Quality Management System Requirements

for

Welder Performance Qualification Testing

AB–540

Edition 1, Revision 2 - Issued 2026-07-13

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FOREWORD

As provided for under Section 21(1)(a) of the Pressure Welders Regulation (PWR), the Administrator in the pressure equipment discipline has established that ABSA document AB-540 *"Quality Management System Requirements for Welder Performance Qualification Testing"* specifies Quality Management System requirements for organizations conducting performance qualification testing of pressure welders and machine welding operators and pressure tack welders.

The next reaffirmation of AB-540 is scheduled for 2027.

1.0 INTRODUCTION

This Quality Management System Requirements for Welder Performance Qualification Testing document (AB-540) defines Quality Management System (QMS) requirements that shall be addressed to achieve and maintain a Certificate of Authorization Permit (CAP).

Pressure Welders in Alberta are regulated by the Alberta Safety Codes Act and Pressure Equipment Regulations adopted under this Act. ABSA is the delegated Authority and Administrator of the Pressure Equipment Regulations.

The intent of this requirement document is for commercial welder testing facilities and organizations that intend on testing their own welders (excluding organizations who hold a valid certificate of authorization permit for the construction of boilers or pressure vessels).

Accordingly, the PWR has been legislated to promote pressure equipment safety and reduce pressure equipment accidents and incidents. The PWR establishes the requirements for Pressure Welding in Alberta as follows:

- No person shall weld a boiler, pressure vessel, pressure piping system or fitting by any method, unless the person holds a Certificate of Competency, including a performance qualification card that specifically authorizes the person to weld the pressure vessel, boiler, pressure piping system or fitting and authorizes the method used by the person. [PWR Section 2(1)]
- No person shall conduct a Performance Qualification Test unless authorized to do so by this Regulation. [PWR Section 2(3)]
- No person shall, pursuant to section 42 of the Act, issue a performance qualification card unless the person is authorized by the Administrator to do so on behalf of the Administrator. [PWR Section 2(4)]

ABSA “AB-500” documents are reviewed periodically to ensure that they are aligned with current industry practices. We would welcome any suggestions you have to improve this document. Please provide your comments to:

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2.0 SCOPE

Section 5 of this document establishes the requirements that must be addressed in the written description of a QMS for Welder Performance Qualification Testing, when it is required to be submitted to ABSA pursuant to the Act and Regulations. Each sub-section within section 5 of this AB-540 document covers a fundamental QMS element.

The Performance Qualification Tests conducted by a testing organization are limited to the Performance Qualification Testing of Pressure Welders, Machine Welding Operators and Pressure Tack Welders, all of which are holders of a valid Certificate of Competency issued by ABSA.

3.0 DEFINITIONS AND ACRONYMS

All terms and acronyms used in the written description of the QMS shall be defined.

AB-540 – means Quality Management System Requirements for Welder Performance Qualification Testing organizations;

ABSA – is the organization delegated by the Government of Alberta to administer the pressure equipment safety legislation under the Safety Codes Act;

Act – means the Alberta Safety Codes Act and the regulations made under this Act that apply to pressure equipment;

Administrator – means the Administrator in the pressure equipment discipline appointed under the Act;

ASME Code – means the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code or Pressure Piping Code declared in force applicable to the equipment [PESR 1(1)(e)];

Commercial Welder Testing – means an organization conducting Welder Performance Qualification Testing for candidates of the general public not employed by the testing organization;

Competent – in relation to a person, means possessing the appropriate qualifications, knowledge, skills and experience to perform the work safely and in accordance with the Act;

Note: competent includes working in accordance with this document.

Machine Welding Operator – means a person who holds a Machine Welding Operator Certificate of Competency issued pursuant to the Pressure Welder's Regulation [PWR 1(c)];

Performance Qualification Card – means a card that is part of a Certificate of Competency and is issued to a Pressure Welder, Pressure Tack Welder or Machine Welding Operator pursuant to the Pressure Welder's Regulation [PWR 1(d)];

Performance Qualification Test – means a Performance Qualification Test required by the Administrator and conducted by a safety codes officer or testing organization pursuant to the Pressure Welder's Regulation [PWR 1(e)];

Pressure Tack Welder – means a person who holds a Pressure Tack Welder Certificate of Competency issued pursuant to the Pressure Welder's Regulation [PWR 1(e.1)];

Pressure Welder – means a person who holds a Pressure Welder Certificate of Competency issued pursuant to the Pressure Welder's Regulation [PWR 1(f)];

