Date Distributed: January 24, 2024

NATIONAL BOARD INSPECTION CODE SUBGROUP INSPECTION

MINUTES

Meeting of January 9, 2024 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

The Subgroup Inspection (SG) Chair, Mr. Derrell Graf, called the meeting to order at 8:01 a.m. Central Time.

2. Introduction of Members and Visitors

Secretary, Ms. Jodi Metzmaier did a roll call of all SG members in person and online was done by. All visitors in person and online stated their name and their company. All members and visitors are noted on the attendance sheets. (Attachment Pages 1-2)

3. Check for a Quorum

With 26 of 30 members in attendance, both in person and online, a quorum was established.

4. Awards/Special Recognition

Mr. John Mangas has been a part of the SG for 5 Years – Mr. Graf presented Mr. Mangas with his 5-year pin.

5. Announcements

Ms. Metzmaier gave announcements to the SG. (Attachment Pages 3-4)

6. Adoption of the Agenda

- -Add Interpretation Item 24-04
- -Add Item 24-03
- -Add Discussion item regarding a Subgroup for items shared between different NBIC Parts.

The above items were added to the agenda and a motion was made to adopt the revised agenda. The motion was seconded and unanimously approved.

7. Approval of the Minutes of the July 11, 2023, Meeting

A motion was made to approve the minutes of the July 11, 2023, meeting. The motion was seconded and unanimously approved.

8. Review of Rosters

a. Membership Nominations

Mr. David Dexter (Users) is interested in becoming a member of Subgroup Inspection.

Mr. Dexter spoke to the group explaining his background, why he would like to be a member of the SG, and how he would be an asset. Mr. Joe Morgan stated that if/when Mr. Dexter is voted in, he will step down and let Mr. Dexter take his place on the SG. After discussion, a motion was made to accept Mr. David Dexter's membership nomination. The motion was seconded and **unanimously approved**.

The Inspection Subgroup joined the R&A Subgroup teams meeting for a few announcements and a presentation.

- Mr. Troutt spoke to the groups regarding some of the conversations the Chiefs have had recently and how the NBIC SGs and SCs should take the Chief's considerations into account when voting on items, as they directly impact what jurisdictions can enforce.
- Mr. John Burpee spoke to the groups encouraging involvement from and with Chiefs in Part 2 and 3 SG and SC, as the Jurisdictions should be more involved overall.
- Mr. Gary Scribner Spoke to the groups. He discussed the attendance at the NBIC meetings and how we have grown. He also discussed the Spanish version of the NBIC. Lastly, he discussed how the National Board will continue to use remote access for meetings and shop reviews.
- Ms. Melissa Wadkinson also spoke to the groups regarding how the NBIC groups/committees can work together to make the NBIC better.
- Mr. George Galanes spoke to the groups regarding how committee/group members should speak to people outside of the committees/groups. He wanted to reiterate how these conversations should be handled as personal opinions and not committee opinions.

Mr. Jim Sowinski then gave a presentation regarding ASME and API to the Inspection and R&A subgroups. Mr. Sowinski then received many questions and comments from the groups.

b. Membership Reappointments

The following Subgroup members are up for reappointment: Mr. Tim Barker and Mr. Matt Sansone. Mr. Tim Barker was not present at the meeting, but he stated to other members he would like to be reappointed.

Mr. Sansone stated this will be his last meeting, so he will not be reappointed.

A motion was made to reappoint Mr. Barker to the Inspection Subgroup. The motion was seconded and unanimously approved.

c. Officer Appointments

None.

9. Open Items Related to Inspection

a. PRD

i. Item 23-31 – Testing of liquid service valves to be water or other suitable liquid.
 Mr. Graf discussed this item with the SG. No action was taken by the SG as this is a new item and they will wait to see what PRD comes up with.

b. R&A

- i. Item 21-53 Post repair inspection of weld repairs to CSEF steels. (P. Gilston as PM)
- ii. **Item 21-67** Add welding requirements to plugging firetubes. (P. Gilston as PM)

Discussion of items shared between multiple NBIC Parts: Mr. Horbaczewski addressed the SG to let them know a new standing task group will be created for all items that effect multiple Parts of the NBIC.

Mr. Horbaczewski, Mr. Brent Ray, Mr. Tim Bolden, and Mr. Jim Clark would all like to be a part of this task group. The items on the Inspection agenda regarding shared information will eventually be combined into one item and be addressed at once by the new standing Task Group.

10. Interpretations

Item Number: 22-40 NBIC Location: Part 2, 4.4.7.2 No Attachment

General Description: Allowable stresses for t(required) calculation

Subgroup: Inspection

Task Group: J. Clark (PM), B. Ray, B. Wilson, J. Petersen, J. Roberts, J. Sowinski

Submitted by: Tom Chen

Explanation of Need: For the purpose of setting up inspection plans, especially with older equipment, we are calculating t(required) per Part 2, para 4.4.7.2. However, we would like to know if it is permissible to use the higher allowable stresses in later editions of ASME BPV Code.

January 2024 Meeting Action:

The proposal for this item passed through SG Letter Ballot after the July 2023 meeting. No action was taken in the SG meeting. The proposal will be reviewed for vote during the SC Inspection meeting.

Item Number: 23-70 NBIC Location: Part 2, 2.3.6.11 Attachment Page 5

General Description: Inspection of vessels at and above 10,000 PSI (c) & (d) "requalification"

Subgroup: Inspection

Task Group: None assigned. **Submitted by:** C. Bierl

Explanation of Need: Isostatic Pressure Vessel manufacturers are currently "requalifying" pressure vessels through an engineering evaluation without the involvement of the NB Alteration process and therefore an Inspector. This leaves control of this process of a code vessel in the hands of the manufacturer and impairs the code integrity of the vessel.

