Comments must be submitted on the attached Public Review Comment Form. Comments should only be on proposals under consideration.

Draft 2011 Edition
Cycle B

Deleted items are designated by strikethrough. Additions are designated by double underline.
DIRECTORY for REVISIONS (2011 Edition, Cycle B)

Part 1 Installation

2.9.6
- Revised wording to include installation and application of change over valves

3.2.3
- Deleted potable water heater definition and moved to Glossary

Part 2 Inspection

1.3
- Added API 510 pressure Vessel Inspection: In-service Inspection, Rating, Repair and Alteration code reference

2.2.7
- Changed leak to pressure and added NBIC Part 2 to reference

2.3.3
- Added wording regarding leakage in a pressure vessel

2.4.6
- Deleted paragraph c) and added wording regarding leakage in piping

3.4.9
- Added wording regarding cracks and paragraph reference to NBIC Part 2, 4.3.1

4.3.1-4.4.8.5
- Revised pressure testing requirements

5.3.4
- Changed Hydro Test to Pressure Test in Form NB-5

5.3.5
- Changed Hydro Test to Pressure Test in Form NB-6

5.3.6
- Changed Hydro Test to Pressure Test in Form NB-7

7.1.4.2.23
- Added wording to address handhole doors and deleted paragraph k) correct repairs

S7.7
- Changed hydrostatic to liquid pressure

Part 3 Repairs and Alterations

1.3
- Revised wording regarding Inspector Commission

1.7.7.5
- Revised paragraph reference from 5.9.2 to NBIC Part 3, 5.12.2

2.5.3.2
- Added wording to address use of austenitic filler metals

2.5.3.3
- Added wording to address use of austenitic filler metals

2.5.3.4
- Added wording to address use of austenitic filler metals

3.3.2
- Revised wording to include heads and shells

5.2.1
- Revised wording to reference Form R-1 and R-4 and Certificate of Compliance

5.2.2
- Revised wording, changed Certificate to Construction and added Certificate of Compliance

5.6
- Revised wording for documenting Form R report numbers

5.7.1
- Revised wording, from attaching to attachment

5.8
- Renumbered paragraph to 5.11
5.9
- Renumbered paragraph to 5.12
5.9.1
- Renumbered paragraph to 5.12.1 and revised paragraph reference to NBIC Part 3, 5.12.2
5.9.2
- Renumbered paragraph to 5.12.2
5.9.3
- Renumbered paragraph to 5.12.3 and added paragraph reference to NBIC Part 3, S7.2
5.9.4
- Renumbered paragraph to 5.12.4 and revised paragraph reference to NBIC Part 3, S7.10.1
5.9.5
- Renumbered paragraph to 5.12.5 and revised paragraph references to NBIC Part 3, 5.12.2
5.11
- Renumbered paragraph to 5.8
5.11.1
- Deleted paragraph title
5.11.2
- Renumbered paragraph to 5.8.1
5.11.3
- Renumbered paragraph to 5.8.2
5.12
- Renumbered paragraph to 5.9 and changed paragraph reference to NBIC Part 3, S5.7.2
5.13.4.1
- Revised instruction guide and form requirements
S1.2.10
- Revised wording to change requirements for boiler barrel unstayed areas
S2.13.2
- Replaced Figure
S2.13.14.4
- Added wording to address handhole doors
S3.2 d)
- Added wording to include requirements for impregnated graphite vessels
S4.16.3
- Revised wording, changed Manufacturer’s to Fabricator’s
S4.18.1 b)
- Revised wording, added alteration
S6.17
- Added wording, added alterations or modifications
S7.2
- Revised paragraph reference to NBIC Part 3, 5.12.1
S7.14.2
- Revised paragraph reference to NBIC Part 3, 5.12.1
S7.14.3
- Revised paragraph reference to NBIC Part 3, 5.12.1
S9.3
- Revised paragraph reference to NBIC Part 3, 5.12.5

Glossary
- Added definitions for Potable Water Heater, Appliance and Authorized Inspection Agency
Comments Must be Received No Later Than: December 13, 2010

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

Date: __________________________

Commenter Name: __________________________

Commenter Address: __________________________

Commenter Phone: __________________________

Commenter Fax: __________________________

Commenter Email: __________________________

Section/Subsection Referenced: __________________________

Comment/Recommendation: __________________________

Proposed Solution: □ New Text □ Revise Text □ Delete Text

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

Submit Form To: Robin Hough, Secretary, NBIC Committee, The National Board of Boiler & Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, OH 43229, fax 614-847-1828, email, rhough@nationalboard.org

NB Use Only

Commenter No. Issued: __________________________

Project Committee Referred To: __________________________

Comment No. Issued: __________________________
Part 1 Installation
2.9.6 MOUNTING AND DISCHARGE REQUIREMENTS

c) The opening or connection between the boiler and the safety or safety relief valve shall have at least the area of the valve inlet and the inlet pipe to the pressure relief valve shall be no longer than the face to face dimension of the corresponding tee fitting. No valve of any description should be placed between the safety or safety relief valves and the boiler, nor on the discharge pipe between the safety or safety relief valves and the atmosphere. When a discharge pipe is used, the cross-sectional area shall not be less than the full area of the valve outlet or of the total of the areas of the valve outlets, discharging there into and shall be as short and straight as possible and arranged to avoid undue stresses on the valve or valves.

d) No block stop, or isolation valves of any description shall be placed between the safety or safety relief valves and the boiler, nor on the discharge pipe between the safety or safety relief valves and the atmosphere.

