



ACCREDITATION OF “T/O” TEST ONLY ORGANIZATIONS

The National Board of Boiler and Pressure Vessel Inspectors

1055 Crupper Avenue
Columbus, Ohio 43229
614.888.8320



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1.0 Scope

This document establishes the requirements for accreditation of organizations seeking a National Board *Certificate of Authorization* to use the "T/O" Certification Mark for confirming seat tightness and confirming or restoring nameplate set pressure and/or performance (e.g. blowdown, lack of chatter) of pressure relief valves (referred to in this document as "testing"). This authorization does not permit any activity that requires disassembly and/or repair of pressure relief valves. Such activities shall be performed by a National Board "VR" Certificate Holder or the valve shall be replaced.

1.1 Organizations seeking a *Certificate of Authorization* must have, in the English language, a written quality control system that complies with this document and includes the expected scope of work.

1.2 *Certificates of Authorization* may be issued to organizations whose business is to test or repair pressure relief valves, to manufacturers or assemblers of pressure relief valves, to Owners and Users of pressure relief valves, or to other organizations that qualify in accordance with these requirements.

1.3 Organizations currently holding a "VR" *Certificate of Authorization* will be considered qualified to use the "T/O" Certification Mark provided the process is described in their Quality Control System. They may be issued a "T/O" *Certificate of Authorization* upon request and permitted to apply the Certification Mark.

1.3.1 The test media listed on the "T/O" *Certificate of Authorization* shall match the "VR" Certificate of Authorization.

2.0 General Requirements

* The National Board "T/O" certification program applies only to the testing of valves in accordance with The National Board Inspection Code (NBIC) Part 4 Paragraph 3.2.5.2. These valves shall be capacity certified by the National Board and identified as follows:

2.1 American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME BPV) Code Section I valves identified with the ASME Certification mark with the V designator or the ASME "V" Code symbol stamp;

- 2.2 ASME BPV Code Section IV valves with the ASME Certification mark with the HV designator or the ASME "HV" Code symbol stamp; or
- 2.3 ASME BPV Code Section VIII valves with the ASME Certification mark with the UV designator or the ASME "UV" Code symbol stamp.
- 2.4 Testing may be performed for pressure relief valves that 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.
- 2.5 Testing may not be performed if any of the valve's external adjustment seals have been broken, opened, or otherwise disturbed. The valve shall be sent to a National Board "VR" Certificate Holder for disassembly, inspection, and repaired or replaced.

3.0 Testing of Nuclear Valves

This program is not intended to cover testing of ASME BPV Section III valves.

4.0 Application

- 4.1 Organizations seeking to obtain or renew a "T/O" *Certificate of Authorization* must apply to the National Board using forms obtained from the National Board. Application for renewal must be made at least six months prior to the expiration date of the "T/O" *Certificate of Authorization*.
- 4.2 When an organization has plants or shops in more than one location, the organization must submit a separate application for each plant or shop.
- 4.3 For field-only scopes, the address of record shown on the *Certificate of Authorization* is the location from which the administrative, technical and quality aspects of the business are controlled.

5.0 Review of Applicant's Facility

- 5.1 Prior to issuance or renewal of a "T/O" *Certificate of Authorization*, the test organization, its written Quality Control System, and its facilities are subject to a review and verification of implementation of its written Quality Control System by a representative of the National Board. The

implementation demonstration shall include, as a minimum, setting and testing of valves within the scope of the applicant's written Quality Control System.

- 5.2 The applicant shall test and submit to a National Board Accepted Testing Laboratory for verification testing a minimum of two (2) valves. These valves shall include at least one (1) valve for each ASME BPV Code section and each test fluid.
 - 5.2.1 For applicants who test ASME BPV Code Section VIII steam service valves with air using the manufacturer's correction factor, the applicant shall submit one additional ASME BPV Code, Section VIII steam valve tested on air for verification testing on steam.
 - 5.2.2 For applicants who test ASME BPV Code Section VIII steam service valves with air using the manufacturer's correction factor and hold a "VR" Certificate of Authorization with steam in its scope, the applicant shall perform benchmark testing on at least one ASME BPV Code, Section VIII steam valve on air and perform a verification test using their qualified steam test equipment. Records of this benchmark testing shall be maintained as long as testing of ASME BPV Section VIII steam service valves with air is included in the scope of the *Certificate of Authorization*.
- 5.3 For field-only scopes, the review shall encompass both the applicant's address of record and a field test demonstration site. The demonstration site shall be representative of that typically encountered by the applicant.
- 5.4 The applicant shall have access to the National Board Pressure Relief Device Certifications publication, NB-18 (available from the National Board's Web site); a copy of the latest mandatory edition of the NBIC, all parts; and access to the latest mandatory edition of ASME BPV Code Sections the organization is including in its scope.
- 5.5 Upon notification of the review dates from the National Board, it is the responsibility of the test only organization to make arrangements for this review. National Board reviews of Test Only organizations may be coordinated with other reviews, when practical.
- 5.6 A recommendation to issue, renew, or withhold the *Certificate of Authorization* shall be included in a Qualification Review Report prepared

by the National Board Team Leader. The completed Qualification Review Report shall be forwarded to the National Board.