Pressure Welding – means welding performed on a boiler, pressure vessel, pressure piping system or fitting pursuant to the Pressure Welder's Regulation [PWR 1(g)];

PQR – means Procedure Qualification Record;

PWR – means Pressure Welder's Regulation, Alberta Regulation 169/2002;

QCM – Quality Control Manager;

QMS – means Quality Management System;

Registered – means a welding procedure as registered in accordance with the Pressure Equipment Safety Regulation [PESR 18(1)];

Safety Codes Officer – means a safety codes officer, designated under the Act, in the pressure equipment discipline. [PESR 1(1)(ee)];

Testing Organization – means an organization authorized by the Administrator to test candidates for the performance qualification card portion of a Certificate of Competency, with respect to welding pressure vessels, boilers, pressure piping systems and fittings and welding methods pursuant to the Pressure Welder's Regulation [PWR 1(h)];

Volumetric NDE – means volumetric nondestructive examination as applicable performed according to ASME Section IX QW-191;

Welding Examiner – means a person who holds a Welding Examiner Certificate of Competency issued pursuant to the Pressure Welder's Regulation [PWR 1(i)];

Welding Examiner In-Training – means a person who holds a Welding Examiner In-Training Certificate of Competency issued pursuant to the Pressure Welder's Regulation [PWR 1(j)] and

WPS – means Welding Procedure Specification meeting the requirements of ASME Section IX Code.

4.0 REFERENCE PUBLICATIONS

- AB-061 – Reference Syllabus for Grade “B” Pressure Welder Certificate of Competency Examination.
- AB-094 – Reference Syllabus for Welding Examiner & Welding Examiner In-Training Certificates of Competency Examinations.
- AB-250 – Reference Syllabus for Pressure Tack Welder Certificate of Competency.
- AB-540(a) – Welder Performance Qualification Testing – Scope and Responsibilities.
- AB-540(b) – Welder Performance Qualification Testing Requirements QMS Manual Audit Checklist.

5.0 QUALITY MANAGEMENT SYSTEM REQUIREMENTS

Introduction

A QMS is a controlled system of planned and systematic actions required to provide adequate confidence that Welder Performance Qualification Testing activities are performed in accordance with the Act and Regulations and ASME Section IX. Although a QMS includes elements that are commonly subcontracted, such as NDE, heat treatment and calibration services, the intent of this AB-540 document is to ensure that elements of the QMS, not commonly subcontracted, be implemented by the Testing Organization in their entirety during program delivery. This ensures the integrity of the Welder Performance Qualification Testing activities are controlled by minimizing subcontracted activities.

Requirements

The Testing Organization shall provide a written description of the QMS used by the organization, in accordance with this AB-540 document, to maintain an effective Quality Management System. The written description of the QMS shall address the contents of each component/element within section 5.0 of this AB-540 document.

The written description of the QMS may be a stand-alone manual or may be incorporated into the organization's formal management system documentation. However, a Testing Organization intending on providing Welder testing for commercial purposes shall provide a stand-alone QMS manual as noted in Section 5.11.1 of this AB-540 Document

All elements of the QMS must be implemented and documented to demonstrate the organization has the necessary knowledge, controls and capabilities for the delivery of a successful Welder Performance Qualification Testing program.

5.1 Title Page

If a Stand-Alone QMS for Welder Performance Qualification Testing document (i.e. "manual") is the means the organization uses to provide a written description of the quality management system required by the Pressure Welder's Regulation, then the title page of the manual shall identify the information that follows. Alternatively, if the organization has incorporated AB-540 requirements into the organization's formal management system documentation, the written description of this quality management system shall be submitted along with an AB-540(b) checklist that will identify where the AB-540 requirements are contained, including the information to be addressed within the title page element.

The Title Page shall include:

- Title of the document that describes the organization's QMS,
- The name and corporate address of the organization and
- Identify the revision status of the document.

5.2 Table of Contents

The written description of the table of contents shall:

- Show a Table of Contents that lists the number and title of each section and its location in the written description of the QMS and
- Include all referenced procedures and forms as found in the written description.

5.3 Scope and Application

The written description of this element shall:

- Include a statement that identifies the key purpose of the QMS and confirms compliance with the Safety Codes Act and Regulations,
- Define the scope of the QMS for Welder Performance Qualification Testing, and provide a brief description/identification of welding processes and ranges that will be included within the QMS,
- Include a statement with assigned responsibility to ensure the AB-540a document that is on file with ABSA will be maintained current,
- Include a statement that only registered welding procedure specifications will be used for Welder Performance Qualification Testing and
- Identify if the QMS is for “Own-Use” or Commercial purposes.

