Date Distributed: 11/6/2018

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

NATIONAL BOARD SUBCOMMITTEE REPAIRS & ALTERATIONS

MINUTES

Meeting of October 23rd, 2018
WebEx Online Meeting

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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 (11 a.m. Eastern Time)**

Subcommittee Chair Mr. Rob Troutt called the meeting to order at 11:05 a.m. Eastern Daylight Time.

2. **Introduction of Members and Visitors**

The following people were present at the meeting:
Rob Troutt – Chair
Jim Pillow – Vice Chair
Terrence Hellman – Secretary
Ben Schaefer – Member
Brian Boseo – Member
Craig Hopkins – Member
Paul Edwards – Member
Ray Miletti – Member
Rick Sturm – Member
Joel Amato – Member
Brian Morelock – Member
Marty Toth – Member
Gary Scribner – National Board Staff
Jonathan Ellis – National Board Staff
Bob Wielgoszinski – Guest

3. **Adoption of the Agenda**

A motion was made, seconded, and approved to adopt the agenda as presented.

4. **Public Review Comments**

Item Number: PR18-0301	**NBIC Location: Part 3, 1.6.8.2 j)**	**Attachment Page 4**
General Description: (Item 17-168) Editorial: "Certificate Holders" should be corrected to "Certificate Holder's" in the referenced text. **Meeting Action:** Discussion was held on the comment and the changes being proposed. It was determined that the proposed change was editorial in nature. Motion was made and seconded to propose Response 1: Accepted, Changes are Incorporated. Motion unanimously approved.		

Item Number: PR18-0302	**NBIC Location: Part 3, 1.6.8.3 p) 1)**	**Attachment Page 7**
General Description: (Item 17-168) Editorial: Change "non-conformances" to "nonconformances" in the referenced paragraph. **Meeting Action:** Discussion was held on the comment and the changes being proposed. It was determined that the proposed change was editorial in nature. Motion was made and seconded to propose Response 1: Accepted, Changes are Incorporated. Motion unanimously approved.		

Item Number: PR18-0303	NBIC Location: Part 3, 1.6.6.3 l), 1.6.7.2 l), 1.6.8.2 l)	Attachment Page 9

General Description: (Item NB16-0609) Editorial: Revise "NR Certificate Holder' Quality Program" to ""NR" Certificate Holder's Quality Program".

Meeting Action: Discussion was held on the comment and the changes being proposed. Clarification was provided on the exact changes being made. Motion was made and seconded to propose Response 1: Accepted, Changes are Incorporated. Motion unanimously approved.

Item Number: PR18-0304	NBIC Location: Part 3, 9.1	Attachment Page 12

General Description: (Item 18-4) Editorial: In definition of welding revise "metal" and "nonmetal" to "metallic" and "nonmetallic", respectively.

Meeting Action: Discussion was held on the comment and the changes being proposed. It was determined that the proposed change was editorial in nature. Motion was made and seconded to propose Response 1: Accepted, Changes are Incorporated. Motion unanimously approved.

Item Number: PR18-0305	NBIC Location: Part 3, 9.1	Attachment Page 14

General Description: (Item 18-4) Editorial: In definition of welding revise "metal" and "nonmetal" to "metallic" and "nonmetallic", respectively.
**Note that this comment is a duplicate of PR18-0304 that was submitted by the original commenter.

Meeting Action: Motion was made and seconded to respond to the comment in the same manner as PR18-0304 since they are duplicates of each other. This motion was unanimously approved.

Item Number: PR18-0306	NBIC Location: Part 3, 3.3 b)	Attachment Page 15

General Description: (Item 18-14) Editorial: 2nd bullet - Technically, "AMD1" is not initials since it is a mix of letters and numbers. (It is also not an acronym.) Recommend the word "initials" be replaced by "suffix".

Meeting Action: Discussion was held on the comment and the changes being proposed. It was determined that the proposed change was editorial in nature. Motion was made and seconded to propose Response 1: Accepted, Changes are Incorporated. Motion approved.

Item Number: PR18-0307	NBIC Location: Part 3, 2.5.3 e)	Attachment Page 17

General Description: (Item 18-48) Revise existing text: Re: SI equivalent of 3/8 in, per Table 7.4-c, this value should be 10 mm, which is the value used elsewhere in Part 3.

Meeting Action: Discussion was held on the comment and the changes being proposed. It was determined that the proposed change was editorial in nature. Motion was made and seconded to propose Response 1: Accepted, Changes are Incorporated. Motion unanimously approved.

Item Number: PR18-0308	NBIC Location: Part 3, 2.5.3.2 d) 4) b)	Attachment Page 20

General Description: (Item 17-152) Recommend revise "tube to header" to "tube-to-header" (with hyphens) for style consistency with ASME. For example, they use "tube-to-tubesheet",

Meeting Action: Discussion was held on the comment and the changes being proposed. It was determined that the proposed change was editorial in nature. Motion was made and seconded to propose Response 1: Accepted, Changes are Incorporated. Motion unanimously approved.

Item Number: PR18-0309	NBIC Location: Part 3, 3.3.3 u) 3) and 5)	Attachment Page 22

General Description: (Item NB12-0801) Editorial: In 3.3.3 u) 3) "OEM" and "MDR" are used for the first time. They are not explained until 3.3.3 u) 5). Recommend that the full terms and their abbreviations be used in 3.3.3 u) 3). The abbreviations can then be used by themselves in subsequent references.

Meeting Action: Discussion was held on the comment and the changes being proposed. It was determined that the proposed changes are editorial in nature. Motion was made and seconded to propose Response 1: Accepted, Changes are Incorporated. Motion unanimously approved.

Item Number: PR18-0310	NBIC Location: Part 3, 3.3.4.1 d)	Attachment Page 24

General Description: (Item 17-150) Recommend the last sentence be revised, in part, to state: "...with NBIC Part 3, 3.4.1 d)" so as to specifically identify the Part of the NBIC in which the paragraph is referenced.

Meeting Action: Discussion was held on the comment and the changes being proposed. It was determined that the proposed change was editorial in nature. Motion was made and seconded to propose Response 1: Accepted, Changes are Incorporated. Motion unanimously approved. Additional discussion was held on addressing how paragraph references are made in the NBIC so that there is consistency. Mr. Bob Wielgoszinski recommended that it be discussed by the NBIC Executive Committee.

Item Number: PR18-0311	NBIC Location: Part 3, 5.12.4.3 13)	Attachment Page 26

General Description: (Item 17-179) Editorial: Correct "manufacturers" to "Manufacturer's".

Meeting Action: Discussion was held on the comment and the changes being proposed. It was determined that the proposed change was editorial in nature. However, the committee felt that “manufacturer’s” did not need to be capitalized. A motion was made and seconded to propose Response 1: Accept, Changes are Incorporated to address the addition of the apostrophe. A second motion was made and seconded to propose Response 4: Rejected for the Following Reason in regards to the suggested capitalization. Both motions were approved unanimously.

Item Number: PR18-0312	NBIC Location: Part 3, 5.12.4.4 14)	Attachment Page 28

General Description: (Item 17-179) Editorial: 1] Correct "Inspectors" to "Inspector's".
[2] Revise "Province" to "Provincial" to be consistent with current NBIC reference

Meeting Action: Discussion was held on the comment and the changes being proposed. It was determined that the proposed changes are editorial in nature. Motion was made and seconded to propose Response 1: Accepted, Changes are Incorporated. Motion unanimously approved.

Item Number: PR18-0313	NBIC Location: Part 3, 5.12.4.4 14)	Attachment Page 33

General Description: (Item 17-179) Editorial: 1] Correct "Inspectors" to "Inspector's".
[2] Revise "Province" to "Provincial" to be consistent with current NBIC reference
**Note that this is a duplicate of PR18-0312 submitted by the original commenter.

Meeting Action: Motion was made and seconded to respond to the comment in the same manner as PR18-0312 since they are duplicates of each other. This motion was unanimously approved.

Item Number: PR18-0314	NBIC Location: Part 3, S1.1.4	Attachment Page 34

General Description: (Item NB16-1801) “This is not part of the "action", but it may be worth considering a revision to S1.1.4 - FORMULA AND CALCULATIONS FOR STEAM LOCOMOTIVE

BOILERS since rules for riveted construction (Part PR) were modernized in 2013 and Locomotive Boilers (Part PL) was added to Section I in 2015."

The current [2017 NBIC] text reads:
"a) Most steam locomotive boilers were manufactured in the first half of the 20th century or before. The calculations, formula, and shop practices used are now distant history and quite difficult to obtain. The rules for riveted construction were last published by ASME in Section I Code, 1971 Edition."

Meeting Action: Discussion was held on the comment and the changes being proposed. The committee agreed that the NBIC needs to be updated to match the current rules. A motion was made and seconded to propose Response 2: Accept in Principle, New Business Item Opened. The motion was approved unanimously.

Item Number: PR18-0315	**NBIC Location: Part 3, S1.1.4**	**Attachment Page 37**

General Description: (Item NB16-1801) "This is not part of the "action", but it may be worth considering a revision to S1.1.4 - FORMULA AND CALCULATIONS FOR STEAM LOCOMOTIVE BOILERS since rules for riveted construction (Part PR) were modernized in 2013 and Locomotive Boilers (Part PL) was added to Section I in 2015."
**Note that this is a duplicate of PR18-0314 submitted by the original commenter

Meeting Action: Motion was made and seconded to respond to the comment in the same manner as PR18-0314 since they are duplicates of each other. This motion was unanimously approved.

Item Number: PR18-0316	**NBIC Location: Part 3, S3.5.5 f)**	**Attachment Page 38**

General Description: (Item NB15-2210)
Editorial: [1] R and G should be within quotation marks ("R", "G");
[2] Correct "concurrence fo the Inspector" to "concurrence of the Inspector".

Meeting Action: Discussion was held on the comment and the changes being proposed. An initial motion was made and seconded to propose Response 1: Accepted, changes are incorporated. Mr. Wielgoszinski pointed out some errors in the new text proposed by Item NB15-2210 that should be addressed in a new action item. Further discussion was held on whether or not the item should be pulled back for further work. The committee ultimately agreed that the initial motion adequately addresses the comment and that an item will be opened outside of this meeting to address the issues pointed out by Mr. Wielgoszinski. The initial motion was approved unanimously.

5. Future Meetings

January 14-17, 2019 – San Antonio, TX
July 15-18, 2019 – Kansas City, MO

6. Adjournment

A motion was made, seconded, and approved to adjourn the meeting at 12:32 p.m. Eastern Daylight Time.

