



**ACCREDITATION
OF
PRESSURE RELIEF VALVE REPAIR
ORGANIZATIONS**

TSSA GUIDE FOR SURVEY TEAMS

The Technical Standards and Safety Authority
Boilers and Pressure Vessels Safety Division
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CANADA

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INTRODUCTION

This guide is prepared for the use of TSSA survey team leaders, members and applicants for TSSA Certificates of Authorization. It is not intended to replace or interpret the requirements of the CSA B-51 Standard or the National Board Inspection Code (NBIC) (ANSI / NB-23) Part 3. The checklist does not list all of the detailed requirements of CSA B-51 and ASME Code referenced, but rather lists the highlights that the applicant is required to include in the written Quality Control (QC) Manual.

In addition, to assist the TSSA survey team, this guide is provided to applicants for TSSA Certificates of Authorization for their use in identifying and verifying the paragraph(s) where their QC Manual addresses all applicable control requirements of the CSA Standards and the National Board Inspection Code. The QC Manual must contain the description of the controls necessary for implementing the QC Program but, it is not required to contain all of the programmatic requirements which will be found in the QC Program, such as written procedures.

The guide is based upon CSA B-51 and National Board Inspection Code requirements. The guide is subject to revision based on changes made to the CSA B-51 and NBIC from time to time.

A survey must cover a QC Manual and its implementation. It is recognized that the scope of work, QC Manual and Manual implementation will vary from one applicant to another, therefore, only those activities to be performed under the scope of an applicant's TSSA Certificate of Authorization are required to be addressed in the QC Manual. TSSA survey teams are advised that this guide may not outline all possible aspects of each survey. The QC Manual need not follow the format of this guide.

Questions of possible need for Interpretation raised by survey team members or the applicant shall be submitted to the TSSA Chief Inspector for an answer, and when submitted by the applicant a copy of the inquiry and reply should be provided by the inquirer to the applicant's Inspection Agency and any known involved enforcement authority.

HOW TO USE THIS GUIDE

Review each checklist item in the checklist against the QC Manual and:

- 1) Check (✓) the applicable column - "Yes", "No" or "N/A" (Not Applicable)
- 2) Note the paragraph number in the QC Program Manual, which covers the subject addressed in the column labelled "Quality Program Reference".

Submit one copy of the completed checklist with one controlled copy of the QC Manual to TSSA Head Office for review, at least one month prior to the scheduled implementation review date.



PRESSURE RELIEF VALVE MANUAL REVIEW CHECKLIST

COMPANY NAME & ADDRESS: _____

REVIEWED BY: _____ **DATE(S) :** _____

No.	Section	Manual Reference	Yes	No	N/A	Comments
1.0	TITLE PAGE 1.7.7.5(a)					
1.1	Company name & Plant location.					
1.2	ASME Code Sections & CSA B51.					
1.3	Approval & acceptance signatures including dates.					
1.4	Controlled Number.					
1.5	Issue Number & date.					
2.0	CONTENTS PAGE 1.7.7.5(c)					
2.1	Contents Page to include columns for Section, Title and Revision Level, including exhibits.					
3.0	MANUAL CONTROL & REVISION 1.7.7.5(b)(n)					
3.1	Who is responsible for preparation, revision, distribution & implementation of QC Manual.					
3.2	Who is responsible for the review of applicable ASME Code Edition and addenda.					
3.3	How is QC Manual revised & revisions identified.					
3.4	Acceptance of revisions by TSSA prior to implementation.					
3.5	Description of Revision Log including approval and acceptance.					
3.6	Description of how QC Manual & revisions are issued and distributed, including Distribution Log.					
3.7	Use of uncontrolled QC Manuals.					
3.8	Provisions for the Controlled Copy of the QC Manual to be submitted to TSSA prior to being implemented.					
4.0	GLOSSARY OF TERMS NBIC Section 9					
4.1	A glossary of terms is desirable from the standpoint of clarity if abbreviated titles of personnel and control documents are used throughout the QC Manual. Definitions relating to PRV are referenced in ANSI/ASME PTC-25.					
4.2	Repair of a pressure relief valve is considered to be the disassembly, replacement, re-machining, or cleaning of any critical part, lapping of a seat and disc, re-assembly, adjustment, testing or any other operation that may affect the flow passage, capacity, function or pressure retaining integrity. Conversions, changes or adjustments affecting critical parts are also considered repairs. The scope of conversions may include changes such as bellows, soft seats and other changes that may affect Type/Mode number provided such changes are recorded on the document as required for a quality system and the repair nameplate (See 5.9.1). When completed the valve's condition and performance shall be equivalent to the standards for new valves. NBIC Supp.S7.2(a, b, c, d)					
5.0	STATEMENT OF AUTHORITY & RESPONSIBILITY 1.7.7.5(d)					