5.4 Definition of Terms and Acronyms

All terms and acronyms used in the written description of the QMS shall be defined.

5.5 Organization

The written description of this element shall:

- Include a statement that management will ensure that roles, responsibilities and authorities are defined and are communicated within the organization and
- Include organization chart(s) that identify positions that are relevant to the Testing Organization scope, with the reporting structure illustrated.

5.6 Statement of Authority and Responsibility

The written description of this element shall:

- Include a statement that the written QMS covers the information specified in this AB-540 document and accurately describes the QMS used by the company,

- Include a statement that the QMS has the full support of management who will ensure that adequate resources, including competent personnel, are provided to implement and maintain the program,
- Define the title of the person designated as the individual responsible, to have overall responsibility for the administration of the QMS (may be the QCM and/or Welding Examiner); with an explanation that this person, irrespective of other duties, has sufficient and well-defined responsibility along with the authority and the organizational freedom to identify, initiate, recommend and provide solutions related to Welder Performance Qualification Testing and responsibility for the implementation and maintenance of the QMS and has direct access to, and support from, top management to resolve any Welder Performance Qualification Testing barriers and
- Include signature and date of Senior Management.

5.7 Management Responsibilities

The written description of this element shall:

- Include a statement and evidence that management is committed to the development and implementation of a successful QMS and to continually improve its effectiveness,
- Establish that top management will review the QMS at appropriate intervals to ensure its continued suitability and effectiveness, and that records of such reviews will be maintained. If an organization has less than five employees, formal documentation of such reviews is not necessary.
- Include a statement that management shall ensure that appropriate communication processes are established within the organization to ensure compliance with the legislation and the effectiveness of the QMS. These processes shall include information on the legislation and issues that may impact Welder Performance Qualification Testing,
- Include a statement that the Testing Organization shall determine and provide adequate competent human resources and the necessary facilities and equipment to effectively implement the QMS,
- Ensure that procurement documents are maintained for subcontracted activities that are key to the success of the QMS, and provide clear direction regarding the scope, responsibilities and requirements,
- Ensure that the Welding Examiner(s) has the necessary qualifications, experience, annual eye exams, ability and education and holds a valid Welding Examiner Certificate of Competency issued by ABSA and,
- Ensure a file for each Welding Examiner containing all relevant documentation including a letter of appointment signed by a company official is maintained.

5.8 Quality System Documentation

The written description of this element shall establish that there will be a documented procedure for controlling the QMS written description (e.g. quality system manual), referenced procedures, forms, codes and standards, records and other documents relevant to the QMS and state that the aforementioned documents and records shall be maintained, relevant and current.

The written description of this element shall ensure:

- All changes of documents or amendments to documents are controlled by the correct authorization and processed in a manner which will ensure timely availability at the appropriate location. This shall include ensuring that current versions of the quality manual are provided and accepted by an ABSA SCO before implementation,
- The revision status of the QMS and all documents are identified,
- The necessary welding procedures are developed, qualified and registered with ABSA in accordance with all Code and Jurisdictional requirements and
- Registered welding procedures are made available to and reviewed with the welder.

5.9 Purchasing and Material Control

The written description of this element shall establish the requirements for ordering, receiving, identification, storing, issuing and controlling traceability of materials used for Welder Performance Qualification Testing to ensure that purchased materials and services for QMS activities conform to the Act and meet the specified purchase requirements.

5.9.1 Purchasing

Key Activities that shall be covered:

- Specify purchasing responsibilities,
- Specify the process for purchasing the materials and ensure conformance to the material requirements as required by welding procedure,
- Specify the process for controlling purchasing documentation,
- Ensure that all material is ordered to ASME or ASTM material specification including grade, size thickness or schedule,
- Ensure that all welding consumables are ordered to a SFA specification and AWS Classification and
- The type and extent of service required are defined, including certification as applicable, (e.g. NDE Services).

5.9.2 Receiving

Key Activities that shall be covered:

- Specify receiving responsibilities,
- Specify the process for receiving inspection in accordance with purchase order and ensure conformance to the material specification,
- A process is established for identifying accepted material and for disposing of non-conforming items and
- A process is established for managing customer supplied material.

5.9.3 Material Control

Key Activities that shall be covered:

- Specify the process for storage and issuing material and
- Specify process for maintaining test coupon material traceability.

