



# Class PW

## Contractor Licence Guideline

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## 1. Scope of guideline

This guideline has been created to assist contractors in developing, updating or revising quality control programs applicable to a class PW contractor licence under the Power Engineers, Boiler, Pressure Vessel, and Refrigeration Safety Regulation (BPVR Regulation). This guideline is intended to be used in conjunction with Contractor Licensing Directive: **D-BP 2019-01**.

## 2. Application for a class PW contractor licence

To apply for a class PW contractor licence the applicant must submit a completed application form (FRM-811) and a current copy of their documented quality control program to Technical Safety BC. The application form, applicable fees, and other information are available on our [website](#).

## 3. Quality control program

A quality control program is required to be submitted with the applicable application form as part of the application process for a class PW contractor licence.

Quality control programs must detail the organization's processes, procedures, and controls for maintaining compliance with the requirements applicable to the scope of work listed in their manual. Quality control programs must take into consideration all applicable regulatory requirements, including, but not limited to, the *Safety Standards Act* (the Act), associated regulations, including adopted codes, directives, and safety orders.

The necessary scope and detail of the program will depend on the complexity of the work performed and on the size and complexity of the organization that is performing the regulated work. Regulated work may be performed in a fixed location e.g., a shop or in the field, provided that the controls are described in the quality control program.

## 4. Quality control manual guideline

Appendices A and B provide guidance for an effective quality control program. They are not intended to provide all of the information that may need to be included in a quality control program, but rather to serve as a guideline. Depending on the scope of the regulated work to be performed and the specific code requirements that are applicable, additional information, beyond the contents of this guideline may be required.

## 5. Review and acceptance of the applicants quality control program

Quality control programs will be reviewed for acceptance by Technical Safety BC prior to issuance of a licence. Additionally in accordance with adopted code CSA B51, the applicant may be asked to demonstrate to Technical Safety BC that they have adequate equipment and facilities to perform the scope of work specified in their quality control program and to demonstrate that they have a thorough working knowledge of their quality control program.

Technical Safety BC will review the demonstration project, assess the application of the quality control program requirements and, if acceptable, will issue the class PW contractor licence.

The applicant will be notified of any deficiency identified by Technical Safety BC in the review of the quality control program and/or its application through the demonstration project. The applicant will then be responsible to take any corrective action required to resolve the deficiency prior to issuance of the licence.

## **6. Maintaining the quality control program**

Quality control programs must remain current and up-to-date to ensure that they accurately reflect the requirements contained in the Act, associated regulations (including adopted codes), directives, and safety orders as amended from time to time.

A licensee may change, update, or revise their quality control program at any time provided that the changes, updates, or revisions are submitted to Technical Safety BC along with a copy of the contractor licence application form (FRM-811) for acceptance prior to implementation. Revisions to the program may be submitted to Technical Safety BC for acceptance as required, and as part of the renewal process.

Prior to each licence renewal, quality control programs must be reviewed by the licensee for any changes which may impact the program, and any required revisions to the program must be submitted to Technical Safety BC for acceptance as part of the renewal process.

## **7. Audits of the licensed contractor quality control program**

Quality control programs may be subject to inspection, including investigation, monitoring and audit, by Technical Safety BC at any time. Inspection of licensee quality control programs and associated regulated activities are performed to confirm that a contractor is meeting the expectations under their licence including, but not limited to, applying all aspects of their quality control program.

## Appendix A – Quality control manual guideline

The following provides guidance for an effective quality control manual. It is not intended to provide all of the information that may need to be included in a quality control program, but rather to serve as a guideline. Depending on the complexity of the regulated work to be performed and the specific code requirements that are applicable, additional information beyond the contents of this guideline may be required.

### 1. Cover page

The cover page should contain the organization name, logo, physical address, and the class of contractor's licence. It should also contain other information including, date of manual issuance, edition level, revision level, controlled/uncontrolled copy, etc.

### 2. Scope

The manual should reference the class of contractor licence and must specify a detailed scope of work identifying the regulated work which will be performed by the organization. This scope of work will be used during the review of the quality control program to determine the necessary complexity of the program based on the scope of work to be performed.

It should indicate by listing all applicable adopted code sections, and standards that the regulated work is performed as per the applied scope of work, and the retention of up-to-date copies of the applicable codes adopted by the BPVR Regulation.

It should have controls to ensure regulated work that is outside the scope of the contractor licence, will not be performed, and any contractor licence terms and conditions will be complied with.

The manual should also indicate where the regulated work is taking place and provide provisions for implementation of the quality control program either in a shop or field.

The manual should indicate which activities will be performed solely by the licensee organization and which activities will be subcontracted to competent third parties, example; design, drawings, pressure welding, non-destructive examination, or heat treatment.