Respectfully submitted,

Jonathan Ellis

Jonathan Ellis, NBIC Secretary

Contents

PR18-0301

National Board of Boiler and Pressure Vessel Inspectors
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Submission of Public Review Comment
2019 Draft Edition

PLEASE SUBMIT ONLY ONE COMMENT/RECOMMENDATION PER PAGE
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Comments Must be Received No Later Than: October 15, 2018

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

Date: Sep. 10, 2018

Commenter Name: Alex Garbolevsky

Commenter Address: Hartford Steam Boiler
One State St., 8th Flr., Hartford, CT 06102-5024

Commenter Phone: (860) 722-5098

Commenter Fax: none

Commenter Email: alex_garbolevsky@hsb.com

Section/Subsection Referenced: Part 3, 1.6.8.2 j)(NB 17-168)

Comment/Recommendation: *Proposed Solution:* □ New Text ■ Revise Text □ Delete Text

Editorial correction to existing text: "Certificate Holders" should be corrected to "Certificate Holder's".

PM Proposed Response - Accept w/ changes incorporated. Agreed this is editorial, however it should be noted that this is existing text dating from the 2015 Edition, i.e. not part of the action under 17-168.

Source: ■ Own Experience/Idea □ Other Source/Article/Code/Standard

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g) Control of Purchases, Materials, Items and Services

Purchased material, items and services shall conform to the procurement documents. Measures shall be established for source evaluation and selection, objective evidence of quality, inspections at the source and examination of products upon delivery. Effectiveness of quality shall be assessed by the applicant or designee at specified intervals.

h) Identification and Control of Items

Specified controls shall ensure only correct and acceptable items, parts and components are used and installed.

i) Control of Processes

Documents used to control processes and conform to specified acceptance criteria shall include spaces for signatures, initials, stamps and dates for activities performed by the Certificate Holders' representative and the Authorized Nuclear Inspector.

j) Examinations, Tests and Inspections

A repair / replacement plan shall address all required information for performing examinations, tests and inspections including but not limited to:

1) Establishing hold points

2) Identifying procedures, methods, acceptance criteria

3) Defects identified, removal methods, welding, brazing, fusing, and material requirements, reference points used for identification

4) Evaluations of results

k) Test Control

Tests performed to written procedures identifying acceptance limits, calibration, equipment, personnel qualifications, environmental conditions, and documentation required.

l) Control of Measuring and Test Equipment

Procedures, methods and frequency of calibration shall be described for all types of measuring and test equipment used to verify quality. Any discrepancies shall be identified and resolved.

m) Handling, Storage and Shipping

Processes or procedures shall be established to prevent damage, deterioration or misuse of material, items or components used and stored.

n) Records

1) All quality related records shall be classified, identified, verified, maintained, distributed, retraceable, and accessible. When the "NR" Certificate Holder is the owner, designated records and reports received by the owner, shall be filed and maintained in a manner to allow access by the Authorized Nuclear Inservice Inspector (ANII). Suitable protection from deterioration and damage shall be provided by the owner. These records and reports shall be retained as specified in the owner's QAP for the lifetime of the component or system.

2) The original of the completed Form NR-1 or Form NVR-1, as applicable, shall be registered with the National Board and, if required, a copy forwarded to the Jurisdiction where the nuclear power plant is located. A log shall be maintained in accordance with NBIC Part 3, 5.6.

quantitative or qualitative ~~qualified~~ acceptance criteria to determine activities are satisfactorily accomplished.

g) Document Control

Shall define measures to control the preparation, issuance, use, review, approval, revisions and distribution of all documents, including procedures, instructions and drawings related to quality. Responsibilities shall be described within the quality program.

h) Control of Purchase~~d~~s, Materials, Items and Services

Purchased material, items and services shall conform to the procurement documents. Measures shall be established for source evaluation and selection, objective evidence of quality, inspections at the source and examination of products upon delivery. Effectiveness of quality of suppliers shall be assessed by the applicant or designee at specified intervals. Documented evidence shall be performed and made available to assure materials and services conform to procurement documents, quality procedures and instructions.

i) Identification and Control of Items

Specified controls shall ensure only correct and acceptable items, parts and components are used and installed and traceable to required documents such as certified material test reports, certificates of conformance, or data reports. These controls shall include traceability on the items or on records traceable to the items during fabrication and final acceptance and test.

j) Control of Processes

Documents used to control processes shall be prepared, including the document numbers and revision to which the process conforms and ~~conform to specified acceptance criteria~~ shall include space for providing reporting of results of specific operations at checkpoints of repair/replacement activity, and provide for signatures, initials, stamps and dates for activities performed by the Certificate Holders' representative and the Authorized Nuclear Inspector. Special processes including welding, nondestructive examinations, heat treating, and bending are performed using qualified and approved procedures and qualified personnel in accordance with applicable codes, standards and other specified criteria.

k) Examinations, Tests and Inspections

A repair / replacement plan, developed in accordance with Table 1.6.9, shall address all required information for performing examinations, tests and inspections including but not limited to:

1) Establishing hold points

2) Identifying procedures, methods, acceptance criteria

3) Defects identified, removal methods, welding, brazing, fusing, and material

PR18-0302

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Commenter Phone: (860) 722-5098

Commenter Fax: none

Commenter Email: alex_garbolevsky@hsb.com

Section/Subsection Referenced: Part 3, 1.6.8.2 p) 1) (NB 17-168)

Comment/Recommendation: *Proposed Solution:* □ New Text ■ Revise Text □ Delete Text

Editorial correction: "non-conformances" should be shown as "nonconformances" for consistency. The entire text should be searched for consistent spelling of "nonconformances", "nonconformity" and similar words. ASME NQA-1 uses the word without hyphenation (e.g. NQA-1-2009a-1a, Part I, Requirement 7, para. 600).

PM Proposed Response - Accept w/ changes incorporated. Agreed this is editorial and consistent w/ use of the term nonconformance w/o the hyphen throughout the text.

Source: □ Own Experience/Idea ■ Other Source/Article/Code/Standard NQA-1-2009a-1a, Part I, Requirement 7, para. 600

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~~1)~~2) The original of the completed Form NR-1 or Form NVR-1, as applicable, shall be registered with the National Board and, if required, a copy forwarded to the Jurisdiction where the nuclear power plant is located. A log for registration shall be maintained in accordance with NBIC Part 3, 5.6.

p) Corrective Action

1) Measures shall be established to ensure that conditions adverse to quality such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and other non-conformances are promptly identified and corrected.
2) In the case of significant conditions adverse to quality, the measures shall also ensure that the cause of these conditions be determined and corrected to preclude repetition. The identification of significant conditions adverse to quality, the cause, condition, and the corrective action taken shall be documented and reported to the appropriate levels of management.
3) Corrective action requirements shall also extend to the performance of subcontractors' activities.

~~Measures established to assure conditions adverse to quality are promptly identified and corrected and action taken to preclude repetition.~~

q) Inspection or Test Status

Measures shall be established to indicate inspection and test status of parts, items or components during repair/replacement activity. Measures shall include identification, procedures, control indicators (acceptable, unacceptable) and responsibility of personnel.

r) Nonconforming Material or Items

Measures to control material or items, nonconforming to specified criteria shall be established. Measures shall include identifying, controlling, documenting, reviewing, verifying, dispositioning and segregation when practical.

s) Audits

~~A system of planned and periodic audits shall be established to verify compliance of the Quality Assurance Program. Audits shall include; written procedures, checklists, trained/qualified personnel not having direct responsibility for areas being audited, documentation, review by management and follow-up actions when required.~~ A comprehensive system of planned and periodic audits of the "NR" Certificate Holder's Quality Assurance Program shall be performed. Audits shall include internal audits by the Certificate Holder and audits by the Authorized Inspection Agency. Audit frequency shall be specified in the organization's Quality Assurance Manual. Audits shall be conducted at least annually to verify compliance with Quality Assurance Program requirements, performance criteria and to determine the effectiveness of the Quality Assurance Program. When no code work has been performed, the required annual audit need only include those areas of responsibility required to be continually maintained such as training, audits, organizational structure, Quality Assurance Program revisions, etc. The Quality Assurance Manual shall as a minimum describe the following:

PR18-0303

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Commenter Phone: (860) 722-5098

Commenter Fax: none

Commenter Email: alex_garbolevsky@hsb.com

Section/Subsection Referenced: Part 3, 1.6.6.2 l), 1.6.7.2 l) & 1.6.8.2 l) (NB 16-0609)

Comment/Recommendation: *Proposed Solution:* □ New Text ■ Revise Text □ Delete Text

Editorial corrections: Revise "NR Certificate Holder' Quality Program" to ""NR" Certificate Holder's Quality Program".

PM Proposed Response - Accept w/ changes incorporated. Agreed this is editorial, w/ corrections applied to both the quotation marks on "NR" and the possessive use of Holder's

Source: ■ Own Experience/Idea □ Other Source/Article/Code/Standard

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~~c. "NR" Certificate Holder shall specify that calibration reports shall include, laboratory equipment/ standards used and as found and as left data;~~
~~d. The "NR" Certificate Holder shall verify conformance to the requirements of this process; and e. Utilization of this process shall be described and documented in the "NR" Certificate Holders QAM.~~

1.6.7.2 – Quality Program Elements (Category 2)
l) Control of Measuring and Tests Elements
~~Control of Measuring and Test Equipment Measures shall be established and documented to ensure that tools, gages, instruments, and other measuring and testing equipment and devices used in activities affecting quality are of the proper range, type, and accuracy to verify conformance to established requirements. A procedure shall be in effect to ensure that they are calibrated and properly adjusted at specified periods or use intervals to maintain accuracy within specified limits. Calibration shall be traceable to known national standards, where these standards exist, or with the device manufacturer's recommendation.~~

1.6.8.2 – Quality Program Elements (Category 3)
l) Control of Measuring and Test Equipment
~~Control of Measuring and Test Equipment Procedures, methods and frequency of calibration shall be described for all types of measuring and test equipment used to verify quality. Any discrepancies shall be identified and resolved.~~

1.6.6.2 l), 1.6.7.2 l), 1.6.8.2 l)
Add to Category 1, 2, and 3 the following:

The NR Certificate Holder may utilize calibration and test activities performed by subcontractors when surveys and audits are performed. As an alternative to performing a survey and audit for procuring Laboratory Calibration and Test Services, the NR Certificate Holder as documented in their Quality Program may accept accreditation of an International Calibration and Test Laboratory Services by the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) provided this alternative method is described in the NR Certificate Holder' Quality Program and the following requirements are met:

a) The NR Certificate Holder shall review and document verification that the supplier of calibration or test services was accredited by an accredited body recognized by the ILAC MRA encompassing ISO/IEC-17025:2005, "General Requirements for the Competence of Testing and Calibration Laboratories";
b) For procurement of calibration services, the published scope of accreditation for the calibration laboratory covers the needed measurement parameters, ranges and uncertainties.
c) For procurement of testing services, the published scope of accreditation for

	the test laboratory covers the needed testing services including test methodology and tolerances/uncertainty. d) The NR Certificate Holder's purchase documents shall include: 1) Service provided shall be in accordance with their accredited ISO/IEC-17025:2005 program and scope of accreditation; 2) As-found calibration data shall be reported in the certificate of calibration when items are found to be out-of-calibration; 3) Standards used to perform calibration shall be identified in the certificate of calibration; 4) Notification of any condition that adversely impacts the laboratories ability to maintain the scope of accreditation; 5) Any additional technical and/or quality requirements, as necessary, which may include; tolerances, accuracies, ranges, and standards. 6) Service suppliers shall not subcontract services to any other supplier. e) The NR Certificate Holder shall upon receipt inspection, validate that the laboratory documentation certifies that: 1) Services provided by the laboratory has been performed in accordance with their ISO/IEC-17025:2005 program and performed within their scope; and 2) Purchase order requirements have been met.
17-154 Part 3, 1.6.6.2 r)	v) Audits The provisions identified in ASME NQA-1, Part 1, and Requirement 18 shall apply and shall include the following: A comprehensive system of planned and periodic ~~internal~~ audits of the "NR" Certificate Holder's Quality Assurance Program shall be performed ~~by the "NR" Certificate Holder~~. Audits shall include internal audits by the Certificate Holder and audits by the Authorized Inspection Agency. Audit frequency shall be specified in the organization's Quality Assurance Manual. Audits shall be conducted at least annually for any ongoing code activity to verify compliance with Quality Assurance Program requirements, performance criteria and to determine the effectiveness of the Quality Assurance Program. When no code work has been performed, the required annual audit need only include those areas of responsibility required to be continually maintained such as training, audits, organizational structure, and Quality Assurance Program revisions. The Quality Assurance Manual shall as a minimum describe the following:
NB17-0702 Part 3, 1.6.7.2 n) 2) f.	f. Nondestructive examination reports, including results of examinations, shall identify the ~~ASNT, SNT-TC-1A, CP-189, or ACCP~~name and certification level of personnel interpreting the examination results.
17-154	r) Audits

PR18-0304

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Commenter Phone: (860) 722-5098

Commenter Fax: none

Commenter Email: alex_garbolevsky@hsb.com

Should be NB18-40

Section/Subsection Referenced: Part 3, 9.1 (NB 18-4)

Comment/Recommendation: *Proposed Solution:* □ New Text ■ Revise Text □ Delete Text

Editorial: In definition of welding revise "metal" and "nonmetal" to "metallic" and "nonmetallic", respectively.

Source: ■ Own Experience/Idea □ Other Source/Article/Code/Standard

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	9.1 DEFINITIONS Add the following: **Brazing** – see Welding **Fusing** – see Welding **Welding (Brazing, Fusing)** – a group of processes which produce a localized coalescence of metal or nonmetal materials.
18-14 Part 3, 2.3 and Table 2.3	**2.3 STANDARD WELDING PROCEDURE SPECIFICATIONS** a) One or more SWPSs from NBIC Part 3, Table 2.3 may be used as an alternative to one or more WPS documents qualified by the organization making the repair or alteration, provided the organization accepts by certification (contained therein) full responsibility for the application of the SWPS in conformance with the application as stated in the SWPS. When using SWPSs, all variables listed on the Standard Welding Procedure are considered essential and, therefore, the repair organization cannot deviate, modify, amend, or revise any SWPSs. US Customary Units or metric units may be used for all SWPSs in NBIC Part 3, Table 2.3, but one system shall be used for application of the entire SWPS in accordance with the metric conversation table contained in the SWPS. The user may issue supplementary instructions as allowed by the SWPS. Standard Welding Procedures Specifications shall not be used in the same product joint together with the other Standard Welding Procedure Specifications or other welding procedure specifications qualified by the organization. b) The AWS reaffirms, amends or revises SWPSs in accordance with ANSI procedures. • Reaffirmed SWPSs: When reaffirmation occurs without revision to the SWPS, the letter R is added to the SWPS designation. • Amended SWPSs: When an amendment occurs the initials AMD1 is added to the SWPS designation Amendments are issued when essential for the prompt correction of an error that could be misleading. Amendments are incorporated into the existing text of the SWPS, which is reprinted and clearly marked as incorporating an amendment(s), and which is identified in the revised Foreword of the amended SWPS. • Revised SWPSs: When a revision to a published SWPS occurs, the publication date is added to the SWPS designation. The date of the superseded SWPS is also noted on the cover page. Previous versions of the superseded SWPS may be used at the option of the R Certificate holder.

SMAW — Shielded Metal Arc Welding	
Standard Welding Procedure Specification for Shielded Metal Arc Welding of Carbon Steel, (M-1/P-1, Group 1 or 2), 3/16 in. (5 mm) through 3/4 in. (19 mm), in the As-Welded Condition, With Backing.	B2.1.001-90 and B2.1-1-001: 90(R2006)
Standard Welding Procedure Specification for Shielded Metal Arc Welding of Carbon Steel (M-1/P-1/S-1, Group	B2.1-1-016-94

PR18-0305 - Duplicate of PR18-0304

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Date: Sep. 10, 2018

Commenter Name: Alex Garbolevsky

Commenter Address: Hartford Steam Boiler
One State St., 8th Flr., Hartford, CT 06102-5024

Commenter Phone: (860) 722-5098

Commenter Fax: none

Commenter Email: alex_garbolevsky@hsb.com

Section/Subsection Referenced: Part 3, 9.1 (NB 18-4)

Comment/Recommendation: *Proposed Solution:* □ New Text ■ Revise Text □ Delete Text

Editorial: In definition of welding revise "metal" and "nonmetal" to "metallic" and "nonmetallic", respectively.

Source: ■ Own Experience/Idea □ Other Source/Article/Code/Standard

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PR18-0306

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Commenter Phone: (860) 722-5098

Commenter Fax: none

Commenter Email: alex_garbolevsky@hsb.com

Change this 3 to a 2 (typo)

Section/Subsection Referenced: Part 3, 3.3 b) (NB 18-14)

Comment/Recommendation: *Proposed Solution:* □ New Text ■ Revise Text □ Delete Text

Editorial: 2nd bullet - Technically, "AMD1" is not initias since it is a mix of letters and numbers. (It is also not an acronym.) Recommend the word "initials" be replaced by "suffix".

Changing the word "initials" to "suffix" is editorial since the "intent" remains the same

Source: ■ Own Experience/Idea □ Other Source/Article/Code/Standard

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	9.1 DEFINITIONS Add the following: **Brazing** – see Welding **Fusing** – see Welding **Welding (Brazing, Fusing)** – a group of processes which produce a localized coalescence of metal or nonmetal materials.
18-14 Part 3, 2.3 and Table 2.3	**2.3 STANDARD WELDING PROCEDURE SPECIFICATIONS** a) One or more SWPSs from NBIC Part 3, Table 2.3 may be used as an alternative to one or more WPS documents qualified by the organization making the repair or alteration, provided the organization accepts by certification (contained therein) full responsibility for the application of the SWPS in conformance with the application as stated in the SWPS. When using SWPSs, all variables listed on the Standard Welding Procedure are considered essential and, therefore, the repair organization cannot deviate, modify, amend, or revise any SWPSs. US Customary Units or metric units may be used for all SWPSs in NBIC Part 3, Table 2.3, but one system shall be used for application of the entire SWPS in accordance with the metric conversation table contained in the SWPS. The user may issue supplementary instructions as allowed by the SWPS. Standard Welding Procedures Specifications shall not be used in the same product joint together with the other Standard Welding Procedure Specifications or other welding procedure specifications qualified by the organization. b) The AWS reaffirms, amends or revises SWPSs in accordance with ANSI procedures. • Reaffirmed SWPSs: When reaffirmation occurs without revision to the SWPS, the letter R is added to the SWPS designation. • Amended SWPSs: When an amendment occurs the initials AMD1 is added to the SWPS designation Amendments are issued when essential for the prompt correction of an error that could be misleading. Amendments are incorporated into the existing text of the SWPS, which is reprinted and clearly marked as incorporating an amendment(s), and which is identified in the revised Foreword of the amended SWPS. • Revised SWPSs: When a revision to a published SWPS occurs, the publication date is added to the SWPS designation. The date of the superseded SWPS is also noted on the cover page. Previous versions of the superseded SWPS may be used at the option of the R Certificate holder.

SMAW — Shielded Metal Arc Welding	
Standard Welding Procedure Specification for Shielded Metal Arc Welding of Carbon Steel, (M-1/P-1, Group 1 or 2), 3/16 in. (5 mm) through 3/4 in. (19 mm), in the As-Welded Condition, With Backing.	B2.1.001-90 and B2.1-1-001: 90(R2006)
Standard Welding Procedure Specification for Shielded Metal Arc Welding of Carbon Steel (M-1/P-1/S-1, Group	B2.1-1-016-94

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Commenter Phone: (860) 722-5098

Commenter Fax: none

Commenter Email: alex_garbolevsky@hsb.com

Section/Subsection Referenced: Part 3, 2.5.3 e) (NB 18-48)

Comment/Recommendation: *Proposed Solution:* □ New Text ■ Revise Text □ Delete Text

Revise existing text: Re: SI equivalent of 3/8 in, per Table 7.4-c, this value should be 10 mm, which is the value used elsewhere in Part 3.

