

Quality Control Manual Submission Information

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1.0 Legislative Requirement

From the Boiler and Pressure Vessel Regulations:

“12(1) Subject to subsection (2) a person who intends to construct, install, alter or repair a boiler, pressure vessel, fitting or pressure piping system:

(a) Must develop and implement a written quality control program manual that is appropriate for the scope of the work to be carried out and meets the requirements of any applicable codes and standard;

b) Must not commence the construction, installation, alteration or repair unless the quality control program manual is registered pursuant to section 28.

(c) And must carry out the construction, installation, alteration or repair in accordance with the registered quality control program manual”

1.1 EXEMPTION TO LEGISLATIVE REQUIREMENT

From the Boiler and Pressure Vessel Regulations:

“12(2) Subsection (1) does not apply to a person who holds a valid contractor’s licence issued pursuant to The Gas Licensing Act with respect to the installation of low pressure boilers with thermal inputs that are within the limits of the authority conferred by the licence issued to that person pursuant to The Gas Licensing Act. “

2.0 Required Content of Quality Control Manual

2.1 TITLE PAGE

- The full company name is to be indicated
- The physical address of shop must be stated
- The type of work to be performed must be indicated (Repairs / Alterations / Construction / Testing of boilers, pressure vessels, boiler external piping, non-boiler external piping, fittings, PSV servicing)
- The reference codes must be listed. ASME Section I, II, IV, V, VIII, Div 1, IX; ASME B31.1, B31.3; B31.5; B31.9; CSA-B51; CSA-B52; Provincial Act and Registrations, NBIC
- The location of the work being performed must be defined (*shop and or field*)
- Must have a manual control number
- The manual must indicate a Person / Organization issued to
- The revision number of the manual is to be indicated
- The issue date of the manual is to be indicated

2.2 SCOPE / CONTRACT REVIEW

- The extent of the type of work to be performed as listed on the title page must be indicated (field and/or shop)(repair and/or alteration)
- Limitations to the work being performed are to be indicated
- Must indicate that any subcontracted work must also be performed under an approved QCP accepted by your company
- Limitations to the work being performed are to be indicated (maximum pressures for pneumatic / hydrostatic testing, types of valves, maximum set pressures of valves to be tested /set / serviced)(*PSV Program only*)
- It must be stated that the servicing of valves will not be performed unless the original valve manufacturer's specifications are available (*PSV Program Only*)

2.3 STATEMENT OF AUTHORITY

- The type of work listed on the title page must be shown here
- The authority and responsibility for implementing this Quality Control Program must be assigned.
- It must be indicated that Quality Control Personnel have the freedom to identify quality problems, recommend solutions, and verify solutions.
- It must be stated that this program has full management support.
- It must be indicated that final resolution of problems will be made by senior management without compromising any referenced Codes, Standards, *any provincial requirements*, or this manual.
- This page must be signed and dated by senior management (*name and job title printed*) of sufficient authority to effect change.

2.4 TABLE OF CONTENTS

- All sections of this manual are to be listed.
- The revision number of each section should also be indicated
- A place for the manual holder and authorized inspector to sign and date

2.5 ORGANIZATIONAL CHART

- The chart must show the relationship between all levels of the organization contained within the program
- The chart must show all positions referenced in this manual.
- The chart must reflect the current structure of the organization
- The Quality Control Manager must have sufficient authority within the structure

2.6 DEFINITIONS

- Optional
- Must define “repair”
- Must define “alteration”
- Any abbreviations must be defined
- Subcontractor must be defined.

2.7 MANUAL CONTROL

- Who is responsible for manual review, revisions and distribution?
- How often is the manual reviewed for code compliance? (must be completed within a year of code change)
- The approval procedure for manual revisions must be indicated with final acceptance by the Authorized Inspector prior to implementation
- A list of controlled manual holders must be referenced
- An acceptable method of identifying text revisions made within the manual must be included

2.8 DRAWINGS AND DESIGNS

- Who is responsible for reviewing customer's specifications for code compliance?
- Who is responsible for preparing, reviewing, approving and distributing design drawings and calculations?
- The information to be included on the drawings must be listed
- How are drawing or specification revisions controlled?
- Statement indicating who is responsible for submitting design drawings and calculations to the AIA for review and approval