5.10 Performance Qualification Testing

The written description of this element shall define the system used for ensuring Welder Performance Qualification Testing is conducted in accordance with ASME Section IX, and the Act and Regulations. The Performance Qualification Tests will be logged and conducted in four stages: eligibility, initiation, performance testing and assessment.

All parts of the Performance Qualification Testing of Pressure Welder's, Machine Welding Operator’s or Tack Welder’s must be conducted and supervised only by those people that have been appointed as a Welding Examiner or Welding Examiner In-Training. The Performance Qualification Card can only be issued by the designated Welding Examiner. A Welding Examiner must not issue a Performance Qualification Card to themselves.

The organization shall possess the ability to facilitate examination and testing of welding coupons in accordance with ASME Section IX.

5.10.1 Eligibility

Key Activities that shall be covered:

- Validate the candidate’s identity through the use of Government issued picture ID,
- Ensure the candidate has a Pressure Welder's, Machine Welding Operator’s or Tack Welder’s Certificate of Competency and retain a copy for records,

5.10.2 Initiation

Key Activities that shall be covered:

- Initiate a Welder Performance Qualification Record (i.e. AB-76A/B),
- A welding and test procedure shall be established and reviewed with the candidate. The procedure shall address safety rules, time limit, testing protocol, expectations and evaluation and acceptance criteria. See **Exhibit 1** in Section 6.1 for a sample Examination and Test Procedure,
- The Welding Examiner ensures registered welding procedure specifications are available to the candidate,
- The Welding Examiner shall review with the candidate the welding procedure and process(es) to be used, including essential variables for each process,
- Ensure welding procedure is within the scope for process and ranges as defined in the written QMS,
- Ensure the polarity, voltage and amperage of welding machines are checked for accuracy using calibrated meters and activity documented,
- Ensure material (including customer or candidate supplied) is supported with the necessary documentation and in accordance with the parameters of the welding procedure,
- Ensure guided bend testing jig is in accordance with ASME Section IX,
- Issue weld coupon and identify marking process unique to the welder and
- Identify and review the acceptance and rejection criteria associated with performance testing activities.

5.10.3 Performance Testing

Key activities that shall be covered:

- Verify the joint preparation including bevel angles, land and gap,
- Assess the tack welds for length and feathering,
- Check the position of the test coupons,
- Verify welding machine set-up including voltage/amperage for specific electrode size,
- Verify welding gas composition and flow rates,
- Complete the applicable section of the Welder Performance Qualification Record (i.e. AB-76A/B),
- Monitor the root pass to ensure welding is performed in the correct position and direction, and assess the root pass for quality (penetration, fusion, undercut, profile and spatter), and deposit thickness as necessary,
- Monitor the hot pass, fill and cap to ensure welding is performed in the correct position, progression and within the prescribed time frame and
- Document test monitoring activities. See **Exhibit 2** in Section 6.2 for a Sample Welder Performance Qualification Examination and Test Record.

5.10.4 Assessment

Key activities that shall be covered:

- Assess the weld quality of the completed coupon by examining the weld for fusion, penetration, reinforcement, weld profile, arc strikes, weld width and undercut,
- Identify the test specimens to be cut from the coupon and die stamp using positive identification traceable to the candidate,
- Establish process to, if volumetric NDE will be used to qualify weld, die stamp using positive identification traceable to the candidate and examination report,
- Monitor specimen preparation,
- Examine specimen acceptability for width and thickness,
- Verify the guided bend test jig for correct tolerances according to specimen thickness and ASME Section IX requirements,
- Perform the required bend tests,
- Assess the acceptability of guided bend tests against ASME Section IX acceptance criteria,
- Ensure ASME Section IX requirements are met when volumetric NDE is used to qualify Performance Qualification Testing,
- Review volumetric examination reports and radiographic images as applicable when used for Performance Qualification Testing, radiographic images must come with a radiograph review form,
- Complete the Welder Performance Qualification Record (i.e. AB-76A/B) with results,
- If the test is satisfactory establish, issue and sign the Welder Performance Qualification Card to the welder. See **Exhibit 3** in Section 6.3 for a Sample Welder Performance Qualification Card,
    - As a minimum the performance qualification cards must show all required information and include, but not limited to, the items addressed in Clause 6 of the Pressure Welders Regulations. Additional information that should be included on the cards include applicable ASME Section IX QW-350 and QW-360 essential variables.
- Define process and controls for managing and issuing electronic Welder Performance Qualification Cards if so used,
- Identify process to manage failed coupons that are to be maintained for a minimum of 30 days after completion of the test,
- Identify process to manage passed coupons,
- Immediate retests will be conducted to ASME Section IX and Alberta Regulations requirements,
- Ensure the Welder signs the Welder Performance Qualification Card,
- As applicable, the manufacturer representative has certified the Welder Performance Qualification Record, and

- Ensure process includes informing the candidate who is not satisfied with the Performance Qualification Test, that they may make a written appeal to the Administrator of ABSA.

