Pressure Relief Devices Requirements

AB–524

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FOREWORD

As provided for under Sections 12 and 13 of the Pressure Equipment Safety Regulation, the Administrator in the pressure equipment discipline has established that ABSA document AB-524, "*Pressure Relief Devices – Requirements*," and subsequent revisions thereto, specifies requirements for activities relating to pressure relief devices. Such activities are required to be undertaken within the scope of a valid certificate of authorization permit and in accordance with procedures documented in a quality management system that is acceptable to the Administrator.

The next scheduled revision of AB-524 will be in 2031.

It is suggested that the Certificate of Authorization Permit holders download the latest revised document and update their respective quality management system documentation as necessary to ensure compliance.

It is the responsibility of a Certificate of Authorization Permit holder to be in compliance with the up-to-date requirements throughout the term of its certification. If as a result of the changes to the requirements, the written description of an organization's QMS is revised, an updated copy of the written description of the QMS shall be submitted to ABSA.

To ensure this document remains relevant and of value to Alberta stakeholders, it shall be reviewed periodically to confirm that it is aligned with current industry best practices and policies. Additionally it shall be revised whenever an urgent need is identified. Any suggestions for improvement are welcome. Please provide comments to:

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1.0 SCOPE OF THIS DOCUMENT

The scope of this document applies to manufacture, assembly, selection & sizing, inspections, repairs, servicing, setting & sealing and installation of Pressure Relief Devices in Alberta.

2.0 DEFINITIONS and ACRONYMS

ABSA Safety Codes Officer (SCO) - means a Safety Codes Officer, designated under the Act, in the pressure equipment discipline. [PESR 1(1)(ee)]

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

Act and Regulations - means the Alberta Safety Codes Act and the following regulations:

- Pressure Equipment Exemption Order (Alberta Regulation 56/2006),
- Pressure Equipment Safety Regulation (Alberta Regulation 49/2006),
- Power Engineers Regulation (Alberta Regulation 85/2003),
- Pressure Welders Regulation (Alberta Regulation 169/2002)

Administrator - means the Administrator in the pressure equipment discipline appointed under the Act. [PESR, 1(1)(b)]

Alberta Quality Program (AQP) - a quality program that covers a defined scope such as piping fabrication, vessel fabrication, etc. for which a certificate of authorization permit has been issued per PESR Section 11.

API - American Petroleum Institute.

ASME - American Society of Mechanical Engineers.

Assembler - means a PRV assembler as referred in the ASME codes. In Alberta, PRV assembler must hold a COA from ASME and CAP from ABSA.

Assist Lift Device - is a device that is used to apply an auxiliary load to a PRV stem or spindle to determine the valve set pressure as an alternative to a full pressure test.

ASVS - means Alberta Safety Valves Servicing. Organizations holding a valid Certificate of Authorization Permit for servicing PRVs PRV are issued an ASVS Number by ABSA.

Blowdown – as defined in PTC 25 means the difference between actual popping pressure of a pressure relief device and actual reseating pressure expressed as a percentage of set pressure or in pressure units.

Certificate of Authorization Permit (CAP) - means a permit issued pursuant to Section 44 of the Act authorizing a person to carry out the activities stated on the certificate of authorization permit. [PESR 1(1)(g)]

Certificate of Authorization (COA) - means Certificate of Authorization issued by NB or ASME or another Canadian pressure equipment jurisdiction.

Canadian Registration Number (CRN) - as defined in CSA B51 means a registration number, allotted by a provincial regulatory authority, that allows a boiler, pressure vessel, or fitting to be used in the province. A boiler, pressure vessel or fitting that is to be used in Alberta must have a CRN issued by ABSA.

CDTP - Cold Differential Test Pressure

Conversion - means changing a PRV from one capacity certified configuration to another or changing the service or the model number.

Critical Part - means any part of a PRVPRV that can affect the operation of a valve to open at a specific pressure, or, relieve a volume of fluid, or, reclose at a lower pressure, or, its pressure retaining integrity.

CSA - Canadian Standards Association

Duplicate Name Plate - means a metal name plate that is installed when the original name plate is missing or to replace an illegible name plate.

Fitting - means a valve, gauge, regulating or controlling device, flange, pipe fitting or any other appurtenance that is attached to, or forms part of, a boiler, pressure vessel, fired-heater pressure coil, thermal liquid heating system or pressure piping system. [PESR, 1(1)(n)]

ISO - International Organization for Standardization.

Maximum Allowable Working Pressure (MAWP) - maximum allowable working pressure means the pressure authorized on the design registration or a lesser pressure as indicated on the manufacturer's data report. [PESR 1(1)(v)]

NB - means The National Board of Boilers and Pressure Vessel Inspectors.

OEM - means original equipment manufacturer.

Owner - includes a lessee, a person in charge, a person who has care and control and a person who holds out that the person has the powers and authority of ownership or who for the time being exercises the powers and authority of ownership. [SCA 1(1)(v)]

Owner-user - an owner that has provided an Integrity Management System in accordance with the Pressure Equipment Safety Regulation and has been issued a quality management system Certificate of Authorization Permit under PESR Section 11(3).

PESR - means Pressure Equipment Safety Regulation, Alberta Regulation 49/2006.

PRD - is the acronym for Pressure Relief Devices and means a pressure relief valve, rupture disc device or pin device.

PRD Manufacturer - means a certified PRD manufacturer as required by Section 3.1 of this document.

Pressure Relief Valve (PRV) - means a safety valve, relief valve, or safety relief valve.

Pretest - means a set pressure confirmation test of a PRV that is either performed when the pressure equipment upon which it is installed is about to come off line for periodic maintenance or when a PRV is removed from the equipment, sent to a service organization and tested in the as received condition.

Quality Control (QC) - Quality Control is part of the quality management system that is focused on fulfilling quality requirements.

Quality Management System (QMS) - means all the documented, planned and systematic actions needed to ensure that this Act is complied with. [SCA 1(1)(aa)]

Repair - as used in this document means restoring the pressure retaining boundary of a PRV to a safe and satisfactory operating condition by welding or mechanical means.

Repair Name Plate - means a metal name plate that is installed when a PRV is converted or changed to a new set pressure, fluid service, installation of bellows, soft seats and other changes that may affect the type/model number.

Service Name Plate - means a name plate (also called a Tag) that is marked with the name or logo of the service organization preceded by the words “Serviced By”, Date of service, Type/Model No and is installed when a PRV is serviced.

Servicing a PRV - means inspecting a PRV in the as-received condition, pre-testing, disassembling, cleaning, inspecting, measuring, machining, lapping, part replacement, reassembling, set pressure testing, seat tightness testing and sealing as necessary so that its condition and performance are equivalent to that of a new valve. It does not include weld repairs or the manufacture of critical replacement parts.

Service Organization - means an organization certified per the requirements of this document.

Set Pressure - as defined in ASME PTC 25 means the value of an increasing inlet static pressure at which a pressure relief device displays one of the operational characteristics as defined under opening pressure, popping pressure, start to leak pressure, burst pressure or breaking pressure (The applicable operating characteristic for a specific design is specified by the device manufacturer).

Please refer to the Safety Codes Act and Regulations for other relevant definitions.

3.0 REQUIREMENTS

Key Requirements:

- A CAP is required to manufacture, assemble, repair, service, set or seal PRVs (PESR 11).
- The design of PRVs shall be registered with ABSA (PESR 14 and CSA B51 4.2).
- CRN shall be stamped on the PRV's Name Plate (CSA B51 5.1.1).
- PRVs shall be ASME Code stamped (CSA B51 5.3.1).
- Pressure equipment shall be protected by PRVs or other means of overpressure protection acceptable to the Administrator [PESR 38(1)].
- A PRV shall be set to open before the pressure in the pressure equipment exceeds the MAWP of the pressure equipment [PESR 38(2)].
- Overpressure protection system shall be designed and maintained so that maximum pressure in the pressure equipment does not exceed the prescribed limit of overpressure allowed in the applicable code declared in force by the PESR [PESR 38(3)].
- Adjustable parts of PRVs shall be sealed at the time of servicing and remain sealed during the operation [PESR 39(1)].
- A PRV shall be serviced within the maximum interval specified in AB-506 document [PESR 38(3)]. The highlighted text does not refer to PESR 38(3).

3.1 Certificate of Authorization Requirements:

3.1.1 PRV Manufacturers/Assemblers/Service organizations located in Alberta:

A PRV manufacturer, assembler, repair or service organization or an owner who wants to repair, service, set or seal PRVs in Alberta shall obtain a 'Certificate of Authorization Permit' issued by ABSA (PESR Section 11).

A PRV manufacturer or assembler shall also obtain a 'Certificate of Authorization' issued by ASME to manufacture or assemble ASME Code stamped pressure relief devices in accordance with the requirements of applicable ASME Codes.

3.1.2 PRV Manufacturers/Assemblers/Service organizations located outside of Alberta but within Canada:

The requirements of this paragraph apply only if the PRVs manufactured or assembled or repaired or serviced outside of Alberta are installed in Alberta.

A PRV manufacturer, assembler, repair or service organization shall obtain a 'Certificate of Authorization ' issued by the local pressure equipment jurisdiction [CSA B51 Code, Clause 4.9.2.

A PRV manufacturer or assembler shall also obtain a ‘Certificate of Authorization’ issued by ASME to manufacture or assemble ASME Code stamped pressure relief devices as applicable in accordance with the requirements of ASME Codes.

Organizations who are authorized to manufacture, assemble, repair or service PRVs in other provinces of Canada and who wish to set up facilities in Alberta for manufacturing or assembling or repairing or servicing Pressure Relief Devices, are required to obtain a ‘Certificate of Authorization Permit’ from ABSA. PRV manufacturers and assemblers shall also get their Alberta shop(s) certified by ASME.