Included below is an example scope of work applicable to a class PW contractor licence for reference.

| Licence class | Example: Scope of work   |
|---------------|--|
| PW            | <ul style="list-style-type: none"> <li>performing pressure welding on regulated items subcontracted by; or under an installation, repair, and alteration permit obtained by a class A, Au, Ap, B, and REF contractor's licence holder, including pressure piping, refrigeration piping, and boiler external piping.</li> </ul> |

### 3. Statement of authority and responsibility

The manual should indicate the authority and responsibilities of those in charge of the quality control program and should provide them with the freedom to identify non-compliances and take corrective action including stopping work, if needed by the full support of management. The statement of authority should be signed by the highest authority on the organization chart.

### 4. Table of contents

The table of contents should reflect the structure of the manual by listing the sections and the exhibits, including revision level.

It should also have provisions for approval by the contractor and acceptance by a Technical Safety BC safety officer by signing and dating or other means. A table for revision history of the manual should be included.

For the purpose of clarity, define all abbreviated titles of personnel, control documents, organizations, codes, standards, Acts and Regulations used within the manual, as well as any term used frequently within the document.

## **5. Manual control**

The manual should have provisions for preparation, revision, distribution, and implementation of the quality control manual. It should indicate the persons responsible for the manual control, including submittal of manual revisions to Technical Safety BC. It should also describe how the licensed contractor will review and update the manual to ensure that knowledge of the Act and Regulations, directives, safety orders, and adopted codes and standards are maintained current.

## **6. Organization chart**

The manual should have a chart showing the reporting relationships and lines of communication between management, engineering, purchasing, manufacturing, production, field work, inspection and quality control, as applicable, and it should reflect the actual organization. It should also include a brief explanation of duties and responsibilities of key personnel whose performance affects the quality control program.

## **7. Drawings, design, calculations, and specifications**

The manual should indicate a statement that *“Due to limitations on the scope of the class “PW” contractor licence, design function is not permitted”*.

## **8. Material control**

The manual should include a system of ordering, receiving and controlling welding consumable material. This is to ensure that the correct welding consumable material is procured, inspected after receipt, properly stored, and released for production. There should be controls defined to maintain material traceability until project completion. It should have provisions that the received materials have the required material certifications, material test reports, or certificates of conformity which satisfy the applicable code requirements.

It should include a material control system to ensure that only the intended welding consumable material is used when performing regulated work under the scope of the licence, and to the specifications of the applicable codes and standards.

The manual should also include provisions for handling welding consumable materials that are not in compliance with the registered design and/or the applicable code.

## **9. Welding and brazing control**

The manual should include provisions for indicating that welding and brazing conform to the requirements in the Act, associated regulations (including adopted codes), directives, and safety orders.

It should have provisions to ensure that only individuals that hold a pressure welding certificate of qualification are assigned to perform pressure welding on a regulated product, and the extent of their work is limited to the pressure welder certificate class that they hold; and should have provisions to maintain their certificate and other applicable qualifications.

It should have measures for preparation, qualification, and registration of welding procedure specifications and brazing procedure specifications with Technical Safety BC.

It should have measures to control welding in the field when applicable and has provisions for welding traceability as required by the applicable codes, including storage and distribution of welding consumables.

## **10. Non-destructive examination**

The manual should have controls and measures to ensure performed or subcontracted non-destructive examination is as per the requirements of applicable codes and completed by qualified personnel.

## **11. Heat treatment**

The quality control manual should have provisions for control of the heat treatment performed or subcontracted by the organization and should have measures in place to ensure that the heat treatments are in compliance with the applicable codes and standards, and records such as heat treatment chart and thermocouple attachment schematic are available on file.

## **12. Examination and inspection program**

The manual should have provisions to ensure the inspections and tests as per the requirements of the Act, BPVR Regulation, and applicable codes are complied with and are recorded accordingly. It should also provide procedures for the types of inspections and tests performed, as well as indicating the person(s) responsible for the control of the inspection and test plan. It should also include details and procedures on how pressure testing (hydro and/or pneumatic) will be carried out safely.

## **13. Calibration**

The quality control manual should have provisions for calibration of measuring and test equipment including method of calibrations, record keeping, frequency, and any other requirements as per the Act, BPVR Regulation, and applicable codes.

## **14. Correction of non-compliances**

There should be a system for correcting non-compliance and any condition which does not comply with the requirements of the Act, associated regulations, design, specifications, and applicable codes. Non-compliances must be corrected or eliminated before the completed component can be considered to be compliant.

The manual should also have provisions to document the non-compliances and their disposition; and to inform a Technical Safety BC safety officer of non-compliant conditions.

