



Implementation Guideline for Companies requesting TSSA Certificate(s) of Authorization for the Manufacture of Boilers or Pressure Vessels

1. SCOPE:

This guideline defines the requirements to be followed when applying for Certificate(s) of Authorization with the Technical Standards and Safety Authority (TSSA) for the manufacture of Boilers or Pressure Vessels in accordance with CSA B51, ASME Section I, ASME Section IV, and ASME Section VIII Division 1 (as applicable).

2. ABBREVIATIONS:

AIA	Authorized Inspection Agency
AI	Authorized Inspector
ASME	American Society of Mechanical Engineers
CSA	Canadian Standards Association
TSSA	Technical Standards and Safety Authority

3. AUTHORIZED INSPECTION AGENCY (AIA):

The Authorized Inspection Agency in Ontario for the manufacture of boilers and pressure vessels is the TSSA.

4. REFERENCED DOCUMENTS:

- Quality Program Manual Checklist: *Certification of Manufacturers of Boilers & Pressure Vessels*

5. APPLICATION FOR NON-NUCLEAR ONTARIO CERTIFICATE OF AUTHORIZATION:

The Company shall complete the *Application for Non-Nuclear Ontario Certificate of Authorization*. The Company shall submit the application with the required deposit as indicated on the application.

The Company shall indicate if there are additional manufacturing locations or if field assembly is required. When the application is received by the TSSA, the BPV Administrative Assistant will contact the Company and forward the Quality Program Manual Checklist and audit instructions.

6. SCHEDULING THE AUDIT:

The TSSA BPV Administrative Assistant will schedule a mutually agreeable time and location with the Company for the audit. The Company is required to submit a copy of the completed Quality Program Manual, Quality Program Manual Checklist, and this completed Implementation Checklist to the TSSA BPV Administrative Assistant at least one week prior to the scheduled audit.

When the audit has been scheduled, the Company shall adhere to the scheduled time and date. Careful attention should be noted, as cancelling the audit less than fifteen (15) working days to the mutually agreed date may result in cancellation charges (see the *Application for Non-Nuclear Ontario Certificate of Authorization* notes).



7. THE QUALITY PROGRAM AND THE QUALITY MANUAL:

The Company shall implement a Quality Program and document it in a Quality Program Manual that describes how the Company will control the processes as outlined in the Quality Program Manual Checklist.

The Company shall address all the elements as detailed in the Quality Program Manual Checklist. The Company shall appoint personnel to fulfil the requirements of the Quality Program.

8. CODE BOOKS:

The Company shall maintain a copy of, or have direct access to the latest edition of the following Code books (as applicable):

- CSA B51 *Boiler, Pressure Vessel and Pressure Piping Code*
- ASME Section I *Rules for Construction of Power Boilers*
- ASME Section IV *Rules for Construction of Heating Boilers*
- ASME Section VIII Division 1 *Rules for Construction of Pressure Vessels*
- ASME Section II *Materials*
- ASME Section V *Non-destructive Examination*
- ASME Section IX *Welding, Brazing, and Fusing Qualifications*

9. WELDING AND/OR BRAZING:

Welding/Brazing Procedures

The Company shall have the applicable Welding and/or Brazing Procedure(s) registered with the TSSA to complete the work they are requesting to perform in accordance with the applicable Code of Construction and ASME Section IX.

Welders/Welding Operators and Brazers/Brazing Operators

The Company shall have Welding and/or Brazing Personnel certified with the TSSA in accordance with the registered procedure.

10. NON-DESTRUCTIVE EXAMINATION (NDE):

NDE includes (as applicable):

- Radiographic Examination
- Ultrasonic Examination
- Liquid Penetrant Examination
- Magnetic Particle Examination

The Company shall determine what NDE is required in their Quality Program. The Company is required to perform or sub-contract this examination. The controls shall be described in the Quality Manual.

11. AUDIT DEMONSTRATION ITEM: (See Section 13)

The Company shall demonstrate the Quality Program to the TSSA Audit Team. Prior to the audit, the Company shall prepare a design and calculations acceptable to the Authorized Inspector that will demonstrate the Company's ability to perform work in accordance with their Quality Program.



The demonstration shall be a mock job or may be an actual job if agreed upon between the Company and the Authorized Inspector. The demonstration mock-up will be reviewed at the time of the audit by the TSSA Audit Team. A demonstration mock-up need not be registered with the TSSA.

