Date Distributed: June 18, 2014

THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

SUBCOMMITTEE REPAIRS and ALTERATIONS

AGENDA

Meeting of July 16, 2014
Columbus, Ohio

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

1. **Call to Order – 8:00 a.m.**

2. **Announcements**

   The Executive committee will be discussing the consolidation of the Subgroups Repairs and Alterations General and Specific. If this decision is made a new Chair and Vice Chair will need to be nominated for vote at the NBIC Committee meeting. Nominations should be discussed at this time.

3. **Adoption of the Agenda**

4. **Approval of Minutes of January 16, 2014**

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

   Mr. Rick Valdez is eligible for reappointment to the SGs R/A General and Specific. A vote will be taken.

   Mr. Ron Pulliam is eligible for reappointment to SG R/A General. A vote will be taken.

   Dr. Neel Sirosh would like to become a member of the SC on FRP. Please view his attached resume. A vote will be taken.

   Mr. Aaron Viet is eligible for reappointment to the SG on Graphite. A vote will be taken.

   Mr. Rob Troutt would like to become a member of the Subgroups Repairs and Alterations General and Specific. Please view his attached resume. A vote will be taken.

   Mr. Edward Ortman has lost his corporate support and has submitted his resignation.

6. **Interpretations (Attachment 2)**

   IN14-0301 – *Part 3, 3.3.2 d) 1), SC on Repairs and Alterations* - **Question**: Is a standard threaded fitting (such as depicted in ASME Section VIII Figure UW-16.2 sketch L) which is welded through a vessel shell considered to be a nozzle as stated in Section 3.3.2 d) 1)? **Reply**: No (Attachment 2, pp. 6-12)

   January 2014
   Mr. Pillow reported that a task group of Mr. Marty Toth (PM) and Mr. Brian Morelock has been assigned to address this inquiry.

   July 2014
   Mr. Galanes is expected to report.

   IN14-0401 Part 3, 1.2 SC on R and A - Question 1: The NBIC Part 3 paragraph 1.2 states that a repair shall be carried out "insofar as possible to the section and edition of the ASME code most applicable to the work planned." If a vessel is constructed using SA-517-E (P-11B) material to ASME Section VIII Div. 1, where production and weld procedure impact tests were required during construction, would a repair to a crack in the shell require production and weld procedure impact testing under the NBIC? Proposed Reply 1: Yes (Attachment 2, pp. 13-14)

   Question 2: If the answer to Question 1 is yes and there was no SA-517-E material from the original lot available, would the repair require the addition of new base material (e.g. a flush patch around the area of the crack) so that production impact tests could be performed with the original base metal to the new base metal? Proposed Reply 1: Yes.

Question 3: If the vessel described in Question 1 was to be altered by adding an SA-675 (P-1) pump flange to the shell, would production and weld procedure impact tests be required using the same lot P-1 and P-11B base materials as used in the alteration? Proposed Reply 1:Yes.

January 2014
A task group of Walt Sperko, Bob Wielgoszinski (PM), and George Galanes will work on this inquiry.

July 2014
Mr. Wielgoszinski is expected to report.

IN14-0701 Part 3 PWHT SC on R and A - Subject: NBIC 2010, part 3, Post Weld Heat Treatment of a Vessel. Q1. Must a company that performs post weld heat treatment be required to hold an "R" certification? ANS: YES
Q2. Is this post weld heat treatment now considered an "Alteration" to this vessel, as per NBIC part 3? ANS: YES
Q3. Shall this "Alteration" be documented on a NBIC R-2 form? ANS: YES (Attachment 2, pp. 15-16)

July 2014
Mr. Galanes is expected to report.

7. Action Items (Attachment 3)

NB11-1001 - *Part 3, 3.3.4.9 SG R/A Specific*- Tube plugging for fire tube boilers.
(Attachment 3, p. 17)

January 2011
Mr. James Pillow presented a progress report. The committee is in agreement that guidelines are needed in the code. More work regarding proposed guidelines will be done for the next meeting.

July 2011
A progress report was provided by George Galanes based on the SG meeting notes. It was recommended to continue working this item from the perspective of providing guidance to control installation versus design guidance.

January 2012
A progress report was provided by J. Pillow and a task group consisting of J. Pillow (Chair), Angelo Bramucci, W. Jones and R. Miletti was formed.

July 2012
A progress report was provided by Mr. Jim Pillow.

January 2013
A progress report was presented to the SC by A. Bramucci. His report described the struggle of the TG to define what requirements are necessary to control tube plugging. Currently some fire tube boiler manufacturers do not endorse tube plugging.

July 2013
This item was discussed at length with several suggested changes to wording. Mr. Bramucci made a motion to accept the revised language in the attached proposal. The motion was unanimously approved. At the Main Committee meeting it was unanimously approved to send this item out for letter ballot for comment only.

January 2014
Mr. Bramucci presented a progress report. Further action will be required and presented to the committee in July, 2014.

July 2014
Mr. Bramucci is expected to report.

NB12-0801 ***Part 3, SG R/A Specific*** Repair and Alteration of Gasketed PHE's in the field.(Attachment 3, pp. 18-27)

January 2012
A progress report was provided by J. Pillow and a task group consisting of E. Ortman (Chair), J. Pillow G. Galanes and B. Wielgoszinski was assigned.

July 2012
A progress report was provided by Mr. Jim Pillow.

January 2013
A progress report was given by E. Ortman Manager. The Task Group will continue to gather information for the next meeting.

July 2013
Mr. Ortman gave a progress report on this item. Further information will be obtained from users of PHE's to determine what constitutes a repair or alteration, as examples.

January 2014
Mr. Ortman gave a progress report. He is monitoring the possible ASME code revisions that could affect the gasketed PHE's information placed into the NBIC. Once the information is confirmed he will have a letter ballot sent. This is hoped to be prior to the July 2014 meeting.

July 2014
Mr. Cauthon is expected to report.

NB13-1401 ***Part 3, S.9.2, SG LB*** Add wording in this section regarding boiler tube welding. (No attachment)

July 2014
Mr. Reetz is expected to report.

NB13-0403 ***Part 3, S1.9.2 SG LB*** Installation of Boiler and Arch Tubes. (No attachment)

July 2014
Mr. Reetz is expected to report.

NB13-1404-A ***Part 3 S1, SG LB*** Fillet welded staybolts. (No attachment)

July 2014
Mr. Reetz is expected to report.

NB13-1405 ***Part 3, S1.2.9 SG LB*** Throttle pipes, dry pipes, superheater headers and front end steam pipes. (No attachment)

July 2014
Mr. Reetz is expected to report.

NB13-1406 ***Part 3, S1, SG LB*** Superheater units. (No attachment)

July 2014
Mr. Reetz is expected to report.

NB13-1407 ***Part 3, S1 SG LB*** Bolts, nuts and studs. (No attachment)

July 2014
Mr. Reetz is expected to report.

NB13-1408 ***Part 3, S1 SG LB*****-** Threaded boiler studs-Taper thread and straight thread types. (No attachment)

July 2014
Mr. Reetz is expected to report.

NB14-0203 - ***Part 3, 1.8, SG R/A General*** - Review this section for NR Accreditation requirements. The administrative requirements have been removed and we should have a TG review if we want to remove any of the existing requirements in the NBIC Part 3 before we publish the 2015 Edition. (No attachment)

January 2014
A TG of Randy Cauthon (PM), Rob Trout and Nathan Carter has been assigned.

July 2014
Mr. Galanes is expected to report.

NB14-0205 - ***Part 3, 2.5.3.2 f), 2.5.3.3 f), 2.5. SG on R/A Spec.-*** Revise NBIC Part 3, 2.5.3.2 f), 2.5.3.3 f), 2.5.3.4 f) and 2.5.3.5 d) located in Alternative Welding Methods. (Attachment 3, pp. 28-29)

July 2014
Mr. Galanes is expected to report.

NB14-0301 ***Part 3, 3.3.3 and 3.4.2 SG R/ A Specific*****-** This item is a result of IN13-0501. Write rules for encapsulation. (Attachment 3, pp.30-32)

July 2013
A task group of Brian Boseo (PM), Bob Wielgoszinski, Bryan Schulte and George Galanes was assigned.

January 2014
A progress report was given. The task group is looking at developer's wording for encapsulation. There is a plan to letter ballot the SG for comment only.

July 2014
Mr. Boseo is expected to report.

NB14-0302 - ***Part 3, S6.15 SG on R/A Spec. –*** Development of TR Forms. (No attachment)

January 2014
Mr. Staniszewski gave a progress report.

July 2014
Mr. Staniszewski is expected to report.

NB14-0701 ***Part 3, 3.2.2 c) SG on R/A Gen.*** This action item is a result of IN13-0301. The rationalization is to support an intent interpretation that addresses an R-Certificate holder's capability to fabricate ASME pressure parts to be used ina repair or alteration being performed by the same R-Certificate holder who is fabricating the ASME pressure part. The current words in NBIC Part 3 do not support this. (Attachment 3, pp. 33-35

July 2013
A letter ballot was approved to be sent to the NBIC Main Committee for comment only.

January 2014
Mr. Wielgoszinski presented a report. Through much discussion Mr. Wielgoszinski will present a report to the sub-committee after incorporation of discussion comments on January 15, 2014.

July 2014
Mr. Wielgoszinski is expected to report.

NB14-1904 - *Part 3, Figure 3.3.4.4-a SG on R/A Gen.* - Typical examples of seal welding tubes. This figure does not provide the precautions for examining for cracking as in 3.3.4.4-b seal welding of riveted joints. (Attachment 3, p. 36)

July 2014
Mr. Galanes is expected to report.

NB14-2301 – *Part 3, SG on R/A General* - Define the meaning of the word seal weld.(Attachment 3, pp. 37)

July 2014
Mr. Galanes is expected to report.