January 2024 Meeting Action:

The group reviewed this interpretation and agreed with the interpretation request how it was written. A motion was made to accept the question and reply as presented. The motion was seconded and **unanimously approved.**

Mr. Luis Ponce joined the SG meeting to discuss Interpretations. He stated the executive committee discussed forming a task group to be tasked with reviewing the old interpretations to make sure they are all still applicable. More information on this standing task group will come shortly.

Item Number: 24-04 NBIC Location: Part 2, 4.4.7.2h) and i) Attachment Page 6

General Description: Thickness for determining corrosion rates for circumferential stress

Subgroup: Inspection

Task Group: None assigned. **Submitted by:** L. Ponce

Explanation of Need: It is unclear if the statement made in the NBIC Part 2, 4.4.7.2 i) also applies to 4.4.7.2 h). The statement reads, "The thicknesses used for determining corrosion rates at the respective locations shall be the most critical value of average thickness." Mr. Dominguez believes the statement applies to both paragraphs.

January 2024 Meeting Action:

Mr. Ponce reviewed this interpretation with the subgroup. The group reviewed NBIC Part 2, 4.4.7.2 h). A motion was made to accept the interpretation as presented. The motion was seconded and **unanimously approved**.

Mr. Graf will open a new item to address the concerns in 4.4.7.2 h). Mr. Brent Ray, Jim S, and Jim Getter will all be on this task group.

11. Action Items

Item Number: 21-25 NBIC Location: Part 2 Attachment Pages 7-8

General Description: Autoclave/Quick opening device PP (submitted by Kevin Hawes)

Subgroup: Inspection

Task Group: V. Scarcella (PM), T. Bolden, M. Horbaczewski, J. Peterson, J. Clark, W. Hackworth, M.A.

Shah, C. Becker, J. Morgan.

Explanation of Need: Upon our AIA (Intact) QRR I produced a Power point presentation on Autoclave inspections. Your NB team leader Gary Scribner suggested I forward this inspection presentation to the NB for review of content as mention of good reference material for next NBIC edition. I have attached a copy of this PP for your considerations.

January 2024 Meeting Action:

Mr. Scarcella presented this item to the subgroup. He stated this item has been reviewed multiple times and it has been revised to address a few Main Committee concerns. A motion was made to accept the proposal as presented. The motion was seconded and **unanimously approved**.

Item Number: 21-47 NBIC Location: Part 2, 2.2.4 & 2.2.5 Attachment Page 9

General Description: To provide better guidance as it relates to carbon monoxide

Subgroup: Inspection

Task Group: W. Hackworth (PM), J. Smith, D. Buechel, T. Barker, T. Bolden, M. Sansone, H. Henry, J.

Castle, J. Morgan, & J. Clark **Submitted by:** V. Scarcella

Explanation of Need: Need to provide more comprehensive items to be reviewed to guide the inspector on carbon monoxide and combustion air.

January 2024 Meeting Action:

Mr. Scarcella presented a proposal to the subgroup. The group discussed the proposal, and a motion was made to accept the proposal as presented. The motion was seconded and **unanimously approved**.

Item Number: 22-06 NBIC Location: Part 2, 3.4.9 e) No Attachment

General Description: Part 2 task group to review Part 3 Item 21-53

Subgroup: Inspection

Task Group: M. Horbaczewski (PM), J. Clark, B. Wilson, J. Mangas, P. Polick

Submitted by: D. Graf

Explanation of Need: Part 2 task group to investigate further changes to Part 2/Part 3 that could be needed because of action Part 3 item 21-53.

January 2024 Meeting Action:

Mr. Horbaczewski presented the proposal that passed through SG R&A Letter Ballot after the July 2023 meeting. The Inspection SG had a lot of discussion of the new wording. The Inspection SG has revised the proposed wording and Mr. Horbaczewski will present the new wording to R&A. This item will eventually be closed once the standing task group on shared items is created.

Item Number: 22-22 NBIC Location: Part 2 No Attachment

General Description: Changes and additions to align with Part 3 with in service inspections

Subgroup: Inspection

Task Group: T. Bolden (PM), J. Clark, J. Petersen, M. Sansone, B. Ray, D. Graf, J. Mangas, H. Henry, P.

Gilston, B. Ray, T. Bolden, T. Lebeau, A. Triplett

Submitted by: V. Scarcella

Explanation of Need: Several areas where part III after repair in service inspections should be aligned with part II.

January 2024 Meeting Action:

The proposal for this item passed through SG Letter Ballot after the July 2023 meeting. No action was taken in the SG meeting. The proposal will be reviewed for vote during the SC Inspection meeting.

Item Number: 22-26 NBIC Location: Part 2, 2.3.6.8 No Attachment

General Description: Addition of cast acrylic as a pressure vessel material

Subgroup: Inspection

Task Group: J. Calvert (PM), V. Newton, D. Buechel, D. Rose

Submitted by: J. Calvert

Explanation of Need: Provide inspectors with the criteria necessary to competently inspect vessels like acrylic chromatography columns.

January 2024 Meeting Action:

Progress Report: Mr. Calvert discussed this item with the SG. He had a few questions for the SG and asked some further guidance on how he should proceed with this item.

Item Number: 22-39 NBIC Location: Part 2, 4.4.8.7 g) No Attachment

General Description: Recommended clarification of requirements for Evaluating Local Thin Areas

Subgroup: Inspection

Task Group: V. Newton (PM), T. Barker, J. Morgan, B. Wilson

Submitted by: L. Ponce

Explanation of Need: The existing text may lead to confusion due to a misplaced comma after 'specified' in the first sentence and no reference to what is being specified in the paragraph. The proposed text is a way to tie in the specified requirement in paragraph (f).

January 2024 Meeting Action:

PM, Venus Newton was unable to attend the meeting to give an update on this item. Mr. Graf asked Mr. Morgan if he had any information, and Mr. Morgan stated he was unaware of any movement on the item at this time.