No.	Section	Manual Reference	Yes	No	N/A	Comments
5.1	Does statement appear on a dated company letterhead signed by an officer of the company and providing the following:					
5.2	A statement that all ASME Code stamped & National Board capacity certified PRV repaired by the company meet the requirements of the applicable sections of the ASME Code or CSA B51, and the valve manufacturer's specifications.					
5.3	A statement that the requirements of the written Q.C. manual are to be followed to ensure that 5.2 is attained.					
5.4	The title of the individual responsible to ensure that 5.3 is followed & who has authority & freedom to carry out this responsibility including stopping of work & resolution of non-conformities.					
5.5	Statement that discrepancies in the implementation of the written QC Manual shall be referred for resolution to a higher authority in the company without negating ASME Code, and QC Manual requirements.					
5.6	Statement that the QC Manual and its implementation has the full support of management.					
5.7	Title of the individual authorized to approve QC Manual revisions and method by which such revisions are to be submitted to TSSA for acceptance before implementation.					
5.8	Who is responsible for the qualification of personnel and the performance testing equipment.					
6.0	ORGANIZATION CHART 1.7.7.5(e)					
6.1	Titles of key department personnel within the company, which perform functions that affect the quality of valve repair.					
6.2	Chart indicates the relationship between management, purchasing, repairing, inspection and quality control personnel and shall reflect the actual organization in place.					
6.3	Chart shows access of QC to top management.					
6.4	Titles of personnel are consistent with text of QC Manual.					
7.0	SCOPE OF WORK 1.7.7.5(f)					
7.1	Indicate scope and type of valve repairs including the range of sizes and pressures, as well as the testing medium (steam, air, gas, liquid) to be used.					
7.2	State the ASME Code sections for which the facility will be used.					
7.3	State location of repairs (shop, shop & field or field only)					
7.4	State special processes such as machining and NDE. Welding & postweld heat treatment shall not be performed or permitted.					

No.	Section	Manual Reference	Yes	No	N/A	Comments
7.5	State if valve conversions are performed.					
7.6	State if changes or adjustments are performed.					
7.7	State range of sizes and pressures for use of lift-assist device.					
8.0	DRAWINGS & SPECIFICATION CONTROL 1.7.7.5(g)					
8.1	System shall provide for maintaining up to date drawings, specifications from the original valve manufacturer for valve repair, inspection and testing.					
8.2	Maintaining the following Codes & specifications: 1] ASME B&PV Code sections and addenda 2] NB-18 Pressure Relief Valve Certifications 3] ASME/ANSI B16.5 4] API RP-527 (seat tightness) 5] NBIC (ANSI/NB-23) 6] TSSA Safety Information Bulletin SB00-3					
8.3	Title of person responsible for assuring 8.1 & 8.2 are met.					
8.4	Title of person responsible for preparing & approval of internal company procedures and specifications used for valve repair, inspection & testing.					
8.5	Describe distribution of drawings, procedures and specifications to repair personnel and who is responsible.					
9.0	MATERIAL & PART CONTROL 1.7.7.5(h)					
9.1	Does system describe the purchasing, receiving, storage and issue of valve parts.					
9.2	Who is responsible for 9.1.					
9.3	State that only original valve manufacturer's parts shall be purchased in the repair of valves.					
9.4	Describe on the P.O. for replacement parts, including springs, the ordering information required by the O.E.M.					
9.5	Provide for received parts to be checked for conformance with the purchase order.					
9.6	Customer supplied parts and who certifies these.					
9.7	Who is responsible for 9.4 and maintenance of these records.					
9.8	How are purchased parts identified (critical parts) and how identity is maintained by QC system.					
9.9	Describe procedures for resolving non-conformities of purchased valve parts.					
10.0	REPAIR & INSPECTION PROGRAM 1.7.7.5(i)					
10.1	Program shall include reference to company document (checklist/traveler) which outlines the specific repair & inspection procedures used in the valve repair.					

