TECHNICAL SAFETY BC

BOILERS, PRESSURE VESSELS, AND REFRIGERATION



Class REF

Contractor Licence Guideline

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Safety Notice

Disclaimer:

Please note that references to legislation, codes, directives, safety orders, and web pages throughout this document may not reflect the most current versions available.

The references provided in this outline are not intended to be an exhaustive list of all requirements or circumstances that may apply to a particular situation. Users are responsible for verifying that all referenced information is current, accurate, and relevant to the specific circumstances they are addressing.

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Class REF Contractor Licence Guideline

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1. The Guideline's Scope

This guideline has been created to assist applicants in developing, updating, or revising quality control programs that are applicable to a Class REF contractor licence under the Power Engineers, Boiler, Pressure Vessel, and Refrigeration Safety Regulation (the "Regulation"). The guideline should be used in conjunction with our regulatory notice, Directive: Boiler, Pressure Vessel & Refrigeration Contractor Licencing Requirements (D-BP 2019-01) and the latest adopted editions of the Canadian Standards Association (CSA) B51: Boiler, Pressure Vessel, and Pressure Piping Code and CSA B52: Mechanical Refrigeration Code.

2. Application for a Class REF Contractor Licence

To apply for a Class REF contractor licence, the applicant must submit a completed application form, a current copy of their documented quality control program, and pay the non-refundable application fee to Technical Safety BC.

Application submission options, the schedule of applicable fees, and other information are available on our website.

3. Quality Control Program

The submission of a documented quality control program alongside the applicable application is a required part of the application process for a Class REF contractor licence.

A quality control program is documented in a manual that provides a comprehensive, detailed, and regularly updated overview of the quality control program.

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

The necessary scope and detail of the program will depend on the complexity of the work to be performed and on the size of the organization that will be performing the regulated work. Regulated work may be performed in a fixed location, for example, in a shop, at a field location(s), or at both, provided the quality control program describes the controls.

4. Quality Control Program Manual Guideline

Appendix A details the minimum information to document in a quality control program manual. The information in the appendix provides guidance for the planning, development, implementation, and maintenance of an effective quality control program.

Depending on the scope of the regulated work to be performed and the specific applicable code requirements, additional information that is beyond the contents of this guideline may be required.

5. Review and Acceptance of a New Applicant's Quality Control Program

Technical Safety BC reviews the quality control program for acceptance before issuing a contractor licence. Additionally, the applicant will need to demonstrate that they have a thorough working knowledge of their quality control program, including any written processes, procedures, or forms to perform the scope of work specified.

The method of demonstration is scenario based as describe in Appendix B: Remote Demonstration Guideline and will be performed remotely. Technical Safety BC will review the demonstration and assess the quality control program requirements. Once accepted and applicable fees for the quality

control manual and demonstration review time are paid (separate from application fee), Technical Safety BC will issue the contractor licence.

6. Maintaining the Quality Control Program for Existing License Holders

Quality control programs must remain current, up to date, and in compliance with the Safety Standards Act (the Act). They must also accurately reflect the current requirements contained in the Act and Regulations, adopted codes, directives, and safety orders as amended from time to time. For more information, see Directive: Boiler, Pressure Vessel, and Refrigeration Contractor Licensing Requirements.

At a minimum, the licensee must review their quality control program annually prior to license renewal for any changes that may affect the program and must submit any required revisions to Technical Safety BC for review and acceptance prior to implementation. A licensee may also make changes, updates, or revisions to their quality control program and submit for acceptance at any time. Options for submission are available on our website.

7. Audits of the Licensed Contractor Quality Control Program

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

Appendix A. Quality Control Program Manual Elements

Along with the current adopted CSA B51 and CSA B52 codes, you may use the checklist below as a guide to develop an effective quality control program manual.

The information listed 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 checklist may be required.

The sequence of sections and content, including section titles, may be modified or reorganized as necessary to align with the organization's established documentation format and quality control program structure.

This table should be used and submitted with the quality control program manual to Technical Safety BC to facilitate the review of the manual.

If needed, a quality control program manual template is available to use in conjunction with this table.

Note: *Manuals generated by AI should not be considered ready for implementation without review by the responsible personnel listed in your organization. The responsible personnel must review the manual for completeness, accuracy, suitability, and ensure that the final quality control program meets all company processes, procedures, and applicable regulatory requirements.*

Organization name: **Date:**

1. Cover Page		**Included?**
1.1	Include organization name, logo (if applicable), address of shop (if applicable) and address of controlling office for shop and/or field sites, if different from shop address.	
1.2	List class(es) of contractor license and include a space for contractor license number issued by Technical Safety BC. **Note:** For new license applications, the license number will be available once the license is issued.	
1.3	List the manual edition and revision numbers. In addition, include spaces for the effective/issue date of the manual and where the copy of the manual in question can be identified as a controlled or uncontrolled copy. **Note:** The date can be entered once approval/acceptance is completed between the organization and TSBC.	
1.4	Include a summary of the contractor license scope of work, including the Act and Regulations that the work is subject to (i.e.: The Safety Standards Act, Safety Standards General Regulation, and the Power Engineers, Boiler, Pressure Vessel, and Refrigeration Safety Regulation).	