Item Number: 23-08 NBIC Location: Part 2 No Attachment

General Description: Part 2 task group to review Part 3 Item 21-67

Subgroup: Inspection

Task Group: M. Horbaczewski (PM), J. Clark, B. Wilson, J. Mangas, P. Polick, H. Henry, P. Gilston, B.

Ray, T. Bolden, T. Lebeau, & A. Triplett

Submitted by: D. Graf

Explanation of Need: Part 2 task group to investigate further changes to Part 2/Part 3 that could be needed

because of action item 21-67.

January 2024 Meeting Action:

No report was given on this item. This item will eventually be closed once the standing task group on shared items is created.

Item Number: 23-17 NBIC Location: Part 2, 2.3.6.4 and 4.4.8.7 No Attachment

General Description: Steel-loss acceptance criteria for pressure-retaining items

Subgroup: Inspection

Task Group: D. Graf (PM), B. Ray, J. Roberts, T. Vandini, C. Becker, J. Sowinski, & J. Hadley

Submitted by: J. Hadley

Explanation of Need:

(1) Resolve inconsistencies between the 2021 NBIC's air, ammonia, LPG, and general acceptance criteria.

- (2) Provide screening criteria that, if met, would ensure that a pressure-retaining item also meets the conservative criteria in API 579-1/ASME FFS-1, Fitness-For-Service, 2021 edition, "ASME FFS-1", Part 3 Level 1 (brittle fracture) and either Part 4 Level 2 or Part 5 Level 1 (wall thinning). If not met, an owner/user could fall back on more complex, less conservative, ASME FFS-1 assessments.
- (3) Describe steel-loss screening criteria in one location within NBIC, and reference this location when needed, to facilitate future revisions.
- (4) Coordinate NBIC with ASME FFS-1. They have been referencing each other for some years, so coordinating them seems worthwhile.

January 2024 Meeting Action:

Progress Report: Mr. Graf gave a progress report to the SG. He stated he has spoken with Mr. Hadley and there is a lot of information being requested. He noted they should have something in writing for the July 2024 meeting.

Item Number: 23-26 NBIC Location: Part 2 No Attachment

General Description: Adding verbiage in Part 2 to mention a time limit on tube plugs in vessels

Subgroup: Inspection

Task Group: M. Horbaczewski (PM), J. Clark, B. Wilson, J. Mangas, P. Polick, H. Henry, P. Gilston, B.

Ray, T. Bolden, T. Lebeau, A. Triplett

Submitted by: K. Moore

Explanation of Need: Part 3 is currently revamping 3.3.4.9. We feel like there should be a statement in the NBIC that the Chief or the in-service Inspector can address the operational issues and concerns of plugged tubes.

January 2024 Meeting Action:

Mr. Horbaczewski stated he has talked with members of R&A, and they are not going to do anything with this; therefore, Mr. Horbaczewski has recommended closing this item with no action. A motion was made to **close this item with no action**. The motion was seconded and **unanimously approved**.

Item Number: 23-27 NBIC Location: Part 2, 1.5.1 No Attachment

General Description: Addition of requirement for Inspector to be present for inspections.

Subgroup: Inspection

Task Group: V. Newton (PM), V. Scarcella, T. Bolden, J. Morgan, J. Smith, T. Barker, C. Becker, C.

Hartford

Submitted by: D. Kinney

Explanation of Need: While it has always been standard industry practice for inspections to be performed in-person, and there are requirements for remote inspection, currently there is no language in Part 2 or RCI-1 requiring the Inspector to be present at the location of installation while performing an inspection. This requirement is implied, but not stated.

January 2024 Meeting Action:

There is no progress on this item.

Item Number: 23-28 NBIC Location: Part 2, 5.3.3 Attachment Pages 10-13

General Description: Revision to NB-136

Subgroup: Inspection

Task Group: J. Clark (PM), D. Graf, J. Petersen, J. Smith

Submitted by: D. Kinney

Explanation of Need: For Line #3, "R" should be added, and should match Line #13.

For Line #13, when filling out the form, there is confusion between Owner or User, and Owner-User. These are two different terms defined in the NBIC. I believe the intention is to use "Owner or User" and not "Owner-User, and this should be clarified on the form.

January 2024 Meeting Action:

Mr. Clark presented and reviewed a proposal to the SG. After review there was a motion made to accept the proposal as presented. The motion was seconded and **unanimously approved**.

Item Number: 23-37 NBIC Location: Part 2, 1.4 Attachment Page 14

General Description: Add comment to further define responsibility of the owner user

Subgroup: Inspection

Task Group: V. Scarcella (PM), J. Smith, J. Mangas, T. Barker

Submitted by: V. Scarcella

Explanation of Need: Specifically, if the inspector is going to a location where for instance H2S of some harmful pathogen is being handled, those locations have and should provide safety training and equipment needed to complete the inspection. For internals this is already touched on in 1.5.3. "Requirements of occupational safety and health regulations (i.e., federal, state, local, or other), as well as the owner-user's own program and the safety program of the Inspector's employer are applicable."

January 2024 Meeting Action:

Mr. Bolden presented a proposal to the SG for this item. A motion was made to accept the proposal as presented. The motion was seconded and **unanimously approved**.

12. New Items

Item Number: 23-81 NBIC Location: Part 2, 4.4.3 b) No Attachment

General Description: Evaluate Inspector responsibilities relating to 4.4.3 FFS

Subgroup: Inspection

Task Group: None assigned. **Submitted by:** R. Underwood

Explanation of Need: Currently, 4.4.3-b states the Inspector shall review the condition assessment methodology and ensure the inspection data and documentation are in accordance with Section 4. This proposal would redefine the role and responsibility of the Inspector.

January 2024 Meeting Action:

After review of this item a task group was created.

