THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

Date Distributed: December 16, 2011

SUBGROUP ON REPAIRS and ALTERATIONS GENERAL

AGENDA

Meeting of January 17, 2012
San Diego, California

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**

3. **Adoption of the Agenda**

4. **Approval of Minutes of July 19, 2011 meeting**

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

6. **Action Items (Attachment 2)**

NB08-0322 ***Part 3 3.2 SG on Repairs and Alterations General*** **-** Add a new paragraph to 3.2 General Requirements for Repairs and Alterations to address change of service for a pressure vessel. These requirements should caution inspectors, owners, repair organizations and jurisdictional authorities of the inherent dangers involved when changing service. A new supplement should be added to address the specific requirements for repairs and alterations of pressure vessels that have been converted from one service to another. A task group representing all three parts of the NBIC has been formed under the leadership of Bob Wielgoszinski. Task group members from R & A are P. Edwards and B. Schulte. (Attachment 2, pp. 1)

July 2008
A task group was assigned.

July 2011
A progress report was provided by Bob Wielgoszinski during which he informed the subgroup that the task group would be meeting with the goal of providing a proposal to the subcommittee on July 20, 2011.

January 2012
Mr. Edwards is expected to report.

NB11-1201 ***Part 3, 1.8, SG on R/A General*** **-** Revise Part 3, 1.8 "NR" Accreditation requirements to include repairs to ASME Section III stamped components. (Attachment 2, pp.2-4)

January 2011
Mr. Charles Withers presented a progress report. A task group was assigned of C. Withers, P. Edwards, B. Schaefer, and B. Wielgoszinski (or another designated HSBCT Representative) to take a look at the NR Program.

July 2011
Pat Nightengale, National Board Staff was added to the task group.

January 2012
Mr. Withers is expected to report.

NB11-1202 ***Part 3 1.8.5.1 q) SG on R/A General*** - Audits: Define timeframe for performing audits. What we currently have conflicts with NB-57 (Attachment 2, p. 6-8)

January 2011
No report was presented. This item will be added to the task group agenda of C. Withers, P. Edwards, B. Schaefer, and B. Wielgoszinski (or another designated HSBCT Representative) as assigned in NB11-1201.

July 2011
A motion was made to accept the proposed revisions. After a lengthy discussion, the motion was amended and the item was referred back to the task group.

January 2012
Mr. Withers is expected to report.

NB11-2201 ***Part 3, 1.3.2 and 5.7.1 SG on R/A General*** - Add wording to these sections to address inspectors witnessing R stamping. (Attachment 2, pp. 6-8)

July 2011
Mr. Jim Larson provided a progress report and will work with Ron Pulliam on this action item.

January 2012
Mr. Larson is expected to report.

NB12-0501 ***Part 3, 5.11 SG R/A General*** **-** Hydrostatic testing of pressure parts.(No Attachment)

July 2011
A task group of B. Wielgoszinski, G. Galanes and B. Moore was formed.

January 2012
Mr. Wielgoszinski is expected to report.

NB12-0601 ***Part 3, 5.11 SG R/A General-*** Removal of original stamping or nameplate. (Attachment 2, pp. 9-11)

January 2012
Mr. Parks is expected to report.

NB12-0603 ***Part 3, 1.5.1, 1.7.1, 1.8.1, SG R/A General*** - Removal of administrative requirements from Part 3. (Attachment 2, pp. 12- 105)

January 2012
Mr. Parks is expected to report.

NB12-0801 ***Part 3, SG R/A General*** - Repair and alteration of Gasketed PHEs in the field. (Attachment 2, pp. 106-107)

January 2012
Mr. Edwards is expected to report.

NB12-1101 ***Part 3, 5.13.1 SG R/A General***- Revision of R forms. Attachment 2, pp. 109-122)

January 2012
Mr. Webb is expected to report.

7. **New Business**

8. **Future Meetings**

July 17-20, 2012, Columbus, Ohio
January 14-18, 2012, Mobile, Alabama

9. Adjournment

Respectfully Submitted,
Jim McGimpsey
Secretary

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ATTACHMENT 1

SG on R/A-General

Member	Title	ExpirDate	Interest Category
Boseo, Brian		1/31/2012	Manufacturer
Bramucci, Angelo		1/31/2013	Manufacturer
Cameron, Stuart		8/17/2013	Manufacturer
Edwards, Paul D.	Chairman	8/31/2012	NB Certificate Holders
Larson, James P.		8/31/2012	Auth Inpection Agencies
McGimpsey, Jim	Secretary		
Morelock, Brian		1/31/2012	Users
Ortman, Edward		8/30/2013	Manufacturer
Pulliam, Ron		7/31/2014	Manufacturer
Schaefer, Benjamin		2/28/2014	NB Certificate Holders
Schulte, Bryan	Vice Chair	8/31/2012	Users
Sperko, Walt		8/17/2013	General Interest
Valdez, Rick		8/12/2014	Manufacturer
Webb, Michael		8/31/2012	Users

Total Members:	13

Attachment 2

NB08-0322

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

The following addition to the NBIC is proposed;

Add requirements to change the service of pressure vessels in Part 1, Installation, Part 2, Inspection, and Part 3 Repairs and Alterations.

Statement of Need

The Federal Railroad Administration has a proposal out on railcars carrying Poison Inhalation Hazard (PIH) that will require a number of existing tank cars to be retired early. There is a potential that some of these tanks will be recycled into stationary tanks for service other then what they were design for.

Additionally, this practice already occurs in some industries without any consideration for any damage mechanisms that made have been present in the initial service. The NBIC does not currently address these types of events.

Background Information

Part 3 - Add a new paragraph to 3.2 General Requirements for Repairs and Alterations to address change of service for a pressure vessel. These requirements should caution inspectors, owners, repair organizations and jurisdictional authorities of the inherent dangers involved when changing service. A new supplement should be added to address the specific requirements for repairs and alterations of pressure vessels that have been converted from one service to another.

1.8 "NR" ACCREDITATION REQUIREMENTS

1.8.1 SCOPE

a) This section provides requirements that must be met for an organization to obtain a National Board *Certificate of Authorization* to use the "NR" Symbol Stamp for the Repair/Replacement activities performed in accordance with this Part and ~~ASME Section XI requirements.~~ meeting the requirements of ASME Section III and XI.

b) The issuance of the "NR" stamp is not restricted to organizations whose primary business is to perform repair/replacement activities or to manufacturers or assemblers that hold an ASME "N"-type Code symbol stamp. Owners and users of nuclear components and other organizations that qualify in accordance with these rules may also obtain the "NR" stamp.

1.8.2 APPLICATION

a) ASME Section XI requires the Owner or an outside organization perform repair/replacement activities in accordance with an acceptable Quality System Program. Quality System Program requirements are established in ASME Sections III and XI for ASME Certificate of Authorization Holders for the Owner and outside organizations, as applicable. The requirements specified in this section for Quality System Programs to be written, maintained and implemented by the "NR" Certificate of Authorization Holder are in accord with the requirements specified in ASME Section III and XI for Quality System Programs.

b) Prior to the completion of installation activities, an item that meets all of the requirements of ASME Section III may have repair/replacement activities performed using the rules set forth in ASME Section III or ASME Section XI, as determined by the Owner.

c) After the completion of installation activities, repair/replacement activities shall meet the requirements of the Owner, with acceptance of the Regulatory Authority, Jurisdiction, and the Authorized Inspection Agency, as applicable.

d) Organizations in possession of an "NR" *Certificate of Authorization* may perform repair/replacement activities to items certified as complying with ASME Section III either prior, during or after installation.

1.8.3 QUALITY SYSTEM PROGRAM

A holder of a National Board "NR" *Certificate of Authorization* shall have and maintain a written Quality System Program. The system shall satisfactorily meet the requirements of the NBIC, jurisdictional requirements, regulatory authority, and shall be available for review. The Quality System Program may be brief or voluminous, depending on the circumstances. It shall be treated confidentially by the National Board.

1.8.3.1 OUTLINE OF REQUIREMENTS FOR A QUALITY SYSTEM PROGRAM ~~FOR~~ TO QUALIFI~~CATION~~Y FOR THE NATIONAL BOARD "NR" ~~SYMBOL STAMP~~ CERTIFICATE OF AUTHORIZATION

These rules set forth the requirements for planning, managing, and implementing the organization's Quality System Programs for controlling the quality of activities performed during repair/replacement activities of components and systems in nuclear power plants within the scope of the applicable edition and addenda of Section III or XI of the ASME Code. These rules are to be the basis for evaluating such programs prior to the issuance or renewal of the National Board "NR" *Certificate of Authorization.*

a) Organization

1) The authority and responsibility of those in charge of the Quality System Program and activities affecting quality shall be clearly established and documented. The ~~person and~~ responsible individuals within the organization performing Quality System functions shall have sufficient and well-defined responsibility, authority, and organizational freedom to:

a. Identify quality problems;

b. Initiate action which results in solutions;

c. Verify implementation of solutions to those problems; and

d. Control further processing, delivery or installation of a nonconforming item, deficiency or unsatisfactory condition until proper disposition has been made.

2) The ~~person~~ individual ~~and organization~~ responsible for defining and ~~for~~ measuring the overall effectiveness of the Quality System Program shall be designated and shall be sufficiently independent from the pressure of production, have direct access to responsible management at a level where appropriate action can be ~~required~~ taken and report regularly on the effectiveness of the program. Assurance of quality requires management to establish measures which provide that the individual or group assigned the responsibility of inspection, testing, checking, or otherwise verifying that an activity has been correctly performed, is independent of the individual or group directly responsible for performing the specific activity. The specific responsibilities ~~of~~ within the Quality ~~Assurance~~ System's organization of the "NR" Certificate Holder shall include the review of written procedures and monitoring of all activities concerned with the Quality System Program as covered in these rules.

b) Quality System Program

1) Before becoming a holder of an "NR" *Certificate of Authorization*, the applicant shall establish a Quality System Program for the control of the quality of work to be performed. The program shall define the organizational structure within which the

(3)

Quality System Program is to be implemented and shall clearly delineate the responsibilities, levels of authority, and lines of communication for the various individuals involved. The program shall be documented in detail in a Quality System Manual that shall be a major basis for ~~demonstration of~~ demonstrating compliance with the NBIC. The applicant's Quality System Program shall be documented by written policies, procedures, and instructions and shall be based on the organization's scope of work to be performed.

2) The applicant's ~~program~~ manual need not be in the same format or sequential arrangement as the requirements in these rules as long as all applicable program requirements have been covered. The program shall provide for the accomplishment of activities affecting quality under suitably controlled conditions. Controlled conditions include the use of appropriate equipment, suitable environmental conditions for accomplishing the activity and assurance that prerequisites for the activity have been satisfied. The program shall take into account the need for special controls, processes, test equipment, tools, and personnel skills to attain the required quality and ~~need for~~ the verification of quality by examination, inspection and test methods. The program shall provide for ready detection of nonconforming material and items and for timely and positive corrective actions.

3) The program shall provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained. It shall be the responsibility of the "NR" Certificate Holder to ensure that all personnel performing quality functions within the scope of these rules, including personnel of subcontracted services, are qualified as specified in these rules. The assignment of qualified personnel shall be at the discretion of the "NR" Certificate Holder.

4) The "NR" Certificate Holder shall be responsible for advising his Authorized Nuclear Inspection Agency of any proposed changes to the Quality System Manual and shall have acceptance of the Authorized Nuclear Inspection Agency's Authorized Nuclear Inspector Supervisor before putting such changes into effect. The "NR" Certificate Holder shall make a current copy of the Quality System Manual available to the Authorized Nuclear Inspector. The "NR" Certificate Holder shall be responsible for promptly notifying the Authorized Nuclear Inspector of such accepted changes, including evidence of acceptance by the Authorized Nuclear ~~Inspection Agency~~ Inspector Supervisor.

5) The quality of all repair/replacement activities shall be controlled at all points necessary to ensure conformance with the requirements of these rules and the "NR" Certificate Holder's Quality System Manual.

6) The "NR" Certificate Holder shall make available to the Authorized Nuclear Inspector such ~~drawings and process sheets~~ documentation as ~~are~~ necessary to make the Quality System Program intelligible.

q) AUDITS

A comprehensive system of planned and periodic audits shall be performed to verify compliance to quality program requirements, verify performance criteria and determine the effectiveness of the quality program. Audit frequency shall be specified in the Quality Assurance Manual. Audits shall be conducted at least annually when Code work is performed. When Code work is not performed, the required audit shall be performed at least triennially. The Quality Assurance Manual shall, as a minimum, describe the following;

1) Audits shall be performed in accordance with written procedures or checklists by qualified audit personnel not having direct responsibility in areas being audited;
2) Audit personnel shall be qualified in accordance with applicable requirements of NQA-1 (2009A) or as specified by the Owner;
3) Audit results shall be documented and reviewed by responsible management;
4) Requirements for follow-up actions for any deficiencies noted during the audit;
5) Audit results and applicable documentation shall be made available to the Authorized Nuclear Inspector for review;
6) Audit records shall include; plans, reports, written replies and completion of corrective actions.

NB11–2201

INSPECTOR WITNESSING "R" STAMPING

Part 3

1.3.2 Acceptance Inspection

b) Before signing the appropriate NBIC Report Form, the Inspector shall review the drawings, ensure the repair or alteration was performed in accordance with the accepted code of construction or standard, witness any pressure test or any acceptable alternative test method applied, *witness the "R" stamp application of or the attachment of the nameplate to the pressure-retaining item,* ensure that the required nondestructive examinations have been performed satisfactorily, and that the other functions necessary to ensure compliance with the requirements of this Code have been satisfactorily performed.

5.7 STAMPING REQUIREMENTS FOR REPAIRS AND ALTERATIONS

5.7.1 General

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. Such stamping or attaching of a nameplate shall be done only with the knowledge and authorization of the Inspector *who shall witness the stamping of or attachment of the nameplate to the pressure-retaining item* . The "R" certificate holder responsible for the repair ot the construction portion of the 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 design shall apply the stamping.

Proposed revision to Part 3 1.3.2 Acceptance Inspection

Add to Paragraph b)

Before signing the appropriate NBIC Report Form, the Inspector shall review the drawings, ensure the repair or alteration was performed in accordance with the accepted code of construction or standard, witness any pressure test or any acceptable alternative test method applied, witness the attachment of the nameplate or the "R" stamp application to the pressure-retaining item, ensure that the required nondestructive examinations have been performed satisfactorily, and that the other functions necessary to ensure compliance with the requirements of this Code have been satisfactorily performed.

Statement of Need

To ensure that all the requirements have been met before the repair organization applies the "R" symbol stamp and that the Inspector actually witnesses the attachment of the nameplate or application of the stamp to the correct pressure-retaining item. Repaired pressure-retaining items have been returned to service that had the "R" symbol embossed instead of stamped on the nameplate. Embossing of is not permissible (see Part 3 5.7.7. b).

Background Information

During a triennial review it was discovered that an "R" stamp holder had been using nameplates that had the "R" symbol embossed on it. This had been going on for at least 10 years and apparently multiple Inspectors had never looked at an actual nameplate being installed. They all relied on either a photocopy or photo of the nameplate as opposed to witnessing the attachment to the PRI. There are approximately 60 incidents of this.

Obviously, the application of the "R" symbol is extremely important part of the NBIC's quality system and to not require the Inspector actually see the application of this stamping on the correct item delegitimizes the significance of the stamp.

Contact Information

Don Cook

Principal Safety Engineer

State of California

1515 Clay St Suite 1302

Oakland CA 94612

510 622-3050

dcook@dir.ca.gov

Proposed revision to Part 3 5.7.1 General

Add to 5.7.1

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. Such stamping or attaching of a nameplate shall be done only with the knowledge and authorization of the Inspector who shall witness the attachment of the nameplate or the "R" stamp application to the pressure-retaining item. The "R" certificate holder responsible for the repair of the construction portion of the 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 design shall apply the stamping.

Statement of Need

To ensure that all the requirements have been met before the repair organization applies the "R" symbol stamp and that the Inspector actually witnesses the attachment of the nameplate or application of the stamp to the correct pressure-retaining item. Repaired pressure-retaining items have been returned to service that had the "R" symbol embossed instead of stamped on the nameplate. Embossing of is not permissible (see Part 3 5.7.7. b).

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Principal Safety Engineer

State of California

1515 Clay St Suite 1302

Oakland CA 94612

510 622-3050

dcook@dir.ca.gov

NB12-0601

Proposed Revision

NBIC Part 3, 5.11 – REMOVAL OF ORIGINAL STAMPING OR NAMEPLATE

If it becomes necessary to remove original stamping, the Inspector shall, subject to the approval of the Jurisdiction, witness making of a facsimile of stamping, the obliteration of old stamping, and transfer of stamping to the new item. When stamping is on a nameplate, the Inspector shall witness transfer of nameplate to the new location. Any relocation shall be described on the applicable NBIC "R" Form. The re-stamping or replacement of ~~a~~ the ASME code symbol stamp is prohibited. The re-stamping or replacement of other than the ASME code symbol stamp shall be performed only as permitted by the governing code of construction.

Statement of Need

The current ASME Conformity Assessment Policy, *CAP-21 CRITERIA FOR REAPPLICATION OF AN ASME CERTIFICATION MARK*, covers the reapplication of the ASME mark if the nameplate or stamping becomes lost or illegible. After December 31, 2012 ASME will be using a single mark for code stamped items and the old marks will no longer be available. ASME's Managing Director of Conformity Assessment stated that it would be inappropriate to apply the single mark to an item that was previously stamped with the former code symbol stamp. Since this applies to in-service pressure-retaining items, ASME thinks it is appropriate that the National Board develop the requirements for a replacement stamping or nameplate.

c) Background Information

See attached E-mail and ASME Conformity Assessment Policy CAP-21.

Fw: CAP-21 Criteria for Reapplication of an ASME Certification Mark

David Douin to: Chuck Withers, Terry Parks 07/22/2011 02:08 PM

History: This message has been replied to.

FYI. Please review and we can discuss next week.
----- Forwarded by David Douin/NationalBoard on 07/22/2011 02:07 PM -----

From:	David Wizda <WizdaD@asme.org>
To:	David Douin <DDouin@nationalboard.org>
Cc:	June Ling <LingJ@asme.org>, Alan Bagner <BagnerA@asme.org>, "Wilfred_LaRochelle@HSBCT.COM" <Wilfred_LaRochelle@HSBCT.COM>, "Stevenson, Richard" <richard.stevenson@shawgrp.com>
Date:	07/22/2011 01:44 PM
Subject:	CAP-21 Criteria for Reapplication of an ASME Certification Mark

Dave,

Attached is the current ASME Conformity Assessment policy which covers reapplication of the ASME mark if the nameplate becomes lost or illegible. We have taken another look at this policy in light of the single mark. After December 31, 2012, the old marks will not be available and it would be inappropriate to apply the new single mark to an old piece of equipment.

Since this applies to in-service equipment, we thought it might be more appropriate for the NB to develop a requirement for a replacement nameplate which does not include an ASME mark. This has not been discussed by the Board on Conformity Assessment yet, but we were wondering whether you would be willing to take this on if it is determined that this is a reasonable alternative.

Regards,

David Wizda
Managing Director, Conformity Assessment
ASME
Three Park Avenue
New York, NY 10016
1.212.591.8590
WizdaD@asme.org

CAP-21.docx

CAP-21 CRITERIA FOR REAPPLICATION OF AN ASME CERTIFICATION MARK

1 After an item has been certified under an ASME standard, if the ASME certification mark (e.g. Code Symbol Stamp) becomes indistinct or the nameplate is illegible or lost, but traceability to the original certification can be established, the certification mark may be reapplied to the item.

2 Reapplication of certification marks shall only be permitted under the following conditions:

2.1 The owner has requested the reapplication.

2.2 Where applicable, the Jurisdiction has granted the request for reapplication.

2.3 The reapplication shall be performed by the original manufacturer of the Code item. Where responsibility to the original Code certification has been maintained, reapplication by a successor organization to the original manufacturer is permitted.

2.4 The reapplication shall be authorized and witnessed by an Inspector from an ASME accredited Authorized Inspection Agency, or by an authorized representative of the Qualified Inspection Organization or a Certified Individual, as applicable under the associated certification program.

2.5 The reapplication of the mark shall be documented on a data report form which is retained as required for the original data report.

3 Reapplication of the certification mark shall only be provided to restore evidence of original compliance with the standard. Reapplication of the mark shall not be applied for certification of the current condition of the item or for certification to different requirements than originally constructed.

1.5.1 ACCREDITATION PROCESS

a) The National Board administers accreditation programs for authorization of organizations performing repairs and alterations to pressure-retaining items and/or pressure relief valves.

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) When the quality system requirements of this Section have been met, a Certificate of Authorization and appropriate National Board symbol stamp shall be issued.~~

d) e) The accreditation programs provide requirements for organizations performing repairs and alterations to pressure-retaining items. Depending upon the expected scope of activities at the time of review, organizations may be authorized to perform design only, metallic or non-metallic repairs, and/or alterations either in the shop only, field only, or shop and field. Repairs and/or alterations to metallic and non-metallic pressure-retaining items are made by welding, bonding and/or mechanical assembly.

~~1.5.2 SCOPE ISSUANCE AND REVISION TO A QUALITY SYSTEM~~

~~a) Any scope revision shall require authorized inspection agency acceptance of quality system changes. These changes shall be submitted to the National Board for acceptance. A program review may be required by the National Board or the Jurisdiction to ensure quality system requirements are met for scope changes. Upon acceptance of the changes, the National Board will issue a Certificate of Authorization with a revised scope.~~

~~b) The "VR" accreditation program provides requirements for organizations performing repairs to pressure relief valves. For scope issuance and revisions, refer to 1.7.~~

~~1.6 ACCREDITATION OF "R" REPAIR ORGANIZATIONS~~

~~1.6.1 SCOPE~~

~~a) This section provides requirements that must be met by organizations in order to obtain a National Board Certificate of Authorization to use the "R" Symbol Stamp for the~~

repair or alteration of pressure-retaining items. Organizations may be authorized to perform repairs only, or repairs and alterations.

b) The issuance of the "R" Stamp is not restricted to organizations whose primary business is to repair and alter pressure-retaining items, nor to manufacturers of pressure-retaining items. Owners and Users of pressure-retaining items and other organizations that qualify in accordance with these rules may also obtain the "R" Stamp.

c) Owners or users may be accredited for both a repair and inspection program provided the owner or user complies with the requirements of the "R" program and the National Board requirements of NB 371 for an Owner-User Inspection Organization. The requirements of 1.6.2(a) do not apply if the owner or user chooses to use the Owner-User Inspection Organization to accept the repair quality system when:

1) There is no conflict with jurisdictional requirements.

2) The line of authority for the Owner-User Inspection Organization shall be independent of the organization responsible for execution of "R" program work.

3) The process and Inspector limitations are described in the written Owner-User Inspection Organization's quality system manual.

1.6.2 PREREQUISITES FOR ISSUING A NATIONAL BOARD CERTIFICATE OF AUTHORIZATION

Before an organization can obtain a National Board "R" Certificate of Authorization, the organization shall:

a) Have and maintain an Inspection Agreement with an Authorized Inspection Agency;

b) Have, in the English language, a written Quality System that complies with the requirements of this section and includes the expected scope of activities;

c) Have the current edition and addendum of the National Board Inspection Code, all parts; and

d) Have available a copy of the code of construction appropriate to the intended scope of work.

1.6.3 PROCEDURE FOR OBTAINING OR RENEWING A NATIONAL BOARD CERTIFICATE OF AUTHORIZATION

a) Prior to issuance or renewal of a National Board "R" Certificate of Authorization, the organization and its facilities are subject to a review of its Quality System. The implementation of the Quality System shall be satisfactorily demonstrated by the

~~organization. The National Board reserves the absolute right to cancel, refuse to issue, or renew such authorization.~~

~~e)~~ b) Organizations desiring to renew or obtain a National Board Certificate of Authorization shall apply to the National Board using forms obtained from the National Board. Application for renewal shall be made prior to the expiration date of the Certificate of Authorization.

~~f)~~ ~~e)~~ When an organization has plants or shops in more than one location, the organization shall submit separate applications for each plant or shop. 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.

~~d) Upon notification of the review dates from the National Board, it is the responsibility of the organization to make arrangements for the review.~~

~~e) The Review Team, as a minimum, shall consist of one representative each from the Authorized Inspection Agency and the Jurisdiction.[2]~~

~~f) The Review Team shall conduct an evaluation of the organization's Quality System. The organization shall demonstrate sufficient implementation of the Quality System to provide evidence of the organization's knowledge of welding, nondestructive examination, postweld heat treatment, and other repair or alteration activities performed appropriate for the requested scope of work. The demonstration may be performed using current work, a demonstration mock-up, or a combination of both.~~

~~g) A recommendation to issue, renew, or withhold the National Board Certificate of Authorization shall be included in a Review Report prepared by the Review Team. The completed Review Report shall be forwarded to the National Board.~~

~~h) If proper administrative fees are paid and all other requirements are met, a Certificate of Authorization will be issued evidencing permission to use the "R" Symbol Stamp. The certificate shall expire on the triennial anniversary date.~~

~~i) When an organization holding a National Board Certificate of Authorization changes ownership, name, location, or address, the National Board shall be notified. The Certificate of Authorization may be revised by submitting an application for National Board "R" Certificate of Authorization; however, a re-review may be required.~~

~~j) The holder of an ASME Code Symbol Stamp, whose facilities were reviewed (with the exception of "V," "UV," "HV," "NV," and "H" [cast iron]) may obtain National Board authorization without a review of its facilities, provided:~~

~~1) The organization has a Quality System to cover the scope of the repairs or alterations to be made, subject to review by the Jurisdiction; and~~

~~2) The application for the "R" Certificate of Authorization is submitted within 12 months from the issuance of the ASME Certificate of Authorization. The initial Certificate of Authorization shall be issued to expire concurrent with the ASME Certificate of Authorization. Subsequent certificates shall be renewed upon a successful review and implementation of its Quality System by a National Board Representative.~~

g) ~~k)~~ The Jurisdiction[2] may audit the Quality System and activities of an organization upon a valid request from an owner, user, inspection agency, or the National Board.

h) ~~l)~~ 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.