3.1.3 PRV Manufacturers/Assemblers/Service organizations located outside of Canada:

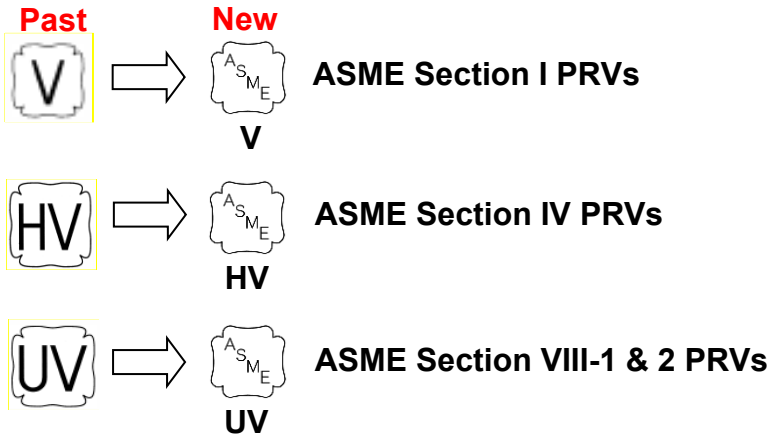
The requirements of this paragraph apply only if PRVs are manufactured or assembled or repaired or serviced outside of Canada and installed in Alberta.

A PRV manufacturer or assembler located outside of Canada who wants to ship PRVs to Alberta for operations in Alberta, shall obtain a ‘Certificate of Authorization’ issued by ASME to manufacture or assemble ASME Code stamped PRVs as applicable in accordance with the requirements of ASME Codes. A PRV manufacturer or assembler shall also meet the design registration requirements of PESR, Para 14 and CRN stamping requirements on the name plate per the requirements of the CSA B51 Code, Clause 5.1.1.

A repair or service organization located outside of Canada who wants to repair, service, set or seal PRVs and ship them to Alberta for operations in Alberta shall be a NB ‘VR’ stamp holder.

Note: On Jan. 1, 2013, the application of a new ASME single certification mark became mandatory. The new certification mark accompanied by an appropriate designator replaced all of the existing ASME code stamps including those of boilers, pressure vessels and the PRVs. The transition period ended on Dec. 1, 2012. The existing PRV installations will remain valid. The new certification marks related to the PRVs are as shown follows:

Effective Jan. 1, 2013



UV3 and UD stamps are applied in the similar manner as above.

3.2 Overview of the Act, Regulations, Codes and Standards (refer to AB-029 for detailed requirements regarding regulations, codes and standards access):

- **Safety Codes Act, Revised Statutes of Alberta 2000, Chapter S-1:**

  The paramount document in the hierarchy of the requirements is the Safety Codes Act. The Act establishes requirements such as responsibilities of the owners, PRV manufacturers, contractors, designers; powers of the Safety Codes Officers; issuance and suspension of permits; registration of Pressure Relief Device designs; maintenance of a QMS. Orders, appeals and penalties are described in the Act. SCA defines pressure equipment. Fittings such as PRVs are part of this definition. **Compliance with the SCA is mandatory.**

- **Pressure Equipment Safety Regulation, Alberta Regulation 49/2006:**

  The PESR is enacted under the Safety Codes Act and includes requirements for the design, construction, servicing, repairing, setting and sealing of Pressure Relief Devices in Alberta. **Compliance with the PESR is mandatory. Organizations who manufacture, assemble, inspect, repair, service, set or seal PRVs are required to maintain a current copy of the PESR.** Refer to AB-516 User Guide for more information.

- **Pressure Equipment Exemption Order, Alberta Regulation 56/2006:**

  The Pressure Equipment Exemption Order establishes exemptions for pressure equipment. **Organizations should be aware of what is exempt.**

The requirements of the Act and Regulations shall prevail over the requirements of the CSA and ASME Codes. Likewise, the requirements of the CSA Code shall prevail over the ASME Codes.

The following codes and standards include requirements for Pressure Relief Devices and have been adopted either directly through the PESR (Sec. 6 of PESR) or through reference in one of the adopted codes. Compliance with the requirements of the adopted codes is mandatory:

- **CSA B51, Boiler, pressure vessel and pressure piping code:**

  CSA B51 Code establishes requirements for design, construction, installation, inspection, testing, and repair of Pressure Relief Devices in Canada. **The code has been adopted by all pressure equipment**

jurisdictions in Canada and therefore compliance with it is mandatory throughout Canada (the application of the requirements may vary).

- **ASME Section I, IV, VIII-1, VIII-2, VIII-3 and XIII Codes:**

  ASME Sections I, IV, VIII-1, VIII-2, VIII-3 and XIII Codes include requirements for the PRV manufacturers and assemblers of PRVs. The requirements cover design, manufacturing, assembly, materials, welding, examination, testing and certification of PRVs. **All of the requirements included in the ASME Codes are mandatory for the PRV manufacturers and assemblers. Many of those requirements are also mandatory for the servicing organizations.**

- **ASME PTC 25, Pressure Relief Devices Performance Test Code:**

  ASME Sections I, IV and VIII-1 Codes state that the definitions relating to pressure relief devices in Section 2 of ASME PTC 25 shall apply.

- **NBIC 23, National Board Inspection Code:**

  The National Board Inspection Code, NBIC-23 provides technical guidance for maintaining the integrity of in-service pressure equipment and servicing the PRVs. NBIC is not mandatory in Alberta. Organizations who meet the requirements of NBIC, NB's rules, and, when certified by the NB, are permitted by NB to apply the 'VR' stamp to the serviced PRVs. NBIC is considered as a recognized and generally accepted good engineering practice by the pressure equipment industry. Historically, the PRVs service industry in Alberta and ABSA have closely followed the recommendations of NBIC.

- **NB-18 National Board Pressure Relief Device Certifications:**

  The publication lists the PRVs that are certified by NB. Each device description includes information about the PRV manufacturer, certification number, design number, type of PRV, ASME Code of construction, test medium, set pressure definition and blowdown. The publication is updated monthly and is available free of charge on NB's website at www.nationalboard.org. **PRV repair and servicing organizations shall maintain a current copy of NB-18 (see AB-029).**

- **Codes and Standards referred to in the CSA and ASME Codes:**

  When other codes and standards are 'referred to' in the CSA B51 and applicable ASME Codes, compliance with those codes and standards is mandatory. Examples of some of the 'referred to' codes and standards are ASME PTC 25, ASME Section IX for welding,

ASME Section V for NDE, API-527 for seat tightness testing, API-520 and API-521.

- **API-576, API-520 Part I and Part II, API-521:**

  API-576, API-520 Part I and Part II, API-521 standards are recognized and generally accepted as good engineering practice by the petroleum, process and PRV industry. API-576 Standard provides information about causes of improper performance, inspection and testing methods of PRVs; API-520 Part I covers sizing and selection of PRVs; API-520 Part II covers installation of PRVs and API-521 deals with design criteria, causes of overpressure, relieving rates and disposal systems.

- **Maintenance Manuals:**

  Current editions of the PRV manufacturers maintenance manuals, drawings, and specification sheets shall be maintained by the service organizations.

Note: Electronic access in lieu of maintenance of hard copies is acceptable provided the provision is described in an organization's document control process.

3.3 Scope of Alberta's Bench Testing program:

The scope of Alberta's Bench Testing program for in-service PRVs is limited to the servicing, set pressure testing, seat tightness testing, and sealing. Capacity and Blowdown tests are not within the scope of the program, however, are part of the manufacturing scope as per section 3.6.7. When servicing in-service PRVs, all requirements of the applicable ASME Codes apply except for those that pertain to the capacity testing of the PRVs.

When a PRV is received for servicing, the service organization shall:

- inspect the PRVs in the as received condition at the service shop and record the observations in the service report;
- pretest the PRV to the tolerance limits specified by the Owner, applicable ASME Code and to the set pressure definition as defined in NB-18 or PRV manufacturer's specifications (unless the pretest was performed in-situ). Record the results in the service report;
- dismantle and inspect the internals before cleaning and servicing, and, record the observations in the service report;
- service and/or repair the PRV;
- replace parts and record the information in the service report. OEM parts shall be used;
- re-set the set pressure of the PRV when requested by the owner and record the new settings in the service report. A 'Repair Name Plate' shall be securely installed beside the original name plate;

- conduct the set pressure test:
  After a PRV is serviced, parts repaired/replaced as necessary and assembled, it shall be set and tested to the set pressure definition. The set pressure test shall meet the requirements of the set pressure definition specified by NB-18 or PRV manufacturer's literature and the set pressure tolerance limits specified by the applicable ASME Code of construction. When a set pressure definition is no longer provided, the last published set pressure definition shall be used.
- Set blowdown as applicable in accordance with the limits specified by the applicable ASME Codes and the PRV Manufacturer's Specifications;
- conduct a performance test on those PRVs whose set pressure definition requires very little volume to set. Upon completion of the set pressure test, the pressure shall be further increased to confirm that the PRV attains sufficient lift within the accumulation tolerances specified by the applicable ASME Code of construction;
- Conduct a Back Pressure Test of the secondary Pressure Zone of each closed bonnet pressure relief valve (exceeding NPS 1 (DN25) inlet size when such pressure relief valves are designed for discharge to a closed system);
- perform a seat tightness test in accordance with the requirements of an applicable ASME Code of construction and record the results in the service report;
- attach a service name plate (tag) in accordance with the requirements of organization's QMS;
- seal the adjustable points;
- provide a service report to the owner.