Source: □ Own Experience/Idea ■ Other Source/Article/Code/Standard NBIC Parts 1-4, Table 7.4-c

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	Standard Welding Procedure Specification for Gas Tungsten Arc Welding Followed by Shielded Metal Arc Welding of Austenitic Stainless Steel (M-8/P-8/S-8, Group 1), 1/8 in. (3.2 mm) through 1 ½ in. (38 mm) Thick, ER3XX and E3XX-XX, As-Welded Condition, Primarily Pipe Applications.	B2.1-8-214-97
	Standard Welding Procedure Specification for Gas Tungsten Arc Welding Followed by Shielded Metal Arc Welding of Austenitic Stainless Steel (M-8/P-8/S-8, Group 1), 1/8 in. (3.2 mm) through 1 ½ in. (38 mm) Thick, ER3XX and E3XX-XX, As-Welded Condition, Primarily Pipe Applications.	B2.1-8-214:2001 R2012
	Standard Welding Procedure Specification for Gas Tungsten Arc Welding With Consumable Insert Followed by Shielded Metal Arc Welding of Austenitic Stainless Steel (M-8/P-8/S-8, Group 1), 1/8 in. (3.2 mm) through 1 ½ in. (38 mm) thick, IN3XX, ER3XX, and E3XX-XX As-Welded Condition, Primarily Pipe Application.	B2.1-8-216-1998
	Standard Welding Procedure Specification for Gas Tungsten Arc Welding with Consumable Insert Root followed by Shielded Metal Arc Welding of Austenitic Stainless Steel (M-8/P-8/S-8, Group 1), 1/8 in. (3.2 mm) through 1 ½ in. (38 mm) Thick, IN3XX, ER3XX, and E3XX-XX As-Welded Condition, Primarily Pipe Applications.	B2.1-8-216:2001 R2012
	Combination of Carbon Steel (P-1 Material) To Austenitic Stainless Steel (P-8 Material)	
	SMAW — Shielded Metal Arc Welding	
	Standard Welding Procedure Specifications for Shielded Metal Arc Welding of Carbon Steel (M-1/P-1/S-1, Groups 1 or 2) to Austenitic Stainless Steel (M-8/P-8/S-8, Group 1), 1/8 in. (3.2 mm) through 1 ½ in. (38 mm) Thick, E309 (L)-15, -16, or -17, As-Welded Condition, Primarily Pipe Applications.	B2.1-1/8-228:2002 R2013
	GTAW — Gas Tungsten Arc Welding	
	Standard Welding Procedure Specification for Gas Tungsten Arc Welding of Carbon Steel (M-1/P-1/S-1, Groups 1 or 2) to Austenitic Stainless Steel (M-8/P-8/S-8, Group 1), 1/16 in. (1.6 mm) through 1 ½ in. (38 mm) Thick, ER309 (L), As-Welded Condition, Primarily Pipe Applications.	**B2.1-1/8-227:2002, 2002 AMD1 and R2013**
	Standard Welding Procedure Specifications for Gas Tungsten Arc Welding with Consumable Insert Root of Carbon Steel (M-1/P-1/S-1, Groups 1 or 2) to Austenitic Stainless Steel (M-8/P-8/S-8, Group 1), 1/16 in. (1.6 mm) through 1½ in. (38 mm) Thick, IN309 and ER309(L), As-Welded Condition, Primarily Pipe Applications.	**B2.1-1/8-230:2002, 2002 AMD1 and R2013**
	GTAW/SMAW Combination of Welding Processes	
	Standard Welding Procedure Specifications for Gas Tungsten Arc Welding followed by Shielded Metal Arc Welding of Carbon Steel (M-1/P-1/S-1,Groups 1 or 2) to Austenitic Stainless Steel (M-8/P-8/S-8, Group 1), 1/8 in. (3.2 mm) through 1½ in. (38 mm) Thick, ER309(L) and E309(L)-15, -16, or -17, As-Welded Condition, Primarily Pipe Applications.	**B2.1-1/8-229:2002, 2002-AMD1 and R2013**
	Standard Welding Procedure Specifications for Gas Tungsten Arc Welding with Consumable Insert Root followed by Shielded Metal Arc Welding of Carbon Steel (M-1/P-1/S-1, Groups 1 or 2) to Austenitic Stainless Steel (M-8/P-8/S-8, Group 1), 1/8 in. (3.2 mm) through 1½ in. (38 mm) Thick, IN3009, ER309, and E309-15, -16, or -17 or IN309, ER309(L) and ER309(L)-15, -16, or -17, As-Welded Condition, Primarily Pipe Applications.	B2.1-1/8-231:2002 R2015
18-48 Part 3, 2.5.3 e)	e) Nondestructive Examination of Welds Prior to welding, the area prepared for welding shall be examined using either the Magnetic Particle (MT) or the Liquid Penetrant (PT) examination method to determine that no defects exist. After the finished weld has reached ambient temperature, and, when required by the specific welding method, the surface temper bead reinforcement layer has been removed substantially flush with the surface of the base metal, the weld shall be examined again by either of the above methods to determine that no defects	

	exist using acceptance standards acceptable to the Inspector or original code of construction. In addition, welds greater than 3/8 in. (9.6 mm) deep or welds in a ~~boiler, pressure vessel, or piping system~~ pressure retaining item that were originally required to be ~~radiographed~~ volumetrically examined by the rules of the original code of construction, shall be ~~radiographically~~ examined in accordance with paragraph 4.2 of Part 3. ~~In situations where it is not practical to perform radiography, the accessible surfaces of each non radiographed repair weld shall be fully examined using the MT or PT method to determine that no defects exist and the maximum allowable working pressure and/or allowable temperature shall be re-evaluated to the satisfaction of the jurisdiction at the location of installation.~~
17-152 Part 3, 2.5.3.2 d) 4)	2.5.3.2 ~~4) For ASME Section VIII, Division 2 pressure vessels, where application of PWHT on in-service vessels has been demonstrated to cause harm to vessel material, full thickness temper bead repairs are permitted to pressure retaining items of P-No. 4 and P-No. 5A materials. They shall be completed per NBIC Part 3, 3.3.5 with the following requirements:~~ 4) Full thickness temper bead weld repairs are permitted to pressure retaining items of P-No 4 and P-No 5A materials under the following conditions; a) ASME Section VIII, Division 2 pressure vessels, where application of PWHT on in-service vessels has been demonstrated to cause harm to vessel material. b) For tube to header welds in steam service. Full thickness weld repairs above shall be completed per NBIC Part 3, 3.3.5 with the following requirements: 1. The full thickness repair weld shall be verified as being the full penetration. 2. Volumetric examination of the full thickness weld shall be performed.
17-170 Part 3, 2.5.3.4 a)	**2.5.3.4 WELDING METHOD 4** When using this method, the following is required: a) This method is limited to repair welds in pressure retaining items for which the applicable rules of the original code of construction did not require notch toughness testing. The repair depth for temper bead repairs to pressure retaining items is limited to welds not penetrating though the full thickness. Full thickness temper bead weld repairs are permitted under the following conditions; 1) ASME Section VIII, Division 2 pressure vessels, where application of PWHT on in-

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One State St., 8th Flr., Hartford, CT 06102-5024

Commenter Phone: (860) 722-5098

Commenter Fax: none

Commenter Email: alex_garbolevsky@hsb.com

Section/Subsection Referenced: Part 3, 2.5.3.2 d) 4) b) (NB 17-152)

Comment/Recommendation: *Proposed Solution:* □ New Text ■ Revise Text □ Delete Text

Recommend revise "tube to header" to "tube-to-header" (with hyphens) for style consistency with ASME. For example, they use "tube-to-tubesheet",

Source: □ Own Experience/Idea ■ Other Source/Article/Code/Standard ASME BPV IX

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	exist using acceptance standards acceptable to the Inspector or original code of construction. In addition, welds greater than 3/8 in. (9.6 mm) deep or welds in a ~~boiler, pressure vessel, or piping system~~ pressure retaining item that were originally required to be ~~radiographed~~ volumetrically examined by the rules of the original code of construction, shall be ~~radiographically~~ examined in accordance with paragraph 4.2 of Part 3. ~~In situations where it is not practical to perform radiography, the accessible surfaces of each non radiographed repair weld shall be fully examined using the MT or PT method to determine that no defects exist and the maximum allowable working pressure and/or allowable temperature shall be re-evaluated to the satisfaction of the jurisdiction at the location of installation.~~
17-152 Part 3, 2.5.3.2 d) 4)	2.5.3.2 ~~4) For ASME Section VIII, Division 2 pressure vessels, where application of PWHT on in-service vessels has been demonstrated to cause harm to vessel material, full thickness temper bead repairs are permitted to pressure retaining items of P-No. 4 and P-No. 5A materials. They shall be completed per NBIC Part 3, 3.3.5 with the following requirements:~~ 4) Full thickness temper bead weld repairs are permitted to pressure retaining items of P-No 4 and P-No 5A materials under the following conditions; a) ASME Section VIII, Division 2 pressure vessels, where application of PWHT on in-service vessels has been demonstrated to cause harm to vessel material. b) For tube to header welds in steam service. Full thickness weld repairs above shall be completed per NBIC Part 3, 3.3.5 with the following requirements: 1. The full thickness repair weld shall be verified as being the full penetration. 2. Volumetric examination of the full thickness weld shall be performed.
17-170 Part 3, 2.5.3.4 a)	**2.5.3.4 WELDING METHOD 4** When using this method, the following is required: a) This method is limited to repair welds in pressure retaining items for which the applicable rules of the original code of construction did not require notch toughness testing. The repair depth for temper bead repairs to pressure retaining items is limited to welds not penetrating though the full thickness. Full thickness temper bead weld repairs are permitted under the following conditions; 1) ASME Section VIII, Division 2 pressure vessels, where application of PWHT on in-

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Commenter Fax: none

Commenter Email: alex_garbolevsky@hsb.com

Section/Subsection Referenced: Part 3, 3.3.3 u) 3) & 5) (NB 12-0801)

Comment/Recommendation: *Proposed Solution:* □ New Text ■ Revise Text □ Delete Text

In 3.3.3 u) 3) "OEM" and "MDR" are used for the first time. They are not explained until 3.3.3 u) 5). Recommend that the full terms and their abbreviations be used in 3.3.3 u) 3). The abbreviations can then be used by themselves in subsequent references.

Source: ■ Own Experience/Idea □ Other Source/Article/Code/Standard

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	service vessels has been demonstrated to cause harm to vessel material. 2) For tube to header welds in steam service. Full thickness weld repairs shall be completed per NBIC Part 3, 3.3.5 with the following requirements: 1) The full thickness repair weld shall be verified as being full penetration. 2) Volumetric examination of the full thickness weld shall be performed.
17-180 Part 3, 2.5.3.6	**2.5.3.6 WELDING METHOD 6** This welding method provides requirements for welding only Grade 91 tube material within the steam boiler setting. ~~and when it is impracticable to perform local postweld heat treatment (PWHT).~~ When using this welding method, the following applies:
17-151, Part 3, 2.5.3.6 c) 2)	2) The welding shall be limited to the SMAW and/or GTAW processes, manual or automatic, using suitably controlled maintenance procedures to avoid contamination by hydrogen producing sources. The surface of the metal shall be free of contaminants and kept dry.
NB12-0801 Part 3, 3.3.3 u)	u) Repairs to plate heat exchangers (PHE) are limited to the following: 1) Welding on any pressure part, i.e. not limited to a flange, nozzle, or endplate; 2) In kind replacement of endplates, or welded nozzles, 3) Replacement of any failed connection or frame bolting, representing the replacement parts described in Part 3, 3.2.2-a), with no change of material or grade as described on the MDR or OEM drawing, 4) The addition or repair of load bearing attachments (e.g., welded supports or lifting lugs) to the endplates. 5) Replacement of parts bearing certification or manufacturer's stamping with no-change in material allowed as described on the Manufacturer's Data Report (MDR) or verifiable Original Equipment Manufacturers (OEM) drawing.
17-150, Part 3, 3.4.1 d)	d) The pressure-retaining item has been pressure tested, as required, for the new service conditions. Any insulation, coatings, or coverings that may inhibit or compromise a meaningful pressure test shall be removed, to the extent identified by the Inspector. The pressure test may be waived if the original pressure test as recorded on the Manufacture's Data Report is at least equal to the calculated test pressure required to verify the integrity of the pressure-retaining item for the new conditions. If the pressure test is waived it shall be documented on Form R-2 with this statement in the Remarks section: "Pressure test waived in accordance with NBIC 3.4.1 d)."
NB12-0801 Part 3, 3.4.4	**3.4.4 EXAMPLES OF ALTERATIONS** a) An increase in the maximum allowable working pressure (internal or external) or temperature of a pressure-retaining item regardless of whether or not a physical change was made to the pressure-retaining item; b) A decrease in the minimum temperature; c) The addition of new nozzles or openings in a boiler or pressure vessel except those classified as repairs; d) A change in the dimensions or contour of a pressure-retaining item;

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Commenter Phone: (860) 722-5098

Commenter Fax: none

Commenter Email: alex_garbolevsky@hsb.com

Incorrect. Reference should be "Part 3, 3.4.1 d)"

Section/Subsection Referenced: Part 3, 3.3.4.1 d) (NB 17-150)

Comment/Recommendation: *Proposed Solution:* □ New Text ■ Revise Text □ Delete Text

Recommend the last sentence be revised, in part, to state: "...with NBIC Part 3, 3.4.1 d)" so as to specifically identify the Part of the NBIC in which the paragraph is referenced.