Task Group: M. Horbaczewski (PM), J. Clark, & B. Ray

Item Number: 23-84 NBIC Location: Part 2, 2.3.6.4 c) 3), No Attachment 2.3.6.7 b) 5), and S10.10.6

General Description: Wording Updates for Clarity

Subgroup: Inspection

Task Group: None assigned. Submitted by: J. Metzmaier

Explanation of Need: "good repair" is typically an understood term, but with the NBIC being read internationally, we were wondering if that phrase could be understood in the same way on a global scale. Or if a better phrase could be chosen.

January 2024 Meeting Action:

A proposal was presented to the SG. After review of the proposal, a task group was created.

Task Group: B. Ray (PM), L. Burton, C. Becker, J. Castle, W. Griffith, and D. Rose.

Item Number: 24-03 NBIC Location: Part 2, S6 No Attachment

General Description: Revise "Inspector" terminology and requirements in Supplement 6

Subgroup: Inspection

Task Group: None assigned. Submitted by: Luis Ponce

Explanation of Need: Part 2 Supplement 6 should be revised to align with Part 3, Suppl 6 and the DOT. A few references are S6.4.2 a), S6.4.2 c), S6.4.4, S6.4.5, S6.4.6, and S6.4.6.1. However, this may not be an all-inclusive list.

January 2024 Meeting Action:

After review of the item, a task group was created.

Task Group: B. Wilson (PM), R. Kennedy, and J. Smith

13. Future Meetings

- July 15-18, 2024 The Brown Hotel in Louisville, KY
- January 2025 TBD

Mr. Graf discussed the future meetings with the SG.

Mr. Ray made an announcement to the SG stating the API Mechanical Summit will be held in San Antonio, TX January 23-25, 2024.

14. Adjournment

A motion was made to adjourn the meeting at 12:12 p.m. Central Time.

Respectfully submitted,

Jodi Metzmaier

Subgroup Inspection Secretary

Subgroup Inspection Member Attendees - January 2024

Name:	e: Interest Category Email		Registered	In Person Attendance	Remote Attendance	Not In Attendance
Darrell Graf - Chair	National Board Certificate Holders	grafdr@airproducts.com		X		
Jim Clark - Vice Chair	Manufacturers	james.clark@worthingtonindustries.com	In-Person	X		
Jodi Metzmaier - Secretary	NBBI	jmetzmaier@nbbi.org	In-Person	X		
Tim Barker	Authorized Inspection Agencies	timothy.barker@fmglobal.com	Remote			X
Joseph Beauregard	Users	joeducati@hotmail.com	In-Person	In-Person X		
Chuck Becker	Manufacturers	hggbecker@yahoo.com	In-Person	X		
Tim Bolden	Authorized Inspection Agencies	timothy.bolden@cna.com	In-Person	X		
Ernest Brantley	Authorized Inspection Agencies	ernest.brantley@bpcllcga.com	In-Person			X
David Buechel	Authorized Inspection Agencies	davidbuechel55@gmail.com	In-Person	X		
Lee Burton	National Board Certificate Holders	burtondl@airproducts.com	In-Person	X		
James Calvert	National Board Certificate Holders	jlcalvert@lilly.com	In-Person	X		
Jim Getter	Manufacturers	jim.getter@worthingtonindustries.com	In-Person	X		
William Hackworth	Authorized Inspection Agencies	william.hackworth@tuvsud.com	In-Person			
Mark Horbaczewski	Users	mhorbaczewski@diamondtechnicalservices.com	In-Person	In-Person X		
Jerry Jessick	Users jjessick@fusion-etc.com				X	
Randy Kennedy	National Board Certificate Holders	crkennedy@babcock.com	In-Person	X		
John Mangas	General Interest	jcmangas@gmail.com	In-Person	In-Person X		
Joe Morgan	Users	jemorgan1@dow.com			X	
Venus Newton	Authorized Inspection Agencies	venus_newton@yahoo.com	In-Person			X
Jeff Petersen	Users	jeffrey.petersen@inl.gov	In-Person	X		
Pat Polick	Jurisdictional Authorities	patrick.polick@illinois.gov	In-Person	X		
Brent Ray	Users	bdray@marathonpetroleum.com	In-Person	X		
James Roberts	perts Manufacturers james.roberts@triarccorp.com		Remote		X	
David Rose	Users dr3747@telus.net		In-Person	X		
Jason Safarz	General Interest jsafarz@karldungsusa.com					X
Matt Sansone	Jurisdictional Authorities	matthew.sansone@labor.ny.gov	In-Person	X		
Vincent Scarcella	Authorized Inspection Agencies	vincent.scarcella@cna.com	In-Person X			
Jeremy Smith	General Interest	jeremy.smith@labor.nc.gov	In-Person X			
Thomas Vandini	National Board Certificate Holders	tvandini@propanetank.com	In-Person	X		
Brandon Wilson	General Interest	bwilson@lmce.solutions	In-Person	X		
Mike Whitlock Authorized Inspection Agencies		gerald_whitlock@hsb.com	In-Person	X		