Test Medium:

1. **Air/gas PRVs:**
   - **Bench testing:** PRVs designed for air/gas medium shall be tested with air or a suitable inert gas at the service shop.
   - **Field testing using an assist lift device:** Process fluid

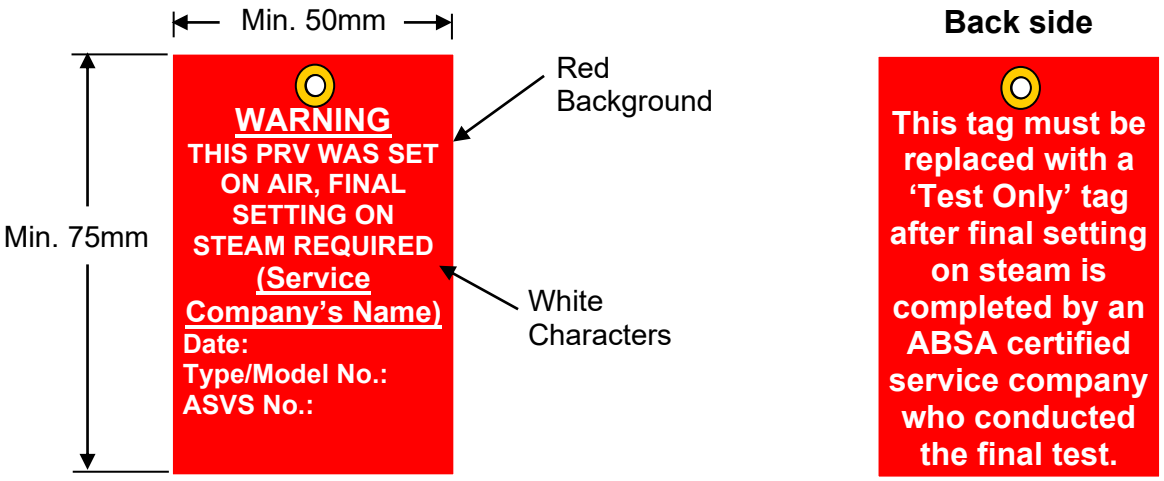
2. **Steam PRVs:**
   - **Bench Testing:**
     PRVs used in steam service shall be tested with steam and be subjected to a process as described by the Manufacturer (in consultation with and agreement from the Owner) to compensate for any thermal effects temperature may have on the set pressure, except as follows:
     - ASME Section IV heating boiler safety valves (HV or V stamped) set at or below 103 kPa (15 psi) may be tested with steam or air.
     - Owner-users who are certified by ABSA to service, set and seal their own PRVs may set ASME Section VIII-1 & 2 steam service

PRVs with air provided the PRV manufacturer's steam to air correction factor is applied. These owner-users may also get their ASME Section VIII-1 & 2 steam service PRVs set with air by an ABSA certified PRVs servicing shop provided the owner:
  - provides the documentation to the shop regarding the correction factor;
  - provides the PRV manufacturer's procedures to the shop for applying the correction factor;
  - ensures that the PRV shop employs technicians who are trained to set and test the steam service PRVs with air.
- A PRV (ASME Section VIII and ASME Section I service PRVs) used in steam service which could not be set with steam because of the limitations/availability of the steam testing facilities at an ABSA certified PRV servicing organization, may be temporarily set with air provided the final setting and/or set pressure verification is done with steam at the owner's or another suitable ABSA certified PRV servicing organization equipped with a steam testing facility. Steam service PRVs set on air shall have a red tag attached warning the owner that final setting on steam is required prior to putting the valve in service. A red tag is not required to be attached on those ASME Section VIII-1 & 2 steam service PRVs which are owned by owner-users (who are certified by ABSA to set and service their PRVs) and are set with air by a certified service organization in accordance with the provisions of this document.

The red tag shall be of min. 50mm x 75mm (2" x 3") size, made of durable material that can not be easily ripped off and be substantially as shown in the diagram. The red warning tag shall be securely attached with a service company's seal and include the following information:

Required wording on the Front Side of the Red Tag:
- WARNING
- This PRV was set on air, final setting on steam required
- The name of the service company;
- Date
- Type/Model No.
- ASVS Number

Required wording on the Back Side of the Red tag:
This tag shall be replaced with a 'Test Only' tag after completing final setting on steam by an ABSA certified service organization who conducted the test.



If the PRV was serviced, the organization who serviced the PRV shall also install a 'Service Name Plate'. The 'Service Name Plate' shall be attached in a manner that it remains on the PRV after another organization has set the PRV with steam and installed a 'Test Only' tag.

Upon setting and/or verification of the set pressure of the PRV with steam, an authorized service organization who tested the PRV with steam shall:

- replace the red warning tag with a 'Test Only Name Plate' (tag), and,
- seal the adjustable points.

It is permissible for one authorized organization to service a PRV and for another authorized organization to set it with steam provided the activity is described in their respective written descriptions of the QMS's.

- **Field testing using an assist lift device:** Steam.

All ASME Section I PRVs in steam service PRV shall be tested with steam.

3. **Liquid PRVs:**
   Liquid PRVs shall be tested with water or other suitable liquids except for ASME Section IV Code stamped heating boiler safety relief valves set at or below 1103 kPa (160 psi) which may be tested with water, steam or air.

   Verification Testing:
   During the audit the service organization shall demonstrate set pressure and seat tightness testing of one PRV each for each fluid service.

3.4 PRV manufacturing, assembling, selection and sizing, installation, operation, in-service inspections requirements and servicing intervals:

- **Manufacturing and/or Assembly:**
  The manufacture and assembly of the PRVs shall be done in accordance with the requirements of SCA, Regulations, CSA B51 Code, applicable ASME Code(s) and this document.

- **Selection and Sizing:**
  - ASME Section I applications (Power Boilers):
    - PRVs selected shall meet the characteristic requirements of the ASME Section I Code;
    - PRVs shall be sized to meet the minimum design or generated capacity marked on the name plate and other applicable requirements of the ASME I Code.
    - The sizing configuration determined by the PRV manufacturer shall be maintained by the owner during the in-service conditions.
  - ASME Section IV applications (Heating Boilers):
    - PRVs selected shall meet the characteristics requirements of the ASME Section IV Code;
    - PRVs shall be sized to meet the minimum relief valve capacity marked on the name plate and other applicable requirements of the ASME IV Code.
  - ASME Section VIII and pressure piping applications (unfired pressure equipment):
    - PRVs selected shall meet the characteristics requirements of the applicable ASME Section VIII and B31 Codes;
    - PRVs shall be sized to meet the minimum required system relief capacity.
    - The installed capacity shall be re-evaluated whenever the system relief requirements change due to alterations, additions, increased or reduced flow rates.

- **Installation:**
  PRV’s installations shall meet the requirements of the act, applicable ASME Codes, CSA B51 Code and AB-506 Pressure Equipment Inspection and Servicing Requirements document.

- **Operation, in-service inspections and servicing intervals:**
  PRVs shall be operated, inspected and serviced in accordance with the requirements of owner’s integrity management program and the AB-506 Pressure Equipment Inspection and Servicing Requirements document.

3.5 PRV Design Registration Requirements:

Design of a PRV shall be registered with ABSA. The registration of the design is the responsibility of the PRV manufacturer. The registration of the design is indicated by the CRN stamping on the PRV's name plate. A CRN number shall include a digit 2 or letter 'C' or 'CL' after the period to be legal for use in Alberta.

3.6 Quality Management System Requirements

Requirements that are enclosed in a box are mandatory and shall be addressed in a QMS.

Process for obtaining a Certificate of Authorization Permit from ABSA requires establishment and implementation of a QMS that is acceptable to the Administrator [PESR 13(a)]. Accordingly this document also establishes minimum requirements that shall be addressed in the written description of a QMS.

Implementation guidance is provided where appropriate to supplement or promote understanding of the requirements. **'Implementation Guidance' is not a mandatory part of this document.**

Requirements

PRV manufacturers, assemblers and service organizations who intend to operate in Alberta shall develop and implement a QMS that states the organization's commitment to quality, and describes the system used to manufacture, assemble, repair, service, set or seal the PRVs as applicable. A written description of the QMS shall meet the requirements of this document.

Implementation Guidance

A QMS establishes a company's policies, business practices, commitment, and accountability to meet the specified requirements, and describes a system to continually improve and maintain an effective management system. Generally a written description of the QMS documents an organization's management system and is developed by the executive management.

A written description of the QMS may be developed in a manner that best suits an organization's business needs provided all of the requirements of this document are addressed. QMS requirements starting from 3.6.1 to 3.6.16 are not necessarily the only quality elements, additional quality elements may be included as necessary. It is not the intent that an organization's QMS be formatted to adopt the same format and/or sequence or titles as that of Section 3.6 of the AB-524 requirement document but rather that the requirements be addressed somewhere in an organization's management system.

ISO 10013 – Guidelines for Quality Management System Documentation, and ISO 10005 – Guidelines for Quality Plans, provide useful information for

developing effective quality management system documentation. A written description of the QMS developed in accordance with the guidelines of ISO 10013:2001 and meeting the requirements of ISO 29001Standard provides for the application of additional quality principals not covered by AB-524 document and thus is a sounder basis for the development of a written description of the QMS. A QMS based upon ISO 29001is recommended (no registration is required with an ISO registrar) and will be acceptable provided all of the requirements of this document are addressed.

A written description of the QMS should accurately describe the system in practice. It should be a working document and enable the management, service personnel, auditors, ABSA, customers and other interested parties understand the manufacturing, assembling, repairing or servicing processes.

The extent of documentation needed to meet the requirements of this document will depend upon the size of the organization, type, location and complexity of the operations and competence of the personnel. Smaller organizations may find it appropriate to provide detailed descriptions of their work processes within the written description of the QMS documentation. However, as a general rule, including detailed procedures within the main body of the written description of the QMS documentation distracts a user from the key requirements of the management system. For this reason, procedures and other supporting documents that detail the processes may be referred to in the written description of the QMS and maintained separately as controlled documents. The content of the QMS elements should be limited to a brief explanation of the key requirements.

Samples of a QMS Element and a Procedure are included for information in Appendix A and B respectively.

The primary purpose of procedures, engineering standards, manufacturing standards, work instructions and other such documents is to provide detailed guidance to the individuals involved in the manufacture, assembly, servicing and testing of PRVs. These documents shall, therefore, be readily available at the point of use. They should be written with the reader in mind to clearly convey what is required to perform the activities, and, shall be detailed enough so that activities could be completed to meet the quality requirements consistently. The guidance documents may take the form of flow charts, tables, text, a combination of these or other means which may best suit the organization.

The senior management responsible for the manufacturing or assembling and/or servicing of the PRV should be actively involved in the development and implementation of the QMS. This is necessary to ensure that the QMS reflects current business practices, is effective, adds value to the organization’s business and ensures that activities are aligned, effectively interlinked to the supporting systems and demonstrates compliance to the legislation.

Owners of pressure equipment who have a pressure equipment integrity management program registered with ABSA and are also certified to service and/or set and/or seal PRVs shall also meet the requirements of this document AB-524.