A changeover valve which allows two redundant pressure relief valves to be installed for the purpose of changing from one pressure relief valve to the other while the boiler is operating, may be used provided the changeover valve is in accordance with the original Code of Construction. It is recommended that the Jurisdiction be contacted to determine the acceptability of changeover valves on boiler applications. The changeover valve shall be designed such that there is no intermediate position where both pressure relief valves are isolated from the boiler.

d) When two or more safety valves......

3.2.3 POTABLE WATER HEATERS

a) Potable water heaters are corrosion resistant water heaters supplying potable water at pressures not exceeding 160 psig (1100 kPa) and temperatures not in excess of 210°F (99°C).
Part 2 Inspection
1.3 REFERENCE TO OTHER CODES AND STANDARDS

l) API 510 Pressure Vessel Inspection Code: In-Service Inspection, Rating, Repair, and Alteration

2.2.7 EVIDENCE OF LEAKAGE

b) For additional information regarding a leak in a boiler or determining the extent of a possible defect, a leak pressure test may be performed per 4.3.3 NBIC Part 2, 4.3.1.

2.3.3 EXTERNAL INSPECTION

b) Evidence of Leakage

Any leakage of gas, vapor, or liquid should be investigated. Leakage coming from behind insulation coverings, supports or settings, or evidence of past leakage should be thoroughly investigated by removing any covering necessary until the source of leakage is established.

For additional information regarding a leak in a pressure vessel or determining extent of a possible defect, a pressure test may be performed per NBIC Part 2, 4.3.1.

2.4.6 EVIDENCE OF LEAKAGE

b) A pressure test may be required to obtain additional information regarding the extent of a defect or detrimental condition.

For additional information regarding a leak in piping or determining the extent of a possible defect, a pressure test may be performed per NBIC Part 2, 4.3.1.

e) To determine tightness, the test pressure need be no greater than the normal operating pressure. The metal temperature should be not less than 70°F (21°C) and the maximum metal temperature during inspection should not exceed 120°F (49°C). The potential corrosive effect of the test fluid on the piping material should be considered.

3.4.9 CRACKS

e) Where cracks are suspected, it may be necessary to subject the pressure-retaining item to a hydrostatic pressure test or a nondestructive examination to determine their presence and location.
For additional information regarding a crack or determining extent of a possible defect, a pressure test may be performed per NBIC Part 2, 4.3.1

4.3.1 PRESSURE TESTING

a) During an inspection of a pressure-retaining item, there may be certain instances where in-service conditions have adversely affected the leak tightness or the component or the inspection discloses unusual, hard to evaluate forms of deterioration that may affect the pressure retaining capability of the pressure retaining item. In these specific instances, a pressure test using an incompressible liquid, air, water, or other suitable test medium may be required at the discretion of the Inspector to assess leak tightness, pressure boundary integrity of the pressure-retaining item.

b) The Inspector is cautioned that a pressure test will not provide any indication of the amount of remaining service life or the future reliability of a pressure-retaining item. The pressure test in this instance only serves to determine if the pressure-retaining item contains defects that will not allow the item to retain pressure. In certain instances, pressure tests of in-service components may reduce the remaining service life of the component due to causing permanent deformation of the item.

c) If an in-service pressure test is required, the following precautions shall be met:

1) The test pressure should not exceed 90% of the set pressure of the lowest setting pressure relief device on the component to avoid damage to pressure relief devices.

2) Test pressure should be selected or adjusted in agreement between the Inspector and the owner-user. When the original test pressure includes consideration of corrosion allowance, the test pressure may be further adjusted based upon the remaining corrosion allowance.

3) The metal temperature during a pressure test should not be less than 60°F (16°C) unless the owner-user provides information on the toughness characteristics of the vessel material to indicate the acceptability of a lower test temperature.

4) The metal temperature shall not be more than 120°F (49°C) unless the owner-user specifies the requirement for a higher test temperature. If the owner-user specifies a test temperature higher than 120°F (49°C), then precautions shall be taken to afford the Inspector close examination without risk of injury.

5) When contamination of the vessel contents by any medium is prohibited or when a pressure test is not practical, other testing methods described below may be used provided the precautionary requirements of the applicable Section of the original construction code or other standards are followed. In such cases, there shall be agreement as to the testing procedure between the owner-user and the Inspector.

c) Use of pressure test methods written or otherwise shall be in agreement between the owner-user and Inspector.
All instrumentation, including pressure and temperature gages, used to monitor a test shall be properly calibrated.

When contamination of vessel contents by water is prohibited or when a liquid pressure test is not practical due to weight or other considerations, alternate test media may be used provided precautionary requirements of the applicable section of the original construction code or other standards are followed. In such cases, there shall be agreement as to the testing procedure between the owner-user and the Inspector.

Pressure testing shall not be conducted using flammable or toxic fluids.

**NOTE:** The requirements of NBIC Part 3 shall be followed when performing a liquid pressure test following repair or alteration of a pressure retaining item.