1.6.4 NATIONAL BOARD "R" SYMBOL STAMP

a) All "R" Symbol Stamps shall be obtained from the National Board of Boiler and Pressure Vessel Inspectors. Authorization to use the "R" Symbol Stamp may be granted by the National Board at its absolute discretion to the certificate holder.

b) The "R" Symbol Stamp is furnished on loan by the National Board for a nominal fee. Each organization shall agree if authorization to use the "R" Symbol Stamp is granted, that the "R" Symbol Stamp is at all times the property of the National Board and will be promptly returned upon demand. If the organization discontinues the use of the "R" Symbol Stamp, inspection agreement with an Authorized Inspection Agency, or if the Certificate of Authorization has expired and no new certificate has been issued, the "R" Symbol Stamp shall be returned to the National Board.

c) The organization's Quality System shall provide for adequate control of the "R" Symbol Stamp. Provisions may be made for the issuance of the "R" Symbol Stamp for use at various field locations.

d) The holder of a Certificate of Authorization may obtain more than one "R" Symbol Stamp provided the organization's Quality System describes how the use of such stamps is controlled from the location shown on the certificate.

e) An organization shall not permit others to use the "R" Symbol Stamp loaned to it by the National Board.

[2] Jurisdiction: The National Board member jurisdiction where the organization is located. Alternatively, where the Jurisdiction elects not to perform the review or where there is no Jurisdiction or where the Jurisdiction is the organization's Authorized Inspection Agency, the National Board of Boiler and Pressure Vessel Inspectors will represent the Jurisdiction. At the Jurisdiction's discretion, the Jurisdiction may choose to be a member of the review team if the Jurisdiction chooses not to be the team leader.

1.6.5 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 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.

1.6.5.1 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 defined for maintaining full responsibility for code compliance by the National Board repair organization certifying the work.

a) **Title Page**

The name and complete address of the company to which the National Board Certificate of Authorization is issued shall be included on the Title Page of the Quality System Manual.

b) **Contents Page**

The manual should contain a page listing the contents of the manual by subject, number (if applicable), and revision number of each document.

c) **Scope of Work**

The manual shall clearly indicate the scope and type of repairs or alterations the organization is capable of and intends to carry out.

d) **Statement of Authority and Responsibility**

A dated Statement of Authority, signed by an officer of the organization, shall be included in the manual. Further, the Statement of Authority shall include:

1) A statement that all repairs or alterations carried out by the organization shall meet the requirements of the NBIC and the Jurisdiction, as applicable.

2) A statement that if there is a disagreement in the implementation of the Quality

System, the matter is to be referred for resolution to a higher authority in the company.

3) The title of the individual who will be responsible to ensure that (1) above is followed and has the freedom and authority to carry out the responsibility.

e) **Manual Control**

The manual shall include the necessary provisions for revising and issuing documents to maintain the manual current. The title of the individual authorized to approve revisions shall be included in the manual. Revisions must be accepted by the Authorized Inspection Agency prior to issuance of the manual and implementation.

f) **Organization**

An organizational chart shall be included in the manual. It shall include the title of the heads of all departments or divisions that perform functions that can affect the quality of the repair or alteration, and it shall show the relationship between each department or division. The manual shall identify the title of those individuals responsible for preparation, implementation, or verification of the Quality System. The responsibilities shall be clearly defined and the individuals shall have the organizational freedom and authority to fulfill those responsibilities.

g) **Drawings, Design and Specifications**

The manual shall contain controls to ensure that all design information, applicable drawings, design calculations, specifications, and instructions are prepared or obtained, controlled, and interpreted in accordance with the original code of construction.

h) **Repair and Alteration Methods**

The manual shall include controls for repairs and alterations, including, mechanical assembly procedures, materials, nondestructive examination methods, pre-heat, and postweld heat treatment, as applicable. Special requirements such as nonmetallic repairs and alterations to graphite and fiber-reinforced thermosetting plastic pressure-retaining items including bonding or mechanical assembly procedures shall be addressed, if applicable.

i) **Materials**

The manual shall describe the method used to assure that only acceptable materials (including welding material) are used for repairs and alterations. The manual shall include a description of how existing material is identified and new material is ordered, verified, and identified. The manual shall identify the title of the individual(s) responsible for each function and a brief description of how the function is to be performed.

j) Method of Performing Work

The manual shall describe the methods for performing and documenting repairs and alterations in sufficient detail to permit the Inspector to determine at what stages specific inspections are to be performed. The method of repair or alteration must have prior acceptance of the Inspector.

k) Welding, NDE and Heat Treatment

The manual shall describe controls for welding, nondestructive examination, and heat treatment. The manual is to indicate the title of the individual(s) responsible for the welding procedure specification and its qualification, and the qualification of welders and welding operators. It is essential that only welding procedure specifications and welders or welding operators qualified, as required by the NBIC, be used in the repair or alteration of pressure-retaining items. It is also essential that welders and welding operators maintain their proficiency as required by the NBIC, while engaged in the repair or alteration of pressure-retaining items. The manual shall also describe controls for assuring that the required WPS or SWPS is available to the welder or welding operator prior to welding. Similar responsibility for nondestructive examination and heat treatment shall be described in the manual.

l) Examinations and Tests

Reference shall be made in the manual for examinations and tests upon completion of the repair or alteration.

m) Calibration

The manual shall describe a system for the calibration of examination, measuring, and test equipment used in the performance of repairs and alterations.

n) Acceptance and Inspection of Repair or Alteration

The manual shall specifically indicate that before the work is started, acceptance of the repair/alteration shall be obtained from an Inspector who will make the required inspections and confirm NBIC compliance by signing and dating the applicable NBIC Report Form[3] upon completion of the work.

[3] NBIC Report Form: National Board Form R-1 for Repairs, Form R-2 for Alterations, or Form R-3 for Fabricated Parts or altered component can be considered in compliance with the NBIC.

o) **Inspections**

The manual shall make provisions for the Inspector to have access to all drawings, design calculations, specifications, procedures, process sheets, repair or alteration procedures, test results, and other documents as necessary to ensure compliance with the NBIC. A copy of the current manual shall be available to the inspector.

p) **Report of Repair or Alteration Form**

The manual shall indicate the title of the individuals responsible for preparing, signing, and presenting the NBIC Report Forms to the Inspector. The distribution of the NBIC Report Forms shall be described in the manual.

q) **Exhibits**

Any forms referenced in the manual shall be included. The form may be a part of the referencing document or included as an appendix. For clarity, the forms may be completed and identified as examples. The name and accepted abbreviations of the "R" Certificate Holder shall be included in the manual.

r) **Construction Code**

The manual shall include provisions for addressing the requirements that pertain to the specific construction code for the equipment being repaired or altered.

s) **Nonconforming Items**

There shall be a system acceptable to the Inspector for the correction of nonconformities. A nonconformance is any condition that does not comply with the applicable rules of the NBIC, construction code, jurisdictional requirements, or the quality system. Nonconformance must be corrected or eliminated before the repaired

1.5.1 ACCREDITATION PROCESS

a) The National Board administers accreditation programs for authorization of organizations performing repairs and alterations to pressure-retaining items and/or pressure relief valves.

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. Depending upon the expected scope of activities at the time of review, organizations may be authorized to perform design only, metallic or non-metallic repairs, and/or alterations either in the shop only, field only, or shop and field. Repairs and/or alterations to metallic and non-metallic pressure-retaining items are made by welding, bonding and/or mechanical assembly.

e) Organizations desiring to renew or obtain a National Board Certificate of Authorization shall apply to the National Board using forms obtained from the National Board. Application for renewal shall be made prior to the expiration date of the Certificate of Authorization.

f) When an organization has plants or shops in more than one location, the organization shall submit separate applications for each plant or shop. 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.

g) The Jurisdiction may audit the Quality System and activities of an organization upon a valid request from an owner, user, inspection agency, or the National Board.

h) 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.

1.5.2 NATIONAL BOARD "R" SYMBOL STAMP

a) All "R" Symbol Stamps shall be obtained from the National Board of Boiler and Pressure Vessel Inspectors. Authorization to use the "R" Symbol Stamp may be granted by the National Board at its absolute discretion.

b) The "R" Symbol Stamp is furnished on loan by the National Board for a nominal fee. Each organization shall agree if authorization to use the "R" Symbol Stamp is granted, that the "R" Symbol Stamp is at all times the property of the National Board and will be promptly returned upon demand. If the organization discontinues the use of the "R" Symbol Stamp, inspection agreement with an Authorized Inspection Agency, or if the Certificate of Authorization has expired and no new certificate has been issued, the "R" Symbol Stamp shall be returned to the National Board.

c) The organization's Quality System shall provide for adequate control of the "R" Symbol Stamp. Provisions may be made for the issuance of the "R" Symbol Stamp for use at various field locations.

d) The holder of a Certificate of Authorization may obtain more than one "R" Symbol Stamp provided the organization's Quality System describes how the use of such stamps is controlled from the location shown on the certificate.

e) An organization shall not permit others to use the "R" Symbol Stamp loaned to it by the National Board.

[2] Jurisdiction: The National Board member jurisdiction where the organization is located. Alternatively, where the Jurisdiction elects not to perform the review or where there is no Jurisdiction or where the Jurisdiction is the organization's Authorized Inspection Agency, the National Board of Boiler and Pressure Vessel Inspectors will represent the Jurisdiction. At the Jurisdiction's discretion, the Jurisdiction may choose to be a member of the review team if the Jurisdiction chooses not to be the team leader.

1.6 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 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.

1.6.1 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 defined for maintaining full responsibility for code compliance by the National Board repair organization certifying the work.

a) **Title Page**

The name and complete address of the company to which the National Board Certificate of Authorization is issued shall be included on the Title Page of the Quality System Manual.

b) **Contents Page**

The manual should contain a page listing the contents of the manual by subject, number (if applicable), and revision number of each document.

c) **Scope of Work**

The manual shall clearly indicate the scope and type of repairs or alterations the organization is capable of and intends to carry out.

d) **Statement of Authority and Responsibility**

A dated Statement of Authority, signed by an officer of the organization, shall be included in the manual. Further, the Statement of Authority shall include:

1) A statement that all repairs or alterations carried out by the organization shall meet the requirements of the NBIC and the Jurisdiction, as applicable.

2) A statement that if there is a disagreement in the implementation of the Quality System, the matter is to be referred for resolution to a higher authority in the company.

3) The title of the individual who will be responsible to ensure that (1) above is followed and has the freedom and authority to carry out the responsibility.

e) Manual Control

The manual shall include the necessary provisions for revising and issuing documents to maintain the manual current. The title of the individual authorized to approve revisions shall be included in the manual. Revisions must be accepted by the Authorized Inspection Agency prior to issuance of the manual and implementation.

f) **Organization**

An organizational chart shall be included in the manual. It shall include the title of the heads of all departments or divisions that perform functions that can affect the quality of the repair or alteration, and it shall show the relationship between each department or division. The manual shall identify the title of those individuals responsible for preparation, implementation, or verification of the Quality System. The responsibilities shall be clearly defined and the individuals shall have the organizational freedom and authority to fulfill those responsibilities.

g) **Drawings, Design and Specifications**

The manual shall contain controls to ensure that all design information, applicable drawings, design calculations, specifications, and instructions are prepared or obtained, controlled, and interpreted in accordance with the original code of construction.

h) **Repair and Alteration Methods**

The manual shall include controls for repairs and alterations, including, mechanical assembly procedures, materials, nondestructive examination methods, pre-heat, and postweld heat treatment, as applicable. Special requirements such as nonmetallic repairs and alterations to graphite and fiber-reinforced thermosetting plastic pressure-retaining items including bonding or mechanical assembly procedures shall be addressed, if applicable.

i) **Materials**

The manual shall describe the method used to assure that only acceptable materials (including welding material) are used for repairs and alterations. The manual shall include a description of how existing material is identified and new material is ordered, verified, and identified. The manual shall identify the title of the individual(s) responsible for each function and a brief description of how the function is to be performed.

j) **Method of Performing Work**

The manual shall describe the methods for performing and documenting repairs and alterations in sufficient detail to permit the Inspector to determine at what stages specific inspections are to be performed. The method of repair or alteration must have prior acceptance of the Inspector.

k) **Welding, NDE and Heat Treatment**

The manual shall describe controls for welding, nondestructive examination, and heat treatment. The manual is to indicate the title of the individual(s) responsible for the welding procedure specification and its qualification, and the qualification of welders and welding operators. It is essential that only welding procedure specifications and welders

or welding operators qualified, as required by the NBIC, be used in the repair or alteration of pressure-retaining items. It is also essential that welders and welding operators maintain their proficiency as required by the NBIC, while engaged in the repair or alteration of pressure-retaining items. The manual shall also describe controls for assuring that the required WPS or SWPS is available to the welder or welding operator prior to welding. Similar responsibility for nondestructive examination and heat treatment shall be described in the manual.

l) **Examinations and Tests**

Reference shall be made in the manual for examinations and tests upon completion of the repair or alteration.

m) **Calibration**

The manual shall describe a system for the calibration of examination, measuring, and test equipment used in the performance of repairs and alterations.

n) **Acceptance and Inspection of Repair or Alteration**

The manual shall specifically indicate that before the work is started, acceptance of the repair/alteration shall be obtained from an Inspector who will make the required inspections and confirm NBIC compliance by signing and dating the applicable NBIC Report Form[3] upon completion of the work.

o) **Inspections**

The manual shall make provisions for the Inspector to have access to all drawings, design calculations, specifications, procedures, process sheets, repair or alteration procedures, test results, and other documents as necessary to ensure compliance with the NBIC. A copy of the current manual shall be available to the inspector.

p) **Report of Repair or Alteration Form**

The manual shall indicate the title of the individuals responsible for preparing, signing, and presenting the NBIC Report Forms to the Inspector. The distribution of the NBIC Report Forms shall be described in the manual.

[3] NBIC Report Form: National Board Form R-1 for Repairs, Form R-2 for Alterations, or Form R-3 for Fabricated Parts or altered component can be considered in compliance with the NBIC.

q) **Exhibits**

Any forms referenced in the manual shall be included. The form may be a part of the referencing document or included as an appendix. For clarity, the forms may be completed and identified as examples. The name and accepted abbreviations of the "R" Certificate Holder shall be included in the manual.

r) **Construction Code**

The manual shall include provisions for addressing the requirements that pertain to the specific construction code for the equipment being repaired or altered.

s) **Nonconforming Items**

There shall be a system acceptable to the Inspector for the correction of nonconformities. A nonconformance is any condition that does not comply with the applicable rules of the NBIC, construction code, jurisdictional requirements, or the quality system. Nonconformance must be corrected or eliminated before the repaired

1.7 ACCREDITATION OF "VR" REPAIR ORGANIZATIONS

1.7.1 SCOPE

a) These administrative rules and procedures are provided by the National Board for those who wish to obtain a National Board Certificate of Authorization for use of the "VR" (Repair of Pressure Relief Valves) symbol stamp. It should be noted that the issuance of the "VR" stamp is not restricted to companies whose primary business is the repair of pressure relief valves, nor to manufacturers or assemblers that hold an ASME "V," "HV," "UV," or "NV" Code symbol stamp. Owners and users of boilers and pressure vessels and other organizations that qualify in accordance with the National Board Rules and Regulations may also obtain the "VR" Certificate and stamp.

b) In order to provide due process in the issuance, renewal, and revocation of "VR" symbol stamps and certificates of authorization, the National Board Appeals Committee procedures provide an affected "VR" Certificate of Authorization applicant the right of appeal, or to provide additional information that may affect the Committee's decision.

1.7.2 JURISDICTIONAL PARTICIPATION

The National Board member jurisdiction in which the "VR" organization is located is encouraged to participate in the review and demonstration of the applicant's quality system. The Jurisdiction may require participation in the review of the repair organization and the demonstration and acceptance of the repair organization's quality system manual.

1.7.3 GENERAL RULES

The general rules of the National Board "VR" certification program apply only to the repair of National Board capacity certified ASME Code Section I "V" stamped, Section IV "HV" marked, and Section VIII "UV" stamped pressure relief valves that:

a) Have been in service or have been exposed to environmental or other conditions such that there is reason to question their ability to perform equivalent to the standards for new valves; or

b) Any or all of the valve's external adjustment seals have been broken, opened, or otherwise disturbed, regardless of the valve's age or service status.

1.7.4 REPAIR OF NUCLEAR VALVES

Provided that the requirements of Supplement 9 and applicable requirements of these rules are met, the "VR" certificate may be extended to apply to the repair of any ASME Code Section III, Class 1, 2, or 3, pressure relief devices that have been capacity certified by the National Board and have been in service, regardless of their intended function, in a nuclear system.

1.7.3 ~~1.7.5~~ ISSUANCE AND RENEWAL OF THE "VR" CERTIFICATE OF AUTHORIZATION

1.7.3.1 ~~1.7.5.1~~ GENERAL

Authorization to use the stamp bearing the official National Board "VR" symbol as shown in Section 5 of this Part, will be granted by the National Board pursuant to the provisions of the following administrative rules and procedures. ~~Supplement 9 of this Part, provides rules for the repair of ASME Section III "NV" stamped pressure relief devices.~~

1.7.3.2 ~~1.7.5.2~~ ISSUANCE OF CERTIFICATE

a) Repair organizations, manufacturers, assemblers, or users that make repairs to the American Society of Mechanical Engineers (ASME) Code symbol, stamped or marked (as applicable), and The National Board of Boiler and Pressure Vessel Inspectors (National Board) capacity certified pressure relief valves may apply to the National Board for a Certificate of Authorization to use the "VR" symbol. The National Board may ~~at any time, through the NBIC Committee, modify the regulations concerning the issuance and use of such valve repair symbol. All such modified regulations shall become binding upon holders of valid Valve Repair Certificates of Authorization.~~

~~b) Authorization to use the "VR" stamp may be granted or withheld by the National Board in its absolute discretion. If authorization is granted and proper administrative fees paid, a Certificate of Authorization will be issued evidencing permission to use such a symbol, expiring on the triennial anniversary date. The certificate will be signed by the National Board Chairman of the National Board of Trustees, the Executive Director, or any other duly authorized officer.~~

~~c) The certificate shall list the physical, permanent address of record for the certificate holder's shop/plant. For field only scopes, this address of record shown on the Certificate of Authorization is where administrative, technical, and quality aspects of the business are controlled.~~

~~1.7.5.3 RENEWAL OF CERTIFICATE~~

~~The Certificate of Authorization is renewable every three (3) years subject to a review of the Quality System by a representative of the National Board, review and acceptance of the representative's report by the National Board, and successful completion of capacity verification tests. See 1.7.8 for exceptions. The applicant should apply to the National Board for renewal of authorization and re-issuance of the certificate prior to the date of expiration. The National Board reserves the absolute right to cancel, refuse to issue, or renew such authorization.~~

1.7.5.4 REVIEW OF APPLICANT'S FACILITY

a) Before issuance or renewal of pressure relief "VR" Certificates of Authorization, the repair organization, its written quality system, and its facilities are subject to a review and verification of implementation of its quality system by a representative of the National Board. The implementation demonstration shall include, as a minimum, disassembly, inspection, repair, application of special processes, reassembly, setting, and testing of valves within the scope of the applicant's quality system.

b) The applicant shall repair and submit for verification testing one (1) valve for each Code section (except Section III) and test fluid (steam, air/gas, liquid) which will appear on the Certificate of Authorization. A minimum of two (2) valves are required regardless of Code sections or test fluid. The valves shall be within the capabilities of the National Board accepted laboratory. When an applicant is using the provisions of 4.5.2, the applicant shall submit one additional Section VIII steam valve set on air for verification testing on steam.

c) The applicant shall have a copy of the National Board Pressure Relief Device Certifications publication, NB-18, dated within one year (available from the National Board Web page), the latest edition and addenda of the National Board Inspection Code (NBIC), all parts; and the ASME Code section(s) that the organization is including in its scope.

d) It is the responsibility of the valve repair organization to make arrangements for this review. Certificates cannot be issued or renewed until the National Board is in receipt of approval of this review. Wherever possible, National Board reviews of valve repair organizations shall be coordinated with ASME reviews, when applicable.

e) For field only repair scopes, the review shall encompass both the applicant's address of record and field repair demonstration site. The demonstration site shall be representative of that typically encountered by the applicant (see 1.7.5.6).

1.7.5.5 VERIFICATION TESTING

a) Before the "VR" Certificate of Authorization and stamps may be issued or renewed, the demonstration valves must successfully complete capacity and operational verification tests at a National Board accepted testing laboratory. See 1.7.5.6 and 1.7.8 for exceptions. The valves shall be typical of those repaired by the organization and within the capabilities of the testing laboratory.

b) Tests conducted at the accepted testing laboratory shall be witnessed by a representative of the National Board. The purpose of the tests is to ensure that the repairs have been satisfactorily carried out and the function and operation of the valves meet the requirements of the section of the ASME Code to which they were manufactured.

c) Valves not meeting the function or operational requirements of the section of the ASME Code to which they were manufactured shall be considered to have failed. Replacement valves shall be repaired and selected for testing as stated above, at a rate of two (2) valves for each one (1) that failed.

1) If either or both of these replacement valves fail to meet the above criteria, the applicant shall document the cause of the noted deficiencies and actions taken to guard against future occurrence. Upon acceptance of this information by the National Board, one (1) additional valve for each replacement valve that failed shall be repaired and tested. The valve(s) shall be of the same ASME Code Section, fluid and set pressure scope, as the valve previously failing to meet the test requirement.

2) Failure of this valve(s) to meet the ASME Code to which the valve was manufactured shall be cause for consideration by the National Board of revocation of the "VR" Certificate of Authorization or acceptance of alternative corrective action.

1.7.5.6 VERIFICATION TESTING ALTERNATIVES

a) In such cases where all valves repaired by the applicant for a specified ASME Code Section or test fluid exceed the capabilities of the accepted testing laboratory, valves for that ASME Code Section or test fluid shall be selected as specified in 1.7.5.4, and a demonstration test shall be successfully performed in lieu of verification testing specified in 1.7.5.5 above. The demonstration tests shall be conducted at a facility mutually agreeable to the National Board representative, the facility owner, and the applicant. The purpose of these tests is to demonstrate, in the presence of a National Board representative, that the repaired valves shall have adequate seat tightness at the maximum expected operating pressure prior to lifting, shall open within the required set pressure tolerance, operate consistently without chatter, and reclose within the required blowdown.

b) If a valve lift-assist device is used by the applicant to establish set pressure after repairs, this device must also be used to set the demonstration valves.

c) If either of these valves fail to meet the above criteria, then replacement valves shall be repaired and tested at a rate of two valves for each one that failed.

1) If either or both of these replacement valves fail to meet the above criteria, the applicant shall document the cause of the noted deficiencies and actions taken to guard against future occurrence. Upon acceptance of this information by the National Board, one (1) additional valve for each replacement valve that failed shall be repaired and tested. The valve(s) shall be of the same ASME Code section, fluid, and set pressure scope as the valve previously failing to meet the test requirement.

2) Failure of this valve(s) to meet the ASME Code to which the valve was manufactured shall be cause for consideration by the National Board of revocation of the "VR" Certificate of Authorization or acceptance of alternative corrective action.

1.7.4 1.7.6 USE OF THE "VR" AUTHORIZATION

1.7.4.1 1.7.6.1 TECHNICAL REQUIREMENTS

The administrative requirements of 1.7 for use of the "VR" stamp shall be used in conjunction with the technical requirements for valve repair as described in Supplement 7 of the NBIC. Those requirements shall be mandatory when a "VR" repair is performed.

1.7.6.2 STAMP USE

Each "VR" symbol stamp shall be used only by the repair firm within the scope, limitations, and restrictions under which it was issued.

1.7.4.2 1.7.6.3 RETURN OF STAMP

Each applicant shall agree, if authorization to use the stamp is granted, that the stamp is at all times the property of the National Board and will be promptly returned upon demand. If the applicant discontinues the repair of such valves or if the "VR" Certificate of Authorization issued to such applicant has expired and no new certificate has been issued, the stamp will be returned to the National Board.

1.7.6.4 MULTIPLE LOCATIONS

A holder of a National Board "VR" stamp shall not permit any others to use the "VR" symbol stamp loaned to it by the National Board. When a repair organization, manufacturer, or user has a repair department and/or equipment in fixed plants or shops located in more than one geographical area, it must submit separate applications for each plant or shop with the addresses of all such repair locations.

1.7.6.5 CERTIFICATE OF AUTHORIZATION CONTENTS

Qualification for repair location (shop, shop and field, or field only), code section (Section I, III, IV, and/or VIII valves), special processes, and test media shall be specified on the repair organization's "VR" Certificate of Authorization.