No.	Section	Manual Reference	Yes	No	N/A	Comments
10.2	Checklist/traveler shall have a unique identifier (repair serial number, shop order number) traceable to the valve and repair nameplate. The traveller shall describe the original nameplate information and specify the ASME Code symbol stamping.					
10.3	Checklist/traveler should include the following: 1] Visual inspection including complete nameplate data 2] Disassembly 3] Cleaning 4] Inspection including valve trim 5] Machining 6] Lapping 7] Re-assembly 8] Adjusting ring(s) 9] Testing 10] Sealing 11] Repair nameplate					
10.4	Provision of a space for "sign-offs" at each operation to verify that each operation (i.e. NDE inspection, sealing) has been properly performed.					
10.5	Provision on checklist/traveler for the review (signature of individual) for accuracy and completeness and who is responsible.					
10.6	Program to include a method of controlling the repair or replacement of critical valve parts - the method of identifying each spring shall be indicated.					
10.7	Describe the changing of set pressure of valves, how it is accomplished and who is responsible.					
10.8	Describe the controls used to ensure that any personnel engaged in the repair of PRV are trained and qualified in accordance with the requirements of the QC Manual.					
10.9	Maintaining all repair records for a period of at least five (5) years and who is responsible.					
11.0	SPECIAL PROCESSES					
11.1	MACHINING 1.7.7.5(i) System shall include a method of controlling dimensions including seat finish of critical parts where a deviation from the manufacturer's critical dimension chart could affect the valve flow passage, capacity function or pressure retaining integrity.					
11.2	WELDING & HEAT TREATMENT 1.7.7.5(j) Welding and heat treatment shall not be performed or permitted.					
11.3	NON-DESTRUCTIVE EXAMINATION (NDE) 1.7.7.5(j)					
11.4	When NDE is required or performed, the written procedure shall meet the requirements of ASME Section V and NDE personnel shall be certified in accordance with CGSB standards.					
11.5	Who is responsible for maintaining NDE reports and personnel certification records. The QC Manual shall describe the use of outside services.					

No.	Section	Manual Reference	Yes	No	N/A	Comments
12.0	VALVE TESTING, SETTING & SEALING 1.7.7.5(k) and 4.5					
12.1	System shall make provisions for each valve to be tested, set and sealed in accordance with the requirements of ASME Code. Valves marked for steam service shall be tested on steam. Valves marked for air, gas or vapor service shall be tested with air or gas. Valves marked for liquid service shall be tested with water or other suitable liquid. Section IV hot water valves shall be tested on water, steam or air.					
12.2	When ASME Section VIII valves are repaired by the owner for the owner's own use, valves for steam service may be tested on air for set pressure and, if possible, blowdown adjustment, provided manufacturer's corrections for differential in set pressure between steam and air are applied to the set pressure.					
12.3	Testing equipment shall include a pressure vessel of adequate size, volume and capacity to cause the disc to lift significantly (i.e. pop open) and re-close. The equipment used for performance testing shall be certified and meet the requirements of 4.5.1.					
12.4	4.5.1(b): Prior to use, all performance testing equipment shall be qualified by the Certificate Holder to ensure that the equipment and testing procedures will provide accurate results when used within the ranges established for that equipment. This qualification may be accomplished by bench mark testing, comparisons to equipment used for verification testing or comparisons to field performance. This qualification shall be documented and provisions made to retain such documentation for a period of at least five years after the testing equipment is retired. Documentation of this qualification shall include but not be limited to: a. schematic of the performance test equipment, b. size and pressure ranges of valves to be tested, c. dimensions of test vessels, d. accuracy of pressure measuring equipment, e. size and design type of valves used to control flow, and f. method of qualifying.					
12.5	4.5.1(b)(3): Prior to the implementation of any addition or modification to the testing equipment which would alter the contents of the document required in RE-2010(b (2), the Certificate Holder shall re-qualify the performance test equipment in accordance with RE-2010(b)(2). If the equipment changed was used to satisfy the requirements of verification testing, the Certificate Holder shall notify TSSA and additional verification testing in accordance with RA-2255 may be required.					
12.6	System shall include a method of controlling the setting (and blowdown where applicable) for each valve to ensure tolerances are within the requirements of the ASME Code.					
12.7	Are adjustments made in accordance with the valve manufacturer's recommendations to ensure proper lift & blowdown (when applicable).					