2. Table of Contents, Revision History, Manual Acceptance, and Defined Terms		
2.1	Include a table of contents listing the sections and exhibits of the manual, as well as the page numbers, section numbers, and/or revision levels for each section and exhibit.	

2.2	Include a revision history table or other means that will clearly capture any future changes made to the quality control manual.	
2.3	Include a space for contractor approval of quality control program manual: name, title, signature, and date.	
2.4	Include a space for Technical Safety BC acceptance of the quality control program manual: authorized safety officer's name, title, signature, and the date.	
2.5	Include a glossary of terms defining all abbreviated titles of personnel, control documents, organizations, cited codes, standards, laws, and regulations, and any technical terms used frequently within the manual that may need defining.	

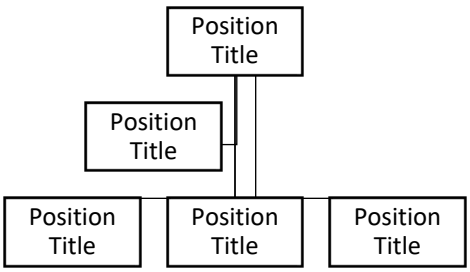
3. Statement of Authority and Responsibility		
3.1	Statement that defines the authority and responsibilities of personnel in charge of the quality control program to comply with the Safety Standards Act, the Safety Standards General Regulation, and the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation.	
3.2	Appointment and identification of a company employed representative or position (i.e. Quality Control Manager) 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	Appointment and identification of a company employed representative or position (i.e. Quality Control Manager) responsible for the development, understanding, review, and acceptance of the quality control program.	
3.4	Statement ensuring management's full support of those responsible for implementing the quality control program and if any unresolved problems occur regarding compliance with the program, jurisdiction, or code requirements, they will be brought to the attention of management for resolution.	
3.5	"Statement of Authority and Responsibility" page or document signed and dated by the highest management position listed on the organization chart.	

4. Scope

This table is provided for reference and includes the scope of work applicable to a Class REF contractor licence.

Refrigeration systems and plants	Installation, maintenance, repair, and alteration of refrigeration systems, plants, and equipment, including construction, repair, and alteration of refrigeration pressure piping, and installation of pressure vessels associated with refrigeration plants, conforming to CSA B52 and applicable codes referenced there within, such as: i.e.: CSA B51, CSA B52, National Board NB-23, ASME B31.5, etc.

4.1	Reference the class(es) of contractor license(s) and a statement that ensures regulated work will be completed in accordance with applicable codes, standards, and the Safety Standards Act, the Safety Standards General Regulation, and the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation.	
4.2	Describe, in detail, the organization scope of work related to regulated refrigeration equipment (installation, maintenance, repair, alteration, construction work, etc.) to be performed by the organization, including, but not limited to the following specifics: • Type of refrigeration system (self-contained, split/VRF, field-erected, etc.) • Classification of refrigerants (i.e.: A1, A2, A2L, A3, B1, B2, B2L, B3) **Note:** Specify if ammonia as refrigerant is within the scope **Note:** If manual is for more than one license class, include the scope of work as it applies from each applicable guideline.	
4.3	Identify the adopted code sections and standards applicable to the scope of work. Note: Refer to the Schedule, Adopted Codes and Standards and Section 4 of the Power Engineers, Boiler, Pressure Vessel, and Refrigeration Safety Regulation for a list of the adopted codes. For ASME codes sections, refer to Canadian Standards Association (CSA) B51 and B52.	
4.4	Statement that ensures only a holder of a refrigeration mechanic certificate, as defined by the Regulation, or person(s) under direct and on-site supervision of the mechanic complete maintenance or repairs of a refrigeration system, plant, or part. **Note:** This is required under Section 5(2) of the Regulation.	
4.5	Statement to ensure regulated work outside the scope of the accepted quality control program or capability of the contractor will not be performed, and the organization will comply with the terms or conditions of their license.	
4.6	Identify any activities that will or may be subcontracted, such as design, drawings, pressure welding, non-destructive examination, and heat treatment. **Note:** At a minimum, for subcontracted activities, a statement must be included within the manual and identification of the verifications required to be completed by the organization. An example statement is available under each of the following sections of this appendix: • Design and Specifications • Welding and Brazing Control • Non-destructive Examination (NDE) • Heat Treatment	
4.7	Identify where regulated work is to take place and how the quality control program will be implemented in a shop or at a field location(s). **Note:** Include shop address(es) and/or address of where field locations (sites) will be controlled from.	
4.8	Statement that the Boiler Safety Officer be provided unrestricted access to the locations where the regulated work is to be performed/completed.	