## **15. Record retention**

The manual should have measure to ensure that the records are maintained as required by the Act, BPVR Regulation, and applicable codes.

## **16. Exhibits**

When forms are referenced within the manual, a sample should be provided with company name/logo in this section and the titles of the forms referenced in the text of the manual should be consistent with the titles of those forms shown as exhibits.

Note: Technical Safety BC forms that may be referenced within the manual, are not required to be included in exhibits.

## Appendix B - Suggested quality control manual section elements

The following table and contents are intended to expand on the guideline information provided in Appendix A, while also assisting contractors with the development and review of their quality control manual as needed. The information listed in the table may or may not be applicable as determined by the contractor's scope of work. Depending on the complexity of the regulated work to be performed and the specific code requirements, additional information beyond the contents of this table may be required. The use of the table is not mandatory, but may be submitted with the quality control manual to assist with the review.

[Technical Safety BC website - BPVR Contractor Licences](#)  
[Directive: BPVR Contractor Licensing Requirements \(D-BP 2019-01\)](#)

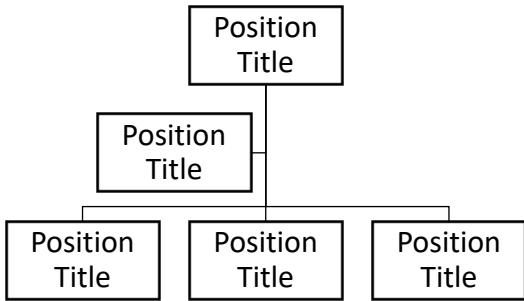
Organization Name: \_\_\_\_\_

Licence Applied for and Scope: \_\_\_\_\_

| Section:             | Suggested Quality Control Elements, per section:  | Applicable?<br>(Yes, No, N/A) | Manual<br>Reference: |
|----------------------|---|-------------------------------|----------------------|
| <b>1. Cover Page</b> | 1.1 - Organization Name, Logo (if applicable), physical address, class of contractor licence and licence number issued by Technical Safety BC   |                               |                      |
|                      | 1.2 - Date of manual, edition number, revision number, controlled/uncontrolled copy   |                               |                      |
|                      | 1.3 - Scope of licence preview  |                               |                      |
| <b>2. Scope</b>      | 2.1 - Contractor licence class referenced   |                               |                      |
|                      | 2.2 - Detailed scope of regulated work to be performed by organization.<br><br>(See permitted scope for the licence applied for at:<br><a href="#">Technical Safety BC Website - BPVR Contractor Licences</a> )   |                               |                      |
|                      | 2.3 - Applicable code sections, standards used for the regulated work referenced/listed<br><br>(per Section 4 of Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation, Adopted Codes and Standards are listed under the Schedule) |                               |                      |
|                      | 2.4 - Provisions to ensure regulated work outside the scope of contractor licence or capability of contractor will not be performed   |                               |                      |
|                      | 2.5 - Identification of activities that will or may be subcontracted  |                               |                      |
|                      | 2.6 – Identification of where regulated work is to take place; shop and/or field  |                               |                      |



| Section:                                     | Suggested Quality Control Elements, per section:   | Applicable?<br>(Yes, No, N/A) | Manual<br>Reference: |
|--|--|-------------------------------|----------------------|
| 3. Statement of Authority and Responsibility | 3.1 - A statement indicating the authority and responsibility of those in charge of the quality control program to comply with the <i>Safety Standards Act</i> and applicable Regulations  |                               |                      |
|  | 3.2 - An appointment of a company representative or position within the company with sufficient and well-defined responsibility, authority, and freedom to identify non-compliances and to take corrective action, including stopping work if needed |                               |                      |
|  | 3.3 – An appointment of a company representative or position within the company responsible for the development, understanding, review, and acceptance of the quality control program  |                               |                      |
|  | 3.4 - Full support from management of those responsible for implementing the quality control program   |                               |                      |
|  | 3.5 - Statement of authority and responsibility signed by the highest authority on the organization chart  |                               |                      |
| 4. Table of Contents                         | 4.1 - A table of contents listing the sections and exhibits of the manual, as well as the pages numbers and revision levels for each section and exhibit   |                               |                      |
|  | 4.2 - A Revision History table or other means to explain any changes made to the quality control (QC) manual   |                               |                      |
|  | 4.3 - Provision for contractor approval of quality control manual; signature and date  |                               |                      |
|  | 4.4 - Provision for Technical Safety BC acceptance; signature and date   |                               |                      |
|  | 4.5 - A glossary of terms defining all abbreviations used in the manual, including titles of personnel, control documents, organizations, codes, standards, Acts and Regulations, as well as any term needing definition                             |                               |                      |
| 5. Manual Control                            | 5.1 - Indication of who is responsible for the manual control, including submission of revisions to Technical Safety BC using <a href="#">Contractor Licence Application Form (FRM-811)</a> as required  |                               |                      |
|  | 5.2 - Controls describing how the manual is prepared, revised, distributed, and implemented  |                               |                      |
|  | 5.3 - Description of how the manual is to be revised (by page, paragraph, section?), how those revisions are highlighted, and how controlled copies are kept current   |                               |                      |
|  | 5.4 - Provision for submittal of manual revisions to Technical Safety BC for acceptance prior to implementation  |                               |                      |