9. New Business

- **Web-Ex Training**
- **Editorial Changes**

10. Future Meetings

January 19-23, 2015, Orlando, Florida
July 21-24, 2015, Columbus, Ohio

11. Adjournment

Respectfully Submitted,

Bill Vallance, Secretary
:rh

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SC on Repairs and Alteration

Member	Title	ExpirDate	Interest Category
Boseo, Brian		8/31/2015	NB Certificate Holders
Edwards, Paul D.		8/31/2015	NB Certificate Holders
Galanes, PE, George W.	Chairman	8/31/2015	Users
Hopkins, Craig		9/18/2016	NB Certificate Holders
Jones, Wayne		1/31/2015	Auth Inpection Agencies
Larson, James P.		8/31/2015	Auth Inpection Agencies
McManamon, Larry		1/31/2015	Labor
Miletti, Ray		9/18/2016	Manufacturer
Morelock, Brian		1/31/2017	Users
Ortman, Edward		9/18/2016	Manufacturer
Pillow, James T.	Vice Chair	9/18/2016	General Interest
Schulte, Bryan		8/31/2015	Users
Sekely, James		8/31/2015	General Interest
Vallance, William	Secretary	1/31/2017	General Interest
Webb, Michael		8/31/2015	Users
Total Members:	**14**		

Dr. Neel Sirosh serves as the Vice President and General Manager (Gas Storage) at LightSail Energy, a Berkeley, CA based energy storage startup with funding from Khosla Ventures, Peter Thiel, Bill Gates, Total Energy Ventures etc. LightSail is developing a breakthrough compressed air grid-scale energy storage technology. Prior to LightSail, he served as the CTO at Quantum Technologies, a global leader in ultra-lightweight CNG and Hydrogen storage systems. He has 23 years of experience in the alternative energy industry, developing world's lightest hydrogen and natural gas storage systems and leading various renewable energy initiatives. He served as a member of the Advisory Council for Alternative Energy at CSA International, and as a member of a number of US, Canadian and International committees to develop standards related to alternative energy. Dr. Sirosh holds several US and international patents related to energy storage and alternative energy systems. He has made in excess of 40 presentations/papers in international conferences and journals and co-authored three books on energy. He holds a Ph.D. in Engineering from the Schulich School of Engineering, University of Calgary, Canada, MBA from the Paul Merage School of Management, University of California, and BE (Honors) from the University of Madras, India.

Robby D. Troutt
417 Chisholm Valley Drive
Round Rock, TX 78681
Phone: (512) 789-3166
Email: robtroutt@gmail.com

Certifications

- ASME Designee Certificate #1143
- National Board Team Leader Certificate #292
- National Board Commission # 13078 with A, B, and N Endorsements.
- ASME/In Service Texas Commission # 1787

Education

- 2008 National Board Review Team Leader Training Course
- 2008 National Board N Endorsement Course
- 2008 National Board B Endorsement Course
- 2006 National Board A Endorsement Course
- 2006 HSBCT National Board Pre-Commission Course
- 2000 Oklahoma State University, Oklahoma City, OK
    - Boiler Construction Systems, Operations and Maintenance Course
- 1993 Moore Norman Vo-Tech, Norman, Oklahoma
    - Heating Ventilation & Air Conditioning

Employment

Texas Department of Licensing and Regulations (TDLR)
Chief Boiler Inspector **Jan., 2008 – Current**

Responsibilities: Position performs complex managerial work overseeing the daily operations and activities of the state Boiler Program and staff. Work involves complex consultative and technical work in the planning, development and implementation of the oiler Program to facilitate the registration of boilers, their timely inspection, proper installation, maintenance, and operational safety. Duties include overseeing the inspection/certification activities to ensure boiler are properly installed, maintained, and safe to operate, monitoring performance/activities of boiler inspectors; performing reviews/inspections/investigations to ensure compliance with standards established by the National Board Inspection Code (NBIC) and American Society of Mechanical Engineers (ASME); reviewing request for variances/extensions and making recommendation; analyzing plans and inspection reports, rendering interpretations/opinions on code; preparing and disseminating administrative and technical materials; working with Department staff to establish and accomplish agency objectives; and providing consultative and technical services to agency staff, industry representatives, the Board of Boiler Rules, and the general public on all aspects of the Boiler Program and related industry matters. Plans, assigns and supervises the work of others.

Texas Department of Licensing and Regulations (TDLR)
Inspection Specialist **June, 2008 – Jan., 2013**

Responsibilities: Position as an Inspection Specialist includes serving as the Team Leader on behalf of the American Society of Mechanical Engineers (ASME) and National Board of Boiler and Pressure Vessel Inspectors in the Joint Review process. In this role I audit the applicants Quality Control System insuring ASME and National Board Inspection Code (NBIC) compliance. During this process both mandatory and non-mandatory recommendations are made to the applicant. As a result of these duties I have extensive knowledge of the ASME and NBIC requirements for Quality Control Systems and the ability to ensure proper

implementation. Other duties included as an Inspection Specialist are Supervising (7) Deputy Boiler Inspectors and assisting in resolving any issues that may arise. Serving as point of contact for boiler Owner/Operators and providing technical guidance to aid in resolving issues ensuring compliance with the Texas Boiler Law and Rules. Conducting training for Deputy Boiler Inspectors and Authorized Inspection Agencies Inspectors, and conducting boiler accident investigations. In addition to these duties a colleague and I performed the duties of the Chief Boiler Inspector while the position was vacant.

Hartford Steam Boiler Inspection & Insurance Company of Connecticut (HSBCT) J
Authorized Inspector **January, 2006 – June, 2008**
Responsibilities: As a Authorized Inspector I primarily conducted ASME Code Inspection for Boilers and Pressure Vessels being constructed to ASME Section I, Section VIII Division 1, Section VIII Division 2, Section VIII Division 3 and B31.1, and repairs and alterations in accordance with the National Board Inspection Code for the 30 clients assigned. I also coducted audits of my assigned clients Quality Control System insurning Code compliance, and the clients compliance with their System. From August 2007 to December 2007 I traveled to China where I conducted ASME Code inspections, audited Quality Control Systems, and assisted in traning of the newly hired Chinese Authorized Inspectors. When required I also conducted juridictional boiler inspections, and internal and external inspections of boiler and pressure vessels owned and operated by the federal government. These inspection were conducted in Texas, Oklahoma, Kanas, Colorado, New Mexico, California.

CSP, LLC (formerly DynPar)
Boiler Plant Operations Supervisor, Tinker AFB **2000 – 2006**
Responsibilities: Supervising up to 54 operators including scheduling, writing performance appraisals (along with comendations and reprimands) and the day to day management of employees was a skill I developed and improved upon. During the course of employment I conducted ISO-9000 internal audits and ensured (22) boilers were ready for semi-annual inspections. Plant operational problems were assessed and solutions recommended. Responsibility for the 1.5 million dollar budget used for ordering boiler chemicals was left in my hands. Other duties include ordering parts used for performing repairs to boilers, chillers, and air compressors to ensure their safe operation. Daily and monthly logs were compiled and reports created as needed. Some of these reports included plant efficiency, boiler efficiency, makeup water usage, and chemical usage trends, along with tracking all expenses.

Oklahoma University Health Sciences Center
HVAC Technician **1998 - 2000**
Responsibilities: Job duties included operation, inspection, and repairs of Boilers, Absorption Units, and Chillers.

Oklahoma Department of Corrections (Mabell Bassett Correction Facility)
Maintenance Trades Supervisor **1996 - 1998**
Responsibilities: Duties included supervising and teaching female inmates proper techniques in repair, and maintaining HVAC equipment, plumbing, and elctrical componets.

A & L Heat and Air
HVAC Technician **1991 - 1996**
Responsibilities: Duties include repairing and installing HVAC equipment.

U.S. Army
Special Electrical Devices Repairman/Power Generation Repairman 1988 – 1991
Responsibilities: Duties include diognostic troubleshooting and repairing of electronic components such as Land Mine Dectors, Positioning Asthmath Determining Systems (1st Generation GPS), Searchlights (standard and Infrared), Nightvision Goggles (moonlight aplified, infrared and thermal) and 5KW to 60KW generators.

ATTACHMENT 2

PROPOSED INTERPRETATION

Inquiry No.	IN14-0301				
Source	James Dorwin				
Subject	Part 3, 3.3.2 d) l)				
Edition	2011 Edition				
Question	Is a standard threaded fitting(such as depicted in ASME Section VIII Figure UW-16.2 sketch L) which is welded through a vessel shell considered to be a nozzle as stated in Section 3.3.2 d) 1)?				
Reply	No				
Committee's Question					
Committee's Reply					
Rationale					
SC Vote	Unanimous	No. Affirmative	No. Negative	No. Abstain	No. Not Voting
NBIC Vote	Unanimous	No. Affirmative	No. Negative	No. Abstain	No. Not Voting
Negative Vote Comments					

ENERGY NORTHWEST

James E. Dorwin
Code Programs Engineer
P.O. Box 968, Mail Drop PE27
Richland, WA 99352-0968
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jedorwin@energy-northwest.com

November 19, 2013

Secretary, NBIC Committee
The National Board of Boiler and Pressure Vessel Inspectors
1055 Crupper Avenue
Columbus, OH 43229

Dear Sir or Ma'am:

Please consider my ***Code Interpretation*** inquiry question below at your earliest availability. I have included a background paper (Enclosure 1) and a copy of the vessel's ASME Section VIII Code Data Report (Enclosure 2) with this letter. Thank you for your support and consideration.

Subject: NBIC, 2011 Edition with no Addenda
Routine Repairs: Part 3, Section 3.3.2 d) 1)

Question: Is a standard threaded fitting (such as depicted in ASME Section VIII Figure UW-16.2 Sketch L) which is welded through a vessel shell considered to be a "nozzle" as stated in Section 3.3.2 d) 1)?

Reply: No.

