



**NATIONAL BOARD**  
**VR+T/O QUALITY MANUAL REVIEW CHECKLIST**  
**NBIC 2019 Edition**

**COMPANY:** \_\_\_\_\_  
**LOCATION:** \_\_\_\_\_  
**MANUAL REVISION LEVEL:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

THE  
 NATIONAL  
 BOARD  
 OF BOILER AND  
 PRESSURE VESSEL  
 INSPECTORS

This checklist is provided to applicants for NBBI VR and/or T/O Certificates of Authorization to reference the applicable paragraphs in its written description and present this document to the National Board Representative during the entrance meeting. The NB Representative shall use this checklist to evaluate the acceptance of a written description in accordance with the NBIC, Part 4, 3.3.3 (T/O) and /or 4.8.5 for (VR). **The specific requirements of Part 4, 3.3 through 3.5 (for T/O) and 4.1 through 4.9 (for VR) must also be addressed in the applicable portions of the Q.C. Manual.**

| <b>NBIC Part 4, 3.3.3 (T/O) / 4.8.5 (VR)</b>                                    | <b>Written<br/>Description<br/>Referenced<br/>Paragraph</b> | <b>Acceptable</b> | <b>Not<br/>Acceptable</b> |
|---|---|-------------------|---------------------------|
| <b><u>3.3.3.4 / 4.8.5.4 a) TITLE PAGE:</u></b>                                  |   |                   |                           |
| 1. Company name, address where Certificate of Authorization will be issued      |   |                   |                           |
| <b>Comments:</b>  |   |                   |                           |
| <b><u>3.3.3.4 / 4.8.5.4 b) REVISION LOG:</u></b>                                |   |                   |                           |
| 1. Date, description, section of revision.                                      |   |                   |                           |
| 2. Company approval & NB acceptance.  |   |                   |                           |
| <b>Comments:</b>  |   |                   |                           |
| <b><u>3.3.3.4 / 4.8.5.4 c) CONTENTS PAGE:</u></b>                               |   |                   |                           |
| 1. List subjects and exhibits.  |   |                   |                           |
| 2. List by paragraph, page number, or section.                                  |   |                   |                           |
| <b>Comments:</b>  |   |                   |                           |
| <b><u>3.3.3.4 / 4.8.5.4 d) STATEMENT OF AUTHORITY:</u></b>                      |   |                   |                           |
| 1. Signed and dated by an officer of the company.                               |   |                   |                           |
| 2. States VR+T/O applied to only V, UV, NV (VR Only), HV, & NB Cap Cert Valves. |   |                   |                           |

| <b>NBIC Part 4, 3.3.3 (T/O) / 4.8.5 (VR)</b>   | <b>Written Description Referenced Paragraph</b> | <b>Acceptable</b> | <b>Not Acceptable</b> |
|--|---|-------------------|-----------------------|
| 3. For VR: States valves disassembled, inspected, repaired and perform to like new condition.<br>For T/O: States valves shall be inspected, tested, and restorative adjustments made. If disassembly or repairs are required valve shall be sent to VR organization or replaced. |   |                   |                       |
| 4. Title of person who is responsible to assure Quality System is followed and who has authority to affect the responsibility.   |   |                   |                       |
| 5. Statement if disagreement in implementation, referred to higher authority.  |   |                   |                       |
| 6. Title of individual who approves revisions.   |   |                   |                       |
| 7. Revisions submitted to NB prior to implementation.  |   |                   |                       |
| <b>Comments:</b>   |   |                   |                       |
| <b><u>3.3.3.4 / 4.8.5.4 e) ORGANIZATION CHART</u></b>  |   |                   |                       |
| 1. Chart showing relationship between management, purchasing, repair, inspection and QC people is required.  |   |                   |                       |
| 2. Must reflect the organization in place.   |   |                   |                       |
| <b>Comments:</b>   |   |                   |                       |
| <b><u>3.3.3.4 / 4.8.5.4 f) SCOPE OF WORK</u></b>   |   |                   |                       |
| 1. Indicate scope and type of testing and/or valve repairs (including conversions).  |   |                   |                       |
| 2. Location of where work is to take place (shop, shop & field, field only).   |   |                   |                       |
| 3. Code Sections & Test media to which repairs and testing apply.  |   |                   |                       |
| 4. (VR Only) Special processes: machining, welding, PWHT, NDE.   |   |                   |                       |
| 5. Valve types, sizes, pressure ranges for testing, and other limitations (test facilities, engineering, etc.)   |   |                   |                       |
| <b>Comments:</b>   |   |                   |                       |
| <b><u>3.3.3.4 / 4.8.5.4 g) DRAWINGS &amp; SPECIFICATION CONTROL</u></b>  |   |                   |                       |
| 1. Procedures to assure that latest applicable drawings, specifications, and instructions for repairs (VR only), conversions (VR only), inspection and testing. The QC Manual should address the following:  |   |                   |                       |
| a. State who is responsible for obtaining drawings and specifications.   |   |                   |                       |
| b. Describe how documents are retained, issued and retrieved.  |   |                   |                       |
| c. Describe how drawings and specifications and repair instructions are verified to remain current.  |   |                   |                       |
| d. Describe means to acquire manufacturer's corrections for differential in set pressure between steam and air for ASME VIII steam valves repaired by the owner – user (Part 4, 4.5.2).  |   |                   |                       |