| Section:                     | Suggested Quality Control Elements, per section:  | Applicable?<br>(Yes, No, N/A) | Manual<br>Reference: |
|------------------------------|---|-------------------------------|----------------------|
|                              | 5.5 - When and how the manual will be reviewed and kept up-to-date to ensure the manual accurately reflects the requirements of the Act and Regulations, adopted codes, standards, safety orders, directives, and information bulletins.<br><br><b>Note:</b> Minimum requirement per Safety Standards Act, Section 24(3)9a) and <a href="#">Directive D-BP 2019-01</a> , is annually prior to licence renewal   |                               |                      |
|                              | 5.6 - Statement that use of uncontrolled copies should be for informational purposes only   |                               |                      |
|                              | 5.7 - Exhibit Suggestion: A list of those who have been distributed a controlled copy of the QC manual<br><br><b>Note:</b> Controlled copies can be digital or hard copy. Technical Safety BC requests a digital copy to be stored under the licence file   |                               |                      |
| <b>6. Organization Chart</b> | 6.1 - A chart showing the reporting relationships and lines of communication between management, engineering, purchasing, manufacturing, production, field work, inspection and quality control, as applicable. This should also include communication with subcontractors, as applicable<br><br><b>Example of Organization Chart:</b><br><br><br><br><b>Note:</b> Personnel names are not required to be included. If included, changes may require revisions |                               |                      |
|                              | 6.2 - A brief explanation of duties and responsibilities of key personnel whose performance affects the quality control program   |                               |                      |
|                              | 6.3 - A note, if applicable, that states personnel may hold more than one title   |                               |                      |

| Section:   | Suggested Quality Control Elements, per section:   | Applicable?<br>(Yes, No, N/A) | Manual<br>Reference: |
|--|--|-------------------------------|----------------------|
| <b>7. Drawings, Design, Calculations, and Specifications</b> | <p>7.1 Provisions to identify the minimum information necessary to comply with the code of construction in the form of drawings, specifications or other means</p> <p>(Applicable to construction of piping, all alterations, and repairs exceeding definitions from information bulletin <a href="#">IB-BP 2020-02</a>)</p>                                       |                               |                      |
|  | <p>7.2 - Procedures which assure that the latest applicable drawings, design calculations, specifications and instructions, are used for construction, assembly, examination, inspection and testing</p> <p>(Applicable to construction of piping, all alterations, and repairs exceeding definitions from information bulletin <a href="#">IB-BP 2020-02</a>)</p> |                               |                      |
|  | <p>7.3 - Mechanism to review and approve subcontracted (third party) design and drawing documents prior to release to production</p> <p>(Applicable to construction of piping, all alterations, and repairs exceeding definitions from information bulletin <a href="#">IB-BP 2020-02</a>)</p>   |                               |                      |
|  | <p>7.4 - Indication of who is responsible for preparing, reviewing/approving the design and drawings for regulated work</p> <p>(Applicable to construction of piping, all alterations, and repairs exceeding definitions from information bulletin <a href="#">IB-BP 2020-02</a>)</p>  |                               |                      |
|  | <p>7.5 – Indication of who is responsible to specify materials to be used for regulated work</p>   |                               |                      |
|  | <p>7.6 - Description of controls to be applied if design drawings are revised and how to ensure obsolete drawings are withdrawn from shop/field location and replaced with revised design drawings</p> <p>(Applicable to construction of piping, all alterations, and repairs exceeding definitions from information bulletin <a href="#">IB-BP 2020-02</a>)</p>   |                               |                      |