The demonstration mock-up does not need to be exactly as shown in the sample below. The Company may provide a different arrangement or item. This is acceptable providing the demonstration mock-up is adequate to demonstrate compliance with the Company's Quality Program.

Note 1: Only one (1) mock-up is required. For example, when the Company has both welding and brazing in their Quality Program, the Company does not need to provide both a welded and brazed mock-up. If a Company has both welding and brazing in their Quality Program, ***a welded mock-up is required as a minimum.***

Note 2: The Company should contact the Authorized Inspector for clarification or to seek any exceptions to the demonstration mock-up listed below.

12. RENEWAL OF CERTIFICATE(S) OF AUTHORIZATION:

Certificate(s) of Authorization expire every three (3) years. The Company will receive a renewal notification from the TSSA BPV Administrative Assistant approximately six (6) months prior to the expiry of the current certificate(s). If a renewal package has not been received by the Company three (3) months prior to the expiration date, the Company shall contact the BPV Administrative Assistant for guidance (bpvqa@tssa.org).

13. SPECIFIC DEMONSTRATION ITEM DETAILS:

The purpose of the demonstration item is to evaluate the applicant's Quality Control System (QCS) and implementation. For evaluation of the QCS, the applicant must demonstrate to the current Code rules sufficient administration and fabrication to show that they have the knowledge and ability to produce the Code items typical of those covered by the QCS.

The construction functions may be demonstrated using current work, a mock-up, or a combination of the two. Any current Code work ongoing at the time of the audit is subject to the Audit Team's review. The demonstration item shall include engineer stamped drawings and calculations. It is not necessary to have calculations completed for each Code Section being applied for.

The Company shall address all the elements detailed in the Demonstration Item Checklist as applicable to the scope of activities that apply to their program. Contents of the demonstration document package shall be per the Company's Quality Manual.

Drawings, Design Calculations, and Specifications

The drawing shall address the following criteria:

- Code of Construction
- Design pressure and temperature
- Minimum design metal temperature and pressure
- Service fluid
- Test pressure, type of test, and duration
- Material specifications and thicknesses

- Weld details and welding procedures to be used
- Non-Destructive Examination requirements (see below for minimum non-destructive examination requirements)
- Post weld heat treatment requirements
- Impact testing requirements or exemption
- Corrosion allowance

Demonstration of Non-Destructive Examination (NDE)

The NDE demonstration is to verify that the Company understands their responsibilities and has the knowledge to review NDE Procedures, reports, and certifications. The TSSA Audit Team is not required to witness the NDE demonstration at the time of Audit, although all records of the NDE demonstration shall be made available.

One type of NDE examination shall be completed on one joint prior to the Audit (Radiography, Ultrasonics, Magnetic Particle, or Liquid Penetrant Examination).

Demonstration of Welding/Brazing

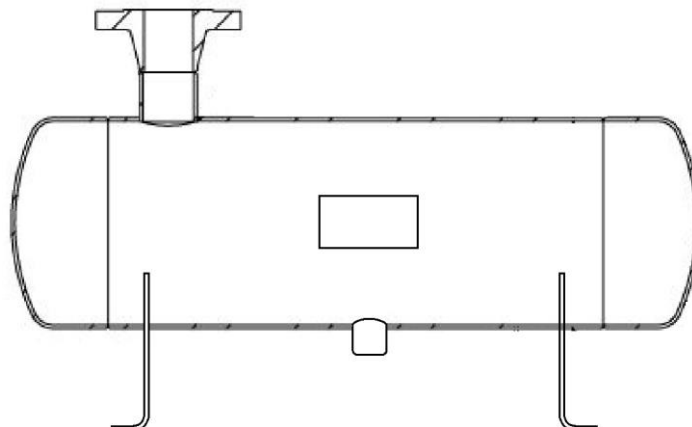
During the Audit, one joint on the demonstration mock-up shall be prepared and tacked, and a welding/brazing demonstration will be witnessed by the Audit Team. Registered welding/brazing procedures, and welder/brazer certifications shall be made available during the demonstration.