No.	Section	Manual Reference	Yes	No	N/A	Comments
12.8	Cold differential set pressure (CDS) shall be performed in accordance with the valve manufacturer's recommendations.					
12.9	Procedure for seat tightness shall specify the following: 1] Test apparatus 2] Test medium 3] Test pressure 4] Leakage test 5] Acceptance criteria (leakage rate)					
12.10	Provisions shall be made to ensure all external adjustments are sealed and where applicable the identification make of the repair organization. The seal shall identify the certificate holder making the repair. Abbreviations or initials shall be permitted provided such identification is acceptable to TSSA.					
12.11	All test data and sign-offs shall be recorded on checklist/traveler.					
13.0	LIFT ASSIST TESTING 4.5.3					
13.1	Describe when lift assist device testing will be used in lieu of the tests required in 4.5.1.					
13.2	Describe the device(s) to be used for lift assist testing					
13.3	While actual blowdown and valve performance characteristics cannot be verified, valve set pressure may be determined to an acceptable degree of accuracy with a lift assist device provided: a) Equipment utilized is calibrated b) The device and test procedures which have proved to give accurate results are followed c) A static inlet pressure is applied with the test medium specified in 4.5.1 d) Adjustments are made in accordance with the valve manufacturers recommendations to ensure proper lift and blowdown					
14.0	VALVE REPAIR NAMEPLATES 1.7.7.5(l)					
14.1	An effective method for valve nameplate stampings shall be established to ensure proper stamping of each valve as required by 5.9.2. The manual shall include a description of the nameplate or a drawing					
14.2	The repair nameplate shall as a minimum contain the data meeting the requirements of 5.9.2. Changes to the original PRV nameplate information shall meet 5.9.3. The following shall be described: 1] Attachment of nameplate 2] Illegible original valve manufacturer/assembler nameplate 3] Original valve manufacturer nameplate is missing					
14.3	Checklist/traveler sign-off and who is responsible for verifying nameplate data.					
14.4	Show description of nameplate as an exhibit.					
15.0	CALIBRATION 1.7.7.5(m)					