| <b>Section:</b>            | <b>Suggested Quality Control Elements, per section:</b>   | <b>Applicable?</b><br>(Yes, No, N/A) | <b>Manual Reference:</b> |
|----------------------------|---|--------------------------------------|--------------------------|
|                            | <p>7.7 - Provisions to ensure that regulated work will not be performed, unless the original design and/or the altered design of regulated equipment has been registered with Technical Safety BC</p> <p>(per Section 82 and Section 84 of the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation, as applicable)</p> |                                      |                          |
|                            | <p>7.8 - Does the manual include a provision for the completion and submittal of designs for registration with Technical Safety BC, when applicable</p> <p>(Applicable to construction of piping (&gt;3NPS) &amp; all alterations)</p> <p>(See the <a href="#">Design Registration</a> webpage for more information)</p>                        |                                      |                          |
|                            | <p>7.9 - Field controls described for regulated work that will be performed in the field, when applicable</p>   |                                      |                          |
| <b>8. Material Control</b> | <p>8.1 - A system of ordering, receiving, and controlling material. This is to ensure that the correct material (including welding consumables) is procured, inspected after receipt, properly stored, and released for production</p>  |                                      |                          |
|                            | <p>8.2 - Material control system to ensure that only the intended material is used when performing regulated work under the scope of the licence, and to the specifications of the applicable codes and standards</p>   |                                      |                          |
|                            | <p>8.3 - Provisions that the received materials have the required material certifications, material test reports, or certificates of conformity which satisfy the applicable code requirements</p>  |                                      |                          |
|                            | <p>8.4 - Provision for the verification and documentation of materials and their material certifications, material test reports, or certificates of conformity</p>  |                                      |                          |
|                            | <p>8.5 - Measures established for the proper identification, handling, and storage of materials</p>   |                                      |                          |
|                            | <p>8.6 - Controls defined to maintain material traceability until project completion, including heat number, colour code application, tabulation, as-built drawings, etc. Identification of the system to be utilized</p>   |                                      |                          |
|                            | <p>8.7 - Provisions for the transfer of material identifications when material is to be cut into two or more pieces</p>   |                                      |                          |
|                            | <p>8.8 - Provisions for handling materials that are not in compliance with the registered design and/or the applicable code</p>   |                                      |                          |
|                            | <p>8.9 - Provision for material certifications to be made available to the boiler safety officer upon request</p>   |                                      |                          |

| Section:                          | Suggested Quality Control Elements, per section:   | Applicable?<br>(Yes, No, N/A) | Manual<br>Reference: |
|-----------------------------------|--|-------------------------------|----------------------|
|                                   | 8.10 - Field controls described for regulated work that will be performed in the field, when applicable  |                               |                      |
|                                   | 8.11 - Exhibit Suggestion: Material receiving report   |                               |                      |
| <b>9. Repairs and Alterations</b> | 9.1 - Indication of the scope and type of repair(s) and/or alteration(s) the organization is capable of and intends to carry out including the identification of the applicable codes  |                               |                      |
|                                   | 9.2 - Provision for submitting repair/alteration procedure & inspection and testing plan to local boiler safety officer for review, setting inspection points and approval. As well as informing when work is going to start, prior to performing work<br>(per Section 86 and 61(1) of the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation)   |                               |                      |
|                                   | 9.3 - Provision for the strict use of original code of construction as per the Manufacturer's Data Report and National Board Inspection Code (Part 3) for repairs/alterations.   |                               |                      |
|                                   | 9.4 - If applicable, alterations to an original design must be submitted for registration with Technical Safety BC<br><br>(per Section 82 and Section 87 of the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation)<br><br>(See the <a href="#">Design Registration</a> webpage for more information)  |                               |                      |
|                                   | 9.5 - Provision for informing local boiler safety officer at hold points and when work is completed so they can make the necessary inspections   |                               |                      |
|                                   | 9.6 - A repair package (including repair/alteration report forms with all supporting documentation including construction drawings) and Manufacturer's Data Reports (if applicable) to be presented to local boiler safety officer upon completion of work<br><br><b>Repair and Alteration Report Forms:</b> <ul style="list-style-type: none"> <li>• <a href="#">Pressure Piping Repair and Alteration Report Form 1553</a></li> <li>• <a href="#">Boiler and Pressure Vessels Repair and Alteration Report Form 1060</a></li> </ul><br>(per Section 61(2)(b)(ii) of the Power Engineers, Boiler, Pressure Vessel, and Refrigeration Safety Regulation) |                               |                      |