Subgroup Inspection Visitor Attendees - January 2024

Name	Company/Title/Interest	Email	Registered	In Person Attendance	Remote Attendance
Jeff Castle	Zurich Risk Engineering	jeffrey.castle@zurichna.com	In-Person	X	
Wil Griffith	Zurich	william.griffith@zurichna.com	In-Person	X	
James Hadley	Fact Fancy, LLC	james.hadley@factplusfancy.com	Remote		X
Rajesh Kamboj	British Columbia Safety Authority	rajesh.kamboj@technicalsafetybc.ca	Remote		X
James Sowinski	Principanl Engineer I/The Equity Engineering Group, Inc.	jsowinski@e2g.com	In-Person	x	
Brandon Steinhart	FM Global	brandon.steinhart@fmglobal.com	In-Person	X	
Rich Wallace	Diamond Technical Services	rwallace@diamondtechnicalservices.com	In-Person	X	
Ken Barkdoll	Arise				X
Nancy Chiasson	Prince Edward Island				X
Chris Anderson	Liquid Metal				X
Steve Van Slavens	Chief of Deleware				X
Donald Ehler	Chief of Nova Scotia				X
David Dexter	Energy Technology Principle/Dow Chemical	dexterde@dow.com			X
Clay Moultrie	Quality Directory/Quality Steel Corp	cmoultrie@propanetank.com			X
Stacey Marks					X
Kevin Decker					X
Phillip Cole	Factory Mutual Insurance Company	phillip.cole@fmglobal.com			X
Rob Troutt	Chief of Texas/BOT Chair	Rob.troutt@tdlr.Texas.gov	In-Person	x	
Gary Scribner	NBBI	gscribner@nbbi.org	In-Person	x	
Greg Goosens	NBBI	ggoossens@nbbi.org	In-Person	x	
Mark Mooney	NBBI	mmooney@nbbi.org	In-Person	x	
Luis Ponce	NBBI	lponce@nbbi.org	In-Person	x	
Melissa Wadkinson	Vice Chair of MC	melissa.wadkinson@fulton.com	In-Person	x	

Announcements

Page 1 of 2

- MS Teams Notes:
 - O Please stay muted during the meeting. If you would like to speak, please use the "raise hand" feature, and then you can unmute as you are called on. Teams will note the order in which your hands were raised, and we will call on you in that order.
 - Any messages sent through chat **will be displayed for anyone in the meeting to see**. If you need to send me a private message, please send it to me directly and not through the meeting chat.
- This meeting marks the end of Cycle C for the 2025 NBIC edition. The committees will have until the end of the
 July 2024 NBIC meeting to approve items for inclusion in the 2025 NBIC. Anything going to letter ballot should
 be done this meeting.
- The National Board will be hosting a reception on Wednesday evening from 5:30 p.m. to 7:30 p.m. in Veramendi (fourth level of the hotel).
- The National Board will be hosting breakfast and lunch on Thursday in Veramendi (fourth level of the hotel) for those attending the Main Committee meeting. Breakfast will be served from 7:00 a.m. to 8:00 a.m. and lunch will be served from 11:30 a.m. to 12:30 p.m.
- Meeting schedules, meeting room layouts, and other helpful information can be found on the National Board website under the **NBIC** tab → NBIC Meeting Information.
- NBIC Share Cloud is for members only. Please do not share the username and password with guests.
- Mr. Jim Sowinski will be giving an ASME/API presentation. Mr. Sowinski is a member of the ASME BPV VIII Standards committee and the Chair of BPV VIII Subgroup Design. He is also a member of BPV VIII Subgroup General Requirements and the Special Committee on Interpretations. The presentation will be given at the SG R&A meeting. We will join their Teams meeting for the presentation. Those of you who are attending virtually, will need to join their Teams meeting in order to listen/watch the presentation, as I will not be able to share it through our teams meeting. For those of you who are SG members you can go to the NB File share and click on my announcements attachment to click the join meeting link. If you are not a member and want to join the presentation, you can use the Meeting ID and Passcode listed below. Alternatively, if you registered for this meeting, you should be able to click the link on your Registration Confirmation email, and you will have access to the Teams links for all meetings.

Subgroup Repairs & Alterations MeetingMicrosoft Teams meeting

Join on your computer, mobile app or room device.

Click here to join the meeting Meeting ID: 287 108 130 993

Passcode: Ut6Rhh

- Luis will be in at some point to show a short presentation regarding interpretations (Executive Committee Folder).
- There is a new tutorial for submitted NBIC requests on the NBIC tab of the Business Center. The link is under the NBIC Requests section. If there are any other tutorials you think would be helpful, please let us know and we can do our best to add more.
- Just a heads up, Wendy will be around taking pictures, so you may see her popping in and out.

Announcements

Page 2 of 2

- The National Board Staff, primarily Michelle Vance, has been working hard to update the NBIC Style Guide. This valuable resource is now available on the cloud and on the National Board Business Center. It is located on the NBIC page under the section title "Committee Documents". Please be advised you must be logged in to view this document. Any comments, questions, or suggestions regarding the Style Guide should be directed to Jonathan. Below is a list of the major changes since revision 5 (the last section of the style guide shows this same list of major changes):
 - ➤ Title modified from *NBIC Writing Guide* to *NBIC Style Guide*
 - > Topics reorganized into five major sections:
 - o Language
 - o Capitalization, Grammar, and Punctuation
 - o Publication Style
 - o Proposal Format
 - o Synopsis of Revision 6 Changes (major changes since the previous revision)
 - > Topics rearranged and edited to include more detail where necessary.
 - Unnecessary topics and rules removed.
 - > Relevant topics and examples added.
- 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**.
 - o If needed, we can go over this process.
 - o ALL power point attachments/presentations <u>must be sent to Jonathan prior to the meeting</u> for approval.
- All proposals should be submitted in word with "strike through/underline" tracking.
 - o Please contact me (<u>imetzmaier@nbbi.org</u>) if you need any help with this.
- If you'd like to open a new Interpretation or Action Item, this should be done through the National Board Business Center.
 - o Anyone, member or not, can open a new item.
- As a reminder, anyone who would like to become a member of a group or committee:
 - Should attend at least 2 meetings prior to being put on the agenda for membership consideration. The nominee will be on the agenda for vote during their 3rd meeting, and they would become a voting member during their 4th meeting.
 - o The nominee must submit the formal request along with their resume to the NBIC Secretary, Jonathan Ellis, **PRIOR TO** the meeting. *nbicsecretary@nbbi.org*
 - o If needed, we can also create a ballot for voting of a new member between meetings. To do this, you will need to contact Mr. Ellis.
- Just a heads up, Wendy will be around taking pictures, so you may see her popping in and out.
- Thank you to everyone who registered online for this meeting. The online registration is very helpful for planning our reception, meals, the room set up, etc. Please continue to use the online registration for each meeting, whether you are attending in person or remote. It also is a good way to make sure we have the most up-to-date contact information.