Source: ■ Own Experience/Idea □ Other Source/Article/Code/Standard

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	service vessels has been demonstrated to cause harm to vessel material. 2) For tube to header welds in steam service. Full thickness weld repairs shall be completed per NBIC Part 3, 3.3.5 with the following requirements: 1) The full thickness repair weld shall be verified as being full penetration. 2) Volumetric examination of the full thickness weld shall be performed.
17-180 Part 3, 2.5.3.6	**2.5.3.6 WELDING METHOD 6** This welding method provides requirements for welding only Grade 91 tube material within the steam boiler setting. ~~and when it is impracticable to perform local postweld heat treatment (PWHT).~~ When using this welding method, the following applies:
17-151, Part 3, 2.5.3.6 c) 2)	2) The welding shall be limited to the SMAW and/or GTAW processes, manual or automatic, using suitably controlled maintenance procedures to avoid contamination by hydrogen producing sources. The surface of the metal shall be free of contaminants and kept dry.
NB12-0801 Part 3, 3.3.3 u)	u) Repairs to plate heat exchangers (PHE) are limited to the following: 1) Welding on any pressure part, i.e. not limited to a flange, nozzle, or endplate; 2) In kind replacement of endplates, or welded nozzles, 3) Replacement of any failed connection or frame bolting, representing the replacement parts described in Part 3, 3.2.2-a), with no change of material or grade as described on the MDR or OEM-drawing, 4) The addition or repair of load bearing attachments (e.g., welded supports or lifting lugs) to the endplates. 5) Replacement of parts bearing certification or manufacturer's stamping with no-change in material allowed as described on the Manufacturer's Data Report (MDR) or verifiable Original Equipment Manufacturers (OEM) drawing.
17-150, Part 3, 3.4.1 d)	d) The pressure-retaining item has been pressure tested, as required, for the new service conditions. Any insulation, coatings, or coverings that may inhibit or compromise a meaningful pressure test shall be removed, to the extent identified by the Inspector. The pressure test may be waived if the original pressure test as recorded on the Manufacture's Data Report is at least equal to the calculated test pressure required to verify the integrity of the pressure-retaining item for the new conditions. If the pressure test is waived it shall be documented on Form R-2 with this statement in the Remarks section: "Pressure test waived in accordance with NBIC 3.4.1 d)."
NB12-0801 Part 3, 3.4.4	**3.4.4 EXAMPLES OF ALTERATIONS** a) An increase in the maximum allowable working pressure (internal or external) or temperature of a pressure-retaining item regardless of whether or not a physical change was made to the pressure-retaining item; b) A decrease in the minimum temperature; c) The addition of new nozzles or openings in a boiler or pressure vessel except those classified as repairs; d) A change in the dimensions or contour of a pressure-retaining item;

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Section/Subsection Referenced: Part 3, 5.12.4.3 13) (NB 17-179)

Comment/Recommendation: *Proposed Solution:* □ New Text ■ Revise Text □ Delete Text

Correct "manufacturers" to "Manufacturer's".

Agree with using apostrophe but disagree on capitalizing the "M".

Resolution #1 Item.

Source: ■ Own Experience/Idea □ Other Source/Article/Code/Standard

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52) Indicate the month, day and year the completed Form R-2 was signed by the Inspector.
53) Signature of the Inspector certifying the construction inspection.
54) Inspectors National Board commission number and endorsement that qualifies the Inspector to sign this report, and when required by the Jurisdiction, the applicable State or Provincial numbers.

5.12.4.3 INSTRUCTIONS FOR COMPLETING NATIONAL BOARD FORM R-3 REPORT

This guide is to be used when completing the National Board Form R-3, Report of Parts Fabricated by Welding. The numbers below correspond to the "circled" numbers shown on the Form R-3 in NBIC Part 3, 5.12.3. When computer generated, the format of the form shall replicate the type and relative location of the information depicted on the Form R-3 Report of Parts Fabricated by Welding. Note that a fillable version of the Form R-3 (NB-230) is available on the National Board website.

1) Initials of the National Board "R" Certificate of Authorization authorized representative who registers the Form R-3.

2) Initials of the Inspector who certified the completed Form R-3 for registration.

3) When registering a Form R-3 Report with the National Board, this line is solely designated for a unique sequential number assigned by the "R" Certificate Holder. When the "R" Form is not to be registered, indicated so by "N/A". As described in NBIC Part 3, Paragraph 5.6, a log shall be maintained identifying unique and sequentially numbered Form "R" reports that are registered with the National Board.

4) The name and address of the National Board "R" Certificate Holder who manufactured the welded parts as it appears on the "*Certificate of Authorization*".
5) If applicable, document the unique purchase order, job, or tracking number assigned by organization performing work.
6) Document name and address of organization that purchased the parts for incorporation into the repair or alteration. If the part's origin is unknown or the part was built for stock, so state.
7) Document name of organization responsible for specifying the code design conditions, if known. If origin of design conditions are not known, state "unknown."
8) Document name of organization responsible for performing the code design, if known. If code design organization is not known, state "unknown."

9) Name, section, and division of the design code, if known. If the design is not known, state "unknown."

10) Indicate code edition year used for fabrication.

11) Indicate code addenda date used for fabrication, if applicable.

12) Indicate the code paragraph reference for formula used to establish the MAWP, if known. If the code reference of the formula is not known, state "unknown."

13) If available, identify component by part's original name, function, or use the original equipment manufacturers "mark or item number."

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Commenter Phone: (860) 722-5098

Commenter Fax: none

Commenter Email: alex_garbolevsky@hsb.com

Section/Subsection Referenced: Part 3, 5.12.4.4 14) (NB 17-179)

Comment/Recommendation: *Proposed Solution:* □ New Text ■ Revise Text □ Delete Text

[1]Correct "Inspectors" to "Inspector's".
[2] Revise "Province" to "Provincial" to be consistent with current NBIC reference (Part 3, 5.12.4.1 28))

Agree with both proposed comments.
Same correction needed for (5.12.4.1, Instruction #38); 5.12.4.2, Instruction #54); 5.12.4.3, Instruction #46); 5.12.4.4, Instruction #14)

Resolution #1 Items.

Source: ■ Own Experience/Idea □ Other Source/Article/Code/Standard

Submit Form To: Jonathan Ellis, NBIC Secretary, The National Board of Boiler & Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, OH 43229, email: jellis@nationalboard.org

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	3, 5.6, a log shall be maintained identifying sequentially, any Form "R" registered with the National Board. *26)* If applicable, document the unique purchase order, job, or tracking number assigned by organization performing work. 27) Type or print name of authorized representative of the "R" Certificate Holder attesting to accuracy of the work described. 28) Indicate National Board "R" Certificate or Authorization number. 29) Indicate month, day, and year that the "R" Certificate or Authorization expires. 30) Record name of "R" Certificate Holder who performed the described work, using full name as shown on the Certificate of Authorization or an abbreviation acceptable to the National Board. 31) Signature of "R" Certificate Holder authorized representative. 32) Enter month, day, and year repair certified. 33) Type or print name of Inspector. 34) Indicate Inspector's Jurisdiction. 35) Indicate Inspector's employer. 36) Indicate address of Inspector's employer (city and state or province). 37) Indicate month, day, and year of final inspection by Inspector. For routine repairs this shall be the month, day, and year the Inspector reviews the completed routine repair package. 38) Inspectors National Board commission number and endorsement that qualifies the Inspector to sign this report, and when required by the Jurisdiction, the applicable State or Provincial numbers. 39) Signature of Inspector. 40) Indicate month, day, and year of Inspector signature. **5.12.4.2 INSTRUCTIONS FOR COMPLETING NATIONAL BOARD FORM R-2 REPORT** ***INFO NOTE: THE FORM R-2 ON PAGE 91 DOES NOT HAVE THE "BUBBLED'***

52) Indicate the month, day and year the completed Form R-2 was signed by the Inspector.
53) Signature of the Inspector certifying the construction inspection.
54) Inspectors National Board commission number and endorsement that qualifies the Inspector to sign this report, and when required by the Jurisdiction, the applicable State or Provincial numbers.

5.12.4.3 INSTRUCTIONS FOR COMPLETING NATIONAL BOARD FORM R-3 REPORT

This guide is to be used when completing the National Board Form R-3, Report of Parts Fabricated by Welding. The numbers below correspond to the "circled" numbers shown on the Form R-3 in NBIC Part 3, 5.12.3. When computer generated, the format of the form shall replicate the type and relative location of the information depicted on the Form R-3 Report of Parts Fabricated by Welding. Note that a fillable version of the Form R-3 (NB-230) is available on the National Board website.

1) Initials of the National Board "R" Certificate of Authorization authorized representative who registers the Form R-3.

2) Initials of the Inspector who certified the completed Form R-3 for registration.

3) When registering a Form R-3 Report with the National Board, this line is solely designated for a unique sequential number assigned by the "R" Certificate Holder. When the "R" Form is not to be registered, indicated so by "N/A". As described in NBIC Part 3, Paragraph 5.6, a log shall be maintained identifying unique and sequentially numbered Form "R" reports that are registered with the National Board.

4) The name and address of the National Board "R" Certificate Holder who manufactured the welded parts as it appears on the "*Certificate of Authorization*".
5) If applicable, document the unique purchase order, job, or tracking number assigned by organization performing work.
6) Document name and address of organization that purchased the parts for incorporation into the repair or alteration. If the part's origin is unknown or the part was built for stock, so state.
7) Document name of organization responsible for specifying the code design conditions, if known. If origin of design conditions are not known, state "unknown."
8) Document name of organization responsible for performing the code design, if known. If code design organization is not known, state "unknown."