3.6.1 Scope of work

Requirements

The organization shall:

- describe the scope, types (e.g., gas, liquid and steam), sizes and pressure ranges of PRVs to be serviced or manufactured or assembled, and special processes such as machining, welding, Post Weld Heat Treatment, Non Destructive Examination;
- list the shop locations and mobile units;
- describe the scope of work undertaken at each shop location, mobile unit and the address of each shop;
- indicate whether activities are undertaken at the shop and/or at the field sites; state the title of a person designated to perform QC function at each site and mobile units, and the title of a person who is overall responsible for the maintenance and effective implementation of the QMS at all locations and mobile units.

Implementation Guidance

The scope section of the written description of your QMS should clearly define the type and extent of work performed. Additional information to detail the scope of work may be included to provide information about the work undertaken and exclusions.

3.6.2 Definitions of Terms and Acronyms

All terms and acronyms used within the written description of the QMS should be defined.

Requirements

The organization shall state that the definitions of ASME PTC-25, Section 2 apply and, as a minimum, include or refer to all of the definitions and acronyms of Section 2.0 of this document without any change in order to benchmark and establish common understanding.

3.6.3 Quality Management System

Requirements

The organization shall establish, implement and maintain a QMS and continually improve its effectiveness.

- **Documentation requirements:**
  The QMS documentation shall include:
  - a written description of the QMS;
  - documented procedures identified by the organization's written description of the QMS;
  - records determined by the organization to be necessary to ensure effective planning, operations and control of the processes.

- **A written description of the QMS:**
  The organization shall establish and maintain a written description of the QMS that defines the business needs of an organization and addresses the requirements of the AB-524 document.

- **Document Control:**
  A documented procedure shall be established to define the controls needed to:
  - approve documents to assure accuracy and adequacy prior to issue. Changes to the documents shall be reviewed and approved by the same functions that performed the original review and approval;
  - review, update as necessary and re-approve documents;
  - ensure that no changes are permitted to QMS documentation that may render a document to be in non compliance with the requirements of AB-524 document, SCA, Regulations and applicable codes and standards;
  - ensure that changes and the current revision status of documents are identified;
  - ensure that relevant versions of applicable documents are available at the point of use;
  - ensure that documents remain legible and readily identifiable;
  - ensure that documents of external origin determined by the organization to be necessary for the planning and operation of the quality management system are identified and their distribution controlled;
  - prevent the unintended use of obsolete documents, and to apply suitable identification to them if they are retained for any purpose;
  - ensure that a master list or equivalent controls are in place to identify the documents that are required to be controlled and their revision status.

- **Records management:**
  - Records identified to provide evidence of conformity to the requirements and effective implementation of the QMS shall be controlled;
  - The organization shall establish a documented procedure to define the controls needed for the identification, storage, protection, retrieval and disposition of records;
  - Records shall remain legible, readily identifiable and retrievable;
  - The procedure shall identify the functions responsible for the collection and maintenance of records and the records that shall be maintained;
  - Records shall be retained for a period of 5 years or longer.

Implementation Guidance

A written description of the QMS: A written description of the QMS should provide information about the management system that is in practice and meets the requirements of AB-524 document. Description of the processes, references to documented procedures and the interactions thereof should be included in the written description of the QMS. A written description of the QMS may be developed to follow the sequence of the operations or the structure of a selected standard or in any other format considered suitable by the organization.

Key documents and records: Examples of documents and records that may be controlled under this section include:
- A written description of the QMS (electronic or hard copy);
- Codes and standards;
- PRV manufacturer's maintenance manuals;
- PRV manufacturer's PRV specification documents;
- PRV manufacturer's drawings;
- Purchasing documents;
- Approved vendor's list;
- Planning documents;
- Contract documents;
- PRV specification sheets;
- PRV service sheets;
- PRV data sheets;
- Documents of external origin;
- Any other documents considered important by the organization.

3.6.4 Management Responsibilities

Requirements

This QMS shall include statements that the management:

- is committed to the development and implementation of a successful Pressure Relief Device construction and/or assembling and/or a servicing program as applicable and that it will continually improve its effectiveness;
- will review the Pressure Relief Device construction and/or assembling and/or a servicing program at least yearly to ensure it's continued suitability and effectiveness;
- will determine and provide adequate & competent resources, necessary facilities and equipment to effectively implement the Pressure Relief Device construction and/or assembling and/or a servicing program;
- will appoint a member of the organization's management who, irrespective of other responsibilities, shall have responsibility and authority to ensure that QMS processes are established, implemented and maintained, and shall report performance of the QMS to the top management on a periodic basis;
- will ensure that the responsibilities and authorities are defined and communicated within the organization;
- will resolve disagreements concerning the implementation of the QMS;
- will ensure that the QMS remains in compliance with the requirements of this document, SCA, Regulations and applicable codes throughout the term of the certification;

Implementation Guidance

The objective of describing management responsibilities in the written description of a QMS is to ensure that top management makes commitment and takes a leading role in defining, implementing, administering and improving the systems with the goal of meeting the requirements established by the customers, regulations, codes & standards and organization's own standards.

Leadership, commitment and the active involvement of the top management is essential for developing, maintaining and implementing an effective and efficient quality management system.

3.6.5 Resource Management

Requirements

- **Provision of resources**
  The organization shall:
  - Provide an organization chart(s) that identify positions that are relevant to the QMS with the reporting structure illustrated.
  - determine and provide the resources needed to implement and maintain the QMS, and, continually improve its effectiveness;
  - provide and maintain PRVs performance test equipment in accordance with the requirements of Sections 3.3 and 3.8 of this document.

- **Competency and training**
  Personnel performing work affecting conformity to product/service requirements shall be competent on the basis of appropriate education, training, skills and experience.

  The organization shall:
  - determine the necessary competence for personnel performing work affecting conformity to product/service requirements;
  - provide training to achieve the necessary competence;
  - evaluate the effectiveness of the training provided;
  - ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives;
  - maintain appropriate records of education, training, skills and experience;
  - meet the PRV Technician Training requirements of Appendix C.

Implementation Guidance

The organization should document critical methods used for performing PRVs related activities under controlled conditions to minimize variation, achieve conformity to specified requirements and identify training needs, and for providing training to personnel who perform activities specified in the QMS.

On the job training should be provided to the:

- new employees;
- experienced employees whenever job modifications take place and as refreshers;
- contract personnel.

Training features should include a process to measure the extent to which the personnel are aware of the relevancy and importance of their activities and how they contribute to the achievement of the organization's quality objectives. It is advisable that personnel whose work can affect quality be informed of the consequences brought to bear on the customer of nonconformity to quality requirements.

ISO 10015:1999 'Quality Management-Guidelines for Training' provides guidelines for implementing an internal training program and may assist an organization to develop a suitable training program.

3.6.6 Purchasing and Material Control

Requirements

- **Purchasing**
  - The organization shall document methods for purchasing PRVs and parts thereof to achieve conformity to specified requirements;
  - The purchasing information provided to the supplier shall be documented and shall describe the product to be purchased including, when applicable, the part and/or model number, type, class, grade or other precise information necessary to ensure conformity to the specified requirements.

- **Verification of the purchased product**
  The organization shall:
  - document the methods for the verification of the purchased product;
  - maintain records of verification activities;
  - establish a process for identifying and disposing of non conforming product.

- **Identification, traceability and preservation**
  The organization shall establish methods for identification, traceability and preservation of the PRVs and parts thereof from receipt and during all stages of manufacturing, servicing and testing of PRVs up to the point of delivery.

- **Handling PRVs**
  The organization shall exercise controls to ensure that PRVs are transported to and from owner's premises and handled at the shop in a manner that preserves the integrity of the PRVs.

Implementation Guidance

Section 5 of API-576 describes various causes of improper performance. Sections 5.8 'Rough Handling', Section 5.11, Section 6.2.6.1 and Section 6.2.8 provide information about the consequences of rough handling which include possible damage to the internal parts, changes to the set pressure, damage to the test lever and consequential false pretest results. Rough handling can occur any time from the point of removal of the PRVs from the pressure equipment, transportation to a temporary storage at the owner's site until the PRVs are ready for shipment to a service shop, during transportation to a service shop, at the service shop, transportation back to the owner's site, storage at a temporary location at the owner's site until the PRVs are ready for re-installation on the pressure equipment, transportation from owner's temporary location to the pressure equipment and during installation on the pressure equipment.

Utilization of used parts is limited, evaluated on a case-by-case basis, and subject to prior acceptance by the Owner. Any used OEM parts must be provided by the Owner, be clearly identifiable, and fully comply with the OEM's dimensional and quality requirements.

3.6.7 Manufacturing and/or Assembly of new PRV's

Organizations not engaged in the manufacturing or assembly of the new PRV's are not required to address the requirements of this section in their QMS.

Requirements

Manufacturing and/or assembly of new PRV's

The PRV manufacturers and/or assemblers of new PRV's located in Alberta shall:

- implement a documented QMS that meets the requirements of applicable ASME code(s) and the AB-524 document;
- meet the requirements of the SCA, Regulations, CSA B51 Code and applicable ASME codes to their entirety for the construction and assembly of PRVs;
- obtain a Certificate of Authorization Permit from ABSA in accordance with the requirements of PESR Section 11(1)(c);
- obtain a Certificate of Authorization from ASME in accordance with the requirements of applicable ASME Codes.