No.	Section	Manual Reference	Yes	No	N/A	Comments
15.1	System shall describe a scheduled & documented program for the periodic calibration of measuring instruments and pressure gauges.					
15.2	<p>Who is responsible for:</p> <ul style="list-style-type: none"> a) Ensuring that all items are maintained in good condition and are checked for signs of damage etc. before use b) Removal from service of any such equipment found to be defective, or suspected to be so. c) Ensuring only equipment currently in calibration is used. d) Performing, or arranging for, calibration of measuring and test equipment, the results of which shall be traceable to National Standards. e) Establishing and maintaining a calibration frequency schedule for the type of equipment and its corresponding amount of use. 					
15.3	Describe use of equipment identification using label/sticker and specify information.					
15.4	Who maintains Calibration Log & describe information therein.					
15.5	Describe calibration of working pressure gauges and who is responsible.					
15.6	<p>Calibration of master pressure test gauges shall describe</p> <ul style="list-style-type: none"> 1] Frequency 2] Method (standard dead weight tester or master gauge) 3] Calibration standards certified and traceable to nationally recognized standards 					
15.7	<p>Calibration of vernier calipers, micrometers, and calibration blocks.</p> <ul style="list-style-type: none"> 1] Frequency 2] Method 3] Standards 					
15.8	Calibration of lift-assist device.					
15.9	Who is responsible for maintaining all calibration records.					
15.10	Who ensures that all <i>Technical Standards and Safety Act</i> Certificates of Inspection for all boilers, pressure vessels and piping used for testing purposes are maintained current?					
15.11	Is there a “recall” procedure when a pressure gauge is found to be out of calibration?					
16.0	NONCONFORMITIES 1.7.7.5(o)					
16.1	Definition of nonconformity.					
16.2	Describe the identification, documentation, evaluation, segregation, resolution and disposition of non-conformities and who is responsible.					
16.3	Describe use of hold, accept and reject tags.					
16.4	Include sample NCR report.					

No.	Section	Manual Reference	Yes	No	N/A	Comments
17.0	TRAINING & QUALIFICATION OF PERSONNEL Supplement S7.11					
17.1	Who is responsible to ensure that personnel engaged in repairs of PRV are knowledgeable and qualified within the scope of the repairs to be conducted.					
17.2	Repair organization shall establish a documented in-house training program, and as a minimum shall consist of the following: 1] Applicable ASME Code & requirements of QC Manual 2] Responsibilities within the QC Manual 3] Knowledge of the technical aspects and mechanical skills for the applicable position held					
17.3	Describe the method of evaluating training effectiveness.					
17.4	Does repair organization establish minimum qualification requirements for personnel engaged in valve repair.					
17.5	Does repair organization document the evaluation and certification of an individual's qualification for the applicable position held.					
17.6	Annual review of qualified personnel should include: 1] Training records. 2] Documented evidence of work performed. 3] Monitoring job performance. 4] Review should be documented.					
17.7	Who is responsible for maintaining training and personnel qualification records.					
18.0	ANNUAL REVIEW OF QUALIFICATION S7.11.4					
18.1	Describe who performs the annual review of qualifications of repair personnel to verify proficiency as well as compliance with the certificate holder's quality system. Including audits at field sites. This review shall be documented and include: - Training records - Documented evidence of work performed and - When necessary, monitoring job performance					
19.0	TESTING 1.7.7.5(q) & Supp. 8					
19.1	The system shall include a means to control the development, addition, or modification of testing equipment to ensure the requirements of 4.5.1(b) are met					
20.0	FIELD REPAIRS 1.7.7.5(r) & Supp.S7.7					
20.1	Define scope of field repair.					
20.2	Describe responsibility for field repair, supervision of personnel, verifying checklist/traveler and maintaining all field repair records.					
20.3	Describe mobile repair facilities and testing capabilities.					
20.4	Who is responsible for issuing of repair documentation, i.e. - OEM repair manual & instructions					

No.	Section	Manual Reference	Yes	No	N/A	Comments
	<ul style="list-style-type: none"> - repair checklist/traveler - applicable ASME Code (PRV installation) - repair organization written procedures and instructions - QC Manual for field use - auxiliary lift device written procedure and instructions - pressure gauges & records 					
20.5	<p>Who is responsible for performing annual field audits? The audit shall include, but not be limited to, performance testing, in accordance with the NBIC . The audits shall be documented.</p>					
20.6	<p>All functions affecting the quality of the repaired valves must be supervised from the address of record on the issued certificate.</p>					
21	<p>EXHIBITS 1.7.7.5(p)</p>					
21.1	<p>Forms used in the quality system shall be included in the manual with a written description. Forms exhibited should be marked "SAMPLE" and <u>completed</u> in a manner typical of actual valve repair procedures.</p>					