THE NATIONAL BOARD
OF BOILER AND PRESSURE VESSEL INSPECTORS

NATIONAL BOARD INSPECTION CODE SUBGROUP REPAIRS & ALTERATIONS

AGENDA

Meeting of January 10, 2023
Charleston, SC

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

1. **Call to Order**
   The Chair will call the meeting to order at 8:00 a.m. EST. For those attending in person, the meeting will be held in the Gold Ballroom on the 2nd Floor of the hotel.

2. **Roll call of Members and Introduction of Visitors**

3. **Check for a Quorum**

4. **Announcements**
   - The National Board will be hosting a reception on Wednesday evening from 6:30 p.m. to 8:30 p.m. in the Colonial Ballroom at the hotel.
   - The National Board will be hosting breakfast and lunch on Thursday. Breakfast will be served from 7:00 a.m. to 8:00 a.m. in the Colonial Ballroom, and lunch will be served from 11:30 a.m. to 12:30 p.m. in the Colonial Ballroom.

5. **Adoption of the Agenda**

6. **Approval of the Minutes of the July 12, 2022 Meeting**
   The minutes are available for review on the National Board website, www.nationalboard.org.

7. **Review of Rosters**
   a. **Membership Nominations**
      i. Mr. Matt Schaser and Mr. Jon Ferreira would like to be considered for SG R&A membership.

   b. **Membership Reappointments**
      i. The following Subgroup R&A memberships are set to expire prior to the July 2023 NBIC meetings: Mr. Craig Hopkins, Mr. Walt Sperko, and Mr. Marty Toth.

   c. **Officer Nominations**

8. Action Items

Item Number: A20-67	NBIC Location: Part 3, S6	Attachment 1

General Description: Revisions to Part 3, Supplement 6

Subgroup: Repairs and Alterations

Task Group: R. Underwood (PM), T. McBee, G. Galanes

Explanation of Need: Supplement 6 was implemented into the 2007 Edition of the NBIC Part 3 to provide requirements and guidelines for repairs, alterations and modifications to DOT Transport Tanks using the National Board's "TR" Program (which was never implemented). S6 has been revised over the years to remove reference to the "TR" Program, but still contains many requirements that are not correct. This purpose of this proposal is to review the entire Supplement and make appropriate revisions that comply with NBIC Part 3 and DOT requirements.

July SG R&A 2022 Meeting Action: B. Underwood presented. **The proposal was UA with an email sent to the R&A SC to review before tomorrow's SC Meeting.**

Item Number: A21-02	NBIC Location: Part 3, 1.6	Attachment 12

General Description: Define "Fuel Loading" as it pertains to NR activities

Subgroup: NR TG

Task Group: P. Edwards (PM), R. Spuhl appointed as PM in Dec. 2021.

Explanation of Need: The NR TG would like to clarify "Fuel Loading" as used to determine Category 1, 2 or 3 NR activities.

July SG R&A 2022 Meeting Action: R. Spuhl presented. **The proposal was UA**

NOTE: At the July 2022 NBIC meeting, Main Committee requested that this item go back to the NR TG for further work.

Item Number: A21-12	NBIC Location: Part 3, 3.3.3, 3.4.4, Section 9	Attachment 13

General Description: Clarify the definitions and examples of "Repair" and "Alteration"

Subgroup: Repairs and Alterations

Task Group: K. Moore, R. Underwood, M. Chestnut, T. Seime

Explanation of Need: Clarify the definitions of "Repair" and "Alteration" in the Glossary and revise the list of examples of each to better define the allowable scope of activities.

July SG R&A 2022 Meeting Action: P. Becker presented a revised proposal. **A Rvw & Comment LB will go to SG R&A.**

Item Number: A21-31 **NBIC Location: NBIC Glossary** **No Attachment**

General Description: Revise definition of "Field"

Subgroup: Repairs and Alterations

Task Group: R. Miletti (PM), P. Gilston, M. Toth, J. Walker

Explanation of Need: A "Field" site under the current definition could be multiple rented or leased spaces used for repairs/alterations, where there is no single or specific customer or job, but rather the locations(s) are used for conducting repair/alteration activities by personnel employed by the Certificate Holder on a continual basis.

July SG R&A 2022 Meeting Action: P. Gilston presented a **PR**

Item Number: A21-37 **NBIC Location: Part 3, 1.6** **Attachment 16**

General Description: Parts used in NR Activities

Subgroup: NR TG

Task Group: R. Spuhl (PM)

Explanation of Need: Clarification that parts used in NR activities are fabricated by NR Certificate Holders and inspected by appropriately endorsed National Board commissioned Inspectors.

July SG R&A 2022 Meeting Action: R. Spuhl presented a **PR**

Item Number: A21-43 **NBIC Location: Part 3, Glossary** **Attachment 17**

General Description: Defining and revising "Practicable" and "Practical" within the NBIC

Subgroup: Repairs and Alterations

Task Group: M. Toth (PM), B. Underwood

Explanation of Need: Defining and revising Practicable and Practical within the NBIC and revising where applicable

July SG R&A 2022 Meeting Action: M. Toth presented that a new item may need to be opened to find these words in the other Parts of the NBIC to verify consistency. **This proposal will be sent to a LB to all SG (Parts 1, 2, 3, and 4) for a vote.**

Item Number: A21-44 **NBIC Location: Part 3, Glossary** **Attachment 18**

General Description: Defining "De-Rating" within Part 3

Subgroup: Repairs and Alterations

Task Group: M. Toth (PM), B. Underwood, B. Wielgoszinski

Explanation of Need: Defining de-rating within Part 3

July SG R&A 2022 Meeting Action: M. Toth presented. A **Rvw & Comment LB will go to all SG (Parts 1, 2, 3, and 4).**

Item Number: A21-45 **NBIC Location: Part 3, Supplements** **Attachment 21**

General Description: Add a supplement to address oil, gas and chemical repair & alteration scope

Subgroup: Repairs and Alterations

Task Group: R. Underwood (PM)

Explanation of Need: There has been interest from companies operating with the Oil, Gas and Chemical industries to address certain types of repairs that may exist in ASME PCC-2 or API. NBIC does not have many of these repair methods within the book.

July SG R&A 2022 Meeting Action: B. Underwood presented. Discussion held regarding lap patches being considered as "repairs" instead of "alterations". Per Gary Scribner, BOT may change NB-415 or may create a new document that would give direction as to where this proposal will go (i.e. new type of "R" Stamp, new 'Division' created within the "R" Cert. program, etc.) **This was a PR.**

Item Number: A21-53 **NBIC Location: Part 3, S8.5 a)** **Attachment 23**

General Description: Post Repair Inspection of weld repairs to CSEF steels

Subgroup: Repairs and Alterations

Task Group: P. Gilston (PM), E. Cutlip

Explanation of Need: The requirement for Inspector involvement in post-repair inspections to CSEF weld repairs is to ensure future safe operation of the boiler. This is a function of the inservice Authorized Inspection Agency, not the Repair Inspector, whose duties end with completion of repair documentation.

July SG R&A 2022 Meeting Action: P. Gilston presented a **PR.**

Item Number: A21-67 **NBIC Location: Part 3, 3.4.9** **No Attachment**

General Description: Add welding requirements to plugging firetubes

Subgroup: Repairs and Alterations

Task Group: P. Gilston (PM), K. Moore, M. Quisenberry, T. Sieme

Explanation of Need: The current NBIC does not have enough direction or requirements for welding tube plugs in firetubes.

July SG R&A 2022 Meeting Action: P. Gilston presented a **PR**.

Item Number: A21-82 **NBIC Location: Part 3, 3.3.3(s)** **No Attachment**

General Description: Examples of Repairs

Subgroup: Repairs and Alterations

Task Group: P. Davis (PM), R. Underwood, P. Gilston, , J. Ferreira, J. Walker, E. Cutlip, . P. Miller, L. Dutra

Explanation of Need: Adding "repair" to 3.3.3(s) would then address use of different weld material. Currently 3.3.3(s) only addresses replacement of the part, not repair (Repair is addressed in 3.3.3(r)).

July SG R&A 2022 Meeting Action: B. Underwood **presented a PR**. The PM was changed to P. Davis. P. Miller and L. Dutra were added to the taskgroup.

Item Number: A22-02 **NBIC Location: Part 3, 3.3.2 e) 1)** **No Attachment**

General Description: Part 4 Item A21-83 may impact part 3, 3.3.2 e) 1)

Subgroup: Repairs and Alterations

Task Group: M. Toth (PM), B. Derby, L. Dutra, M. Carlson

Explanation of Need: Part 4 Item A21-83 was reviewed as it may impact part 3, 3.3.2 e) 1) examples of Routine Repairs. An Item for Part 3 will be opened to address "valve" repairs as they relate to SRVs.

July 2022 Meeting Action: M. Toth presented. The group verified 3.3.2 e) 1) verbiage. M. Toth to work with Part 4 to verify no impact to Part 3. **This was a PR.**

Item Number: A22-12 **NBIC Location: Part 3, 3.3.5.2 & 3.4.5.1** **Attachment 25**

General Description: Lost or Destroyed UDS

Subgroup: Repairs and Alterations

Task Group: T. Seime (PM)

Explanation of Need: To provide the ability to repair/alter these vessels with a reconstructed UDS.

July 2022 Meeting Action: T. Sieme presented. This passed SC LB and will be on MC Agenda.

NOTE: This item was balloted to SG R&A and SC R&A after the July 2022 meeting. Both groups approved the proposal unanimously.

Item Number: A22-18 **NBIC Location: Part 3, Glossary** **Attachment 27**

General Description: Definition of blowdown and blowoff

Subgroup: Repairs and Alterations

Task Group: K. Moore (PM). M. Quisenberry

Explanation of Need: These terms are not consistently used throughout the industry. This is to provide guidance to use the correct term when addressing the equipment or the action.