- 5.7 When all requirements have been met, a *Certificate of Authorization* will be issued evidencing permission to use the "T/O" Certification Mark. The *Certificate of Authorization* shall expire on the triennial anniversary date.

6.0 ASME BPV Code *Certificates of Authorization* and Certification Mark

A pressure relief valve manufacturer holding a valid ASME *Certificate of Authorization* for use of an ASME BPV certification mark may obtain the "T/O" *Certificate of Authorization* for the testing of pressure relief valves covered by their ASME *Certificate of Authorization*. This can be accomplished without a review of the facilities provided the organization's written Quality Control System includes provisions which cover the scope of the testing performed. The written Quality Control System is subject to review by the National Board. The testing shall be carried out at the same location where the ASME valves are manufactured. Unless the valves are tested in the same facilities and to the same procedures as new valves, the number of valves as required in paragraph 5.2 shall be selected by a National Board Representative for verification tests.

7.0 Jurisdictional Participation

The National Board member jurisdiction in which the "T/O" organization is located may participate in the review of the test organization and the demonstration and acceptance of the test organization's written Quality Control System manual.

8.0 Use of the "T/O" *Certificate of Authorization*

8.1 Certification Mark Use

Each "T/O" Certification Mark graphic shall be obtained electronically from the National Board for reproduction on the Test Only nameplate and shall be used only within the scope and limitations under which it was issued. The organization's written Quality System shall provide for constant control of the "T/O" Certification Mark. The organization shall not permit others to use the "T/O" Certification mark issued to them.

8.2 Return of Certificate

Each applicant shall agree, if authorization to use the Certification Mark is granted, that the Certification Mark is controlled by the National Board and its use will be promptly discontinued upon demand if the "T/O" *Certificate of Authorization* has expired and no new certificate has been issued. Also any pre-printed nameplates bearing the "T/O" mark shall be sent to the National Board for disposal.

8.3 *Certificate of Authorization* Contents

The name and address of the test organization, the scope of the certificate (shop only, field only or shop and field), the certificate number, the issue date, expiration date, the ASME BPV section (Section I, IV, and/or VIII valves), and test media shall be specified on the test organization's "T/O" *Certificate of Authorization*.

8.4 Changes in Scope, Ownership, Name, Location or Address

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

9.0 Written Quality System Manual

A holder of a *Certificate of Authorization* shall have and maintain a written Quality System Manual. It shall be treated confidentially by the National Board and by the Review Team. An outline of the requirements for a written Quality System Manual shall meet the following requirements:

9.1 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.

9.2 Revision Log

A revision log is required to ensure 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.

9.3 Contents Page

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

9.4 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:

9.4.1 A statement that the "T/O" Certification Mark shall be used only for pressure relief valves that meet the following conditions:

9.4.1.1 Are marked with an ASME "V", "UV", or "HV" Code symbol or marked with the ASME Certification Mark with "V", "UV", or "HV" designator and have been capacity certified by the National Board;

9.4.1.2 Have been visually inspected, and successfully tested in accordance with this program; and

9.4.1.3 Only external adjustments to restore the nameplate set pressure and/or performance of a pressure relief valve shall be made under the provisions of this program. If disassembly, change of set pressure, or additional repairs are necessary, the valve shall be repaired by a National Board "VR" Certificate Holder or replaced.

9.4.2 The title of the individual responsible for ensuring that the quality system is followed and who has authority and freedom to affect the responsibility;

9.4.3 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

9.4.4 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.

9.5 Organization Chart

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

9.6 Scope of Work

9.6.1 The scope of work section shall indicate the scope and type of valve testing the organization is capable of and intends to perform. The location of testing (shop, shop and field, or field only), ASME Code Section(s) to which the tests apply, and the test medium (air, gas, liquid, or steam, or combinations thereof) shall be included.

9.6.2 The types and sizes of valves to be tested, pressure ranges and other limitations shall also be addressed.

9.7 Specification Control

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

9.8 Inspection and Testing Program

The inspection and testing program section shall include reference to a document (such as an inspection and test report, or checklist) that outlines the specific inspection and testing procedures used in the testing of pressure relief valves. Provisions shall be made to retain this document for a period of at least five years.

9.8.1 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 assigned by the Test Only organization (e.g., job serial number, shop order number, work order number, etc.) appearing on the test documentation and test nameplate such that traceability is established.

9.8.2 The document referred to above shall describe the original nameplate information, including the ASME Code symbol stamping and, if applicable, the repair nameplate information. In addition, it shall include pressure test methods to be used. Application of the "T/O" Certification Mark to the test nameplate shall be recorded in this document. There shall be a space for "signoffs" at each operation to verify that each step has been properly performed by qualified personnel.

9.8.3 * The system shall also describe the controls used to ensure that any personnel engaged in the testing of pressure relief valves are trained and qualified in accordance with NBIC Part 4, paragraph 4.9.