3.6.8 Servicing and Testing of PRVs

Requirements

Servicing of PRVs

When servicing of a PRV is specified by an owner, the service organization shall ensure that the:

- PRV is inspected upon receipt to determine the as-received condition;
- Pre-test is conducted (unless the pre-test was performed in-situ) in accordance with the requirements of 'Inspection and Servicing Requirements of In-Service Pressure Equipment' document, AB-506;
- PRV is disassembled, parts inspected and/or measured;
- disassembled parts and accompanying documentation are controlled and safeguarded until re-assembled;
- PRV is serviced and blowdown set in accordance with the limits specified by the applicable ASME Codes and to the manufacturer's specifications PRV;
- PRV is set and tested in accordance with the requirements of Section 3.3 'Scope of Alberta's Bench Testing Program' of this document;
- performance test is done to meet the requirements of Section 3.3;

- Back pressure test of the secondary pressure zone of each closed bonnet pressure relief valve exceeding NPS 1 (DN25) inlet size when such pressure relief valves are designed for discharge to a closed system shall be tested with air or other gas at a pressure of at least 30psi or manufacturer's specifications.
- pressure gauges used to measure the set pressure are calibrated and the pressure ranges are suitable for the pressure under measurement;
- PRV is tested for seat tightness in accordance with the requirements of the PRV manufacturer and applicable ASME Code(s);
- PRV is tagged in accordance with the applicable requirements of Section 3.6.10 'Name Plates' of this document;
- points of adjustment are sealed using seals registered with ABSA;
- service report is prepared to record the PRV identification, owner's address, static PRV information, ASME code symbol, original name plate information, scope of work, set pressure definition, as-received condition, pre test results, the condition of the body and parts after disassembly, repair/replacement of parts, dimensions, set pressure test results and seat tightness test results. A copy of the report shall be provided to the owner.

Testing only of PRVs

When only testing of a PRV is specified by an owner, the service organization shall ensure that the:

- PRV is tested to the prescribed set pressure definition and seat tightness;
- points of adjustment are sealed using seals registered with ABSA;
- PRV is tagged in accordance with the applicable requirements of Section 3.6.10, Name Plates, of this document;
- service report is prepared to record the test results, the PRV identification, owner's address, static PRV information, ASME code symbol, original name plate information, scope of work, set pressure definition and any other information required by the owner or service organization's procedures. A copy of the report shall be provided to the owner.

Implementation Guidance

NB-23, Part 4 Section 4 Repair of Pressure Relief Valves, and, API-576, Section 6 "Inspection and Testing" describes recognized and generally accepted good engineering practices for the inspection, servicing and testing of PRVs.

Performance test: A performance test required by Section 3.3 and addressed in this section, is not a capacity measurement test. The test is meant to be done to verify that a PRV will open further (e.g., the UV stamped PRVs attain full capacity function at 110% of the set pressure limit) to achieve full relieving capacity on demand when in service. This test should be performed on a PRV whose set pressure definition requires very little volume to accomplish the set pressure test, e.g. a PRV whose set pressure definition is start to leak, initial audible discharge, first steady stream….A PRV whose set pressure definition is pop or heavy flow or gush, does not require a performance test because it will open up enough to confirm proper functionality of the lifting mechanism when tested for the set pressure definition.

Test Only: The test-only process does not meet PRV servicing requirements mandated by AB-506. They may only be performed on valves that have been previously serviced but not yet placed in service, or on in-service valves for the purpose of verifying operability and/or determining set pressure.

3.6.9 Conversions and Changes

Organizations not engaged in the conversions or changes to the PRVs are not required to include this section in a written description of the QMS.

Requirements

Conversion or Changes

- Conversions or changes to the set pressure, change of fluid service, installation of bellows, soft seats, CDTP and other changes that may affect the type/model number, shall be done in accordance with the PRV manufacturer's requirements;
- A conversion or a change request from an owner shall be documented;
- When a conversion or a change that effects the model number is done, a metal 'Repair Name Plate' shall be installed in accordance with the requirements of Section 3.6.10 'Name Plates' of this document;
- A Repair name plate shall be securely attached to the PRV adjacent to the original PRV manufacturer's name plate or stamping. For smaller PRVs if the repair name plate could not be mounted directly on the valve, it shall be securely attached so as not to interfere with the valve operation;
- The set pressure, capacity, blowdown and model number (if applicable) on the original name plate shall be marked out with a 'line' stamp but left legible;
- A service report shall be prepared to record the conversion or change. A copy of the report shall be provided to the owner.

3.6.10 Name Plates

Requirements

Name plate or stamping provides critical information regarding a PRV's identification, technical data and the last service/repair date. Whenever activities such as manufacturing/assembly, conversion, servicing or testing are performed, an appropriate name plate shall be installed. Unless specified below, the name plate material selected shall be sufficiently durable and suitable for the intended service.

An effective marking system shall be established to ensure proper marking of each PRV. The markings on the name plate or on the body of the PRV may be produced by casting, stamping, etching, printing, embossing, debossing or engraving.

The name plate requirements for the PRV manufacturers/assemblers are specified in the ASME Codes. The following requirements apply to in-service PRVs:

Service Name Plate:
When a PRV is serviced, a name plate (also called a Tag) printed or marked with one of the methods specified above with the information required below shall be securely attached to the valve body:

- The name or logo of the service organization preceded by the words "Serviced By";
- Date of service;
- Type/Model No.

Prior to attaching the service name plate, the previous service name plate if any shall be removed by the service shop.

Note: 'VR' certificate holders who use 'Repair Name Plate' both for repairs and servicing, do not require a special 'Service Name Plate' and may continue with the practice in place.

Repair Name Plate:
When a PRV is converted or changed in accordance with the requirements of Section 3.6.9 of this document (changes to the set pressure, change of fluid service, installation of bellows, soft seats and other changes that may affect the type/model number), a metal Repair Name Plate shall be installed.

- The Repair Name Plate shall include the following information:
  - Repair Name Plate;
  - The name or logo of the service organization preceded by the words "Repaired By";

- Date of service;
- Type/Model No.;
- New Set Pressure;
- New Capacity;
- CRN (if not on the original name plate);
- ASVS Number.

- If CDTP is applied due to in-service changes, it shall be included in the repair name plate markings.
- The original name plate shall remain. The set pressure and capacity on the original name plate shall be line stamped out but left legible.
- The new name plate shall be securely attached adjacent to the original name plate or stamping. For smaller PRVs if a new name plate could not be mounted directly on the PRV, it shall be securely attached to the valve body.

Test only Name Plate:
Where a PRV is adjusted and tested only and is not serviced, a “Test Only” name plate (also called a Tag) shall be attached to the PRV body. The name plate shall include the following information:

- Test Only;
- The name or logo of the service organization preceded by the words “Tested By”;
- Date of test;
- Set Pressure.

Duplicate Name Plate:
A duplicate metal name plate shall be installed in accordance with the requirements specified below if and when an existing name plate is illegible or missing:

- When an original PRV manufacturer’s or assembler’s name plate or stamping is illegible, but is traceable, a replacement metal name plate shall be prepared and securely installed in place of the original name plate. The replacement name plate shall include the following information:
  - Duplicate;
  - All the information that appeared in the original name plate except for the ASME Code and NB stamps;
  - The name of the service company that furnished the duplicate name plate;
  - Date (when the duplicate name plate was installed);
  - ASVS Number;
  - CRN;
  - ASME Sec. I or ASME Sec. IV or ASME Sec. VIII as applicable.

When an original name plate is illegible and is not traceable, no duplicate name plate shall be installed.

- **Missing Name Plate:**
  When the original name plate is missing, and the PRV is **not** traceable, the service organization is not authorized to service the PRV. A PRV that can be positively identified shall be fitted with a duplicate metal name plate that includes the same information as required for an 'Illegible Name Plate' above.

When installing service, repair, test and duplicate name plates, the customary units of the original name plate shall be maintained.

The Name Plates may be combined if all the required information could be clearly displayed.

Implementation Guidance

The original and repair/alteration name plates should be attached to the PRV body by means that will ensure the attachment for the lifetime of the relief device. Generally, it means riveting the name plate to the body of the PRV. If on smaller PRVs it is not practical to attach a name plate by riveting due to space restrictions, securing the name plate by other means may be accepted by the owner.

The service or test only name plates, which are sometimes called tags, may be sealed to the PRV body using service company's seal when such tags are expected to be replaced several times during the lifetime of the PRV. The seals and tags should be made of durable material to withstand environmental damage for several years.

3.6.11 Assist Lift Testing

Organizations, whose scope of work does not include the application of an Assist Lift Testing device, are not required to address the requirements of this section in their QMS.

An assist lift device may be used to apply an auxiliary lifting load on the spring of a PRV to establish the set pressure in lieu of the normal bench test method where the full test pressure is provided by the test bench or the system. The use of an assist lift device may be justified when testing at full pressure:

- may cause damage to the PRV under test, or,
- is impractical due to system design considerations that preclude testing at full pressure.

Requirements

- An assist lift device shall be calibrated in accordance with the requirements of the PRVOEM manufacturer and valve servicing organization;
- A documented procedure that meets the requirements of the PRV manufacturer and the one that has proven to produce accurate results shall be implemented;
- Personnel designated to use the Assist Lift Device shall be trained and assessed to be competent.

Implementation Guidance

Assist Lift Devices are commonly used by the utility plants to verify the set pressure of PRVs that are welded on to the boiler drum. Some process plants also find use of the device whenever there is a need for verifying the set pressure of a PRV on line. While actual valve blowdown, valve performance characteristics including seat tightness, and the condition of the PRV parts and associated piping cannot be verified, valve set pressure may be determined to an acceptable degree of accuracy using the assist lift device.

3.6.12 Measuring Devices

Requirements

The organization shall determine the measurements to be undertaken and the measuring equipment needed to provide evidence of conformity to the requirements.

The measuring equipment shall:

- be calibrated and verified at specified intervals against certified equipment having known and valid relationship to nationally recognized standards, prior to use or whenever error is suspected;
- be adjusted or readjusted as necessary;
- have identification in order to determine its calibration status. The identification shall include equipment type and a unique identification;
- be safeguarded from adjustments;
- be protected from damage and deterioration during handling, maintenance and storage.

The organization shall:

- establish and implement a measurement acceptance criteria;
- maintain calibration and verifications records;
- ensure that the environmental conditions are suitable for the calibration and measurement activities;
- assess the impact of wrongly set PRVs due to the use of faulty measuring equipment and notify customers if suspect PRVs were shipped.