Sincerely,

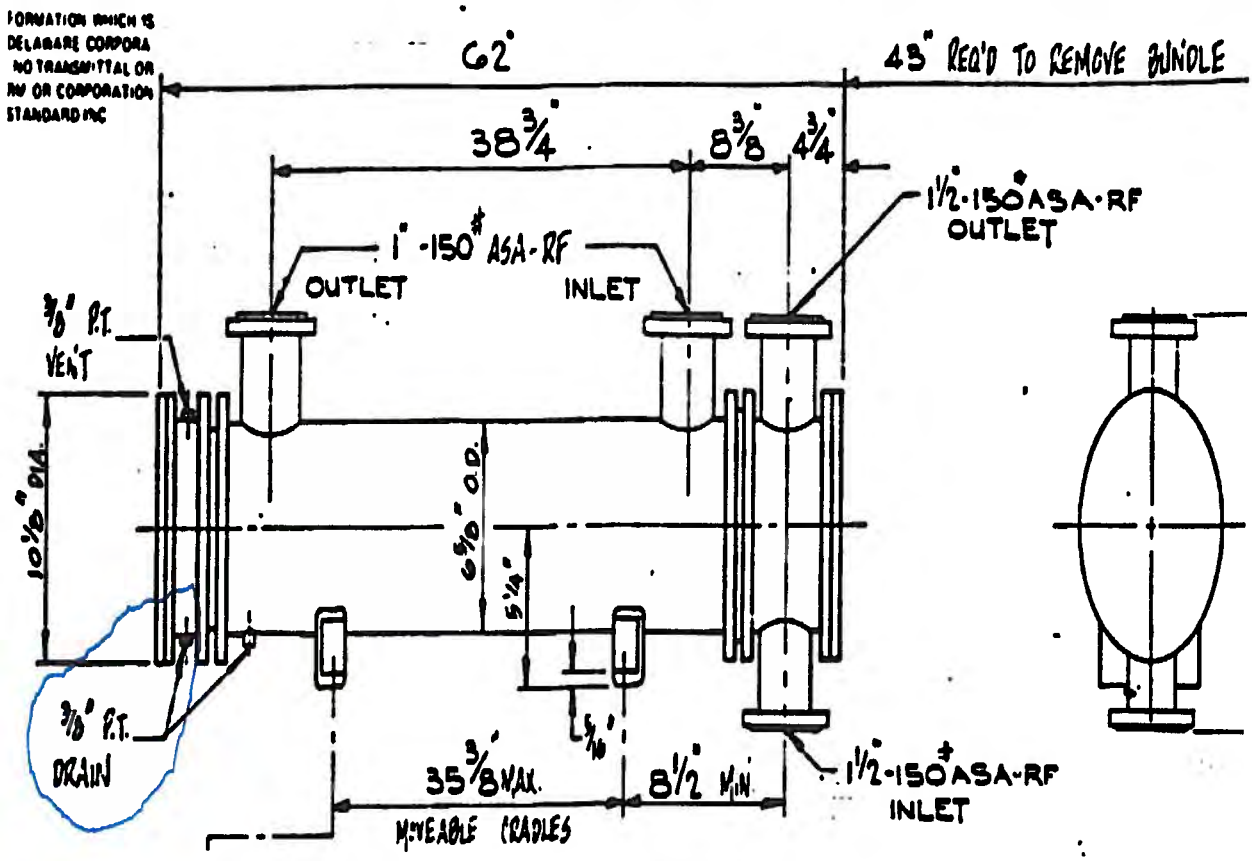
James E. Dorwin

Enclosures (2)

ENERGY NORTHWEST

James E. Dorwin
Code Programs Engineer
P.O. Box 968, Mail Drop PE27
Richland, WA 99352-0968
Ph. 509.377-8551 F. 509.377-4135
jedorwin@energy-northwest.com

Background:



ASME Section VIII Heat Exchanger Vessel (1971 Edition with Summer 1973 Addenda)

3/8" threaded fitting (drain) welded through the shell of the vessel (single fillet weld from the exterior of the vessel shell). ** Note that the 3/8" fittings are not listed on the U-1 Code Data Report under "Nozzles." Only the two 1-1/2" and two 1" nozzles are listed. (see Enclosure 2)

The single fillet weld developed a pinhole leak due to corrosion. The pinhole area was excavated (via mechanical grinding) and then re-welded.

TSW-HX-6B [illegible] 5-046-06-048-007
[illegible] J.M. Alloy

FORM U-1 MANUFACTURERS' DATA REPORT FOR UNFIRED PRESSURE VESSELS

As required by the Provisions of the ASME Code Rules   SECTION VIII DIVISION I

1. Manufactured by American Standard Heat Transfer Products Department, Buffalo, N. Y. P.O. BOX 1102, 142[illegible]
(Name and address of manufacturer)

2. Manufactured for Ingersoll-Rand Co. Phillipsburg, N. Jersey
(Name and address of Purchaser)

3. Type HORIZ. (Horiz. or Vert.) Kind HEAT EXCH (Tank, Jacketed, Heat Exch.) Vessel No. (5-1267404-4) (Mfrs Serial) (State & State No.) Natl. Bd. No. 25964 Yr. Built 1974

Items 4-9 incl. to be completed for single wall vessels (such as air tanks), jackets of jacketed vessels, or shells of heat exchangers.

4. SHELL: Material SMLS STL. SA53-B (Kind and Spec. No.) T.S. 60,000 (Fig. or F.B. & Spec. Min. T.S.) Nominal Thickness .280 In. Corrosion Allowance 1/16 In. Diam. — Ft. 6 5/8 In. Length 3 Ft. 4 3/8

5. SEAMS: Long. NONE (Welded, Dbl., Single, Lap, Butt) H.T. NO (Yes or No) X.R. NONE (Spot or Complete) Sectioned NO (Yes or No) Efficiency 100 %   If riveted describe seams fully on reverse side of form

Girth — H.T. — X.R. — Sectioned — No. of Courses 1

6. HEADS: (a) Material ______ T.S. ______ (b) Material ______ T.S. ______

Location (Top, bottom, ends)	Thickness	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)								
(b)								

If removable, bolts used ______ (Material, Spec. No., T.S., Size, Number) Other fastening ______ (Describe or Attach Sketch)

7. STAYBOLTS: ______ (Material) If hollow ______ (Size of Hole) Attachment ______ (Threaded, Welded) Pitch ______ (Horiz.) x ______ (Vert.) Diam. ______ (Nominal)

8. JACKET CLOSURE ______ (Describe as ogee & weld, bar, etc. If bar give dimensions, if bolted, describe or sketch)

9. Constructed for max. allowable working press. 150 psi. at max. temp. 300 °F. Min. temp. (when less than −20°) — °F. Hydrostatic ~~Pneumatic~~ ~~Combination~~ Test Press. 225 psi.

Items 10 and 11 to be completed for tube sections.

10. TUBE SHEETS: Stationary. Material MUNTZ SB171 (Kind & Spec. No.) Diam 7 7/8 In. (Subject to Pressure) Thickness 1/2 In. Attachment BOLTED (Welded, Bolted)

Floating. Material MUNTZ SB171 (Kind & Spec. No.) Diam 5 7/8 In. Thickness 1 1/2 In. Attachment PACKED

11. TUBES: Material ADM. LO-FIN SB359 (Kind & Spec. No.) O.D. 5/8 In. Thickness .049 WALL Inches or Gage Number 96 Type STRAIGHT (Straight or U)

Items 12-15 incl. to be completed for inner chambers of jacketed vessels, or channels of heat exchangers.

12. CHANNEL [redacted] Material SMLS. STL. SA53-B (Kind and Spec. No.) T.S. 60,000 (Fig. or F.B. & Spec. Min. T.S.) Nominal Thickness .280 In. Corrosion Allowance 1/16 In. Diam. — Ft. 6 5/8 In. Length — Ft. 8 In.

13. SEAMS: Long. NONE (Welded, Dbl., Single, Lap, Butt) H.T. NO (Yes or No) X.R. NONE (Spot or Complete) Sectioned NO (Yes or No) Efficiency 100 %   If riveted describe seams fully on reverse side of form

Girth — H.T. — X.R. — Sectioned — No. of courses 2

14. HEADS: (a) Material F.Q. STL. T.S. 55,000 (b) Material ______ T.S. ______ (c) Material ______ T.S. ______

Location	Thickness	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a) [redacted] ends	3/4"	—	—	—	—	—	10 1/8"	FLAT
(b) Channel								
(c) Floating								

If removable, bolts used (a) ALLOY STL. SA193-B7 125,000 5/8", 8 (Material, Spec. No., T.S., Size, Number) (b) ______
(c) ______ Other fastening ______ (Describe or Attach Sketch)

15. Constructed for max. allowable working press. 150 psi. at max. temp. 300 °F. Min. temp. (when less than −20°) — °F. Hydrostatic ~~Pneumatic~~ ~~Combination~~ Test Press. 225 psi.

Items below to be completed for all vessels where applicable.

16. SAFETY VALVE OUTLETS: Number ______ Size ______ Location IN PIPING

* * → 17. NOZZLES:

Purpose (Inlet, Outlet, Drain)	Number	Diam or Size	Type	Material	Thickness	Reinforcement Material	How Attached
SHELL IN & OUT	2	1"-150#ASA-RF	PIPE & FLG.	STL.	.133	—	WELDED
TUBES IN & OUT	2	1 1/2"-150#ASA-RF	PIPE & FLG.	STL.	.145	—	WELDED

18. INSPECTION OPENINGS: Manholes, No. ______ Size ______ Location ______
Handholes, No. ______ Size ______ Location ______
Threaded, No. ______ Size ______ Location ______

19. SUPPORTS: Skirt NO (Yes or No) Lugs NONE (Number) Legs NONE (Number) Other CRADLES (Describe) Attached REMOVABLE UNDER SHELL (Where & How)

20. REMARKS: OIL COOLER
(Brief description of purpose of the vessel, as Air Tank, After Cooler, Jacketed Cooker, etc. State contents of each part.)
[illegible] If postweld heat-treated: [illegible]   (Over)

Enclosure 2 (page 1 of 2)

J. MALLOY

TSW-HX 6F

Duduit 5/12/03

FORM U-1 (back)

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME Code for Unfired Pressure Vessels.