| <b>NBIC Part 4, 3.3.3 (T/O) / 4.8.5 (VR)</b>   | <b>Written Description Referenced Paragraph</b> | <b>Acceptable</b> | <b>Not Acceptable</b> |
|--|---|-------------------|-----------------------|
| <b>4.8.5.4 h) MATERIAL &amp; PART CONTROL (VR ONLY)</b>  |   |                   |                       |
| 1. Describe the purchasing, receiving, storage and issuing of parts and materials. Materials used in making parts shall conform to requirements of original Construction Code. (Part 4, 4.3)   |   |                   |                       |
| 2. State title of person responsible for purchasing.   |   |                   |                       |
| 3. State title of person responsible for certs, and other records including the method of documenting the origin of replacement parts and compliance with the manufacturer's specifications.   |   |                   |                       |
| 4. All incoming material checked for conformance to PO, mat'l specs, drawings and how material is identified & how identity is maintained.   |   |                   |                       |
| 5. All critical parts shall be fabricated by manufacturer, or to manufacturer's specifications. Critical parts NOT fabricated by valve manufacturer require material test certification for material used to fabricate the part. Bolting material must meet manufacturer's specifications and be marked as required by the material specification. (Part 4, 4.4) |   |                   |                       |
| NOTE: Critical parts are those which affect flow path, capacity, or pressure retaining integrity.  |   |                   |                       |
| <b>Comments:</b>   |   |                   |                       |
| <b>3.3.3.4 h) INSPECTION &amp; TESTING PROGRAM (T/O) / 4.8.5.4 i) REPAIR &amp; INSPECTION PROGRAM (VR)</b>   |   |                   |                       |
| 1. Shall reference a report, traveler or checklist which outlines inspection procedures and repair or test procedures.   |   |                   |                       |
| 2. Each valve or group shall be accompanied by a traveler for processing thru plant.   |   |                   |                       |
| 3. Each valve shall have a unique identifier (s/n, shop order, etc) on nameplate.  |   |                   |                       |
| 4. Traveler shall describe the original nameplate info, ASME Stamp, and repair nameplate information.  |   |                   |                       |
| 5. Traveler shall include sign-offs for each operation in the process and for VR reference to: a material check, replacement parts, conversion parts, WPS, fit up, NDE technique, heat treat, pressure test methods, specific conversions (new type/model).  |   |                   |                       |
| 6. (VR Only) Describe how the repair or replacement of critical parts is controlled including method of identifying springs.   |   |                   |                       |
| 7. Documenting application of "VR" and/or T/O symbol.  |   |                   |                       |
| 8. Personnel control to ensure use of trained and qualified personnel according to 3.4 and/or 4.9.   |   |                   |                       |
| 9. (VR Only) Include provisions to note the ASME Code Case number on the traveler when used.   |   |                   |                       |
| 10. (T/O Only) Corrective actions to be taken for test failure, broken seals, or damaged valve (corrosion, broken/missing parts, etc.)   |   |                   |                       |
| <b>Comments:</b>   |   |                   |                       |