July 2022 Meeting Action: K. Moore presented. The proposal was compared to ASME Sect. I and B31.1 definitions for consistency. G. Scribner commented on the history of these terms and their use in the industry and Codes and the need for these definitions. M. Quisenberry volunteered for the taskgroup. **Rvw & Comment LB to all SG (Part 1, 2, 3, and 4)**

Item Number: A22-19 **NBIC Location: Part 3, 5.2.2** **No Attachment**

General Description: R Certificate Holders with Design Only Scope

Subgroup: Repairs and Alterations

Task Group: J. Ferreira (PM), R. Valdez, G. Scribner, B. Schaefer

Explanation of Need: To add new paragraphs 5.2.2 d) and 5.2.2 e) which will provide guidance for R Certificate Holders with "Design Only" on which activities they are permitted to perform and how they and the Inspectors shall complete the R-2 Form.

July 2022 Meeting Action: J. Ferreira presented. After discussion, it was pulled back for more work. Several members added to taskgroup. **This was a PR.**

New Action Items:

Item Number: A22-27	NBIC Location: Part 3	Attachment 28

General Description: Post Repair Activity - Boil Out

Subgroup: Repairs and Alterations

Task Group: None assigned.

Explanation of Need: When major repairs are made and the boiler is not properly cleaned of oils, it will cause water level instability and carryover.

January 2023 Meeting Action:

Item Number: A22-29	NBIC Location: Part 3	Attachment 29

General Description: Removal of the requirement of AIA audits from the NR program

Subgroup: Repairs and Alterations

Task Group: R. Spuhl (PM)

Explanation of Need: This requirement cannot be enforced and is not defined by the the NR Certificate Holder and therefore must be removed.

January 2023 Meeting Action:

Item Number: A22-41	NBIC Location: Part 3, 1.5	Attachment 30

General Description: Reference NB-415 in Quality System

Subgroup: Repairs and Alterations

Task Group: None assigned.

Explanation of Need: Requirements in the NB-415 should be included in the R Cert. Holder's QC Manual. Examples : a) Notifying the National Board when an organization changes scope, ownership, name, location, address, or Inspection Agreement and b) Return of the stamp.

January 2023 Meeting Action:

9. Future Meetings

- July 2023 - TBD
- January 2024 – Charlotte, NC

10. Adjournment

Respectfully submitted,

Terrence Hellman

Terrence Hellman

SG R&A Secretary

SUPPLEMENT 6
REPAIR, ALTERATION, AND MODIFICATION OF DOT TRANSPORT (CARGO) TANKS

S6.1 SCOPE

This supplement provides requirements and guidelines for repairs, alterations, or modifications to DOT Transport Tanks used for the transportation of dangerous goods via highway, rail, air, or water.

S6.2 DEFINITIONS

The definitions specified in NBIC Part 3, Section 9, *Glossary*, shall be used in conjunction with those specified in NBIC Part 2, S6.17. Where conflicts between definitions exist, those identified in NBIC Part 2, S6.17 shall take precedence.

S6.3 CONSTRUCTION STANDARDS

When the standard governing the original construction is the ASME Code or other regulations of the Competent Authority, repairs, alterations, or modifications shall conform, insofar as possible, to the edition of the construction standard or specification most applicable to the work. Where this is not possible or ~~practical~~ practicable, it is permissible to use other codes, standards or specifications, including the ASME Code provided the "R" Certificate Holder has the concurrence of the Inspector and, if required, the Competent Authority.

S6.4 ACCREDITATION AND REGISTRATION

Organizations performing repairs, alterations, or modifications shall be accredited in accordance with the National Board “R” Accreditation Program. In addition repair organizations performing repairs, alterations, or modifications to transport tanks shall be registered with DOT as required by 49 CFR Part 180.

S6.5 AUTHORIZATION

The Inspector’s authorization to perform a repair, alteration, or modification shall be obtained prior to initiation of the work to be performed on a transport tank. Additional requirements are specified in NBIC Part 3, 1.3.1 and 1.3.2.

S6.6 INSPECTION

Inspection and certification shall be made by an Inspector holding an appropriate National Board Commission as required by NBIC Part 3, 1.3.

S6.7 MODIFICATIONS

All modifications, as defined in NBIC Part 2, Supplement 6, to the pressure-retaining item shall meet the requirements of NBIC Part 3 for alterations.

S6.8 DRAWINGS AND CALCULATIONS

a) Design requirements for repairs, alterations and modifications shall comply with the requirements of NBIC Part 3, 3.2.4.

b) As appropriate, drawings or instructions shall be prepared to describe the repair, alteration, or modification. Drawings shall include sufficient information to satisfactorily perform the activity.

c) The design of alterations and modifications shall be completed by an organization experienced in the design portion of the standard used for the construction of the item and certified by a Design Certifying Engineer as defined in NBIC Part 2, S6.17. Design documents shall be completed prior to the start of any physical work and be available for review by the Inspector accepting the design.

S6.~~9~~5 MATERIALS

The materials used in making repairs, alterations, or modifications shall conform to the original code of construction including the material specification requirements. Carbon or alloy steel having a carbon ~~con-tent~~content of more than 0.35% (0.30% for ton tanks) shall not be welded unless permitted by the original code of construction. The "R" Certificate Holder is responsible for verifying the identification of existing materials from original data, drawings, or unit records and identification of the material to be installed. Materials that have previously been in service, as described in Part 3, 3.2.1 c), are not permitted for alterations or modifications of DOT Transport Tanks per 49 CFR Part 180. Additional material requirements are provided in NBIC Part 3, Section 3.

S6.~~6~~ 10 REPLACEMENT PARTS

Replacement parts to be used in repairs, alterations, and modifications of DOT Transport Tanks shall comply with the requirements provided in NBIC Part 3, 3.2.2.

~~a) Replacement parts that will be subject to internal or external pressure that consist of new material which may be formed to the required shape by spinning, forging, die forming, and on which no fabrication welding is performed shall be supplied as material. Such parts shall be marked with the material and part identification and the name or trademark of the parts manufactured. In lieu of full identification marking on the material or part, the part manufacturer may use a coded marking system traceable to the original marking. Such markings shall be considered as the part manufacturer's certification that the part complies with the original code of construction. Examples include seamless or welded tube or pipe, forged nozzles, heads or subassemblies attached mechanically.~~

~~b) Replacement parts that will be subject to internal or external pressure, that are preassembled by attachment welds, shall have the welding performed in accordance with the original code of construction. This certificate shall be supplied in the form of a bill of material or drawings with statement of certification.~~

~~c) Replacement parts subject to internal or external pressure fabricated by welding that require shop inspection by an Authorized Inspector shall be fabricated by an organization having an appropriate ASME *Certificate of Authorization*. The item shall be inspected and stamped as required by the applicable section of the ASME Code and DOT specification requirements. A completed ASME *Manufacturer's Partial Data Report* shall be supplied by the manufacturer.~~

~~d) When the original code of construction is other than ASME, replacement parts subject to internal or external pressure fabricated by welding shall be manufactured by an organization certified as required by the original code of construction. The item shall be inspected and stamped as required by the original code of construction. Certification as required by the original code of construction shall be supplied with the item. When this is not possible or practicable the organization fabricating the part may have a National Board *Certificate of Authorization*. Replacement parts fabricated by an "R" stamp holder shall be documented on Form R-3 and the "R" Stamp applied as described in NBIC Part 3, S6.15.~~

~~S6.7 AUTHORIZATION~~

~~The Inspector's written authorization to perform a repair, alteration, or modification shall be obtained prior to initiation of the work to be performed on a transport tank. Additional requirements are specified in NBIC Part 3, 1.3.1 and 1.3.2.~~

~~S6.8 INSPECTION~~

~~Inspection and certification shall be made by an Inspector holding an appropriate National Board Commission as required by NBIC Part 3, 1.3 and shall be a Registered Inspector meeting the requirements of the Competent Authority.~~

~~S6.8.1 INSPECTOR DUTIES FOR REPAIRS, ALTERATIONS, AND MODIFICATIONS~~

~~a) Inspectors performing repair, alteration, or modification inspections under the requirements of this supplement shall satisfy the requirements of S6.8.1 to be authorized to sign the Form R-1, *Repairs* and Form R-2, *Alterations*.~~

~~b) For repairs, alterations, and modifications of transport tanks, the duties of the Registered Inspector performing inspections are detailed in Part 2, S6.10 through S6.15, as required by the Competent Authority.~~

~~c) The Registered Inspector shall meet the rules of NB-263, RCI-1, Rules for Commissioned Inspectors. Additional duties are summarized below:~~

~~1) Verify the organization performing the repair, alteration or modification activity is properly accredited and in possession of a current valid *Certificate of Authorization* to apply the "R" Stamp issued by the National Board and is working to an accepted Quality Control System;~~

~~2) Verify that the design, if required, for the modification of the vessel is approved by a Design Certifying Engineer, or Designated Approval Agency or other applicable individual;~~

~~3) Verify the materials to be used to make the repair, alteration, or modification are approved for use and comply with applicable code requirements;~~

~~4) Verify the welding procedures and welders or welding operators are properly qualified;~~

~~5) Verify that all heat treatments, if required, including PWHT have been performed in accordance with the applicable standards and that the results are acceptable;~~

~~6) Verify that all NDE, impact tests, and other tests have been performed when required, and that they are acceptable;~~

~~7) Make a visual inspection of the work performed to confirm there are no visible defects or deviations from code requirements;~~

~~8) Perform external and internal visual inspections, if the vessel is equipped with a manway, and witness the hydrostatic or pneumatic pressure test and/or leak tightness test when they are required;~~

~~9) Verify the correct nameplate is properly attached to the vessel and that the current test and inspection markings are properly attached and displayed on the proper vessel;~~

~~10) Sign the Form R-1 and, as appropriate, form R-2 when work is completed.~~

S6.~~9~~ 11 WELDING

a) Welding, including procedure specification qualification, performance qualification, qualification records, qualified personnel identification, continuity of qualified personnel, and process continuity

records shall be performed in accordance with the requirements of the original code of construction used for the fabrication of the pressure vessel retaining item and Part 3, Section 2.

a)b) For hydrogen control when low alloy steel filler metals are used, the filler metal classification shall include an H4 supplemental diffusible hydrogen designator (maximum 4 ml [H2]/100 g deposited metal) for each of the following welding processes:

1) electrodes for shielded metal arc welding (SMAW) conforming to SFA-5.5;

2) electrodes and fluxes for submerged arc welding (SAW) conforming to SFA-5.26;

3) electrodes and rods for gas shielded metal arc welding (GMAW) conforming to SFA-5.28;

4) electrodes for flux-cored arc welding (FCAW) conforming to SFA 5.29.

c) Practices used for controlling storage and exposure of filler metals shall be those developed by the "R" Certificate Holder or those recommended by the filler metal manufacturer.

b)

S6.9.1 WELDING PROCEDURE SPECIFICATION

Welding shall be performed in accordance with a Welding Procedure Specification (WPS) qualified in accordance with the original code of construction. When this is not possible or practicable, the WPS may be qualified in accordance with ASME Section IX.