Date 4/2 19 74 Signed American Standard Heat Transfer Prod. Dept. (Manufacturer) By R. L. Warner

Certificate of Authorization Expires DECEMBER 31 19 74

TYPE (HORIZONTAL [redacted]) KIND ([redacted] HEAT EXCH.) VESSEL NO. 5-12674-1-4 MFRS. SERIAL

CERTIFICATE OF SHOP INSPECTION

VESSEL MADE BY American Standard Heat Transfer Prod. Dept. at Buffalo, N. Y.

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State of NATIONAL BOARD and employed by LUMBERMENS MUTUAL CASUALTY COMPANY of CHICAGO, ILLINOIS have inspected the pressure vessel described in this manufacturer's data report on April 2 19 74, and state that to the best of my knowledge and belief, the manufacturer has constructed this pressure vessel in accordance with the applicable sections of the ASME Boiler and Pressure Vessel Code.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this manufacturer's data report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date April 2 19 74. PA 2237 NB 7493

O R DeBaker Commissions
Inspector's Signature Nat'l Board or State and No.

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State of _____ and employed by _____ of _____ have compared the statements in this manufacturer's data report with the described pressure vessel and state that parts referred to as data items _____, not included in the certificate of shop inspection have been inspected by me and that to the best of my knowledge and belief the manufacturer has constructed and assembled this pressure vessel in accordance with the applicable sections of the ASME Boiler and Pressure Vessel Code. The described vessel was inspected and subjected to a hydrostatic test of _____ psi.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this manufacturer's data report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date _____ 19 ____

_____ Commissions _____
Inspector's Signature Nat'l Board or State and No.

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Enclosure 2 (page 2 of 2)

PROPOSED INTERPRETATION

Inquiry No.	IN14-0301				
Source	James Dorwin				
Subject	Part 3, 3.3.2 d) l)				
Edition	2011 Edition				
Question	Is a standard threaded fitting(such as depicted in ASME Section VIII Figure UW-16.2 sketch L) which is welded through a vessel shell considered to be a nozzle as stated in Section 3.3.2 d) 1)?				
Reply	No				
Committee's Question	Is a standard threaded fitting, which is welded through an ASME Section VIII, Div vessel shell considered a nozzle?				
Committee's Reply	Yes				
Rationale	See below & next page for rationale				
SC Vote	Unanimous	No. Affirmative	No. Negative	No. Abstain	No. Not Voting
NBIC Vote	Unanimous	No. Affirmative	No. Negative	No. Abstain	No. Not Voting
Negative Vote Comments					

Section VIII, Div. 1 explains in UW-3 that any weld joint connecting nozzles to main shells, heads, etc. is classified as a Category D weld. In addition, UW-16(a)(1) goes on to state that terms such as nozzles, fittings, etc. essentially define the same type of construction and form a Category D weld joint between the nozzle (or other term) and the shell, head, etc.

- Marty Toth 2/14/2014

1. ASME Section VIII, Division 1, U-1(e) [U-1(c) in the 1971 Edition] defines the scope of the pressure boundary of a vessel to be the following:

- the welding end connection for the first circumferential joint for welded connections,
- the first threaded joint for screwed connections,
- the face of the first flange for bolted, flanged connections, and
- the first sealing surface for proprietary connections or fittings.

2. UG-36 through UG-46 discuss the requirements for openings in a pressure vessel.
3. UG-120 provides requirements for Data Reports and UG-120 (a)(2) specifically discusses the requirement of having the proper number of lines on the Data Report "to provide space to describe each component." Granted, the 1971 Edition does not have the level of detail in UG-120 that the current edition of the Code contains, but that does not negate the requirements in U-1(c) in the 1971 Edition stating where the pressure boundary stopped…at the first threaded connection for these 3/8" fittings.

The omission of the 3/8" fitting from the 1974 Form U-1 could have occurred for several reasons (i.e. human error, manufacturer and AI didn't catch the 3/8" drains not isted, post construction repair or alteration of the pressure vessel that was not documented, etc.).

- Brian Morelock 2/17/2014

Table W-3 No. 41 states: list all openings, regardless of size and use.

- Rick Valdez 2/17/2014

Request for Interpretation

Robert V. Wielgoszinski
Hartford Steam Boiler of CT

Item	IN 14-0401
Purpose	Code Interpretation & possible revision to present Code rules
Scope:	Repairs and alterations to vessels constructed of ferritic materials with tensile properties enhanced by heat treatment, i.e. Part UHT material.
Background	During the construction of liquid propane vessels it is typical to use SA-517 Gr. E (P-No. 11B) for use as heads and shells for propane transport tanks. The ASME Code requires the base materials, welding materials, and the WPS's to be qualified with impact tests. Also, the Code requires production impact testing to be performed. This is where the actual vessel material, actual filler materials, are welded with the actual WPS to be used in production, and the weld coupon is impact tested to meet the specified results of Section VIII. To do so, the Manufacturer of the vessel is sure to purchase enough extra base and filler material to perform these tests. When repairs / alterations are made to these vessels the NBIC requires the rules of the original construction Code to be followed. As such, any new material to be added to a vessel or any WPS's used or any filler metal used for the repair must then be impact tested and meet the results stated in Section VIII. Also, production impacts must therefore be made since this is a mandatory Section VIII requirement. This is usually accomplished by making a weld coupon out of existing material cut from the vessel and welding it to the new material to be added to the vessel, and then impact testing specimens from that coupon. But, not all repairs / alterations lend themselves the ability to take existing material from the vessel. If a small nozzle is added to the vessel, only a few inches of material is taken from the vessel. Or say a crack is to be weld repaired or there is weld metal build up to be made on some worn or wasted area. Then there is no extra material to be taken away from the vessel to run coupons for production impacts. Strict interpretation of the ASME Code would now require a piece of steel to be removed to run production impacts and then a flush patch installed over the area removed. Some individuals look at the words in NBIC, Part 3, Section 1, paragraph 1.2, where it says, "…the standard governing the original construction shall conform, <u>insofar as possible</u>…" gives one the leeway to not require production impacts because it's not possible. Others indicated that it is possible but not practical to cut perfectly good material out of a vessel when there is no need to. And others will say that the ASME clearly requires existing material to be removed to run impact tests. One thing is clear though, and that is there is lack of uniformity in applying these rules. So we are looking to the NBIC to provide some guidance in this matter. The Jurisdiction in this case is the US DOT, and 49CFR Chapter 1 § 180.413(a)(1) states that the NBIC is to be followed for repairs and modifications. DOT is also looking to the NBIC for clarification.

	Depending on the responses to the inquiry it may be prudent revise the Code to be more specific in this area of UHT materials.
Proposed Questions	**Question 1:** The NBIC Part 3 paragraph 1.2 states that a repair shall be carried out "insofar as possible to the section and edition of the ASME code most applicable to the work planned." If a vessel is constructed using SA-517-E (P-11B) material to ASME Section VIII Div. 1, where production and weld procedure impact tests were required during construction, would a repair to a crack in the shell require production and weld procedure impact testing under the NBIC? **Proposed Reply 1:** Yes. **Question 2:** If the answer to Question 1 is yes and there was no SA-517-E material from the original lot available, would the repair require the addition of new base material (e.g. a flush patch around the area of the crack) so that production impact tests could be performed with the original base metal to the new base metal? **Proposed Reply 1:** Yes. **Question 3:** If the vessel described in Question 1 was to be altered by adding an SA-675 (P-1) pump flange to the shell, would production and weld procedure impact tests be required using the same lot P-1 and P-11B base materials as used in the alteration? **Proposed Reply 1:** Yes.

PROPOSED INTERPRETATION

Inquiry No.	IN14-0701				
Source	Lawrence Granger				
Subject	NBIC 2010, part 3, Post Weld Heat Treatment of a Vessel.				
Edition	2011 Edition				
Question	Q1: Must a company that performs post weld heat treatment be required to hold an "R" certification? Q2: Is this post weld heat treatment now considered an "Alteration" to this vessel, as per NBIC part 3? Q3. Shall this "Alteration" be documented on a NBIC R-2 form?				
Reply	A1: Yes A2: Yes A3: Yes				
Committee's Question					
Committee's Reply					
Rationale					
SC Vote	Unanimous	No. Affirmative	No. Negative	No. Abstain	No. Not Voting
NBIC Vote	Unanimous	No. Affirmative	No. Negative	No. Abstain	No. Not Voting
Negative Vote Comments					

Date: 05/06/2014

Subject: NBIC 2010, part 3, Post Weld Heat Treatment of a Vessel.

Background: A newly fabricated ASME certified pressure vessel made of P-8 materials and as per Section VIII, Division 1, Paragraph UHA—32-5, is not required or prohibited post weld heat treatment. In accordance with the manufacture original code of construction this vessel did not require post weld heat treatment. After being received the Owner/User is requiring the vessel to be post weld heat treated by an outside contractor!

Questions:

· Q1. Must a company that performs post weld heat treatment be required to hold an "R" certification?