5.10.5 Duplicate Welder Performance Qualification Cards

Key activities that shall be covered:

- Define the process to be followed for issuing duplicate Welder Performance Qualification cards,
- Provide a sample copy of the Welder Performance Qualification duplicate request form; see **Exhibit 4** in Section 6.4 for a Sample Request for Duplicate Welder Performance Qualification Card,
- Ensure record of the previous successful Welder Performance Qualification test is on file and
- The replacement card must expire on the same date as the original.

5.11 Additional Requirements for Commercial Testing

A Commercial Testing Organization shall retain and provide all the necessary personnel, infrastructure (e.g. facilities, equipment, tools etc.), required to implement a suitable welder testing program.

Further to the requirements already established, the following elements shall be addressed in the QMS by a Commercial Testing Organization.

5.11.1 Quality Management System Requirements

Commercial Testing Organization's shall provide a stand-alone QMS manual that addresses all the requirements of this AB-540 Requirements Document

5.11.2 Competency and Training

The written description of this element shall define the system for ensuring the required competence of personnel who perform activities that can impact the effectiveness of the QMS.

Key activities that shall be controlled:

- Identification of experience, qualification and training requirements for individual jobs or positions that are critical to QMS implementation,
- Identification of the training programs or other training resources that are used for training, (i.e. Welding Examiner In-Training), and
- Include the process describing how competency assessment and reassessment will be performed.

5.11.3 Safety

For all testing facilities (including field locations), a process to ensure the safety of test candidates must be in place.

The written description of this element shall define a comprehensive safety management process to ensure the health and safety of all candidates, examiners, and personnel involved in welder performance qualification testing.

For commercial testing facilities key activities that shall be covered in the written quality management system:

Pre-Test Safety Orientation

- All candidates must complete a documented safety orientation before beginning any testing activities the orientation must include:
  - Site-specific hazards
  - Emergency procedures
  - Personal protective equipment (PPE) requirements
  - Safe use of welding and grinding equipment
  - Fire prevention and response protocols
- A signed acknowledgment form must be retained in the candidate's test record. (See Exhibit 5 for a sample.)

Personal Protective Equipment (PPE)

- The Testing Organization must ensure that all candidates wear appropriate PPE, including:
  - CSA-approved safety glasses
  - Flame-resistant coveralls or leathers
  - CSA-approved safety footwear
  - Welding gloves and helmet
  - Hearing protection
  - Face shields for grinding
  - PPE must be inspected for serviceability before use.

Work Area Safety Controls

- Designated welding and grinding areas must be clearly marked and equipped with:
  - Adequate ventilation or fume extraction systems
  - Fire extinguishers and fire blankets
  - Welding screens to protect others from arc flash
  - Proper lighting and clear walkways
  - Only authorized personnel may enter testing areas.

Equipment Safety

- All welding machines, grinders, and other equipment must be inspected and verified for safe operation prior to use.
- Electrical cords and gas lines must be secured and free from damage.
- Calibration of welding machines must be confirmed and documented.

Emergency Preparedness

- Emergency contact information and first aid procedures must be posted in visible locations.
- A designated First Aid Responder must be identified and available during testing.
- All incidents, near misses, or injuries must be reported immediately to the Welding Examiner and documented.

Supervision and Enforcement

- A Welding Examiner or designated safety representative must monitor compliance with safety protocols throughout the testing process.
- Any candidate found violating safety rules may be removed from the testing area and disqualified from the test.
- Repeat violations or unsafe behavior must be documented and addressed through corrective action.

Continuous Improvement

- The Testing Organization must review safety incidents and near misses as part of its internal audit and management review processes.
- Lessons learned must be used to update safety procedures and training materials.
- See **Exhibit 5** in Section 6.5 for a Sample Safety Orientation.

5.11.4 Internal Audits

The written description of the QMS will identify the process for conducting internal audits to ensure the written description is effectively implemented.