### 4.3.1.1 ALL PRESSURE TESTING

Careful design of test procedure can limit potential damage. For testing of pressure retaining items, parameters that should be considered are the test media, test pressure, materials of construction and metal temperature and temperature of test media. Some carbon steel and low alloy steel materials that were manufactured prior to 1970 may not have sufficient notch toughness to prevent brittle fracture during pressure testing conducted at or even above generally acceptable temperature of 60°F (16 deg C.)

For thick-walled pressure retaining items, it is recommended to seek technical guidance in establishing notch toughness characteristics of steel plate prior to pressure testing so that the metal temperature may be warmed above 60 deg F (16 deg C) to avoid brittle fracture.

The organization making any pressure test shall determine pressure-retaining item material has adequate notch toughness at the minimum temperature of the material and test media during pressure test.

### 4.3.1.2 LIQUID PRESSURE TESTING

Test pressure should be selected or adjusted in agreement between the Inspector and owner-user.

The liquid test pressure shall not exceed the lesser of 150% of MAWP or test pressure established by the original code of construction.

When a pressure relief device is left in place, test pressure should not exceed 90% of set pressure of the lowest setting pressure relief device on the pressure retaining item to avoid damage to pressure relief devices.
During a liquid pressure test where test pressure will exceed 90% of set pressure of a pressure relief device, the device shall be removed whenever possible. If removal of valve-type devices is not possible or practical, a spindle restraint such as a gag may be used provided that the valve manufacturer’s instructions and recommendations are followed. Extreme caution should be employed to ensure only enough force is applied to contain pressure. Excessive mechanical force applied to the spindle restraint may result in damage to the seat and/or spindle and may interfere with proper operation of the valve. The spindle restraint shall be removed following the test.

The organization who performs the liquid pressure test and applies a spindle restraint shall attach a metal tag that identifies the organization and date the work was performed to the pressure-relieving device. If the seal was broken, the organization shall reseal the adjustment housing with a seal that identifies the responsible organization. The process shall be acceptable to the jurisdiction where pressure-retaining items are installed.

Metal temperature shall not be more than 120°F (49°C) unless the owner-user specifies the requirement for a higher test temperature. If the owner-user specifies a test temperature higher than 120°F (49°C), then precautions shall be taken to afford the Inspector close examination without risk of injury.

Hold-time for liquid pressure tests shall be for a minimum of 10 minutes prior to examination by the Inspector. Test pressure shall be maintained for the time necessary for the Inspector to conduct inspection.

4.3.1.3 PNEUMATIC PRESSURE TESTING

A pressure test using a compressible gas should not be considered due to potential hazard unless a liquid pressure test cannot be performed without damaging the pressure retaining item or causing contamination of internal surfaces of the pressure retaining item.

Concurrence of the owner and Inspector shall be obtained and the Jurisdiction, where required, prior to conducting a pneumatic test. The test pressure shall be the minimum required to verify leak tightness integrity but shall not exceed maximum pneumatic test pressure of the original code of construction. Precautionary requirements of the original code of construction shall be followed.

**WARNING:** Adequate safety precautions shall be taken to ensure personnel safety when a compressible gas is used due to volumetric expansion potential upon release of pressure test gas. Consideration shall be given to possible asphyxiation hazards.

Properly calibrated instrumentation shall be used to detect leakage of testing medium. Instrumentation selected shall be appropriate for the test medium. Instrumentation may detect changes in pressure or chemical concentrations and shall be sensitive enough to detect leakage.
4.3.2 LEAK TESTING

Leak testing for the purpose of detecting any leakage may be performed when a pressure test cannot be performed. Some methods or techniques for leak testing may include bubble test (direct pressure or vacuum), helium mass spectrometer, pressure change, or flow measurement. Use of leak test procedures shall be in agreement between the owner-user and the Inspector. Use of written procedures and experienced personnel is required when performing leak tests. The Inspector shall review the written procedure to become familiar with limitations, adequacy, methods, and acceptance standards identified.

4.3.3 EVIDENCE OF LEAKAGE IN A BOILER

For additional understanding regarding a leak in a boiler, see 2.2.7 for the extent of a possible defect. A pressure test may be performed as follows:

a) To determine tightness, the test pressure shall be no greater than the maximum allowable working pressure stamped on the pressure-retaining item.

b) During a pressure test where the test pressure will exceed 90% of the set pressure of a pressure-relief device, the device shall be removed whenever possible. If not possible or practical, a spindle restraint such as a gag may be used provided that the valve manufacturer's instructions and recommendations are followed. Extreme caution should be employed to ensure only enough force is applied to contain pressure. Excessive mechanical force applied to the spindle restraint may result in damage to the seat and/or spindle and may interfere with the proper operation of the valve. The spindle restraint shall be removed following the test.

c) The organization who performs the pressure test and applies a spindle restraint shall attach a metal tag that identifies the organization and date the work was performed to the pressure-relieving device. If the seal was broken, the organization shall reseal the adjustment housing with a seal that identifies the responsible organization. The process shall be acceptable to the Jurisdiction where the pressure-retaining items are installed.

d) The temperature of the water used to apply a pressure test should not be less than 70°F (21°C) and the maximum metal temperature during inspection shall not exceed 120°F (49°C). A lower water temperature could be used if the owner can provide information on the toughness characteristics of the material to indicate acceptability of the lower test temperature.

e) Hold-time for the pressure test shall be for a minimum of 10 minutes prior to the examination by the Inspector.

f) Hold-time for the examination by the Inspector shall be the time necessary for
the Inspector to conduct the inspections. Test pressure shall be maintained until the hydrostatic test is completed.

g) When the introduction of water for a pressure test will cause damage to a boiler or boiler component, other testing media or vacuum testing may be used provided the precautionary requirements of the applicable section of the original code of construction or other standards are followed. In such cases, there shall be agreement as to the testing procedure between the owner and the Inspector.

