

Quality Management System Requirements for Integrity Assessment Organizations

AB-515

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FOREWORD

As provided for under Sections 11(2) and 13(a) of the Pressure Equipment Safety Regulation, the Administrator in the pressure equipment discipline has established that ABSA document AB-515 specifies the types of integrity assessment activities which are required to be carried out by an organization having Certificate of Authorization Permit, and when such a permit is required, it provides further guidance as to the required content of a Quality Management System (including related practices and procedures) in order for it to be acceptable to the Administrator, as required by Section 13(a) of the Regulation. Appendix A of this document provides the criteria for determining whether a Certificate of Authorization Permit is required.

1.0 INTRODUCTION

This AB-515 Quality Management System Requirements for Integrity Assessment Organizations (AB-515) document defines quality management system normative requirements that shall be addressed to achieve and maintain a pressure equipment integrity assessment quality management system Certificate of Authorization Permit (CAP). The decision chart in Section 5.0 shows when a person, or organization, performing in-service pressure equipment integrity assessments in accordance with the Pressure Equipment Safety Regulation (PESR) must hold a Certificate of Authorization Permit.

This AB-515 document cancels and replaces the previous ABSA documents that were issued to define quality management system requirements for Integrity Assessment Organizations, formerly referred to as “Inspection Companies”.

Pressure equipment installed in Alberta is regulated by the Alberta Safety Codes Act and pressure equipment regulations made under this Act.

The Pressure Equipment Safety Regulation has been legislated to promote pressure equipment safety and reduce pressure equipment accidents and incidents. It establishes the pressure equipment owner’s responsibility to ensure the safe operation of their pressure equipment and identifies a number of specific requirements that owners must meet to assure the safe operation of their equipment. One such provision is that an owner must have an effective integrity management system in place to ensure their pressure equipment is safe throughout its full lifecycle: from when it is designed, constructed and installed, throughout its service life and when it is decommissioned. Effective integrity assessment of in-service equipment is a key integrity management system element to ensure that pressure equipment remains safe for operation.

Accordingly, the PESR covers some specific requirements for integrity assessment. These include:

- The Administrator's authority to require organizations who perform the integrity assessment to hold a quality management system Certificate of Authorization Permit [PESR Section 11(2)],
- Items that must be covered in an integrity assessment program [PESR Section 41],
- Requirements for owners to, unless exempted by the Administrator, establish and maintain an integrity assessment program that is acceptable to the Administrator [PESR Section 42(1)],
- Requirements for maintenance and submission of integrity assessment records [PESR Section 41 and 42], and
- Establishing qualification requirements and Certificates of Competency for persons who perform integrity assessments [PESR Section 43].

Except as indicated in the decision chart in Section 5 of this document, a Certificate of Authorization Permit is required for a person, or an organization, who provides integrity assessment services for in-service pressure equipment and certifies the results of the integrity assessment and the conditions under which the individual items of equipment may be operated. This includes inspection and certification of specified repairs within the pressure equipment owner's integrity management system Certificate of Authorization Permit. Persons who perform integrity assessments and certify the pressure equipment for use must hold the appropriate In-Service Inspector Certificate of Competency. The requirements set by the Administrator for an In-Service Inspector's Certificate of Competency are defined within AB-526.

Public occupancy equipment is not covered under the scope of an integrity assessment organization's certificate of authorization permit as all equipment classed as public occupancy requires inspection and certification by an ABSA Safety Codes Officer (SCO).

Note: *If integrity assessment services are limited to providing personnel to complete integrity assessments of in-service pressure equipment and all integrity assessment activities are directly supervised and controlled under an owner-user Certificate of Authorization Permit, the person, or organization, does not require a Certificate of Authorization Permit for this scope. (Refer to Section 5.0)*

Integrity assessment data for items of pressure equipment designated by the Administrator must be submitted to ABSA. The integrity assessment data may be used as the basis for updating the pressure equipment information system that ABSA maintains on behalf of the Government of Alberta.