Key activities that shall be covered:

- Describe the process for planning and documenting the internal quality system audits to verify compliance with the criteria within this AB-540 document, and for measuring the effectiveness of the QMS,
- Describing that the personnel performing the audits are suitably qualified and independent from the functions being audited and
- Describing the process for tracking issues and employing corrective and preventative actions.

Note: Organizations employing less than 5 employees or contract personnel are not required to address this element.

5.12 Volumetric Non-Destructive Examination

The written description of this element shall establish the system for ensuring that volumetric nondestructive examinations affecting Welder Performance Qualification Testing meets the intended purpose when used as an alternative to guided bend tests.

Key activities that shall be covered:

- Assign responsibilities for the implementation and maintenance of the NDE examination procedures,
- NDE provider shall be appointed and have a SNT-TC-1A level III examiner on staff to be responsible for NDE procedures and supervise examiner certification and training,
- All examination will be done under the supervision of a level II or level III examiner,
- All interpretation will be done by a level II or level III examiner,
- All personnel performing NDE must be qualified and certified in accordance with SNT-TC-1A,
- Process for notifying the examiners of NDE requirements and identifying the welder and welds to be examined,
- Responsibility for reviewing the qualifications of NDE examiners and their company's written procedures and ensuring copies of qualifications and procedures are retained on file are to be defined,
- Responsibility for reviewing all volumetric NDE examination reports and radiographic images when applicable and ensuring that volumetric examinations are traceable to the welder and weld coupon and
- Interpretation of volumetric examination must be performed to ASME Section IX.

5.13 Heat Treatment

The written description of this element shall describe the process to ensure that the Heat Treatment is controlled and completed in accordance with requirements of the Welding Procedure Specification and Code requirements, when this option is selected (See QW-301.2).

Key activities that shall be covered:

- Assign responsibilities for the implementation and maintenance of the Heat Treatment procedures,
- Verifying that heat treatment procedures are adequate, including location of thermocouples, and calibration records for measuring instruments.
- Ensure that the Heat Treatment instructions are prepared and supplied to the Heat Treatment contractor,
- Ensure that the test coupons designated for Heat Treatment are identified,

- Ensure that the Heat Treatment activities are executed in accordance with the provided instructions,
- Ensure that upon completion of the Heat Treatment of the test coupon, it is inspected for damage and to confirm identification, and the documentation received from a Heat Treatment organization is verified and
- Review documentation and maintain Heat Treatment charts, calibration records, etc. in the applicable file.

5.14 Control of Measuring and Test Equipment

As it pertains to welder testing operations, the controls to ensure accuracy of monitoring and measuring devices, which are controlled by either the Testing Organization or contractors, are to be described within this element in the QMS written description. For equipment controlled by contractors, customers and/or field locations the QMS will describe the monitoring procedures and records that are implemented by the Testing Organization.

Examples of the monitoring and measuring devices that shall be controlled and calibrated are; welding machines, temperature gauges on rod ovens, calipers and other measuring instruments.

A list of all measuring devices will be maintained, and all devices will be calibrated or verified, at specified intervals or prior to use, against measurement standards traceable to international or national measurement standards, and where no such standards exist, the basis used for calibration or verification shall be recorded.

5.15 Corrective and Preventative Action

The written description of this element shall describe the process to identify and manage Issues of Non-Conformance involving Welder Performance Qualification Testing and/or the QMS implementation. The issues must be reported, investigated, and the appropriate remedial, corrective and/or preventative action taken to ensure the issue does not reoccur.

The Testing Organization must have a documented process, which is followed when a nonconformity is identified. This process should include reference to how the nonconformity resolution is documented, tracked to closure and determined to be effective.

5.16 Record Retention

The written description of this element shall describe the process and records that are to be maintained to demonstrate implementation of the QMS and Welder Performance Qualification Testing. Records can be divided into two components, QMS administrative records and Welder Performance Qualification Testing records.

Welder performance Qualification Testing records shall be maintained for a minimum of three years.

5.16.1 Administrative Records

Key records shall include but not limited to:

- Testing application, if used,
- Quality Management System written program, revisions and approvals,
- Management review of the QMS program. Organizations employing less than 5 employees or contract personnel are not required to address this item,
- Welder testing log,
- Welding Examiner(s) appointment, training, competency and certifications,
- Training, experience and competency for all positions performing activities impacting program,
- Material purchasing, receiving records and MTRs, including that of customer supplied material,
- Verification of testing equipment i.e. weld machines, bending jig conformance to ASME Section IX,
- Non-destructive Examination Company appointment, procedures and NDE Technician records,
- Non-conformance, corrective and preventative action reports,
- Calibration records and,
- Complaints.