9) Name, section, and division of the design code, if known. If the design is not known, state "unknown."

10) Indicate code edition year used for fabrication.

11) Indicate code addenda date used for fabrication, if applicable.

12) Indicate the code paragraph reference for formula used to establish the MAWP, if known. If the code reference of the formula is not known, state "unknown."

13) If available, identify component by part's original name, function, or use the original equipment manufacturers "mark or item number."

43) Indicate month, day, and year of final inspection by Inspector.
44) Indicate the month, day and year the completed Form “R” was signed by the Inspector.
45) Signature of Inspector.
46) Inspectors National Board commission number and endorsement that qualifies the Inspector to sign this report, and when required by the Jurisdiction, the applicable State or Provincial numbers.

5.12.4.4 INSTRUCTIONS FOR COMPLETING NATIONAL BOARD FORM R-4 REPORT

This guide is to be used when completing the National Board Form R-4, Report Supplement Sheet. The numbers below correspond to the “circled” numbers shown on the Form R-4 in NBIC Part 3, 5.12.4. When computer generated, the format of the form shall replicate the type and relative location of the information depicted on the Form R-4, Report Supplement Sheet. Note that a fillable version of the Form R-4 (NB-231) is available on the National Board website.

1) When registering a Form “R” Report with the National Board, this line is solely designated for a unique sequential number assigned by the “R” Certificate Holder. When the “R” Form is not to be registered, indicate so by “N/A”. As described in NBIC Part 3, Paragraph 5.6, a log shall be maintained identifying unique and sequentially numbered Form “R” reports that are registered with the National Board. Complete information identical to that shown on the Form “R” to which this sheet is a supplement.

2) If applicable, document the unique purchase order, job, or tracking number, assigned by the organization performing work.

3) The name and address of the Certificate Holder performing the work as it appears on the “*Certificate of Authorization*”.

4) Name and address of the owner of the pressure-retaining item.

5) Name and address of plant or facility where the pressure-retaining item is installed.

6) Indicate the Form “R” type to which this report is supplementary. Example: Form R-1, Form R-2, Form R-3.

7) Indicate the reference line number from the Form “R” to which this report is supplementary.

8) Complete information for which there was insufficient space on the reference Form “R”.

9) Indicate the date certified.

10) Signature of the repair organizations authorized representative.

11) Record name of “R” Certificate Holder who performed the described work, using full name as shown on the Certificate of Authorization or an abbreviation acceptable to the National Board.

12) Indicate the date the form was completed by the Inspector.

13) Signature of the Inspector.

	14) Inspectors National Board commission number and endorsement that qualifies the Inspector to sign this report, and when required by the Jurisdiction, the applicable State or Province numbers.

PR18-0313 - Duplicate of PR18-0312

National Board of Boiler and Pressure Vessel Inspectors
National Board Inspection Code
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Instructions: If unable to submit electronically, please print this form and fax or mail. Print or type clearly.

Date: Sep. 12, 2018

Commenter Name: Alex Garbolevsky

Commenter Address: Hartford Steam Boiler
One State St., 8th Flr., Hartford, CT 06102-5024

Commenter Phone: (860) 722-5098

Commenter Fax: none

Commenter Email: alex_garbolevsky@hsb.com

Section/Subsection Referenced: Part 3, 5.12.4.4 14) (NB 17-179)

Comment/Recommendation: *Proposed Solution:* □ New Text ■ Revise Text □ Delete Text

[1]Correct "Inspectors" to "Inspector's".
[2] Revise "Province" to "Provincial" to be consistent with current NBIC reference (Part 3, 5.12.4.1 28))

Duplicate Comment. See PR18-0312

Source: ■ Own Experience/Idea □ Other Source/Article/Code/Standard

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Comment No. Issued: _____ _____

PR18-0314

National Board of Boiler and Pressure Vessel Inspectors
National Board Inspection Code
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Date: Sep. 12, 2018

Commenter Name: Alex Garbolevsky

Commenter Address: Hartford Steam Boiler
One State St., 8th Flr., Hartford, CT 06102-5024

Commenter Phone: (860) 722-5098

Commenter Fax: none

Commenter Email: alex_garbolevsky@hsb.com

Section/Subsection Referenced: Part 3, S1) (NB 16-1801)

Comment/Recommendation: *Proposed Solution:* □ New Text ■ Revise Text □ Delete Text

This is not part of the "action", but it may be worth considering a revision to S1.1.4 - FORMULA AND CALCULATIONS FOR STEAM LOCOMOTIVE BOILERS since rules for riveted construction (Part PR) were modernized in 2013 and Locomotive Boilers (Part PL) was added to Section I in 2015.

The current [2017 NBIC] text reads:
"a) Most steam locomotive boilers were manufactured in the first half of the 20th century or before. The calculations, formula, and shop practices used are now distant history and quite difficult to obtain. The rules for riveted construction were last published by ASME in Section I Code, 1971 Edition."

Source: ■ Own Experience/Idea □ Other Source/Article/Code/Standard

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Comment No. Issued: _____ _____

grain steels have, on occasion, been found to crack or split after complicated flanging, bending, and forming.

b) SA-36 shall not be used to make any pressure-retaining part such as shells, staybolt sleeves, or caps.

c) When rivets are made from SA-675, the finished rivets must meet the physical requirements of the original rivet specification or SA-31 Grade A or B.

d) When staybolt material tensile strength is greater than that of the firebox sheets, the firebox sheets deflect instead of the staybolts, which can result in the sheets developing cracks and leaking staybolts. In addition, high tensile strength steels are difficult to drive. Maximum allowable tensile strength shall be 7,500 psi (51.71 MPa).

(17) **TABLE S1.1.3.1**

Application	Specification
Boiler Tubes & Flues, Arch Tubes Superheater Units	SA-178 Grade A, SA-192, SA-210
Boiler & Firebox Plate, Pressure Retaining Plate	SA-285 Grade C, SA-515, SA-516, SA-203, SA-204
Welded Staybolts	SA-675, SA-36, SA-31
Threaded Staybolts and Patch Bolts	SA-31 Grade A SA-675 with a tensile strength of 47,000 psi to 65,000 psi inclusive
Staybolt Sleeves and Caps	SA-105 Forging, SA-675, SA-696
Boiler Braces	SA-675, SA-36
Rivets	SA-675, SA-31
Forged Parts & Fittings	SA-105, SA-181
Pressure-Retaining Steel Castings	SA-216, A-217
Hollow Cylindrical Pressure-Retaining Parts	SA-105 Forgings, SA-675 Bar Stock, SA-696
Superheater Unit Bolts & Nuts	Bolts - SA-193, Nuts - SA-194
Pipe Flanges	SA-181, SA-105
Bolts & Studs	SA-307 Grades A&B
Pipe	SA-106, SA-53 seamless
Bronze Castings & Washout Plugs	SB-61, SB-62, SB-148, SA-696

S1.1.4 FORMULA AND CALCULATIONS FOR STEAM LOCOMOTIVE BOILERS

a) Most steam locomotive boilers were manufactured in the first half of the 20th century or before. The calculations, formula, and shop practices used are now distant history and quite difficult to obtain. The rules for riveted construction were last published by ASME in Section I Code, 1971 Edition.

b) This supplement herein, is based in part on the ASME Code, Section III, 1952 Edition, which was the last published edition of the Steam Locomotive Code. The railroad industry has attempted to collect the old formula and some shop practices. These have been published by The Engineering Standards Committee for Steam Locomotives, Inc. (ESC) as Compendium, Volume 1, Compilation of Calculations,

which may be obtained from the Strasburg Rail Road, P.O. Box 96, Strasburg, PA 17579 (717) 687-7421.

S1.2 LOCOMOTIVE FIRETUBE BOILER REPAIRS

S1.2.1 REPAIR OF STAYBOLT HOLES

a) Staybolt holes may be repaired by welding, reaming, or retapping to a larger size or by installing a flush patch.

b) If the staybolt hole was threaded and is to be repaired by welding, the threads shall be removed prior to welding.

S1.2.2 THREADED STAYBOLTS

a) All threaded staybolts shall have either 11- or 12-thread pitch. Staybolt threads shall have a good close fit in sheets. Changing the staybolt thread pitch from 11 to 12 or the reverse shall be considered a repair.

b) All staybolts shorter than 8 in. (200 mm) in length shall have telltale holes. Staybolt telltale holes in existing staybolts shall be 3/16 in. (5 mm) to 7/32 in. (5.5 mm) in diameter and at least 1-1/4 in. (32 mm) deep in the outer end. When staybolts 8 in. (200 mm) or less in length are replaced, they shall be replaced with staybolts that have a telltale hole 3/16 in. (5 mm) to 7/32 in. (5.5 mm) in diameter their entire length, or with ones that have a 3/16 in. (5 mm) to 7/32 in. (5.5 mm) diameter hole in each end, drilled a minimum of 1-1/4 in. (32 mm) deep. On reduced body staybolts, the telltale hole shall extend beyond the fillet and into the reduced section of the staybolt. Ball socket-type flexible staybolts may have telltale holes that extend from the threaded end of the bolt into the bolt head for a distance of one-third the spherical bolt head diameter.

c) Telltale holes shall be reopened after driving and riveting heads.

d) Staybolt length shall be sized so the length of bolt projecting through the sheet is not less than 1/8 in. (3 mm) and is sufficient to produce a full head after driving and riveting the head.

e) The thread lead of both bolt ends and both firebox sheets shall be synchronized to permit the staybolt to be installed without stripping the threads.

f) When riveting staybolt heads, the bolt's opposite end shall be bucked or braced to prevent damaging the staybolt's threads. Bracing can be done several ways, such as using a pneumatic holder or a heavy steel bucking bar. Driving the heads on both ends of the staybolt simultaneously, using two pneumatic rivet hammers (double gunning), is acceptable. Staybolts are to be driven in such a manner as to expand radially the staybolt body and threads into the sheet prior to forming the head. Merely driving over the head is not acceptable.

g) Ball socket-type flexible staybolts shall not be braced by inserting a spacer under the cap.

h) Installation of larger diameter staybolts shall be considered a repair.

i) If the ends of staybolts are heated to facilitate forming the head or expanding the threads into the sheet, the lower critical temperature of the sheet and staybolt material shall not be exceeded.

j) The minimum height of the staybolt head measured at its highest point shall be 1/16 in. (1.5 mm).

k) When the diameter of the staybolt head has been reduced to the major diameter of the staybolt thread at any location either because of erosion during service or problems during installation, the staybolt shall be replaced. Repair is prohibited.