ANS: YES

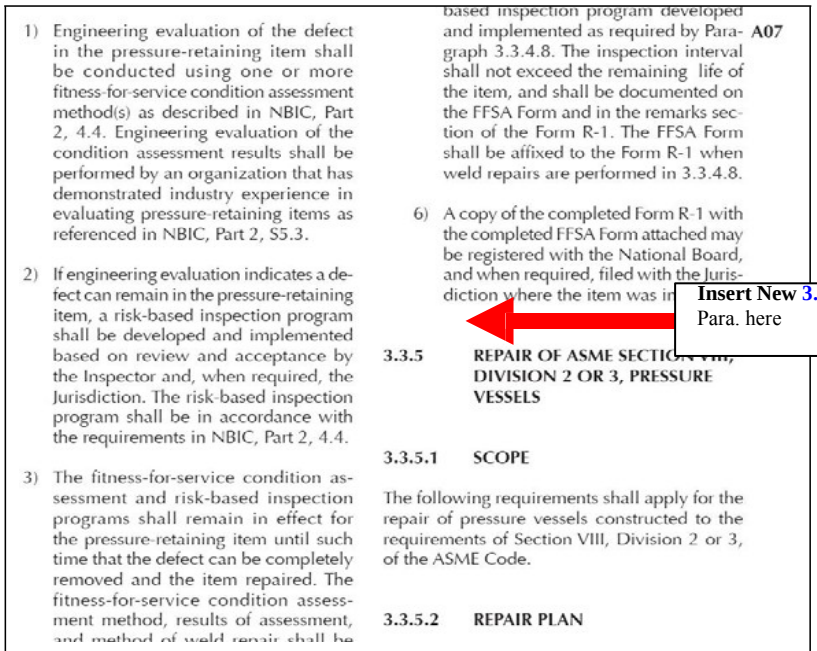
· Q2. Is this post weld heat treatment now considered an "Alteration" to this vessel, as per NBIC part 3?

ANS: YES

· Q3. Shall this "Alteration" be documented on a NBIC R-2 form?

ANS: YES

Lawrence (Larry) Granger
WSTF, PVS, Authorized Inspector
P.O.Box 20
MC-NS3
Las Cruces NM 88004
E-mail: Lawrence.e.granger@nasa.gov
Phone: 575-524-5413



1) Engineering evaluation of the defect in the pressure-retaining item shall be conducted using one or more fitness-for-service condition assessment method(s) as described in NBIC, Part 2, 4.4. Engineering evaluation of the condition assessment results shall be performed by an organization that has demonstrated industry experience in evaluating pressure-retaining items as referenced in NBIC, Part 2, S5.3.

2) If engineering evaluation indicates a defect can remain in the pressure-retaining item, a risk-based inspection program shall be developed and implemented based on review and acceptance by the Inspector and, when required, the Jurisdiction. The risk-based inspection program shall be in accordance with the requirements in NBIC, Part 2, 4.4.

3) The fitness-for-service condition assessment and risk-based inspection programs shall remain in effect for the pressure-retaining item until such time that the defect can be completely removed and the item repaired. The fitness-for-service condition assessment method, results of assessment, and method of weld repair shall be

based inspection program developed and implemented as required by Paragraph 3.3.4.8. The inspection interval shall not exceed the remaining life of the item, and shall be documented on the FFSA Form and in the remarks section of the Form R-1. The FFSA Form shall be affixed to the Form R-1 when weld repairs are performed in 3.3.4.8. A07

6) A copy of the completed Form R-1 with the completed FFSA Form attached may be registered with the National Board, and when required, filed with the Jurisdiction where the item was in

Insert New 3.3.4.9 Para. here

3.3.5 REPAIR OF ASME SECTION VIII, DIVISION 2 OR 3, PRESSURE VESSELS

3.3.5.1 SCOPE

The following requirements shall apply for the repair of pressure vessels constructed to the requirements of Section VIII, Division 2 or 3, of the ASME Code.

3.3.5.2 REPAIR PLAN

Rationale: Tube plugging is presently being performed using a variety of mechanical retention methods through driving, expanding or by welding plugs to existing tubes (sleeved or un-sleeved) or tube sheet holes when tubes are removed. Acceptance may be conditional depending on number of tubes plugged, their location; whether clustered or scattered, and a host of variables that may otherwise render an accepted practice as "not viable" or "compromising" in nature.

The judgment of the Inspector, evaluation and experience of the "R"-Certificate Holder, and interaction with the owner and Manufacturer as needed, all represent the interests of the Industry as a viable method of repair when immediate replacement of the firetube cannot be performed; not yielding to safety.

This item presents tube replacement as the most conservative method of repair, but provides considerations for tube plugging as a method of repair when NOT-Limited by the conditions stated @ paragraph "c"; "scattered or clustered" suggesting the potential need for calculating the maximum pitch allowed by ASME Section I, PFT-31.2. .

Reference: Interpretation NBI95-35, R-200 Definition of Terms, 1992 Edition with the 1994 Addendum.

3 3.4.9 TUBE PLUGGING IN FIRETUBE BOILERS

When the replacement of a tube in a firetube boiler is not practicable at the time the defective tube is detected, with the concurrence of the owner, Inspector, and when required, the Jurisdiction, the tube may be plugged using the following course of repair:

a) The scope of work, type of plug and method of retention; whether welded or mechanical interface, shall be evaluated by the "R"-Certificate Holder performing the repair and reviewed with the Inspector, and when required, the Jurisdiction.

b) When the method of plugging is by welding, welding qualification and material shall be in accordance with the original code of construction or as noted in the applicable sections of the NBIC. The "R" Certificate Holder performing this repair may weld the plug to the tube, to the tube sheet, or a combination of both.

c) Plugging a tube in a firetube boiler is recognized as an alternative to the replacement of a firetube and may be further limited as a method of repair by the number of tubes plugged and their location; scattered or clustered. The operational effects on the waterside pressure boundary or membrane and the effects on the combustion process throughout the boiler should be considered prior to plugging.

d) The boiler may be returned to service for a period of time agreed upon by the owner, the Inspector, and when required, the Jurisdiction.

e) The Form R-1 shall be completed for the plugging of firetubes, identifying the means of plug retention; mechanical or by welding.

NBIC Subcommittee R&A Action Block

Subject	Gasketed Plate Heat Exchangers		
File Number	NB12-0801	**Prop. on Pg.**	1 thru 9
Proposed Revision	Add examples of routine repairs, repairs, and alterations for gasketed plate heat exchangers and revise R-1 form to include gasketed PHEs.		
Statement of Need	Because of the unique design of the PHE, the current ASME Pressure Vessel and NBIC Codes do not specific ally address the design of PHE's, nor the potential r epairs or alterati ons. This is intended to provide guidance to the industry and the Jurisdictions.		
Project Manager	Ed Ortman		

SubGroup	R&A Specific		
SubGroup Negatives		**SG Meeting Date**	July 16, 2013

SubCommittee Negatives		**SC Meeting Date**	July 17, 2013

3.2.5 CALCULATIONS

For alterations, calculations shall be completed prior to the start of any physical work. All design calculations shall be completed by an organization experienced in the design portion of the standard used for construction of the item. All calculations shall be made available for review by the Inspector accepting the design.

3.2.6 REFERENCE TO OTHER CODES AND STANDARDS

Other codes, standards, and practices pertaining to the repair and alteration of pressure retaining items can provide useful guidance. Use of these codes, standards and practices is subject to review and acceptance by the Inspector, and when required, by the Jurisdiction. The user is cautioned that the referenced codes, standards and practices may address methods categorized as repairs; however, some of these methods are considered alterations by the NBIC.

In the event of a conflict with the requirements of the NBIC, the requirements of the NBIC take precedence. Some examples are as follows:

(a) National Board *Bulletin* - National Board Classic Articles Series;

(b) ASME PCC-1, Guidelines for Pressure Boundary Bolted Flange Joint Assembly;

(c) ASME PCC-2, Repair of Pressure Equipment and Piping.

3.3 REPAIRS TO PRESSURE-RETAINING ITEMS

3.3.1 DEFECT REPAIRS

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.

3.3.2 ROUTINE REPAIRS

a) Routine repairs are repairs for which the requirements for in-process involvement by the Inspector and stamping by the "R" Certificate Holder may be waived as determined appropriate by the Jurisdiction and the Inspector. All other applicable requirements of this Code shall be met. Prior to performing routine repairs, the "R" Certificate Holder should determine that routine repairs are acceptable to the Jurisdiction where the pressure-retaining item is installed;

b) The Inspector, with the knowledge and understanding of jurisdictional requirements, shall be responsible for meeting jurisdictional requirements and the requirements of this Code;

c) The "R" Certificate Holder's Quality System Program shall describe the process for identifying, controlling, and implementing routine repairs. Routine repairs shall be documented on Form R-1 with this statement in the Remarks section: "Routine Repair.";

d) Repairs falling within one or more of the following categories may be considered routine:

1) Welded repairs or replacements of valves, fittings, tubes, or pipes NPS 5 (DN 125) in diameter and smaller, or sections thereof, where neither postweld heat treatment nor NDE other than visual is re-

5) The following on gasketed plate heat exchangers:
i) Removal and replacement of heat transfer plates identical to those listed on the Manufacturer's Data Report;
ii) In kind replacement of tightening bolts;
iii) A change in welded attachments (e.g. welded feet).

3) Weld buildup of wasted areas in heads and shells not exceeding an area of 100 sq. inches (64,520 sq. mm) or a thickness of 25% of nominal wall thickness or ½ inch (13 mm), whichever is less; A11

4) Corrosion resistance weld overlay not exceeding 100 sq. in. (64,520 sq. mm).