- It must be stated that no work shall commence prior to design registration unless the following points are addressed:
 - The design package shall have been submitted to the Jurisdictional Authority prior to fabrication.
 - The authorized inspector shall have been notified for permission to begin construction prior to fabrication.
 - The design can not be commissioned into operating service until design registration is completed.
 - Any deficiencies identified through the registration process shall be corrected to the satisfaction of the authorized inspector.
 - The owner shall agree to all these conditions in writing
- A systems for cross-referencing drawings to projects must be addressed (usually job number indicated on drawings)
- Required information to be submitted for a pressure fitting also includes a completed and notarized Statutory Declaration. Please modify this section to address this document and include a sample of one within the list of exhibits

2.9 MATERIAL CONTROL

- Who is responsible for ordering material?
- What source of information is used when ordering material?
- What information or specifications will be required on the purchase order?
- It must be stated that material will be ordered to ASME or ASTM specifications
- Who approves material purchase orders?
- An approval procedure for material substitutions must be detailed as well as an example of a form that will be used to highlight the substitution and the reasons why for AI approval
- Who is responsible for material receiving?
- What elements are checked against the purchase order and/or MTR's?
- What happens to materials which do not meet the receiving inspection criteria?
- A system of identification of acceptable materials should be included.
- Who is responsible and what is the procedure for MTR verification to ASME Section II and sign-off? (ASME Section I & VIII construction only).
- An acceptable procedure for the transfer of markings on material prior to cutting must be included.
- A system for cross-referencing purchase orders to projects must be addressed

- Who is responsible for identifying the need for MTR's
- A material marking system must be included
- What source of information is used when ordering parts/materials? (original valve manufacturer's specifications / drawings)(*PSV Program Only*)
- A system of identification of acceptable materials should be included (tags / part numbers written on items, etc.)(*PSV Program Only*)
- How is traceability of parts from disassembled valves maintained? (*PSV Program Only*)

2.10 EXAMINATION AND INSPECTION PROGRAM

- Who is responsible for developing an inspection and testing plan listing all applicable examination and test points for the type of work being performed?
- It must be stated that this checklist is to be presented to the Authorized Inspector and Owner for the designation of hold points prior to the start of work.
- Who is responsible for signing and dating inspection points on the checklist as they are performed?
- Who is responsible for ensuring the Authorized Inspector and the Owner's Inspector (if applicable) are informed of upcoming hold points?
- Who is responsible for ensuring all required inspections are performed?
- What are the procedures (or exemptions) followed during the manufacturing of fittings?
- Who is responsible for preparing, certifying, and distributing data reports?
- Provisions for signing and dating the data report by the Authorized Inspector and the manufacturer's representative must be addressed (pressure piping data report, completion of construction report for piping, manufacturer's data reports for boilers & pressure vessels).
- The distribution of data reports must be addressed.
- A facsimile of a boiler/pressure vessel nameplate to be included in the list of exhibits and must contain all required information as per CSA-B51 and ASME Codes
- It must be stated that no setting or servicing will be performed on valves which:
 - Do not have an ASME Code Symbol Stamp or a CRN number
 - An acceptable nameplate in accordance with ASME and CSA-B51
- What happens to valves received which are not serviceable / settable in accordance with the requirements of your manual? (*PSV Program Only*)

- What are the qualifications of personnel servicing / testing / setting valves? (years experience, completion of a valve manufacturer's repair course, etc.) (*PSV Program Only*)
- Certification Record must be sent to the owner certifying the valve (*PSV Program Only*)

2.11 REPAIRS / ALTERATIONS

- It must be stated that all procedures of this manual are followed except as indicated in this section.
- Who is responsible for developing repair/alteration procedures and calculations?
- A description of information on the repair procedure is required (or reference to Repair/Alteration Report being used).
- Who is responsible for ensuring procedures, calculations and drawings (if applicable) are submitted to the Authorized Inspector for acceptance prior to the start of work?
- The alteration / re-rate nameplate described must also include MDMT and CRN as per CSA-B51 requirements.

2.12 WELDING

- It must be stated that all welding complies with the requirements of ASME Section IX and applicable codes
- Who is responsible for reviewing job specifications to ensure qualified procedures are available for the welds to be done?
- Who is responsible for developing and certifying welding procedure specifications and procedure qualification records?
- Who is responsible for ensuring welding procedure specifications and procedure qualification records are registered with AIA
- Who is responsible to ensure welders have a valid performance qualification card for the procedure being used?
- Who maintains a list of qualifications for each welder and updates it to ensure 6 month continuity?
- Who is responsible for the visual examination of all completed welds?
- A system for tracing each weld to the welder is required
- A system for the removal of tack welds or ensuring they were performed by qualified welders according to a registered procedure must be included.
- Who is responsible for verifying that consumables are ordered and received with correct SFA specification and AWS designation?