1.7.6.6 CHANGES TO CERTIFICATES OF AUTHORIZATION

a) When a "VR" Certificate Holder intends to change the address of record (location), the certificate holder shall notify the National Board in writing prior to relocating. The new facilities and related quality system for the new location shall be reviewed in

~~accordance with 1.7.5.4. Issuance of a new Certificate of Authorization is subject to the procedures herein.~~

~~b) When a "VR" Certificate Holder intends to change ownership or scope, the certificate holder shall notify the National Board in writing prior to the change. A review, in accordance with 1.7.5.4, may be required depending upon the nature and extent of the change to the quality system manual, repair procedures, or facilities. Issuance of a new Certificate of Authorization is subject to the procedures herein.~~

~~1.7.6.7 ISSUANCE OF MORE THAN ONE "VR" SYMBOL STAMP TO A CERTIFICATE OF AUTHORIZATION HOLDER~~

~~The holder of a Certificate of Authorization may obtain more than one "VR" symbol stamp provided its quality system manual controls the use of such stamps from the address of record shown on the Certificate of Authorization.~~

1.7.5 ~~1.7.7~~ QUALITY SYSTEM

1.7.5.1 ~~1.7.7.1~~ GENERAL

Each applicant for a new or renewed "VR" Certificate of Authorization shall have and maintain a quality system which shall establish that all of these rules and administrative procedures and applicable ASME Code requirements, including material control, fabrication, machining, welding, examination, setting, testing, inspection, sealing, and stamping will be met.

1.7.5.2 ~~1.7.7.2~~ WRITTEN DESCRIPTION

A written description, in the English language, of the system the applicant will use shall be available for review and shall contain, as a minimum, the features set forth in 1.7.7.5. This description may be brief or voluminous, depending upon the projected scope of work, and shall be treated confidentially. In general, the quality system shall describe and explain what documents and procedures the repair firm will use to validate a valve repair.

~~1.7.7.3 REVIEW~~

~~A review of the applicant's quality system will be performed by a representative of the National Board. The review will include a demonstration of the implementation of the provisions of the applicant's quality system.~~

1.7.5.3 ~~1.7.7.4~~ MAINTENANCE OF CONTROLLED COPY

Each applicant to whom a "VR" Certificate of Authorization is issued shall maintain thereafter a controlled copy of the accepted quality system manual with the National Board. Except for changes that do not affect the quality system, revisions to the quality system manual shall not be implemented until such revisions are accepted by the National Board.

1.7.5.4 ~~1.7.7.5~~ OUTLINE OF REQUIREMENTS FOR A QUALITY SYSTEM

The following establishes the minimum requirements of the written description of the quality system. It is required that each valve repair organization develop its own quality system that meets the requirements of its organization. For this reason it is not possible to develop one quality system that could apply to more than one organization. The written description shall include, as a minimum, the following features:

a) **Title Page**
The title page shall include the name and address of the company to which the National Board Certificate of Authorization is to be issued.

b) **Revision Log**
A revision log is required to assure revision control of the quality system manual. The log should contain sufficient space for date, description and section of revision, company approval, and National Board acceptance.

c) **Contents Page**

The contents page should list and reference, by paragraph and page number, the subjects and exhibits contained therein.

d) **Statement of Authority and Responsibility**

A statement of authority and responsibility shall be dated and signed by an officer of the company. It shall include:

1) A statement that the "VR" stamp shall be applied only to pressure relief valves that meet both of the following conditions:

a. Are stamped with an ASME "V", "UV", or "NV" Code symbol or marked with an ASME "HV" symbol and have been capacity certified by the National Board; and

b. Have been disassembled, inspected, and repaired by the Certificate Holder such that the valves' condition and performance are equivalent to the standards for new valves.

2) The title of the individual responsible to ensure that the quality system is followed and who has authority and freedom to effect the responsibility;

3) A statement that if there is a disagreement in the implementation of the written quality system, the matter is to be referred to a higher authority in the company for resolution; and

4) The title of the individual authorized to approve revisions to the written quality system and the method by which such revisions are to be submitted to the National Board for acceptance before implementation.

e) **Organization Chart**

A chart showing the relationship between management, purchasing, repairing, inspection, and quality control personnel is required and shall reflect the actual organization in place.

f) **Scope of Work**

1) The scope of work section shall indicate the scope and type of valve repairs, including conversions the organization is capable of and intends to perform. The location of repairs (shop, shop and field, or field only), ASME Code Section(s) to which the repairs apply, the test medium (air, gas, liquid, or steam, or combinations thereof), and special processes (machining, welding, postweld heat treatment, or nondestructive examination, or combinations thereof) shall be specifically addressed.

2) The types and sizes of valves to be repaired, pressure ranges and other limitations, such as engineering and test facilities, should also be addressed.

g) **Drawings and Specification Control**

The drawings and specification control system shall provide procedures assuring that the latest applicable drawings, specifications, and instructions required are used for valve repair, including conversions, inspection, and testing.

h) **Material and Part Control**

The material and part control section shall describe purchasing, receiving, storage, and issuing of parts.

1) State the title of the individual responsible for the purchasing of all
material.

2) State the title of the individual responsible for certification and other records as required.

3) All incoming material and parts shall be checked for conformance with the purchase order and, where applicable, the material specifications or drawings. Indicate how material or part is identified and how identity is maintained by the quality system.

i) Repair and Inspection Program

The repair and inspection program section shall include reference to a document (such as a report, traveler, or checklist) that outlines the specific repair and inspection procedures used in the repair of pressure relief valves. Repair procedures shall require verification that the critical parts meet the valve manufacturer's specification. Supplement S7.14 outlines recommended procedures covering some specific items. Provisions shall be made to retain this document for a period of at least five years.

1) Each valve or group of valves shall be accompanied by the document referred to above for processing through the plant. Each valve shall have a unique identifier (i.e., repair serial number, shop order number, etc.) appearing on the repair documentation and repair nameplate such that traceability is established.

2) The document referred to above shall describe the original nameplate information, including the ASME Code symbol stamping and the repair nameplate information, if applicable. In addition, it shall include material checks, replacement parts, conversion parts (or both), reference to items such as the welding procedure specifications (WPS), fitup, NDE technique, heat treatment, and pressure test methods to be used. Application of the "VR" stamp to the repair nameplate shall be recorded in this document. Specific conversions performed with the new Type/Model number shall be recorded on the document. There shall be a space for "signoffs" at each operation to verify that each step has been properly performed.

3) The system shall include a method of controlling the repair or replacement of critical valve parts. The method of identifying each spring shall be indicated.

4) The system shall also describe the controls used to ensure that any personnel engaged in the repair of pressure relief valves are trained and qualified in accordance with Supplement S7.

j) **Welding, NDE, and Heat Treatment** (when applicable)

The quality system manual shall indicate the title of the person(s) responsible for and describe the system used in the selection, development, approval, and qualification of welding procedure specifications, and the qualification of welders and welding operators in accordance with the provisions of S7.

1) The quality system manual may include controls for the "VR" Certificate Holder to have the pressure relief valve part repaired by a National Board "R" Certificate Holder, per Supplement S7.

2) The completed Form R-1 shall be noted on and attached to the "VR" Certificate Holder's document required in 1.7.7.5(i). Similarly, NDE and heat treatment techniques must be covered in the quality system manual. When outside services are used for NDE and heat treatment, the quality system manual shall describe the system whereby the use of such services meet the requirements of the applicable section of the ASME Code.

k) **Valve Testing, Setting, and Sealing**

The system shall include provisions that each valve shall be tested, set, and all external adjustments sealed according to the requirements of the applicable ASME Code Section and the National Board. The seal shall identify the "VR" Certificate Holder making the repair. Abbreviations or initials shall be permitted, provided such identification is acceptable to the National Board.

l) **Valve Repair Nameplates**

An effective valve stamping system shall be established to ensure proper stamping of each valve as required by 5.9.2. The manual shall include a description of the nameplate or a drawing.

m) **Calibration**

1) The manual shall describe a system for the calibration of examination, measuring, and test equipment used in the performance of repairs. Documentation of these calibrations shall include the standard used and the results.

2) All calibration standards shall be calibrated against certified equipment having known valid relationships to nationally recognized standards.

n) **Manual Control**

The quality system shall include:

1) Measures to control the issuance of and revisions to the quality system manual;

2) Provisions for a review of the system in order to maintain the manual current with these rules and the applicable sections of the ASME Code;
3) The title(s) of the individual(s) responsible for control, revisions, and review of the manual;

4) Provision of a controlled copy of the written quality system manual to be submitted to the National Board; and
5) Revisions shall be submitted for acceptance by the National Board prior to being implemented.

o) **Nonconformities**

The system shall establish measures for the identification, documentation, evaluation, segregation, and disposition of nonconformities. A nonconformity is a condition of any material, item, product, or process in which one or more characteristics do not conform to the established requirements. These may include, but are not limited to, data discrepancies, procedural and/or documentation deficiencies, or material defects. Also, the title(s) of the individual(s) involved in this process shall be included.

p) **Exhibits**

Forms used in the quality system shall be included in the manual with a written description. Forms exhibited should be marked SAMPLE and completed in a manner typical of actual valve repair procedures.

q) **Testing Equipment (See Supplement 8)**

The system shall include a means to control the development, addition, or modification of testing equipment to ensure the requirements of 4.5.1(b) are met.

r) Field Repairs (See Supplement S7.7)

If field repairs are included in the scope of work, the system shall address any differences or additions to the quality system required to properly control this activity, including the following:

1) Provisions for annual audits of field activities shall be included;

2) Provisions for receipt and inspection of replacement parts, including parts received from the owner-user, shall be addressed;

3) If owner-user personnel will assist with repairs, provisions for the use of owner-user personnel shall be included; and

4) Provisions for use of owner-user measurement and test equipment, if applicable, shall be addressed.

1.7.8 ASME "V," "HV," OR "UV" CERTIFICATE HOLDERS

a) A manufacturer holding a valid ASME Certificate of Authorization for use of an ASME "V", "HV", or "UV" Code symbol stamp may obtain the "VR" Certificate of Authorization for the repair of pressure relief valves covered by the ASME Certificate of Authorization and that meet the requirements of 1.7.3. This can be accomplished without a review of the facilities provided there is a written quality system to cover the scope of the repairs to be made and the repairs are carried out at the same location where the ASME valves are manufactured. Unless the repaired valves are tested on the same facilities and to the same procedures as new valves, two (2) repaired valves shall be selected by a National Board representative for verification tests.

b) The initial Certificate of Authorization shall be issued to expire concurrent with the ASME Certificate of Authorization. Subsequent certificates shall be renewed upon a successful review and verification of implementation of its quality system by a National Board representative. This review shall be performed concurrently with the ASME Certificate renewal review.

c) A manufacturer may also perform field repairs of pressure relief valves covered by the ASME Certificate of Authorization provided the provisions of Supplement S7.7 are met.

d) Assemblers holding ASME Certificates of Authorization shall qualify for the "VR" Certificate of Authorization as required elsewhere in these rules.
e) The quality system manual shall be submitted for review and acceptance by the National Board.

f) In order for an ASME Code symbol stamp holder to qualify for the National Board "VR" stamp, the following areas to the written quality system usually require attention.

1) Statement of Authority and Responsibility

This should clearly indicate that valve repairs are carried out in accordance with the requirements and the rules of the National Board and the quality system manual. In addition, the scope and type of valve repairs covered by the manual should be indicated.

2) Organization

Unless the functions which affect the quality of valve repairs are carried out by individuals other than those responsible for manufacturing or assembly, it should not be necessary to revise the organization chart.

3) General Quality Functions

Usually quality system requirements regarding valve repairs may be controlled in the same manner as for ASME manufacturing or assembly provided applicable shop and/or field activities are covered. If this is the case, the applicant for the "VR" stamp should include in its quality system manual a separate section covering valve repairs that references the applicable section of the manual. For a more explicit explanation see 1.7.7.5, Outline of Requirements for a Quality System.

1.7 ACCREDITATION OF "VR" REPAIR ORGANIZATIONS

1.7.1 SCOPE

a) The administrative rules and procedures are provided by the National Board for those who wish to obtain a National Board Certificate of Authorization for use of the "VR" (Repair of Pressure Relief Valves) symbol stamp. It should be noted that the issuance of the "VR" stamp is not restricted to companies whose primary business is the repair of pressure relief valves, nor to manufacturers or assemblers that hold an ASME "V," "HV," "UV," or "NV" Code symbol stamp. Owners and users of boilers and pressure vessels and other organizations that qualify in accordance with the National Board Rules and Regulations may also obtain the "VR" Certificate and stamp.

1.7.2 JURISDICTIONAL PARTICIPATION

The National Board member jurisdiction in which the "VR" organization is located is encouraged to participate in the review and demonstration of the applicant's quality system. The Jurisdiction may require participation in the review of the repair organization and the demonstration and acceptance of the repair organization's quality system manual.

1.7.2 ISSUANCE AND RENEWAL OF THE "VR" CERTIFICATE OF AUTHORIZATION

1.7.2.1 GENERAL

Authorization to use the stamp bearing the official National Board "VR" symbol as shown in Section 5 of this Part, will be granted by the National Board pursuant to the provisions of the following administrative rules and procedures

1.7.2.2 ISSUANCE OF CERTIFICATE

a) Repair organizations, manufacturers, assemblers, or users that make repairs to the American Society of Mechanical Engineers (ASME) Code symbol, stamped or marked (as applicable), and The National Board of Boiler and Pressure Vessel Inspectors (National Board) capacity certified pressure relief valves may apply to the National Board for a Certificate of Authorization to use the "VR" symbol.

1.7.3USE OF THE "VR" AUTHORIZATION

1.7.3.1 TECHNICAL REQUIREMENTS

The administrative requirements of ~~1.7~~ for use of the "VR" stamp shall be used in conjunction with the technical requirements for valve repair as described in Supplement 7 of the NBIC. Those requirements shall be mandatory when a "VR" repair is performed.

1.7.3.2 STAMP USE

Each "VR" symbol stamp shall be used only by the repair firm within the scope, limitations, and restrictions under which it was issued.

1.7.4 QUALITY SYSTEM

1.7.4.1 GENERAL

Each applicant for a new or renewed "VR" Certificate of Authorization shall have and maintain a quality system which shall establish that all of these rules and administrative procedures and applicable ASME Code requirements, including material control, fabrication, machining, welding, examination, setting, testing, inspection, sealing, and stamping will be met.

1.7.4.2 WRITTEN DESCRIPTION

A written description, in the English language, of the system the applicant will use shall be available for review and shall contain, as a minimum, the features set forth in 1.7.4.5. This description may be brief or voluminous, depending upon the projected scope of work, and shall be treated confidentially. In general, the quality system shall describe and explain what documents and procedures the repair firm will use to validate a valve repair.

1.7.4.3 MAINTENANCE OF CONTROLLED COPY

Each applicant to whom a "VR" Certificate of Authorization is issued shall maintain thereafter a controlled copy of the accepted quality system manual with the National Board. Except for changes that do not affect the quality system, revisions to the quality system manual shall not be implemented until such revisions are accepted by the National Board.

1.7.4.4 OUTLINE OF REQUIREMENTS FOR A QUALITY SYSTEM

The following establishes the minimum requirements of the written description of the quality system. It is required that each valve repair organization develop its own quality system that meets the requirements of its organization. For this reason it is not possible to develop one quality system that could apply to more than one organization. The written description shall include, as a minimum, the following features:

a) **Title Page**
The title page shall include the name and address of the company to which the National Board Certificate of Authorization is to be issued.

b) **Revision Log**

A revision log is required to assure revision control of the quality system manual. The log should contain sufficient space for date, description and section of revision, company approval, and National Board acceptance.

c) **Contents Page**

The contents page should list and reference, by paragraph and page number, the subjects and exhibits contained therein.

d) **Statement of Authority and Responsibility**

A statement of authority and responsibility shall be dated and signed by an officer of the company. It shall include:

1) A statement that the "VR" stamp shall be applied only to pressure relief valves that meet both of the following conditions:

a. Are stamped with an ASME "V", "UV", or "NV" Code symbol or marked with an ASME "HV" symbol and have been capacity certified by the National Board; and

b. Have been disassembled, inspected, and repaired by the Certificate Holder such that the valves' condition and performance are equivalent to the standards for new valves.

2) The title of the individual responsible to ensure that the quality system is followed and who has authority and freedom to effect the responsibility;

3) A statement that if there is a disagreement in the implementation of the written quality system, the matter is to be referred to a higher authority in the company for resolution; and

4) The title of the individual authorized to approve revisions to the written quality system and the method by which such revisions are to be submitted to the National Board for acceptance before implementation.

e) **Organization Chart**

A chart showing the relationship between management, purchasing, repairing, inspection, and quality control personnel is required and shall reflect the actual organization in place.

f) **Scope of Work**

1) The scope of work section shall indicate the scope and type of valve repairs, including conversions the organization is capable of

and intends to perform. The location of repairs (shop, shop and field, or field only), ASME Code Section(s) to which the repairs apply, the test medium (air, gas, liquid, or steam, or combinations thereof), and special processes (machining, welding, postweld heat treatment, or nondestructive examination, or combinations thereof) shall be specifically addressed.

2) The types and sizes of valves to be repaired, pressure ranges and other limitations, such as engineering and test facilities, should also be addressed.

g) **Drawings and Specification Control**

The drawings and specification control system shall provide procedures assuring that the latest applicable drawings, specifications, and instructions required are used for valve repair, including conversions, inspection, and testing.

h) **Material and Part Control**

The material and part control section shall describe purchasing, receiving, storage, and issuing of parts.

1) State the title of the individual responsible for the purchasing of all
material.

2) State the title of the individual responsible for certification and other records as required.

3) All incoming material and parts shall be checked for conformance with the purchase order and, where applicable, the material specifications or drawings. Indicate how material or part is identified and how identity is maintained by the quality system.

i) **Repair and Inspection Program**

The repair and inspection program section shall include reference to a document (such as a report, traveler, or checklist) that outlines the specific repair and inspection procedures used in the repair of pressure relief valves. Repair procedures shall require verification that the critical parts meet the valve manufacturer's specification. Supplement S7.14 outlines recommended procedures covering some specific items. Provisions shall be made to retain this document for a period of at least five years.

1) Each valve or group of valves shall be accompanied by the document referred to above for processing through the plant. Each valve shall have a unique identifier (i.e., repair serial number, shop order number, etc.) appearing on the repair documentation and repair nameplate such that traceability is established.

2) The document referred to above shall describe the original nameplate information, including the ASME Code symbol stamping and the repair nameplate information, if applicable. In addition, it shall include material checks, replacement parts, conversion parts (or both), reference to items such as the welding procedure specifications (WPS), fitup, NDE technique, heat treatment, and pressure test methods to be used. Application of the "VR" stamp to the repair nameplate shall be recorded in this document. Specific conversions performed with the new Type/Model number shall be recorded on the document. There shall be a space for "signoffs" at each operation to verify that each step has been properly performed.

3) The system shall include a method of controlling the repair or replacement of critical valve parts. The method of identifying each spring shall be indicated.

4) The system shall also describe the controls used to ensure that any personnel engaged in the repair of pressure relief valves are trained and qualified in accordance with Supplement S7.

j) **Welding, NDE, and Heat Treatment** (when applicable)

The quality system manual shall indicate the title of the person(s) responsible for and describe the system used in the selection, development, approval, and qualification of welding procedure specifications, and the qualification of welders and welding operators in accordance with the provisions of S7.

1) The quality system manual may include controls for the "VR" Certificate Holder to have the pressure relief valve part repaired by a National Board "R" Certificate Holder, per Supplement S7.

2) The completed Form R-1 shall be noted on and attached to the "VR" Certificate Holder's document required in 1.7.4.5(i). Similarly, NDE and heat treatment techniques must be covered in the quality system manual. When outside services are used for NDE and heat treatment, the quality system manual shall describe the system whereby the use of such services meet the requirements of the applicable section of the ASME Code.

k) **Valve Testing, Setting, and Sealing**

The system shall include provisions that each valve shall be tested, set, and all external adjustments sealed according to the requirements of the applicable ASME Code Section and the National Board. The seal shall identify the "VR" Certificate Holder making the repair. Abbreviations or initials shall be permitted, provided such identification is acceptable to the National Board.

l) **Valve Repair Nameplates**

An effective valve stamping system shall be established to ensure proper stamping of each valve as required by 5.9.2. The manual shall include a description of the nameplate or a drawing.

m) **Calibration**

1) The manual shall describe a system for the calibration of examination, measuring, and test equipment used in the performance of repairs. Documentation of these calibrations shall include the standard used and the results.

2) All calibration standards shall be calibrated against certified equipment having known valid relationships to nationally recognized standards.

n) **Manual Control**

The quality system shall include:

1) Measures to control the issuance of and revisions to the quality system manual;

2) Provisions for a review of the system in order to maintain the manual current with these rules and the applicable sections of the ASME Code;
3) The title(s) of the individual(s) responsible for control, revisions, and review of the manual;

4) Provision of a controlled copy of the written quality system manual to be submitted to the National Board; and
5) Revisions shall be submitted for acceptance by the National Board prior to being implemented.

o) **Nonconformities**

The system shall establish measures for the identification, documentation, evaluation, segregation, and disposition of nonconformities. A nonconformity is a condition of any material, item, product, or process in which one or more characteristics do not conform to the established requirements. These may include, but are not limited to, data discrepancies, procedural and/or documentation deficiencies, or material defects. Also, the title(s) of the individual(s) involved in this process shall be included.

p) **Exhibits**

Forms used in the quality system shall be included in the manual with a written description. Forms exhibited should be marked SAMPLE and completed in a manner typical of actual valve repair procedures.

q) **Testing Equipment (See Supplement 8)**

The system shall include a means to control the development, addition, or modification of testing equipment to ensure the requirements of 4.5.1(b) are met.

r) Field Repairs (See Supplement S7.7)

If field repairs are included in the scope of work, the system shall address any differences or additions to the quality system required to properly control this activity, including the following:

1) Provisions for annual audits of field activities shall be included;

2) Provisions for receipt and inspection of replacement parts, including parts received from the owner-user, shall be addressed;

3) If owner-user personnel will assist with repairs, provisions for the use of owner-user personnel shall be included; and

4) Provisions for use of owner-user measurement and test equipment, if applicable, shall be addressed.

1.8 "NR" ACCREDITATION REQUIREMENTS

1.8.1 SCOPE

a) ~~This section provides~~ The requirements ~~that must~~ to be met for an organization to obtain a National Board Certificate of Authorization to use the "NR" Symbol Stamp for the Repair/Replacement activities performed in accordance with this Part and ASME Section XI requirements.

b) The issuance of the "NR" stamp is not restricted to organizations whose primary business is to perform repair/replacement activities or to manufacturers or assemblers that hold an ASME "N"-type Code symbol stamp. Owners and users of nuclear components and other organizations that qualify in accordance with these rules may also obtain the "NR" stamp may be obtained from the National Board.

~~1.8.2 PREREQUISITES FOR ISSUING A NATIONAL BOARD "NR" CERTIFICATE OF AUTHORIZATION~~

~~Before an organization can obtain a National Board "NR" Certificate of Authorization, the organization shall:~~

~~a) Have and maintain an inspection agreement with an accredited Nuclear Inspection Agency in accordance with NB-360[4], NB-369[5], and ASME Section XI;~~

~~b) Have in the English language a written Quality System Program that complies with the requirements of this Section and addresses controls for the intended scope of activities;~~

~~c) Have a current edition and addenda of the NBIC, all parts; and~~
~~d) Have available copies of the original code of construction appropriate to the intended scope of work and the applicable edition and addenda of ASME Section XI, as required by the regulatory authority.[6]~~

~~1.8.3 PROCEDURES FOR OBTAINING OR RENEWING A NATIONAL BOARD "NR" CERTIFICATE OF AUTHORIZATION~~

~~a) Prior to issuance or renewal of a National Board "NR" Certificate of Authorization, the organization and its facilities are subject to a review of its Quality System Program. The implementation of the Quality System Program shall be satisfactorily demonstrated by the organization. Demonstration of implementation shall meet the most stringent code requirements for the scope of work to be performed by the organization. The National Board reserves the absolute right to cancel, refuse to issue,~~

1.8.2 1.8.4 NATIONAL BOARD "NR" SYMBOL STAMP

a) All "NR" Symbol Stamps shall be obtained from the National Board of Boiler and Pressure Vessel Inspectors. Authorization to use the "NR" Symbol Stamp may be granted by the National Board at its absolute discretion.

~~b) The National Board, for a nominal fee, furnishes the "NR" Symbol Stamp. Each organization shall agree, if authorized to use the "NR" Symbol Stamp, that the "NR" Symbol Stamp is at all times the property of the National Board and will be promptly returned upon demand. If the organization discontinues the use of the "NR" Symbol Stamp or if the Certificate of Authorization has expired and no new Certificate of Authorization has been issued, the "NR" Symbol Stamp shall be returned to the National Board.~~

~~c) The organization's Quality System Program shall provide for adequate control of the "NR" Symbol Stamp.~~

~~d) The organization authorized to use the "NR" Symbol Stamp may obtain more than one "NR" Symbol Stamp provided the organization's Quality System Program describes how the use of such stamps are controlled from the location shown on the "NR" Certificate of Authorization.~~

b) ~~e)~~ The organization shall not permit other organizations to use the "NR" Symbol Stamp loaned to it by the National Board.

1.8.3 ~~1.8.5~~ QUALITY SYSTEM PROGRAM

A holder of a National Board Certificate of Authorization shall have and maintain a written Quality System Program. The system shall satisfactorily meet the requirements of the NBIC, jurisdictional requirements, and shall be available for review. The Quality System Program may be brief or voluminous, depending on the circumstances. It shall be treated confidentially by the National Board.