5.16.2 Welder Performance Testing

Key records could include:

- Safety orientation,
- Alberta Pressure Welder's, Machine Welder’s or Tack Welder’s Certificate of Competency,
- Welder unique identifier,
- Welding procedure as applicable,
- Record of Welding Examiner monitoring of testing activities. See **Exhibit 3** in Section 6.3,
- Welder Performance Qualification Record i.e. AB-76,
- Volumetric NDE requests, film and examination reports,
- Copies of signed Welder Performance Qualification cards,
- Heat treatment requests and charts as applicable and
- Applications for duplicate Welder Performance Qualification cards.

5.17 Safety Codes Officer

The written description of the QMS will identify that an ABSA Safety Codes Officer has free access to all areas where Performance Qualification Testing of Welders/Machine Welding Operators is being conducted. They will be given free access to facilities, materials and documents pertaining to Welder/Machine Welding Operator Performance Qualification Tests described in this QMS Manual.

6.0 EXHIBITS

6.1 Exhibit 1

Sample Examination and Test Procedure

(Note: The following is a sample procedure for the SMAW process using SFA5.1 E6010 and SFA5.1 E7018 electrodes and welding a 2-inch OD X 0.625 inch coupon in the 6G position. Other procedures would be required for companies testing otherwise.)

WELDERS PERFORMANCE QUALIFICATION TEST PROCEDURE

1. Candidates must produce their wallet size Pressure Welder's Certificate of Competency, as applicable, as proof of eligibility to take the test.
2. Candidates are required to provide gloves and protective clothing. Helmets and grinders are provided but the candidate may supply these if desired.
3. Grinding must only be performed in the designated areas.
4. The Welding Examiner must provide a set of welding coupons and a toolbox, and assign a welding area.
5. The time allowed for the test is 3.5 hours.
6. The size of the root face and the width of the root gap is to be at the candidate's discretion. Three tack welds approximately 12.7 mm (0.5 inch) long are considered part of the test. The tacks may be feathered.
7. The coupons are to be positioned with the pipe axis at 45 degrees to the horizontal. The candidate is to have the position verified by the Welding Examiner. Once the pipe coupons are positioned, the positioner holder must not be moved.
8. The root pass is to be made using SFA 5.1 E6010 electrode with travel in the uphand direction. When the root pass is completed and cleaned, the candidate will bring the coupon (still attached to the positioner) to the Welding Examiner for inspection.
9. If the root pass is acceptable, the candidate must return the coupons to the same position and complete the fill and cap passes using SFA 5.1 E7018 welding electrode with uphand progression during welding.
10. When the welding is completed, the candidate is to bring the coupons to the Welding Examiner for examination and marking of specimens. If the welded coupons are to be radiographed, the Welding Examiner must identify the coupons and hold for radiography. For guided bend tests, the candidate then cuts out the marked specimens, grinds the cap and root flush with the base metal and radius the edges back to a maximum of 0.125 inch. Excessive grinding that reduces the thickness of the specimens below the

nominal thickness must result in failure of the test. The specimens presented to the Welding Examiner must clearly show the identification stamps.

11. While the specimens are cooling, the candidate is to clean the work area, return the tools to the Welding Examiner and the unused rods to the storage area.
12. The root bead must be uniform in width and penetration. All welds must be free of grapes, craters, porosity, undercut and lack of fusion. The finished weld is to be uniform, free from undercut, overhang or arc strikes and without excessive weld reinforcement. The test may be terminated at any stage if it becomes apparent that the candidate does not have the required skill to produce satisfactory results or is taking excessive time to complete any phase of the test. The failure of any specimen in the bend test is considered as a complete failure of the test. A coupon rejected by radiography is also considered a failure of the test.

6.2 Exhibit 2

Sample Welder Performance Qualification Examination and Test Record

NO	DESCRIPTION	CODE REFERENCE (ASME Section IX)	EXAMINER
1.	Review Welding Procedure Specification and establish Welder Performance Qualification Test requirements.		
2.	Verify that test coupon material spec., grade, thickness, diameter, weld joint preparations are correct.		
3.	Instruct candidates re: test procedure, acceptance standards, time limit and Welding Procedure Specification requirements.		
4.	Mark candidate's unique ID Number/Symbol on test coupons.		
5. *	Examine fit-up and tack welds.		
6. *	Verify test position.		
7. *	Examine root (penetration, profile, fusion, reinforcement, reduction in thickness, etc.).		
8. *	Examine complete weld surface condition reinforcement, penetration, fusion, contour, etc.		
9.	Outline position of bend test specimens.		
10.	Verify that specimen size and thickness are acceptable after preparation. Mark candidate and specimen number on each specimen.		
11.	Verify guided bend test jig dimensions and tolerances.		
12.	Examine specimens after bending.		
13.	Review reports of any subcontractor used to perform physical tests, (Bend tests, etc.).		
14.	Review volumetric NDE report (radiographs film and interpretation sheets, UT Report etc.).		
15.	Prepare and certify Welder/Welding Operator performance qualification record form.		
16.	Prepare and certify Welder Performance Qualification card.		