3.3.3 EXAMPLES OF REPAIRS

a) Weld repairs or replacement of pressure parts or attachments that have failed in a weld or in the base material;

b) The addition of welded attachments to pressure parts, such as:

1) Studs for insulation or refractory lining;

2) Hex steel or expanded metal for refractory lining;

3) Ladder clips;

4) Brackets having loadings that do not affect the design of the pressure-retaining item to which they are attached; and

5) Tray support rings.

c) Corrosion resistant strip lining, or weld overlay;

d) Weld buildup of wasted areas;

e) Replacement of heat exchanger tubesheets in accordance with the original design;

f) Replacement of boiler and heat exchanger tubes where welding is involved;

g) In a boiler, a change in the arrangement of tubes in furnace walls, economizers, or super heater sections;

h) Replacement of pressure-retaining parts identical to those existing on the pressure-retaining item and described on the original *Manufacturer's Data Report*. For example:

1) Replacement of furnace floor tubes and/or sidewall tubes in a boiler;

2) Replacement of a shell or head in accordance with the original design;

3) Rewelding a circumferential or longitudinal seam in a shell or head;

4) Replacement of nozzles of a size where reinforcement is not a consideration;

i) Installation of new nozzles or openings of such a size and connection type that reinforcement and strength calculations are not a consideration required by the original code of construction;

j) The addition of a nozzle where reinforcement is a consideration may be considered to be a repair, provided the nozzle is identical to one in the original design, located in a similar part of the vessel, and not closer than three times its diameter from another nozzle. The addition of such a nozzle shall be restricted by any service requirements;

k) The installation of a flush patch to a pressure-retaining item;

l) The replacement of a shell course in a cylindrical pressure vessel;

m) Welding of gage holes;

n) Welding of wasted or distorted flange faces;

o) Replacement of slip-on flanges with weld neck flanges or vice versa;

p) Seal welding of buttstraps and rivets;

q) Subject to the administrative procedures of the Jurisdiction and approval of the Inspector, the replacement of a riveted section or part by welding;

r) The repair or replacement of a pressure part with a code-accepted material that has a nominal composition and strength that is equivalent to the original material, and is suitable for the intended service; and

s) Replacement of a pressure-retaining part with a material of different nominal composition, equal to or greater in allowable stress from that used in the original design, provided the replacement material satisfies the material and design requirements of the original code of construction under which the vessel was built. The minimum required thickness shall be at least equal to the thickness stated on the original *Manufacturer's Data Report.*

t) The replacement of a Pressure Relieving Device (PRD) attached by welding, provided the replacement device's relieving capacity is equal to or greater than the PRD-capacity required by the original code of construction.

u) In a gasketed plate heat exchanger:
1) Weld repair of any pressure part (e.g. nozzle repair or in kind replacement of nozzle);
2) In kind replacement of frame or pressure plates.

3.3.4 REPAIR METHODS

Except as provided in NBIC Part 3, 3.3.4.6, a repair of a defect in a welded joint or base material shall not be made until the defect has been removed. A suitable Nondestructive Examination (NDE) method, such as Magnetic Particle (MT) or Liquid Penetrant (PT), may be necessary to ensure complete removal of the defect. If the defect penetrates the full thickness of the material, the repair shall be made with a full penetration weld such as a double buttweld or single buttweld with or without backing. Where circumstances indicate that the defect is likely to recur, consideration should be given to removing the defective area and installing a flush patch or taking other corrective measures acceptable to the Inspector, and when required, by the Jurisdiction.

3.4 ALTERATIONS

3.4.1 RE-RATING[10]

Re-rating of a pressure-retaining item by increasing the maximum allowable working pressure (internal or external) or temperature or decreasing the minimum design metal temperature below which notch toughness testing is required by the original code of construction, shall be done only after the following requirements have been met to the satisfaction of the Jurisdiction at the location of the installation:

a) Revised calculations verifying the new service conditions shall be prepared in accordance with the "R" Certificate Holder's Quality Control System. Establishing a higher joint efficiency to re-rate a pressure-retaining item is not permitted;

b) All re-ratings shall be established in accordance with the requirements of the construction standard to which the pressure-retaining item was built;

c) Current inspection records verify that the pressure-retaining item is satisfactory for the proposed service conditions;

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;

e) In lieu of pressure testing, alternative methods can be used to ensure the structural integrity of the re-rated pressure-retaining item. The alternative methods shall be documented and subject to review and approval by the Jurisdiction.

3.4.2 ALTERATIONS BASED ON ALLOWABLE STRESS VALUES

For re-rating or re-calculating a new minimum wall thickness for a pressure-retaining item using a later edition/addenda of the original code of construction or selected construction standard or code that permits use of higher allowable material stress values than were used in the original construction, the following requirements shall apply:

a) The "R" Certificate Holder shall verify, by calculations and other means, that the re-rated item can be satisfactorily operated at the new service condition (e.g., stiffness, buckling, external mechanical loadings);

b) The pressure-retaining item shall not be used in lethal service;

c) The pressure-retaining item shall not be used in high-cycle operation or fatigue service (i.e., loadings other than primary membrane stress are controlling design considerations) unless the pressure-retaining item was originally designed for fatigue service and a fatigue analysis is performed;

d) The pressure-retaining item shall have been constructed to the 1968 edition or later edition/addenda of the original code of construction;

e) The pressure-retaining item shall be shown to comply with all relevant requirements of the edition/addenda of the code of construction, which permits the higher allowable stress values (e.g., reinforcement, toughness, examination, pressure testing);

10 Re-rating: Except as provided for Yankee Dryers in Supplement 5, this code does not provide rules for de-rating boilers or pressure vessels; however, when the MAWP and/or allowable temperature of a boiler or pressure vessel is reduced, the Jurisdiction where the object is installed should be contacted to determine if specific procedures should be followed.

f) The pressure-retaining item shall have a satisfactory operating history and current inspection of the pressure-retaining item shall verify the item exhibits no unrepaired damage (e.g., cracks, corrosion, erosion). Areas of corrosion or erosion may be left in place provided the remaining wall thickness is greater than the minimum thickness for the new design conditions;

g) The re-rating shall be acceptable to the Inspector and, where required, the Jurisdiction;

h) All other requirements of Part 3, as applicable, and jurisdictional requirements shall be met;

i) Use of this paragraph shall be documented in the Remarks section of Form R-2.

3.4.3 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;

e) In a boiler, an increase in the heating surface or steaming capacity as described on the original Manufacture's Data Report;

f) The addition of a pressurized jacket to a pressure vessel;

g) Except as permitted in NBIC, Part 3, 3.3.3 s);

h) Replacement of a pressure-retaining part in a pressure-retaining item with a material of different allowable stress or nominal composition from that used in the original design; and

i) The addition of a bracket or an increase in loading on an existing bracket that affects the design of the pressure-retaining item to which it is attached.

j) The replacement of a Pressure Relieving Device (PRD) as a result of work completed on a Pressure-Retaining Item (PRI) that changes the resultant capacity to exceed the Minimum Required Relieving Capacity (MRRC) required by the original code of construction as described on the original Manufacturer's Data Report.

3.4.4 ALTERATION OF ASME CODE SECTION VIII, DIVISION 2 OR 3, PRESSURE VESSELS

k) The following on gasketed plate heat exchangers:
a) A change in heat transfer plate material;
b) A change in thickness of heat transfer plates;
c) A change in tightening bolt material or grade;
d) A change in tightening bolt diameter
e) A change in the material or thickness of the frame plate of pressure plates.

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.

5.13.1 FORM R-1, REPORT OF REPAIR

FORM R-1 REPORT OF REPAIR
in accordance with provisions of the *National Board Inspection Code*

1. Work performed by (1) _____ (2) _____
   (name of repair organization) (Form Registration No.)
   _____ (53) _____
   (PO No., Job No., etc.)
2. Owner (3) _____
   (name)
   _____
   (address)
3. Location of installation (4) _____
   (name)
   _____
   (address)
4. Item identification (5) _____ Name of original manufacturer (6) _____
   (boiler, pressure vessel or piping)
5. Identifying nos.: (7) _____ (8) _____ (8) _____ (8) _____ (9) _____
   (mfg. serial no.) (National Board No.) (Jurisdiction No.) (other) (year built)
6. NBIC Edition/Addenda: (10) _____ (10) _____
   (edition) (addenda)
   Original Code of Construction for Item: (11) _____ (11) _____
   (name/section/division) (edition/addenda)
   Construction Code Used for Repair Performed: (11) _____ (11) _____
   (name/section/division) (edition/addenda)
7. Repair Type: (55) ☐ Welded ☐ Graphite Pressure Equipment ☐ FRP Pressure Equipment
8. Description of work: (12) ☐ Form R-4, Report Supplementary Sheet is attached ☐ FFSA Form (NB-403) is attached
   (use Form R-4, if necessary)
   _____
   _____
   _____ Pressure Test, if applied (13) _____ psi MAWP (54) _____ psi
9. Replacement Parts. Attached are Manufacturer's Partial Data Reports or Form R-3s properly completed for the following items of this report:
   (14) _____
   (name of part, item number, data report type or Certificate of Compliance, mfg. name, and identifying stamp)
10. Remarks: (15) _____

Note to Editor: Add as part of line 7

☐ Gasketed Plate Heat Exchanger

SECTION 5

CERTIFICATE OF COMPLIANCE

I, (16) _____, certify that to the best of my knowledge and belief the statements in this report are correct and that all material, construction, and workmanship on this Repair conforms to the *National Board Inspection Code*.
National Board "R" Certificate of Authorization No. (17) _____ expires on (18) _____, _____
Date (19) _____, _____ (20) _____ Signed (21) _____
(name of repair organization) (authorized representative)

CERTIFICATE OF INSPECTION

I, (22) _____, holding a valid Commission issued by The National Board of Boiler and Pressure Vessel Inspectors and certificate of competency, where required, issued by the Jurisdiction of (23) _____
and employed by (24) _____ of (25) _____
have inspected the work described in this report on (26) _____, _____ and state that to the best of my knowledge and belief this work complies with the applicable requirements of the *National Board Inspection Code*.
By signing this certicate, neither the undersigned nor my employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the undersigned nor my employer shall be liable in any manner for any personal injury, property damage or loss of any kind arising from or connected with this inspection.
Date (19) _____, _____ Signed (27) _____ Commissions (28) _____
(inspector) (National Board and Jurisdiction No.)

This form may be obtained from The National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Ave., Columbus, OH 43229 NB-66 Rev. 12

5.13.4.1 INSTRUCTIONS FOR COMPLETING NATIONAL BOARD FORM "R" REPORTS A11

These instructions are to be used when completing the National Board Form "R" Reports. When computer generated, the format of the form shall replicate the type and relative location of the information depicted on the Form "R" Reports shown in NBIC Part 3, 5.13.1 through 5.13.4.