4.4.8.5 EVALUATING EXPOSURE OF A PRESSURE -RETAINING RETAINING ITEM TO FIRE DAMAGE

c) Components subjected to fire damage can exhibit altered mechanical properties, and should be evaluated to determine if the material has retained necessary strength and toughness as specified in the original code of construction. Heating above the lower critical temperature results in a phase transformation that upon rapid cooling can dramatically affect material properties. Evaluation methods may consist of:

1) Portable hardness testing
2) Field metallography or replication
3) Liquid Pressure testing
4) Magnetic particle testing
5) Liquid penetrant testing
6) Visual examination
7) Dimensional verification checks

d) If visual distortion or changes in the microstructure or mechanical properties are noted, consider replacing the component or a detailed engineering analysis shall be performed to verify continued safe operation.

e) Techniques for evaluating fire damage are referenced in applicable standards. See NBIC Part 2.1.3.
5.3.4  BOILER OR PRESSURE VESSEL DATA REPORT FORM (NB-5)

**FORM NB-5 BOILER OR PRESSURE VESSEL DATA REPORT**
**FIRST INTERNAL INSPECTION**

Standard Form for Jurisdictions Operating Under the ASME Code

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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SHOW ALL CODE STAMPING ON BACK OF FORM. Give details (use sketch) for special objects NOT covered above - such as Double wall vessels etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NAME AND TITLE OF PERSON TO WHOM REQUIREMENTS WERE EXPLAINED:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I HEREBY CERTIFY THIS IS A TRUE REPORT OF MY INSPECTION</th>
<th>IDENT NO.</th>
<th>EMPLOYED BY</th>
<th>IDENT NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

This form may be obtained from The National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Ave., Columbus, OH 43229
**5.3.5 BOILER-FIRED PRESSURE VESSELS REPORT OF INSPECTION FORM (NB-6)**

**FORM NB-6 BOILER-FIRED PRESSURE VESSEL REPORT OF INSPECTION**
Standard Form for Jurisdictions Operating Under the ASME Code

<table>
<thead>
<tr>
<th>1</th>
<th>DATE INSPECTED</th>
<th>CERT EXPIRATION</th>
<th>CERTIFICATE POSTED</th>
<th>OWNER NO.</th>
<th>JURISDICTION NUMBER</th>
<th>NAT'L BD NO.</th>
<th>OTHER NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MO</td>
<td>DAY</td>
<td>YEAR</td>
<td>MO</td>
<td>YEAR</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2</th>
<th>OWNER</th>
<th>NATURE OF BUSINESS</th>
<th>KIND OF INSPECTION</th>
<th>CERTIFICATE INSPECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

| 3 | OWNER'S STREET ADDRESS NUMBER | OWNER'S CITY | STATE | ZIP | |
|   |                                 |              |       |     | |

<table>
<thead>
<tr>
<th>4</th>
<th>USER'S NAME – OBJECT LOCATION</th>
<th>SPECIFIC LOCATION IN PLANT</th>
<th>OBJECT LOCATION - COUNTY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5</th>
<th>TYPE</th>
<th>YEAR BUILT</th>
<th>MANUFACTURER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FT</td>
<td>WT</td>
<td>CI</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6</th>
<th>USE</th>
<th>FUEL</th>
<th>METHOD OF FIRING</th>
<th>PRESSURE GAGE TESTED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Power</td>
<td>Process</td>
<td>Steam Htg</td>
<td>HWH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7</th>
<th>PRESSURE ALLOWED</th>
<th>MAWP</th>
<th>SAFETY-RELIEF VALVES</th>
<th>HEATING SURFACE OR BTU (Input/Output)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This Inspection</td>
<td>Prev. Inspection</td>
<td>Set at</td>
<td>Total Capacity</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8</th>
<th>IS CONDITION OF OBJECT SUCH THAT A CERTIFICATE MAY BE ISSUED?</th>
<th>HYDRO TEST</th>
<th>Pressure Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No (If no, explain fully under conditions)</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9</th>
<th>REQUIREMENTS: (List Code Violations)</th>
</tr>
</thead>
</table>