S6.9.2 STANDARD WELDING PROCEDURE SPECIFICATIONS

A "R" Certificate Holder may use one or more applicable *Standard Welding Procedure Specifications* shown in NBIC Part 3, 2.3 without supporting *Procedure Qualification Records* (PQRs) since SWPS are pre-qualified and the PQR will not be supplied.

S6.9.3 PERFORMANCE QUALIFICATION

Welders or welding operators shall be qualified for the welding processes that are used. Such qualification shall be in accordance with the requirements of the original code of construction or ASME Section IX. Use of Standard Welding Procedures Specification shown in NBIC Part 3.2.3 is permitted for performance qualification testing.

S6.9.4 WELDING RECORDS

The "R" Certificate Holder shall maintain a record of the results obtained in welding procedure qualification, except for those qualifications for which the provisions of NBIC Part 3, S6.8.2 are used and of the results obtained in welding performance qualifications. These records shall be certified by the "R" Certificate Holder and shall be available to the inspector.

S6.9.5 WELDERS' IDENTIFICATION

The "R" Certificate Holder shall establish a system for the assignment of a unique identification mark to each welder/welding operator qualified in accordance with the requirements of the NBIC. The "R" Certificate Holder shall also establish a written procedure whereby all welded joints can be identified as to the welder or welding operator who made them. This procedure shall use one or more of the following methods and be acceptable to the Inspector. The welder's or welding operator's identification mark may be stamped (low stress stamp) adjacent to all welded joints made by the individual or, in lieu of stamping, the "R" Certificate Holder may keep a record of the welded joints and the welders or welding operators used in making the joint.

~~S6.9.6 WELDERS' CONTINUITY~~

~~The performance qualification of a welder or welding operator shall be affected when one of the following conditions occurs:~~

~~a) When the welder or welding operator has not welded using a specific process during a period of six months or more, their qualifications for that process shall expire;~~

~~b) When there is specific reason to question their ability to make welds that meet the specification, the qualification which supports the welding that is being performed shall be revoked. All other qualifications not questioned remain in effect.~~

S6.~~10~~ 12 HEAT TREATMENT

S6.~~10~~12.1 PREHEATING

Preheating may be employed during ~~welding~~ use of a process to assist in completion of the ~~welded~~ joint Preheating shall comply with the requirements in NBIC Part 3, 2.5.1. ~~(see NBIC Part 3, 2.5.1). The need for and the temperature of preheat are dependent on a number of factors such as chemical analysis, degree of restraint of the items being joined, material thickness, and mechanical properties of the base metals being joined. The Welding Procedure Specification for the material being welded shall specify the preheat temperature requirements.~~

S6.~~10~~12.2 POSTWELD HEAT TREATMENT (PWHT)

Postweld heat treatment ~~may~~ used in repairs, alterations, and modifications of DOT Transport Tanks shall comply with the requirements provided in NBIC Part 3, 2.5.2. ~~be performed as required by the original code of construction in accordance with a written procedure. The procedure shall contain the parameters for postweld heat treatment. Local PWHT that is not specified by the original code of construction may be performed in accordance with an Alternative Postweld Heat Treatment Method described in NBIC Part 3, 2.5.2 with acceptance by the Inspector and required by the Competent Authority.~~

S6.~~10~~12.3 ALTERNATIVES TO POSTWELD HEAT TREATMENT

a) Under certain conditions, postweld heat treatment in accordance with the original code of construction may be inadvisable or impractical. In such instances, alternative methods of postweld heat treatment or special welding methods in accordance with NBIC Part 3, 2.5.3, and acceptable to the Inspector and Competent Authority may be used.

b) When the standard governing the original construction is the Code of Federal regulation for DOT/MC 331 cargo tanks for propane, butane, anhydrous ammonia, and other DOT permitted commodities, and the tanks are made to the ASME Code, Section VIII, Division 1, Part UHT, repairs, alterations, or modifications shall conform insofar as possible, to the edition of the construction standard or specification most applicable to the work. Where this is not possible or practicable, it is permissible to use other codes, standards, or specifications provided the "R" Certificate Holder has the concurrence of the DOT. Shells and heads of MC 331 cargo tanks were made from quenched and tempered alloy steel plate, SA517, Grade E (originally Code Case 1298) and Grade F (originally Code Case 1204) prior to 1994.

c) The 1994 ASME Code Addenda revised UHT-5(b) to permit the joining of UHT materials to UCS or UHA materials in head and shell sections. Propane, butane, and anhydrous ammonia are the most common transported commodities and the shipper is required by DOT to comply with certain composition limitations. Propane and butane transported must have sufficiently low hydrogen sulfide content so as not to exceed the limitations for Classification One of the ASTM D1838-74 copper strip test, and the anhydrous ammonia transported must be inhibited with a minimum water content of 0.2% by weight. In addition, such cargo tanks made for propane, butane, and anhydrous ammonia service must be postweld heat treated, unless specifically exempted by a DOT special permit that exempts PWHT.

S6.13 REPAIRS OF DEFECTS

a) Before a repair is made to a defect in a welded joint or base metal, care should be taken to investigate its cause and to determine its extent and likelihood of recurrence. This information shall be made available to the Inspector.

b) For MC 330 and MC 331 transport tanks, when a repair is made to defects revealed by the wet fluorescent magnetic particle examination, including those repaired by grinding, the affected area of the cargo tank must again be examined by the wet fluorescent magnetic particle method after hydrostatic testing to assure that all defects have been removed.

S6.~~11~~ 14 NONDESTRUCTIVE EXAMINATION

a) The nondestructive examination (NDE) requirements, including qualification of NDE personnel shall comply with the requirements in NBIC Part 3, 4.2.~~, including technique, extent of coverage, procedures, personnel qualification, and acceptance criteria, shall be in accordance with the original code of construction used for the pressure vessel, and repairs, alterations, and modifications shall be subjected to the same nondestructive examination requirements as the original welds. Where this is not possible or practicable, alternative NDE methods acceptable to the Inspector and the Competent Authority may be used on a case-by-case basis.~~

~~b) NOE personnel shall be qualified and certified in accordance with the requirements of the original code of construction. When this is not possible or practicable, NDE personnel may be qualified and certified in accordance with their employer's written practice. ASNT SNT-TC-1A, *Recommended Practice for Nondestructive Testing Personnel Qualification and Certification (2006 Edition)*, or ANSI/ASNT CP-189, *Standard for Qualification and Certification of Nondestructive Testing Personnel (2006 Edition)*, shall be used as a guideline for employers to establish their written practice. The ASNT Central Certification Program (ACCP) may be used to fulfill the examination and demonstration requirements of the employer's written practice. Provisions for training, experience, qualification and certification of NDE personnel shall be described in the "R" Certificate Holder's written quality system.~~

~~S6.12 COATINGS AND LININGS~~

~~When coatings or linings are to be inspected, such inspections shall be done in accordance with the Structural Steel Painting Council, SSPC publication, No. 91-12, *Coating and Lining Inspection Manual*.~~

S6.1~~5~~3 MEASUREMENT, EXAMINATION, AND TEST EQUIPMENT

The calibration of pressure gages, measurement, examination, and test equipment, and documentation of calibration shall be performed, as required, by the applicable standard used for construction. This system shall be documented.

S6.16 PRESSURE TEST

The following requirements shall apply to all repairs, alterations, or modifications to DOT Transport Tank pressure-retaining items:

a) The integrity of repairs and replacement parts used in repairs, alterations, or modifications shall be verified by a pressure test;

b) The "R" Certificate Holder is responsible for all activities relating to the pressure test of repairs, alterations, or modifications;

S6.16.1 PRESSURE TEST METHODS

The integrity of repairs, alterations and modifications of DOT Transport Tanks shall be verified by a pressure test as described below. The test method used shall be subject to acceptance of the Inspector and the Competent Authority, when required.

a) Liquid Pressure Test

Pressure testing of repairs, alterations, and modifications of DOT Transport Tanks shall comply with NBIC Part 3, 4.4.2(a) and the following requirements:

1) Liquid pressure tests shall be conducted in accordance with the requirements of the original code of construction and the regulations of the Competent Authority at pressures established in Table S6.16. When original test pressure included consideration of corrosion allowance, the test pressure may be further adjusted based on the remaining corrosion allowance;

TABLE S6.16
PRESSURE TEST REQUIREMENTS

Cargo Tank Specification	Test Pressure
MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306	20.7 kPa (3 psig) or design pressure, whichever is greater
MC 304 and MC 307	275.8 kPa (40 psig) or 1.5 times design pressure, whichever is greater
MC 310, MC 311, and MC 312	20.7 kPa (3 psig) or 1.5 times design pressure, whichever is greater
MC 330 and MC 331	1.5 times either MAWP or the re-rated pressure, whichever is applicable
MC 338	1.25 times either MAWP or the re-rated pressure, whichever is applicable
DOT 406	34.5 kPa (5 psig) or 1.5 times the MAWP, whichever is greater
DOT 407	275.8 kPa (40 psig) or 1.5 times the MAWP, whichever is greater
DOT 412	1.5 times the MAWP

Note: DOT Transport Tanks constructed in accordance with Part UHT in Section VIII, Division 1 of the ASME Code shall be tested at a pressure at least twice the transport tank design pressure.

b) Pneumatic Test

A pneumatic test may be conducted in accordance with the requirements of the original code of construction and the regulations of the Competent Authority at pressures established in Table S6.18.