5. Organization		
5.1	Include organization chart showing the reporting relationships and lines of communication between management, engineering, purchasing, manufacturing, production, field work, inspection, subcontractors, and quality control roles (i.e.; Quality Control Manager), as applicable. Example of organization chart:  **Note:** Personnel names are not required. If names are specified, changes in personnel may require revisions to the manual. **Note:** If owner is the only employee, show lines of communication to subcontractors (if applicable).	
5.2	Describe, with a brief explanation, the duties and responsibilities of key quality control personnel (i.e.: Quality Control Manager).	
5.3	Include a note if personnel may hold more than one title, and any person assigned a responsibility in the manual may delegate to another competent, qualified person; however, the responsibility remains with the person delegating the work.	

6. Manual Control		
6.1	Identify of the position responsible (i.e. Quality Control Manager) for controlling the quality control program manual, including preparation and revisions.	
6.2	Statement that employees of the organization completing regulated work will be informed or trained on the requirements of the quality control program.	
6.3	Describe how revisions to the manual will be completed (by page, paragraph, section, etc.) how revisions will be highlighted within the manual (vertical line, bold/italics, highlights, etc.), and where history and acceptance of revisions will be recorded. In addition, describe how new revisions will be distributed to controlled copyholders.	
6.4	Statement that all revisions (including business name and address changes) to the manual must be submitted to Technical Safety BC for acceptance before implementation. **Note:** See the BPVR contractor license page of the Technical Safety BC website for how to submit revisions.	

6.5	Describe 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. **Note:** The Safety Standards Act, Section 24(3)(a), and Technical Safety BC Directive: Boiler, Pressure Vessel & Refrigerator Contractor Licensing requires quality control programs to be reviewed at least annually before license renewal and any required updates completed and submitted for acceptance.	
6.6	Statement that the use of uncontrolled copies of the manual is for informational purposes only or no uncontrolled copies of the manual will be made available.	
6.7	**Exhibit**: A list of those who have been distributed a controlled copy of the manual and what edition/revision they are currently in possession of.	

7. Design and Specifications		
	If design responsibilities (such as refrigerant charge limit calculations, piping design, and design registration when required, etc.) are completed by the organization, please start at 7.1 of this section. If the organization does not complete any design responsibilities, please include a minimum statement in this section of the manual: "Design documentation will be supplied to <company name> by the main contractor, owner, or end user responsible for the regulated equipment. <company name> will ensure requirements of the Act, Regulations or adopted codes are followed, including verification of the following: • Drawings and design calculations have been reviewed, approved, and accepted by <company name> for use • If required, the design has been registered or exempted in accordance with Directive: Certification and Registration of Refrigeration Systems and Information Bulletin: Design Registration of Refrigeration Plants and Systems • Material, welding/brazing, inspection, and testing specifications are available"	
7.1	Identify the position(s) responsible for: • Preparing or obtaining design documents • Reviewing documents, requirements, specifications and confirming code compliance • Design registration with Technical Safety BC (when applicable) • Specifying materials to be used • Approving revisions and ensuring their use	
7.2	Describe how design documents, including revisions, will be reviewed, identified (numbered, dated, stamped), and approved to ensure they comply with the requirements of the Act, Regulations, and applicable adopted code(s).	
7.3	Statement that if a computer program is used for preparing calculations or conducting analysis, a verification that the outputs meet the requirements of the applicable code(s).	

7.4	Describe the process that ensures only the latest revision of design documents are used, including the removal or replacement of obsolete documents from production.	
7.5	Describe how drawings, specifications, procedures, and instructions will be made available to the personnel performing the work.	
7.6	Statement that ensures regulated work will be performed only if the original design and/or the altered design of the regulated equipment have been registered with Technical Safety BC when required. **Note:** This is required under Section 82 and Section 84 of the Regulation	
7.7	Describe the process for the completion and submission of designs for registration with Technical Safety BC, when applicable, in accordance with Directive: Certification and Registration of Refrigeration Systems and Information Bulletin: Design Registration of Refrigeration Plants and Systems. See the Technical Safety BC requirements at Boilers and pressure vessels design registration for more information.	