| 10 | NAME AND TITLE OF PERSON TO WHOM REQUIREMENTS WERE EXPLAINED: |
|    | |

| 11 | I HEREBY CERTIFY THIS IS A TRUE REPORT OF MY INSPECTION |
|    | |

**SIGNATURE OF INSPECTOR**

**IDENT NO.**

**EMPLOYED BY**

**IDENT NO.**
5.3.6 PRESSURE VESSELS REPORT OF INSPECTION FORM (NB-7)

FORM NB-7 PRESSURE VESSELS
REPORT OF INSPECTION

Standard Form for Jurisdictions Operating Under the ASME Code

<table>
<thead>
<tr>
<th></th>
<th>DATE INSPECTED MO</th>
<th>DAY</th>
<th>YEAR</th>
<th>CERT EXP DATE MO</th>
<th>YEAR</th>
<th>CERTIFICATE POSTED</th>
<th>Yes</th>
<th>No</th>
<th>OWNER NO.</th>
<th>JURISDICTION NUMBER</th>
<th>NATL BD NO</th>
<th>OTHER NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>OWNER</td>
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<td></td>
<td>NATURE OF BUSINESS</td>
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<tr>
<td></td>
<td>OWNER'S STREET ADDRESS</td>
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<td></td>
<td></td>
<td>OWNER'S CITY</td>
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<td></td>
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<tr>
<td>3</td>
<td>USER'S NAME - OBJECT LOCATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SPECIFIC LOCATION IN PLANT</td>
<td></td>
<td></td>
<td>OBJECT LOCATION - COUNTY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>USER'S STREET ADDRESS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USER'S CITY</td>
<td></td>
<td></td>
<td>STATE</td>
<td>ZIP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>TYPE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MANUFACTURER</td>
<td></td>
<td></td>
<td>YEAR</td>
<td>BUILT</td>
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<td>USE</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>STORAGE</td>
<td>PROCESS</td>
<td>HEAT EXCHANGE</td>
<td>OTHER</td>
</tr>
<tr>
<td>6</td>
<td>PRESSURE ALLOWED:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SAFETY RELIEF VALVES</td>
<td></td>
<td></td>
<td></td>
<td>TOTAL CAPACITY</td>
<td>EXPLAIN IF PRESSURE CHANGED</td>
<td></td>
</tr>
<tr>
<td></td>
<td>THIS INSPECTION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SET AT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PREVIOUS INSPECTION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>IS CONDITION OF OBJECT SUCH THAT A CERTIFICATE MAY BE ISSUED?</td>
<td>Yes</td>
<td>No</td>
<td>If No, Explain Fully Under Conditions</td>
<td></td>
<td>Pressure Test</td>
<td>Yes</td>
<td>PSI</td>
<td>Date</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>CONDITIONS:</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>WITH RESPECT TO THE INTERNAL SURFACE, DESCRIBE AND STATE LOCATION OF ANY SCALE, OIL, OR OTHER DEPOSITS. GIVE LOCATION AND EXTENT OF ANY CORROSION AND STATE WHETHER ACTIVE OR INACTIVE. STATE LOCATION AND EXTENT OF ANY EROSION, GROOVING, BUDDING, WARPING, CRACKING, OR SIMILAR CONDITION. REPORT ON ANY DEFECTIVE RIVETS, BOWED, LOOSE OR BROKEN STAYS. STATE CONDITION OF ALL TUBES, TUBE ENDS, COILS, RIPPLES, ETC. DESCRIBE ANY ADVERSE CONDITIONS WITH RESPECT TO PRESSURE GAGE, WATER COLUMN, GAUGE GLASS, GAUGE COCKS, SAFETY VALVES, ETC. REPORT CONDITION OF SETTING, LININGS, BAFFLES, SUPPORTS, ETC. DESCRIBE ANY MAJOR CHANGES OR REPAIRS MADE SINCE LAST INSPECTION.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>9</td>
<td>REQUIREMENTS: (LIST CODE VIOLATIONS)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>10</td>
<td>NAME AND TITLE OF PERSON TO WHOM REQUIREMENTS WERE EXPLAINED:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

I HEREBY CERTIFY THIS IS A TRUE REPORT OF MY INSPECTION
IDENT NO. EMPLOYED BY IDENT NO.

SIGNATURE OF INSPECTOR
S1.4.2.23 HANDHOLE WASHOUT DOORS

Handhole washout doors and their mating surfaces shall be inspected for:

a) Damaged or cracked threads on the door studs
b) Corrosion of door sealing surfaces and studs
c) Cracks
d) Stretching or bending of the door stud or handhole door
e) Looseness
f) Leakage and steam cuts
g) Damage to the clamp
h) Damage to the clamp seating surface on the sheet
i) Confirmation that the handhole door makes unbroken line contact along the entire circumference of the sheet at the opening

Handhole doors and assembly components shall have proper fit at assembly

Distortion of any of the components at assembly is prohibited

Material of the handhole door gaskets shall be suitable for the pressure and temperature of service.

Correct repairs

Notes: Confirmation that the handhole door has unbroken line contact against sheet can be determined by performing a “blue check.” This requires applying a light coating of “contact blue” or “Prussian Blue” to the handhole door sealing surfaces. The door then is held against the sheet and removed. The transfer of the bluing will show the areas that contact the sheet surfaces.