* Hold point, Welder may not continue without authorization from the Examiner.

Note: Additional visual examination requirements may be specified by the pertinent ASME BPV Code Section.

6.3 Exhibit 3

Sample Welder Performance Qualification Card

FRONT SIDE

Testing Org. Logo **NAME OF ORGANIZATION** _____A.O.Q.P. No.

WELDER PERFORMANCE QUALIFICATION CARD

NAME: _____ ABSA FILE NO.: _____

This card is issued pursuant to the Alberta Safety Codes Act and Pressure Welder's Regulation. The performance qualification is in accordance with Section IX of the ASME Code and subject to the limitations on the reverse side.

_____ _____
Date of Test Signature of Welder or Machine Welding Operator

_____
Welding Examiner (Print/) Card No. 123456

BACK SIDE

Card No.: 123456 ABSA File No.: _____

PERFORMANCE QUALIFICATION

Process(es) _____ _____ Material (P-No.) _____

Filler Metal Group (F-No.) _____ _____ Min. Outside Pipe Diameter _____

Max. Deposited Weld Metal _____ _____ Position(s) Qualified _____

Backing _____ _____ Backing Gas _____

Progression _____ _____

_____ _____ _____
P.Q. Expiry Date Welding Examiner Signature Examiner File No.

(This Exhibit must be a photocopy of the actual card)

Suggested Card Size: 2 inches by 3.5 inches
Suggested Colour: Antique Gold with Black lettering
Suggested Paper: Durable for purpose

Note: "Card No." shall be a sequential series of numbers for card identification and control.

6.4 Exhibit 4

Sample Request for Duplicate Welder Performance Qualification Card

COMPANY NAME		**AOQP #**	
I, _____certify that on, or about, _____ my Welder Performance Qualification Card(s) for the following process(es):			
SMAW	☐	GTAW	☐
GMAW	☐	OTHER	☐
Were: (check one) **LOST** ☐	**STOLEN** ☐	**DESTROYED** ☐	
I am requesting a duplicate Welder Performance Qualification Card(s) be issued.			
NAME:		**DATE:**	
SIGNATURE:		**ABSA FILE #:**	

DUPLICATE PERFORMANCE QUALIFICATION CARD(S) HAVE BEEN ISSUED FOR THE FOLLOWING PROCESS(ES):

PROCESS	EXPIRY DATE	CARD #

WELDING EXAMINER:	**DATE:**
ABSA FILE #:	

6.5 Exhibit 5

<u>Sample</u> Safety Orientation

SAFETY ORIENTATION – WELDING TEST CENTRES

1. The following shop rules must be followed. Violations will lead to termination of test:
   - Cotton coveralls, fire retardant coveralls or leathers to be worn,
   - Safety glasses to be always worn,
   - Approved safety footwear to be worn,
   - Leather welding gloves to be always worn,
   - Ear plugs to be worn,
   - Cutting goggles to be worn whenever flame cutting,
   - Face shields to be worn when grinding,
   - Grinding is only permitted in designated areas,
   - Only grinders with approved guards are permitted,
   - Only grinders with proper size and type of disc are permitted,
   - Smoking is only permitted in designated areas,
   - Ensure appropriate welding screens are used and placed appropriately,
   - Ensure adequate ventilation is available and used.

2. Know the location of the following:
   - Fire extinguishers
   - Fire blankets
   - First aid Kit

3. First Aid process to include:
   - First Aid Responder identified
   - First Aid contact information reviewed.

4. All incidents/accidents are to be reported to the Welding Examiner.

I have been oriented and have read and agree to follow these established safety requirements.

Welder: _____ **Date:** _____

7.0 REVISION LOG

Edition	Revision	Date	Description
1	0	2025-09-01	New document
1	1	2025-10-21	Editorials for clarity
1	2	2026-07-13	Reaffirmation