8. Material Control		
8.1	Identify of the position(s) responsible for: • material ordering • receiving • inspection • issuance of materials to be used	
8.2	Statement that all materials ordered and used will be confirmed to be suitable for conveying the refrigerant to be used in the system for which the material is ordered.	
8.3	Describe the process of how materials will be ordered (i.e.: using a purchase order or other means), including requesting Material Test Reports (MTR) or Certificate of Conformity (CofC), when required. **Note:** "Material" means materials or parts for the purposes of construction, repair, alteration, and replacement. Pressure vessels and completed parts to be installed, see Installation and/or Maintenance (Section 9) of this appendix.	
8.4	Describe the process used to receive ordered materials and the inspection and documentation (i.e.: material receiving report, MTRs, CofCs, etc.) process that ensures the material is correct, absent from defects, and satisfies applicable code requirements.	
8.5	Describe how the materials received will be identified or marked for traceability (e.g.: job numbers, heat/serial numbers, color coding, etc.), including the identifications or markings when a material has been cut into two or more pieces (e.g.: piping) or bundled (e.g.: small parts).	
8.6	Statement that only materials that have been inspected, identified, and approved will be released for use.	

8.7	Describe the process for maintaining traceability of material in use through a form of documentation (e.g.: as built drawings or weld maps, material logs, etc.) until completion of work.	
8.8	Describe the process for materials that are found to be damaged, defective, untraceable, incorrect, or non-compliant with design and/or applicable code requirements. **Note:** Refer to Correction of Non-compliances (Section 16) of this appendix.	
8.9	Statement that materials will be stored and organized with consideration for job segregation, cleanliness, preservation of identifications, and protection from damage, including environmental factors (such as weather, cross contamination, humidity, etc.).	
8.10	**Exhibit:** The method of documenting received and inspected materials (e.g.: material receiving report).	

9. Installation and/or Maintenance and Minor Repair		
9.1	Identify the position(s) responsible for the overall installation and maintenance work, including obtaining permits, completion of applicable forms, inspections, and liaison with Safety Officer, etc.	
9.2	Statement that the capacity of each refrigeration system to be installed will be calculated prior to obtaining an installation permit. **Note:** For information on how to properly calculate the capacity of the refrigeration system, review Directive: Determining the capacity of refrigeration systems. A refrigeration permit kW calculator is also available on the Technical Safety BC website.	
9.3	Statement that Technical Safety BC will be notified in advance of regulated work starting in accordance with the appropriate method described in Directive: Boiler, Pressure Vessel and Refrigeration Notification and Declaration of Compliance Requirements. This is required under Section 61(1) of the Regulation.	
9.4	Statement that Technical Safety BC or the area Boiler Safety Officer will be notified and/or required declaration submitted upon completion of regulated work, in accordance with Directive: Boiler, Pressure Vessel and Refrigeration Notification and Declaration of Compliance Requirements. This is required under Section 61(2) of the Regulation.	
9.5	Statement that manufacturer's data reports (MDR) for regulated pressure vessels installed will be requested and retained upon ordering or being supplied the equipment.	
9.6	Describe the process that ensures ordered and received equipment and parts will be inspected for damage, defects, or other non-compliant conditions prior to installation.	

9.7	Statement that ensures required design registrations or certifications of a refrigeration system (in accordance with clause 5.2 of CSA B52), pressure vessels, pressure piping, and fitting (e.g.: Canadian Registration Number (CRN)) are confirmed prior to starting regulated work, as applicable. **Note:** This is required under Section 82 of the Regulation. See the Technical Safety BC requirements at Boilers and pressure vessels design registration for more information.	
9.8	Statement that installation and maintenance work shall comply with the applicable code(s) and manufacturer requirements/recommendations, including requirements for proper structural support, clearances, access, and considerations for expansion, piping, valves, controls, ventilation, alarms, etc.	
9.9	Describe the required documentation to be completed and/or made available for installation work, including distribution of manufacturer data reports, completion of test reports and/or commissioning reports, etc. **Note:** Manufacturer Data Reports (MDR) are required to be supplied to the owner of the equipment and the Boiler Safety Officer by the license contractor. This is required under Section 61(2)(b)(i) of the Regulation.	
9.10	Describe the process for documenting maintenance and minor repair work completed on regulated refrigeration equipment, if applicable. **Note:** Minor repair and routine maintenance are defined under Information Bulletin: Minor repair and routine maintenance.	
9.11	**Exhibit:** The method for documenting maintenance and minor repair work.	