| Section:                | Suggested Quality Control Elements, per section:   | Applicable?<br>(Yes, No, N/A) | Manual<br>Reference: |
|-------------------------|--|-------------------------------|----------------------|
| <b>10. Installation</b> | 10.1 - If needed, specifics on the type of regulated equipment to be <b>installed</b> by the organization<br><br>Examples: High pressure steam boilers, low pressure steam boilers, thermal fluid heaters, water heaters, pressure vessels, pressure piping, etc.  |                               |                      |
|                         | 10.2 - Provisions for proper assembly and installation methods including drawings, instructions, or specifications to comply with installation code(s)   |                               |                      |
|                         | 10.3 - Provisions for obtaining applicable permit(s) when required prior to installation<br><br>(per Section 62(1), 61(1), and Section 63 of the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation)   |                               |                      |
|                         | 10.4 - Provision that no equipment to be installed unless the original or altered design has been registered with Technical Safety BC; Canadian Registration Number (CRN) or Piping Registration Number has been issued<br><br>(per Section 82 and Section 87 of the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation)       |                               |                      |
|                         | 10.5 - Provision for notifying local boiler safety officer upon completion of work, and having available any applicable documentation related to the installation and equipment, such as Manufacturer's Data Report(s)<br><br>(per Section 61(2)(a) and 61(2)(b)(i) of the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation) |                               |                      |
|                         | 10.6 - Provisions using applicable installation codes and manufacturer's recommendations for proper structural supporting, assuring clearance, access requirements, and measures to ensure requirements for expansion, piping, valves, controls with over-pressure protection<br><br>(CSA B51 and National Board Inspection Code)                        |                               |                      |

| Section:                               | Suggested Quality Control Elements, per section:  | Applicable?<br>(Yes, No, N/A) | Manual<br>Reference: |
|--|---|-------------------------------|----------------------|
| <b>11. Welding and Brazing Control</b> | 11.1 - Indication of who is responsible for: <ul style="list-style-type: none"> <li>• Preparing, revising, and submitting welding/brazing procedure specifications to Technical Safety BC</li> <li>• Conducting procedure qualification tests under the direct supervision of the licensee and who records the results on the procedure qualification record (PQR)</li> <li>• Certifying procedure and performance qualification records</li> <li>• Selecting the welding procedure specification(s) (WPS)/brazing procedure specification(s) (BPS) to be used for regulated work</li> <li>• Assigning and ensuring that each welder is qualified for each welding process to be utilized</li> <li>• Instructing, supervising, and assigning welders or brazers for regulated work</li> </ul> |                               |                      |
|  | 11.2 - Measures for preparation, qualification, and registration of welding and/or brazing procedure specifications and with Technical Safety BC<br><br>(CSA B51 and ASME Section IX)<br><br>(per Section 78(2) of the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation)<br><br>(See the <a href="#">Design Registration</a> webpage for more information)  |                               |                      |
|  | 11.3 - Identification of any references or resources for the development and preparation of welding/brazing procedure specifications (WPS/BPS), and procedure qualification records (PQR)<br><br>(ASME IX Suggested Formats:<br>WPS/BPS - QW-482/QB-482<br>PQR - QW-483, QB-483)  |                               |                      |
|  | 11.4 - Controls for the revision of welding procedure specifications (WPS)  |                               |                      |
|  | 11.5 - Provisions to ensure that only individuals that hold a pressure welder certificate of qualification are assigned to perform pressure welding on a regulated product<br><br><u>Technical Safety BC Website Reference, Pressure Welder Certification:</u><br><a href="https://www.technicalsaftybc.ca/certification/pressure-welder">https://www.technicalsaftybc.ca/certification/pressure-welder</a><br><br><u>(Per Section 5(3) and (4) of the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation)</u>  |                               |                      |

| Section: | Suggested Quality Control Elements, per section:   | Applicable?<br>(Yes, No, N/A) | Manual<br>Reference: |
|----------|--|-------------------------------|----------------------|
|          | 11.6 - The extent of their work is limited to the pressure welder certificate class that they hold<br><br><b>Note:</b> Class “A”, Class “IT”, and Class “R” – only needs to specified if “IT” and/or “R” will be utilized by the organization                |                               |                      |
|          | 11.7 - Provisions for a pressure welder’s certificate of qualification and other applicable qualifications to be maintained/renewed as required  |                               |                      |
|          | 11.8 - Provisions for the continuity of welder and brazer qualifications for each welding and brazing process to used maintained<br><br>(Performance qualifications may need to be requalified to if process not used in less than six months)               |                               |                      |
|          | 11.9 - Provision to requalify a welder if there is a change in one or more of the essential variables listed for each welding process  |                               |                      |
|          | 11.10 - Provisions to ensure that each welder and welding operator is assigned an identifying number, letter, or symbol which shall be used to identify the work of that welder or welding operator  |                               |                      |
|          | 11.11 - Provisions for welding traceability as required by the applicable codes (weld maps, ID stamping, etc.)   |                               |                      |
|          | 11.12 - If applicable, reference to the use of ASME form, QW-484A and B welding operator performance qualification (WOPQ), for the qualification of welding operators  |                               |                      |
|          | 11.13 – If applicable, reference to the use of ASME form, QB-484 brazer performance qualification (BPQ), for the qualification of brazers  |                               |                      |
|          | 11.14 – Measures established for the removal and/or inspection of tack welds not completed by an adequately qualified welder   |                               |                      |
|          | 11.15 - Provisions to ensure that, if subcontracted, welding completed on regulated equipment is done by a company holding a licence issued by Technical Safety BC that includes pressure welding within the scope of their accepted quality control program |                               |                      |
|          | 11.16 - Measures established for the storage and distribution of welding consumables   |                               |                      |