| <b>NBIC Part 4, 3.3.3 (T/O) / 4.8.5 (VR)</b>  | <b>Written Description Referenced Paragraph</b> | <b>Acceptable</b> | <b>Not Acceptable</b> |
|---|---|-------------------|-----------------------|
| <b>4.8.5.4 j) WELDING, NDE, HEAT TREATMENT (VR ONLY)</b>  |   |                   |                       |
| 1. Describe the system used and indicate the title of the person responsible for the development, approval, and qualifying WPS, welders, and welding operators in accordance with Part 4, 4.4.  |   |                   |                       |
| a. Is the welding performed in accordance with the requirements of the original Code of Construction? (4.4 a)   |   |                   |                       |
| b. If applicable, does the manual reference the use of the AWS Standard Welding Procedures? (4.4.2)   |   |                   |                       |
| c. Does the manual state that welding or welding operators are qualified for the welding processes used? Are the qualifications in accordance with the original Code of Construction? (Section IX) (4.4.3)  |   |                   |                       |
| d. Does the quality system record the results obtained in welding procedure qualifications?(4.4.4)  |   |                   |                       |
| e. Has the applicant established and described a system for the assignment of a unique welder's identification? (4.4.5)   |   |                   |                       |
| f. Does the manual address the welder's continuity when the welder or welder operator has not welded using a specific process during a period of six (6) months or more? (4.4.6)  |   |                   |                       |
| g. Are there provisions for the applicant or NB to question the ability of the welders or welding operators and require re-qualification (4.4.6)  |   |                   |                       |
| 2. When applicable, does the manual describe the documentation (items a through d below) that is provided to the "R" Certificate Holder performing "Welded Repairs to Pressure Relief Valve Parts," (4.4.7)? In addition, items e through g below must be addressed in the "VR" manual: |   |                   |                       |
| a. Code of Construction, year built   |   |                   |                       |
| b. Part identification  |   |                   |                       |
| c. Part material specified.   |   |                   |                       |
| d. "VR" Certificate Holders unique identifier (repair S/N, shop order number, etc.)   |   |                   |                       |
| Note: The above requirements must be provided by the "VR" holder to the "R" holder.   |   |                   |                       |
| e. Does the manual require the "R" Certificate Holder to provide a completed R-1 form that has been signed by a representative of the "R" certificate holder and the Inspector?   |   |                   |                       |
| f. Is the completed R-1 form noted on and attached to the "VR" Certificate holders traveler, checklist, etc.?   |   |                   |                       |
| g. Does the manual state which organization (the "VR" Certificate Holder or the "R" Certificate Holder) will be responsible for assuring NDE and heat treatment activities meet the requirements of the applicable section of the ASME Construction Code and/or material specification? |   |                   |                       |
| Note: "R" Certificate Holder must address welded repair of pressure relief valve parts in their scope.  |   |                   |                       |
| 3. Describe the system used and indicate the title of the person responsible for the development, approval, and qualifying NDE procedures, NDE personnel, in accordance with the applicable section of the Code, including NDE Subcontractors.  |   |                   |                       |
| 4. Describe the system used and indicate the title of the person responsible for the development, approval, and of heat treatment procedures.   |   |                   |                       |
| <b>Comments:</b>  |   |                   |                       |