Concurrence of the owner shall be obtained in addition to that of the Inspector and the Competent Authority, where required. Precautionary requirements of the original code of construction and NBIC Part 2, 6.13.6.1(c) shall be followed.

S6.174 ACCEPTANCE INSPECTION

The Inspector making the acceptance inspection shall be the same Inspector who authorized the repairs, alterations, or modifications. Where this is not possible or ~~practical~~ practicable, another Inspector may perform the acceptance inspection; however, in all cases, the Inspector who performs the acceptance inspection shall be an employee of the same organization as the Inspector who authorized the repairs, alterations, or modifications.

S6.185 GENERAL STAMPING REQUIREMENTS

The stamping of or attaching of a nameplate to a pressure-retaining item shall indicate that the work was performed in accordance with the requirements of this code and any requirements of the Competent Authority. Such stamping or attaching of a nameplate shall be done only with the knowledge and authorization of the Inspector ~~and Competent Authority~~. The "R" Certificate Holder responsible for the repair or the construction portion of the modification/alteration shall apply the stamping. For a re-rating where no physical changes are made to the pressure-retaining item, the "R" Certificate Holder responsible for the design shall apply the stamping. Requirements for stamping and nameplate information are shown in NBIC Part 3, Section 5.

S6.185.1 SPECIFIC "R" STAMPING AND NAMEPLATE REQUIREMENTS

The holder of a "R" *Certificate of Authorization* is required to affix a stamping or nameplate on the Transport Tank that indicates, the repair, alteration, or modification has been performed in accordance with the requirements of NBIC Part 3, Supplement 6 and the additional requirements of the code of construction. All repairs, alterations, and modifications, after acceptance by the ~~Registered~~ Inspector, shall have the "R" Symbol affixed to the stamping or the nameplate. The stamping or nameplate information shall satisfy the requirements of ~~a) thru g) below~~NBIC Part 3, 5.7.~~:~~

~~a) The required data shall be in characters at least 4 mm (5/32 in.) high;~~

~~b) The markings may be produced by casting, etching, embossing, debossing, stamping, or engraving;~~

~~c) The selected method shall not result in any harmful contamination or sharp discontinuities to the pressure-retaining boundary of the Transport Tank;~~

~~d) Stamping directly on the Transport Tank, when used, shall be done with blunt-nose continuous or blunt-nose interrupted dot die stamps. If direct stamping would be detrimental to the item, required markings and the embossed Code Symbol stamping may appear on a nameplate affixed to the Transport Tank;~~

~~e) The "R" Certificate Holder shall use its full name as shown on the *Certificate of Authorization* or use an approved abbreviation acceptable to the National Board;~~

~~f) The non-embossed Code Symbol stamping, when directly applied on the item or when a nameplate is used shall be applied adjacent to the original manufacturer's stamping or nameplate. A single repair stamping or nameplate may be used for additional activities performed, provided the repair activity is carried out by the same "R" Certificate Holder;~~

~~g) The date of each repair, alteration, or modification corresponding with the date on the applicable "R" form shall be applied to the exiting stamping or nameplate.~~

S6.185.2 REMOVAL OF ORIGINAL STAMPING OR NAMEPLATE

Removal of the original stamping or nameplate shall comply with the requirements of NBIC Part 3, 5.11. ~~If it becomes necessary to remove the original stamping, the Inspector shall, subject to the approval of the Competent Authority, witness the making of a facsimile of the stamping, the obliteration of the old stamping, and the transfer of the stamping. When the stamping is on a nameplate, the Inspector shall witness the transfer of the nameplate to the new location. Any relocation shall be described on the applicable NBIC "R" Form. The restamping or replacement of a code symbol stamp shall be performed only as permitted by the governing code of construction.~~

S6.18.3 REPLACEMENT OF STAMPING OR NAMEPLATE

Replacement of indistinct stamping or lost, illegible, or detached nameplates shall comply with the requirements provided in NBIC Part 2, 5.2.

S6.196 FORM "R" REPORTS~~"R" FORMS~~

S6.196.1 DOCUMENTATION OF FORM "R" REPORTS

Repairs, alterations, or modifications that have been performed in accordance with the NBIC shall be documented on Form R-1, *Report of Repair* or Form R-2, *Report of Alteration* as shown in NBIC Part 3, Section 5. Form R-4, *Report Supplementary Sheet*, shall be used to record additional data when space is insufficient on Form R-1 or R-2.

S6.196.2 PREPARATION OF FORM "R" ~~FORMS~~REPORTS

Preparation of "R" Forms shall be the responsibility of the "R" Certificate Holder performing the repairs, alterations, or modifications and shall comply with the requirements provided in NBIC Part 3, 5.2.1, 5.2.2 and 5.2.4. ~~An Inspector shall indicate acceptance by signing the appropriate "R" form.~~

S6.1916.3 DISTRIBUTION OF FORM "R" REPORTS

Distribution of Form "R" Reports shall comply with the requirements provided in NBIC Part 3, 5.3 and 5.4

~~a) Legible copies of the completed "R" forms together with attachments shall be distributed to the owner or user, the Inspector, the Competent Authority as required, the Authorized Inspection Agency responsible for the inspection, and the National Board forregistration.~~

~~b) Distribution of the "R" forms and attachments shall be the responsibility of the "R" Certificate Holder per- forming the work.~~

S6.1916.4 REGISTRATION OF FORM ~~R-1 AND FORM R-2~~"R" REPORTS

a) ~~Organizations~~ Repair organizations performing repairs, alterations, or modifications required by this supplement shall ~~register such repairs, alterations, or modifications with the National Board.~~ submit the completed "R" Form, meeting the requirements of the NBIC, to the National Board.

b) The repair organization shall maintain a sequential Form ~~"R"~~Registration Log ~~Log that shall identify the following:~~ as described in Part 3, 5.6.

~~1) Form number assigned for Form R-1;~~

~~2) Identify if the activity was a repair, alteration, or modification;~~

~~3) When the repair, alteration, or modification was completed, and~~

~~4) Date sent to the National Board.~~

~~S6.17 ADDITIONAL REQUIREMENTS FOR REPAIRS, ALTERATIONS, OR MODIFICATIONS~~

~~S6.17.1 SCOPE~~

~~This section provides additional requirements for repairs, alterations, or modifications to DOT Transport Tank pressure-retaining items and shall be used in conjunction with NBIC Part 3.~~

~~S6.17.2 REPAIRS OF DEFECTS~~

~~Before a repair is made to a defect in a welded joint or base metal, care should be taken to investigate its cause and to determine its extent and likelihood of recurrence. This information shall be made available to the Inspector.~~

~~S6.17.3 MODIFICATIONS~~

~~All modifications to the pressure-retaining item shall meet the requirements of NBIC Part 3 for alterations.~~

~~S6.17.4 DRAWINGS~~

~~Drawings or instructions shall be prepared to describe the repair, alterations, or modification. Drawings shallinclude sufficient information to satisfactorily perform the activity.~~

~~S6.17.5 AUTHORIZATION~~

~~Repairs, alterations, or modifications to a pressure-retaining item shall not be initiated without the authorization of the Inspector, who shall determine that the methods are acceptable.~~

~~S6.18 EXAMINATION AND TEST~~

~~The following requirements shall apply to all repairs, alterations, or modifications to DOT Transport Tank pressure-retaining items:~~

~~a) The integrity of repairs and replacement parts used in repairs, alterations, or modifications shall be verified by examination and test;~~

~~b) The "R" Certificate Holder is responsible for all activities relating to examination and test of repair, alterations, or modifications;~~

~~c) Examination and tests to be used shall be subject to acceptance of the Inspector and the Competent Authority when required.~~

~~S6.18.1 METHODS~~

One, or a combination of the following examination methods, shall be applied to DOT Transport Tank pressure-retaining items with the concurrence of the Inspector and the Competent Authority when required.

a) Liquid Pressure Test

Pressure testing of repairs shall meet the following requirements:

1) Pressure tests shall be conducted using water or other suitable liquid. The test pressure shall be the minimum required to verify the leak tightness integrity of the repair, but not more than 150% of the maximum allowable working pressure (MAWP) stamped on the pressure-retaining item, as adjusted for temperature. When original test pressure included consideration of corrosion allowance, the test pressure may be further adjusted based on the remaining corrosion allowance;

2) During a pressure test where the test pressure will exceed 90% of the set pressure of the pressure relief device, the device shall be removed whenever possible. If not possible, a test gag should be used using the valve manufacturer's instructions and recommendations; and

3) Hold time for the pressure test shall be a minimum of 10 minutes prior to examination by the Inspector. Where the test pressure exceeds the MAWP of the item, the test pressure shall be reduced to the MAWP for close examination by the Inspector. Hold time for close examination shall be as necessary for the Inspector to conduct the examination.

b) Pneumatic Test

A pneumatic test may be conducted. Concurrence of the owner shall be obtained in addition to that of the Inspector and the Competent Authority where required. The test pressure shall be the minimum required to verify leak tightness integrity of the repair, but shall not exceed the maximum pneumatic test pressure of the original code of construction. Precautionary requirements of the original code of construction shall be followed.

c) Nondestructive Examination

Nondestructive examination (NDE) may be conducted. NDE methods shall be suitable for providing meaningful results to verify the integrity of the repair.