1. The name and address of the "R" Certificate Holder performing the work as it appears on the "Certificate of Authorization". On a Form R-2, the organization that performed the design work will complete sheet 1 of 2, and the organization completing the construction activities will complete sheet 2 of 2. A11

2. 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 3,5.6, a log shall be maintained identifying sequentially, any Form "R" registered with the National Board. For re-rating only, the Design Organization registers the Form R-2. Where physical work is also performed, the Construction Organization registers the Form R-2. A11

3. Name and address of the Owner of the pressure-retaining item.

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

5. Description of the pressure-retaining item, such as boiler or pressure vessel, or piping. Include the applicable unit identification. A11

6. Name of the original manufacturer of the pressure-retaining item. If the original manufacturer is unknown, indicate by, "unknown". A11

7. Document the serial number of the pressure-retaining item if assigned by the original manufacturer. If there is no serial number assigned or is unknown, indicate "unknown". A11

8. When the pressure-retaining item is registered with the National Board, document the applicable registration number. If the pressure-retaining item is installed in Canada, indicate the Canadian design registration number (CRN), and list the drawing number under "other." If the item is not registered, indicate, "none". A11

9. Identify the year in which fabrication/construction of the item was completed.

10. Indicate edition and addenda of the NBIC under which this work is being performed.

11. Indicate the name, section, division, edition, and addenda of the original code of construction for the pressure-retaining item. Also indicate the name, section, division, edition, and addenda of the construction code used for the work being performed. If code cases are used, they shall be identified in the "Remarks" section.

12. Provide a summary describing the exact scope of work that was completed to a Pressure-Retaining Item (PRI). The information to be included when describing the scope of work shall consider items such as, the nature of the repair or alteration characterized by the listed examples, the specific location of the work performed to the PRI, the method of repair used to include as applicable, the steps taken to remove a defect or as allowed by NBIC Part 3, 3.3.4.8 to remain in place, the welding process and procedure when used, any special processes required such as PWHT; noting the soak time and temperatures recorded, and any acceptable in-process and final NDE-examinations or tests performed. When additional space is needed to fully describe the scope of work, a Form R-4 shall be used and attached.. A11

13. Indicate test pressure applied.

A11 14. As applicable, identify what parts manufactured by welding or bonding were introduced as needed to complete the scope of work. Indicate part, item number, manufacturer's name, stamped identification, and data report type or Certificate of Compliance.

15. Indicate any additional information pertaining to the work involved (e.g., routine repairs, code cases). For Form R-3, the part manufacturer is to indicate the extent he has performed any or all of the design function. If only a portion of the design, state which portion.

A11 16. Type or print name of authorized representative of the "R" Certificate Holder attesting to accuracy of the work described.

17. Indicate National Board "R" *Certificate or Authorization* number.

18. Indicate month, day, and year that the "R" certificate expires.

19. Enter date certified.

A11 20. 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.

21. Signature of authorized representative.

22. Type or print name of Inspector.

23. Indicate Inspector's Jurisdiction.

24. Indicate Inspector's employer.

25. Indicate address of Inspector's employer (city and state or province).

26. Indicate month, day, and year of inspection by Inspector. In case of Routine Repairs this shall be the month, day, and year the Inspector reviews the completed Routine Repair package.

27. Signature of Inspector.

28. National Board commission number of Inspector, and when required by the Jurisdiction, the applicable State or Provincial numbers.

A11 29. 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.

A11 30. Document name of organization responsible for specifying the code design conditions, if known. If origin of design conditions are unknown, state "unknown".

A11 31. Document name of organization responsible for performing the code design, if known. If code design organization is unknown, state "unknown".

A11 32. Name, section, and division of the design code, if known. If the design is unknown, state "unknown"

33. Indicate code edition year used for fabrication.

34. Indicate code addenda date used for fabrication.

35. Indicate the code paragraph reference for formula used to establish the MAWP, if known. If the code reference of the formula is unknown, state "unknown". A11

36. If available, identify component by part's original name, function, or use the original equipment manufacturer's "mark or item number." A11

37. Indicate quantity of named parts.

38. Match line number references for identification of parts and description of parts.

39. Indicate manufacturer's serial number for the named part.

40. Indicate drawing number for the named part.

41. Indicate Maximum Allowable Working Pressure for the part, if known.

42. Use inside diameter for size: indicate shape as square, round, etc.

43. Indicate the complete material specification number and grade.

44. Indicate nominal thickness of plate and minimum thickness after forming.

45. Indicate shape as flat, dished, ellipsoidal, or hemispherical.

46. Indicate minimum thickness after forming.

47. Indicate outside diameter.

48. Indicate minimum thickness of tubes.

49. Complete information identical to that shown on the Form R to which this sheet is supplementary.

50. Indicate the Form R type. Example: Form R-1, Form R-2, Form R-3.

51. Indicate the reference line number from the Form R to which this sheet is supplementary.

52. Complete information for which there was insufficient space on the reference Form R.

53. If applicable, document the unique purchase order, job, or tracking number, assigned by organization performing work. A11

54. Indicate the maximum allowable working pressure of the pressure-retaining item.

55. Indicate the type of repair, e.g., welded, graphite pressure equipment, or fiber-reinforced plastic pressure equipment, or gasketed plate heat exchanger.

NBIC Part 3 - PROPOSED CODE REVISION

2013 NBIC Edition, Part 3, Paragraph 2.5.3.2 (f)

Existing Wording

f) The qualification thickness for the test plates and repair groove depths shall be in accordance with ASME Section IX;

Proposed Wording (underlined)

(f) The qualification thickness for the test plates and repair groove depths shall be in accordance with ASME Section IX. For pressure retaining items fabricated to ASME Section I and repaired using the temper bead method, hardness testing requirements can be waived for ASME Section IX temper bead procedure qualification provided the pressure retaining item operates above 900 deg F;

;

2013 NBIC Edition, Part 3, Paragraph 2.5.3.3 (f)

Existing Wording

f) The qualification thickness for the test plates and repair groove depths shall be in accordance with ASME Section IX;

Proposed Wording (underlined)

(f) The qualification thickness for the test plates and repair groove depths shall be in accordance with ASME Section IX. For pressure retaining items fabricated to ASME Section I and repaired using the temper bead method, hardness testing requirements can be waived for ASME Section IX temper bead procedure qualification provided the pressure retaining item operates above 900 deg F;

2013 NBIC Edition, Part 3, Paragraph 2.5.3.4 (f)

f) The qualification thickness for the test plates and repair groove depths shall be in accordance with ASME Section IX;

Proposed Wording (underlined)

(f) The qualification thickness for the test plates and repair groove depths shall be in accordance with ASME Section IX. For pressure retaining items fabricated to ASME Section I and repaired using the temper bead method, hardness testing requirements can be waived for ASME Section IX temper bead procedure qualification provided the pressure retaining item operates above 900 deg F;

2013 NBIC Edition, Part 3, Paragraph 2.5.3.5 (d)

d) The qualification thickness for the test plates and repair groove depths shall be in accordance with ASME Section IX;

Proposed Wording (underlined)

(d) The qualification thickness for the test plates and repair groove depths shall be in accordance with ASME Section IX. For pressure retaining items fabricated to ASME Section I and repaired using the temper bead method, hardness testing requirements can be waived for ASME Section IX temper bead procedure qualification provided the pressure retaining item operates above 900 deg F;

Rationale

The proposed code changes above pertain to exceptions for pressure retaining items used in Section I Power Boiler applications where hardness and toughness were never specified in WPS qualification. The proposed changes require using all of the same essential variables and qualification of the special process procedures to QW-290 (temper bead) with the exception that hardness and notch toughness testing are not required for qualification of weld repair procedures. Currently, QW-290 requires hardness testing for information purposes or if the original code of construction specifies a hardness limitation.

Weld repairs to ASME Section I pressure retaining items in service should still be performed using current temper bead weld procedures that were originally qualified without the need for hardness and impact testing. Past experience has demonstrated that original temper bead process procedures have resulted in reliable weld repair method.

Prior to the change in the NBIC with reference to ASME Section IX, QW-290, the NBIC had provided use of temper bead procedures using only ASME Section IX qualification with bend and tensile testing. This same argument applies today for components where hardness and notch toughness were never used in the original code of construction WPS qualification.

Action Item Request Form

8.3 CODE REVISIONS OR ADDITIONS

Request for Code revisions or additions shall provide the following:

a) Proposed Revisions or Additions

For revisions, identify the rules of the Code that require revision and submit a copy of the appropriate rules as they appear in the Code, marked up with the proposed revision. For additions, provide the recommended wording referenced to the existing Code rules.

Existing Text:

None

b) Statement of Need

Provide a brief explanation of the need for the revision or addition.

IN13-0501 generated this request for a new Action Item as the NBIC did not address the inquirer's question. The new Action item is NB14-0301 En capsulation RA Specific

Task Group assigned at SC RA-Brian Boseo-PM, Bob Wielgoszinski, Bryan Schulte and George Galanes

J McGimpsey- Secretary Part 3 RA

c) Background Information

Provide background information to support the revision or addition, including any data or changes in technology that form the basis for the request that will allow the Committee to adequately evaluate the proposed revision or addition. Sketches, tables, figures, and graphs should be submitted as appropriate.

When applicable, identify any pertinent paragraph in the Code that would be affected by the revision or addition and identify paragraphs in the Code that reference the paragraphs that are to be revised or added.

In addition propose revised words in the code, additional a new second paragraph to be **added** to 3.2.2 c).

ASME stamping and completion of an ASME Manufacturer's Partial Data Report is not required for parts fabricated by the "R" Certificate Holder that will be used on pressure retaining items being repaired or altered by the same "R" Certificate Holder. The controls for this activity shall be described in the quality control system.

COMMITTEE CORRESPONDENCE

COMMITTEE: NBIC Committee

TO: NBIC Committee

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

FROM: Robin Hough
NBIC Secretary

SUBJECT: Letter Ballot NB14-0701 MC

DATE: October 18, 2013

Committee Members,

Letter ballot NB14-0701 MC has now closed. This ballot was for comment only. All comments received have been forwarded to the Project Manager of this item, Mr. Bob Wielgoszinski.