Integrity assessment is defined in the PESR as "an examination of an item of pressure equipment, related processes and documentation to determine its conformity to the requirements established by the Safety Codes Act and the regulations". For the purpose of this document, "inspection" shall mean "integrity assessment of in-service equipment" and "Integrity Assessment Organization" shall mean an organization holding a Certificate of Authorization Permit to perform integrity assessments of in-service pressure equipment.

The AB-515 document specifies quality management system requirements for persons, or organizations that are required to hold a certificate of authorization permit for integrity assessment under the PESR. Information to assist in ensuring the practical application of these requirements is also provided.

The AB-515 document has been developed in close cooperation with providers of pressure equipment integrity assessment services, pressure equipment owners and other stakeholders to promote the consistent application of effective integrity assessment services and provide assurance that the providers are competent and provide the required integrity assessment services.

The ISO/IEC 17020 standard is an internationally recognized standard governing inspection bodies. It specifies general criteria for the competence of impartial bodies performing inspection. Relevant requirements of this standard have been incorporated in the AB-515 document, within the framework of the Safety Codes Act requirements, Alberta industry practices and the programs that ABSA administers under this Act.

Information in the European Co-operation for Accreditation document, EAIAF/ILAC-A4:2004 Guidance on the application of ISO/IEC 17020:1998, was considered in the preparation of Edition 1 of AB-515 and the Australian National Association of Testing Authorities ISO/IEC 17020 Inspection Standard Application Document (August 2015) was also considered when preparing Edition 2 of the AB-515 document.

Pressure equipment installed in the Province of Alberta covers a broad range of facilities from major petrochemical plants, pulp mills, and power utilities to smaller oil and gas processing and industrial facilities. The extent of documentation that the person, or organization completing integrity assessments needs to provide for an effective program in accordance with this AB-515 will depend on the organization's size and structure, and the range and type of integrity assessment services provided.

AB-515 requirements are intended for any organization that wishes to provide integrity assessment services under the Safety Codes Act irrespective of its size or scope of integrity assessments. To ensure the AB-515 is current and suitable for the intended purpose, ABSA will update this document periodically. The current version of this document and other ABSA policy documents, which have been issued by the Administrator to establish requirements, are posted on ABSA's website at www.absa.ca.

The policy documents referenced in AB-515 are listed below. Additionally, ABSA publication AB-516 Pressure Equipment Safety Regulation User Guide, assists stakeholders meet the requirements of the Pressure Equipment Safety Regulation, and assure the safe operation of pressure equipment installed in Alberta.

Reference Publications

AB-506	<i><u>Inspection & Servicing Requirements for In-Service Pressure Equipment</u></i>
AB-512	<i><u>owner–User Pressure Equipment Integrity Management Requirements</u></i>
AB-513	<i><u>Pressure Equipment Repair and Alteration Requirements</u></i>
AB-515(a)	<i><u>Integrity Assessment Organization Authorized Scope of Activities</u></i>
AB-515(b)	<i><u>Integrity Assessment Organization QMS Written Description Checklist</u></i>
AB-516	<i><u>Pressure Equipment Safety Regulation User Guide</u></i>
AB-526	<i><u>In-Service Pressure Equipment Inspector Certification Requirements</u></i>
ISO/IEC 17020:2012	Conformity assessment – Requirements for the operation of various types of bodies performing inspection
ISO 10013 2001	Guidelines for Quality Management System Documentation

ISO/TS 29001: 2003 Petroleum, petrochemical and natural gas industries. Sector-specific quality management systems. Requirements for product and service supply organizations

EAI/AF/ILAC –A: 2004 Guidance on the Application of ISO/IEC 17020:1998

NATA: ISO/IEC 17020 Inspection Standard Application Document: 2015

2.0 SCOPE

Section 4 of this document establishes the normative requirements that must be addressed in the written description of an Integrity Assessment Organization's Quality Management System, when it is required to be submitted to ABSA pursuant to the Act and Regulations. Each sub-section within section 4 of this AB-515 document covers a fundamental quality management system element. Practical informative advice to assist organizations to meet the requirements and implement an effective and efficient quality management system for integrity assessment and promote consistency in evaluating these quality management systems is provided in boxed text immediately following the normative requirements.