S6.19 REPAIRS, ALTERATIONS, OR MODIFICATION REPORTS

a) When repairs, alterations, or modifications are performed on a transport tank, i.e., cargo tank, portable tank, or ton tank, the owner or User shall have the activity performed by a Repair Organization that has a valid "R" *Certificate of Authorization* issued by the National Board. "R" forms shall be completed and certified by the "R" Certificate Holder and received and certified by the Inspector.

b) For the purposes of documentation and stamping, modification shall be considered an alteration.

Item No.: 21-02

Subject Title: Define “Fuel Loading” as it pertains to NR activities.

NBIC Location:
Part 3 Repairs and Alterations: 1.6.2 a)

Project Manager and Task Group:
Raymond Spuhl, NR TG

Source Name and Email:
Terrence Hellman, thellman@nationalboard.org

Statement of Need:
The NR TG would like to clarify "Fuel Loading" as used to determine Category 1, 2 or 3 NR activities.

Background Information:

Existing Text:
1.6.2 a)
1) Category 1
Any ASME Section III Code certified item or system requiring repair/replacement activities irrespective of physical location and installation status prior to fuel loading.
2) Category 2
After fuel loading, any item or system under the scope of ASME Section XI requiring repair/ replacement activities irrespective of physical location. Based on regulatory or jurisdictional acceptance, Category 2 may be used prior to fuel loading.
3) Category 3
Items other than those covered by Category 1 or Category 2, requiring repair/replacement activities irrespective of physical location, installation status and fuel loading.

Proposed Text:
1.6.2 a)
1) Category 1
Any ASME Section III Code certified item or system requiring repair/replacement activities irrespective of physical location and installation status ~~prior to fuel loading~~ not under the scope of ASME Section XI.

2) Category 2
~~After fuel loading, a~~Any item or system ~~under the scope of ASME Section XI~~ requiring repair/ replacement activities irrespective of physical location under the scope of ASME Section XI~~.~~ b~~B~~ased on regulatory or jurisdictional requirements
~~acceptance, Category 2 may be used prior to fuel loading~~.

3) Category 3
Any i~~t~~tem or system, other than those covered by Category 1 or Category 2, requiring repair/replacement activities irrespective of physical location, installation status and fuel loading.

PROPOSED REVISION OR ADDITION

Item No.

A 21-12

Subject/Title

Revision to modify Term 'Alteration' and to add Guidance on classifying a Repair vs Alteration

NBIC Location

Part: Repairs and Alterations; Section: Section 3

Project Manager and Task Group

P. Becker (PM), K. Moore, B. Underwood, P. Shanks, S. Chestnut, T. Seime

Source (Name/Email)

Pat Becker, pabecker@babcock.com

Statement of Need

Interpretations continue to be received based on confusion in current guidance given in Section 3, Part 3 of Repairs and Alterations. Of particular issue is the heavily relied upon 'List of Examples' of Repairs and Alterations. The lists are considered a 'shortcut' to understanding which activities should be classified as repairs and which should be alterations. However, the examples are not intended to be used without the understanding of the rest of the subject matter in Part 3, Section 3…nor are they all-inclusive or exclusive.

Experience levels can vary widely among all 'stakeholder' categories, i.e. Owner/User, Authorized Inspector, Certificate Holder, In-Service inspector, Jurisdictional Authority etc.

From the Forward: *The general philosophy underlying the NBIC is to parallel those provisions of the original code of construction, as they can be applied to post-construction activities. The NBIC does not contain rules to cover all details of post-construction activities. Where complete details are not given, it is intended that individuals or organizations, subject to the acceptance of the Inspector and Jurisdiction when applicable, provide details for post-construction activities that will be as safe as otherwise provided by the rules in the original code of construction.*

The Intent of any effort is to improve the user experience while being cognizant not to overly restrict. The task group is paying attention to industry concerns and suggestions including the potential impact of any changes to existing equipment and installations. Existing Interpretations are being 'walked thru' the decision tree and otherwise reviewed against the addition of any content. The goal is to provide clearer guidance with less conflicting or overlapping examples or information.

Background Information

Update of Part 3 Section 3 to improve User experience and clarify definition of 'Alteration'. Updated 'problematic' example lists to eliminate 'conflicting examples'.

Existing Text

PART 3, SECTION 3
REPAIRS AND ALTERATIONS — REQUIREMENTS FOR REPAIRS AND ALTERATIONS

3.1 SCOPE

This section provides requirements and guidelines for materials, replacement parts, and methods used when performing repairs and alterations to pressure-retaining items. Specific repair or alteration methods for other types of pressure equipment are in NBIC Part 3, Section 6.

3.2 GENERAL REQUIREMENTS FOR REPAIRS AND ALTERATIONS

(21) 3.2.1 MATERIAL REQUIREMENTS FOR REPAIRS AND ALTERATIONS

Proposed Text

PART 3, SECTION 3
REPAIRS AND ALTERATIONS — REQUIREMENTS FOR REPAIRS AND ALTERATIONS

3.0 INTRODUCTION

This Section provides information on the requirements for repairs and alterations to pressure retaining items. Information on how to classify, perform, verify, and document acceptable repair and alteration activities may be found throughout Part 3 Sections and Supplements (Refer to the Table of Contents for detail on the location of relevant information). It is the intent that this Section be used in cooperation with local jurisdictional authorities and with an understanding of the applicable pressure vessel code regulations relevant to the scope of repair or alteration activity. Note that the guidance herein and the examples given are not all inclusive and are intended to be representative of cases and activities commonly considered either a repair or alteration.

3.1 SCOPE

This section provides requirements and guidelines for materials and methods used when performing repairs and alterations to pressure-retaining items. Specific repair or alteration methods for other types of pressure equipment are in NBIC Part 3, Section 6.

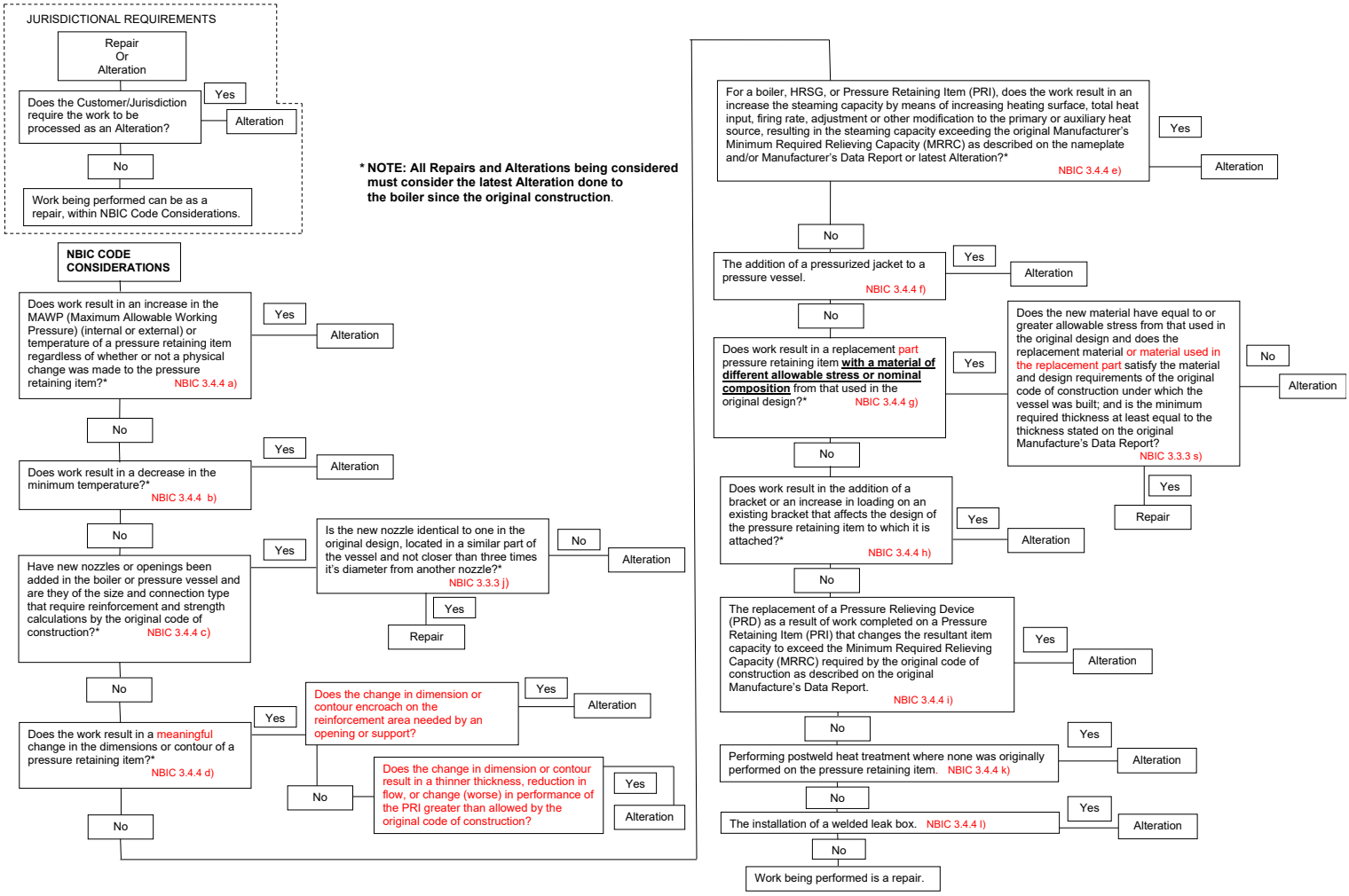
	3.1.1 CLASSIFICATION OF REPAIRS, ALTERATIONS AND REPLACEMENT PARTS When repairing, replacing, or altering existing pressure-retaining items, the activity classification (e.g. Repair vs. Alteration) shall be based on the scope of activity to be performed considering input from the Owner/User, Certificate Holder, AIA, and Jurisdictional Authority. When the scope of activity is complex or there is disagreement related to the classification, the Jurisdictional Authority in the location of the final installation of the repaired, altered or replaced equipment shall be considered the authority. Guidance on determining the activity classification may be found in: SUPPLEMENT X, *CLASSIFYING REPAIRS AND ALTERATIONS* and throughout this section. SUPPLEMENT X, FIGURE SX.1, *DECISION TREE (LOGIC DIAGRAM) FOR DETERMINING REPAIR OR ALTERATION ACTIVITY CLASSIFICATION* is based on the rules and guidance shown throughout Part 3, Section 3 and is provided to aid in determining the activity classification. References to relevant paragraphs may be found following the 'logic' questions throughout the diagram. Replacement Parts may be considered either a repair or alteration. Examples of replacement parts may be found in 3.2.2. Routine Repairs are limited to those listed in 3.3.2, e), 1) thru 5). Repair and Alteration activity examples may be found in 3.3.3 and 3.3.4. **The scope of the work to be performed will determine the classification type. Note that in all cases, the examples of Replacement parts, Routine Repairs, Repairs and Alterations are not all inclusive and should be used along with education, experience, and sound engineering judgment when determining classification type.** **3.2 GENERAL REQUIREMENTS FOR REPAIRS AND ALTERATIONS**
9.1 DEFINITIONS **Alteration —** A change in the item described on the original Manufacturer's Data Report which affects the pressure containing capability of the pressure-retaining item. (See NBIC Part 3, 3.4.3, Examples of Alteration) Nonphysical changes such as an increase in the maximum allowable working pressure (internal or external), increase in design temperature, or a reduction in minimum temperature of a pressure-retaining item shall be considered an alteration.	**9.1 DEFINITIONS** **Alteration —** A change in the item described on the original Manufacturer's Data Report which decreases the pressure containing capability of the pressure-retaining item. (See NBIC Part 3, 3.4.3, Examples of Alteration) Nonphysical changes such as an increase in the maximum allowable working pressure (internal or external), increase in design temperature, resulting in change of allowable stress of the material, or a reduction in minimum temperature of a pressure-retaining item shall be considered an alteration. **SUPPLEMENT X** **CLASSIFYING REPAIRS AND ALTERATIONS** **SX.1 SCOPE** **FIGURE SX.1** **DECISION TREE (LOGIC DIAGRAM) FOR DETERMINING REPAIR OR ALTERATION ACTIVITY CLASSIFICATION** **(See Below and Attachment)**