Implementation Guidance

It is recommended that:

- measuring instruments be calibrated against gauge blocks at least every 6 months or whenever error is suspected. Gauge blocks traceable to a National Standard [(e.g. National Institute of Standard & Technology) NIST (US) or National Research Council (Canada)] should be used. The gauge blocks should be calibrated to a National Standard at an interval not exceeding 5 years;
- if test gauges are used, they be calibrated at a maximum interval of 3 months against master gauges;
- if master gauges are used, they be calibrated against a dead weight tester once/year;
- 2 parallel pressure gauges (analog or digital) be used when testing for set pressure;

- the analog pressure gauges range be not less than 1.5 times nor greater than 4 times the test pressure;
- digital pressure gauges will give the same or greater degree of accuracy as obtained with analog pressure gauges;
- ISO 10012 ‘Measurement Management Systems’ and International Document OIML D 10 ‘Guidelines for determination of calibration intervals of measuring instruments’ may be used as guides for managing the measuring devices.

3.6.13 Control of nonconforming product

Requirements

The organization shall:

- ensure that a documented procedure is established to define the method of identification, documentation, evaluation, segregation, disposition, description of the related responsibilities and authority for dealing with the nonconforming product;
- ensure that PRVs or parts that do not conform to the specified requirements are identified and controlled to prevent unintended use;
- take action to eliminate the nonconformity in a timely manner;
- verify conformance when a nonconforming product is corrected and released for use.

Implementation Guidance

PRVs and/or new part may be rejected when defects are detected. A PRV or parts may be identified with a Nonconformance Tag and placed in a controlled area designated for nonconformities. A Non conformance Report (or a Corrective Action or whichever methodology is used by the organization) should be initiated to deal with the non conformance and to prevent it from happening again. Some examples of PRVs related non conformities are:

- Missing name plate;
- Illegible name plate;
- Use of non OEM parts;
- Illegal weld repairs;
- Receipt of damaged or wrong parts from a supplier;
- Unidentifiable materials.

3.6.14 Internal Audits

Requirements

The organization shall conduct internal audits at least once/year to determine whether the QMS:

- conforms to the planned arrangements, the organization's requirements and the requirements of this document;
- is being effectively implemented and maintained.

The audit program shall be planned and take into account the status of the processes and the results of the previous audits.

The audit criteria, scope, frequency, selection of auditors and audit methods shall be defined.

An internal audit procedure shall be documented to define the responsibilities, requirement for planning, conducting audits, and records that should be maintained. The results of the internal audit shall be recorded.

Records and results of the internal audits shall be maintained.

Auditors shall not audit their own work area.

The management shall ensure that necessary corrections and corrective actions are taken without delay to eliminate the nonconformities and their causes. A follow up action shall include validation of the corrective actions taken and recording the results.

Implementation Guidance

ISO 19011 'Guidelines for quality and/or environmental management systems auditing' provides guidelines for auditing quality systems and may assist organizations in developing their internal audit program. The standard provides guidance for the management of audit programs, conduct of internal/external audits, as well for the competency and evaluation of auditors.

For organizations with multiple shops/facilities, the internal audit should include samples from each location.

3.6.15 Corrective Action

Requirements

The organization shall take action to eliminate the causes of non conformities in order to prevent recurrence. A documented procedure shall be established to define responsibilities and requirements for:

- initiating the non conformities;
- determining the root cause of non conformities;
- evaluating the need for action to prevent recurrence;
- determining and implementing needed action;
- identifying the response time;
- recording the results of action taken;
- reviewing the effectiveness of action taken;
- reviewing non conformities.

Implementation Guidance

Corrective Action occurs as a result of a reported problem and is considered a reactive approach. Corrective Action should be taken to eliminate the cause of the existing problem with the goal of preventing it from happening again. Corrective Action should not be considered as a disciplinary action or a means in itself, but rather, a problem solving process that analyses issues with the intent of improvement.

3.6.16 Preventive Action

Requirements

The organization shall determine action to eliminate the causes of potential non conformities in order to prevent their occurrence. A documented procedure shall be established to define the responsibilities and requirements for:

- initiating a preventive action;
- determining the potential nonconformities and their causes;
- evaluating the need for action to prevent occurrence of non conformities;
- determining and implementing needed action;
- recording the results of action taken;
- reviewing the effectiveness of action taken.

Implementation Guidance

Preventive Action is the response to information or knowledge that indicates that a potential problem might occur. Using the information will allow the organization to prevent the problem from happening in the first place.

3.7 Competency Requirements for Personnel:

- Personnel responsible for approving the service intervals shall be qualified in accordance with the requirements of AB-506 Pressure Equipment Inspection and Servicing Requirements document.
- Technicians responsible for servicing PRVs shall meet the training requirements of Appendix ‘C’.

3.8 Pressure Equipment Requirements for establishing a stationary or mobile PRV service shop:

The pressure equipment used for the performance testing of PRVs shall meet the following requirements:

- The performance testing equipment shall include pressure equipment of adequate volume and pressure source capacity to enable testing of the largest size of PRV applied for in combination with the set pressure definition that will require the maximum flow of fluid. The pressure source shall be sized to supply fluid for a sufficient amount of time to confirm accuracy of the test and to ensure that the test results are repeatable and representative of field performance;
- The pressure equipment shall be qualified by the applicant to ensure that the equipment and the testing procedures will provide accurate results when used within the ranges applied for. The qualification results of the equipment shall be documented by the applicant and presented to an ABSA auditor prior to initial business use. The ABSA auditor may require demonstration of the qualification tests to confirm the results. Documentation of the test equipment qualifications shall include but is not limited to:
    - the evidence that the applicant had performed tests prior to ABSA's certification audit to ensure that the equipment and the procedures will provide accurate results when used within the size and set pressure definition ranges applied for. The records shall include PRV sizes, set pressure and the set pressure definitions to which the qualification tests were performed by the applicant. At least one test each is required for air, steam and liquid services. Steam testing is required for service shop installed boilers only. The applicant should try to arrange for the largest size in combination with the set pressure definition that would require maximum flow of the fluid within the range of sizes applied for. In any case PRVs tested shall not be smaller than 100 mm or 4 inches inlet [unless the largest sizes applied for are smaller than 100 mm (4 inch)] whose set pressure definitions are pop for air or steam, and pop or heavy flow for liquid;
    - PRV manufacturer's Data Report(s) for the pressure vessels;
    - AB-83 Pressure Piping Construction and Test Data Report;
    - Certificates of Inspection Permit issued by ABSA for boilers, pressure vessels and test stand;
    - a schematic of the performance test equipment;
    - documentation of the acceptance of the pressure equipment installation by ABSA;
    - specifications of the test vessel(s) unless included in the PRV manufacturer's Data Report(s);
    - repairs, modifications records.
- Any modification affecting the pressure, capacity and performance of the test equipment shall require re-qualification of the equipment by the organization.

- The PRV performance testing system or any parts thereof shall be designed and constructed in accordance with the requirements of the CAP holder's standards, customer's requirements, the SCA, regulations, CSA B51
- Due to safety concerns, the following are mandatory requirements for the design, fabrication, and inspection of the test stand:
  - test stand shall be designed and fabricated to B31.3.
  - an AB-83 Form certifying the test stand shall be maintained.
  - repair/alterations to the system shall be carried out by an organization holding a valid CAP from ABSA and documented on an AB-83.
  - Test stand shall have a permanently mounted (welded) nameplate with the description and date of fabrication as well as a location for an ABSA number (Number). May also be permanently mounted nearby or on the supports.
  - Test stand shall have a certificate of inspection issued by an ABSA SCO.
  - The test stand shall be inspected annually by the Owner and documented with signature and dates.
  - The test stand shall be inspected by an ABSA SCO on a 3 year interval and the current certificate of inspection shall be available during audits.

  Note: All previously accepted test stands shall meet these requirements or shall be replaced. Acceptable deviations in design and fabrication acceptable to the ABSA SCO may be considered, however, the certificate of inspection is mandatory. E.g. Registered test stands as 0H fittings or as pressure vessels are acceptable.

3.9 Owners of pressure equipment who wish to include PRV Servicing activity in their ABSA certified pressure equipment integrity management program:

ABSA certified owners of pressure equipment who wish to undertake servicing of Pressure Relief Valves, shall address the requirements of this document somewhere in their management system documentation. ABSA certified Owner-users are not required to submit AB-524b document to ABSA.

3.10 Organizations holding a NB 'VR' Stamp for the repair of PRVs:

PRV servicing Organizations are not required to hold NB 'VR' stamp in Alberta. PRV servicing Organizations who operate in Alberta and hold a NB 'VR' stamp shall also:

- obtain a CAP from ABSA [PESR 11(1)(c)];
- meet the requirements of this document.

3.11 Weld repair of PRVs:

Weld repairs are restricted, require prior acceptance from ABSA and are considered on case-per-case basis. Weld repairs to PRV parts shall be done in consultation with the PRV manufacturer and in accordance with the requirements of PESR, the ASME Code of construction, AB-513 Pressure Equipment Repair and Alteration Requirement document, NB-23, Part 4, Section 4 and any other requirements assessed by ABSA.

3.12 Surveillance audits:

ABSA shall conduct surveillance audits of ABSA certified PRV manufacturing, assembling or servicing organizations within the term of their certification. The audits are a part of a surveillance strategy to assure continual conformance to the QMS and requirements. The frequency of the audits is based upon the surveillance audit strategy and a CAP holder's track record. A company may or may not be given advance notice of the audit. A recommendation to continue the certification of the auditee is based upon a favorable report from the auditor. Per section 46 of the SCA, a permit may be suspended or cancelled if the SCO determines that the QMS is not being followed and that the Act is not being complied with.

4.0 CERTIFICATION PROCESS

The steps for obtaining a Certificate of Authorization Permit (new and renewals) are outlined below:

Step 1 - Meeting with ABSA – A meeting is held to provide information about ABSA, the Safety Codes Act and regulations; CSA B51 Code; applicable ASME Code of construction; NB-23, NB-18, ASME PTC-25; API standards; requirements of this document; a written description of the QMS; Certification Process and achievement of Certificate of Authorization Permit; certification costs and responsibilities of the Certificate of Authorization Permit holder.

Note: Step 1 is optional for out of province applicants and is not required for renewals.