If you did not register, please do this now so we have an accurate count for the reception on Wednesday and breakfast and lunch on Thursday.

Interpretation Item 23-70 Submitted by Craig Bierl (<u>craig.bierl@chubb.com</u>) 12-2-23

Subject: Inspection of vessels at and above 10,000 PSI (c) & (d) "requalification"

Statement of Need: Isostatic Pressure Vessel manufacturers are currently "requalifying" pressure vessels through an engineering evaluation without the involvement of the NB Alteration process and therefore an Inspector. This leaves control of this process of a code vessel in the hands of the manufacturer and impairs the code integrity of the vessel.

Background:

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

- c) 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.
- d) 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 (68.95 MPa). Guidance for completing requalification can be found in ASME PCC-3, Inspection Planning and Using Risk-Based Methods.

It is not clear in the new Part 2 guidance, and I have already had a manufacturer question this. I would like this interpretation to also consider the prior interpretation:

19-15 INTERPRETATION

Subject: PV Cycles of operations change as an alteration (Part 3, 3.4.4). Edition: 2019 Question: When the design of a pressure retaining item (PRI) includes cyclic loading data, should an adjustment, modification or change in analysis of the original design data be considered an alteration?

Reply: Yes.

Proposed Question: Is the "requalification for continued service" of a vessel constructed for a set number of cycles, as defined by the code of construction, which has reached the end of those cycles, required to be completed as an alteration?

Proposed Reply:	Yes, requalification of a pressure vessel requires an alteration.
Committee's Que	stion:
Committee's Rep	ly:

Rationale:

Interpretation Item 24-04 Submitted by L. Ponce (<u>lponce@nbbi.org</u>) 01-04-2024

Subject: Thickness for determining corrosion rates for circumferential stress

Location: Part 2; Section: 4; Paragraph: 4.4.7.2 h) & 4.4.7.2 i)

Statement of Need: It is unclear if the statement made in the NBIC Part 2, 4.4.7.2 i) also applies to 4.4.7.2 h). The statement reads, "The thicknesses used for determining corrosion rates at the respective locations shall be the most critical value of average thickness." Mr. Dominguez believes the statement applies to both paragraphs.

Background:

This inquiry was received from Mr. Alejandro Domingues, Eng. National Institute of Industrial Technology (INTI), Argentina. Mr. Domingues has led the effort for the adoption of the NBIC Parts 1 and 2 in several provinces in Argentina and Uruguay.

S7.8.5 CORROSION

c) General Corrosion

For a corroded area of considerable size, the thickness along the most damaged area may be averaged over a length not exceeding 10 in. (250 mm). The thickness at the thinnest point shall not be less than 75% of the required wall thickness, and the average shall not be less than 90% of the required wall thickness.

So, the intent could be

- 1- limit the average thickness (as in SUPPLEMENT 7)
- 2- The thicknesses used for determining corrosion rates at the respective locations shall be the most critical value of average thickness (as in 4.4.7.2 i))

Proposed Question: For the purposes of determining PRI corrosion rates when circumferential stresses govern, it is the intent of the NBIC that the statement in 4.4.7.2 i), "The thicknesses used for determining corrosion rates at the respective locations shall be the most critical value of average thickness" also applies to 4.4.7.2 h)?

Proposed Reply: Yes	
Committee's Question:	
Committee's Reply:	
Rationale:	

2.3.6.5 INSPECTION OF PRESSURE VESSELS WITH QUICK-ACTUATING CLOSURES

- a) This section describes guidelines for inspection of pressure vessels equipped with quick-actuating closures. Due to the many different designs of quick actuating closures, potential failures of components that are not specifically covered should be considered. The scope of inspection should include areas affected by abuse or lack of maintenance and a check for inoperable or bypassed safety and warning devices. Pressure vessels with quick actuating closures have a higher likelihood of personnel being in close proximity of the vessel during opening.
- a). Accidents have occurred when gaskets became stuck and released suddenly when pried open. Wear and fatigue damage caused by the repetitive actuation of the mechanism and pressure cycles are also a source of accidents.
- b) Temperatures above that for which the quick-actuating closure was designed can have an adverse effect on the safe operation of the device. If parts are found damaged and excessive temperatures are suspected as the cause, the operating temperatures may have exceeded those temperatures recommended by the manufacturer. Rapid fluctuations in temperatures due to rapid start-up and shutdown may lead to cracks or yielding caused by excessive warping and high thermal stress. An careful observation inspection should shall be made of the condition of the complete installation. Review shall including include maintenance, and training records, operation, and non-destructive examination records. This review shall serve as a guide in forming an opinion of for evaluating the care the equipment receives. The construction history of the vessel should be established, including year built, materials of construction, extent of post weld heat treatment, previous inspection results, and repairs or alterations performed. Any leak should be thoroughly investigated and the necessary corrective action initiated taken by an "R" Certificate Holder.
 - 1) Inspection of parts and appurtenances

The owner/user shall adhere to the items below, and the items shall be verified by the inspector if applicable.