1.8.3.1 ~~1.8.5.1~~ OUTLINE OF REQUIREMENTS FOR A QUALITY SYSTEM PROGRAM FOR QUALIFICATION FOR THE NATIONAL BOARD "NR" SYMBOL STAMP

These rules set forth the requirements for planning, managing, and implementing the organization's Quality System Programs for controlling the quality of activities performed during repair/replacement activities of components and systems in nuclear power plants within the scope of the applicable edition and addenda of Section XI of the ASME Code. These

rules are to be the basis for evaluating such programs prior to the issuance of the National Board "NR" Certificate of Authorization.

a) **Organization**

1) The authority and responsibility of those in charge of the Quality System Program and activities affecting quality shall be clearly established and documented. The person and organization performing Quality System functions shall have sufficient and well-defined responsibility, authority, and organizational freedom to:

a. Identify quality problems;

b. Initiate action which results in solutions;

c. Verify implementation of solutions to those problems; and

d. Control further processing, delivery or installation of a nonconforming item, deficiency or unsatisfactory condition until proper disposition has been made.

2) The person and organization responsible for defining and for measuring the overall effectiveness of the Quality System Program shall be designated sufficiently independent from the pressure of production, have direct access to responsible management at a level where appropriate action can be required and report regularly on the effectiveness of the program. Assurance of quality requires management measures which provide that the individual or group assigned the responsibility of inspection, testing, checking, or otherwise verifying that an activity has been correctly performed, is independent of the individual or group directly responsible for performing the specific activity. The specific responsibilities of the Quality Assurance organization of the "NR" Certificate Holder shall include the review of written procedures and monitoring of all activities concerned with the Quality System Program as covered in these rules.

b) **Quality System Program**

1) Before becoming a holder of an "NR" Certificate of Authorization, the applicant shall establish a Quality System Program for the control of the quality of work to be performed. The program shall define the organizational structure within which the Quality System Program is to be implemented and shall clearly delineate the responsibilities, levels of authority, and lines of communication for the various individuals involved. The program shall be documented in detail in a Quality System Manual that shall be a major basis for

demonstration of compliance with the NBIC. The applicant's Quality System Program shall be documented by written policies, procedures, and instructions and shall be based on the organization's scope of work to be performed.

2) The applicant's program need not be in the same format or sequential arrangement as the requirements in these rules as long as all applicable program requirements have been covered. The program shall provide for the accomplishment of activities affecting quality under suitably controlled conditions. Controlled conditions include the use of appropriate equipment, suitable environmental conditions for accomplishing the activity and assurance that prerequisites for the activity have been satisfied. The program shall take into account the need for special controls, processes, test equipment, tools, and skills to attain the required quality and need for the verification of quality by inspection and test. The program shall provide for ready detection of nonconforming material and items and for timely and positive corrective actions.

3) The program shall provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained. It shall be the responsibility of the "NR" Certificate Holder to ensure that all personnel performing quality functions within the scope of these rules, including personnel of subcontracted services, are qualified as specified in these rules. The assignment of qualified personnel shall be at the discretion of the "NR" certificate holder.

4) The "NR" Certificate Holder shall be responsible for advising his Authorized Nuclear Inspection Agency of any proposed changes to the Quality System Manual and shall have acceptance of the Authorized Nuclear Inspection Agency's Authorized Nuclear Inspector Supervisor before putting such changes into effect. The "NR" Certificate Holder shall make a current copy of the Quality System Manual available to the Authorized Nuclear Inspector. The "NR" Certificate Holder shall be responsible for promptly notifying the Authorized Nuclear Inspector of such accepted changes, including evidence of acceptance by the Authorized Nuclear Inspection Agency.

5) The quality of all repair/replacement activities shall be controlled at all points necessary to ensure conformance with the requirements of these rules and the "NR" Certificate Holder's Quality System Manual.

6) The Certificate Holder shall make available to the Authorized Nuclear Inspector such drawings and process sheets as are necessary to make the Quality System Program intelligible.

c) **Design Control**

1) ASME Section XI establishes that the owner is responsible for design in connection with repair/replacement activities. The "NR" Certificate Holder must ensure that the design specification, drawings, or other specifications or instructions furnished by the owner satisfy the code edition and addenda of the owner's design specification. To satisfy this requirement, the "NR" Certificate Holder shall establish requirements that correctly incorporate the owner's design specification requirements into their specifications, drawings, procedures, and instructions, which may be necessary to carry out the work. The "NR" Certificate Holder's system shall include provisions to ensure that the appropriate quality standards are specified and included in all quality records. These records shall be reviewed for compliance with the owner's design specification and the requirements of Section XI of the ASME Boiler and Pressure Vessel Code.

2) If the "NR" Certificate Holder's specifications, drawings, procedures, and instructions conflict with the owner's design specification, a system must be implemented that will resolve or eliminate the deficiency. This system must be reconciled with the owner and the "NR" Certificate Holder in accordance with IWA-4000 of Section XI of the ASME Code.

d) **Procurement Document Control**

Documents for procurement of materials, items, and subcontracted services shall include requirements to the extent necessary to ensure their compliance with the owner's design specifications and IWA-4000 of Section XI of the ASME Code. To the extent necessary, procurement documents shall require suppliers to maintain a Quality System Program consistent with the applicable requirements of the edition and addenda of the code of construction to which the items are constructed. Measures shall be established

to ensure that all purchased material, items, and services conform to these requirements.

e) **Instructions, Procedures and Drawings**

Activities affecting quality shall be prescribed by documented instructions, procedures or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions, procedures, or drawings shall include appropriate quantitative and qualitative criteria for determining that activities affecting quality have been satisfactorily accomplished. The "NR" Certificate Holder shall maintain a written description of procedures, instructions, or drawings used by his organization for control of quality and examination requirements detailing the implementation of the Quality System requirements. Copies of these procedures shall be readily available to the Authorized Nuclear Inspector.

f) **Document Control**

The program shall include measures to control the issuance, use, and disposition of documents, such as specifications, instructions, procedures, and drawings, including changes thereto. These measures shall ensure that the latest applicable documents, including changes, are reviewed for adequacy and approved for release by authorized personnel and distributed for use at the location where the prescribed activity is performed.

g) **Control of Purchased Material, Items, and Services**

Measures shall be established to ensure that all purchased material, items, and services conform to the requirements of the owner's design specifications and applicable edition and addenda of the code of construction and Section XI of the ASME Code. These measures shall include identification for material traceability. Provisions shall be identified for source evaluation and objective evidence shall be provided evidencing quality standards for material examination upon receipt.

h) **Identification and Control of Material and Items**

1) Measures shall be established for identification and control of material and items, including partially fabricated assemblies. These measures shall ensure that identification is maintained and traceable, either on the material or component, or on records throughout the repair/replacement activity. These measures shall be designed to prevent the

use of incorrect or defective items and those which have not received the required examinations, tests, or inspections.
2) Permanent or temporary unit identification marks shall be applied using methods and materials that are legible and not detrimental to the component or system involved. Such identification shall be located in areas that will not interfere with the function or quality aspects of the item.

3) Certified Material Test Reports shall be identified as required by the applicable material specification in Section II of the ASME Code and shall satisfy any additional requirements specified in the original code of construction. The Certified Material Test Report or Certificate of Compliance need not be duplicated for submission with compliance documents when a record of compliance and satisfactory reviews of the Certified Material Test Report and Certificates of Compliance is provided. Documents shall provide a record that the Certified Material Test Report and Certificates of Compliance have been received, reviewed, and found acceptable. When the "NR" Certificate Holder Scope authorizes the organization to perform examinations and tests in accordance with the original code of construction, the "NR" Certificate Holder shall certify compliance either on a Certified Material Test Report or Certificate of Conformance that the material satisfies the original code of construction requirements.

i) **Control of Processes**

1) The "NR" Certificate Holder shall operate under a controlled system such as process sheets, checklists, travelers, or equivalent procedures. Measures shall be established to assure that processes such as welding, nondestructive examination, and heat treating are controlled in accordance with the rules of the applicable section of the ASME Code and are accomplished by qualified personnel using qualified procedures.

2) Process sheets, checklists, travelers, or equivalent documentation shall be prepared, including the document numbers and revisions to which the process conforms with space provided for reporting results of completion of specific operations at checkpoints of repair/replacement activities.

j) **Examinations, Tests and Inspections**

1) In-process and final examinations and tests shall be established to assure conformance with specifications, drawings, instructions, and procedures which incorporate or reference the requirements and acceptance limits contained in applicable design documents. Examination activities to verify the quality of work shall be performed by persons other than those who performed the activity being examined. Such persons shall not report directly to the immediate supervisors responsible for the work being examined.

2) Process sheets, travelers, or checklists shall be prepared, including the document numbers and revision to which the examination or test is to be performed, with space provided for recording results.

3) Mandatory hold/inspection points at which witnessing is required by the "NR" Certificate Holder's representative or the Authorized Nuclear Inspector shall be indicated in the controlling documents. Work shall not proceed beyond mandatory hold/inspection points without the consent of the "NR" Certificate Holder's representative or the Authorized Nuclear Inspector, as appropriate.

k) Test Control

1) Testing shall be performed in accordance with the owner's written test procedures that incorporate or reference the requirements and acceptance limits contained in applicable design documents.

2) Test procedures shall include provisions for assuring that prerequisites for the given test have been met, that adequate instrumentation is available and used, and that necessary monitoring is performed. Prerequisites may include calibrated instrumentation, appropriate equipment, trained personnel, condition of test equipment and the item to be tested, suitable environmental conditions, and provisions for data acquisition.

3) Test results shall be documented and evaluated to assure that test requirements have been satisfied.

l) Control of Measuring and Test Equipment

Measures shall be established and documented to assure that tools, gages,

instruments, and other measuring and testing equipment and devices used in activities affecting quality are of the proper range, type, and accuracy to verify conformance to established requirements. A procedure shall be in effect to assure that they are calibrated and properly adjusted at specified periods or use intervals to maintain accuracy within specified limits. Calibration shall be traceable to known national standards, where these standards exist, or with the device manufacturer's recommendation.
m) Quality Records

1) The owner is responsible for designating records to be maintained. Measures shall be established for the "NR" Certificate Holder to maintain these records [See 1.8.5.1(m)(2)] required for Quality Assurance of repair/replacement activities. These shall include documents such as records of materials, manufacturing, examination, and test data taken before and during repair/replacement activity. Procedures, specifications, and drawings used shall be fully identified by pertinent material or item identification numbers, revision numbers, and issue dates. The records shall also include related data such as qualification of personnel, procedures, equipment, and related repairs. The "NR" Certificate Holder shall take such steps as may be required to provide suitable protection from deterioration and damage for all records while in his care. Also, it is required that the "NR" Certificate Holder have a system for correction or amending records that satisfies the owner's requirements. These records may be either the original or a reproduced, legible copy and shall be transferred to the owner at his request.

2) Records to be maintained as required in 1.8.5.1(m)(1) above may include the following:

a. An index that details the location and who is responsible for maintaining the records;

b. Data reports, properly executed, for each replacement component, part, appurtenance, piping system, and piping
assembly, when required by the design specification or the owner;

c. The required as-constructed drawings certified as to correctness;

d. Copies of applicable Certified Material Test Reports and Certificates of Compliance;

e. As-built sketch(es) including tabulations of materials repair/replacement procedures, and instructions to achieve compliance with Section XI of the ASME Code;

f. Nondestructive examination reports including results of examinations shall identify the ASNT, SNT-TC-1A, CP-189, or ACCP level of personnel interpreting the examination results. The ASNT Central Certification Program (ACCP) may be used to fulfill the examination and demonstration requirement of the employer's written practice. Final radiographs shall be included where radiography has been performed;

g. Records of all heat treatments may be either the heat treatment charts or a summary description of heat treatment time and temperature data certified by the "NR" Certificate Holder. Heat treatments performed by the material manufacturer to satisfy requirements of the material specifications may be reported on the Certified Material Test Report; or

h. Any and all nonconformance reports shall satisfy IWA-4000 of Section XI of the ASME Code and shall be reconciled by the owner
prior to certification of the Form NR-1 or NVR-1, as applicable.

3) After a repair/replacement activity, all records including audit reports required to verify compliance with the applicable engineering documents and the "NR" Certificate Holder's Quality System Program, except those required by the owner or listed in 1.8.5.1(m)(2)(a) thru (g) above, shall be maintained at a place mutually agreed upon by the owner and the "NR" Certificate Holder. These records shall be maintained for a period of five years after completion of the repair/replacement activity.

4) The original of the completed Form NR-1 or Form NVR-1, as applicable, shall be registered with the National Board and, if required, a copy forwarded to the Jurisdiction where the nuclear power plant is located.

n) **Examination or Test Status**

Measures shall be established to indicate examination and test status of parts, items, or components during the repair/replacement activity. The system used shall provide positive identification of the part, item, or component by means of stamps, labels, routing cards, or other acceptable methods. The system shall include any procedures or instructions to achieve compliance. Also, measures shall be provided for the identification of acceptable and unacceptable items. They shall also include procedures for control of status indicators, including the authority for application and removal of status indicators.

o) **Nonconforming Materials or Items**

Measures shall be established to control materials or items that do not conform to requirements in order to prevent their inadvertent use, including measures to identify and control the proper installation of items and to preclude nonconformance with the requirements of these rules. These measures shall include procedures for identification, documentation, segregation, and disposition. Nonconforming items shall be reviewed for acceptance, rejection, or repair in accordance with documented procedures. The responsibility and authority for the disposition of nonconforming items shall be defined. Repaired or modified items shall be re-examined in accordance with the applicable procedures. Measures that control further processing of a nonconforming or defective item, pending a decision on its disposition, shall be established and maintained. Ultimate disposition of nonconforming items shall be documented.

p) **Corrective Action**

1) Measures shall be established to ensure that conditions adverse to quality such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and other nonconformances are promptly identified and corrected.

2) In the case of significant conditions adverse to quality, the measures shall also ensure that the cause of these conditions be determined and corrected to preclude repetition. The identification of significant conditions adverse to quality, the cause, and condition and the corrective action taken shall be documented and reported to the appropriate levels of management.

3) The requirements shall also extend to the performance of subcontractors' corrective action measures.

q) **Audits**

A comprehensive system of planned and periodic audits shall be carried out by the "NR" Certificate Holder's organization to ensure compliance with the Quality System Program and to determine its effectiveness. Audits shall be performed in accordance with written procedures or checklists by personnel not having direct responsibilities in the areas being audited. Audit results shall be documented by the auditing personnel for review by management having responsibility in that area. Follow-up action, including re-audit of deficient areas, shall be taken where indicated. Audit results shall be made available to the Authorized Nuclear Inspector.

r) **Authorized Nuclear Inspector**

Measures shall be taken to reference the commissioned Rules for National Board Authorized Nuclear Inspector, qualified in accordance with the Rules for National Board Inservice and New Construction Commisioned Inspectors, to ensure that the latest documents including the Quality System Program will be made available to the inspector. The Authorized Nuclear Inspector shall be consulted prior to the issuance of a repair/replacement program in order that the Inspector may select any inspection or hold points in the program. The Authorized Nuclear Inspector shall not sign Form NR-1 or Form NVR-1, as applicable, unless satisfied that all work carried out is in accordance with the NBIC, ASME Section XI, and any jurisdictional requirements.

s) **Exhibits**

Forms referenced in the Quality System Manual shall be explained in the text and included as part of the referencing document or as an appendix. Forms shall be controlled and identified to show the latest approved revision, exhibit name, and other corresponding references as stated in the Quality System manual.

1.8.6 INTERFACE WITH THE OWNER'S REPAIR/REPLACEMENT PROGRAM

~~Interface with the owner's repair/replacement program shall meet the following:~~

~~a) The repair/replacement plan shall be subject to the acceptance of the Jurisdiction and the owner's Authorized Nuclear In-service Inspector (ANII).~~

b) Repair/replacement activities of nuclear components shall meet the requirements of Section XI of the ASME Boiler and Pressure Vessel Code and the Jurisdiction where the nuclear power plant is located.

c) Documentation of the repair/replacement activities of nuclear components shall be recorded on the National Board Report of Nuclear Repair/Modification or Replacement activities, Form NR-1, or Form NVR-1, as applicable. The completed forms shall be signed by a representative of the authorized nuclear repair organization and the Authorized Nuclear Inspector if the repair/replacement activity meets the requirements of ASME Section XI. For repair/replacement activities that involve design changes as specified in 1.8.5.1(c), Form NR-1, or Form NVR-1, as applicable, shall indicate the responsible organization satisfying the owner's design specification requirements.

d) The authorized nuclear repair organization shall provide a copy of the signed Form NR-1 or Form NVR-1, as applicable, to the owner, if required, the Jurisdiction, and the Authorized Nuclear Inspection Agency. The original Form NR-1 or Form NVR-1, as applicable, shall be registered with the National Board by the authorized nuclear repair organization.

e) The authorized nuclear repair organization shall provide a nameplate/stamping for repair/replacement activities for each nuclear component unless otherwise required by the Owner's Quality System Program. The required information and format shall be as shown in Section 5 of this Part.

1.8 "NR" ACCREDITATION REQUIREMENTS

1.8.1 SCOPE

a) The requirements to be met for an organization to obtain a National Board Certificate of Authorization to use the "NR" Symbol Stamp for the Repair/Replacement activities performed in accordance with this Part and ASME Section XI requirements.

b) The issuance of the "NR" stamp is not restricted to organizations whose primary business is to perform repair/replacement activities or to manufacturers or assemblers that hold an ASME "N"-type Code symbol stamp. Owners and users of nuclear components and other organizations that qualify in accordance with these rules may also obtain the "NR" stamp may be obtained from the National Board.

1.8.2 NATIONAL BOARD "NR" SYMBOL STAMP

a) All "NR" Symbol Stamps shall be obtained from the National Board of Boiler and Pressure Vessel Inspectors. Authorization to use the "NR" Symbol Stamp may be granted by the National Board at its absolute discretion.

b) The organization shall not permit other organizations to use the "NR" Symbol Stamp loaned to it by the National Board.

1.8.3 QUALITY SYSTEM PROGRAM

A holder of a National Board Certificate of
Authorization shall have and maintain a written Quality System Program. The system shall satisfactorily meet the requirements of the NBIC, jurisdictional requirements, and shall be available for review. The Quality System Program may be brief or voluminous, depending on the circumstances. It shall be treated confidentially by the National Board.

1.8.3.1 OUTLINE OF REQUIREMENTS FOR A QUALITY SYSTEM PROGRAM FOR QUALIFICATION FOR THE NATIONAL BOARD "NR" SYMBOL STAMP

These rules set forth the requirements for planning, managing, and implementing the organization's Quality System Programs for controlling the quality of activities performed during repair/replacement activities of components and systems in nuclear power plants within the scope of the applicable edition and addenda of Section XI of the ASME Code. These rules are to be the basis for evaluating such programs prior to the issuance of the National Board "NR" Certificate of Authorization.

a) Organization

1) The authority and responsibility of those in charge of the Quality System Program and activities affecting quality shall be clearly established and documented. The person and organization performing Quality System functions shall have sufficient and well-defined responsibility, authority, and organizational freedom to:

a. Identify quality problems;

b. Initiate action which results in solutions;

c. Verify implementation of solutions to those problems; and

d. Control further processing, delivery or installation of a nonconforming item, deficiency or unsatisfactory condition until proper disposition has been made.

2) The person and organization responsible for defining and for measuring the overall effectiveness of the Quality System Program shall be designated sufficiently independent from the pressure of production, have direct access to responsible management at a level where appropriate action can be required and report regularly on the effectiveness of the program. Assurance of quality requires management measures which provide that the individual or group assigned the responsibility of inspection, testing, checking, or otherwise verifying that an activity has been correctly performed, is independent of the individual or group directly responsible for performing the specific activity. The specific responsibilities of the Quality Assurance organization of the "NR" Certificate Holder shall include the review of written procedures and monitoring of all activities concerned with the Quality System Program as covered in these rules.

b) Quality System Program

1) Before becoming a holder of an "NR" Certificate of Authorization, the applicant shall establish a Quality System Program for the control of the quality of work to be performed. The program shall define the organizational structure within which the Quality System Program is to be implemented and shall clearly delineate the responsibilities, levels of authority, and lines of communication for the various individuals involved. The program shall be documented in detail in a Quality System Manual that shall be a major basis for demonstration of compliance with the NBIC. The applicant's Quality System Program shall be documented by written policies,

procedures, and instructions and shall be based on the organization's scope of work to be performed.

2) The applicant's program need not be in the same format or sequential arrangement as the requirements in these rules as long as all applicable program requirements have been covered. The program shall provide for the accomplishment of activities affecting quality under suitably controlled conditions. Controlled conditions include the use of appropriate equipment, suitable environmental conditions for accomplishing the activity and assurance that prerequisites for the activity have been satisfied. The program shall take into account the need for special controls, processes, test equipment, tools, and skills to attain the required quality and need for the verification of quality by inspection and test. The program shall provide for ready detection of nonconforming material and items and for timely and positive corrective actions.

3) The program shall provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained. It shall be the responsibility of the "NR" Certificate Holder to ensure that all personnel performing quality functions within the scope of these rules, including personnel of subcontracted services, are qualified as specified in these rules. The assignment of qualified personnel shall be at the discretion of the "NR" certificate holder.

4) The "NR" Certificate Holder shall be responsible for advising his Authorized Nuclear Inspection Agency of any proposed changes to the Quality System Manual and shall have acceptance of the Authorized Nuclear Inspection Agency's Authorized Nuclear Inspector Supervisor before putting such changes into effect. The "NR" Certificate Holder shall make a current copy of the Quality System Manual available to the Authorized Nuclear Inspector. The "NR" Certificate Holder shall be responsible for promptly notifying the Authorized Nuclear Inspector of such accepted changes, including evidence of acceptance by the Authorized Nuclear Inspection Agency.

5) The quality of all repair/replacement activities shall be controlled at all points necessary to ensure conformance

with the requirements of these rules and the "NR" Certificate Holder's Quality System Manual.

6) The Certificate Holder shall make available to the Authorized Nuclear Inspector such drawings and process sheets as are necessary to make the Quality System Program intelligible.

c) **Design Control**

1) ASME Section XI establishes that the owner is responsible for design in connection with repair/replacement activities. The "NR" Certificate Holder must ensure that the design specification, drawings, or other specifications or instructions furnished by the owner satisfy the code edition and addenda of the owner's design specification. To satisfy this requirement, the "NR" Certificate Holder shall establish requirements that correctly incorporate the owner's design specification requirements into their specifications, drawings, procedures, and instructions, which may be necessary to carry out the work. The "NR" Certificate Holder's system shall include provisions to ensure that the appropriate quality standards are specified and included in all quality records. These records shall be reviewed for compliance with the owner's design specification and the requirements of Section XI of the ASME Boiler and Pressure Vessel Code.

2) If the "NR" Certificate Holder's specifications, drawings, procedures, and instructions conflict with the owner's design specification, a system must be implemented that will resolve or eliminate the deficiency. This system must be reconciled with the owner and the "NR" Certificate Holder in accordance with IWA-4000 of Section XI of the ASME Code.

d) **Procurement Document Control**

Documents for procurement of materials, items, and subcontracted services shall include requirements to the extent necessary to ensure their compliance with the owner's design specifications and IWA-4000 of Section XI of the ASME Code. To the extent necessary, procurement documents shall require suppliers to maintain a Quality System Program consistent with the applicable requirements of the edition and addenda of the code of construction to which the items are constructed. Measures shall be established to ensure that all purchased material, items, and services conform to these requirements.

e) **Instructions, Procedures and Drawings**

Activities affecting quality shall be prescribed by documented instructions, procedures or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions, procedures, or drawings shall include appropriate quantitative and qualitative criteria for determining that activities affecting quality have been satisfactorily accomplished. The "NR" Certificate Holder shall maintain a written description of procedures, instructions, or drawings used by his organization for control of quality and examination requirements detailing the implementation of the Quality System requirements. Copies of these procedures shall be readily available to the Authorized Nuclear Inspector.

f) **Document Control**

The program shall include measures to control the issuance, use, and disposition of documents, such as specifications, instructions, procedures, and drawings, including changes thereto. These measures shall ensure that the latest applicable documents, including changes, are reviewed for adequacy and approved for release by authorized personnel and distributed for use at the location where the prescribed activity is performed.

g) **Control of Purchased Material, Items, and Services**

Measures shall be established to ensure that all purchased material, items, and services conform to the requirements of the owner's design specifications and applicable edition and addenda of the code of construction and Section XI of the ASME Code. These measures shall include identification for material traceability. Provisions shall be identified for source evaluation and objective evidence shall be provided evidencing quality standards for material examination upon receipt.

h) **Identification and Control of Material and Items**

1) Measures shall be established for identification and control of material and items, including partially fabricated assemblies. These measures shall ensure that identification is maintained and traceable, either on the material or component, or on records throughout the repair/replacement activity. These measures shall be designed to prevent the use of incorrect or defective items and those which have not received the required examinations, tests, or inspections.

2) Permanent or temporary unit identification marks shall be applied using methods and materials that are legible and not detrimental to the component or system involved. Such identification shall be located in areas that will not interfere with the function or quality aspects of the item.