	VOTE:						
COMMITTEE	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

SUPPLEMENT X
CLASSIFYING REPAIRS AND ALTERATIONS

SX.1 SCOPE

FIGURE SX.1
DECISION TREE (LOGIC DIAGRAM) FOR DETERMINING REPAIR OR ALTERATION ACTIVITY CLASSIFICATION



PROPOSED REVISION OR ADDITION

Item No.

21-37

Subject/Title

Parts used in NR activities

NBIC Location

Part: Repairs and Alterations & Repairs and Alterations; Section: 5; Paragraphs: 5.2.5 & 5.2.6

Project Manager and Task Group

Robert Wielgoszinski

Source (Name/Email)

TG NR Committee generated

Statement of Need

Action Item 21-37 is proposing revisions/additions to Part 5 regarding completion of the Forms NR-1 and NVR-1. Particularly including provision to assure that parts or items meeting ASME Code and reported on appropriate ASME Forms are certified by an Inspector holding the proper endorsements. That is the N, I, and/or C endorsements.as appropriate.

Background Information

Current text in the NBIC does not specify any special rules for parts or other items to be used in NR work. This change will assure that any work performed on parts or other items to be used in NR activities is inspected and certified by an appropriate ANI, ANII, or ANI-C

Existing Text

Proposed Text

See attached proposal

	VOTE:						
COMMITTEE	Appr oved	Disapproved	Abs taine d	Not Voting	Passed	Faile d	Date

PROPOSED REVISION OR ADDITION

Item No.

A 21-43

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

Subject/Title

Defining and revising "Practicable" and "Practical" within the NBIC

NBIC Location

Part: Repairs and Alterations; Section: 9; Paragraph: Glossary - All Parts

Project Manager and Task Group

Marty Toth, Subcommittee Repairs/Alterations

Source (Name/Email)

Marty Toth / mtoth@boiscotraininggroup.com

Statement of Need

Defining and revising Practicable and Practical within the NBIC and revising where applicable

Background Information

Defining and revising Practicable and Practical within the NBIC and revising where applicable

Existing Text	Proposed Text
	Practicable: An NBIC activity such as, but not limited to, a process, action, test, or examination that is able to be done or performed. **Practical**: An NBIC activity such as, but not limited to, a process, action, test, or examination that is able to provide useful and suitable results.

PROPOSED REVISION OR ADDITION

Item No.

A 21-44

Subject/Title

Defining "De-Rating" within Part 3

NBIC Location

Part: Repairs and Alterations; Section: Section 3; Paragraph: 3.4.1

Project Manager and Task Group

Marty Toth, Subcommittee Repairs/Alterations

Source (Name/Email)

Marty Toth / mtoth@boiscotraininggroup.com

Statement of Need

Defining de-rating within Part 3

Background Information

Defining de-rating within Part 3

Existing Text	Proposed Text
	Derate (Boiler): The decrease of a high-pressure steam boiler's MAWP at or below 15 psi where consideration and the replacement of safety valves, steam outlet piping size, and controls and safety devices needs to be made, subject to the requirements of the Jurisdiction where the boiler is installed.

	VOTE:						
COMMITTEE	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

(MDSC), or BTU/hr (W) heating capacity, the new MRRC shall be documented on Form R-2 and indicated on the appropriate nameplate of NBIC Part 3, Figure 5.7.5-b or NBIC Part 3, Figure 5.7.5-c.

a) Final preparation of Form R-2, including gathering and attaching supporting reports, shall be the responsibility of the "R" Certificate Holder that performed the construction portion of the alteration. The construction organization shall complete the Form R-2 provided by the design organization, including the "Construction Certification" section of the form. An Inspector shall indicate that the work complies with the applicable requirements of this code by completing and signing the "Certificate of Inspection" section of the form. When no construction work is performed (e.g., a re-rating with no physical changes), the "R" Certificate Holder responsible for the design shall prepare the Form R-2, including gathering and attaching of supporting documentation.

b) The following shall be attached to and become a part of completed Form R-2:

1) For ASME boilers and pressure vessels, a copy of the original Manufacturer's Data Report, when available;

2) Form R-3, Report of Parts Fabricated by Welding, Manufacturer's Partial Data Reports, or Certificates of Compliance, if applicable; and

3) For other than ASME, the manufacturer's reports (i.e., reports required by the original code of construction, etc.), when available.

(21) **5.1.1 PREPARATION OF FORM R-3 REPORT OF PARTS FABRICATED BY WELDING**

Using the instructions found in Table S9.4 of Supplement 9, preparation of Form R-3 shall be the responsibility of the "R" Certificate Holder responsible for performing the work.

(21) **5.1.2 PREPARATION OF FORM R-4 REPORT SUPPLEMENT SHEET**

Using the instructions found in Table S9.5 of Supplement 9, preparation of Form R-4 shall be the responsibility of the "R" Certificate Holder responsible for performing the work.

(21) **5.1.3 PREPARATION OF FORM NR-1, REPORT OF REPAIR/REPLACEMENT ACTIVITIES FOR NUCLEAR FACILITIES**

~~Using the instructions found in Table S9.6 of Supplement 9, preparation of Form NR-1 shall be the responsibility of the "NR" Certificate Holder responsible for performing the work.~~

(21)

a) Using the instructions found in Table S9.6 of Supplement 9, preparation of Form NR-1 shall be the responsibility of the "NR" Certificate Holder performing the repair.

b) Information describing the scope of work used to repair a pressure-retaining item (PRI) shall be documented on a Form NR-1 and extended to a Form R-4 as needed to fully describe the repair activities completed per the instructions in Table S9.6 of Supplement 9.

c) An Inspector holding appropriate endorsements shall indicate acceptance by signing Form NR-1, and Form R-4, if attached.

d) The Form R-3, *Report of Parts Fabricated by Welding,* Manufacturer's Data Reports, and Certificates of Compliance described in this section shall be a part of the completed Form NR-1 and shall be attached thereto. Parts or items fabricated by welding to ASME shall be reported on the appropriate ASME Data Report Form, certified by an Authorized Nuclear Inspector holding the appropriate endorsements and attached to the Form NR-1.

5.2.6 PREPARATION OF REPORT OF REPAIR/REPLACEMENT ACTIVITIES FOR NUCLEAR PRESSURE RELIEF DEVICES

~~Using the instructions found in Table S9.7 of Supplement 9, preparation of Form NVR-1 shall be the responsibility of the "NR" Certificate Holder, possessing the "VR" Certificate denoting the repair of nuclear pressure relief valves, responsible for performing the work.~~

a) Using the instructions found in Table S9.7 of Supplement 9, preparation of Form NVR-1 shall be theresponsibility of the "NR" Certificate Holder, possessing the "VR" Certificate denoting the repair of nuclear pressure relief valves, responsible for performing the repair.

b) Information describing the scope of work used to repair a pressure-retaining item (PRI) shall be documented on a Form NVR-1 and extended to a Form R-4 as needed to fully describe the repair activitiescompleted per the instructions in Table S9.7 of Supplement 9.

c) An Inspector holding appropriate endorsements shall indicate acceptance by signing Form NVR-1, and Form R-4, if attached.

d) The Form R-3, *Report of Parts Fabricated by Welding,* Manufacturer's Data Reports, and Certificates of Compliance described in this section shall be a part of the completed Form NVR-1 and shall be attached thereto. Parts or items fabricated by welding to ASME shall be reported on the appropriate ASME Data Report Form, certified by an Authorized Nuclear Inspector holding the appropriate endorsements and attached to the Form NVR-1.

5.2 DISTRIBUTION OF FORM R-1

a) Legible copies of completed Form R-1, together with attachments, shall be distributed to the owner or user and Jurisdiction, if required, and shall be provided to the Inspector and the inservice Authorized Inspection Agency of the pressure retaining item upon request.

b) Distribution of Form R-1 and attachments shall be the responsibility of the organization performing the repair.