S7.7 FIRE DAMAGE

c) A pressure vessel that has been subjected to the action of fire shall be removed from service until it has been properly evaluated. The general intent of this requirement is to remove from service pressure vessels which have been subject to the action of fire
that has changed the metallurgical structure or the strength properties of the steel. Visual examination with emphasis given to the condition of the protective coating can be used to evaluate exposure from a fire. This is normally determined by visual examination as described above with particular emphasis given to the condition of the protective coating. If there is evidence that the protective coating has been burned off any portion of the pressure vessel surface, or if the pressure vessel is burned, warped, or distorted, it is assumed that the pressure vessel has been overheated. If, however, the protective coating is only smudged, discolored, or blistered, and is found by examination to be intact underneath, the pressure vessel shall not be considered affected within the scope of this requirement. Vessels that have been involved in a fire and show no distortion shall be requalified for continued service by retesting using the hydrostatic liquid pressure test procedure applicable at the time of original fabrication.
Part 3 Repairs and Alterations
d) 3) Weld buildup of wasted areas in heads and shells not exceeding an area of 100 sq. in. (64,520 sq. mm) or a thickness of 25% of nominal wall thickness of ½ in. (13 mm), whichever is less.

NB08-0304

5.2.1 PREPARATION OF FORM R-1 (REPAIRS)

a) Using the instructions found at NBIC Part 3, 5.13.4.1, preparation of the Form R-1 shall be the responsibility of the “R” Certificate holder performing the repair.

b) Information describing the scope of work used to repair a Pressure Retaining Item (PRI) shall be documented on a Form R-1 and extended to a Form R-4 as needed to fully describe the repair activities completed per the instructions at NBIC Part 3, 5.13.4.1.

c) An Inspector shall indicate acceptance by signing the Form R-1 and Form R-4, if attached.

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.

5.2.2 PREPARATION OF FORM R-2 (ALTERATIONS)

c) Final preparation of Form R-2, including the gathering and attaching of supporting reports, shall be the responsibility of the “R” certificate holder that performed the construction portion of the alteration. The construction organization shall complete the Form R-2 provided by the design organization, including the “Construction 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 supporting reports.

d) 2) Form R-3, Report of Fabricated Parts or Manufacturer’s Partial Data Reports, or Certificates of Compliance; and

5.6 FORM “R” LOG

The “R” Certificate Holder shall maintain a single, sequential log documenting unique and sequentially numbered Form “R” Reports 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.
5.7.1 GENERAL

The stamping 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 shall be done only with the knowledge and authorization of the Inspector. The “R” certificate holder responsible for the repair or the construction portion of the alteration shall apply the stamping. For a rerating where no physical changes are made to the pressure-retaining item, the “R” certificate holder responsible for design shall apply the stamping.

5.85.11 REMOVAL OF ORIGINAL STAMPING OR NAMEPLATE

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

5.95.12 STAMPING REQUIREMENTS FOR PRESSURE RELIEF DEVICES

5.9.1 5.12.1 NAME PLATES

Proper marking and identification of tested or repaired valves is critical to ensuring acceptance during subsequent inspections, and also provide for traceability and identification of any changes made to the valve. All operations that require the valve’s seals to be replaced shall be identified by a nameplate as described in NBIC Part 3, 5.9.25.12.2 or 5.9.45.12.4.

5.9.2 5.12.2 REPAIR NAME PLATE

When a pressure relief valve is repaired, a metal repair nameplate stamped with the information required below shall be securely attached to the valve adjacent to the original manufacturer’s stamping or nameplate. If not mounted directly on the valve, the nameplate shall be securely attached so as not to interfere with valve operation and sealed in accordance with the quality system.

5.9.3 5.12.3 CHANGES TO ORIGINAL PRESSURE RELIEF VALVE NAME PLATE INFORMATION

b) If the service fluid is changed, the capacity, including units, on the original nameplate or stamping shall be marked out but left legible. The new capacity shall be based on that for which the valve was originally certified, or if a conversion has been made, as described in NBIC Part 3, S7.2 on the capacity certification for the valve as converted.
<table>
<thead>
<tr>
<th>5.9.4-5.12.4 TEST ONLY NAME PLATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Where a valve has been tested and adjusted, as permitted by NBIC Part 3, S7.10.1, but not otherwise repaired, a “Test Only” nameplate shall be applied that contains the following information:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5.9.5-5.12.5 REPLACEMENT OF ILLEGIBLE OR MISSING NAME PLATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Illegible Nameplates</td>
</tr>
<tr>
<td>When the information on the original manufacturer’s or assembler’s nameplate or stamping is illegible, but traceability can be confirmed, the nameplate or stamping will be augmented by a nameplate furnished by the “VR” stamp holder stamped “Duplicate.” It shall contain all information that originally appeared on the nameplate or valve, as required by the applicable section of the ASME Code, except the “V,” “HV,” or “UV” symbol and the National Board mark. The repair organization’s nameplate, with the “VR” stamp and other required data specified in 5.9.2 NBIC Part 3, 5.12.2, will make the repairer responsible to the owner and the Jurisdiction that the information on the duplicate nameplate is correct.</td>
</tr>
<tr>
<td>b) Missing Nameplates</td>
</tr>
<tr>
<td>When the original valve nameplate is missing, the repair organization is not authorized to perform repairs to the valve under the “VR” program, unless positive identification can be made to that specific valve and verification that the valve was originally stamped with an ASME “V” or “UV” symbol or marked with an ASME “HV” symbol. Valves that can be positively identified will be equipped with a duplicate nameplate, as described in this section, in addition to the repairer’s “VR”-stamped nameplate. The repairer’s responsibilities for accurate data, as defined in 5.9.5(a) NBIC Part 3, 5.12.5 a) (Illegible Nameplates), shall apply.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5.11-5.8 STAMPING FOR FIBER REINFORCED VESSELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The attaching attachment of a nameplate to a repaired or altered vessel or tank shall indicate that the work was performed in accordance with the requirements of this Code. The attachment of a nameplate shall be done only with the knowledge and authorization of the Inspector. The certificate holder responsible for the repair or alteration shall apply the stamping nameplate. Required stamping and nameplate information are shown in NBIC Part 3, 5.7.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5.11.2-5.8.1 STAMPING FOR REPAIRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure-retaining items repaired in accordance with the NBIC shall have a nameplate as required by Section NBIC Part 3, 5.7 Subject to the acceptance of the jurisdiction and the concurrence of the Inspector, nameplates may not be required for routine</td>
</tr>
</tbody>
</table>
reparis. (See NBIC Part 3, 5.7.2[b]). In all cases, the type and extent of repairs necessary shall be considered prior to waiving the requirement.