3) Certified Material Test Reports shall be identified as required by the applicable material specification in Section II of the ASME Code and shall satisfy any additional requirements specified in the original code of construction. The Certified Material Test Report or Certificate of Compliance need not be duplicated for submission with compliance documents when a record of compliance and satisfactory reviews of the Certified Material Test Report and Certificates of Compliance is provided. Documents shall provide a record that the Certified Material Test Report and Certificates of Compliance have been received, reviewed, and found acceptable. When the "NPT" Certificate Holder Scope authorizes the organization to perform examinations and tests in accordance with the original code of construction, the "NR" Certificate Holder shall certify compliance either on a Certified Material Test Report or Certificate of Conformance that the material satisfies the original code of construction requirements.

i) Control of Processes

1) The "NR" Certificate Holder shall operate under a controlled system such as process sheets, checklists, travelers, or equivalent procedures. Measures shall be established to assure that processes such as welding, nondestructive examination, and heat treating are controlled in accordance with the rules of the applicable section of the ASME Code and are accomplished by qualified personnel using qualified procedures.

2) Process sheets, checklists, travelers, or equivalent documentation shall be prepared, including the document numbers and revisions to which the process conforms with space provided for reporting results of completion of specific operations at checkpoints of repair/replacement activities.

j) Examinations, Tests and Inspections

1) In-process and final examinations and tests shall be established to assure conformance with specifications,

drawings, instructions, and procedures which incorporate or reference the requirements and acceptance limits contained in applicable design documents. Examination activities to verify the quality of work shall be performed by persons other than those who performed the activity being examined. Such persons shall not report directly to the immediate supervisors responsible for the work being examined.

2) Process sheets, travelers, or checklists shall be prepared, including the document numbers and revision to which the examination or test is to be performed, with space provided for recording results.

3) Mandatory hold/inspection points at which witnessing is required by the "NR" Certificate Holder's representative or the Authorized Nuclear Inspector shall be indicated in the controlling documents. Work shall not proceed beyond mandatory hold/inspection points without the consent of the "NR" Certificate Holder's representative or the Authorized Nuclear Inspector, as appropriate.

k) **Test Control**

1) Testing shall be performed in accordance with the owner's written test procedures that incorporate or reference the requirements and acceptance limits contained in applicable design documents.

2) Test procedures shall include provisions for assuring that prerequisites for the given test have been met, that adequate instrumentation is available and used, and that necessary monitoring is performed. Prerequisites may include calibrated instrumentation, appropriate equipment, trained personnel, condition of test equipment and the item to be tested, suitable environmental conditions, and provisions for data acquisition.

3) Test results shall be documented and evaluated to assure that test requirements have been satisfied.

l) **Control of Measuring and Test Equipment**

Measures shall be established and documented to assure that tools, gages,
instruments, and other measuring and testing equipment and devices used in activities affecting quality are of the proper range,

type, and accuracy to verify conformance to established requirements. A procedure shall be in effect to assure that they are calibrated and properly adjusted at specified periods or use intervals to maintain accuracy within specified limits. Calibration shall be traceable to known national standards, where these standards exist, or with the device manufacturer's recommendation.
m) Quality Records

1) The owner is responsible for designating records to be maintained. Measures shall be established for the "NR" Certificate Holder to maintain these records [See 1.8.5.1(m)(2)] required for Quality Assurance of repair/replacement activities. These shall include documents such as records of materials, manufacturing, examination, and test data taken before and during repair/replacement activity. Procedures, specifications, and drawings used shall be fully identified by pertinent material or item identification numbers, revision numbers, and issue dates. The records shall also include related data such as qualification of personnel, procedures, equipment, and related repairs. The "NR" Certificate Holder shall take such steps as may be required to provide suitable protection from deterioration and damage for all records while in his care. Also, it is required that the "NR" Certificate Holder have a system for correction or amending records that satisfies the owner's requirements. These records may be either the original or a reproduced, legible copy and shall be transferred to the owner at his request.

2) Records to be maintained as required in 1.8.5.1(m)(1) above may include the following:

a. An index that details the location and who is responsible for maintaining the records;

b. Data reports, properly executed, for each replacement component, part, appurtenance, piping system, and piping
assembly, when required by the design specification or the owner;

c. The required as-constructed drawings certified as to correctness;

d. Copies of applicable Certified Material Test Reports and Certificates of Compliance;

e. As-built sketch(es) including tabulations of materials repair/replacement procedures, and instructions to achieve compliance with Section XI of the ASME Code;

f. Nondestructive examination reports including results of examinations shall identify the ASNT, SNT-TC-1A, CP-189, or ACCP level of personnel interpreting the examination results. The ASNT Central Certification Program (ACCP) may be used to fulfill the examination and demonstration requirement of the employer's written practice. Final radiographs shall be included where radiography has been performed;

g. Records of all heat treatments may be either the heat treatment charts or a summary description of heat treatment time and temperature data certified by the "NR" Certificate Holder. Heat treatments performed by the material manufacturer to satisfy requirements of the material specifications may be reported on the Certified Material Test Report; or

h. Any and all nonconformance reports shall satisfy IWA-4000 of Section XI of the ASME Code and shall be reconciled by the owner
prior to certification of the Form NR-1 or NVR-1, as applicable.

3) After a repair/replacement activity, all records including audit reports required to verify compliance with the applicable engineering documents and the "NR" Certificate Holder's Quality System Program, except those required by the owner or listed in 1.8.5.1(m)(2)(a) thru (g) above, shall be maintained at a place mutually agreed upon by the owner and the "NR" Certificate Holder. These records shall be maintained for a period of five years after completion of the repair/replacement activity.

4) The original of the completed Form NR-1 or Form NVR-1, as applicable, shall be registered with the National Board and, if required, a copy forwarded to the Jurisdiction where the nuclear power plant is located.

n) **Examination or Test Status**

Measures shall be established to indicate examination and test status of parts, items, or components during the repair/replacement activity. The system used shall provide positive identification of the part, item, or component by means of stamps, labels, routing cards, or other acceptable methods. The system shall include any procedures or instructions to achieve compliance. Also, measures shall be provided for the identification of acceptable and unacceptable items. They shall also include procedures for control of status indicators, including the authority for application and removal of status indicators.

o) **Nonconforming Materials or Items**

Measures shall be established to control materials or items that do not conform to requirements in order to prevent their inadvertent use, including measures to identify and control the proper installation of items and to preclude nonconformance with the requirements of these rules. These measures shall include procedures for identification, documentation, segregation, and disposition. Nonconforming items shall be reviewed for acceptance, rejection, or repair in accordance with documented procedures. The responsibility and authority for the disposition of nonconforming items shall be defined. Repaired or modified items shall be re-examined in accordance with the applicable procedures. Measures that control further processing of a nonconforming or defective item, pending a decision on its disposition, shall be established and maintained. Ultimate disposition of nonconforming items shall be documented.

p) **Corrective Action**

1) Measures shall be established to ensure that conditions adverse to quality such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and other nonconformances are promptly identified and corrected.

2) In the case of significant conditions adverse to quality, the measures shall also ensure that the cause of these conditions be determined and corrected to preclude repetition. The identification of significant conditions adverse to quality, the cause, and condition and the corrective action taken shall be documented and reported to the appropriate levels of management.

3) The requirements shall also extend to the performance of subcontractors' corrective action measures.

q) **Audits**

A comprehensive system of planned and periodic audits shall be carried out by the "NR" Certificate Holder's organization to ensure compliance with the Quality System Program and to determine its effectiveness. Audits shall be performed in accordance with written procedures or checklists by personnel not having direct responsibilities in the areas being audited. Audit results shall be documented by the auditing personnel for review by management having responsibility in that area. Follow-up action, including re-audit of deficient areas, shall be taken where indicated. Audit results shall be made available to the Authorized Nuclear Inspector.

r) **Authorized Nuclear Inspector**

Measures shall be taken to reference the commissioned Rules for National Board Authorized Nuclear Inspector, qualified in accordance with the Rules for National Board Inservice and New Construction Commisioned Inspectors, to ensure that the latest documents including the Quality System Program will be made available to the inspector. The Authorized Nuclear Inspector shall be consulted prior to the issuance of a repair/replacement program in order that the Inspector may select any inspection or hold points in the program. The Authorized Nuclear Inspector shall not sign Form NR-1 or Form NVR-1, as applicable, unless satisfied that all work carried out is in accordance with the NBIC, ASME Section XI, and any jurisdictional requirements.

s) **Exhibits**

Forms referenced in the Quality System Manual shall be explained in the text and included as part of the referencing document or as an appendix. Forms shall be controlled and identified to show the latest approved revision, exhibit name, and other corresponding references as stated in the Quality System manual.

1.5.1 ACCREDITATION PROCESS

a) The National Board administers accreditation programs for authorization of organizations performing repairs and alterations to pressure-retaining items and/or pressure relief valves.

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) When the quality system requirements of this Section have been met, a Certificate of Authorization and appropriate National Board symbol stamp shall be issued.

e) The accreditation programs provide requirements for organizations performing repairs and alterations to pressure-retaining items. Depending upon the expected scope of activities at the time of review, organizations may be authorized to perform design only, metallic or non-metallic repairs, and/or alterations either in the shop only, field only, or shop and field. Repairs and/or alterations to metallic and non-metallic pressure-retaining items are made by welding, bonding and/or mechanical assembly.

1.5.2 SCOPE ISSUANCE AND REVISION TO A QUALITY SYSTEM

a) Any scope revision shall require authorized inspection agency acceptance of quality system changes. These changes shall be submitted to the National Board for acceptance. A program review may be required by the National Board or the Jurisdiction to ensure quality system requirements are met for scope changes. Upon acceptance of the changes, the National Board will issue a Certificate of Authorization with a revised scope.

b) The "VR" accreditation program provides requirements for organizations performing repairs to pressure relief valves. For scope issuance and revisions, refer to 1.7.

1.6 ACCREDITATION OF "R" REPAIR ORGANIZATIONS

1.6.1 SCOPE

a) This section provides requirements that must be met by organizations in order to obtain a National Board Certificate of Authorization to use the "R" Symbol Stamp for the

repair or alteration of pressure-retaining items. Organizations may be authorized to perform repairs only, or repairs and alterations.

b) The issuance of the "R" Stamp is not restricted to organizations whose primary business is to repair and alter pressure-retaining items, nor to manufacturers of pressure-retaining items. Owners and Users of pressure-retaining items and other organizations that qualify in accordance with these rules may also obtain the "R" Stamp.

c) Owners or users may be accredited for both a repair and inspection program provided the owner or user complies with the requirements of the "R" program and the National Board requirements of NB 371 for an Owner-User Inspection Organization. The requirements of 1.6.2(a) do not apply if the owner or user chooses to use the Owner-User Inspection Organization to accept the repair quality system when:

1) There is no conflict with jurisdictional requirements.

2) The line of authority for the Owner-User Inspection Organization shall be independent of the organization responsible for execution of "R" program work.

3) The process and Inspector limitations are described in the written Owner-User Inspection Organization's quality system manual.

1.6.2 PREREQUISITES FOR ISSUING A NATIONAL BOARD CERTIFICATE OF AUTHORIZATION

Before an organization can obtain a National Board "R" Certificate of Authorization, the organization shall:

a) Have and maintain an Inspection Agreement with an Authorized Inspection Agency;

b) Have, in the English language, a written Quality System that complies with the requirements of this section and includes the expected scope of activities;

c) Have the current edition and addendum of the National Board Inspection Code, all parts; and

d) Have available a copy of the code of construction appropriate to the intended scope of work.

1.6.3 PROCEDURE FOR OBTAINING OR RENEWING A NATIONAL BOARD CERTIFICATE OF AUTHORIZATION

a) Prior to issuance or renewal of a National Board "R" Certificate of Authorization, the organization and its facilities are subject to a review of its Quality System. The implementation of the Quality System shall be satisfactorily demonstrated by the

organization. The National Board reserves the absolute right to cancel, refuse to issue, or renew such authorization.

b) Organizations desiring to renew or obtain a National Board Certificate of Authorization shall apply to the National Board using forms obtained from the National Board. Application for renewal shall be made prior to the expiration date of the Certificate of Authorization.

c) When an organization has plants or shops in more than one location, the organization shall submit separate applications for each plant or shop. 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.

d) Upon notification of the review dates from the National Board, it is the responsibility of the organization to make arrangements for the review.

e) The Review Team, as a minimum, shall consist of one representative each from the Authorized Inspection Agency and the Jurisdiction.[2]

f) The Review Team shall conduct an evaluation of the organization's Quality System. The organization shall demonstrate sufficient implementation of the Quality System to provide evidence of the organization's knowledge of welding, nondestructive examination, postweld heat treatment, and other repair or alteration activities performed appropriate for the requested scope of work. The demonstration may be performed using current work, a demonstration mock-up, or a combination of both.

g) A recommendation to issue, renew, or withhold the National Board Certificate of Authorization shall be included in a Review Report prepared by the Review Team. The completed Review Report shall be forwarded to the National Board.

h) If proper administrative fees are paid and all other requirements are met, a Certificate of Authorization will be issued evidencing permission to use the "R" Symbol Stamp. The certificate shall expire on the triennial anniversary date.

i) When an organization holding a National Board Certificate of Authorization changes ownership, name, location, or address, the National Board shall be notified. The Certificate of Authorization may be revised by submitting an application for National Board "R" Certificate of Authorization; however, a re-review may be required.

j) The holder of an ASME Code Symbol Stamp, whose facilities were reviewed (with the exception of "V," "UV," "HV," "NV," and "H" [cast iron]) may obtain National Board authorization without a review of its facilities, provided:

1) The organization has a Quality System to cover the scope of the repairs or alterations to be made, subject to review by the Jurisdiction; and

2) The application for the "R" Certificate of Authorization is submitted within 12 months from the issuance of the ASME Certificate of Authorization. The initial Certificate of Authorization shall be issued to expire concurrent with the ASME Certificate of Authorization. Subsequent certificates shall be renewed upon a successful review and implementation of its Quality System by a National Board Representative.

k) The Jurisdiction may audit the Quality System and activities of an organization upon a valid request from an owner, user, inspection agency, or the National Board.

l) 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.

1.6.4 NATIONAL BOARD "R" SYMBOL STAMP

a) All "R" Symbol Stamps shall be obtained from the National Board of Boiler and Pressure Vessel Inspectors. Authorization to use the "R" Symbol Stamp may be granted by the National Board at its absolute discretion.

b) The "R" Symbol Stamp is furnished on loan by the National Board for a nominal fee. Each organization shall agree if authorization to use the "R" Symbol Stamp is granted, that the "R" Symbol Stamp is at all times the property of the National Board and will be promptly returned upon demand. If the organization discontinues the use of the "R" Symbol Stamp, inspection agreement with an Authorized Inspection Agency, or if the Certificate of Authorization has expired and no new certificate has been issued, the "R" Symbol Stamp shall be returned to the National Board.

c) The organization's Quality System shall provide for adequate control of the "R" Symbol Stamp. Provisions may be made for the issuance of the "R" Symbol Stamp for use at various field locations.

d) The holder of a Certificate of Authorization may obtain more than one "R" Symbol Stamp provided the organization's Quality System describes how the use of such stamps is controlled from the location shown on the certificate.

e) An organization shall not permit others to use the "R" Symbol Stamp loaned to it by the National Board.

[2] Jurisdiction: The National Board member jurisdiction where the organization is located. Alternatively, where the Jurisdiction elects not to perform the review or where there is no Jurisdiction or where the Jurisdiction is the organization's Authorized Inspection Agency, the National Board of Boiler and Pressure Vessel Inspectors will represent the Jurisdiction. At the Jurisdiction's discretion, the Jurisdiction may choose to be a member of the review team if the Jurisdiction chooses not to be the team leader.

1.6.5 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 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.

1.6.5.1 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 defined for maintaining full responsibility for code compliance by the National Board repair organization certifying the work.

a) **Title Page**

The name and complete address of the company to which the National Board Certificate of Authorization is issued shall be included on the Title Page of the Quality System Manual.

b) **Contents Page**

The manual should contain a page listing the contents of the manual by subject, number (if applicable), and revision number of each document.

c) **Scope of Work**

The manual shall clearly indicate the scope and type of repairs or alterations the organization is capable of and intends to carry out.

d) **Statement of Authority and Responsibility**

A dated Statement of Authority, signed by an officer of the organization, shall be included in the manual. Further, the Statement of Authority shall include:

1) A statement that all repairs or alterations carried out by the organization shall meet the requirements of the NBIC and the Jurisdiction, as applicable.

2) A statement that if there is a disagreement in the implementation of the Quality

System, the matter is to be referred for resolution to a higher authority in the company.

3) The title of the individual who will be responsible to ensure that (1) above is followed and has the freedom and authority to carry out the responsibility.

e) Manual Control

The manual shall include the necessary provisions for revising and issuing documents to maintain the manual current. The title of the individual authorized to approve revisions shall be included in the manual. Revisions must be accepted by the Authorized Inspection Agency prior to issuance of the manual and implementation.

f) Organization

An organizational chart shall be included in the manual. It shall include the title of the heads of all departments or divisions that perform functions that can affect the quality of the repair or alteration, and it shall show the relationship between each department or division. The manual shall identify the title of those individuals responsible for preparation, implementation, or verification of the Quality System. The responsibilities shall be clearly defined and the individuals shall have the organizational freedom and authority to fulfill those responsibilities.

g) Drawings, Design and Specifications

The manual shall contain controls to ensure that all design information, applicable drawings, design calculations, specifications, and instructions are prepared or obtained, controlled, and interpreted in accordance with the original code of construction.

h) Repair and Alteration Methods

The manual shall include controls for repairs and alterations, including, mechanical assembly procedures, materials, nondestructive examination methods, pre-heat, and postweld heat treatment, as applicable. Special requirements such as nonmetallic repairs and alterations to graphite and fiber-reinforced thermosetting plastic pressure-retaining items including bonding or mechanical assembly procedures shall be addressed, if applicable.

i) Materials

The manual shall describe the method used to assure that only acceptable materials (including welding material) are used for repairs and alterations. The manual shall include a description of how existing material is identified and new material is ordered, verified, and identified. The manual shall identify the title of the individual(s) responsible for each function and a brief description of how the function is to be performed.

j) **Method of Performing Work**

The manual shall describe the methods for performing and documenting repairs and alterations in sufficient detail to permit the Inspector to determine at what stages specific inspections are to be performed. The method of repair or alteration must have prior acceptance of the Inspector.

k) **Welding, NDE and Heat Treatment**

The manual shall describe controls for welding, nondestructive examination, and heat treatment. The manual is to indicate the title of the individual(s) responsible for the welding procedure specification and its qualification, and the qualification of welders and welding operators. It is essential that only welding procedure specifications and welders or welding operators qualified, as required by the NBIC, be used in the repair or alteration of pressure-retaining items. It is also essential that welders and welding operators maintain their proficiency as required by the NBIC, while engaged in the repair or alteration of pressure-retaining items. The manual shall also describe controls for assuring that the required WPS or SWPS is available to the welder or welding operator prior to welding. Similar responsibility for nondestructive examination and heat treatment shall be described in the manual.

l) **Examinations and Tests**

Reference shall be made in the manual for examinations and tests upon completion of the repair or alteration.

m) **Calibration**

The manual shall describe a system for the calibration of examination, measuring, and test equipment used in the performance of repairs and alterations.

n) **Acceptance and Inspection of Repair or Alteration**

The manual shall specifically indicate that before the work is started, acceptance of the repair/alteration shall be obtained from an Inspector who will make the required inspections and confirm NBIC compliance by signing and dating the applicable NBIC Report Form[3] upon completion of the work.

[3] NBIC Report Form: National Board Form R-1 for Repairs, Form R-2 for Alterations, or Form R-3 for Fabricated Parts or altered component can be considered in compliance with the NBIC.

o) **Inspections**

The manual shall make provisions for the Inspector to have access to all drawings, design calculations, specifications, procedures, process sheets, repair or alteration procedures, test results, and other documents as necessary to ensure compliance with the NBIC. A copy of the current manual shall be available to the inspector.

p) **Report of Repair or Alteration Form**

The manual shall indicate the title of the individuals responsible for preparing, signing, and presenting the NBIC Report Forms to the Inspector. The distribution of the NBIC Report Forms shall be described in the manual.

q) **Exhibits**

Any forms referenced in the manual shall be included. The form may be a part of the referencing document or included as an appendix. For clarity, the forms may be completed and identified as examples. The name and accepted abbreviations of the "R" Certificate Holder shall be included in the manual.

r) **Construction Code**

The manual shall include provisions for addressing the requirements that pertain to the specific construction code for the equipment being repaired or altered.

s) **Nonconforming Items**

There shall be a system acceptable to the Inspector for the correction of nonconformities. A nonconformance is any condition that does not comply with the applicable rules of the NBIC, construction code, jurisdictional requirements, or the quality system. Nonconformance must be corrected or eliminated before the repaired

1.7 ACCREDITATION OF "VR" REPAIR ORGANIZATIONS

1.7.1 SCOPE

a) These administrative rules and procedures are provided for those who wish to obtain a National Board Certificate of Authorization for use of the "VR" (Repair of Pressure Relief Valves) symbol stamp. It should be noted that the issuance of the "VR" stamp is not restricted to companies whose primary business is the repair of pressure relief valves, nor to manufacturers or assemblers that hold an ASME "V," "HV," "UV," or "NV" Code symbol stamp. Owners and users of boilers and pressure vessels and other organizations that qualify in accordance with the National Board Rules and Regulations may also obtain the "VR" Certificate and stamp.

b) In order to provide due process in the issuance, renewal, and revocation of "VR" symbol stamps and certificates of authorization, the National Board Appeals Committee procedures provide an affected "VR" Certificate of Authorization applicant the right of appeal, or to provide additional information that may affect the Committee's decision.

1.7.2 JURISDICTIONAL PARTICIPATION

The National Board member jurisdiction in which the "VR" organization is located is encouraged to participate in the review and demonstration of the applicant's quality system. The Jurisdiction may require participation in the review of the repair organization and the demonstration and acceptance of the repair organization's quality system manual.

1.7.3 GENERAL RULES

The general rules of the National Board "VR" certification program apply only to the repair of National Board capacity certified ASME Code Section I "V" stamped, Section IV "HV" marked, and Section VIII "UV" stamped pressure relief valves that:

a) Have been in service or have been exposed to environmental or other conditions such that there is reason to question their ability to perform equivalent to the standards for new valves; or

b) Any or all of the valve's external adjustment seals have been broken, opened, or otherwise disturbed, regardless of the valve's age or service status.

1.7.4 REPAIR OF NUCLEAR VALVES

Provided that the requirements of Supplement 9 and applicable requirements of these rules are met, the "VR" certificate may be extended to apply to the repair of any ASME Code Section III, Class 1, 2, or 3, pressure relief devices that have been capacity certified by the National Board and have been in service, regardless of their intended function, in a nuclear system.

1.7.5 ISSUANCE AND RENEWAL OF THE "VR" CERTIFICATE OF AUTHORIZATION

1.7.5.1 GENERAL

Authorization to use the stamp bearing the official National Board "VR" symbol as shown in Section 5 of this Part, will be granted by the National Board pursuant to the provisions of the following administrative rules and procedures. Supplement 9 of this Part, provides rules for the repair of ASME Section III "NV" stamped pressure relief devices.

1.7.5.2 ISSUANCE OF CERTIFICATE

a) Repair organizations, manufacturers, assemblers, or users that make repairs to the American Society of Mechanical Engineers (ASME) Code symbol, stamped or marked (as applicable), and The National Board of Boiler and Pressure Vessel Inspectors (National Board) capacity certified pressure relief valves may apply to the National Board for a Certificate of Authorization to use the "VR" symbol. The National Board may at any time, through the NBIC Committee, modify the regulations concerning the issuance and use of such valve repair symbol. All such modified regulations shall become binding upon holders of valid Valve Repair Certificates of Authorization.

b) Authorization to use the "VR" stamp may be granted or withheld by the National Board in its absolute discretion. If authorization is granted and proper administrative fees paid, a Certificate of Authorization will be issued evidencing permission to use such a symbol, expiring on the triennial anniversary date. The certificate will be signed by the National Board Chairman of the National Board of Trustees, the Executive Director, or any other duly authorized officer.

c) The certificate shall list the physical, permanent address of record for the certificate holder's shop/plant. For field-only scopes, this address of record shown on the Certificate of Authorization is where administrative, technical, and quality aspects of the business are controlled.

1.7.5.3 RENEWAL OF CERTIFICATE

The Certificate of Authorization is renewable every three (3) years subject to a review of the Quality System by a representative of the National Board, review and acceptance of the representative's report by the National Board, and successful completion of capacity verification tests. See 1.7.8 for exceptions. The applicant should apply to the National Board for renewal of authorization and re-issuance of the certificate prior to the date of expiration. The National Board reserves the absolute right to cancel, refuse to issue, or renew such authorization.

1.7.5.4 REVIEW OF APPLICANT'S FACILITY

a) Before issuance or renewal of pressure relief "VR" Certificates of Authorization, the repair organization, its written quality system, and its facilities are subject to a review and verification of implementation of its quality system by a representative of the National Board. The implementation demonstration shall include, as a minimum, disassembly, inspection, repair, application of special processes, reassembly, setting, and testing of valves within the scope of the applicant's quality system.

b) The applicant shall repair and submit for verification testing one (1) valve for each Code section (except Section III) and test fluid (steam, air/gas, liquid) which will appear on the Certificate of Authorization. A minimum of two (2) valves are required regardless of Code sections or test fluid. The valves shall be within the capabilities of the National

Board accepted laboratory. When an applicant is using the provisions of 4.5.2, the applicant shall submit one additional Section VIII steam valve set on air for verification testing on steam.

c) The applicant shall have a copy of the National Board Pressure Relief Device Certifications publication, NB-18, dated within one year (available from the National Board Web page), the latest edition and addenda of the National Board Inspection Code (NBIC), all parts; and the ASME Code section(s) that the organization is including in its scope.

d) It is the responsibility of the valve repair organization to make arrangements for this review. Certificates cannot be issued or renewed until the National Board is in receipt of approval of this review. Wherever possible, National Board reviews of valve repair organizations shall be coordinated with ASME reviews, when applicable.

e) For field-only repair scopes, the review shall encompass both the applicant's address of record and field repair demonstration site. The demonstration site shall be representative of that typically encountered by the applicant (see 1.7.5.6).

