heat transfer fluids are typically noncorrosive. However, some fluids, if used at temperatures above 150°F (65°C) in systems containing aluminum or zinc, can cause rapid corrosion;
- d. Leakage — Any sign of leakage could signify problems since the fluid or its vapors can be hazardous as well as flammable. Areas for potential leaks include cracks at weld attachment points and tube thinning in areas where tubes are near soot blowers. The thermal fluid manufacturer specifications will list the potential hazards;
- e. Solidification of the fluid — Determine that no conditions exist that would allow solidification of the thermal fluid. When heat tracing or insulation on piping is recommended by the heater manufacturer, the heat tracing and insulation should be checked for proper operation and installation;
- f. Pressure relief ~~devices-valves~~ — Pressure relief valves shall be a closed bonnet design with no manual lift lever. Pressure relief valves shall be periodically tested by a VR or T/O Certificate Holder with a frequency in accordance with jurisdictional

Revision Date: January 6, 2021

~~requirements or an initial frequency of 1 year or less. Testing intervals shall be evaluated and may be adjusted based on inspection history up to a maximum of 3 years. The Pressure relief valve discharge should be connected to a closed, vented storage tank or blowdown tank with solid piping (no drip pan elbow or other air gap). When outdoor discharge is used, the following should be considered for discharge piping at the point of discharge: The pressure relief valve installation shall meet the requirements of NBIC Part 4, 2.3. Inspection and testing of the pressure relief device valve shall meet the requirements of NBIC Part 4, 3.0.~~

- ~~1. Both thermal and chemical reactions (personnel hazard);~~
 - ~~2. Combustible materials (fire hazard);~~
 - ~~3. Surface drains (pollution and fire hazard);~~
 - ~~4. Loop seal or rain cap on the discharge (keep both air and water out of the system);~~
 - ~~5. Drip leg near device (prevent liquid collection); and~~
 - ~~6. Heat tracing for systems using high freeze point fluids (prevent blockage).~~
- g. Inspection of thermal fluid heaters shall include verifying that fluid testing is conducted annually and that results are compared to the fluid manufacturer's standard. The inspector shall annually verify the documentation of testing of controls and safety devices.
- h. Vapor phase systems must have a documented vessel and piping risk based inspection assessment program in accordance with NBIC Part 2, 4.5.

NBIC Part 2 Inquiry

Robert Underwood
Hartford Steam Boiler
12/15/20

Item No.	20-82 – Reporting of Form NB-136
Purpose	To permit the original PRI manufacturer to prepare and submit Form NB-136
Statement of Need:	Revise NB-136 Reporting requirements and Form NB-136 to permit the original manufacturer of the pressure retaining item to prepare and submit the form.
Background Information:	<p>This proposal is the result of a field inquiry. Currently, only the owner, user, or R StampCertificate holderHolder are permitted to prepare and submit Form NB-136 (Replacement of Stamped Data). After discussing with NB staff, we saw no reason to prohibit the original PRI manufacturer from replacing stamped data or nameplates and preparing/submitting the NB-136 Form.</p> <p>This proposal will revise 5.2.2(a), Form NB-136, and the instructions on how to complete Form NB-136 (paragraph 5.3.3) to permit the original PRI manufacturer to prepare and submit the NB-136 Form.</p>
Existing Text:	See Attachment
Proposed Text:	See Attachment

5.2.2 REPORTING

- a) The completed Form NB-136 with a facsimile of the replacement stamping or nameplate applied and appropriate signatures shall be filed with the Jurisdiction, if applicable and the National Board by the owner, user, Original Manufacturer, or "R" StampCertificate Holder.

5.3.3 INSTRUCTIONS FOR COMPLETING THE FORM NB-136, REPLACEMENT OF STAMPED DATA FORM

Items 1-12 shall be completed by the owner, user, Original Manufacturer, or "R" StampCertificate holderHolder making the request.

- 1) Enter purchase order, job, or other identifying number used by your company if applicable.
- 2) The name, address and phone number of the Jurisdiction, Authorized Inspection Agency (when there is no Jurisdiction) the form is being submitted to for approval.
- 3) Enter the name and address of your company or organization.
- 4) Enter the name, email, and phone number of the person who can be contacted if there are any questions concerning this request within your company or organization.
- 5) Enter the name and address of the location where the pressure-retaining item is installed. If this is the same as number 3, check the box "same as # 3". If the pressure-retaining item is being refurbished and the final installation location is unknown, check the box "Stock item-unknown".
- 6) Enter the date the pressure-retaining item was installed. If unknown check the box "Unknown".
- 7) Enter the name of the manufacturer of the pressure retaining item the request is being submitted for.
- 8) Manufacturer's Data Report Attached, check the appropriate box.
- 9) Is the pressure-retaining item registered with the National Board? Check the appropriate block. If yes provide the National Board Registration Number.
- 10) Provide as much information as known to help identify the pressure-retaining item.
- 11) Provide a true facsimile of the legible part of the nameplate or stamping.
- 12) Attach any other documentation that helps provide traceability of the vessels to the original stamping, such as purchase orders, blueprints, inspection reports, etc.
- 13) Provide the name of owner, ~~or~~ user, or Original Manufacturer of the pressure-retaining item or "R" StampCertificate holderHolder making the request. If an "R" StampCertificate holderHolder, provide the "R" StampCertificate number. Signature of the requester and date requested.
- 14) To be completed by the Jurisdiction or Authorized Inspection Agency's authorized representative.