5.11.3 STAMPING FOR ALTERATIONS
The nameplate shall be applied in accordance with NBIC Part 3, Section 5.7. The location of the nameplate shall be documented on the Form R-2.

5.12 STAMPING REQUIREMENTS FOR YANKEE DRYERS
b) Stamping is required for repairs that affect the pressure-retaining capability of the Yankee Dryer shell, as indicated on the De-rate Curve, or other pressure-retaining parts as indicated on the original Manufacturer’s Data Report.

c) Stamping is required for alterations as listed in NBIC Part 3, 5.7.2.

d) Stamping, when required, shall meet the requirements for stamping in NBIC Part 3, 5.7.3. The location of stamping shall be described in the “remarks” section of Form R-2.

NB08-0304

5.13.4.1 GUIDE INSTRUCTIONS FOR COMPLETING NATIONAL BOARD FORM “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 NBIC Part 3, 5.13.1 through 5.13.4.

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

2. When registering a Form “R”-Report with the National Board, this line is solely designated for a unique sequential number assigned by the “R” Certificate Holder. When the “R” Form is not to be registered, indicate so by “N/A”. As described in NBIC Part 3, 5.6, a log shall be maintained identifying sequentially, any Form “R” registered with the National Board. For NBIC Report Forms registered with the National Board, indicate the sequential Form R Number assigned by the “R” Certificate organization that is registering the form; otherwise indicate “N/A.” For re-rating only, the Design Organization registers the Form R-2. Where physical work is also performed, the Construction Organization registers the Form R-2.
5. Description of the pressure-retaining item, such as boiler or pressure vessel, or piping. Include the unit identification if applicable.

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, complete if known. If the original manufacturer is unknown, indicate by, “unknown”.

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

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 registered, indicate, “none”.

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

14. To be completed for all welded pressure components added during the work. 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.

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

20. Record name of the “R” Certificate organization or holder that which performed the identified described work, using full name as shown on the Certificate of Authorization or an abbreviation acceptable to the National Board.

29. Document 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.
30. Document name of organization responsible for specifying code design conditions, if known. If origin of design conditions are unknown, state “unknown”.

31. Document name of organization responsible for performing code design, if known. If code design organization is unknown, state “unknown”.

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

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

36. Identify name of part, such as “superheater header”. If available, identify component by part’s original name, function, or use the original equipment manufacturer’s “mark or item-number.”

53. If applicable, document the unique purchase order, job, or tracking number, etc., assigned by the organization performing the work.
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 Registration No.

2. Owner
   (name)
   (address)

3. Location of installation
   (name)
   (address)

4. Item identification
   (boiler, pressure vessel, 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 Repair Performed:
   (name / section / division)
   (edition / addenda)

7. Repair Type:
   [ ] Welded
   [ ] Graphite Pressure Equipment
   [ ] FRP Pressure Equipment

8. Description of work:
   (use Form R-4, if necessary)
   [ ] Form R-4, Report Supplementary Sheet is attached
   [ ] FFSA Form (NB-403) is attached

9. Pressure Test, if applied
   psi
   MAWP

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
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 ____________
(inspector)
Commissions
(National Board and Jurisdiction No.)

[Signature] [Commissions] [National Board and Jurisdiction No.]

This form may be obtained from The National Board of Boiler and Pressure Vessel Inspectors, 1055 Crepper Ave., Columbus, OH 43229  NB-66 Rev. 12
FORM R-2 REPORT OF ALTERATION
in accordance with provisions of the National Board Inspection Code

DESIGN REPORT

1. Design performed by

(name of “R” organization responsible for design)

(Form “R” Registration No.)

(address)

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.)

(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

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:

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 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 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 ORGANIZATION
(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, [name of construction organization] (authorized representative)
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
Signed

7. Description of Construction 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 or Certificate of Compliance, mfg's. name and identifying stamp)

9. Remarks:

CONSTRUCTION CERTIFICATION

I, [name of alteration organization] (authorized representative)
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.