10. Major Repair, Alteration, and/or Pressure Piping Construction		
10.1	Identify the position(s) responsible for the overall repair, alteration, or construction work, including notifications, completion of applicable forms, inspections, and liaison with Safety Officer, etc.	
10.2	Statement that an installation permit shall be obtained prior to starting construction, repair or alteration work on a refrigeration or part of a refrigeration system. **Note:** This is required under Section 62(1) of the Regulation.	
10.3	Statement that repair, alteration, and construction work shall comply with the applicable code(s) and manufacturer requirements/recommendations.	
10.4	Describe how an inspection and test plan (ITP), when applicable, will be presented to the Boiler Safety Officer before the work starts to allow for review and designation of inspection, witness, and hold points **Note:** A hold point means that work must not proceed until the required review or inspection is completed and signed off by the applicable party.	
10.5	Statement that the area Boiler Safety Officer will be notified in advance of reaching designated hold points.	
10.6	Statement that, where permitted by the applicable code and regulations, inspection activities for pressure piping may be performed and accepted by the Owner's	

	Inspector. Such activities shall not relieve the organization from complying with applicable jurisdictional requirements, registration requirements, or regulatory inspections.	
10.7	Statement that ensures required design registrations of a refrigeration system, pressure vessels, pressure piping, and fittings (e.g.: Canadian Registration Number (CRN)) are confirmed prior to starting regulated work.	
10.8	Describe the process for the submission of design registration for alterations or modifications to a refrigeration system to Technical Safety BC, when required. This is required under Section 82 of the Regulation. See the Technical Safety BC requirements at Boilers and pressure vessels design registration for more information.	
10.9	Describe the process for refrigerant substitution when the entire refrigerant charge of an existing system is replaced with a different refrigerant, if applicable. See the Technical Safety BC Directive: Substitution of Refrigerant Type	
10.10	Statement that, when required, the Technical Safety BC pressure piping construction data reports and/or the applicable repair/alteration reports are completed. **Note:** Applicable forms found on the Technical Safety BC website include Forms 1329 and 1330 for construction data reports for pressure piping and Form 1553 for repairs and alterations.	
10.11	Describe what is to be included in the documentation package(s) that will be collated and provided to the Boiler Safety Officer and/or Owner for the repair, alteration, or construction work.	
10.12	**Exhibit:** Inspection and test plan (ITP), checklist, traveler, or process sheets **Note:** The form(s) must include space for the contractor's, owner's inspector (if applicable), and boiler safety officer's signoffs and note dates when the examinations were performed.	

11. Welding and Brazing Control		
	If the organization will not be completing regulated pressure welding, brazing, or both responsibilities, but the work may be subcontracted, please include a minimum statement in this section of the manual: "<company name> will not conduct any <pressure welding / brazing> under this quality control program and will subcontract these responsibilities to a licenced contractor working to a TSBC accepted quality control program. <company name> will ensure requirements of the Act, Regulations or adopted codes are followed, including the verification and documentation retention of the following: • Appropriate welding or brazing procedure specifications have been chosen for the work, that they comply with code requirements, and that they are registered with Technical Safety BC • Each pressure welder has an active pressure welder certification issued by Technical Safety BC	

	• Each pressure welder or brazer is actively qualified to weld or braze to the chosen welding or brazing procedures" **Note:** When one is subcontracted, but not the other, please include the statement and the requirements starting at 11.1 as each requirement applies to the scope to be performed	
11.1	Identify the position(s) responsible for: • preparing, revising, and submitting welding procedure specifications (WPS) and/or brazing procedure specifications (BPS) to Technical Safety BC • conducting procedure qualification tests under the direct supervision of the licensee and for recording the results on the procedure qualification record (PQR) • certifying procedures and verifying performance qualification records • selecting the WPS and BPS to be registered and/or used for regulated work • ensuring that each welder or brazer is actively qualified to the essential variables of the registered procedures; and • instructing, supervising, and assigning welders or brazers for regulated work • receiving and issuance of welding and brazing consumables	
11.2	Describe the process for preparing, certifying, and registering welding and/or brazing procedure specifications with Technical Safety BC. **Note:** This is a requirement under Section 78(2) of the Regulation. For information on brazing procedure development, certification, use, and registration, see the Brazing Program Implementation Guide. Description of how to register welding and brazing procedures with Technical Safety BC at: Boilers and pressure vessels design registration.	
11.3	Identify any references or resources for the development and preparation of a WPS and PQR. **Note:** Suggested formats from the ASME code, Section IX: • Form QW-482: Suggested format for welding procedure specifications (WPS) • Form QW-483: Suggested format for procedure qualification records (PQR)	
11.4	When registered brazing procedures are obtained for use from an association or other organization, the following information is documented in accordance with the Brazing Program Implementation Guide: • Name and address of the original BPS developer/registrant • Name and address of the contractor adopting the BPS • BPS identification number • Technical Safety BC registration (Admin #) number • Date of the agreement • Expiry date, where applicable • Signatures from both parties **Note:** This information may be documented within the section, under an exhibit(s), letter format, etc.	