SUPPLEMENT XX - REPAIR METHODS OF PRESSURE VESSELS AND PIPING EXCLUSIVE TO OIL, GAS, AND CHEMICAL INDUSTRIES

SXX.1 SCOPE

This supplement provides methods for repair of pressure retaining items, outside the boiler setting through the administrative boundary of ASME Section I and IV, exclusive to oil, gas, and chemical manufacturing.

SXX.2 CONSTRUCTION STANDARDS

Repairs shall conform, insofar as possible, to the relevant requirements of the edition of the code of construction. Where this is not practicable, it is permissible to use other codes, standards, or specifications, provided the "R" Certificate Holder has the concurrence of the Inspector and the Jurisdiction, where required.

SXX.3 LIMITATIONS

Repairs will be limited to pressure retaining items, which comply with the following conditions:

a) Operates at or below 650°F (345°C) for carbon steels or below the time dependent service temperatures for low alloy steel.

b) Impact testing was not required.

c) Not used in lethal service.

d) No environmental or service-related cracking conditions exist, except as provided by NBIC Part 3, 3.3.4.8.

SXX.4 JURISDICTIONAL REQUIREMENTS

Repairs will require notification to the Jurisdiction and where required, Jurisdictional approval prior to performing work.

SXX.5 REPAIR METHODS

a) WELDED LAP PATCH

A welded lap patch is a repair method used to maintain the structural integrity of the pressure retaining item by providing an external boundary over the area exhibiting damage in the form of a "welded lap patch" as described by ASME PCC-2 (i.e. Full Encirclement Steel Reinforcing Sleeves for Piping, Fillet Welded Lap Patches with Reinforcing Plug Welds, or Fillet Welded Lap Patches).

1) Welded lap patches shall be further restricted as follows:

a. A lap patch installed over an existing lap patch is prohibited.

b. The distance between lap patches shall not be less than $2\sqrt{(Rt)}$ where R is the outside radius of the spherical or cylindrical shell in inches (mm), and t is equal to the nominal wall thickness of the spherical or cylindrical shell in inches (mm).

2) Except as required in Part 3, Paragraph SXX.5 a)4)a), ASME PCC-2 shall be used for the design of the welded lap patch and shall be in accordance with the original code of construction, when practicable. Design of a welded lap patch shall consider original design conditions, taking in to account current service conditions and damage mechanisms. Use of this method shall be acceptable to the Inspector and where required, the Jurisdiction and shall be limited to pressure containing equipment owned and operated by an owner or user.

a. Lap patch material should be the same (e.g., composition, physical and mechanical properties) to that of the pressure retaining items' original construction. Lap patch material of a different nominal composition and, equal to or greater in allowable stress from that used in the original design, may be

used provided the material satisfies the requirements of the original code of construction under which the vessel was built.

3) The "R" Certificate Holder responsible for the design of the welded lap patch shall ensure a Fitness for Service Assessment (FFSA) has been performed on the area of the item being patched in accordance with NBIC, Part 2, 4.4.1, supporting the continued service of the item. The welded lap patch repair method shall not remain in place beyond the calculated remaining life of the covered portion of the pressure retaining item.
   a) The remaining life of the pressure retaining item shall be documented on the Form NB-403 in the Remarks section. The Form NB-403 shall be affixed to the Form R-1 and identified in the Remarks section. A National Board Commissioned Inspector holding an "R" endorsement as described in NB-263, RCI-1 shall sign both the Form R-1 and the attached NB-403.
   b) The thinned or leaking area shall be fully covered, as specified in the FFSA, to the distance where the minimum required metal thickness is verified. Wall thickness shall be verified in the area to be welded.
   c) A welded lap patch method shall not be used where cracks are present unless the cracks have been removed and repaired in accordance with NBIC Part 3, 3.3.4.2 a) and the condition that led to the crack formation and propagation has been eliminated.
4) Hazards associated with welding on degraded components should be addressed with the owner or user by the use of engineering controls, administrative controls and personal protective equipment.
   a) When the pressure retaining item will remain in service while implementing a welded lap patch, the requirements and limitations described within ASME PCC-2, Part-1 shall be used in conjunction with ASME PCC-2, Part-2.
   b) API RP-2201, "Safe Hot Tapping Practices in the Petroleum and Petrochemical Industries" may be used as a guideline for identifying hazards associated with welding to a component that is under pressure, including service restrictions.
5) Test or examination methods shall be in accordance with NBIC, Part 3, 4.4.1.

SXX.6 Post Repair Inspection

a) After the completion of weld repairs, post repair inspection requirements shall be established in accordance with NBIC Part 3, 3.3.4.8.

SXX.7 Documentation

a) Documentation and distribution requirements for repair methods identified in this supplement are identified in NBIC Part 3, Section 5.

SXX.8 Registration

a) Organizations performing repairs under an "R" stamp program shall register such repairs with the National Board.

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

PROPOSED REVISION OR ADDITION

Item No. A21-53	
Subject/Title Supplement 8 Weld and Post Repair Inspection of Creep Strength Enhanced Ferritic Steel Pressure Equipment	
NBIC Location NBIC Part 3 Repairs and Alterations Supplement 8 S8.5 a)	
Project Manager and Task Group Philip Gilston	
Source (Name/email) Mark Kincs / mark.r.kincs@xcelenergy.com	
Statement of Need The requirement for Inspector involvement in post-repair inspections to CSEF weld repairs is to ensure future safe operation of the boiler. This is a function of the in service Authorized Inspection Agency, not the Repair Inspector, whose duties end with completion of repair documentation.	
Background Information The post-repair inspection requirements specified in S8.5 are unique. There is no other mention of such inspections elsewhere in NBIC–Part 3. Presumably, Welding Method 6 repairs don't require post-repair inspection due to the perceived low-level of associated risk (inside the boiler setting).	
S8.5 POST REPAIR INSPECTION a) After the completion of weld repairs to CSEF steels, post inspection requirements shall be developed and implemented based on acceptance from the Inspector, and if applicable, the Jurisdiction. b) Post-repair inspection intervals and methods of examination shall be implemented to ensure safe operation and margin to locate and monitor defect growth in the weld repair area. The selected non-destructive examination method shall provide meaningful results and shall follow NBIC Part 3, Section 4. c) Post repair inspection shall be on-going until the component reaches end of life or is replaced. The Owner/User may revise the re-inspection interval based on inspection results from previous inspections.	**S8.5 POST REPAIR INSPECTION** a) After the completion of weld repairs to CSEF steels, post inspection requirements shall be developed and implemented based on acceptance from the ~~Inspector~~inservice Authorized Inspection Agency of the pressure retaining item, and if applicable, the Jurisdiction. b) Post-repair inspection intervals and methods of examination shall be implemented to ensure safe operation and margin to locate and monitor defect growth in the weld repair area. The selected non-destructive examination method shall provide meaningful results and shall follow NBIC Part 3, Section 4. c) Post repair inspection shall be on-going until the component reaches end of life or is replaced. The Owner/User may revise the re-inspection interval based on inspection results from previous inspections.

	VOTE						
Committee	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

Item 22-12: Lost or Destroyed UDS (Part 3, 3.3.5.2 & 3.4.5.1)

Explanation of Need: To provide the ability to repair/alter these vessels with a reconstructed UDS.

Background Information: This addition is based on the comments received at the task group level for Interpretation 21-60.

Proposed Changes:

3.3.5.2 REPAIR PLAN

The user shall prepare, or cause to have prepared, a detailed plan covering the scope of the repair.

a) Engineer Review and Certification

The repair plan shall be reviewed and certified by an engineer meeting the criteria of ASME Section VIII, Division 2 or 3, as applicable, for an engineer signing and certifying a Manufacturer's Design Report. The review and certification shall be such as to ensure the work involved in the repair is compatible with the User's Design Specification and the Manufacturer's Design Report. The certifying requirement may be waived for ASME Section VIII, Division 2, Class 1 vessels that did not require the Manufacturer's Design Report to be certified during initial construction.

If the User's Design Specification (UDS) is lost or destroyed, the ASME nameplate~~,~~ and the applicable ASME Section VIII, Division 2 and 3 ~~forms~~Manufacturer's Data Reports, ~~and~~ Partial Data Reports, and/or the Manufacturer's Design Report shall be used to reconstruct the User's Design Specification ~~such as Form A-1 Manufacture's Data Report, Form A-2 Manufacturer's Partial Data Report for Section VIII, Division 2 vessels or Manufacturer's Data Reports for Section VIII, Division 3~~. The reconstructed UDS shall meet the requirements and be certified in accordance with the latest edition of ~~of~~ ASME Section VIII, Division 2 or Division 3.

~~**Note:** The engineer qualification criteria of the Jurisdiction where the pressure vessel is installed should be verified before selecting the certifying engineer.~~

b) Authorized Inspection Agency Acceptance

Following review and certification, the repair plan shall be submitted for acceptance to the Authorized Inspection Agency/Owner-User Inspection Organization whose Inspector will make the acceptance inspection and sign the Form R-1.

3.4.5.1 ALTERATION PLAN

a) Engineer Review and Certification

The alteration plan shall be reviewed and certified by an engineer meeting the criteria of ASME Section VIII, Division 2 or 3, as applicable, for an engineer signing and certifying a Manufacturer's Design Report. The review and certification shall be such as to ensure the work involved in the alteration is compatible with the User's Design Specification and the Manufacturer's Design Report.

Provided that the alteration does not introduce a condition that would require an engineer to sign the Manufacturer's Design Report for ASME Section VIII, Division 2, Class 1 vessels, the certifying requirement may be waived for vessels that did not require the Manufacturer's Design Report to be certified during initial construction.