- a)- Seating surfaces of the closure device, including but not limited to the gaskets, O-rings, or any mechanical appurtenance, shall be inspected to ensure proper alignment, of the closure to the seating surface, should be inspected. This inspection can be made by using powdered chalk or any substance that will indicate that the closure is properly striking the seating surface of the vessel flange. If this method is used, a check should be made to ensure that:
 - Material used shall not contaminate the gasket or material with which it comes into contact; and
 The substance used shall be completely removed after the examination.
- b). The closure mechanism of the device should shall be inspected for freedom of movement and proper contact with the locking elements. This inspection should indicate that the movable portions of the locking mechanism are striking the locking element in such a manner that full stroke can be obtained. Inspection should be made to ensure that the seating surface of the locking mechanism is free of metal burrs and deep scars, which would indicate misalignment or improper operation. A check should be made for proper alignment of the door hinge mechanisms to ensure that adjustment screws and locking nuts are properly secured.
- c. When deficiencies are noted, the following corrective actions should shall be initiated:
 - 1. If any deterioration defect of the gasket, O-ring, etc., is found, the gasket, O-ring, etc., should shall be removed from service and replaced immediately. Replacements should shall be in accordance with the vessel manufacturer's specifications;
 - If any cracking or excessive wear is discovered on the closing mechanism, the owner or user should-shall
 contact the original manufacturer of the device for spare parts or repair information. If this cannot be
 accomplished, the owner or user should contact an organization competent in quick-actuating closure
 design and construction prior to implementing any repairs;
 - 3. Defective safety or warning devices should shall be repaired or replaced prior to further operation of the
 - Deflections, wear, or warping of the sealing surfaces may cause out-of-roundness and misalignment. The
 manufacturer of the closure should-shall be contacted for acceptable tolerances for out-of-roundness and
 deflection; and

- The operation of the closure device through its normal operating cycle should be observed while under control of the operator. This should indicate if the operator is following posted procedures and if the operating procedures for the vessel are adequate.
- 2) Gages, safety devices, and controls

The owner/user shall adhere to the items below, and the items shall be verified by the inspector as applicable.

- The required pressure gage should be installed so that it is visible from the operating area located in such a way that the operator can accurately determine the pressure in the vessel while it is in operation. The gage dial size should be of such a diameter that it can be easily read by the operator. This gage should have a pressure range of at least 1 1/2 times, but not more than four times, the operating pressure of the vessel. There should be no intervening valve between the vessel and gage.
- b.a. The pressure gage should be of a type that will give accurate readings, especially when there is a rapid change in pressure. It should be of rugged construction and capable of withstanding severe service conditions. Where necessary, the gage should be protected by a siphon or trap.
- E-b. Pressure gages intended to measure the operating pressure in the vessel are not usually sensitive or easily read at low pressures approaching atmospheric. It may be advisable to install an auxiliary gage that reads inches of water (mm of mercury) and is intended to measure pressure from atmospheric through low pressures. This ensures that there is zero pressure in the vessel before opening. It would be necessary to protect the auxiliary low pressurelow-pressure gage from the higher operating pressures.
- d.c. Provisions should be made to calibrate pressure gages or to have them checked against a master gage as frequently as necessary.
- e.d. A check should be made to ensure that the closure and its holding elements must be fully engaged in their intended operating position before pressure can be applied to the vessel. A safety interlock device should shall be provided that prevents the opening mechanism from operating unless the vessel is completely depressurized.
- f.e. Quick-actuating closures held in position by manually operated locking devices or mechanisms, and which are subject to leakage of the vessel contents prior to disengagement of the locking elements and release of the closure, shall be provided with an audible and/or visible warning device to warn the operator if pressure is applied to the vessel before the closure and its holding elements are fully engaged, and to warn the operator if an attempt is made to operate the locking device before the pressure within the vessel is released. Pressure tending to force the closure clear of the vessel must be released before the closure can be opened for access.
- 3. If required by the authority having jurisdiction, a <u>Risk Based Inspection Assessment (RBIA) program, managed by the owner/user, shall be developed by an professional engineer familiar with the design and applications of quick actuating closures. See NBIC Part 2, Section 4. The RBIA shall be made available for review by the inspector.</u>

21-47 Scarcella 12/6/23 Page **1** of **1**

PART 2

SUPPLEMENT 15 CONCERNS REGARDING CARBON MONOXIDE DURING BOILER INSPECTIONS

S15.1 SCOPE

- a) This supplement provides specific requirements and guidelines for evaluating potential carbon monoxide concerns.
- b) It is well documented and internationally recognized¹ that carbon monoxide is a serious health concern.

 Annually, there are over 40,000 cases of CO poisoning in North America². Boiler and fired pressure vessel inspections involve equipment that is an exposure to the inspector and occupants of buildings. National Board Inspection Code Part 1 calls for carbon monoxide detectors (NBIC Part 1, 1.6.9) where required. A review of service and maintenance records (NBIC Part 2, 2.2.11), verification that combustion air is supplied to the boiler room (NBIC Part 2, 2.2.20.6 c and NBIC Part 1, 1.6.6) and inspecting for combustion air leaks (NBIC Part 2, 2.2.5 d) are important parts of the inspection that help prevent carbon monoxide from becoming a problem. Installers must follow manufacturers and the jurisdictions requirements for the installation of the equipment.

S15.2 Inspection points that should be included in the inspection of the object

- <u>a)</u> Assessment of conditions that may indicate a carbon monoxide condition exists outside of the <u>combustion chamber include:</u>
 - Unstable pilot or main flame
 - Yellow flame
 - Smoke from stack
 - Discoloration around burner or casing
 - The presence of soot on any surface
 - Any flue leakage or blockage
 - Fresh air intake blocked
 - Negative pressure in boiler room, resistance when you go to open door, air rushes in when you open door
 - Lack of maintenance on burner/boiler
 - Condensation in boiler room
- b) If leakage of flue gas or in any case a condition indicates a lack of combustion air, further investigation by boiler service technician is required. (ASME CSD-1, CG 700 qualified individual, or persons deemed qualified by the authority having jurisdiction)

S15.3 Equipment recommended to inspect the objects safely.

- a) It is highly recommended that inspectors carry a carbon monoxide detector.
- Note 1: https://www.who.int/teams/environment-climate-change-and-health/air-quality-and-health/health-impacts/types-of-pollutants,
- Note 2: https://www.ncbi.nlm.nih.gov/books/NBK430740/

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

Items 1-13 shall be completed by the owner, user, original manufacturer, or "R" Certificate Holder making the request.