1.7.5.5 VERIFICATION TESTING

a) Before the "VR" Certificate of Authorization and stamps may be issued or renewed, the demonstration valves must successfully complete capacity and operational verification tests at a National Board accepted testing laboratory. See 1.7.5.6 and 1.7.8 for exceptions. The valves shall be typical of those repaired by the organization and within the capabilities of the testing laboratory.

b) Tests conducted at the accepted testing laboratory shall be witnessed by a representative of the National Board. The purpose of the tests is to ensure that the repairs have been satisfactorily carried out and the function and operation of the valves meet the requirements of the section of the ASME Code to which they were manufactured.

c) Valves not meeting the function or operational requirements of the section of the ASME Code to which they were manufactured shall be considered to have failed. Replacement valves shall be repaired and selected for testing as stated above, at a rate of two (2) valves for each one (1) that failed.

1) If either or both of these replacement valves fail to meet the above criteria, the applicant shall document the cause of the noted deficiencies and actions taken to guard against future occurrence. Upon acceptance of this information by the National Board, one (1) additional valve for each replacement valve that failed shall be repaired and tested. The valve(s) shall be of the same ASME Code Section, fluid and set pressure scope, as the valve previously failing to meet the test requirement.

2) Failure of this valve(s) to meet the ASME Code to which the valve was manufactured shall be cause for consideration by the National Board of revocation of the "VR" Certificate of Authorization or acceptance of alternative corrective action.

1.7.5.6 VERIFICATION TESTING ALTERNATIVES

a) In such cases where all valves repaired by the applicant for a specified ASME Code Section or test fluid exceed the capabilities of the accepted testing laboratory, valves for that ASME Code Section or test fluid shall be selected as specified in 1.7.5.4, and a demonstration test shall be successfully performed in lieu of verification testing specified in 1.7.5.5 above. The demonstration tests shall be conducted at a facility mutually agreeable to the National Board representative, the facility owner, and the applicant. The purpose of these tests is to demonstrate, in the presence of a National Board representative, that the repaired valves shall have adequate seat tightness at the maximum expected operating pressure prior to lifting, shall open within the required set pressure tolerance, operate consistently without chatter, and reclose within the required blowdown.

b) If a valve lift-assist device is used by the applicant to establish set pressure after repairs, this device must also be used to set the demonstration valves.

c) If either of these valves fail to meet the above criteria, then replacement valves shall be repaired and tested at a rate of two valves for each one that failed.

1) If either or both of these replacement valves fail to meet the above criteria, the applicant shall document the cause of the noted deficiencies and actions taken to guard against future occurrence. Upon acceptance of this information by the National Board, one (1) additional valve for each replacement valve that failed shall be repaired and tested. The valve(s) shall be of the same ASME Code section, fluid, and set pressure scope as the valve previously failing to meet the test requirement.

2) Failure of this valve(s) to meet the ASME Code to which the valve was manufactured shall be cause for consideration by the National Board of revocation of the "VR" Certificate of Authorization or acceptance of alternative corrective action.

1.7.6 USE OF THE "VR" AUTHORIZATION

1.7.6.1 TECHNICAL REQUIREMENTS

The administrative requirements of 1.7 for use of the "VR" stamp shall be used in conjunction with the technical requirements for valve repair as described in Supplement 7 of the NBIC. Those requirements shall be mandatory when a "VR" repair is performed.

1.7.6.2 STAMP USE

Each "VR" symbol stamp shall be used only by the repair firm within the scope, limitations, and restrictions under which it was issued.

1.7.6.3 RETURN OF STAMP

Each applicant shall agree, if authorization to use the stamp is granted, that the stamp is at all times the property of the National Board and will be promptly returned upon demand. If the applicant discontinues the repair of such valves or if the "VR" Certificate of Authorization issued to such applicant has expired and no new certificate has been issued, the stamp will be returned to the National Board.

1.7.6.4 MULTIPLE LOCATIONS

A holder of a National Board "VR" stamp shall not permit any others to use the "VR" symbol stamp loaned to it by the National Board. When a repair organization, manufacturer, or user has a repair department and/or equipment in fixed plants or shops located in more than one geographical area, it must submit separate applications for each plant or shop with the addresses of all such repair locations.

1.7.6.5 CERTIFICATE OF AUTHORIZATION CONTENTS

Qualification for repair location (shop, shop and field, or field only), code section (Section I, III, IV, and/or VIII valves), special processes, and test media shall be specified on the repair organization's "VR" Certificate of Authorization.

1.7.6.6 CHANGES TO CERTIFICATES OF AUTHORIZATION

a) When a "VR" Certificate Holder intends to change the address of record (location), the certificate holder shall notify the National Board in writing prior to relocating. The new facilities and related quality system for the new location shall be reviewed in accordance with 1.7.5.4. Issuance of a new Certificate of Authorization is subject to the procedures herein.

b) When a "VR" Certificate Holder intends to change ownership or scope, the certificate holder shall notify the National Board in writing prior to the change. A review, in accordance with 1.7.5.4, may be required depending upon the nature and extent of the change to the quality system manual, repair procedures, or facilities. Issuance of a new Certificate of Authorization is subject to the procedures herein.

1.7.6.7 ISSUANCE OF MORE THAN ONE "VR" SYMBOL STAMP TO A CERTIFICATE OF AUTHORIZATION HOLDER

The holder of a Certificate of Authorization may obtain more than one "VR" symbol stamp provided its quality system manual controls the use of such stamps from the address of record shown on the Certificate of Authorization.

1.7.7 QUALITY SYSTEM

1.7.7.1 GENERAL

Each applicant for a new or renewed "VR" Certificate of Authorization shall have and maintain a quality system which shall establish that all of these rules and administrative procedures and applicable ASME Code requirements, including material control, fabrication, machining, welding, examination, setting, testing, inspection, sealing, and stamping will be met.

1.7.7.2 WRITTEN DESCRIPTION

A written description, in the English language, of the system the applicant will use shall be available for review and shall contain, as a minimum, the features set forth in 1.7.7.5. This description may be brief or voluminous, depending upon the projected scope of work, and shall be treated confidentially. In general, the quality system shall describe and explain what documents and procedures the repair firm will use to validate a valve repair.

1.7.7.3 REVIEW

A review of the applicant's quality system will be performed by a representative of the National Board. The review will include a demonstration of the implementation of the provisions of the applicant's quality system.

1.7.7.4 MAINTENANCE OF CONTROLLED COPY

Each applicant to whom a "VR" Certificate of Authorization is issued shall maintain thereafter a controlled copy of the accepted quality system manual with the National Board. Except for changes that do not affect the quality system, revisions to the quality system manual shall not be implemented until such revisions are accepted by the National Board.

1.7.7.5 OUTLINE OF REQUIREMENTS FOR A QUALITY SYSTEM

The following establishes the minimum requirements of the written description of the quality system. It is required that each valve repair organization develop its own quality system that meets the requirements of its organization. For this reason it is not possible

to develop one quality system that could apply to more than one organization. The written description shall include, as a minimum, the following features:

a) **Title Page**
The title page shall include the name and address of the company to which the National Board Certificate of Authorization is to be issued.

b) **Revision Log**
A revision log is required to assure revision control of the quality system manual. The log should contain sufficient space for date, description and section of revision, company approval, and National Board acceptance.

c) **Contents Page**

The contents page should list and reference, by paragraph and page number, the subjects and exhibits contained therein.

d) **Statement of Authority and Responsibility**

A statement of authority and responsibility shall be dated and signed by an officer of the company. It shall include:

1) A statement that the "VR" stamp shall be applied only to pressure relief valves that meet both of the following conditions:

a. Are stamped with an ASME "V", "UV", or "NV" Code symbol or marked with an ASME "HV" symbol and have been capacity certified by the National Board; and

b. Have been disassembled, inspected, and repaired by the Certificate Holder such that the valves' condition and performance are equivalent to the standards for new valves.

2) The title of the individual responsible to ensure that the quality system is followed and who has authority and freedom to effect the responsibility;

3) A statement that if there is a disagreement in the implementation of the written quality system, the matter is to be referred to a higher authority in the company for resolution; and

4) The title of the individual authorized to approve revisions to the written quality system and the method by which such revisions are to be submitted to the National Board for acceptance before implementation.

e) **Organization Chart**

A chart showing the relationship between management, purchasing, repairing, inspection, and quality control personnel is required and shall reflect the actual organization in place.

f) **Scope of Work**

1) The scope of work section shall indicate the scope and type of valve repairs, including conversions the organization is capable of and intends to perform. The location of repairs (shop, shop and field, or field only), ASME Code Section(s) to which the repairs apply, the test medium (air, gas, liquid, or steam, or combinations thereof), and special processes (machining, welding, postweld heat treatment, or nondestructive examination, or combinations thereof) shall be specifically addressed.

2) The types and sizes of valves to be repaired, pressure ranges and other limitations, such as engineering and test facilities, should also be addressed.

g) **Drawings and Specification Control**

The drawings and specification control system shall provide procedures assuring that the latest applicable drawings, specifications, and instructions required are used for valve repair, including conversions, inspection, and testing.

h) **Material and Part Control**

The material and part control section shall describe purchasing, receiving, storage, and issuing of parts.

1) State the title of the individual responsible for the purchasing of all
material.

2) State the title of the individual responsible for certification and other records as required.

3) All incoming material and parts shall be checked for conformance with the purchase order and, where applicable, the material specifications or drawings. Indicate how material or part is identified and how identity is maintained by the quality system.

i) **Repair and Inspection Program**

The repair and inspection program section shall include reference to a document (such as a report, traveler, or checklist) that outlines the specific repair and inspection procedures used in the repair of pressure relief valves. Repair procedures shall require verification that the critical parts meet the valve manufacturer's specification. Supplement S7.14 outlines recommended procedures covering some specific items. Provisions shall be made to retain this document for a period of at least five years.

1) Each valve or group of valves shall be accompanied by the document referred to above for processing through the plant. Each valve shall have a unique identifier (i.e., repair serial number, shop order number, etc.) appearing on the repair documentation and repair nameplate such that traceability is established.

2) The document referred to above shall describe the original nameplate information, including the ASME Code symbol stamping and the repair nameplate information, if applicable. In addition, it shall include material checks, replacement parts, conversion parts (or both), reference to items such as the welding procedure specifications (WPS), fitup, NDE technique, heat treatment, and pressure test methods to be used. Application of the "VR" stamp to the repair nameplate shall be recorded in this document. Specific conversions performed with the new Type/Model number shall be recorded on the document. There shall be a space for "signoffs" at each operation to verify that each step has been properly performed.

3) The system shall include a method of controlling the repair or replacement of critical valve parts. The method of identifying each spring shall be indicated.

4) The system shall also describe the controls used to ensure that any personnel engaged in the repair of pressure relief valves are trained and qualified in accordance with Supplement S7.

j) **Welding, NDE, and Heat Treatment** (when applicable)

The quality system manual shall indicate the title of the person(s) responsible for and describe the system used in the selection, development, approval, and qualification of welding procedure specifications, and the qualification of welders and welding operators in accordance with the provisions of S7.

1) The quality system manual may include controls for the "VR" Certificate Holder to have the pressure relief valve part repaired by a National Board "R" Certificate Holder, per Supplement S7.

2) The completed Form R-1 shall be noted on and attached to the "VR" Certificate Holder's document required in 1.7.7.5(i). Similarly, NDE and heat treatment techniques must be covered in the quality system manual. When outside services are used for NDE and heat treatment, the quality system manual shall describe the system whereby the use of such services meet the requirements of the applicable section of the ASME Code.

k) **Valve Testing, Setting, and Sealing**

The system shall include provisions that each valve shall be tested, set, and all external adjustments sealed according to the requirements of the applicable ASME Code Section and the National Board. The seal shall identify the "VR" Certificate Holder making the repair. Abbreviations or initials shall be permitted, provided such identification is acceptable to the National Board.

l) **Valve Repair Nameplates**

An effective valve stamping system shall be established to ensure proper stamping of each valve as required by 5.9.2. The manual shall include a description of the nameplate or a drawing.

m) **Calibration**

1) The manual shall describe a system for the calibration of examination, measuring, and test equipment used in the performance of repairs. Documentation of these calibrations shall include the standard used and the results.

2) All calibration standards shall be calibrated against certified equipment having known valid relationships to nationally recognized standards.

n) **Manual Control**

The quality system shall include:

1) Measures to control the issuance of and revisions to the quality system manual;

2) Provisions for a review of the system in order to maintain the manual current with these rules and the applicable sections of the ASME Code;
3) The title(s) of the individual(s) responsible for control, revisions, and review of the manual;

4) Provision of a controlled copy of the written quality system manual to be submitted to the National Board; and
5) Revisions shall be submitted for acceptance by the National Board prior to being implemented.

o) **Nonconformities**

The system shall establish measures for the identification, documentation, evaluation, segregation, and disposition of nonconformities. A nonconformity is a condition of any material, item, product, or process in which one or more characteristics do not conform to the established requirements. These may include, but are not limited to, data discrepancies, procedural and/or documentation deficiencies, or material defects. Also, the title(s) of the individual(s) involved in this process shall be included.

p) **Exhibits**

Forms used in the quality system shall be included in the manual with a written description. Forms exhibited should be marked SAMPLE and completed in a manner typical of actual valve repair procedures.

q) **Testing Equipment (See Supplement 8)**

The system shall include a means to control the development, addition, or modification of testing equipment to ensure the requirements of 4.5.1(b) are met.

r) Field Repairs (See Supplement S7.7)

If field repairs are included in the scope of work, the system shall address any differences or additions to the quality system required to properly control this activity, including the following:

1) Provisions for annual audits of field activities shall be included;

2) Provisions for receipt and inspection of replacement parts, including parts received from the owner-user, shall be addressed;

3) If owner-user personnel will assist with repairs, provisions for the use of owner-user personnel shall be included; and

4) Provisions for use of owner-user measurement and test equipment, if applicable, shall be addressed.

1.7.8 ASME "V," "HV," OR "UV" CERTIFICATE HOLDERS

a) A manufacturer holding a valid ASME Certificate of Authorization for use of an ASME "V", "HV", or "UV" Code symbol stamp may obtain the "VR" Certificate of Authorization for the repair of pressure relief valves covered by the ASME Certificate of Authorization and that meet the requirements of 1.7.3. This can be accomplished without a review of the facilities provided there is a written quality system to cover the scope of the repairs to be made and the repairs are carried out at the same location where the ASME valves are manufactured. Unless the repaired valves are tested on the same facilities and to the same procedures as new valves, two (2) repaired valves shall be selected by a National Board representative for verification tests.

b) The initial Certificate of Authorization shall be issued to expire concurrent with the ASME Certificate of Authorization. Subsequent certificates shall be renewed upon a successful review and verification of implementation of its quality system by a National Board representative. This review shall be performed concurrently with the ASME Certificate renewal review.

c) A manufacturer may also perform field repairs of pressure relief valves covered by the ASME Certificate of Authorization provided the provisions of Supplement S7.7 are met.

d) Assemblers holding ASME Certificates of Authorization shall qualify for the "VR" Certificate of Authorization as required elsewhere in these rules.
e) The quality system manual shall be submitted for review and acceptance by the National Board.

f) In order for an ASME Code symbol stamp holder to qualify for the National Board "VR" stamp, the following areas to the written quality system usually require attention.

1) Statement of Authority and Responsibility

This should clearly indicate that valve repairs are carried out in accordance with the requirements and the rules of the National Board and the quality system manual. In addition, the scope and type of valve repairs covered by the manual should be indicated.

2) Organization
Unless the functions which affect the quality of valve repairs are carried out by individuals other than those responsible for manufacturing or assembly, it should not be necessary to revise the organization chart.
3) General Quality Functions
Usually quality system requirements regarding valve repairs may be controlled in the same manner as for ASME manufacturing or assembly provided applicable shop and/or field activities are covered. If this is the case, the applicant for the "VR" stamp should include in its quality system manual a separate section covering valve repairs that references the applicable section of the manual. For a more explicit explanation see 1.7.7.5, Outline of Requirements for a Quality System.

1.8 "NR" ACCREDITATION REQUIREMENTS

1.8.1 SCOPE

a) This section provides requirements that must be met for an organization to obtain a National Board Certificate of Authorization to use the "NR" Symbol Stamp for the Repair/Replacement activities performed in accordance with this Part and ASME Section XI requirements.

b) The issuance of the "NR" stamp is not restricted to organizations whose primary business is to perform repair/replacement activities or to manufacturers or assemblers that hold an ASME "N"-type Code symbol stamp. Owners and users of nuclear components and other organizations that qualify in accordance with these rules may also obtain the "NR" stamp.

1.8.2 PREREQUISITES FOR ISSUING A NATIONAL BOARD "NR" CERTIFICATE OF AUTHORIZATION

Before an organization can obtain a National Board "NR" Certificate of Authorization, the organization shall:

a) Have and maintain an inspection agreement with an accredited Nuclear Inspection Agency in accordance with NB-360[4], NB-369[5], and ASME Section XI;

b) Have in the English language a written Quality System Program that complies with the requirements of this Section and addresses controls for the intended scope of activities;

c) Have a current edition and addenda of the NBIC, all parts; and

d) Have available copies of the original code of construction appropriate to the intended scope of work and the applicable edition and addenda of ASME Section XI, as required by the regulatory authority.[6]

1.8.3 PROCEDURES FOR OBTAINING OR RENEWING A NATIONAL BOARD "NR" CERTIFICATE OF AUTHORIZATION

a) Prior to issuance or renewal of a National Board "NR" Certificate of Authorization, the organization and its facilities are subject to a review of its Quality System Program. The implementation of the Quality System Program shall be satisfactorily demonstrated by the organization. Demonstration of implementation shall meet the most stringent code requirements for the scope of work to be performed by the organization. The National Board reserves the absolute right to cancel, refuse to issue, or renew such authorization. The National Board will return fees paid for the unexpired term of the certificate.

b) Organizations desiring to obtain a National Board Certificate of Authorization shall

c) These procedures also apply to qualified organizations that make repairs to ASME Section III "NV" pressure relief devices. An organization that holds a valid "NR" Certificate of Authorization shall, for the purpose of these procedures, be known as an authorized nuclear repair organization.

d) Authorized Nuclear Inspection Agencies and Inspectors referred to in these procedures shall meet the requirements of and have been qualified and commissioned in accordance with the National Board Rules for Inservice and New Construction Commissioned Inspectors.

e) Repair/replacement activities performed under the "NR" Certificate of Authorization must be in accordance with the provisions of the NBIC, Section XI of the ASME Code and the rules of the Jurisdiction.

[4] NB-360, Criteria for Acceptance of Authorized Inspection Agencies for New Construction.
[5] NB-369, Qualification and Duties for Authorized Inspection Agencies (AIAs) Performing Inservice Inspection Activities and Qualification of Inspectors of Boilers and Pressure Vessels.
[6] Regulatory Authority. A federal government agency, such as the United States Nuclear Regulatory Commission, empowered to issue and enforce regulations concerning the design, construction, and operation of nuclear power plants apply to the National Board using forms obtained from the National Board. Application for renewal shall be made prior to the expiration date of the Certificate of Authorization.

f) Each authorized nuclear repair organization shall maintain a documented Quality System Program that meets the requirements of 1.8.5.1. The Quality System Program shall be commensurate with the scope of the organization's activities and shall be acceptable to the Jurisdiction, the Authorized Nuclear Inspection Agency, and the National Board.

g) Before an "NR" Certificate of Authorization will be issued or renewed, the applicant must have the Quality System Program and the implementation of the program reviewed and found acceptable by representatives of the National Board, the Jurisdiction, and the accredited Authorized Nuclear Inspection Agency. If the applicant is an ASME "N"-type Certificate of Authorization holder, has demonstrated within the last 12 months the implementation of the quality program, and can verify by documentation that the organization is capable of implementing its quality program as being in compliance with this part, a further verification implementation by the survey team may not be necessary.

h) Applicants that do not hold valid ASME "N"-type Certificates of Authorization shall demonstrate, by documentation and actual implementation, that they are capable of performing repair/replacement activities in accordance with the requirements of Section XI and the scope of their application for an "NR" Certificate of Authorization.

i) For National Board authorization to repair ASME "NV"/"NB"-stamped pressure relief devices, the applicant shall hold a valid "VR" Certificate of Authorization for the repair of ASME Section III pressure relief valves and also meet the applicable requirements for "NR" certification and Supplement 8.

j) When these requirements have been met, the applicant may be issued an "NR" Certificate of Authorization, which clearly outlines the scope of work for Section III pressure relief devices.

k) The Jurisdiction will be the National Board member Jurisdiction in which the applicant is located. If the implementation of the Quality System Program takes place outside of the Jurisdiction where the applicant's program was reviewed, the National Board member in the Jurisdiction where the implementation takes place may participate in this portion of the survey. At the request of the Jurisdiction, the National Board representative may also act for said Jurisdiction.

l) Where there is no National Board member Jurisdiction, the applicant's Quality System Program shall be acceptable to representatives of the National Board and the Authorized Nuclear Inspection Agency.

m) The applicant shall request the National Board to evaluate the Quality System Program and implementation prior to the issuance of an "NR" Certificate of Authorization. The National Board, when requested through the appropriate form, will arrange for an evaluation of the applicant's Quality System Program. The program will be evaluated on the basis of its compliance with the National Board rules for certification. The program shall be adequate to control the intended scope of work. The "NR" Certificate of Authorization that is issued shall specify the scope and limits of work for which the applicant is certified.

n) Revisions to the Quality System Program shall be acceptable to the Authorized Nuclear Inspector Supervisor of the Authorized Nuclear Inspection Agency before implementation.

o) The "NR" Certificate of Authorization holder shall be subject to an audit annually by the Authorized Nuclear Inspection Agency to assure compliance with the Quality System Program.

p) Upon notification of the survey dates from the National Board, it is the responsibility of the organization to make arrangements for the survey.

q) The Survey Team, as a minimum, shall consist of one representative each from the National Board, Authorized Nuclear Inspection Agency, and Jurisdiction.

r) A recommendation to issue, renew, or withhold the National Board Certificate of Authorization for the "NR" Symbol Stamp shall be included in a summary report prepared by the survey team leader. The completed summary report shall be forwarded to the National Board.

s) If proper administrative fees are paid and all other requirements are met, an "NR" Certificate of Authorization will be issued evidencing authorization to use the "NR" Symbol Stamp. The Certificate shall expire on the triennial anniversary date.

t) When an organization holding a National Board Certificate of Authorization changes ownership, name, or address, the National Board shall be notified. The Certificate of Authorization may be revised by submitting an application for National Board "NR" Certificate of Authorization.

u) The National Board may at any time change the rules for the issuance of the Certificate of Authorization and use of the "NR" Symbol Stamp. These rules shall become binding on all certificate holders.

1.8.4 NATIONAL BOARD "NR" SYMBOL STAMP

a) All "NR" Symbol Stamps shall be obtained from the National Board of Boiler and Pressure Vessel Inspectors. Authorization to use the "NR" Symbol Stamp may be granted by the National Board at its absolute discretion.

b) The National Board, for a nominal fee, furnishes the "NR" Symbol Stamp. Each organization shall agree, if authorized to use the "NR" Symbol Stamp, that the "NR" Symbol Stamp is at all times the property of the National Board and will be promptly returned upon demand. If the organization discontinues the use of the "NR" Symbol Stamp or if the Certificate of Authorization has expired and no new Certificate of Authorization has been issued, the "NR" Symbol Stamp shall be returned to the National Board.

c) The organization's Quality System Program shall provide for adequate control of the "NR" Symbol Stamp.

d) The organization authorized to use the "NR" Symbol Stamp may obtain more than one "NR" Symbol Stamp provided the organization's Quality System Program describes how the use of such stamps are controlled from the location shown on the "NR" Certificate of Authorization.

e) The organization shall not permit other organizations to use the "NR" Symbol Stamp loaned to it by the National Board.

1.8.5 QUALITY SYSTEM PROGRAM

A holder of a National Board Certificate of Authorization shall have and maintain a written Quality System Program. The system shall satisfactorily meet the requirements of the NBIC, jurisdictional requirements, and shall be available for review. The Quality System Program may be brief or voluminous, depending on the circumstances. It shall be treated confidentially by the National Board.

1.8.5.1 OUTLINE OF REQUIREMENTS FOR A QUALITY SYSTEM PROGRAM FOR QUALIFICATION FOR THE NATIONAL BOARD "NR" SYMBOL STAMP

These rules set forth the requirements for planning, managing, and implementing the organization's Quality System Programs for controlling the quality of activities performed during repair/replacement activities of components and systems in nuclear power plants within the scope of the applicable edition and addenda of Section XI of the ASME Code. These rules are to be the basis for evaluating such programs prior to the issuance of the National Board "NR" Certificate of Authorization.

a) **Organization**

1) The authority and responsibility of those in charge of the Quality System Program and activities affecting quality shall be clearly established and documented. The person and organization performing Quality System functions shall have sufficient and well-defined responsibility, authority, and organizational freedom to:

a. Identify quality problems;

b. Initiate action which results in solutions;

c. Verify implementation of solutions to those problems; and

d. Control further processing, delivery or installation of a nonconforming item, deficiency or unsatisfactory condition until proper disposition has been made.