If the User's Design Specification (UDS) is lost or destroyed, the ASME nameplate~~,~~ and the applicable ASME Section VIII, Division 2 and 3 ~~forms~~Manufacturer's Data and Partial Data Reports shall be used to reconstruct the User's Design Specification~~ such as Form A-1 Manufacture's Data Report, Form A-2 Manufacturer's Partial Data Report for Section VIII, Division 2 vessels or Manufacturer's Data Reports for Section VIII, Division 3~~. The reconstructed UDS shall meet the requirements of ASME Section VIII, Division 2 or Division 3.

Note: The engineer qualification criteria of the jurisdiction where the pressure vessel is installed should be verified before selecting the certifying engineer.

PROPOSED REVISION OR ADDITION

Item No.

A 22-18

Subject/Title

Definition of blowdown and blowoff

NBIC Location

Part: Installation & Pressure Relief Devices; Section: Section 9 & 9; Paragraph: 1 & 1

Project Manager and Task Group

Kathy Moore, Subcommittee Repairs/Alterations

Source (Name/Email)

Kathy Moore / kathymoore@joemoorecompany.com

Statement of Need

These terms are not consistently used throughout the industry. This is to provide guidance to use the correct term when addressing the equipment or the action.

Background Information

Gary Scribner is updating NB-27 which addresses this action and equipment. We want to have consistent terminology used for all NB documents. I will be glad to be the PM and present it to each group.

Existing Text	Proposed Text
	Blowoff - the equipment and piping used when blowing down equipment such as boiler Blowdown - The act of releasing liquid, steam, or air with the purpose of removing solids or impurities from equipment

	VOTE:						
COMMITTEE	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

PROPOSED REVISION OR ADDITION

Item No.

A 22-27

Subject/Title

Post Repair Activity - Boil Out

NBIC Location

Part: Repairs and Alterations; Section: ?; Paragraph: ?

Project Manager and Task Group

Source (Name/Email)

Don Patten / dpatten@baycityboiler.com

Statement of Need

When major repairs are made and the boiler is not properly cleaned of oils, it will cause water level instability and carryover.

Background Information

Part 1 - Installations is adding boil out for new installations.

Existing Text

Proposed Text

Boilers that have had repairs with new materials, tube replacement, re-rolling or other extensive repairs to the pressure parts should be boiled out. Non water-soluble metal lubricants used for rolling tubes, plus the protective coating on the new tubes or parts that are on the water side, should be removed by boiling out before the repaired boiler is put back into service.

	VOTE:						
COMMITTEE	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

PROPOSED REVISION OR ADDITION

Item No.

A 22-29

Subject/Title

Removal of the requirement of AIA audits from the NR program

NBIC Location

Part: Repairs and Alterations & Repairs and Alterations; Section: 1.6.6.2 & 1.6.7.2; Paragraph: s) 6) & s) 6)

Project Manager and Task Group

Source (Name/Email)

Benjamin Schaefer / bschaefer@aep.com

Statement of Need

This requirement cannot be enforced and is not defined by the the NR Certificate Holder and therefore must be removed.

Background Information

The sentence is located in Category 1, 2, and 3 of the NR Program and needs to be removed from all locations.

Existing Text	Proposed Text
6) Audit records shall include as a minimum: a. written procedures; b. checklists; c. reports; d. written replies; and e. completion of corrective actions. Performance of Authorized Inspection Agency audits required by ASME QAI-1 and NB-263, RCI-1 shall be addressed in the Quality Assurance Manual.	6) Audit records shall include as a minimum: a. written procedures; b. checklists; c. reports; d. written replies; and e. completion of corrective actions.

	VOTE:						
COMMITTEE	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

PROPOSED REVISION OR ADDITION

Item No.

A 22-41

Subject/Title

Reference NB-415 in Quality System

NBIC Location

Part: Repairs and Alterations; Section: 1; Paragraph: 1.5

Project Manager and Task Group

Source (Name/Email)

Terrence Hellman / thellman@nationalboard.org

Statement of Need

Requirements in the NB-415 should be included in the R Cert. Holder's QC Manual. Examples : a) Notifying the National Board when an organization changes scope, ownership, name, location, address, or Inspection Agreement and b) Return of the stamp.

Background Information

Requirements in the NB-415 should be included in the R Cert. Holder's QC Manual. Examples : a) Notifying the National Board when an organization changes scope, ownership, name, location, address, or Inspection Agreement and b) Return of the stamp.

Existing Text

Proposed Text

A holder of a National Board Certificate of Authorization shall have and maintain a written Quality System. The System shall satisfactorily meet the requirements of the NBIC and the NB-415, and shall be available for review. The Quality System may be brief or voluminous, depending on the projected scope of work. It shall be treated confidentially by the National Board.

	VOTE:						
COMMITTEE	Approved	Disapproved	Abstained	Not Voting	Passed	Failed	Date

b) Organizations performing repairs outside the scope of the NBIC may be accredited and shall meet any additional requirements of the Jurisdiction where the work is performed.

1.4.1 ACCREDITATION PROCESS

a) The National Board administers accreditation programs for authorization of organizations performing repairs and alterations to pressure-retaining items in accordance with NB-415, *Accreditation of "R" Repair Organizations*.

b) Any organization may apply to the National Board to obtain a *Certificate of Authorization* for the requested scope of activities. A review shall be conducted to evaluate the organization's quality system. The individual assigned to conduct the evaluation shall meet the qualification requirements prescribed by the National Board. Upon completion of the evaluation, any deficiencies within the organization's quality system will be documented and a recommendation will be made to the National Board regarding issuance of a *Certificate of Authorization*.

c) As part of the accreditation process, an applicant's quality system is subject to a review. National Board procedures provide for the confidential review resulting in recommendations to issue or not issue a *Certificate of Authorization*.

d) The accreditation programs provide requirements for organizations performing repairs and alterations to pressure-retaining items.

e) The organization may perform repairs or alterations in its plants, shops, or in the field, provided such operations are described in the organization's Quality System.

f) The Jurisdiction, as defined in Part 3, Section 9, may audit the Quality System and activities of an organization upon a valid request from an owner, user, inspection agency, or the National Board.

g) The NBIC Committee may at any time change the rules for the issuance of Certificates of Authorization and use of the "R" Symbol Stamp. These rules shall become binding on all certificate holders.

1.4.2 NATIONAL BOARD "R" SYMBOL STAMP

a) The "R" Symbol Stamp is furnished on loan by the National Board for a nominal fee.

b) Provisions may be made for the issuance of the "R" Symbol Stamp for use at various field locations.

c) Additional requirements shall be met in accordance with NB-415, *Accreditation of "R" Repair Organizations*.

1.5 QUALITY SYSTEM

A holder of a National Board *Certificate of Authorization* shall have and maintain a written Quality System. The System shall satisfactorily meet the requirements of the NBIC and the NB-415, and shall be available for review. The Quality System may be brief or voluminous, depending on the projected scope of work. It shall be treated confidentially by the National Board.

1.5.1 OUTLINE OF REQUIREMENTS FOR A QUALITY SYSTEM FOR QUALIFICATION FOR THE NATIONAL BOARD "R" *CERTIFICATE OF AUTHORIZATION*

The following is a guide for required features of a Quality System which shall be included in the organization's Quality System Manual. As a minimum, each organization shall address the required features relative to the scope of work to be performed. Organizations shall explain their intent, capability and applicability for each required feature outlined in this section. Work may be subcontracted provided controls are clearly

4.1.2 The application for the National Board *Certificate of Authorization* is submitted within 12 months of the issuance of the ASME BPV Code *Certificate of Authorization*. Subsequent National Board *Certificates of Authorization* shall be renewed as described in Paragraphs 2.0 and 3.0 above.

5.0 Jurisdictional Audit

5.1 The Jurisdiction may audit the written Quality System and activities of an organization upon a valid request from an Owner-User, Authorized Inspection Agency, or the National Board.

5.2 The National Board may audit the written Quality System and activities of a Federal Agency upon a valid request from a Federal Agency.

6.0 Use of the "R" *Certificate of Authorization*

6.1 Stamp Use

Each "R" symbol stamp shall be obtained from the National Board and shall be used only by the repair organization within the scope and limitations, under which it was issued. The organization's written Quality System shall provide for constant control of the "R" Symbol Stamp. The organization shall not permit others to use the "R" symbol stamp assigned to them.

6.2 Return of Stamp

Each applicant shall agree that the stamp is the property of the National Board and will be promptly returned upon demand. The "R" Symbol Stamp shall be returned to the National Board if the organization discontinues the use of the "R" Symbol Stamp or if there exists no inspection agreement with an Authorized Inspection Agency or if the *Certificate of Authorization* has expired and a new certificate has not been issued.

6.3 *Certificate of Authorization* Contents

The name and address of the repair organization, the scope of the certificate (repairs, alterations, shop only, field only, shop and field, metallic or non-metallic, and design only), the certificate number, and the issuance date and expiration date shall be specified on the repair organization's *Certificate of Authorization*.

* 6.4 Changes in Scope, Ownership, Name, Location, Address, or Inspection Agreement with an Authorized Inspection Agency

The National Board must be notified when an organization holding a *Certificate of Authorization* changes scope, ownership, name, location, address, or Inspection Agreement with an Authorized Inspection Agency. The National Board will provide appropriate forms to revise the *Certificate of Authorization*. At the option of the National Board, a re-review of the organization's written Quality System and/or its implementation may be required.

6.5 Issuance of Multiple "R" Symbol Stamps

The holder of a *Certificate of Authorization* may obtain more than one "R" symbol stamp provided its written Quality System manual controls the use of such stamps from the address of record shown on the *Certificate of Authorization*.

7.0 Written Quality System

A holder of a *Certificate of Authorization* shall have and maintain a written Quality System. It shall be treated confidentially by the National Board and by the Review Team. An outline of the requirements for a written Quality System can be found in NBIC, Part 3.

8.0 Due Process

The National Board provides procedural due process in connection with accreditation activities. There are several levels to which an aggrieved party may appeal. The process may be initiated by contacting the National Board's Executive Director.