Step 2 - Application – Owner submits:

- an Application Form AB-29;
- a draft copy of the written description of the QMS;
- a duly completed AB-524b checklist;
- an AB-29a form if the owner wants to manufacture or assemble or service PRVs at multiple shop locations and/or mobile units under the same company name and under a single registration number;
- an Application fee.

Step 3 - Management System Review – ABSA conducts a review of the QMS to confirm conformance to the requirements. Upon acceptance of the written description of the QMS as basis for a site audit by ABSA, the owner is asked to arrange for an audit date. An auditor from ABSA witnesses the implementation of

the program (witness PRVs being serviced and tested for set pressure, interview personnel to confirm understanding of the quality processes and review documentation as necessary). The auditor uses the owner's written description of the QMS as a guide for conducting the audit, however the effectiveness of the quality management system as described in the written description of the QMS is also evaluated and, as a result, revisions may be identified. The site audit is assisted by an organization's management personnel and may take a full day.

Step 4 - Certificate of Authorization Permit – If the review is successful, a Certificate of Authorization Permit is issued to the applicant. The normal term of the permit is 3 years.

5.0 FEES

The fees for the certification activities are charged in accordance with the 'Fee Schedule for the Delegated Functions (available at http://www.absa.ca/fee-schedule/). The application of the fees is described in an attachment to Application Form AB-29.

6.0 EXEMPTIONS

The requirements of this document do not apply to PRVs which are installed on pressure equipment that is exempt from the PESR.

APPENDIX A - A (Nonmandatory) – A Sample QMS Element

A quality element of the written description of the QMS should briefly describe the key activities (try to keep it within 1-2 pages). The key activities or statements included in the written description of the QMS are instructions or requirements of the executive management that should be further detailed in the procedures, standards or work instructions to provide complete guidance to the personnel performing task(s).

A sample QMS element is included below for your information:

Document Control

Purpose

Quality system documents and data are controlled to ensure consistency, prevent unauthorized creation or revision of documents, maintain currency and to assure availability at the point of use.

General

(Organization's name) implements a Document Control Procedure No. QA-1234-2012 to describe the QMS documentation, provide guidance for proper use of documents and specify responsibilities and guidance for records keeping.

Responsibilities

The (Title of a person) is responsible for ensuring that the procedure is maintained and that the requirements defined therein are followed by all employees of

(Company name's) **Document Control System:**

A documented procedure No. QA-1234-2012 is implemented by (Organization's name). The procedure details and provides guidance for the development of new documents and revision of the existing ones. The procedure:

- addresses approval of new and revised documents prior to issue. Revisions to the documents are reviewed and approved by the same functions that performed the original review and approval;
- addresses review, updating and re-approval of documents;
- describes the process that controls the changes and the current revision status of the documents;
- describes the process to ensure that relevant versions of applicable documents are available at the point of use;
- describes the process to ensure that documents remain legible and readily identifiable;
- describes the process to ensure that documents of external origin, which are determined by the organization to be necessary for the planning and operation of the quality management system, are identified and their distribution is controlled;

- describes the process to ensure that the unintended use of obsolete documents is prevented, and includes a process for the application of suitable identification to them if they are retained for any purpose;
- includes a requirement that no changes to the processes or documentation are permitted that may render the processes or documentation to be in non compliance with the organization's standards, requirements of AB-524 document, the SCA, regulations and applicable codes and standards;
- requires that a master list be maintained and continually updated to identify the documents that are required to be controlled.

Applicable Documents:

- Document Control Procedure No. QA-1234-2012
- Any other procedures utilized for the control of documents

Note: The procedure numbers are fictitious and have been used to illustrate the process.

APPENDIX B - (Nonmandatory) – A Sample Procedure

Procedures should be written by the manager responsible for the area or a suitable person working under the guidance of the manager. The procedure shall address each requirement of the applicable quality element, describe responsibilities and tasks and provide enough details so that the personnel responsible for implementing the procedure are able to complete the task(s) and meet the quality requirements on consistent basis.

A sample procedure is included below for your information. You may use any format that suits your needs. The procedure should:

- clearly describe the steps from start to finish;
- reflect your best business practices;
- clearly specify the quality expectations at each distinct stage (e.g., tolerances, acceptance criteria);
- be simple enough for the service technicians or any other personnel of your organization to follow;
- assign responsibilities;
- clearly link to other procedures, work instructions or forms when necessary;
- require the person doing the work to check his/her work to ensure that all quality expectations are met before passing it on to the next work station;
- require the personnel to conduct ‘self checks’ at the completion of a distinct stage to confirm conformance to the requirements;
- require the personnel to conduct ‘successive checks’ at the start of a distinct stage to confirm conformance to the requirements up to this point;
- be precise but complete;
- be written in simple language.

Upon completion of the procedure, read it. If you cannot understand it, most likely the users will not understand it either. Let the users read the draft to verify the process. Ensure that the steps are clear. No wasteful steps are included and that the quality criteria is included at each stage. Don’t forget to provide training and follow up checks to validate and to continually improve the process described in the procedure.

For your convenience, and if you require assistance in developing QMS procedures, procedures such as the Document Control Procedure presented below may be purchased through the internet and revised to meet your needs.

Document Control	**Procedure No.: QA-1234-2012**

1.0 Purpose

This procedure describes the process for managing QMS documents.

2.0 Responsibilities

- The Service Manager is responsible for assigning authors for creating or maintaining documents.
- The author is responsible for writing the document, creating related forms,

getting a document number and submitting the document to the manager for review.

- The Service Manager is responsible for approving each document that is referenced in this procedure.
- The Document Control Coordinator is responsible for assigning document numbers, maintaining the master list, posting new and revised documents on the network, distributing hard copies of documents and revising documents.
- All employees are responsible for reviewing and using the applicable documents and for submitting document change requests to update them as necessary.
- The Network Administrator is responsible for backing up the network daily.

3.0 Definitions

- Procedure: A document detailing specific work processes.
- Work Instructions: Step-by-step directions on how a task should be done.
- Attachments: Documents used to further clarify or show examples of information described in the procedures and work instructions.
- Forms: Documents used to make a record of completing all or part of the process described in procedures and work instructions.
- Records: Completed forms or information generated as a result of the implementation of the procedures and retained as indicated in the Control of Quality Records Procedure No. QA-1235-2012.
- Software Inventory Spreadsheet: List of software being used, indicating current revisions and locations.

4.0 Equipment/Software

Worldox.

5.0 Instructions

5.1 Document Creation:

5.1.1 When the need for a document is identified, the Service Manager will assign an author to the document. Any employee who may be considered suitable for the job may be assigned the responsibilities for the development of a document.

5.1.2 The author develops the document and prepares related forms as necessary.

5.2 Approval:

5.2.1 The author submits the documents to the Service Manager for review and approval. The manager reviews and if acceptable signs the revision log and approval page as a record of his/her approval.

5.2.2 The Document Control Coordinator inserts the approver’s initials

into the electronic copies when posting approved documents to the network.

5.3 Document Identification and Distribution:

All documents shall include the following information:

- Company name;
- Title;
- Document Number;
- Current Revision and Date;
- A unique document number.

5.4 Document numbering

5.4.1 Procedures, work instructions, forms and attachments are numbered using the following number scheme:

- Procedures are numbered as follows:
  Each procedure starts with the letters prefix assigned to each specific department, followed by a Serial No. and year. For example this document control procedure was written in 2012 and therefore is assigned the procedure number QA-1234-2012.
- The following ‘letters prefix’ are assigned:
  - (SR) Servicing: Service, Warehousing, and Inventory control;
  - (SA) Sales: Marketing, Sales and Customer Service;
  - (AD) Administration: Management, Human Resources, Accounting and Purchasing;
  - (QA) Quality Assurance: Quality Assurance and Quality Control, Inspection and Document and Data Control.
- Work Instructions are numbered WI-XXXX-0000, where XXXX is the related procedure number, and 0000 is a number assigned sequentially as work instructions for that procedure are entered. For example WI-1234-001 is the work instruction for creating and maintaining the Master Document List.
- ‘Forms’ and ‘Attachments’ are numbered using the same format as the work instructions but using F and A respectively in place of the WI. A letter indicating the revision of the form or attachment is added at the end of the number. For example, F-XXXX-001-A.

5.4.2 Authors obtain the document number from the Document Control Coordinator.

5.4.3 Approved documents are submitted to the Document Control Coordinator and entered on the Master Document List as outlined in the Master Document List work instruction. Approved documents containing original signatures are the “Master” copies and are kept

in the Master Document file.

5.4.4 The Document Control Coordinator posts new and revised documents on the network and distributes hard copies to the points of use according to the Master List.

5.4.5 Hard copies are controlled by listing the distribution of the document on the master list and printing the documents on blue paper to indicate that they are controlled. Forms may be printed on white paper.

5.4.6 The document templates include an auto print date. Electronic copies of procedures work instructions and attachments that are printed for use are controlled by this print date. Printed copies are only valid for 24 hours from the print date unless stamped “controlled copy” in red ink. Copies of these controlled documents are not authorized.

5.5 Document revisions

Documents are reviewed during regular use and during internal audits. Documents are updated as found necessary during these reviews.

5.5.1 Documents are revised to update or clarify information using the Document Change Request form F-1234-001.

5.5.2 Revisions are made electronically and a revision summary and date of the revision recorded in the revision section of the document.

5.5.3 The document control coordinator uses the Document Revision Checklist F-1234-002 to ensure that all steps are completed.

5.5.4 Revisions to documents go through the preceding document approval, identification and distribution steps. Document changes are approved by an individual in the same function that performed the original review and signed the original document indicating approval.

5.5.5 No changes to the processes or documentation are permitted that may render the processes or documentation to be in non compliance with the requirements of AB-524 document, the SCA, Regulations and applicable codes and standards.

5.6 Obsolete Document Disposition

5.6.1 One hard copy of the obsolete document is retained and marked “Archive Copy”. The document change request is retained with the archived copy.

5.6.2 The archive copy is maintained in a file in the document control area.

5.6.3 Electronic versions of obsolete documents are marked “Archive Copy” and moved to an archive electronic folder for reference use.

5.7 Electronic Backup:

All documentation is stored on the company network. An electronic backup is made daily by the network administrator.