| Section:                                     | Suggested Quality Control Elements, per section:   | Applicable?<br>(Yes, No, N/A) | Manual<br>Reference: |
|--|--|-------------------------------|----------------------|
|  | 11.17 - Provisions for covered welding electrodes, such as low hydrogen and stainless steel, to be stored in accordance with the welding material manufacturer's recommendations, or Part C of Section II of the ASME Code |                               |                      |
|  | 11.18 - Measures to control welding in the field when applicable   |                               |                      |
|  | 11.19 - Exhibit Suggestion: Sample of welder continuity log  |                               |                      |
| <b>12. Non-destructive Examination (NDE)</b> | 12.1 - Controls and measures to ensure performed or subcontracted non-destructive examination is as per the requirements of applicable codes and completed by qualified personnel  |                               |                      |
|  | 12.2 – If work to be subcontracted, identification of what subcontractor items are to be verified by licence holder, retained for job file, presented to boiler safety officer   |                               |                      |
|  | 12.3 - Indication of who is responsible for determining if non-destructive examination is required per the applicable code   |                               |                      |
|  | 12.4 - Indication of whether non-destructive examination is performed in house, subcontracted, or both   |                               |                      |
|  | 12.5 - Provision for identifying the appropriate non-destructive examination procedures that are applicable to the scope of code work  |                               |                      |
|  | 12.6 - Provision to ensure or verify that non-destructive examination personnel are qualified in accordance with CAN/CGSB-48.9712 and/or as per the applicable code  |                               |                      |
|  | 12.7 - Provision to ensure non-destructive examination examinations performed in accordance with written procedures when required by the applicable code   |                               |                      |
|  | 12.8 - Provision for non-destructive examination documentation and records to be prepared as specified by the applicable code  |                               |                      |
|  | 12.9 - Exhibit Suggestion: Sample of non-destructive examination Level III Letter of Appointment   |                               |                      |
| <b>13. Heat Treatment</b>                    | 13.1 - Provisions for control of the heat treatment performed or subcontracted by the organization   |                               |                      |
|  | 13.2 - If work to be subcontracted, identification of what subcontractor items are to be verified by licence holder, retained for job file, presented to boiler safety officer   |                               |                      |
|  | 13.3 - Written procedures and/or instructions to specify the heat treatment requirements in accordance with the applicable code(s)   |                               |                      |

| Section:                                      | Suggested Quality Control Elements, per section:  | Applicable?<br>(Yes, No, N/A) | Manual<br>Reference: |
|---|---|-------------------------------|----------------------|
|   | 13.4 - Measures in place to ensure that the heat treatment work, charts, and records are in compliance with the applicable codes and standards  |                               |                      |
|   | 13.5 - Provision to ensure records such as heat treatment chart and thermocouple attachment schematic are available on file   |                               |                      |
|   | 13.6 - Provisions to identify if heat treatment equipment requires calibration, and if so, what controls are in place to assure compliance  |                               |                      |
|   | 13.7 - Suggested Exhibit: Heat Treatment Instructions Form  |                               |                      |
| <b>14. Examination and Inspection Program</b> | 14.1 - Provisions to ensure the inspections and tests as per the requirements of the Act, BPVR Regulation, and applicable codes are complied with and are recorded accordingly  |                               |                      |
|   | 14.2 - Procedures for the types of inspections and tests performed  |                               |                      |
|   | 14.3 - Indication of who is responsible for: <ul style="list-style-type: none"> <li>• The control of the inspection and test plan</li> <li>• Notification to the boiler safety officer when required</li> <li>• Specifying the pressure test requirements</li> <li>• Monitoring pressure tests, performing examinations, and documenting results</li> </ul> |                               |                      |
|   | 14.4 - Provision for the presentation of inspection and test plan, if applicable, to the boiler safety officer, prior to start of work in order to allow for review and the designation of inspection/hold points   |                               |                      |
|   | 14.5 - Provision for notifying the boiler safety officer in advance of reaching designated inspection and test plan hold points   |                               |                      |
|   | 14.6 - Details, controls, and procedures on how pressure testing (hydro and/or pneumatic) will be carried out safely<br><br><b>Note:</b> Requirements for pneumatic pressure testing procedures with stored energy values >1677kJ<br><a href="https://www.technicalsaftybc.ca/pneumatic-testing">https://www.technicalsaftybc.ca/pneumatic-testing</a>      |                               |                      |
|   | 14.7 - Provisions to ensure final inspections are performed to assure all Act, BPVR Regulation, and applicable codes requirements have been met   |                               |                      |
|   | 14.8 - Measures established to control field activities, as applicable  |                               |                      |
|   | 14.9 - Suggested Exhibit: Inspection and Test Plan (ITP), Checklist, Traveller or Process Sheets<br><br>(If utilized, the forms provide for sign-offs (by contractor, owner Inspector, and/or boiler safety officer) and date of examinations performed)  |                               |                      |