11.5	Statement that revisions to a registered WPS or BPS must be resubmitted to Technical Safety BC.	
11.6	Statement that ensures only individuals who have an active pressure welder Certificate of Qualification (i.e.: Class A, Class IT, or Class R) issued by Technical Safety BC are assigned to perform pressure welding on a regulated product. **Note:** This is a requirement under Section 5(3) the Regulation. See Technical Safety BC's requirements regarding pressure welder certification, including expiration and renewal.	
11.7	Statement that addresses the scope of work limitations of Class "IT" and Class "R" pressure welder certification of qualification holders, if applicable.	
11.8	Statement that ensures pressure welders and brazers are qualified to the essential variables of the procedures to be used for regulated work in accordance with applicable code requirements and the Regulation.	
11.9	Statement that ensures welder performance qualifications are conducted by an active Technical Safety BC approved Recognized Test Administrator (RTA). **Note:** The test administrator will complete, certify, and provide a copy of the required form(s) and enter qualification(s) into the welder's logbook. See the Technical Safety BC Directive: Qualification Requirements for Pressure Welders for information.	
11.10	Describe how the organization will ensure their brazers are qualified to braze to a registered procedure and who will administer the performance qualification testing. **Note:** For information on brazing performance qualifications and testing, see the Brazing Program Implementation Guide	
11.11	Describe how the continuity of welder and/or brazer qualifications for each welding and brazing process used are maintained and the requirements for retesting when the process is not used within six (6) months. **Note:** Continuity may be recorded through entries into the welder's logbook, through use of a welder/brazer continuity log, or other means that captures the required information.	
11.12	Statement that ensures a welder or brazer shall be requalified whenever a change occurs to any essential variable listed for the applicable welding or brazing process.	
11.13	Statement that ensures each welder, welding operator, or brazer is assigned an identifying number, letter, or symbol which shall be used to identify that individual's work, where applicable for traceability.	
11.14	Describe how the traceability for welding and brazing will be documented as required by the applicable codes (e.g.: weld maps, drawings, and welder ID stamping).	
11.15	Statement that tack welds that are to remain a part of the finished weld must be made by a pressure welder certificate of qualification holder (or other jurisdictional equivalent) and for tack welds not made by an appropriately qualified individual to be inspected and removed prior to completion of welding.	

11.16	Statement that ensures welding consumables will comply with applicable code requirements, including the review and retention of certificates of conformance and material test reports.	
11.17	Statement that welding consumables will be received, stored, issued, and controlled in accordance with applicable code(s), manufacturer recommendations and are kept free from damage, moisture, contamination, and expiration.	
11.18	Statement that welding electrodes, such as low hydrogen and stainless steel, are to be stored in accordance with the manufacturer's recommendations (i.e.: stored in heated ovens at the appropriate temperature and discarded or reconditioned when exposed to the atmosphere beyond the acceptable limit).	
11.19	**Exhibit:** A form or log to keep track of welder and/or brazer continuity.	

12. Non-Destruction Examination (NDE)		
	If non-destructive examination responsibilities are completed by the organization, please start at 12.1 of this section. If the organization will not be completing any non-destructive examination responsibilities, please include a minimum statement in this section of the manual: "<company name> will not conduct any non-destructive examination under this quality control program and will subcontract these responsibilities to a qualified contractor working to a written practice including procedures. <company name> will ensure requirements of the Act, Regulations or adopted codes are followed, including the verification and documentation retention of the following: • Demonstration letter issued by Technical Safety BC • Examination personnel are qualified in accordance with Canadian General Standards Board CAN/CGSB-48.9712/ISO 9712 and the applicable code • Written practices and procedures for the applicable examination method(s) required • Equipment calibrations • Letter of appointment to authorize the subcontractor or personnel to perform examinations under the quality control program" **Exhibit**: NDE organization and personnel appointment letter	
12.1	Identify the position(s) responsible for determining if non-destructive examination is required per the applicable code(s).	
12.2	List the methods of non-destructive examinations that will be utilized by the organization.	
12.3	Statement that ensures non-destructive examinations performed meet the requirements of the applicable code(s).	
12.4	Describe the process of identifying the appropriate written procedures and practices for the required non-destructive examination(s) and that they have been demonstrated for code compliance to Technical Safety BC.	