9.9 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 NBIC. The seal shall identify the "T/O" Certificate Holder performing the test or making the adjustment. Abbreviations or initials are permitted, provided such identification is defined in the quality system and acceptable to the National Board.

9.10 Test Only Nameplates

* The quality system shall include a description of a nameplate or a drawing. An effective valve marking system shall be established to ensure proper marking and nameplate attachment for each valve and meet the following requirements (See NBIC, Part 4, 4.7.4 for additional requirements):

9.10.1 The nameplate shall be made of metal

9.10.2 The name of responsible organization preceded by the words "Tested by" shall be applied

9.10.3 Date of test shall be applied

9.10.4 Set pressure shall be applied

9.10.5 Unique identifier of test shall be applied (eg. shop order number, work order number, job serial number, etc.)

9.10.6 The T/O Certification Mark as provided by the National Board

9.11 Calibration

9.11.1 The quality system shall describe a system for the calibration of examination, measuring, and test equipment used in the performance of testing. Documentation of these calibrations shall include the standard used and the results.

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

9.12 Manual Control/Procedures

The quality system manual and referenced procedures shall include:

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

9.12.2 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 and NBIC;

9.12.3 The title(s) of the individual(s) responsible for preparation, revision distribution, approval, and implementation of the quality system manual;

9.12.4 Provision of a controlled copy of the written quality system manual to be submitted to the National Board for acceptance prior to implementation; and

9.12.5 Revisions shall be submitted for acceptance by the National Board prior to being implemented.

9.13 Nonconformities

The quality system shall establish measures for the identification, documentation, evaluation, segregation, and disposition of nonconformities. A non-conformity 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.

9.14 The applicant shall establish a documented in-house training program. This program shall establish training objectives and provide a method of evaluating the training effectiveness. As a minimum, training objectives for knowledge level shall include:

9.14.1 Applicable ASME Code and NBIC requirements;

9.14.2 Responsibilities within the organization's quality system;

9.14.3 Knowledge of the technical aspects and mechanical skills for making set pressure and/or blowdown adjustments to pressure relief valves;

9.14.4 Knowledge of the technical aspects and mechanical skills for marking of pressure relief valve adjustments.

9.15 Exhibits

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

9.16 * Testing Equipment (See NBIC Part 4, Supplement 5)

The quality system shall include a means to control the development, addition, or modification of testing equipment to ensure the requirements of NBIC Part 4, 4.6.1 b) are met.

9.17 Field Testing

Testing organizations may obtain a "T/O" Certificate of Authorization for field testing, either as an extension to their in-shop/plant scope, or as a field-only scope, provided that the Quality System includes the following provisions:

9.17.1 Qualified technicians in the employ of the certificate holder perform such testing;

9.17.2 Functions affecting the quality of the tested valves are supervised from the address of record where the "T/O" certification is issued.

9.17.3 Provisions for annual internal audits of field activities shall be included;

9.17.3.1 * Upon issuance of a Certificate of Authorization, provided field tests are performed, annual audits of the work carried out in the field shall be performed to ensure that the requirements of the certificate holder's quality system are met. The audit shall include, but not be limited to, performance testing, in accordance with NBIC Part 4, 4.6, of valve(s) that were tested in the field. The audits shall be documented.

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

10.0 Verification Testing of Demonstration Valves

- 10.1 The demonstration valves must successfully complete operational verification tests at a National Board accepted testing laboratory. Alternative verification testing described in Paragraph 11.0 may also be applied. The valves shall be typical of those tested by the organization and within the capabilities of the testing laboratory.
- 10.2 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 function and operation of the valves meet the requirements of the ASME BPV Code section to which they were manufactured.
- 10.3 Valves not meeting the function or operational requirements of the ASME BPV Code section to which they were manufactured shall be considered to have failed. Replacement valves shall be selected for testing as stated above, at a rate of two (2) valves for each one (1) that failed.
- 10.3.1 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 tested. The valve(s) shall be of the same ASME BPV Code Section, fluid and set pressure scope, as the valve previously failing to meet the test requirement.
- 10.3.2 Failure of this valve(s) to meet the ASME BPV Code to which the valve was manufactured shall be cause for consideration by the National Board of revocation of the "T/O" *Certificate of Authorization* or acceptance of alternative corrective action.

11.0 Alternative Verification Testing of Demonstration Valves

- 11.1 In such cases where all valves tested by the applicant for a specified ASME Code Section or test fluid exceed the capabilities of the accepted testing laboratory, valves for that ASME BPV Code Section or test fluid

shall be selected as specified in Paragraph 3.0, and a demonstration test shall be successfully performed in lieu of verification testing specified in Paragraph 10.0. 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 tested 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.

11.2 If a valve lift-assist device is used by the applicant to confirm set pressure, this device must also be used to set the demonstration valves.

11.3 If either of these valves fails to meet the above criteria, then replacement valves shall be tested at a rate of two valves for each one that failed.

11.3.1 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 tested. The valve(s) shall be of the same ASME BPV Code section, fluid, and set pressure scope as the valve previously failing to meet the test requirement.

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

12.0 Due Process

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