- 1) Enter the purchase order number, job number, 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) to which the form is being submitted for approval.
- 3) Enter the name and address of the requestor's company or organization. If an "R" Certificate Holder is making the request, provide the "R" Certificate Number.
- 4) Enter the name, email, and phone number of the person within the requestor's company or organization who can be contacted if there are any questions concerning this request.
- 5) Etner 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 for whom the request is being submitted.
- 8) Is the Manufacturer's Data Report attached to the form? Check the appropriate box.
- 9) Is the pressure-retaining item registered with the National Board? Check the appropriate box. 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 the owner, user, original manufacturer, or "R" Certificate Holder making the request. If an "R" Certificate Holder is making the request, provide the "R" Certificate Number. Provide the 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" Certificate Holder 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 an "R" Certificate Holder. The requester will provide the new nameplate or have on hand the tools to do the re-stamping in accordance with the original code of construction.

Item 23-28 Clark – December 5, 2023 Page **2** of **4**

- 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" Certificate Holder shall fill in their name (and "R" Certificate Number if an "R" Certificate Holder), signature, 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 the form is 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 the "R" Certificate Holder), and up on request to the Authorized Inspection Agency who witnessed the re-stamping or attachment of the new nameplate.

Item 23-28 Clark – December 5, 2023 Page 3 of 4

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)							
	(Address)							
	(Telephone no.)	NUMBER						
3.	SUBMITTED BY:(Name of Owner, User, Original Manufacturer, or "R" Certificate Holder)	<u>NUMBER</u>						
	(Name of Owner, Ose, Original Manufacture, of its Certificate Prodes)		("R" Certificate	Holder Only)				
	(Address)							
4.	(Name of contact) (Email)		Telephone no.)					
5.	LOCATION OF INSTALLATION: SAME AS #3 STOCK ITE	M-UNKNOWN						
	(Name)							
	(Address)							
6.	DATE INSTALLED: UNKNOWN	I						
7.	MANUFACTURER:							
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) SAFETY RELIEF VALVE SET AT: (psi)							
11.	11. PROVIDE A TRUE FACSIMILE OF THE LEGIBLE PORTION OF THE NAMEPLATE: ATTACHED							
	THE FOLLOWING IS A TRUE FACSIMILE OF THE LEGIBLE PORTION OF THE ITEM'S ORIGINAL NAMEPLATE (IF AVAILABLE). PLEASE PRINT. WHERE POSSIBLE, ALSO ATTACH A RUBBING OR PICTURE OF THE NAMEPLATE.							
12	TRACEABILITY DOCUMENTATION – PROVIDE ANY DOCUMENTATION THAT WILL HELF REQUESTED RE-STAMPING OR REPLACEMENT NAMEPLATE IS IN ACCORDANCE WITH PRESSURE-RETAINING ITEM. ATTACHED							

Item 23-28 Clark – December 5, 2023 Page **4** of **4**

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:(Owner,	User, Original Manufacture	r, "R" Certificate Holde	ir)	NUMBER		("R" Certificate Holder only)	
	SIGNATURE:	(Authorized Representative	<u>^ or</u>			DATE:		
14.	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:							
	SIGNATURE:	(Authorized Jurisdictional R	epresentative or Inspe	ector)		_ DATE:		
	NATIONAL BOAR	RD COMMISSION NO.:			JURISDI	CTIONAL NUMBER:	(If available)	
15.	15. THE FOLLOWING IS A TRUE FACSIMILE OF THE ITEM'S REPLACEMENT STAMPING OR NAMEPLATE. (Must clearly state "replacement")							
16.	16. I CERTIFY THAT 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:							
	(Owne	r, User, Original Manufactur	er, "R" Certificate Hold	ler)			("R" Certificate Holder only)	
	SIGNATURE:	(Authorized Representative	<u>^ or</u>			DATE:		
17.	WITNESSED BY:	(Name of Inspector)				_ EMPLOYER:		
	SIGNATURE:	(Name of Inspector)		DATE: _		NB COMMISSION N	0.:	

Item 23-37 T. Bolden January 2, 2024 Page **1** of **1**

1.4 PERSONNEL SAFETY

- a) Personnel safety is the joint responsibility of the owner or user and the Inspector. All applicable safety regulations shall be followed. This includes <u>regulations of the country, federal,</u> state, regional, and/or local rules and regulations. Owner or user programs, safety programs of the Inspector's employer, or similar standards also apply. In the absence of such rules, prudent and generally accepted engineering safety procedures satisfactory to the Inspector shall be employed by the owner or user.
- b) The owners or users are responsible for addressing all exposures with the Inspector prior to the inspection. This may include but not limited to the following:
 - 1) removing the exposure;
 - 2) providing proper PPE; or
 - 3) providing the necessary training to the Inspector to satisfy the Inspector's concern.

<u>In no case shall the Inspector perform an inspection until they are satisfied to be able to safely perform the inspection.</u>

- cb) Inspectors are cautioned that the operation of safety devices involves the discharge of fluids, gases, or vapors. Extreme caution should be used when working around these devices due to hazards to personnel. Suitable hearing protection should be used during testing because extremely high noise levels can damage hearing.
- de) Inspectors shall take all safety precautions when examining equipment. Proper personal protective equipment shall be worn, equipment shall be locked out, blanked off, decontaminated, and confined space entry permits obtained before internal inspections are conducted. In addition, Inspectors shall comply with plant safety rules associated with the equipment and area in which they are inspecting. Inspectors are also cautioned that a thorough decontamination of the interior of vessels is sometimes very hard to obtain and proper safety precautions must be followed to prevent contact or inhalation injury with any extraneous substance that may remain in the tank or vessel.