2) The person and organization responsible for defining and for measuring the overall effectiveness of the Quality System Program shall be designated sufficiently independent from the pressure of production, have direct access to responsible management at a level where appropriate action can be required and report regularly on the effectiveness of the program. Assurance of quality requires management measures which provide that the individual or group assigned the responsibility of inspection, testing, checking, or otherwise verifying that an activity has been correctly performed, is independent of the individual or group directly responsible for performing the specific activity. The specific responsibilities of the Quality Assurance organization of the "NR" Certificate Holder shall include the review of written procedures and monitoring of all activities concerned with the Quality System Program as covered in these rules.

b) **Quality System Program**

1) Before becoming a holder of an "NR" Certificate of Authorization, the applicant shall establish a Quality System Program for the control of the quality of work to be performed. The program shall define the organizational structure within which the Quality System Program is to be implemented and shall clearly delineate the responsibilities, levels of authority, and lines of communication for the various individuals involved. The program shall be documented in detail in a Quality System Manual that shall be a major basis for demonstration of compliance with the NBIC. The applicant's Quality System Program shall be documented by written policies,

procedures, and instructions and shall be based on the organization's scope of work to be performed.

2) The applicant's program need not be in the same format or sequential arrangement as the requirements in these rules as long as all applicable program requirements have been covered. The program shall provide for the accomplishment of activities affecting quality under suitably controlled conditions. Controlled conditions include the use of appropriate equipment, suitable environmental conditions for accomplishing the activity and assurance that prerequisites for the activity have been satisfied. The program shall take into account the need for special controls, processes, test equipment, tools, and skills to attain the required quality and need for the verification of quality by inspection and test. The program shall provide for ready detection of nonconforming material and items and for timely and positive corrective actions.

3) The program shall provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained. It shall be the responsibility of the "NR" Certificate Holder to ensure that all personnel performing quality functions within the scope of these rules, including personnel of subcontracted services, are qualified as specified in these rules. The assignment of qualified personnel shall be at the discretion of the "NR" certificate holder.

4) The "NR" Certificate Holder shall be responsible for advising his Authorized Nuclear Inspection Agency of any proposed changes to the Quality System Manual and shall have acceptance of the Authorized Nuclear Inspection Agency's Authorized Nuclear Inspector Supervisor before putting such changes into effect. The "NR" Certificate Holder shall make a current copy of the Quality System Manual available to the Authorized Nuclear Inspector. The "NR" Certificate Holder shall be responsible for promptly notifying the Authorized Nuclear Inspector of such accepted changes, including evidence of acceptance by the Authorized Nuclear Inspection Agency.

5) The quality of all repair/replacement activities shall be controlled at all points necessary to ensure conformance

with the requirements of these rules and the "NR" Certificate Holder's Quality System Manual.

6) The Certificate Holder shall make available to the Authorized Nuclear Inspector such drawings and process sheets as are necessary to make the Quality System Program intelligible.

c) **Design Control**

1) ASME Section XI establishes that the owner is responsible for design in connection with repair/replacement activities. The "NR" Certificate Holder must ensure that the design specification, drawings, or other specifications or instructions furnished by the owner satisfy the code edition and addenda of the owner's design specification. To satisfy this requirement, the "NR" Certificate Holder shall establish requirements that correctly incorporate the owner's design specification requirements into their specifications, drawings, procedures, and instructions, which may be necessary to carry out the work. The "NR" Certificate Holder's system shall include provisions to ensure that the appropriate quality standards are specified and included in all quality records. These records shall be reviewed for compliance with the owner's design specification and the requirements of Section XI of the ASME Boiler and Pressure Vessel Code.

2) If the "NR" Certificate Holder's specifications, drawings, procedures, and instructions conflict with the owner's design specification, a system must be implemented that will resolve or eliminate the deficiency. This system must be reconciled with the owner and the "NR" Certificate Holder in accordance with IWA-4000 of Section XI of the ASME Code.

d) **Procurement Document Control**

Documents for procurement of materials, items, and subcontracted services shall include requirements to the extent necessary to ensure their compliance with the owner's design specifications and IWA-4000 of Section XI of the ASME Code. To the extent necessary, procurement documents shall require suppliers to maintain a Quality System Program consistent with the applicable requirements of the edition and addenda of the code of construction to which the items are constructed. Measures shall be established to ensure that all purchased material, items, and services conform to these requirements.

e) **Instructions, Procedures and Drawings**

Activities affecting quality shall be prescribed by documented instructions, procedures or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions, procedures, or drawings shall include appropriate quantitative and qualitative criteria for determining that activities affecting quality have been satisfactorily accomplished. The "NR" Certificate Holder shall maintain a written description of procedures, instructions, or drawings used by his organization for control of quality and examination requirements detailing the implementation of the Quality System requirements. Copies of these procedures shall be readily available to the Authorized Nuclear Inspector.

f) **Document Control**

The program shall include measures to control the issuance, use, and disposition of documents, such as specifications, instructions, procedures, and drawings, including changes thereto. These measures shall ensure that the latest applicable documents, including changes, are reviewed for adequacy and approved for release by authorized personnel and distributed for use at the location where the prescribed activity is performed.

g) **Control of Purchased Material, Items, and Services**

Measures shall be established to ensure that all purchased material, items, and services conform to the requirements of the owner's design specifications and applicable edition and addenda of the code of construction and Section XI of the ASME Code. These measures shall include identification for material traceability. Provisions shall be identified for source evaluation and objective evidence shall be provided evidencing quality standards for material examination upon receipt.

h) **Identification and Control of Material and Items**

1) Measures shall be established for identification and control of material and items, including partially fabricated assemblies. These measures shall ensure that identification is maintained and traceable, either on the material or component, or on records throughout the repair/replacement activity. These measures shall be designed to prevent the use of incorrect or defective items and those which have not received the required examinations, tests, or inspections.

2) Permanent or temporary unit identification marks shall be applied using methods and materials that are legible and not detrimental to the component or system involved. Such identification shall be located in areas that will not interfere with the function or quality aspects of the item.

3) Certified Material Test Reports shall be identified as required by the applicable material specification in Section II of the ASME Code and shall satisfy any additional requirements specified in the original code of construction. The Certified Material Test Report or Certificate of Compliance need not be duplicated for submission with compliance documents when a record of compliance and satisfactory reviews of the Certified Material Test Report and Certificates of Compliance is provided. Documents shall provide a record that the Certified Material Test Report and Certificates of Compliance have been received, reviewed, and found acceptable. When the "NR" Certificate Holder Scope authorizes the organization to perform examinations and tests in accordance with the original code of construction, the "NR" Certificate Holder shall certify compliance either on a Certified Material Test Report or Certificate of Conformance that the material satisfies the original code of construction requirements.

i) **Control of Processes**

1) The "NR" Certificate Holder shall operate under a controlled system such as process sheets, checklists, travelers, or equivalent procedures. Measures shall be established to assure that processes such as welding, nondestructive examination, and heat treating are controlled in accordance with the rules of the applicable section of the ASME Code and are accomplished by qualified personnel using qualified procedures.

2) Process sheets, checklists, travelers, or equivalent documentation shall be prepared, including the document numbers and revisions to which the process conforms with space provided for reporting results of completion of specific operations at checkpoints of repair/replacement activities.

j) **Examinations, Tests and Inspections**

1) In-process and final examinations and tests shall be established to assure conformance with specifications,

drawings, instructions, and procedures which incorporate or reference the requirements and acceptance limits contained in applicable design documents. Examination activities to verify the quality of work shall be performed by persons other than those who performed the activity being examined. Such persons shall not report directly to the immediate supervisors responsible for the work being examined.

2) Process sheets, travelers, or checklists shall be prepared, including the document numbers and revision to which the examination or test is to be performed, with space provided for recording results.

3) Mandatory hold/inspection points at which witnessing is required by the "NR" Certificate Holder's representative or the Authorized Nuclear Inspector shall be indicated in the controlling documents. Work shall not proceed beyond mandatory hold/inspection points without the consent of the "NR" Certificate Holder's representative or the Authorized Nuclear Inspector, as appropriate.

k) **Test Control**

1) Testing shall be performed in accordance with the owner's written test procedures that incorporate or reference the requirements and acceptance limits contained in applicable design documents.

2) Test procedures shall include provisions for assuring that prerequisites for the given test have been met, that adequate instrumentation is available and used, and that necessary monitoring is performed. Prerequisites may include calibrated instrumentation, appropriate equipment, trained personnel, condition of test equipment and the item to be tested, suitable environmental conditions, and provisions for data acquisition.

3) Test results shall be documented and evaluated to assure that test requirements have been satisfied.

l) **Control of Measuring and Test Equipment**

Measures shall be established and documented to assure that tools, gages,
instruments, and other measuring and testing equipment and devices used in activities affecting quality are of the proper range,

type, and accuracy to verify conformance to established requirements. A procedure shall be in effect to assure that they are calibrated and properly adjusted at specified periods or use intervals to maintain accuracy within specified limits. Calibration shall be traceable to known national standards, where these standards exist, or with the device manufacturer's recommendation.
m) Quality Records

1) The owner is responsible for designating records to be maintained. Measures shall be established for the "NR" Certificate Holder to maintain these records [See 1.8.5.1(m)(2)] required for Quality Assurance of repair/replacement activities. These shall include documents such as records of materials, manufacturing, examination, and test data taken before and during repair/replacement activity. Procedures, specifications, and drawings used shall be fully identified by pertinent material or item identification numbers, revision numbers, and issue dates. The records shall also include related data such as qualification of personnel, procedures, equipment, and related repairs. The "NR" Certificate Holder shall take such steps as may be required to provide suitable protection from deterioration and damage for all records while in his care. Also, it is required that the "NR" Certificate Holder have a system for correction or amending records that satisfies the owner's requirements. These records may be either the original or a reproduced, legible copy and shall be transferred to the owner at his request.

2) Records to be maintained as required in 1.8.5.1(m)(1) above may include the following:

a. An index that details the location and who is responsible for maintaining the records;

b. Data reports, properly executed, for each replacement component, part, appurtenance, piping system, and piping assembly, when required by the design specification or the owner;

c. The required as-constructed drawings certified as to correctness;

d. Copies of applicable Certified Material Test Reports and Certificates of Compliance;

e. As-built sketch(es) including tabulations of materials repair/replacement procedures, and instructions to achieve compliance with Section XI of the ASME Code;

f. Nondestructive examination reports including results of examinations shall identify the ASNT, SNT-TC-1A, CP-189, or ACCP level of personnel interpreting the examination results. The ASNT Central Certification Program (ACCP) may be used to fulfill the examination and demonstration requirement of the employer's written practice. Final radiographs shall be included where radiography has been performed;

g. Records of all heat treatments may be either the heat treatment charts or a summary description of heat treatment time and temperature data certified by the "NR" Certificate Holder. Heat treatments performed by the material manufacturer to satisfy requirements of the material specifications may be reported on the Certified Material Test Report; or

h. Any and all nonconformance reports shall satisfy IWA-4000 of Section XI of the ASME Code and shall be reconciled by the owner
prior to certification of the Form NR-1 or NVR-1, as applicable.

3) After a repair/replacement activity, all records including audit reports required to verify compliance with the applicable engineering documents and the "NR" Certificate Holder's Quality System Program, except those required by the owner or listed in 1.8.5.1(m)(2)(a) thru (g) above, shall be maintained at a place mutually agreed upon by the owner and the "NR" Certificate Holder. These records shall be maintained for a period of five years after completion of the repair/replacement activity.

4) The original of the completed Form NR-1 or Form NVR-1, as applicable, shall be registered with the National Board and, if required, a copy forwarded to the Jurisdiction where the nuclear power plant is located.

n) Examination or Test Status

Measures shall be established to indicate examination and test status of parts, items, or components during the repair/replacement activity. The system used shall provide positive identification of the part, item, or component by means of stamps, labels, routing cards, or other acceptable methods. The system shall include any procedures or instructions to achieve compliance. Also, measures shall be provided for the identification of acceptable and unacceptable items. They shall also include procedures for control of status indicators, including the authority for application and removal of status indicators.

o) Nonconforming Materials or Items

Measures shall be established to control materials or items that do not conform to requirements in order to prevent their inadvertent use, including measures to identify and control the proper installation of items and to preclude nonconformance with the requirements of these rules. These measures shall include procedures for identification, documentation, segregation, and disposition. Nonconforming items shall be reviewed for acceptance, rejection, or repair in accordance with documented procedures. The responsibility and authority for the disposition of nonconforming items shall be defined. Repaired or modified items shall be re-examined in accordance with the applicable procedures. Measures that control further processing of a nonconforming or defective item, pending a decision on its disposition, shall be established and maintained. Ultimate disposition of nonconforming items shall be documented.

p) Corrective Action

1) Measures shall be established to ensure that conditions adverse to quality such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and other nonconformances are promptly identified and corrected.

2) In the case of significant conditions adverse to quality, the measures shall also ensure that the cause of these conditions be determined and corrected to preclude repetition. The identification of significant conditions adverse to quality, the cause, and condition and the corrective action taken shall be documented and reported to the appropriate levels of management.

3) The requirements shall also extend to the performance of subcontractors' corrective action measures.

q) Audits

A comprehensive system of planned and periodic audits shall be carried out by the "NR" Certificate Holder's organization to ensure compliance with the Quality System Program and to determine its effectiveness. Audits shall be performed in accordance with written procedures or checklists by personnel not having direct responsibilities in the areas being audited. Audit results shall be documented by the auditing personnel for review by management having responsibility in that area. Follow-up action, including re-audit of deficient areas, shall be taken where indicated. Audit results shall be made available to the Authorized Nuclear Inspector.

r) Authorized Nuclear Inspector

Measures shall be taken to reference the commissioned Rules for National Board Authorized Nuclear Inspector, qualified in accordance with the Rules for National Board Inservice and New Construction Commisioned Inspectors, to ensure that the latest documents including the Quality System Program will be made available to the inspector. The Authorized Nuclear Inspector shall be consulted prior to the issuance of a repair/replacement program in order that the Inspector may select any inspection or hold points in the program. The Authorized Nuclear Inspector shall not sign Form NR-1 or Form NVR-1, as applicable, unless satisfied that all work carried out is in accordance with the NBIC, ASME Section XI, and any jurisdictional requirements.

s) Exhibits

Forms referenced in the Quality System Manual shall be explained in the text and included as part of the referencing document or as an appendix. Forms shall be controlled and identified to show the latest approved revision, exhibit name, and other corresponding references as stated in the Quality System manual.

1.8.6 INTERFACE WITH THE OWNER'S REPAIR/REPLACEMENT PROGRAM

Interface with the owner's repair/replacement program shall meet the following:

a) The repair/replacement plan shall be subject to the acceptance of the Jurisdiction and the owner's Authorized Nuclear In-service Inspector (ANII).
b) Repair/replacement activities of nuclear components shall meet the requirements of Section XI of the ASME Boiler and Pressure

Vessel Code and the Jurisdiction where the nuclear power plant is located.

c) Documentation of the repair/replacement activities of nuclear components shall be recorded on the National Board Report of Nuclear Repair/Modification or Replacement activities, Form NR-1, or Form NVR-1, as applicable. The completed forms shall be signed by a representative of the authorized nuclear repair organization and the Authorized Nuclear Inspector if the repair/replacement activity meets the requirements of ASME Section XI. For repair/replacement activities that involve design changes as specified in 1.8.5.1(c), Form NR-1, or Form NVR-1, as applicable, shall indicate the responsible organization satisfying the owner's design specification requirements.

d) The authorized nuclear repair organization shall provide a copy of the signed Form NR-1 or Form NVR-1, as applicable, to the owner, if required, the Jurisdiction, and the Authorized Nuclear Inspection Agency. The original Form NR-1 or Form NVR-1, as applicable, shall be registered with the National Board by the authorized nuclear repair organization.

e) The authorized nuclear repair organization shall provide a nameplate/stamping for repair/replacement activities for each nuclear component unless otherwise required by the Owner's Quality System Program. The required information and format shall be as shown in Section 5 of this Part.

NB12-0801

Repairs and Alterations of Gasketed PHE's in the Field

By Mike Pischke

Introduction

This is intended to describe the current common industry practices of Plate Heat Exchanger (PHE) users regarding their operation, routine repairs and alterations. Because of the unique design of the PHE, the current ASME Pressure Vessel or NBIC Codes do not specifically address the design of PHE's, nor the potential alterations. The typical industries include, but not limited to the Power, Petrochemical, Maritime, HVAC, Bio-Pharmaceutical , and Food production.

Expansion and Contraction of Plate Packs

One of the primary benefits of the gasketed PHE is that the heating surface can be expanded or contracted in response to changes in fluid flow, process parameters, and/or ambient temperature variations. The plate packs are expanded or reduced due to the increase or decrease in heat transfer requirements, respectively. Also, because turbulence is necessary for effective heat transfer, the quantity of heat transfer plates are critical to ensure the proper flow rates and pressure drops during operation. This is adjusted by adding or subtracting the number of heat transfer plates. Users will often also add plates gradually as production demands are incrementally increased. This avoids the need for repeated and costly replacement of entire heat exchangers. They will also adjust the number based on seasonal temperature variations.

Code Implications: Although the Code does not specifically address the addition or removal of heat transfer plates, this has indirect Code implications. Adding or subtracting plates in no way affects the specific design parameters of Pressure and Temperature, but does change the volume of the heat exchanger and the heat transfer surface area. Unless someone counts every single plate in a PHE and compares it to the number listed on the Data Report, it would not be obvious that a change was made.

Gasket Replacement

The expected life of gaskets within a PHE plate pack may vary from one year to decades; based upon the gasket material selection, process fluid(s), operating parameters, and environmental conditions.
Ideally, the gasket replacement coincides with the routine cleaning of the heat transfer plates. At this time, the entire plate pack is removed from the frame, the gaskets removed from the plates, then the plates are mechanically and/or chemically cleaned. The cleaned plates are then re-gasketed using new gaskets. Glued gaskets are typically removed using liquid nitrogen prior to cleaning. After re-gasketing, the plate pack is returned to the frame and typically hydrostatically or pneumatically tested at the MAWP.

1/2

Code Implications: Although the ASME Code does not directly address gaskets or gasket materials, the practical operating parameters are typically limited by the gasket material. Maximum operating temperatures are determined by the degradation rate of the gasket material, and the MAWP set by an adjusted test pressure when the particular gasket-heat transfer plate combination will begin to leak.

Heat Transfer Plate Replacement

Under normal operating conditions, heat transfer plates should last for decades in service. Heat transfer plates typically need to be replaced due to deformation from opening and closing, corrosion, fatigue, and/or fouling. When being replaced, they may be replaced using plates from a different manufacturer and even a different material from the original Code stamped unit. For example, if the original plates were made from 0.4mm thick, 304 stainless steel and they corroded over time due to chloride attacks, the user may choose to replace the corroded plates with something more resistant. Perhaps they would replace these plates with 316L plates and even increase the thickness to 0.5mm. This is a common practice.

Another common practice is to have multiple, identical PHE's in a chemical production facility and rotate out spare plate packs as the glued gaskets break down and need to be replaced over time. Spare plate packs with glued gaskets are kept in stock at the facility, waiting to be swapped out with the plates in production. This allows the chemical company's maintenance personnel to swap out a plate pack during a brief shut down period. The removed plate pack is re-conditioned by cleaning, removing the gaskets and gluing on new gaskets. These plate packs now become the new spares. This allows them to re-use the heat transfer plates which are often made from expensive materials such as nickel alloys, or titanium.

Code Implications: Heat Transfer plates and laser welded cassettes are considered UG-11 "Standard Pressure Parts" per Interpretations VIII-1-89-236 and VIII-1-95-21. There is also an Interpretation (VIII-81-89R) that allows the heat transfer plates to be made from non-Code material. Beyond these Interpretations, there are no rules regarding the material of the heat transfer plates. Because the heat transfer plates are contained between the frame plates, the strength of the PHE relies on the bolts and frame plates and never the strength of the heat transfer plates.

2/8

NB12-1101

FORM R-2 REPORT OF ALTERATION

in accordance with provisions of the *National Board Inspection Code*

DESIGN REPORT

SHEET 1 OF 2

1. Design performed by _____ (name of "R" organization responsible for design) _____ (Form "R" Registration No.)

_____ (address) _____ (P.O. No., Job No., etc.)

2. Owner _____ (name)

_____ (address)

3. Location of installation _____ (name)

_____ (address)

4. Item identification _____ (boiler, pressure vessel, or piping) Name of original manufacturer _____

5. Identifying nos.: _____ (mfg. serial no.) _____ (National Board No.) _____ (jurisdiction no.) _____ (other) _____ (year built)

6. NBIC Edition / Addenda: _____ (edition) _____ (addenda)

Original Code of Construction for Item: _____ (name / section / division) _____ (edition / addenda)

Construction Code Used for Alteration Performed: _____ (name / section / division) _____ (edition / addenda)

7. Description of Design Scope: _____

(use supplemental sheet, Form R-4, if necessary) ☐ FORM R-4, REPORT SUPPLEMENTARY SHEET IS ATTACHED

Pressure Test, if applied _____ psi MAWP _____ psi

8. Replacement Parts. Attached are Manufacturer's Partial Data Reports or Form R-3's properly completed for the following items of this report:

_____ (name of part, item number, data report type or Certificate of Compliance, mfg's. name and identifying stamp)

9. Remarks: _____

DESIGN CERTIFICATION

I, _____ certify that to the best of my knowledge and belief the statements in this report are correct and that the Design Change described in this report conforms to the *National Board Inspection Code*.

National Board "R" Certificate of Authorization No. _____ expires on _____

Date _____ _____ (name of design organization) Signed _____ (authorized representative)

CERTIFICATE OF DESIGN CHANGE REVIEW

I, _____ holding a valid Commission issued by The National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the jurisdiction of _____ and employed by _____ of _____ have reviewed the design change as described in this report and state that to the best of my knowledge and belief such change complies with the applicable requirements of the *National Board Inspection Code*.

By signing this certificate, 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 _____ Signed _____ (inspector) Commissions _____ (National Board and jurisdiction no.)

FORM R-2 REPORT OF ALTERATION

in accordance with provisions of the *National Board Inspection Code*

CONSTRUCTION REPORT SHEET 2 OF 2

1. Construction performed by _____ (name of "R" organization responsible for construction) _____ (Form "R" Registration No.)

_____ (address) _____ (P.O. No., Job No., etc.)

2. Owner _____ (name)

_____ (address)

3. Location of installation _____ (name)

_____ (address)

4. Item identification _____ (boiler, pressure vessel, or piping) Name of original manufacturer _____

5. Identifying nos.: _____ (mfg. serial no.) _____ (National Board No.) _____ (jurisdiction no.) _____ (other) _____ (year built)

CERTIFICATE of DESIGN _____ **, ACKNOWLEDGED by CONSTRUCTION OGANIZATION**
(Identify the design organization's Form "R" Registration No. or referencing P.O., job, or tracking number if the Form "R" Report is not registered)

I, _____ acknowledge the provisions and requirements of design described on the DESIGN REPORT, sheet 1, and the design was introduced into the construction scope as required by the *National Board Inspection Code*.

Date _____ _____ (name of construction organization) Signed _____ (authorized representative)

7. Description of Construction Scope: _____

(use supplemental sheet, Form R-4, if necessary) ☐ FORM R-4, REPORT SUPPLEMENTARY SHEET IS ATTACHED

Pressure Test, if applied _____ psi MAWP _____ psi

8. Replacement Parts. Attached are Manufacturer's Partial Data Reports or Form R-3's properly completed for the following items of this report:

_____
(name of part, item number, data report type or Certificate of Compliance, mfg's. name and identifying stamp)

9. Remarks: _____

CONSTRUCTION CERTIFICATION

I, _____ 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 Alteration conforms to the *National Board Inspection Code*.

National Board "R" Certificate of Authorization No. _____ expires on _____

Date _____ _____ (name of alteration organization) Signed _____ (authorized representative)

CERTIFICATE OF INSPECTION

I, _____ holding a valid Commission issued by the National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the jurisdiction of _____ and employed by _____ of _____ have inspected the work described in this report on _____ 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 certificate, 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 _____ Signed _____ (inspector) Commissions _____ (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-229 Rev. 5

NBIC Sub-Group Repairs & Alterations

Subject:	Minimum description detail needed to identify an exact scope of work for a repair and alteration.

NB-Item number:	Initiated by NB-staff ➡NB08-0304 *(accepted by LB- R/A Sub-Committee 6-9-10)*

Explanation of assignment needed:	The "R"-Form instruction guide shown at Part 3, Section 5.13.4.1 needs to be improved. Revise the "R"-Form Instruction Guide and determine if the forms R-1 & R-2 can be revised to allow additional space to better accommodate a complete description of work when the forms are completed outside of an electronic format. Also consider if making the R-2 form a 2-page document to allow electronic transfer while emphasizing the need to complete the design certification and review PRIOR to the start of construction.

Assigned to:	R. Pulliam, M. Webb, W. Jones

Background:	Mr. Terry Parks proposed a review to identify a more suitable orientation of the forms to better accommodate completing the form outside of an electronic format. Currently, the Code lacks sufficient guidance & instruction for what minimum description would represent an "exact scope of work" described in the completion guide at 5.13.4.1- step 12, for "work performed" as a repair or alteration. In focus was what responsibility did the certificate holder have to provide adequate details in describing the "exact scope of work" and what responsibility did the Inspector have to assure the description was adequate where no guidance was represented in the Code.