3.0 DEFINITIONS AND ACRONYMS

Refer to the Safety Codes Act and regulations for other relevant definitions.

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)

AB-515 – means Quality Management System Requirements for Integrity Assessment Organizations.

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

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

Assessment (of persons) – means a process for evaluating a person's competence by one or more means such as written, oral, practical or observation.

Chief Inspector – means a person who meets the requirements to be in charge of an owner's pressure equipment integrity assessment program.

Competent – in relation to a person, means possessing the appropriate qualifications, knowledge, skills and experience to perform the work safely and in accordance with the Act. [PESR 1(1)(i)]

In-Service Inspector (ISI) – means a person who holds the required Alberta in-service inspector Certificate of Competency, has the required competency, and is designated by their employer to perform integrity assessments of pressure equipment under their employer’s quality management system Certificate of Authorization Permit.

Inspection and certification of repairs and alterations – means to authenticate by signature, on the applicable report, that all of the pertinent inspection and certification requirements in AB-513 have been completed by the Inspector.

Integrity Management System (IMS) – means a system for ensuring that pressure equipment is designed, constructed, installed, operated, maintained and decommissioned in accordance with the Pressure Equipment Safety Regulation. [PESR 1(1)(s)]

Integrity Assessment – means an examination of an item of pressure equipment, related processes and documentation to determine its conformity to the requirements established by the Safety Codes Act and the regulations. [PESR 1(1)(q)]. When the terms inspection and assessment are used in AB-515, they shall mean integrity assessment of in-service equipment under the PESR.

Integrity Assessment Organization – means a person or an organization that provides pressure equipment integrity assessment services to pressure equipment owners (i.e. to meet the pressure equipment owner’s duty to have integrity assessments completed on their pressure equipment) and holds the required Alberta quality management system Certificate of Authorization Permit to perform integrity assessments under the PESR. The integrity assessment organization and its staff responsible for carrying out integrity assessments shall not be the manufacturer, supplier, installer, purchaser, owner, user or maintainer of the items which they assess the integrity of, nor the authorized representative of any of these parties.

Integrity Assessment Program – means a program described in Section 41 of the PESR, with respect to pressure equipment.

Integrity Management System (IMS) – means a system for ensuring that the pressure equipment is designed, constructed, installed, operated, maintained and decommissioned in accordance with the Act.

ISO – International Organization for Standardization

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 power and authority of ownership. [SCA 1(1)(v)]

PESR – means Pressure Equipment Safety Regulation, Alberta Regulation 49/2006

Pressure Equipment – means a boiler, a fired-heater pressure coil, a thermal liquid heating system and other equipment designed to contain expansible fluid under pressure, including, but not limited to, pressure vessels, pressure piping systems and fittings, as defined in the regulations. [SCA 1(1)(y)]

Public Occupancy – means any facility where members of the general public are likely to be present. This would include schools, offices, shopping malls, stores, arenas, pools, restaurants, hotels, etc.

Safe Operating Limits – means limits established for critical process parameters, such as temperature, pressure, level, flow, or concentration, based on a combination of equipment design limits and the dynamics of the process.

Safety Critical Equipment – means the pressure relief devices, regulating or controlling devices and systems that are required to ensure pressure equipment is operated within Safe Operating Limits and to prevent, mitigate, detect or respond to the effects of loss of containment or a sudden release of energy.

4.0 QUALITY MANAGEMENT SYSTEM REQUIREMENTS FOR INTEGRITY ASSESSMENT ORGANIZATIONS (NORMATIVE)

Requirements

The Integrity Assessment Organization shall provide a written description of the quality management system used by the organization, in accordance with this AB-515 document, to maintain an effective quality management system. The written description of the quality management system shall address the contents of each element within section 4.0 of the AB-515 document.