12.5	Statement to ensure that the personnel who will be performing non-destructive examinations are qualified in accordance written practices, the Canadian General Standards Board CAN/CGSB-48.9712/ISO 9712 and the applicable code.	
12.6	Statement to ensure non-destructive examinations performed according to written procedures when required by the applicable code.	
12.7	Statement to ensure equipment used for non-destructive examinations will be calibrated.	
12.8	Describe the process for documenting, reviewing, and accepting non-destructive examination results as specified by the applicable code.	
12.9	**Exhibit:** Technical Safety BC Demonstration Letter	

13. Heat Treatment		
	If heat treatment responsibilities are completed by the organization, please start at 13.1 of this section. If the organization will not be completing any heat treatment responsibilities, please include a minimum statement in this section of the manual: "<company name> will not conduct any heat treatment under this quality control program and will subcontract these responsibilities to a qualified contractor. <company name> will ensure requirements of the Act, Regulations or adopted codes are followed, including verification and document retention of the following: • Approved heat treatment procedure with applicable code referenced • Welder certification/qualifications • Equipment calibrations • Thermocouple placement record • Logs, records, and inspection reports"	
13.1	Identify the position(s) responsible for: • review and identification of heat treatment requirements as required by the applicable code(s), designs, and drawings • producing and distributing heat treatment procedures, instructions, etc. • confirming thermocouple placement and monitoring each activity • completing or collecting required documentation	
13.2	Statement that ensures heat treatment work complies with the applicable codes and standards.	
13.3	Statement that ensures required records (including instructions, charts and thermocouple attachment schematics) are kept on file.	
13.4	Statement that, if required, heat treatment equipment will be calibrated.	
13.5	**Exhibit**: Heat treatment instruction form	

14. Testing and Inspection		
14.1	Statement that all required testing and inspections will be completed, appropriately recorded, and ensured to comply with the requirements of the Act, Regulations, and applicable codes.	
14.2	Identify the person(s) responsible for: • controlling the inspection and test plan (or checklist/traveler) • notifying the boiler safety officer when required • confirming pressure test requirements; and • monitoring pressure tests, visual inspections, and documenting the results	
14.3	Statement that the Boiler Safety Officer will be notified in advance of reaching designated hold points.	
14.4	Identify the types of testing and inspection to be conducted for regulated work (hydrostatic pressure testing, pneumatic pressure testing, visual inspection, etc.). Include which code(s) or documentation are to be referenced for testing and inspection requirements (i.e.: where to find requirements for pressure testing – number of gauges, ranges, pressure, temperature, test medium, hold time, etc.).	
14.5	Describe controls and procedures to ensure testing and inspections are conducted safely. **Note:** Prior to a Safety Officer witnessing, requirements for pneumatic pressure testing procedures with stored energy values greater or lower than 1677 kJ can be found at Technical Safety BC's pneumatic testing design registration page.	
14.6	Describe how testing and inspections are to be recorded (i.e.: pressure tests recorded on pressure test report form).	
14.7	Statement that final inspections, including required sign offs and acceptances, are to be completed and all Act, Regulation, and applicable codes requirements have been met before the work is considered compliant and complete.	
14.8	**Exhibit:** Pressure test report	
14.9	**Exhibit:** Pressure testing procedure	
14.10	**Exhibit:** Visual inspection procedure This applies only if code required visual inspection will be completed by the licensee.	

15. Calibration		
15.1	Statement that measuring and testing equipment, including pressure testing gauges used for regulated work will meet manufacturer and applicable code calibration requirements.	

15.2	Describe the method to be used for identifying or labeling equipment requiring calibration and indicating the status and/or due date of calibration (e.g., with stickers, tags, etc.).	
15.3	Describe the method(s) to be used for logging all equipment requiring calibration, the frequency of calibration, statuses, and due dates.	
15.4	Statement that equipment must be calibrated against standard traceable to national or international references and that the resulting tolerances must meet applicable code allowances.	
15.5	Describe of how equipment is to be handled when found to be damaged or non-compliant.	
15.6	**Exhibit:** List of measuring and testing equipment that requires calibration, with information such as identifier (unique code or serial number) and calibration status, dates, frequency, etc.	

16. Correction of Non-compliances		
16.1	Describe the process(es) for identifying and correcting non-compliances (physical and administrative) and any condition that does not comply with the requirements of the Act, Regulations, design, specifications, applicable codes, and the quality control program.	
16.2	Identify the position(s) responsible for the identification, disposition, and resolution of non-compliances.	
16.3	Describe how non-compliant materials and/or equipment are to be identified/labeled and quarantined when applicable.	
16.4	Statement to ensure that non-compliances are to be corrected or eliminated before the regulated work is considered compliant and complete.	
16.5	Describe how non-compliances and their disposition are to be documented.	
16.6	Statement that the area Technical Safety BC Boiler Safety Officer will be informed of non-compliant conditions.	
16.7	**Exhibit:** Non-compliance record form used to document a non-compliance and the disposition.	

17. Records and Retention		
17.1	Statement to assure that all required records related to regulated work are maintained for at least seven (7) years or longer, if required. **Note:** This is a requirement in accordance with Section 72(1)(a) and (b) of the Regulation.	
17.2	Describe how digital and/or physical records are to be maintained, kept retrievable, and protected from damage, loss, or unauthorized alteration.	