If the original manufacturer is currently in business, concurrence shall be obtained by the owner or ~~user~~.

The requester shall submit the form along with any attachments to the Jurisdiction where the pressure-retaining item is installed for approval. If there is no Jurisdiction or the pressure-retaining item is a

stock item, the requester shall submit the form to a National Board Commissioned Inspector for approval.

After authorization, the form will be returned to the owner, user, Original Manufacturer, or "R" StampCertificate holderHolder who made the request. The requester is required to contact the Jurisdiction or an Authorized Inspection Agency to provide a National Board Commissioned Inspector to witness the re-stamping or installation of the new nameplate. If the nameplate is being welded to the pressure-retaining boundary of the vessel, the welding shall be done by a "R" StampCertificate holderHolder. The requester will provide the new nameplate or have the tools on-hand to do the re-stamping in accordance with the original Code of Construction.

- 15) Once the re-stamping is completed, or the new nameplate is attached, the requester shall provide a true facsimile of the replacement stamping.
- 16) The owner, user, Original Manufacturer, or "R" StampCertificate HolderHolder shall fill in their name (and number if an "R" StampCertificate holderHolder), sign and date.
- 17) To be completed by the National Board Commissioned Inspector who witnessed the re-stamping or installation of the new nameplate.

Note: Once completed the requester shall file a copy with the Jurisdiction where the pressure-retaining item is installed, the National Board, and the owner or user of the vessel if the request was made by the Original Manufacturer or and "R" StampCertificate holderHolder, and upon request to the Authorized Inspection Agency who witnessed the re-stamping or attachment of the new nameplate.

REPLACEMENT OF STAMPED DATA FORM, NB-136
in accordance with provisions of the *National Board Inspection Code*

1. _____
(P.O. no., job no., etc.)

2. SUBMITTED TO: _____
(Name of Jurisdiction)

_____ **Change to owner, user,** _____
(Telephone no.)

3. SUBMITTED BY: _____
(Name of Owner, User, **Original Manufacturer,** or **"R"** Certificate Holder)

_____ (Address)

4. _____ (Name of contact) _____ (Email) _____ Telephone no.)

5. LOCATION OF INSTALLATION: SAME AS #3 STOCK ITEM-UNKNOWN

_____ (Name)

_____ (Address)

6. DATE INSTALLED: _____ UNKNOWN

7. MANUFACTURER: _____
(Name)

8. MANUFACTURER'S DATA REPORT ATTACHED: NO YES

9. ITEM REGISTERED WITH NATIONAL BOARD: NO YES, NB NUMBER _____

10. ITEM IDENTIFICATION: _____ (Type) _____ (Mfg. serial no.) _____ (Jurisdiction no.) _____ (Year built)

_____ (Dimensions) _____ (MAWP psi) SAFETY RELIEF VALVE SET AT: _____ (psi)

13. I REQUEST AUTHORIZATION TO REPLACE THE STAMPED DATA OR NAMEPLATE ON THE ABOVE DESCRIBED PRESSURE-RETAINING ITEM IN ACCORDANCE WITH THE RULES OF THE NATIONAL BOARD INSPECTION CODE (NBIC).

NAME: _____ NUMBER: _____
(Name of Owner/user, Original Manufacturer, or "R" Certificate Holder) ("R" Certificate Holder only)

SIGNATURE: _____ DATE: _____
(Authorized Representative)

14. BASED ON THE TRACEABILITY PROVIDED, AUTHORIZATION IS GRANTED TO REPLACE THE STAMPED DATA OR TO REPLACE THE NAMEPLATE OF THE ABOVE DESCRIBED PRESSURE-RETAINING ITEM.

SIGNATURE: _____ DATE: _____
(Authorized Jurisdictional Representative or Inspector)

NATIONAL BOARD COMMISSION NO.: _____ JURISDICTIONAL NUMBER: _____
(If available)

Change to owner, user,

15. THE FOLLOWING IS A TRUE FACSIMILE OF THE ITEM'S REPLACEMENT STAMPING OR NAMEPLATE.
(Must clearly state "replacement")

Change to owner, user

TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE STATEMENTS IN THIS REPORT ARE CORRECT, AND THAT THE REPLACEMENT INFORMATION, DATA, AND IDENTIFICATION NUMBERS ARE CORRECT AND IN ACCORDANCE WITH PROVISIONS OF THE NATIONAL BOARD INSPECTION CODE (NBIC).

NAME: _____ NUMBER: _____
(Name of Owner/user, Original Manufacturer, or "R" Certificate Holder) ("R" Certificate Holder only)

SIGNATURE: _____ DATE: _____
(Authorized Representative)

17. WITNESSED BY: _____ EMPLOYER: _____
(Name of Inspector)