- Who is responsible for ensuring that consumables are stored per manufacturer's specification and ASME Section II?
- A control system for the issuance and disposal of low hydrogen electrodes must be included.
- If you wish to recondition electrodes which have been removed from heated storage for longer than four hours, you must include an acceptable reconditioning procedure in accordance with ASME Section II-C

2.13 NON-CONFORMANCE

- A non-conformance must be defined
- A system of identifying non-conforming items must be addressed
- A procedure for recording control, resolution and disposition of non-conformance must be addressed.
- Who is responsible for the resolution of non-conformances?
- A system of approvals is required for resolution of non-conformances
- Concurrence of Authorized Inspector is required for re-work or use-as-is non-conformances

2.14 NON-DESTRUCTIVE EXAMINATION

- It must be stated that all non-destructive examination shall be performed in compliance with ASME Section V and applicable codes.
- The identification of subcontracted or in-house NDE should be addressed.
- It must be stated that a Level II Examiner must perform all interpretations.
- It must be stated that all NDE personnel must be qualified in accordance to CGSB.
- Who is responsible for reviewing and accepting written NDE procedures and ensuring they were developed by a CGSB Level III Examiner?
- Who is responsible for reviewing and accepting NDE reports?
- Who is responsible for the verification of examiner's qualifications?
- A system of tracing NDE reports to welds must be addressed.
- Who is responsible to ensure that all NDE Practices and Procedures have been demonstrated and accepted by an AI

2.15 HEAT TREATMENT

- The identification of subcontracted or in-house heat treatment should be addressed.
- Who is responsible for the review of subcontractor's facilities and heat treatment procedures?
- Who is responsible for the review and acceptance of time-temperature charts?
- A system for the identification of items sent out-of-shop or off-site must be referenced
- Minimum required information: ramp up, soak time, soak temp, ramp down, thermo placements, WPS specifications

2.16 MEASUREMENT AND TEST EQUIPMENT

- A system of identification for all measurements and test equipment must be included
- A record system for calibration is required
- The calibration frequency of test equipment must be indicated
- Who is responsible for the visual check of measurement and test equipment before use?
- An acceptable method for the storage of measurement and test equipment must be included
- All master test gauges must be traceable to a National Standard (must include a copy of the current master test gauge certification)(*PSV Program Only*)

2.17 PRESSURE TESTS

- The Authorized Inspector must be notified prior to hydrostatic test being performed so that he may witness or waive witness
- The pressure range of gauges used must be addressed (1.5x to 4x test pressure)
- The use of pneumatic testing requires a written procedure to be submitted to the Authorized Inspector for acceptance prior to test being performed.
- Are pressure tests hydrostatic or pneumatic? (*PSV Program Only*)
- Method of indicating valve servicing date (*PSV Program Only*)

2.18 RECORD RETENTION

- The record retention procedures must be described.
- Records to be kept must be listed.

- All records referenced within this manual must be included within the list (specifications, drawings, calculations, purchase order, examination & inspection plan or travel sheet, data reports, heat treatment records, NDE reports, repair/alteration reports, non-conformance reports).
- The time of retention must be specified.
- Access granted to the Authorized Inspector for the review of these records must also be indicated.

2.19 AUTHORIZED INSPECTOR

- The Authorized Inspector must be defined
- The Authorized Inspector's liaison must be indicated.
- Free access for the Authorized Inspector to all shop and field locations where work is being performed must be indicated
- A controlled copy of the Quality Control Manual must be made available to the Authorized Inspector during his on-site inspections

2.20 AUTHORIZED CONTRACTOR

- Minimum required qualifications of the Welding Examiner must be addressed
- Welding Examiner must be defined
- A procedure to qualify welders for recertification must be addressed
 - Must show a frequency for retesting failures
 - Must indicate the number of test failures before re-qualification is required
- The procedure for each test type must be included
- A method of tracing the WPS(s) to the test must be shown
- Must be stated that all WPS(s) used will be registered with the AIA
- Verify WPS to test to be completed
- Material control for welding consumables and test material must be addressed
- Method of tracing the test coupon to the welder
- The types of weld NDE must be indicated
- Any NDE performed will be in accordance to the QCM and ASME Sec. IX
- A WPQ must be shown in the exhibits
- Must state that all tickets issued from this program will be restricted to the company only
- Indicate that no production welds will be used to qualify for the test