| <b>NBIC Part 4, 3.3.3 (T/O) / 4.8.5 (VR)</b>   | <b>Written Description Referenced Paragraph</b> | <b>Acceptable</b> | <b>Not Acceptable</b> |
|--|---|-------------------|-----------------------|
| <b><u>3.3.3.4 i) VALVE ADJUSTMENT &amp; SEALING / 4.8.5.4 k) VALVE TESTING, SETTING, &amp; SEALING</u></b>   |   |                   |                       |
| 1. Statement that each valve shall be tested set, and external adjustments sealed in accordance with ASME Code & NBIC. Seal shall identify VR or T/O holder making repair or final adjustment and seal identification included in the manual.  |   |                   |                       |
| 2. (For T/O Only) Adjustment limited to <b>restoration</b> of blowdown (if applicable) and nameplate set pressure. Including limits of no more than twice the set pressure tolerance. Does <b>NOT</b> include changing nameplate set pressure. |   |                   |                       |
| 2. Requirements on test media per 4.6.1 (For VR) and 3.2.5 d) (For T/O)  |   |                   |                       |
| 3. Requirements to test to demonstrate set pressure, response to blowdown and seat tightness (4.6.1 a)).   |   |                   |                       |
| 4. State controls by owners/users (VR) (if applicable) to set Section VIII steam valves set using air (4.6.2), For T/O holders 3.2.5 d)6)  |   |                   |                       |
| 5. Use and controls of Lift Assist Devices (4.6.3) (if applicable)   |   |                   |                       |
| a. Equipment is calibrated as required by quality system   |   |                   |                       |
| b. What are the device and test procedures used to give accurate results   |   |                   |                       |
| c. Static inlet pressure is applied with test medium in 4.6.1  |   |                   |                       |
| d. Adjustments are made per manufacturer's instructions to ensure proper lift and blowdown   |   |                   |                       |
| e. Does device require that correction factors be used in determining set after calibration?   |   |                   |                       |
| f. Provisions for qualification of lift assist devices (LAD) are included.   |   |                   |                       |
| g. Documentation of qualification record shall include: device description, model no., serial number, mfg.   |   |                   |                       |
| h. Provisions to requalify LAD when modifications, repairs, mfg. issues recall or modification are included.   |   |                   |                       |
| <b>Comments:</b>   |   |                   |                       |
| <b><u>3.3.3.4 j) TEST ONLY NAMEPLATES (3.5) / 4.8.5.4 l) VALVE REPAIR NAMEPLATES (4.7)</u></b>   |   |                   |                       |
| 1. Manual shall include a description or sample of the nameplate. (Specify use of metal)   |   |                   |                       |
| a) Name of Certificate Holder, preceded by: "repaired by" or "tested by",  |   |                   |                       |
| b) VR or T/O Symbol & Certificate Number,  |   |                   |                       |
| c) Unique Identifier (e.g. Serial No., or Shop Order No.)  |   |                   |                       |
| d) Date of repair or test,   |   |                   |                       |
| e) Set pressure,   |   |                   |                       |

| <b>NBIC Part 4, 3.3.3 (T/O) / 4.8.5 (VR)</b>  | <b>Written Description Referenced Paragraph</b> | <b>Acceptable</b> | <b>Not Acceptable</b> |
|---|---|-------------------|-----------------------|
| f) (VR Only) Capacity (required only when changed) and capacity units,  |   |                   |                       |
| g) (VR Only) Type/Model (required only when changed).   |   |                   |                       |
| h) (VR Only) Cold Differential Test Pressure and Superimposed Backpressure (if applicable)  |   |                   |                       |
| i) (VR Only) ASME Code Case number when required by 4.2.2 a) 1)   |   |                   |                       |
| 2. (VR Only) Describe how changes to original valve nameplate are made (Set pressure, capacity, blowdown, fluid, type/model). (4.7.3)         |   |                   |                       |
| 3. (VR Only) Provisions made for missing or illegible nameplate (4.7.5) including method used to verify original nameplate information.       |   |                   |                       |
| 4. (VR Only) Attachment of nameplate <b><u>INDEPENDENT</u></b> of external adjustment seals.  |   |                   |                       |
| 5. State who is responsible for VR stamp or T/O mark and controls of its usage.   |   |                   |                       |
| <b>Comments:</b>  |   |                   |                       |
| <b><u>3.3.3.4 k) / 4.8.5.4 m) CALIBRATION</u></b>   |   |                   |                       |
| 1. The manual shall describe a system for periodic calibration of measuring and test equipment (MTE), pressure gages and lift assist devices. |   |                   |                       |
| 2. Indicate calibration intervals for pressure gages, linear measuring equipment, lift assist devices (per 4.6.3) and other MTE as applicable |   |                   |                       |
| a. Provide title of person authorized to perform calibrations.  |   |                   |                       |
| b. Documentation shall include standard used for calibrations and results obtained.   |   |                   |                       |
| 3. All standards shall be calibrated against certified equipment having valid relationships to nationally recognized standards.               |   |                   |                       |
| <b>Comments:</b>  |   |                   |                       |
| <b><u>3.3.3.4 l) / 4.8.5.4 n) MANUAL CONTROL</u></b>  |   |                   |                       |
| 1. Describe methods used to control the issuance and revisions to manuals.  |   |                   |                       |
| a. Describe the method of identifying controlled and uncontrolled copies.   |   |                   |                       |
| 2. Periodic review and documentation of quality system in order to be current with NBIC and ASME Codes.                                       |   |                   |                       |
| 3. Titles of person responsible for control, revisions, and review of manual.   |   |                   |                       |
| 4. Indicates that a controlled copy of manual will be sent to National Board. (electronic version acceptable)                                 |   |                   |                       |
| 5. Revisions to be submitted to National Board for acceptance prior to implementation.  |   |                   |                       |
| <b>Comments:</b>  |   |                   |                       |