PR18-0315 - Duplicate of PR18-0314

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Commenter Phone: (860) 722-5098

Commenter Fax: none

Commenter Email: alex_garbolevsky@hsb.com

Section/Subsection Referenced: Part 3, S1) (NB 16-1801)

Comment/Recommendation: *Proposed Solution:* □ New Text ■ Revise Text □ Delete Text

This is not part of the "action", but it may be worth considering a revision to S1.1.4 - FORMULA AND CALCULATIONS FOR STEAM LOCOMOTIVE BOILERS since rules for riveted construction (Part PR) were modernized in 2013 and Locomotive Boilers (Part PL) was added to Section I in 2015.

The current [2017 NBIC] text reads:
"a) Most steam locomotive boilers were manufactured in the first half of the 20th century or before. The calculations, formula, and shop practices used are now distant history and quite difficult to obtain. The rules for riveted construction were last published by ASME in Section I Code, 1971 Edition."

Source: ■ Own Experience/Idea □ Other Source/Article/Code/Standard

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PR18-0316

National Board of Boiler and Pressure Vessel Inspectors
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Instructions: If unable to submit electronically, please print this form and fax or mail. Print or type clearly.

Date: Sep. 12, 2018

Commenter Name: Alex Garbolevsky

Commenter Address: Hartford Steam Boiler
One State St., 8th Flr., Hartford, CT 06102-5024

Commenter Phone: (860) 722-5098

Commenter Fax: none

Commenter Email: alex_garbolevsky@hsb.com

Section/Subsection Referenced: Part 3, S3.5.5 f) (NB 15-2210)

Comment/Recommendation: *Proposed Solution:* □ New Text ■ Revise Text □ Delete Text

The second sentence should be editorially revised in 2 places:
[1] R and G should be within quotation marks ("R", "G");
[2] Currect "concurrence fo the Inspector" to "concurrence of the Inspector".

Source: ■ Own Experience/Idea □ Other Source/Article/Code/Standard

Submit Form To: Jonathan Ellis, NBIC Secretary, The National Board of Boiler & Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, OH 43229, email: jellis@nationalboard.org

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Comment No. Issued: _____ _____

S3.5.4

(17) ~~S3.5.5~~ PLUGGING OF LEAKING OR DAMAGED TUBES

a) The material used for plugging tubes shall comply with the requirements of the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, Part UIG.

b) The point(s) of leakage shall be verified, and the corresponding leak site(s) shall be marked/labeled on the tubesheet, and recorded.

c) A plug shall be used to plug each end of the tube(s) in question and each plug shall have a minimum length of 1 in. (25 mm). Multiple plugs may be used.

d) The tube(s) shall be prepared for plugging by enlarging the inside of the tube(s) with a suitable drill bit or reamer.

1) To ensure a sound cement joint between the tube sidewall and the plug, a slightly smaller diameter plug shall be selected. The maximum clearance between the tube inside diameter and the outside diameter of the plug shall not exceed 3/32 in. (2.4 mm).

2) As an alternative to d)1) a mandrel with an abrasive, such as sandpaper, may be used, as long as the maximum tube I.D. to plug O.D. clearance of 3/32 in. (2.4 mm) is not exceeded.

3) The minimum plug insertion depth of the prepared hole(s) shall meet the minimum combined plug length requirements of "c". When the minimum plug length of "c" is exceeded, the total insertion depth of the plugs may exceed the combined length of the plugs; however, the longer plugs shall not project outside the face of the tube(s) being plugged.

e) Plugging of leaking or damaged tubes shall be performed by certified cementing technicians, using qualified cementing procedures, in accordance with the requirements of the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, Part UIG.

See below for new S3.5.4 f)

g) ~~f)~~ The cement shall be prepared per the cement manufacturer's instructions.

h) ~~g)~~ When cementing the plugs, 100% of individual plugs, as well as the inside diameter of the tube opening(s), shall be coated with cement. The plugs shall then be inserted one by one, against each other, into each end of the tube(s) being plugged.

i) ~~h)~~ Once the plugging is completed, and before the cement cures, the endplugs may need to be held in place, as newly cemented plugs may exhibit a tendency to dislodge from the plugged tube(s) prior to final curing of the cement.

j) ~~i)~~ Curing time is dependent upon the cement manufacturer's instructions, and is considered complete when the cement is hardened to the point that it cannot be indented with pressure from a flat screwdriver or other similar instrument.

k) ~~j)~~ After the cement is completely cured, the plugged, cemented area(s) on the tubesheet face may be dressed with sandpaper or other suitable abrasive.

l) ~~k)~~ Repaired tubes shall be tested in accordance with this code, using a method acceptable to the Inspector, with a written procedure as approved by the manufacturer's internal quality system, to ensure leaks have been repaired.

m) ~~l)~~ The scope of the work completed shall be described and reported on a Form R-1.

See below for new Figure S3.5.4

S3.5.5 ~~S3.5.6~~ TUBE REPLACEMENT

Tube replacement should be performed with the unit preferably in the horizontal position. Avoid replacing adjacent tubes simultaneously because the replacement areas may overlap or reduce the ligament between

SUPPL. 3

New S3.5.4 f)

f) As an alternative to e) any R Certificate Holder, with or without the letter "G" included on the "R" Certificate of Authorization, may install graphite tube plugs provided the following conditions are met. The R Certificate Holder shall gain the concurrence of the Inspector, and shall utilize a tube plugging kit provided by an ASME Certificate Holder authorized to use the G designator. The kit shall include the following items:

1. Certified graphite plugs and certified cement ingredients, both accompanied by the appropriate documentation (Partial Data Report).

2. The qualified cementing procedure of the ASME Certificate Holder authorized to use the G designator, and a step-by-step procedural checklist that shall be followed explicitly. The procedure shall address the entire tube plugging process including plug configuration, tube hole cleanirg and preparation, mixing and applying of the cement, application of the plugs, securing the plugs during the curing process, controlling the curing process, and leak testing, thereby meeting S3.3.

3. Additional materials and procedure shall be provided and used to prepare a demonstration plug joint prior to performing the repair. This demonstration plug joint shall be tested by a twist (torsional) test designed to demonstrate acceptable application and curing of the cement (Fig. S3.5.4). The test procedure shall include acceptance criteria, which may be based on a principle of breakage of part of the test piece. A successful twist test, in conjunction with the completed procedural checklist, shall serve as a valid cement technician certification for a single repair operation. The twist test shall be witnessed by the Inspector.

The R Certificate Holder shall review the material certifications including verification that the shelf life of the cement has not been exceeded, and assure that the certified cement technician has completed the qualification demonstration, and has access to the procedure and checklist. The Inspector shall review and verify that the procedure and the other elements of the certified kit, as provided by the authorized G-designated ASME Certificate Holder, have been administered and completed prior to his acceptance. The R-certificate Holder shall note on Line 8 of the R-1 Form the installation of cemented graphite tube plugs in accordance with this section. The letter "G" shall not be applied to the vessel when performing this alternative repair. The R Certificate Holder shall identify and document the location of the plugged tubes on the R Form.

New S3.5.4 f)

f) As an alternative to e) any "R" Certificate Holder, with or without the letter "G" included on the "R" Certificate of Authorization, may install graphite tube plugs provided the following conditions are met. The "R" Certificate Holder shall gain the concurrence of the Inspector, and shall utilize a tube plugging kit provided by an ASME Certificate Holder authorized to use the "G" designator. The kit shall include the following items:

1. Certified graphite plugs and certified cement ingredients, both accompanied by the appropriate documentation (Partial Data Report).

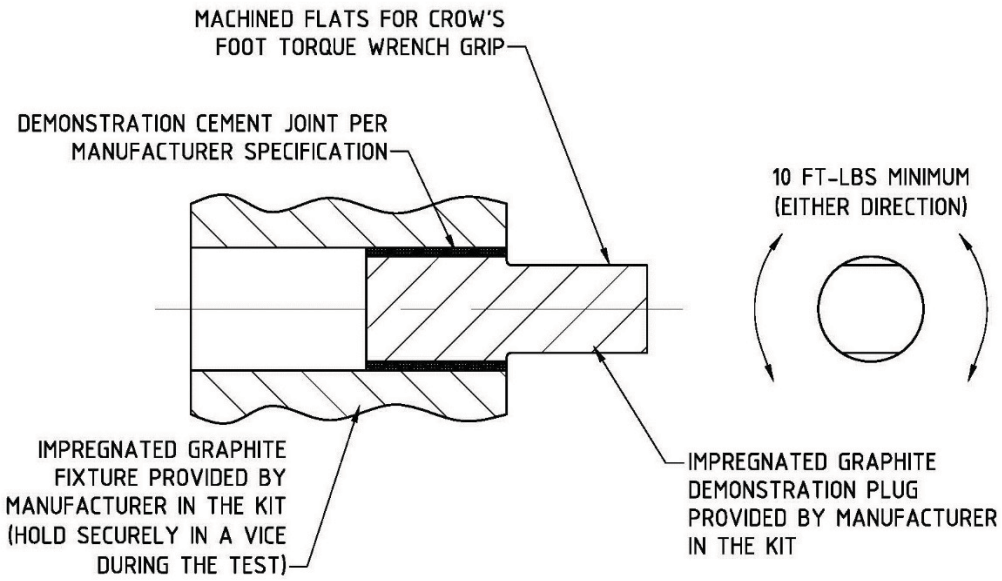
2. The qualified cementing procedure of the ASME Certificate Holder authorized to use the "G" designator, and a step-by-step procedural checklist that shall be followed explicitly. The procedure shall address the entire tube plugging process including plug configuration, tube hole cleaning and preparation, mixing and applying of the cement, application of the plugs, securing the plugs during the curing process, controlling the curing process, and leak testing, thereby meeting S3.3.

3. Additional materials and procedure shall be provided and used to prepare a demonstration plug joint prior to performing the repair. This demonstration plug joint shall be tested by a twist (torsional) test designed to demonstrate acceptable application and curing of the cement (Fig. S3.5.4). The test procedure shall include acceptance criteria, which may be based on a principle of breakage of part of the test piece. A successful twist test, in conjunction with the completed procedural checklist, shall serve as a valid cement technician certification for a single repair operation. The twist test shall be witnessed by the Inspector.

The "R" Certificate Holder shall review the material certifications including verification that the shelf life of the cement has not been exceeded, and assure that the certified cement technician has completed the qualification demonstration, and has access to the procedure and checklist. The Inspector shall review and verify that the procedure and the other elements of the certified kit, as provided by the ~~authorized G-designated~~ ASME Certificate Holder authorized to use the "G" designator, have been administered and completed prior to his acceptance. The "R" C~~c~~ertificate Holder shall note on Line 8 of the R-1 Form the installation of cemented graphite tube plugs in accordance with this section. The letter "G" shall not be applied to the vessel when performing this alternative repair. The "R" Certificate Holder shall identify and document the location of the plugged tubes on the "R" Form.

FIGURE S3.5.4

DEMONSTRATION PLUG JOINT TWIST TEST



NOTE: THIS DEMONSTRATION APPLIES TO PLUGS OF ALL DIAMETERS AND LENGTHS.