Date
Signed

FIELD INSPECTION

I, [inspector] holding a valid Commission issued by the National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the jurisdiction of [jurisdiction] and employed by [employer] have
inspected the work described in this report on _______ at _______ 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)

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
S1.2.10 REPAIRS AND ALTERATIONS TO BOILER BARREL UNSTAYED AREAS

a) Defects such as cracks and wastage may be repaired by weld buildup, a welded flush patch or a riveted patch. Installation of a riveted patch shall be considered an alteration. Prior to repairing cracks, the plate shall be examined for defects. Affected sections shall be repaired.

a) Except as provided in NBIC Part 3, 3.4.4.8, a repair of a defect in a welded joint or base material shall not be made until the defect shall be removed. A suitable Nondestructive Examination (NDE) method such as Magnetic Particle (MT) or Liquid Penetrant (PT) may be necessary to ensure complete removal of the defect. If the defect penetrates the full thickness of the material, the repair shall be made with a full penetration weld such as a double buttweld or a single buttweld with or without backing. Where circumstances indicate that the defect is likely to recur, consideration should be given to removing the defective area and installing a flush patch or taking other corrective measures acceptable to the Inspector and when required by the Jurisdiction.
Figure S2.13.12.2
Welded Repair of Cracks in Tubesheets

Acceptable Crack to Repair by Welding

Unacceptable Crack to Repair by Welding

Installation of Flush Patch is Required

Replace Current Figure S2.13.12.2 with this one.
Handhole doors, studs, nuts, yokes, and clamps which are worn, cracked or otherwise damaged shall be replaced and not repaired. Replacements shall be of new manufacture, rated for the pressure and temperature of service.

When ASME is the original code of construction, replacement parts subject to internal or external pressure, which require shop inspection by an Authorized Inspector, shall be fabricated by an organization having an appropriate ASME Certificate of Authorization. The item shall be inspected and stamped as required by the applicable section of the ASME Code. A completed ASME Manufacturer’s Partial Data Report shall be supplied by the manufacturer. Further, all impregnated graphite material subject to internal or external pressure shall be fabricated by an organization having the appropriate ASME Certificate of Authorization. The impregnated graphite material shall be inspected and stamped as required by the applicable section of the ASME Code. A completed ASME Manufacturer’s Partial Data Report with supplementary U1B shall be supplied by the impregnated graphite material manufacturer.

The repair plan shall be reviewed and certified by a Professional Engineer who is registered in one or more of the states of the United States of America or the provinces of Canada and is experienced in reinforced plastic vessel design. The review and certification shall be such to ensure that the work involved in the repair is compatible with the User’s Design Specification or User’s Basic Requirements Specification and the Manufacturer’s Fabricator’s Design Report. The certification shall also include any drawings and calculations prepared as part of the repair plan.

The repair or alteration shall meet the requirements of the original construction standard.
The following requirements shall apply to all repairs, alterations, or modifications to pressure retaining items.

S7.2 GENERAL REQUIREMENTS

b) Conversions, changes, or adjustments affecting critical parts are also considered repairs. The scope of conversions may include changes in service fluid and changes such as bellows, soft seats, and other changes that may affect Type/Model number provided such changes are recorded on the document as required for a quality system and the repair nameplate. (See NBIC Part 3, 5.9.12.1).

S7.14.2 SPRING-LOADED PRESSURE RELIEF VALVES

i) Nameplate
The repairer will place a repair nameplate on each repaired valve. The nameplate shall, as a minimum, meet the requirements of 5.9.1 NBIC Part 3, 5.12.1.

S7.14.3 PILOT OPERATED SAFETY RELIEF VALVES

g) Nameplate
The repairer will place a repair nameplate on each repaired valve. The nameplate, as a minimum, shall meet the requirements of 5.9.1 NBIC Part 3, 5.12.1.

S9.3 GENERAL RULES

e) When an ASME “NV”-stamped pressure relief device requires a duplicate nameplate because the original nameplate is illegible or missing, it may be applied using the procedures of 5.9.5 NBIC Part 3, 5.12.5 provided concurrence is obtained from the Authorized Nuclear Inspector and Jurisdiction. In this case the nameplate shall be marked “SEC. III” to indicate the original ASME Code stamping.
Authorized Inspection Agency – New Construction: An Authorized Inspection Agency is one that is accredited by the National Board meeting the qualification and duties definition in NB-360, Criteria for Acceptance of Authorized Inspection Agencies for New Construction.

Appliance- A piece of equipment that includes all controls, safety devices, piping, fittings, and vessel(s) within a common frame or enclosure that is listed and labeled by a nationally recognized testing agency for its intended use.

Potable Water Heaters- A corrosion resistant appliance that includes the controls and safety devices to supply potable hot water at pressures not exceeding 160 psig (1100 kPa) and temperatures not in excess of 210°F (99°C).

1) Fired Storage Water Heater-A potable water heater in which water is heated by electricity, the combustion of solid, liquid, or gaseous fuels and stores water within the same appliance.

2) Indirect Fired Water Heater- A potable water heater in which water is heated by an internal coil or heat exchanger that receives its heat from an external source. Indirect fired water heaters provide water directly to the system or store water within the same appliance.

3) Circulating Water Heater- A potable water heater which furnishes water directly to the system or to a separate storage tank. Circulating water heaters may be either natural or forced flow.