6.0 Work Instructions, Forms and Records

6.1 WI-1234-001 Master Document List

6.2 F-1234-001 Document Change Request Form

6.3 F-1234-002 Document Revision Checklist

6.4 QA-1235-2012 Control of Quality Records

7.0 Revisions

REV. No.	SECTION	SUB-SEC.	BRIEF DESCRIPTION OF THE CHANGE	DATE	AUTHORIZED BY

APPENDIX C - (Mandatory) – PRV Technician Training Requirements

Competency requirements and the training needs of the employees shall be assessed and documented in accordance with the requirements of the 'Resource Management' section of the service organization's QMS. Newly hired employees who had prior experience servicing the PRVs may not require training for all the elements covered under the Basic and Advanced training sections of this appendix provided the:

- provision of the prior training can be confirmed;
- employee is tested and/or examined to confirm competency.

Documentation of the assessment, prior experience, tests or examinations given to confirm competency and certification by the organization shall be maintained.

All new hires shall be provided training by the service organization to develop understanding of the 'Organization's QMS' regardless of any prior experience.

1. <u>Basic Training</u>:

The basic in-house PRV Technician Training shall be provided by a designated trainer.

The basic PRV Technician Training program shall cover the following topics:

- **Organization's QMS:** Training shall be provided to develop understanding of the:
  - organization's quality management system;
  - quality procedures and in particular PRV servicing procedure and PRV manufacturer's servicing requirements;
  - PRV manufacturer's maintenance & servicing literature and parts catalogue;
  - QMS documentation such as completion of Service Report and other forms utilized by the QMS;
  - records keeping system;
  - other systems or processes pertinent to the organization's QMS.

- **Working knowledge of the PRV operation, terminology, regulations, codes and standards:** Training shall be provided to develop understanding of the:
  - basic PRV working and terminology;
  - definitions of ASME PTC-25, Section 2;
  - set pressure tolerances and seat tightness testing requirements of the applicable ASME Codes;
  - API-527 seat tightness testing, API-576, applicable sections of NB-23 and NB-18;
  - SCA & Regulations.

- **Attendance of a PRV manufacturer's training course (min. 2 days) for servicing PRVs.**
  In-house hands-on training for the servicing of PRVs:
  - A min. of 960 hrs of logged in training under the supervision of an experienced PRV technician who is designated as a trainer by the organization. During the

training period the trainee shall completely service an adequate number of PRVs covering the types (e.g., direct spring loaded, bellows, pilot operated…), fluid services (air, liquid, steam) and size ranges for which the company is certified. Post training assessment shall confirm that the trainee is capable of servicing the PRVs independently and meets the organization's quality standards.

Owner-User Programs:
For owners of pressure equipment who hold a Certificate of Authorization Permit per Section 11(3) of PESR and are authorized to service their own PRVs, an alternate in-house hands-on PRV technician training plan may be accepted by ABSA.

- The servicing of PRVs shall include:
  - inspection of the as-received PRV and recording the condition;
  - pre-testing the PRV and recording the results;
  - dismantling the PRV and recording the condition of internal parts;
  - taking critical measurements of the PRV parts and recording the results;
  - cleaning the PRV and parts;
  - repairing/replacing parts as necessary;
  - assembling the PRV;
  - setting the blowdown rings;
  - conducting the set pressure test and recording the results;
  - conducting the back pressure test;
  - conducting the seat tightness test;
  - sealing the adjustable points using ABSA registered seals;
  - covering the inlet and outlet for transportation;
  - securing the test lever to the PRV body;
  - name plate stamping;
  - preparing the Service Tag and securely attaching it to the PRV;
  - completing the Service Report;
- care and maintenance of the test bench;

- A technician shall not service PRV independently until he/she has completed the basic PRV Technician Training program successfully and has been certified competent by the designated trainer.

2. Advanced Training:

The advanced PRV Technician Training shall be provided by a designated trainer.

The advanced in-house PRV Technician Training program shall cover the following topics:

Prerequisite: Successful completion of the basic training program and 1 year experience.

- Use of an Assist Lift Device (if applicable);
- Conversion of PRVs: Changing the set pressure, spring, method of calculating/obtaining the new capacity; installation of repair name plate; installing bellows, changing service from air to liquid or vice versa, changing material, converting to soft seat (if applicable);
- In-situ servicing and testing of PRVs (if applicable);
- Application of CDTP (if applicable);
- Machining (if applicable);
- Application of any other special methods used by the organization.

No advance training is necessary if none of the above techniques are applied by the organization.

3. Continual Development:

Continual development is about the maintenance and improvement of knowledge, skills and personal attributes related to the servicing, setting and testing of PRVs. This can be achieved through PRV's related work experience, formal training, private study, coaching, attendance of PRV's related technical meetings, seminars and conferences.

Continual development opportunities shall be provided to each technician who had previously received the basic training. At least once a year the organization shall hold a formal developmental session to cover the following topics unless a min. of 8 hrs of knowledge refreshment or developmental activities had been undertaken by each technician within the year covering applicable topics listed above:

- Recall and reinforce important aspects of PRVs servicing program and previously acquired knowledge and skills to assure continued understanding;
- Review QMS revisions including changes to the quality standards, procedures, acceptance criteria; work instructions and forms as necessary;
- Other appropriate topics based upon the needs identified by the organization.

Review new techniques, skills, methods or equipment whenever they are introduced; Review, resolve and provide training whenever variations in the understanding or implementation of quality processes are discovered.

Formal continual developmental training sessions shall be held by a designated trainer.
Qualifications of a Designated Trainer:

A designated trainer shall:
- have completed an advanced training program. If company's scope of work does not include features listed in the advanced training program, a basic training program will suffice;
- have at least 2 years of experience.

Designated trainers shall be authorized by the organization. The authorization shall be documented.

Qualifications of a Certified Individual (Manufacturing/Assembly):

A certified individual shall:
- **Shall be qualified in accordance with the applicable code and the National Board NB-383.**

External Training courses:
A service shop may utilize external training courses to supplement or cover some topics of the **'**PRV Technician Training requirements' specified by this appendix.

Existing Training programs:
The existing PRV Technician Training programs implemented by Certificate of Authorization Permit holders shall be updated to assure that the training requirements specified by this document are addressed.

7.0 REVISION LOG

This document was first issued on August 14, 2012 as Edition 1, Rev. 0 as an informatory document. The requirements took effect on January 1, 2014.

- On January 1 of each year an updated edition of the AB-524 document is posted. The Edition No. of AB-524 document changes and the Rev. No. starts at 0, and, all previous year's change identification markings are deleted.
- The changes done to the new edition are summarized under 'Summary of changes' in the table below.
- If any updates happen during the current year, the Edition No. remains the same, but the Rev. No. changes with each posting. The changes are identified with side bars in the margin area.

Revision Log			
Edition	**Rev**	**Date Issued**	**Description**
1	0	2012-08-14	**First edition issued. Not mandatory until Jan. 1, 2014.**
2	0	2013-01-01	**Second edition issued**. **Not mandatory until Jan. 1, 2014.** • Throughout - Editorial changes. Text enhancements
2	1	2013-02-22	• The words 'is completed' were added to the required wording on the backside of the Red Tag on p.13.
3	0	2014-01-01	**Third edition issued. Mandatory effective Jan. 1, 2014.** • Throughout - Editorial changes. Text enhancements and updating of the 'Implementation Guidance' sections. • 3.8 - First sub bullet. Documentation requirement for repairs and modifications of the pressure equipment included.
4	0	2015-01-01	**Fourth edition issued. Mandatory effective Jan. 1, 2015.** • Throughout - Editorial changes and text enhancements. • 2 - Included a definition of Pretest. • 3.6.10 - Name Plates. Included a requirement for CDTP markings on a Repair Name Plate.
5	0	2016-01-01	**Fifth edition issued. Mandatory effective Jan. 1, 2016.** • Throughout - The use of the terms shall, must and should made consistent with Clause 1.5 of CSA B51-14. • 3.3 - Clarified text at paragraph starting with the words 'A PRV…' • 3.6.10 - Included requirement to maintain original name plate customary units.
5	1	2016-09-30	Editorial change - Reference to IB14-006 changed to IB15-003.
6	0	2017-01-01	**Sixth edition issued. Mandatory effective Jan. 1, 2017.** • Throughout - Editorial revisions to align with other ABSA documents. • Foreword - Revised revision interval.

7	0	2021-11-29	**Seventh edition. Mandatory effective Jan. 01, 2022.** • 2 - Included Administrative Items Regulation to Act and Regulations definition • 2 - Added Blowdown definition • 2 - Modified CSA definition term to CSA B51 for consistency • 3.2 - Added reference to ASME Section XIII “Rules for Overpressure Protection” • 3.3 - Revised to include Blowdown into scope of document • 3.3 - Included instruction when current set pressure definition is not available • 3.3 Included setting of blowdown and back pressure testing of secondary pressure zone activities • 3.3 - Modified ASME Sec. I valves steam testing requirement to ASME Sec. I steam service valves, to permit liquid testing of Sec. I liquid service valves • 3.6.5 - Included an organizational chart requirement • 3.6.8 - Revised 5th bullet to include ASME blowdown requirements • 3.6.8 - Added bullet 8 regarding back pressure testing of secondary pressure zone • 3.6.11 - Requirements 1st bullet revised - An assist lift device shall be calibrated in accordance with the requirements of the OEM manufacturer and valve servicing organization • 3.6.12 - Measuring Devices Implementation guidance bullet 2 - Gauge block calibration interval revised • 3.6.12 - Implementation guidance - Added 6th bullet regarding digital pressure gauges • 3.6.14 - Internal audits implementation guidance - Added note to include multiple locations when conducting internal audits. • 3.8 - Included note that test stand pressure equipment cannot be designed as piping.
8	0	2026-07-09	Mandatory effective Jan. 01, 2027. • 3.3 Test medium Part 2 added a PRV process to address thermal effect as part of steam testing. • 3.6.6 Implementation Guidance for used parts updated. • 3.6.8 A new paragraph for Test Only provided in the Implementation Guidance section for clarity. • 3.8 revised to include test stand design and construction requirements.