| <b>NBIC Part 4, 3.3.3 (T/O) / 4.8.5 (VR)</b>  | <b>Written Description Referenced Paragraph</b> | <b>Acceptable</b> | <b>Not Acceptable</b> |
|---|---|-------------------|-----------------------|
| <b><u>3.3.3.4 m) / 4.8.5.4 o) NONCONFORMITIES</u></b>   |   |                   |                       |
| 1. Establish measures for identification, documentation, evaluation, segregation, and disposition of Nonconformities. NOTE: Nonconformities include conditions such as deviations from Q.C. Manual, procedures, documents, drawings, etc. |   |                   |                       |
| 2. State title of person who is authorized to make evaluations, and process Non-conformities.   |   |                   |                       |
| <b>Comments:</b>  |   |                   |                       |
| <b><u>3.3.3.4 q) / 4.8.5.4 p) EXHIBITS</u></b>  |   |                   |                       |
| 1. Forms used in the quality system shall be included in manual.  |   |                   |                       |
| 2. Forms should be marked "Sample" and completed in a manner typical of actual valve repair.  |   |                   |                       |
| 3. A description of forms shall be included.  |   |                   |                       |
| <b>Comments:</b>  |   |                   |                       |
| <b><u>3.3.3.4 n) / 4.8.5.4 q) TESTING EQUIPMENT</u></b>   |   |                   |                       |
| 1. Shall include means to control the development, addition, or modification of testing equipment to ensure the requirements of 4.6.1 b) are met.   |   |                   |                       |
| a. State who is responsible for control system.   |   |                   |                       |
| b. State individual responsible for final statement of qualification.   |   |                   |                       |
| c. Include provisions to contact NB when a system is revised if the system was used for verification testing.   |   |                   |                       |
| d. Describe means to requalify systems if revisions are made.   |   |                   |                       |
| e. Describe the documentation to be used to satisfy 4.6.1 b)  |   |                   |                       |
| <b><u>3.3.3.4 o) FIELD TESTING / 4.8.5.4 r) FIELD REPAIRS (4.8.6)</u></b>   |   |                   |                       |
| 1. Describe scope of field testing / repairs  |   |                   |                       |
| 2. Address differences or additions to shop requirements including the use of owner-user measuring and test equipment.  |   |                   |                       |
| a. (VR Only) Use of qualified personnel in the employ of Certificate Holder used for repairs  |   |                   |                       |
| b. Provisions for annual field audits   |   |                   |                       |
| c. VR (Only) Provisions for receipt and inspection of replacement parts, including parts supplied by the owner.   |   |                   |                       |
| d. (VR Only) Quality functions are supervised from address of record including provisions of 4.8.6.2, use of owner/user personnel.  |   |                   |                       |