1.PR18-0301 - Accepted, changes are incorporated.
A.Approved 11/12 (92%)
B.Disapproved 0/12 (0%)
C.Abstain 0/12 (0%)
D.Not Voting 0/12 (0%)
No Answer 1/12 (8%)

	A	B	C	D
Paul Edwards	X			
Ben Schaefer	X			
Gary Scribner				
Jim Pillow	X			
Craig Hopkins	X			
Rick Sturm	X			
Brian Morelock	X			
Ray Miletti	X			
Joel Amato	X			
Marty Toth	X			
Brian Boseo	X			
Rob Troutt	X			

1.PR18-0302 - Accepted, changes are incorporated.
A.Approved 10/13 (77%)
B.Disapproved 0/13 (0%)
C.Abstain 0/13 (0%)
D.Not Voting 0/13 (0%)
No Answer 3/13 (23%)

	A	B	C	D
Jonathan Ellis				
Paul Edwards	X			
Ben Schaefer	X			
Gary Scribner				
Jim Pillow	X			
Craig Hopkins	X			
Rick Sturm	X			
Brian Morelock	X			
Ray Miletti	X			
Joel Amato	X			
Marty Toth				
Brian Boseo	X			
Rob Troutt	X			

1.PR18-0303 - Accepted, changes are incorporated.
A.Approved 11/13 (85%)
B.Disapproved 0/13 (0%)
C.Abstain 0/13 (0%)
D.Not Voting 0/13 (0%)
No Answer 2/13 (15%)

	A	B	C	D
Jonathan Ellis				
Paul Edwards	X			
Ben Schaefer	X			
Gary Scribner				
Jim Pillow	X			
Craig Hopkins	X			
Rick Sturm	X			
Brian Morelock	X			
Ray Miletti	X			
Joel Amato	X			
Marty Toth	X			
Brian Boseo	X			
Rob Troutt	X			

1.PR18-0304 - Accepted, changes are incorporated.
A.Approved 11/13 (85%)
B.Disapproved 0/13 (0%)
C.Abstain 0/13 (0%)
D.Not Voting 0/13 (0%)
No Answer 2/13 (15%)

	A	B	C	D
Jonathan Ellis				
Paul Edwards	X			
Ben Schaefer	X			
Gary Scribner				
Jim Pillow	X			
Craig Hopkins	X			
Rick Sturm	X			
Brian Morelock	X			
Ray Miletti	X			
Joel Amato	X			
Marty Toth	X			
Brian Boseo	X			
Rob Troutt	X			

1.PR18-0305(DUPLICATE OF PR18-0304) - Accepted, changes are incorporated.
A.Approved 10/13 (77%)
B.Disapproved 0/13 (0%)
C.Abstain 0/13 (0%)
D.Not Voting 0/13 (0%)
No Answer 3/13 (23%)

	A	B	C	D
Jonathan Ellis				
Paul Edwards	X			
Ben Schaefer	X			
Gary Scribner				
Jim Pillow	X			
Craig Hopkins	X			
Rick Sturm	X			
Brian Morelock	X			
Ray Miletti	X			
Joel Amato				
Marty Toth	X			
Brian Boseo	X			
Rob Troutt	X			

1.PR18-0306 - Accepted, changes are incorporated.
A.Approved 10/13 (77%)
B.Disapproved 0/13 (0%)
C.Abstain 0/13 (0%)
D.Not Voting 0/13 (0%)
No Answer 3/13 (23%)

	A	B	C	D
Jonathan Ellis				
Paul Edwards	X			
Ben Schaefer	X			
Gary Scribner				
Jim Pillow	X			
Craig Hopkins	X			
Rick Sturm	X			
Brian Morelock	X			
Ray Miletti	X			
Joel Amato	X			
Marty Toth				
Brian Boseo	X			
Rob Troutt	X			

1.PR18-0307 - Accepted, changes are incorporated.
A.Approved 10/13 (77%)
B.Disapproved 0/13 (0%)
C.Abstain 0/13 (0%)
D.Not Voting 0/13 (0%)
No Answer 3/13 (23%)

	A	B	C	D
Jonathan Ellis				
Paul Edwards	X			
Ben Schaefer	X			
Gary Scribner				
Jim Pillow	X			
Craig Hopkins				
Rick Sturm	X			
Brian Morelock	X			
Ray Miletti	X			
Joel Amato	X			
Marty Toth	X			
Brian Boseo	X			
Rob Troutt	X			

1.PR18-0308 - Accepted, changes are incorporated.
A.Approved 11/13 (85%)
B.Disapproved 0/13 (0%)
C.Abstain 0/13 (0%)
D.Not Voting 0/13 (0%)
No Answer 2/13 (15%)

	A	B	C	D
Jonathan Ellis				
Paul Edwards	X			
Ben Schaefer	X			
Gary Scribner				
Jim Pillow	X			
Craig Hopkins	X			
Rick Sturm	X			
Brian Morelock	X			
Ray Miletti	X			
Joel Amato	X			
Marty Toth	X			
Brian Boseo	X			
Rob Troutt	X			

1.PR18-0309 - Accepted, changes are incorporated.
A.Approved 11/13 (85%)
B.Disapproved 0/13 (0%)
C.Abstain 0/13 (0%)
D.Not Voting 0/13 (0%)
No Answer 2/13 (15%)

	A	B	C	D
Jonathan Ellis				
Paul Edwards	X			
Ben Schaefer	X			
Gary Scribner				
Jim Pillow	X			
Craig Hopkins	X			
Rick Sturm	X			
Brian Morelock	X			
Ray Miletti	X			
Joel Amato	X			
Marty Toth	X			
Brian Boseo	X			
Rob Troutt	X			

1.PR18-0310 - Accepted, changes are incorporated.
A.Approved 10/13 (77%)
B.Disapproved 0/13 (0%)
C.Abstain 0/13 (0%)
D.Not Voting 0/13 (0%)
No Answer 3/13 (23%)

	A	B	C	D
Jonathan Ellis				
Paul Edwards	X			
Ben Schaefer	X			
Gary Scribner				
Jim Pillow	X			
Craig Hopkins	X			
Rick Sturm	X			
Brian Morelock	X			
Ray Miletti	X			
Joel Amato	X			
Marty Toth	X			
Brian Boseo				
Rob Troutt	X			

1.PR18-0311 - Accepted, changes (apostrophe added only) are incorporated.
A.Approved 10/13 (77%)
B.Disapproved 0/13 (0%)
C.Abstain 0/13 (0%)
D.Not Voting 0/13 (0%)
No Answer 3/13 (23%)

	A	B	C	D
Jonathan Ellis				
Paul Edwards	X			
Ben Schaefer	X			
Gary Scribner				
Jim Pillow	X			
Craig Hopkins	X			
Rick Sturm	X			
Brian Morelock	X			
Ray Miletti	X			
Joel Amato	X			
Marty Toth				
Brian Boseo	X			
Rob Troutt	X			

1.PR18-0311 - Rejected for the following reason - Capalization of "manufacturer" not approved.

A.Approved 11/13 (85%)
B.Disapproved 0/13 (0%)
C.Abstain 0/13 (0%)
D.Not Voting 0/13 (0%)
No Answer 2/13 (15%)

	A	B	C	D
Jonathan Ellis				
Paul Edwards	X			
Ben Schaefer	X			
Gary Scribner				
Jim Pillow	X			
Craig Hopkins	X			
Rick Sturm	X			
Brian Morelock	X			
Ray Miletti	X			
Joel Amato	X			
Marty Toth	X			
Brian Boseo	X			
Rob Troutt	X			

1.PR18-0312 - Accepted, changes are incorporated.
A.Approved 10/13 (77%)
B.Disapproved 0/13 (0%)
C.Abstain 0/13 (0%)
D.Not Voting 0/13 (0%)
No Answer 3/13 (23%)

	A	B	C	D
Jonathan Ellis				
Paul Edwards	X			
Ben Schaefer	X			
Gary Scribner				
Jim Pillow	X			
Craig Hopkins	X			
Rick Sturm	X			
Brian Morelock	X			
Ray Miletti	X			
Joel Amato				
Marty Toth	X			
Brian Boseo	X			
Rob Troutt	X			

1.PR18-0313 (DUPLICATE OF PR18-0312) - Accepted, changes are incorporated.
A.Approved 10/13 (77%)
B.Disapproved 0/13 (0%)
C.Abstain 0/13 (0%)
D.Not Voting 0/13 (0%)
No Answer 3/13 (23%)

	A	B	C	D
Jonathan Ellis				
Paul Edwards	X			
Ben Schaefer	X			
Gary Scribner				
Jim Pillow				
Craig Hopkins	X			
Rick Sturm	X			
Brian Morelock	X			
Ray Miletti	X			
Joel Amato	X			
Marty Toth	X			
Brian Boseo	X			
Rob Troutt	X			

1.PR18-0314 - Accept in principle, new business item opened
A.Approved 11/13 (85%)
B.Disapproved 0/13 (0%)
C.Abstain 0/13 (0%)
D.Not Voting 0/13 (0%)
No Answer 2/13 (15%)

	A	B	C	D
Jonathan Ellis				
Paul Edwards	X			
Ben Schaefer	X			
Gary Scribner				
Jim Pillow	X			
Craig Hopkins	X			
Rick Sturm	X			
Brian Morelock	X			
Ray Miletti	X			
Joel Amato	X			
Marty Toth	X			
Brian Boseo	X			
Rob Troutt	X			

1.PR18-0315(DUPLICATE OF PR18-0314) - Accept in principle, new business item opened
A.Approved 11/13 (85%)
B.Disapproved 0/13 (0%)
C.Abstain 0/13 (0%)
D.Not Voting 0/13 (0%)
No Answer 2/13 (15%)

	A	B	C	D
Jonathan Ellis				
Paul Edwards	X			
Ben Schaefer	X			
Gary Scribner				
Jim Pillow	X			
Craig Hopkins	X			
Rick Sturm	X			
Brian Morelock	X			
Ray Miletti	X			
Joel Amato	X			
Marty Toth	X			
Brian Boseo	X			
Rob Troutt	X			

1.PR18-0316 - Accepted, changes are incorporated.
A.Approved 11/13 (85%)
B.Disapproved 0/13 (0%)
C.Abstain 0/13 (0%)
D.Not Voting 0/13 (0%)
No Answer 2/13 (15%)

	A	B	C	D
Jonathan Ellis				
Paul Edwards	X			
Ben Schaefer	X			
Gary Scribner				
Jim Pillow	X			
Craig Hopkins	X			
Brian Morelock	X			
Ray Miletti	X			
Joel Amato	X			
Marty Toth	X			
Brian Boseo	X			
Rob Troutt	X			
Rick sturm	X			