

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.

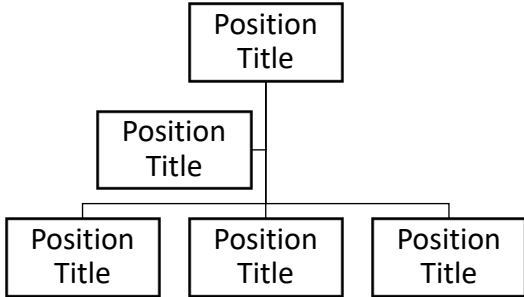
[Technical Safety BC website - BPVR Contractor Licences](#)
[Directive: BPVR Contractor Licensing Requirements \(D-BP 2019-01\)](#)

Organization Name: _____

Licence Applied for and Scope: _____

Section:	Suggested Quality Control Elements, per section:	Applicable? (Yes, No, N/A)	Manual Reference:
1. Cover Page	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		
2. Scope	2.1 - Contractor licence class referenced		
	2.2 - Detailed scope of regulated work to be performed by organization. (See permitted scope for the license applied for at: Technical Safety BC Website - BPVR Contractor Licences)		
	2.3 - Applicable code sections, standards used for the regulated work referenced/listed (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? (Yes, No, N/A)	Manual 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 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 Contractor Licence Application Form (FRM-811) 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		

Section:	Suggested Quality Control Elements, per section:	Applicable? (Yes, No, N/A)	Manual Reference:
	5.4 - Provision for submittal of manual revisions to Technical Safety BC for acceptance prior to implementation		
	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. Note: Minimum requirement per <i>Safety Standards Act</i> , Section 24(3)9a) and Directive D-BP 2019-01 , is annually prior to license 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 quality control manual Note: Controlled copies can be digital or hardcopy. Technical Safety BC requests a digital copy to be stored under the license file		
6. Organization Chart	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 Example of Organization Chart:  Note: 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		

Section:	Suggested Quality Control Elements, per section:	Applicable? (Yes, No, N/A)	Manual Reference:
	6.3 - A note, if applicable, that states personnel may hold more than one title		
7. Drawings, Design, Calculations, and Specifications	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 (Applicable to construction of piping, alterations, and repairs exceeding definitions from information bulletin IB-BP 2020-02)		
	7.2 - Procedures which assure that the latest applicable drawings, design calculations, specifications and instructions, are used for construction, assembly, examination, inspection and testing (Applicable to construction of piping, alterations, and repairs exceeding definitions from information bulletin IB-BP 2020-02)		
	7.3 - Mechanism to review and approve subcontracted (third party) design and drawing documents prior to release to production (Applicable to construction of piping, alterations, and repairs exceeding definitions from information bulletin IB-BP 2020-02)		
	7.4 - Indication of who is responsible for preparing, reviewing/approving the design and drawings for regulated work (Applicable to construction of piping, alterations, and repairs exceeding definitions from information bulletin IB-BP 2020-02)		
	7.5 – Indication of who is responsible to specify materials to be used for regulated work		
	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 (Applicable to construction of piping, alterations, and repairs exceeding definitions from information bulletin IB-BP 2020-02)		

Section:	Suggested Quality Control Elements, per section:	Applicable? (Yes, No, N/A)	Manual Reference:
	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 (per Section 82 and Section 84 of the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation, as applicable)		
	7.8 - Does the manual include a provision for the completion and submittal of designs for registration with Technical Safety BC, when applicable (Applicable to construction of piping (>3NPS) & all alterations) (See the Design Registration webpage for more information)		
	7.9 - Field controls described for regulated work that will be performed in the field, when applicable		
8. Material Control	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		
	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		
	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		
	8.4 - Provision for the verification and documentation of materials and their material certifications, material test reports, or certificates of conformity		
	8.5 - Measures established for the proper identification, handling, and storage of materials		
	8.6 - Controls defined to maintain material traceability until project completion, including heat number, color code application, tabulation, as-built drawings, etc. Identification of the system to be utilized		
	8.7 - Provisions for the transfer of material identifications when material is to be cut into two or more pieces		
	8.8 - Provisions for handling materials that are not in compliance with the registered design and/or the applicable code		