| NBIC Part 4, 3.3.3 (T/O) / 4.8.5 (VR)  | Written Description Referenced Paragraph | Acceptable        | Not Acceptable        |
|--|--|-------------------|-----------------------|
| <b>Comments:</b>   |  |                   |                       |
| <b>3.3.3.4 p) / 4.8.5.4 s) RECORDS RETENTION</b>   |  |                   |                       |
| 1. Includes provisions to retain testing/inspection/repair documents (traveler, checklist, etc.) for at least 5 years.   |  |                   |                       |
| 2. Specify the retention of records pertaining to the test equipment qualification (including lift assist devices if applicable) and calibration of instrumentation to be maintained until 5 years after equipment is retired.   |  |                   |                       |
| 3. Includes provisions to maintain records of employee training and qualification until 5 years after termination of employment  |  |                   |                       |
| <b>Comments:</b>   |  |                   |                       |
| <hr/>  |  |                   |                       |
| <b>SUPPLEMENT CHECKLIST FOR IMPLEMENTATION</b><br>The following section of this checklist applies to the implementation of the quality system as it pertains to Testing Equipment & Qualification (4.6.1 b) and Training & Qualification of Personnel (4.9). Applicants are suggested to examine documents in these areas to verify they address the following requirements. NB Representatives will use this checklist to evaluate compliance with the NBIC requirements. | <b>Notes:</b>                            | <b>Acceptable</b> | <b>Not Acceptable</b> |
| <b>Testing Equipment &amp; Qualification (4.6.1 b))</b>  |  |                   |                       |
| 1. Is the pressure vessel of adequate size, volume and pressure source capacity to ensure compliance with 4.6.1 b) 1), and cause disc to lift significantly and reclose?   |  |                   |                       |
| 2. Are all performance equipment systems qualified by the Certificate Holder by benchmark, or comparison to verification testing equipment (including shop and mobile facilities and each test nozzle separately)?   |  |                   |                       |
| 3. Has qualification documentation been retained for five years after equipment is retired?  |  |                   |                       |
| 4. Does the documentation include a statement of qualification from the certificate holder who reviewed and accepted the testing equipment as described in the document which includes;  |  |                   |                       |
| a. Schematic of test equipment.  |  |                   |                       |
| 1. Test pressure vessel with nozzles for attachment of the valves to be tested.  |  |                   |                       |
| 2. Pressure source control valves.   |  |                   |                       |
| 3. Isolation valves between the pressure vessel and pressure relief valve under test.  |  |                   |                       |
| 4. Placement of pressure measuring equipment with approximate sensing line inside diameter and length.   |  |                   |                       |
| b. Size and pressure ranges of valves to be tested.  |  |                   |                       |
| c. Dimensions of vessel.   |  |                   |                       |
| d. Accuracy of pressure measuring equipment.   |  |                   |                       |
| e. Size and design type of valves used to control flow.  |  |                   |                       |
| f. Method of qualifying should include a copy of the test result records (e.g. shop travelers, repair reports, accepted test laboratory results) used to support the qualification in addition to a.   |  |                   |                       |



| <b>NBIC Part 4, 3.3.3 (T/O) / 4.8.5 (VR)</b>  | <b>Written Description Referenced Paragraph</b> | <b>Acceptable</b> | <b>Not Acceptable</b> |
|---|---|-------------------|-----------------------|
| 5. Prior to implementation of any addition and modification which could affect results, did the Certificate Holder re-qualify the performance test equipment in accordance with 4.6.1 b)2)? |   |                   |                       |
| 6. If the equipment changed was used to satisfy the requirements of the verification testing, did the Certificate Holder notify the NB?   |   |                   |                       |
| <b>Comments:</b>  |   |                   |                       |

| <b><u>Training &amp; Qualification of Personnel (3.4 / 4.9)</u></b>   |  |  |  |
|---|--|--|--|
| 1. Does the program describe the controls used to ensure personnel are trained and qualified to within the scope of work to be conducted? |  |  |  |
| <b><u>Contents of Training Program (3.4.1 / 4.9.1)</u></b>  |  |  |  |
| 1. Does the program establish training objectives for knowledge in:   |  |  |  |
| a. ASME Codes & NBIC.   |  |  |  |
| b. Responsibilities within the quality system.  |  |  |  |
| c. Technical aspects and mechanical skills for the applicable position held.  |  |  |  |
| <b>Comments:</b>  |  |  |  |

| <b><u>Qualification of Personnel (4.9.2)</u></b>  |  |  |  |
|---|--|--|--|
| 1. Are the minimum qualification requirements established for positions held?   |  |  |  |
| 2. Are the evaluations & acceptance of qualification documented?  |  |  |  |
| <b><u>Annual Review of Qualification (4.9.3)</u></b>  |  |  |  |
| 1. Did the repair organization annually review and document qualifications, verify proficiency, verify compliance with the Certificate Holder's quality system? |  |  |  |
| 2. Did the review include training records, documents of work performed, and job performance?   |  |  |  |
| <b>Comments:</b>  |  |  |  |

|                          |
|--------------------------|
| <b>General Comments:</b> |
|--------------------------|

\_\_\_\_\_  
National Board Representative

\_\_\_\_\_  
Date

File: 556 R12 VR QCM Checklist  
Rev. 12: 9/16/19: Reviewed for 2019 Edition. Combined with T/O.