- Document control must be addressed
- Retention of the test coupons must be addressed

2.21 GENERAL

- All pages must have a revision number and issue date.
- A consistent ID system should be used.
- Do not use names of personal included in the program
- Changes to the submitted manual may be handled in one of two ways:
 - 1) Changes may be handled as revisions performed in accordance with the procedures outlined in the Manual Control or Manual Maintenance section of your program. Note that the cover page, table of contents/revision summary, and statement of authority must also be revised accordingly.
 - 2) Changes may be handled by a re-issuance of the manual (issue date changed on all manual pages). If this option is chosen please include an additional uncontrolled copy of the revised manual with changes highlighted.
- All forms referenced within the manual should be included.
- Please refer to Quality Control forms for updated provincial forms for inclusion or replacement in your exhibits:
<https://www.tsask.ca/boilers-pressure-vessels/quality-control-programs/data-reporting-forms/>
- Recommended names (generic naming):
 - *Jurisdictional Authority* – in place of provincial names or organizations (ABSA etc.)
 - *Act & Regulations* – in place of provincial naming (Safety Codes Act etc.)
 - *Authorized Inspector* – in place of any provincial name (SCO etc.)
 - *Welder's Performance Qualification* – in place of any provincial certificate (PQC etc.)

3.0 Quality Control Program Audits

To register a Quality Control Program in the Province of Saskatchewan a successful completion of the mandatory audit is required

For first time registration - the purpose of the audit is to point out weakness in applicants' ability to comply with their manuals

For renewal of registration - the purpose of the audit is to assess past conformance with the QC manual

All nonconformance revealed during the audit shall be disposed of before registration can proceed.

3.1 ITEMS REVIEWED DURING AN AUDIT

1. Does the scope of work on the title page cover all aspects of work the QCM / QMS holder is capable of completing?
2. Is there a valid Contractor's Licence?
3. Have all persons listed on the organizational chart and involved with the QCM / QMS program read the manual?
 - a. Does the organizational chart shown in the manual reflect the current structure of the organization?
 - b. Are all the positions shown on the organizational chart accounted for?
4. Does the company have current copies of all the codes listed within the scope of work?
5. Has the responsible person reviewed all drawing, calculations and procedures to the current code and addenda?
6. Do the Data Reports meet the code requirements and are they filed in the proper manner?
7. Is the company using an approved and registered WPS with supporting PQR?
8. Traveler sheet: Is it signed off by an AI/QCI/QCM for hold points and routine processes?
9. Do the purchasing documents meet the requirements of the manual?
 - a. Has all materials been received and verified to a purchase order or specification?
 - b. Is all code material stored or marked in accordance with the manual?
 - c. Has material tractability been lost?
10. Was the MTR checked by QC manager for conformance with ASME II in terms of chemical and mechanical properties of received materials?

11. Have they demonstrated the NDE Practices or Procedures to the Authorized Inspector?
 - a. Is the NDE equipment calibrated? And is the report traceable back to the item?
 - b. Is the NDE equipment stored in a safe and secure location to ensure it is not damaged?
12. Has the subcontracted NDE practices and Procedures been reviewed and accepted?
13. How are non-conformities resolved? Are they in sequence, and who is responsible for providing the NCR reports to the A.I.?
 - a. Is there a Log book for the NRC?
14. Do all welders involved in the fabrication have a welder symbol which is traceable to the design drawing or weld map?
 - a. Are the welders able to find or reference a WPS for the work being performed? Are they qualified for the work?
15. Is the welders log up to date and do they have current copies of each welder's certificates or WQR's?
16. Who reviews the heat treatment procedure and approves the chart used in the Post Weld Heat Treatment?
17. Has the Authorized Contractor correctly filled out the required forms for testing welders? Has he verified proof for retesting?
18. Is the rod oven calibrated? Who puts rods into the oven, do they have MTR's for the rods supplied? How are rods provided to the welders and how do they prove they have not exceeded their time limit?
19. Do they have a copy of the nameplate for repair/alteration or for new construction?
 - a. Does the name plate meet the code requirements?
20. Retention Records: Are all the associated records with the job file retained and stored as stated in the manual?

4.0 Procedure for Submitting a Quality Control Program for Registration with Technical Safety Authority of Saskatchewan:

1. Ensure the contact Information is complete and accurate for your organization.
2. Email 1 copy of your manual to qualityprograms@tsask.ca.

Please click the Online Payment Form to be directed to the TSASK webpage at www.tsask.ca.