12	Approved
7	Disapproved
0	Abstained
0	Not Voting
3	Not Returned

:rmh

Ballot Votes NB14-0701

Name	Email	Votes	Vote Date
Bryan Schulte	bryan.schulte@nrgenergy.com	Approve	09/25/13
Craig Hopkins	chopkins@seattleboiler.com	Approve	09/25/13
Domenic Canonico	canonicod@epbfi.com	Approve	10/10/13
Frank Hart	fhart@furmanite.com	Approve	09/25/13
James Pillow	jpillow@commonarc.com	Approve	09/17/13
Jim Sekely	jsekely@comcast.net	Approve	09/14/13
Lawrence McManamon	lmac@glabap.com	Approve	09/17/13
Mark Mooney	mark.mooney@libertymutual.com	Approve	09/12/13
Michael Webb	mike.webb@xcelenergy.com	Approve	09/16/13
Paul Bourgeois	pcbourge@travelers.com	Approve	09/18/13
Ralph Pate	ralph.pate@labor.alabama.gov	Approve	10/15/13
Robert Wielgoszinski	Robert_Wielgoszinski@hsbct.com	Approve	09/26/13
Bob Reetz	breetz@nd.gov	Disapprove	10/03/13
Gary Scribner	Gary.Scribner@dfs.dps.mo.gov	Disapprove	09/12/13
George Galanes PE	ggalanes@diamondtechnicalservices.com	Disapprove	10/01/13
Jim Riley	jim.riley@conocophillips.com	Disapprove	10/03/13
Michael Richards	hmrichar@southernco.com	Disapprove	09/25/13
Paul Edwards	paul.edwards@cbi.com	Disapprove	09/27/13
Ronald Pulliam	rlpulliam@babcock.com	Disapprove	09/13/13
Benjamin Anthony	banthony@dlt.state.ri.us	Not Voted	N/A
Don Cook	dcook@hq.dir.ca.gov	Not Voted	N/A
Stanley Staniszewski	stanley.staniszewski@dot.gov	Not Voted	N/A

Ballot Comments NB14-0701

Name	Comment	Date Created
Domenic Canonico	I disapprove of this action because I do not agree that R Stamp holders should be fabricating pressure parts. Pressure parts should be fabricated by an accredited ASME Stamp holder. Furthermore, this action is in direct conflict with what is currently in 3-3.2.2 (c).	10/07/2013
Bob Reetz	I reaffirm my disapproval of this action and for the same reasons given by myself earlier and by many others who have disappoved for the same reasons.	10/03/2013
Jim Riley	Reaffirm Disapproval after initial balloting. The proposed addition to 3.2.2c) to allow R-stamp part manufacture contradicts the first paragraph requireing ASME CoA and Partial Data Report. The reliance on 'controls described in the QC system' as a catch-all for replacement of stamping and data reports is too open ended.	10/03/2013
George Galanes PE	I disapprove of the proposed code change after giving this item considerable thought. ASME parts should be supplied by an ASME Certificate holder, and not an R-Certificate holder.	10/01/2013
Paul Edwards	This revision would reverse a long-standing requirement of the NBIC which I believe needs further consideration prior to being adopted. Backgound on the code and/or industry changes warranting revision of our requirements for fabrication of ASME parts needs to be provided.	09/27/2013
Robert Wielgoszinski	No comments.	09/26/2013
Bryan Schulte	The verbiage proposed for section 3.2.2 provides additional clarification. The AI must accept these parts fabricated by the R Certificate holder, just as he as is the case with any other parts or materials utilized.	09/25/2013
Michael Richards	There should be either 1) a limit on a 'part' or 2) allowing the A/I to accept a 'part' for use based on a recognized industry standard/definition.	09/25/2013
Jim Riley	Agree with comments from Mrs. Reetz, Webb, and Scribner. (1)The part wording may be similar to the following to address limitation of scope:'A part that is a portion, division, piece, or limited segment of the whole' may be fabricated by the R-Stamp holder (2) Agree with requiring the R-Stamp QC system to include description and controls (3) The R-1 should list the parts fabricated in the description or attach a description so they are clear for future inspectors (4) 3.2.2 should be changed to include the new allowance to make it clear.	09/19/2013
James Pillow	JPillow 9/17/13 - No comment.	09/17/2013
Bob Reetz	My comment is that this new paragraph contradicts what presently is in 3.2.2. I do not approve of this change. If various small parts only are to be included I would not object. A definition of "parts" is clearly needed.	09/16/2013
Michael Webb	When 3.2.2 is read in its entirety, I believe it reads fine and is clear. I support this as the caveat I believe is in the last sentence: "The controls for this activitiy shall be described in the quality control system". This also means acceptable to the AIA.	09/16/2013
Ronald Pulliam	Based on the discussions held in Columbus this past summer, I believe a definition of "part" must accompany any suggested change. Welding safe ens onto tubes in a shop to reduce field labor is one thing - but building entire headers in an R-shop with no stamping or data reports is another.	09/13/2013
Gary Scribner	I agree with proposed wording however there should be a lead in authorizing the R stamp holder to fabricate the part. Currently that is not an option in 3.2.2	09/12/2013

NB14-1904

FIGURE 3.3.4.4-a
Typical Examples of Seal Welding Tubes

Tubes may be seal welded provided the ends of the tubes have sufficient wall thickness to prevent burn-through. Seal welding shall be applied in strict accordance with the original code of construction for the requirements of the tube projection, welding, and tube expanding. Seal welding shall not be considered a strength weld.

In watertube boilers, tubes may be seal welded on the inside or outside of the tubesheet.

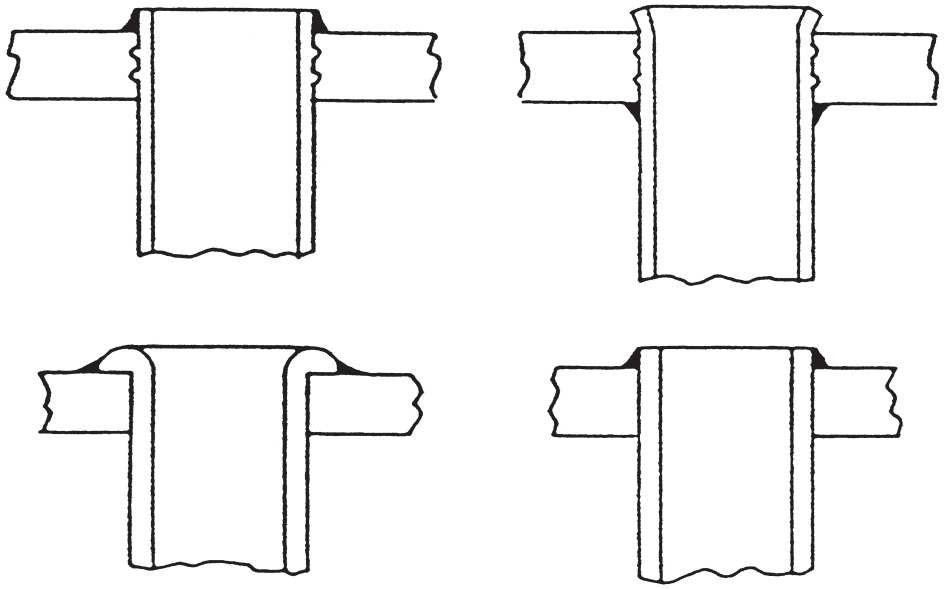
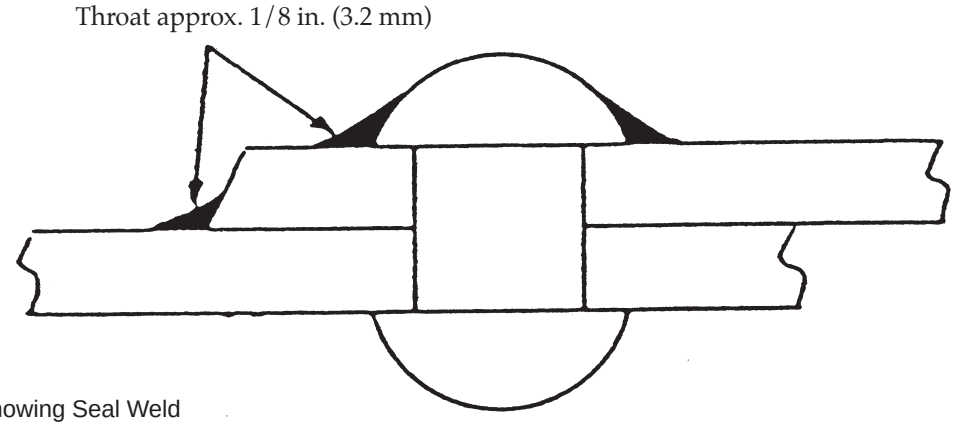


FIGURE 3.3.4.4-b
Seal Welding of Riveted Joints

Seal welding of riveted joints requires the approval of the Jurisdiction. Seal welding shall not be considered a strength weld. Prior to welding, the area should be examined by an appropriate method of NDE to ensure that there are no cracks radiating from the rivet holes. If necessary, the rivets should be removed to ensure complete examination of the area. Seal welding should not be performed if cracks are present in riveted areas.



Typical Rivet Joint Showing Seal Weld

NB14-2301

Proposed addition

Define the meaning of a seal weld.

Statement of need

A seal weld is not defined in the code and there is confusion on what is and what is not a seal weld on tubes for routine repairs. If there is no in-process involvement by the inspector for routine repairs welds the wrong repair procedures are being conducted.

Background

There have been instances where tubes were seal welded on a fire tube boiler and was done as a routine repair, but they were not seal welds, it was found they were longitudinal fire cracks in the tube.

Joe Brockman
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Boiler and Pressure Vessel Safety Unit
Division of Fire Safety
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