| <b>Section:</b>                          | <b>Suggested Quality Control Elements, per section:</b>   | <b>Applicable?<br/>(Yes, No, N/A)</b> | <b>Manual<br/>Reference:</b> |
|--|---|---------------------------------------|------------------------------|
|  | 14.10 - Suggested Exhibit: Pressure Test Reports  |                                       |                              |
|  | 14.11 - Suggested Exhibit: Pressure Testing Procedure   |                                       |                              |
|  | 14.12 - Suggested Exhibit: Visual Inspection Procedure<br><br>(Only applicable if visual inspection is to be completed by licensee)   |                                       |                              |
| <b>15. Calibration</b>                   | 15.1 - Provisions for the calibration of measuring and test equipment   |                                       |                              |
|  | 15.2 - Method of identifying equipment requiring calibration, as well as how the status or due date of calibration is indicated (stickers, tags, etc.)                                      |                                       |                              |
|  | 15.3 - Method of record keeping for calibration records   |                                       |                              |
|  | 15.4 - Provision to ensure the calibration of gauges used for pressure testing, and identify the frequency of calibration   |                                       |                              |
|  | 15.5 - Provision for identifying and handling non-conforming equipment  |                                       |                              |
|  | 15.6 - Descriptions of any other applicable requirements as per applicable codes  |                                       |                              |
|  | 15.7 - Provision for calibration records to be made available to the boiler safety officer  |                                       |                              |
|  | 15.8 - Exhibit Suggestion: List of measuring and test equipment that requires calibration, including identifier, status, dates, frequency, etc.   |                                       |                              |
| <b>16. Correction of Non-compliances</b> | 16.1 - System for correcting non-compliances and any condition which does not comply with the requirements of the Act, associated regulations, design, specifications, and applicable codes |                                       |                              |
|  | 16.2 - Indication of who is responsible for the resolution of non-compliances   |                                       |                              |
|  | 16.3 - Provision for non-compliances to be corrected or eliminated before the completed component can be considered compliant   |                                       |                              |
|  | 16.4 - Provisions to document the non-compliances and their disposition   |                                       |                              |
|  | 16.5 - Provision to inform a Technical Safety BC boiler safety officer of non-compliant conditions  |                                       |                              |

| Section:             | Suggested Quality Control Elements, per section:  | Applicable?<br>(Yes, No, N/A) | Manual<br>Reference: |
|----------------------|---|-------------------------------|----------------------|
|                      | 16.6 - Controls for the identification, segregation, handling, and disposal of non-compliant items  |                               |                      |
|                      | 16.7 - Exhibit Suggestion: An example of non-compliance record form to be used to document the non-compliance and the disposition   |                               |                      |
|                      | 16.8 - Exhibit Suggestion: A sample facsimile of non-compliance identification or “hold” tag/label  |                               |                      |
| 17. Record Retention | 17.1 - Measures to ensure that the records are maintained as required by the Act, BPVR Regulation, and applicable codes   |                               |                      |
|                      | 17.2 - Identification of records that may be required to be maintained  |                               |                      |
|                      | 17.3 - Provision to ensure that all required records are maintained for a minimum period of seven years<br><br>(per Section 72(1)(a) of the Power Engineers, Boiler, Pressure Vessel, and Refrigeration Safety Regulation)  |                               |                      |
| 18. Exhibits         | 18.1 - Samples of forms/facsimiles referenced within the manual contain company name/logo and titles consistent with the forms referenced in the text of the manual<br><br><b>Note:</b> Technical Safety BC forms and forms controlled by other organizations referenced within the manual, are not required to be included in exhibits |                               |                      |
|                      | 18.2 - Sample forms in this section are identified as “SAMPLE” or “EXHIBIT”   |                               |                      |
|                      | 18.3 - Forms/facsimiles when referenced throughout the manual include the title and exhibit/sample number for each reference within all sections of the manual  |                               |                      |

| Section:                | Suggested Quality Control Elements, per section: | Applicable?<br>(Yes, No, N/A) | Manual<br>Reference: |
|-------------------------|--|-------------------------------|----------------------|
| <b>Additional Notes</b> |  |                               |                      |