Demonstration Item

The demonstration item should reflect the type of boiler or pressure vessel the company typically fabricates or plans to fabricate. A pressure vessel demonstration item shall include the following:

- o Two heads and shell
- o At least one nozzle
- o Supports
- o Nameplate bracket
- o Stamped Nameplate (not attached to the vessel)

The following is an example for the configuration of a demonstration item:





14. DEMONSTRATION ITEM CHECKLIST

Company Name: _____

Reviewed by: _____ Date: _____

No.	Quality Element and Sub-Elements	Yes	No	N/A	Comments
1	MANUAL CONTROL				
	(a) A signed copy of the Quality Control Manual (QC Manual) is available during the review of the demonstration item.				
	(b) Proof of review of the current editions for the applicable TSSA Code Adoption Document, CSA, and ASME Code Books by the Company representative.				
2	DRAWINGS, DESIGN CALCULATIONS AND SPECIFICATION CONTROL				
	(a) As applicable, the drawings and calculations for the demonstration item have been approved by the Company representative and available in the job package.				
	(b) The demonstration drawing and/or design specification contains all required information as stated in the QC Manual.				
	(c) The drawings and calculations have been stamped by a professional engineer and registered with TSSA (if applicable).				
	(d) When required, documented verification of new computer program revisions have been made within 6 months of the new Code edition.				
3	MATERIAL CONTROL				
	(a) Purchase Orders, Material Lists, etc., include all the information as described in the QC Manual for the purchasing of materials.				
	(b) As applicable, the Purchase Orders, Material Lists, etc., have been reviewed and accepted by the Company representative. All Purchase Orders, Material Lists, etc., are included in the job package.				
	(c) Proof of material inspection has been documented as stated in the QC Manual.				
	(d) All material is identified and traceable. Any Mill Test Reports and/or Certificates of Conformance are available in the job package.				
	(e) As applicable, mill test reports have been reviewed and accepted and when required chemical & mechanical properties verified to ASME Section II.				
	(f) As applicable, all welding and/or brazing material is clearly identified and suitable stored.				
	(g) As applicable, all non-conforming material has been identified and handled in accordance with the QC Manual.				
4	EXAMINATION AND INSPECTION PROGRAM				
	(a) An Inspection and Test Checklist or Plan has been prepared and lists all stages of fabrication, examination, and test.				
	(b) The Inspection and Test Checklist or Plan includes columns for inspections performed by the Company representative and the Authorized Inspector (AI), as applicable.				
	(c) No work has proceeded past required inspection points as set out by the Company representative and the AI, as applicable.				
	(d) All required tests and examinations have been completed and reviewed by the Company representative prior to obtaining the acceptance of the AI. The complete Inspection and Test Checklist or Plan is included in the job package.				
	(e) As applicable, the Company representative has completed and certified the applicable Data Report and submitted to the AI for review and acceptance. The completed Data Report is included in the job package.				



No.	Quality Element and Sub-Elements	Yes	No	N/A	Comments
5	NON-CONFORMANCES				
	(a) Any non-conformances for the demonstration item have been raised per the QC Manual and the Non-Conformance report available in the job package.				
6	WELDING AND/OR BRAZING CONTROL (AS APPLICABLE)				
	(a) An individual has been appointed by the Company as a Welding/Brazing Supervisor. The appointment is documented and records for the Welding/Brazing Supervisor is available.				
	(b) All Welding/Brazing Procedure Specifications and Procedure Qualification Records used for the demonstration item have been registered with TSSA and included in the job package.				
	(c) All Welders/Welding Operators and/or Brazers/Brazing Operators performing work on the demonstration item have been certified by TSSA and included in the job package.				
	(d) The demonstration item includes the identification of each welder/brazer.				
	(e) As applicable, welding and/or brazing logs have been maintained by the Company representative and copies of any applicable logs are included in the job package.				
	(f) All Welding/Brazing Procedure Specifications are available to the Welder/Brazer in the work area.				
	(g) Welding/brazing material storage and conditioning of low-hydrogen electrodes is controlled.				
7	NON-DESTRUCTIVE EXAMINATION				
	(a) As applicable, the NDE Company procedures and personnel qualifications are up to date and have been reviewed and accepted by the Company representative.				
	(b) As applicable, all NDE reports for the demonstration item have been accepted by the Company representative and available in the job package.				
8	HEAT TREATMENT				
	(a) As applicable, Post Weld Heat Treatment (PWHT) procedures, time/temperature charts and other PWHT documentation have been reviewed and accepted by the Company representative and available in the job package.				
9	CALIBRATION OF MEASURING AND TEST EQUIPMENT				
	(b) Documentation for calibrated items used for the demonstration item shall be included in the job package.				
	(c) All calibrated items shall be suitable stored.				
	(d) All calibrated items shall be identified, and records of calibration shall be maintained.				
10	RECORDS RETENTION				
	(a) The demonstration job package shall include all relevant documentation as stated in the QC Manual.				