17.3	Statement that, upon request from Technical Safety BC and/or the Boiler Safety Officer, records related to regulated work, including the accepted quality control program documents (i.e.: manual, forms, procedures) must promptly be made available.	

18. Exhibits (Samples)		
18.1	Sample of each form, log, procedure, and/or other controlled document, including tags and nameplates, referenced within the manual. Exhibits referenced within this appendix include: • A list of those who have been distributed a controlled copy of the manual and what edition/revision they are currently in possession of • The method of documenting received and inspected materials (e.g.: material receiving report) • Non-Destructive Examination (NDE) Organization appointment letter • The method of logging the continuity of welders and brazers (e.g.: continuity log or logbook) • Inspection and test plan (ITP), checklist, traveler, or process sheets • Heat treatment instruction form • Pressure test report(s) • Pressure testing procedure • Visual inspection procedure • List of measuring and test equipment that requires calibration • Non-compliance record form used to document a non-compliance and its disposition • The method for documenting maintenance and minor repair work **Note:** Technical Safety BC forms and forms controlled by other organizations referenced within the manual are not required to be included as exhibits.	
18.2	Forms, logs, procedures, and/or other controlled documents referenced throughout the manual must include the title and an exhibit or sample number for each. The sample form titles must be consistent with those referenced in the text of the manual.	

Appendix B. Remote Demonstration Guideline

Boilers, Pressure Vessels, and Refrigeration (BPVR) Contractor Licensing: Remote Demonstration Guideline

Scope of Guideline

This document provides guidance on the remote demonstration when applying for a BPVR contractor licence. As part of the application process, applicants are required to demonstrate that they have a thorough working knowledge of their quality control program (QCP), including any written processes, procedures, or forms to perform the scope of work specified.

Terms of Agreement

- By undertaking the remote demonstration, the applicant assumes full responsibility for the security of digital files and employees' personal information.
- By submitting digital files for remote demonstration, the applicant must provide true and accurate information. Submissions by the applicant for remote demonstration are subject to the discretion of the safety officer conducting the review.
- If deemed necessary, additional information may be requested. This may include, but is not limited to, documentation, visual aids, or physical demonstration at a location determined by the safety officer.
- Fees for review, as listed on the fee schedule under "Quality Control Program review," will be applied by Technical Safety BC.

Demonstration Method

One scenario will be given for each scope of work listed within the applicant's accepted Quality Control Program Manual. Each scenario outlines details of a fictional job. Using the information provided, the applicant must complete all required documentation as if the work had actually been performed and the documents were being submitted to Technical Safety BC or a Boiler Safety Officer in the field.

This demonstration method does not require the purchase of materials, construction, fabrication, or welding unless deemed necessary by the safety officer.

The purpose of the demonstration is to replicate the document completion and submission process that will be required once the license is active.

Demonstration Instructions

- Open the OneDrive folder link provided in your email. Review the PDF documents featuring the mock scenarios.
- Using the information and instructions in the PDF document, assume each scenario is a job that you have been contracted to complete.
- Review your accepted Quality Control Program and identify which documents are required to be completed. These may include forms submitted to Technical Safety BC (or to the boiler safety officer on site) and your own company forms. If a Technical Safety BC form is required for your scenario, a mock form will be provided to you.
- Fill out the applicable forms as needed. Fields where information is not available or applicable may be left blank.
- Submit your completed forms to complete your demonstration. See below for steps on how to submit.

Demonstration Documentation for Completion

The list below includes some examples of documents that may be submitted, depending on the scenario provided. Any further documentation requirements will be defined by your accepted Quality Control Program.

- Purchase orders
- Material receiving reports
- Traveler/inspection and test plan
- Welding procedure specifications and procedure qualification records
- Welder qualifications and continuity records
- Nondestructive examination reports and letter of appointment
- Pressure test reports
- Calibration certificates of test pressure gauges
- Maintenance service records
- Proof of access to latest adopted edition of required code book(s)

Technical Safety BC forms: if applicable to your scenario, a mock version of the following forms will be provided.

- Boiler Installation Permit (FRM-823)
- Boiler, Pressure Vessel and Refrigeration Inspection Declaration (FRM-1449)
- Operating Permit Application for Pressure Vessel (FRM-1444)
- Boiler and Pressure Vessels Repair and Alteration Report (FRM-1060)
- Construction Data Report for Piping Systems Manufactured Inside BC (FRM-1329)
- Gas Equipment and Boiler Commissioning (FRM-1172)
- Pressure Piping Repair and Alteration Report (FRM-1553)
- Refrigeration Installation Permit (FRM-824)

How to Submit:

1. Open the OneDrive link in your email (the same link used to access the demonstration scenarios).
2. Upload your complete demonstration forms.
3. Once all files are uploaded, notify us by emailing bpvlicensing@technicalsafetybc.ca.