Existing Text in '09-addenda **5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS**	**Proposed Change #1**	Rationale
5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS	Re-title the GUIDE as **"INSTRUCTIONS"** and introduce an introductory statement. **5.13.4.1 INSTRUCTIONS FOR COMPLETING NATIONAL BOARD "R" REPORTS** 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 Part 3, Section 5.13.1 through 5.13.4.	The added paragraph proposes an introductory statement to the guide for completing the National Board R-Forms. Subtle inaccuracies in computer generated forms when compared to the forms in Part 3, Section 5.13, may not be noticed and truly represent the interests of the National Board. The proposed language may allow some latitude without compromising the objectives of the National Board. Interpretation 95-40 **Subject:** Appendix 5, Form R-2 Report of Alteration, 1995 Edition with 1995 Addendum *Question1:* Does the NBIC require that the Data Report Forms used to report repairs and alterations be identical to the forms shown in Appendix 5? Reply: Yes. *Question 2:* May the Data Report Forms used for repairs and alterations be computer generated? Reply: Yes, provided they are identical to the forms shown in Appendix 5.

Existing Text in '09-addenda **5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS**	**Proposed Change #2**	Rationale
1. Name and address of the "R" Certificate organization that performed the work. On Form R-2, the organization that performed the construction work (Line 1a) or the Design (Line 1b).	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.	The exact name is needed in the event that the line offered at the lower portion of the page @ instruction item 20 is not sufficient and must be abbreviated to meet the single-page requirements of the National Board. See Interpretation 95-40

Existing Text in '09-addenda **5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS**	**Proposed Change #3**	Rationale
2. For NBIC Report Forms registered with the National Board, indicate the sequential Form R Number assigned by the "R" Certificate Holder organization that is registering the form; otherwise indicate "N/A". For re-rating only, the Design Organization registers the R-2. Where physical work is also performed, the Construction Organization registers the R-2.	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 5.6, a log shall be maintained identifying sequentially, any "R"-forms registered with the National Board. For re-rating only, the Design Organization registers the R-2. Where physical work is also performed, the Construction Organization registers the R-2. **See Form R-2 & R-1 changes proposed @ change #21 & 22** ⟶	Relative to the "R" Forms shown in change #21 & 22, the subscript information in the upper right corner on the "R" forms is proposed to change from "Form R No." to "Form "R" Registration No."

Existing Text in '09-addenda **5.6 FORM "R" LOG**	**Proposed Change #4**	Rationale
5.6 FORM "R" LOG The "R" Certificate Holder shall maintain a single, sequential log of "R" Form numbers assigned for NBIC Report Forms (e.g., R-1, R-2, and R-3) that are registered with the National Board.	**5.6 FORM "R" LOG** The "R" Certificate Holder shall maintain a single log, documenting unique and sequentially numbered Form "R"-Reports (e.g., R-1, R-2, and R-3) that are registered with the National Board.	

Existing Text in '09-addenda **5.2.2 PREPARATION OF FORM R-2**	**Proposed Change #5**	Rationale
5.2.2 PREPARATION OF FORM R-2 (ALTERATIONS) c) ..... The construction organization shall complete the Form R-2 provided by the design organization, including the "Construction Certificate" 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 the gathering and attaching of the supporting reports. d) 2) Form R-3, Report of Fabricated Parts or Manufacturer's Partial Data Reports; and	**5.2.2 PREPARATION OF FORM R-2 (ALTERATIONS)** c) ..... The construction organization shall complete the Form R-2 provided by the design organization, including the "Construction ~~Certificate~~ Certification" 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 the gathering and attaching of the supporting reports. d) 2) Form R-3, Report of Fabricated Parts, Manufacturer's Partial Data Reports, or Certificates of Compliance; and	c) The proposed change merely identifies the Construction "Certification" section of the form by the true nomenclature used on the existing form. d) Certificate of Compliance allowed by ASME Section I & VIII is proposed for inclusion to the list of supporting information.

Existing Text in '09-addenda **5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS**	**Proposed Change #6**	Rationale
5. Description of the pressure retaining item, such as a boiler or pressure vessel.	5. Description of the pressure retaining item, such as a boiler, ~~or~~ pressure vessel, or piping. Include the unit identification if applicable.	Regarding the Form "R-2" and "R-1", see the proposed change **#21 & #22** to "Item" on line 4.

Existing Text in '09-addenda **5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS**	**Proposed Change #7**	Rationale
6. Name of original manufacturer of the pressure-retaining item if a boiler or pressure vessel. If other than a boiler or pressure vessel, compete if known.	6. Name of the original manufacturer of the pressure-retaining item. ~~if a boiler or pressure vessel. If other than a boiler or pressure vessel, compete if known.~~ If the original manufacturer is unknown, indicate by, "unknown".	The current text proposes that if the original manufacturer is not known, the line may be left "blank". A blank-line could indicate the information was overlooked.

Existing Text in '09-addenda **5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS**	**Proposed Change #8**	Rationale
7. Serial number of the pressure retaining item as assigned by the original manufacturer.	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".	Following proposed change #7, if a manufacturer is not identified, there may also be no serial number. No blanks in the report. All lines should be completed or an indication made that the line was not overlooked.

Existing Text in '09-addenda **5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS**	**Proposed Change #9**	Rationale
8. Identification of the pressure-retaining item by applicable registration number. If installed in Canada, indicate the Canadian design registration number (CRN), and list the drawing number under "other".	8. When the pressure-retaining item is registered with the National Board, document the applicable registration number. ~~identification of the pressure-retaining item by 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 registerd, indicate, "none".	

Existing Text in '09-addenda **5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS**	**Proposed Change #10** **(the text shown below is all new and not double-underlined to clearly identify punctuation)**	Rationale
12. State exact scope of work, and attach additional data, sketch, Form R-4, etc. as necessary. If additional data is attached, so state.	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 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.	Currently, the NBIC provides no guidance for what constitutes an exact scope of work. The following interpretation as well as the current NB instruction guide item #12 identifies the need for communicating a complete description. Per Part 3, Section 3.3.4.8, Method of repair allowing defects to remain in place. Interpretation 01-41 Question 1: In the event of an alteration to a boiler in which the boiler heating surface and steaming capacity is increased, is the new heating surface or new steaming capacity of this boiler required to be stamped on the new nameplate, boiler, or Form R-2? Re: No, however, **the exact scope of work must be included in the Form R-2**, which should include the added heating surface and / or steaming capacity.

Current Wording at 5.2.1, a-c:	**Proposed Change #11**
5.2.1 Preparation of Form R-1 (Repairs)	5.2.1 Preparation of Form R-1 (Repairs)
a) Preparation of Form R-1 shall be the responsibility of the "R" Certificate Holder performing the repair.	a) Using the instructions found at 5.13.4.1, preparation of the Form R-1 shall be the responsibility of the "R" Certificate holder performing the repair.
Add new b)	b) Information describing the scope of work used to repair a Pressure Retaining Item (PRI) shall be documented on a Form R-1 and extended to a Form R-4 as needed to fully describe the repair activities completed per the instructions at 5.13.4.1.
b) An Inspector shall indicate acceptance by signing the Form R-1	c) An Inspector shall indicate acceptance by signing the Form R-1, and Form R-4, if attached
c) The Form R-3 and Manufacturer's Data Reports described in this section shall be a part of the completed Form R-1 and shall be attached thereto.	d) The Form R-3, ~~and~~ Manufacturer's Data Reports, and Certificates of Compliance described in this section shall be a part of the completed Form R-1 and shall be attached thereto.
The former "c" now becomes "d"	

Existing Text in '09-addenda **Instruction guide for completing "R"-forms- continued**	Proposed Change #12	Rationale
5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS		
14. To be completed for all welded pressure components added during the work. Indicate the part, item number, manufacturer's name, stamped identification, and data report type.	14. As applicable, identify what parts manufactured by welding or bonding were introduced as needed to complete the scope of work. Indicate the part, item number, manufacturer's name, stamped identification, data report type or certificate of compliance. ***NOTE:*** →	The current lines on the R-forms noting "Replacement Parts" (line 9 for Form R-1 and line 8 for Form R-2) asks the certificate holder to describe the part, part reference information, the manufacturer, and attach Manufacturer's Partial Data Reports denoting a fabricated part by welding. However, the current Instruction Guide Note 14 identifies, "all welded pressure components added during the work". This could imply pressure retaining material added using welding to complete the scope of work. This represents a conflict of information and guidance. "Bonded" is introduced because ASME Section 10 enlists Partial Data Report RP-2 for FRP-equipment. If this is accepted, the Form R-3 may need to be re-titled, *"FORM R-3, REPORT OF FABRICATED PARTS" ~~BY WELDING~~.*

Existing Text in '09-addenda **5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS**	**Proposed Change #13**	Rationale
16. Type or print name of the authorized representative of the "R" Certificate Holder.	16. Type or print the name of the authorized representative of the "R" Certificate Holder attesting to the accuracy of the work described.	

Existing Text in '09-addenda **5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS**	**Proposed Change #14**	Rationale
20. Name of the "R" Certificate organization that performed the identified work..	20. Document the name of the "R" Certificate Holder that performed the described work, using the full name as shown on the Certificate of Authorization or an abbreviation acceptable by the National Board.	The exact name appearing on the "Certificate of Authorization" may not fit in the limited space provided on the Form "R" Report. In the event the line at instruction item-20 is not sufficient, an acceptable abbreviation may be needed to meet the administrative protocol of the National Board. The use of an abbreviated company name is being reviewed in a parallel item using NB-Item NB10-1601. In that item, the following is proposed for acceptance into the Code: 20. Document the name of the "R" Certificate Holder that performed the described work, using the full name as shown on the Certificate of Authorization or an abbreviation acceptable to the National Board.

Existing Text in '09-addenda **5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS**	**Proposed Change #15**	Rationale
29. Name and address of the organization that purchased the parts for incorporation into the repair or alteration, if known. If built for stock, so state.	29. Document the name and address of the organization that purchased the parts for incorporation into the repair or alteration. ~~if known.~~ If the part's origin is unknown or the part was built for stock, so state.	The exact name appearing on the "Certificate of Authorization may not fit in the limited space provided on the Form "R" Report. In the event the line at instruction item-29 is not sufficient, an acceptable abbreviation may be needed to meet the single-page administrative protocol of the National Board

Existing Text in '09-addenda **5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS**	**Proposed Change #16**	Rationale
30. Name of organization responsible for specifying the code design conditions.	30. Document the name of the organization responsible for specifying the code design conditions, if known. If the origin of the design conditions are unknown, state "unknown".	The exact name of the design organization may not fit in the limited space provided on the Form "R" Report. In the event the line at instruction item-30 is not sufficient, an acceptable abbreviation may be needed to meet the single-page administrative protocol of the National Board. "If known" was added to reflect the other potential unknowns of **instruction items 31, 32, and 35.**

Existing Text in '09-addenda **5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS**	**Proposed Change #17**	Rationale
31. Name of organization responsible for performing the code design, if known.	31. Document the name of the organization responsible for performing the code design, if known. If the code design organization is unknown, state "unknown".	The exact name of the design organization may not fit in the limited space provided on the Form "R" Report. In the event the line at instruction item-30 is not sufficient, an acceptable abbreviation may be needed to meet the single-page administrative protocol of the National Board. No blanks on the report. All lines should be completed or an indication made that the line was not overlooked.

Existing Text in '09-addenda **5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS**	**Proposed Change #18**	Rationale
32. Name, section, and division of the design code, if known.	32. Name, section, and division of the design code, if known. If the design is unknown, state "unknown".	No blanks on the report. All lines should be completed or an indication made that the line was not overlooked.

Existing Text in '09-addenda **5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS**	**Proposed Change #19**	Rationale
35. Indicate code paragraph reference for formula used to establish the MAWP, if known. Name, section, and division of the design code, if known.	35. Indicate the code paragraph reference for the formula used to establish the MAWP, if known. If the code reference of the formula is unknown, state "unknown".	No blanks on the report. All lines should be completed or an indication made that the line was not overlooked.

Existing Text in '09-addenda **5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS**	**Proposed Change #20**	Rationale
36. Identify name of part, such as "superheater header".	36. If available, identify the component by the part's original name, function, or use the original equipment manufacturer's "mark or item-number."	Manufacturers use different system names or nomenclature in describing their organization's components. Efforts should be made to ensure the correct component is being represented during replacements. Desuperheaters Vs. Attemporator, Secondary Superheater Vs. Finishing Superheater Vs. Rear-Pendant Superheater are examples.

NBIC Sub-Group Repairs & Alterations

Existing Form R-2, REPORT OF ALTERATION in '09-addenda @ 5.13.2	Proposed Change **#21** - Form R-2 **SHEET 1 of 2**, REPORT OF ALTERATION, **DESIGN REPORT** @ 5.13.2

FORM R-2 REPORT OF ALTERATION
in accordance with provisions of the *National Board Inspection Code*

1a. Construction performed by _____ (name of "R" organization responsible for construction) _____ (Form "R" No.)

_____ (address) _____ (P.O. No., Job No., etc.)

1b. Design performed by _____ (name of "R" organization responsible for design) _____ (Form "R" No.)

_____ (address) _____ (P.O. No., Job No., etc.)

2. Owner _____ (name)

_____ (address)

3. Location of installation _____ (name)

_____ (address)

4. Unit identification _____ (boiler, pressure vessel) Name of original manufacturer _____

5. Identifying nos.: _____ (mfg. serial no.) _____ (National Board No.) _____ (jurisdiction no.) _____ (other) _____ (year built)

6. NBIC Edition / Addenda: _____ (edition) _____ (addenda)

Original Code of Construction for Item: _____ (name / section / division) _____ (edition / addenda)

Construction Code Used for Alteration Performed: _____ (name / section / division) _____ (edition / addenda)

7a Description of construction work: _____ (use supplemental sheet, Form R-4, if necessary)

7b Description of design scope: _____ (use supplemental sheet, Form R-4, if necessary)

Pressure Test, if applied _____ psi MAWP _____ psi

8. Replacement Parts. Attached are Manufacturer's Partial Data Reports or Form R-3's properly completed for the following items of this report:

_____ (name of part, item number, data report type, mfg's. name and identifying stamp)

9. Remarks: _____

FORM R-2 REPORT OF ALTERATION
in accordance with provisions of the *National Board Inspection Code*

DESIGN REPORT SHEET 1 OF 2

1. Design performed by _____ (name of "R" organization responsible for design) _____ (Form "R" Certificate No.)

_____ (address) _____ (P.O. No., Job No., etc.)

2. Owner _____ (name)

_____ (address)

3. Location of installation _____ (name)

_____ (address)

4. Item identification _____ (boiler, pressure vessel, or piping) Name of original manufacturer _____

5. Identifying nos.: _____ (mfg. serial no.) _____ (National Board No.) _____ (jurisdiction no.) _____ (other) _____ (year built)

6. NBIC Edition / Addenda: _____ (edition) _____ (addenda)

Original Code of Construction for Item: _____ (name / section / division) _____ (edition / addenda)

Construction Code to be Used for Alteration Performed: _____ (name / section / division) _____ (edition / addenda)

7. Description of Design Scope: _____ (use supplemental sheet, Form R-4, if necessary) ☐ FORM R-4, REPORT SUPPLEMENTARY SHEET IS ATTACHED

Pressure Test, if applied _____ psi MAWP _____ psi

8. Replacement Parts. Attached are Manufacturer's Partial Data Reports or Form R-3's properly completed for the following items of this report:

_____ (name of part, item number, data report type or Certificate of Compliance, mfg's. name and identifying stamp)

9. Remarks: _____

DESIGN CERTIFICATION

I, _____ certify that to the best of my knowledge and belief the statements in this report are correct and that the Design Change described in this report conforms to the *National Board Inspection Code*.
National Board "R" Certificate of Authorization No. _____ expires on _____
Date _____ _____ (name of design organization) Signed _____ (authorized representative)

CERTIFICATE OF DESIGN CHANGE REVIEW

I, _____ holding a valid Commission issued by The National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the jurisdiction of _____ and employed by _____ of _____ have reviewed the design change as described in this report and state that to the best of my knowledge and belief such change complies with the applicable requirements of the *National Board Inspection Code*.
By signing this certificate, 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 _____ Signed _____ (Inspector) Commissions _____ (National Board and jurisdiction etc.)

Existing Form R-2, REPORT OF ALTERATION **(back)** in '09-addenda @ 5.13.2

Form R-2 (back)

(Form R No.)

DESIGN CERTIFICATION

I, _____ certify that to the best of my knowledge and belief the statements in this report are correct and that the Design Change described in this report conforms to the *National Board Inspection Code*.
National Board "R" Certificate of Authorization No. _____ expires on _____
Date _____ _____ Signed _____
(name of design organization) (authorized representative)

CERTIFICATE OF DESIGN CHANGE REVIEW

I, _____ holding a valid Commission issued by The National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the jurisdiction of _____ and employed by _____ of _____ have reviewed the design change as described in this report and state that to the best of my knowledge and belief such change complies with the applicable requirements of the *National Board Inspection Code*.
By signing this certificate, 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 _____ Signed _____ Commissions _____
(inspector) (National Board and jurisdiction no.)

CONSTRUCTION CERTIFICATION

I, _____ 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 Alteration conforms to the *National Board Inspection Code*.
National Board "R" Certificate of Authorization No. _____ expires on _____
Date _____ _____ Signed _____
(name of alteration organization) (authorized representative)

CERTIFICATE OF INSPECTION

I, _____ holding a valid Commission issued by the National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the jurisdiction of _____ and employed by _____ of _____ have inspected the work described in this report on _____ 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 certificate, 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 _____ Signed _____ Commissions _____
(inspector) (National Board and jurisdiction no.)

Proposed Change **#21- (CONTINUED)** Form R-2, **SHEET 2 of 2** REPORT OF ALTERATION, **CONSTRUCTION REPORT** , @ 5.13.2

FORM R-2 REPORT OF ALTERATION
In accordance with provisions of the *National Board Inspection Code*

CONSTRUCTION REPORT SHEET 2 OF 2

1. Construction performed by _____ _____
(name of "R" organization responsible for construction) (Form "R" Authorization No.)
_____ _____
(address) (P.O. box, job box, etc.)
2. Owner _____
(name)
_____
(address)
3. Location of installation _____
(name)
_____
(address)
4. Item identification _____ Name of original manufacturer _____
(boiler, pressure vessel, or piping)
5. Identifying nos.: _____ _____ _____ _____ _____
(mfg. serial no.) (National Board No.) (jurisdiction no.) (other) (year built)

CERTIFICATE of DESIGN _____ , ACKNOWLEDGED by CONSTRUCTION OGANIZATION
(identify the design organization's Form "R" Authorization No. or referencing P.O. job, or tracking number if the Form "R" Report is not required)
I, _____ acknowledges the provisions and requirements of design described on the DESIGN REPORT, sheet 1, and the design was incorporated into the construction scope as required by the *National Board Inspection Code*.
Date _____ _____ Signed _____
(name of construction organization) (authorized representative)

7. Description of Construction Scope: _____
(use supplemental sheet, Form R-4, if necessary) ☐ FORM R-4, REPORT SUPPLEMENTARY SHEET IS ATTACHED
_____
_____
_____

Pressure Test, if applied _____ psi MAWP _____ psi

8. Replacement Parts. Attached are Manufacturer's Partial Data Reports or Form R-3's properly completed for the following items of this report:
_____
(name of part, cert. number, date, stock, type of Certificate of Compliance, mfg's. name and identifying stamp)
_____
_____

9. Remarks: _____
_____

CONSTRUCTION CERTIFICATION

I, _____ 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 Alteration conforms to the *National Board Inspection Code*.
National Board "R" Certificate of Authorization No. _____ expires on _____
Date _____ _____ Signed _____
(name of alteration organization) (authorized representative)

CERTIFICATE OF INSPECTION

I, _____ holding a valid Commission issued by the National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the jurisdiction of _____ and employed by _____ of _____ have inspected the work described in this report on _____ 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 certificate, 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 _____ Signed _____ Commissions _____
(inspector) (National Board and jurisdiction no.)

Existing Form R-1, REPORT OF REPAIR
in '09-addenda @ 5.13.1

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

1. Work performed by _____ (name of repair organization) _____ (Form R No.)
_____ (P.O. No., Job No. etc.)
2. Owner _____ (name)
_____ (address)
3. Location of installation _____ (name)
_____ (address)
4. Unit identification _____ (boiler, pressure vessel) Name of original manufacturer _____
5. Identifying nos.: _____ (mfg. serial no.) _____ (National Board No.) _____ (jurisdiction no.) _____ (other) _____ (year built)
6. NBIC Edition / Addenda: _____ (edition) _____ (addenda)
Original Code of Construction for Item: _____ (name / section / division) _____ (edition / addenda)
Construction Code Used for Repair Performed: _____ (name / section / division) _____ (edition / addenda)
7. Repair Type: ☐ Welded ☐ Graphite Pressure Equipment ☐ FRP Pressure Equipment
8. Description of work: _____ (use supplemental sheet, Form R-4, if necessary)
_____ Pressure Test, if applied _____ psi MAWP _____ psi
9. Replacement Parts. Attached are Manufacturer's Partial Data Reports or Form R-3's properly completed for the following items of this report:
_____ (name of part, item number, data report type, mfg's name and identifying stamp)
10. Remarks: _____

CERTIFICATE OF COMPLIANCE

I _____ 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. _____ expires on _____
Date _____ _____ (name of repair organization) Signed _____ (authorized representative)

CERTIFICATE OF INSPECTION

I, _____ holding a valid Commission issued by the National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the jurisdiction of _____ and employed by _____ of _____ have inspected the work described in this report on _____ 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 certificate, 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 _____ Signed _____ (inspector) Commissions _____ (National Board and Jurisdiction No.)

Proposed Change **#22-** Form R-1, REPORT OF REPAIR
@ 5.13.1

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

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

CERTIFICATE OF COMPLIANCE

I _____ 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. _____ expires on _____
Date _____ _____ (name of repair organization) Signed _____ (authorized representative)

CERTIFICATE OF INSPECTION

I, _____ holding a valid Commission issued by the National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the jurisdiction of _____ and employed by _____ of _____ have inspected the work described in this report on _____ 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 certificate, 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 _____ Signed _____ (inspector) Commissions _____ (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-84 Rev. 11

Summary of Proposed Changes #21	*Rationale*
Revise Form R-2 to Sheet 1 and Sheet 2	
As proposed, the traditional identification of the form, FORM R-2, REPORT OF ALTERATION", would be unchanged. As shown, the following changes have been proposed: 1. "Design & Construction Reports represent sheet 1 & sheet 2 of the Form R-2 2. "Form "R" Registration No. is now identified. 3. The "item", is now described in lieu of "unit" and "or piping", is included to better describe recognized pressure-retaining items. 4. The design organization defines the Code-edition / addenda that the Construction organization is required to follow- *displacing any difference in the Code used.* 5. Continuity of work is better demonstrated. The "Design Report, sheet-1" would be acknowledged by the construction organization-sheet-2, before the construction activities begin. 6. New Certificate of Design Acknowledged-box on sheet-2 provides a reference link to the Design Report, Sheet-1, whether the "R" Report is registered or not, by the same or a different "R" Certificate Holder. 7. A check-box now identifies a FORM R-4 is attached with additional and supporting information for the Design & Construction organizations at line #7 on each of the two sheets. 8. Certificate of Compliance allowed by ASME Section I & VIII is added to the form @ line-8.	Revising the current one sheet, 2-sided Form "R" -2 profile, into two, single-sided sheets: • Will allow electronic completion and electronic document transfer. • The Forms have also been revised to demonstrate process continuity by establishing the design requirements and acceptance PRIOR to starting the Construction phase of the work scope. • The check-box when marked would identify additional information not necessarily apparent to an Inspector, the National Board, or organization requesting registered information from the National Board. • As a single sided form, the design and construction organizations can be assured that all attachments have been accounted for. The Preparation of Form R-2 described at 5.2.2 d) 2) is proposed for revision to include "Certificates of Compliance". See proposed change **#12.**
Summary of Proposed Changes #22	
Revise Form R-1	
As shown, the following changes have been proposed: 1. "Form "R" Registration No. is now identified. 2. The "item", is now described in lieu of "unit" and "or piping", is included to better describe recognized pressure-retaining items. 3. The addition of the reference boxes, Form R-4, Report Supplementary Sheet is attached and FFSA-Form (NB-403) is attached" @ line 8. 4. Certificate of Compliance allowed by ASME Section I & VIII is added to the form @ line-9.	The reference boxes, when marked, would identify additional information not necessarily apparent to an Inspector, the National Board, or an organization requesting registered information from the National Board. The use or reference to the Form R-4, Report Supplementary Sheet and FFSA-Form, as proposed at item 12 of the Instruction guide is consistent between the R-Forms The Preparation of Form R-1 described at 5.2.1 d) 2) is proposed for revision to include "Certificates of Compliance". See proposed change **#11**

Existing Text in '09-addenda **5.13.4.1 GUIDE FOR COMPLETING NATIONAL BOARD "R" REPORTS**	**Proposed Change #23**	Rationale
53. If applicable, purchase order, job number, etc., assigned by the organization performing the work.	53. If applicable, document the unique purchase order, job, or tracking number, ~~etc.,~~ assigned by the organization performing the work.	