Section:	Suggested Quality Control Elements, per section:	Applicable? (Yes, No, N/A)	Manual Reference:
	8.9 - Provision for material certifications to be made available to the boiler safety officer upon request		
	8.10 - Field controls described for regulated work that will be performed in the field, when applicable		
	8.11 - Exhibit Suggestion: Material receiving report		
9. Repairs and Alterations	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 (per Section 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/Construction 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 (per Section 82 of the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation) (See the Design Registration 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 Repair and Alteration Report Forms: <ul style="list-style-type: none"> • Pressure Piping Repair and Alteration Report Form 1553 (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? (Yes, No, N/A)	Manual Reference:
10. Installation	10.1 - If needed, specifics on the type of regulated equipment to be installed by the organization 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 notifying the local boiler safety officer prior to the start of regulated work (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 (per Section 82 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) (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 (CSA B51 and National Board Inspection Code)		

Section:	Suggested Quality Control Elements, per section:	Applicable? (Yes, No, N/A)	Manual Reference:
11. Welding and Brazing Control	11.1 - Indication of who is responsible for: <ul style="list-style-type: none"> • Preparing, revising, and submitting welding/brazing procedure specifications to Technical Safety BC • Conducting procedure qualification tests under the direct supervision of the licensee and who records the results on the procedure qualification record (PQR) • Certifying procedure and performance qualification records • Selecting the welding procedure specification(s) (WPS)/brazing procedure specification(s) (BPS) to be used for regulated work • Assigning and ensuring that each welder is qualified for each welding process to be utilized • Instructing, supervising, and assigning welders or brazers for regulated work 		
	11.2 - Measures for preparation, qualification, and registration of welding and/or brazing procedure specifications and with Technical Safety BC (CSA B51 and ASME Section IX) (per Section 78(2) of the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation) (See the Design Registration 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) (ASME IX Suggested Formats: WPS/BPS - QW-482/QB-482 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 <u>Technical Safety BC Website Reference, Pressure Welder Certification:</u> https://www.technicalsaftybc.ca/certification/pressure-welder <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? (Yes, No, N/A)	Manual Reference:
	11.6 - The extent of their work is limited to the pressure welder certificate class that they hold Note: 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 (Performance qualifications may need to be re-qualified to if process not used in less than 6 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		

Section:	Suggested Quality Control Elements, per section:	Applicable? (Yes, No, N/A)	Manual Reference:
	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		
	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		
12. Non-destructive Examination (NDE)	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 license 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		

Section:	Suggested Quality Control Elements, per section:	Applicable? (Yes, No, N/A)	Manual Reference:
	12.9 - Exhibit Suggestion: Sample of non-destructive examination Level III Letter of Appointment		
13. Heat Treatment	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 license 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)		
	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		
14. Examination and Inspection Program	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"> • The control of the inspection and test plan • Notification to the boiler safety officer when required • Specifying the pressure test requirements • Monitoring pressure tests, performing examinations, and documenting results 		
	14.4 - Provision for the presentation of inspection and test plan, if applicable, to 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		

Section:	Suggested Quality Control Elements, per section:	Applicable? (Yes, No, N/A)	Manual Reference:
	14.6 - Details, controls, and procedures on how pressure testing (hydro and/or pneumatic) will be carried out safely Note: Requirements for Pneumatic Pressure Testing procedures with stored energy values >1677kJ https://www.technicalsaftybc.ca/pneumatic-testing		
	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, Traveler or Process Sheets (If utilized, the forms provide for sign-offs (by contractor, owner inspector, and/or boiler safety officer) and date of examinations performed)		
	14.10 - Suggested Exhibit: Pressure Test Reports		
	14.11 - Suggested Exhibit: Pressure Testing Procedure		
	14.12 - Suggested Exhibit: Visual Inspection Procedure (Only applicable if visual inspection is to be completed by licensee)		
15. Calibration	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.		

Section:	Suggested Quality Control Elements, per section:	Applicable? (Yes, No, N/A)	Manual Reference:
16. Correction of Non-compliances	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		
	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 (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 Note: 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? (Yes, No, N/A)	Manual Reference:
Additional Notes			