The written description of the quality management system may be a stand-alone manual or may be incorporated into the organization's formal management system documentation.

Implementation Guidance

ISO 10013:2001 Guidelines for Quality Management System Documentation, contains guidelines to assist in providing the documentation necessary to ensure an effective Quality Management System.

Organizations that intend to develop a quality management system in accordance with ISO 9001:2015 standards, should also consider Technical Specification ISO/TS 29001:2010 Petroleum, petrochemical and natural gas industries. Sector-specific quality management systems. Requirements for product and service supply organizations.

Information covered in AB-512, owner-user Pressure Equipment Integrity Management Requirements, may also be of benefit.

The quality management system documentation requirements in AB-515 are structured on the ISO 9001 series quality standard format. However, compliance with ISO 9001 is not required, and an organization may use any quality manual format that provides an effective quality system in compliance with this document.

The implementation of a formal Quality Management System should be a strategic business decision of the organization and assist in ensuring its successful operation. The integrity assessment organization may, therefore, wish to include other related services in their quality system manual. If this is the case, a suitable cross-reference is available [i.e. AB-515(b) Integrity Assessment Organization QMS Written Description Checklist] to identify the location of each requirement in the manual, as the scope of the Certificate of Authorization Permit issued under the PESR is limited to pressure equipment integrity assessment.

4.1 Title Page

If a stand-alone Quality Management System for Pressure Equipment Integrity Assessments document (i.e. “manual”) is the means the organization uses to provide a written description of the quality management system required by the Pressure Equipment Safety Regulation, then the title page of the manual shall identify the information that follows. Alternatively, if the organization has incorporated AB-515 requirements into the organization’s formal management system documentation, the written description of this quality management system shall be submitted along with an AB-515(b) checklist that will identify where the AB-515 requirements are contained, including the information to be addressed within the title page element.

- Title of the document that describes the integrity assessment organization’s quality management system.
- The name and corporate address of the organization.
- Identify the revision status of the document.

4.2 Scope and Application

The written description of this element shall include:

- A statement that defines the integrity assessment organization’s policy to ensure that all services it provides are within the scope of their certificate of authorization permit and meets the requirements defined in the contract, Safety Codes Act and the organization’s quality system manual.

- An overview of the organization and the services they provide. The scope of services should be clearly defined, and should delineate the integrity assessment organization’s capabilities and the services provided.
- A statement that the scope of services that the company is authorized to provide under their certificate of authorization is defined on ABSA Form AB-515(a).
- Include a requirement, with assigned responsibility, to ensure that the AB-515(a) Integrity Assessment Organization Authorized Scope form that is on file with ABSA is kept current.
- Include and confirm the limitation that the integrity assessment organization and its staff responsible for carrying out integrity assessments shall not be the manufacturer, supplier, installer, purchaser, owner, user or maintainer of the items which they assess the integrity of, nor the authorized representative of any of these parties.
- Include a statement that any integrity assessment work that is not within the scope listed on ABSA form AB-515(a), will not be undertaken until a revised AB-515(a) form, which covers the new scope of work, has been accepted by ABSA.

Implementation Guidance

The Scope and Application element provides the integrity assessment organization with the ability to describe all the activities undertaken and the resources and services provided to their clients.

This written description should include a policy statement that establishes the key objectives of the manual. This statement should be included at the beginning of the scope section to provide a focus of all integrity assessment activities. An example of the policy statement may include:

“This manual accurately describes the Pressure Equipment Integrity Assessment Activities implemented by (Company Name) to assure all Pressure Equipment is assessed in a manner that is acceptable to and in compliance with the Safety Codes Act, Regulations, ABSA Policy Documents, Adopted Codes, and Industry Standards.”

“It is the primary goal of (Company Name) to provide a service, as described and detailed in the AB-515(a), which allows their client to assure Public Safety, the Safety of their Employees and Contractors and to ensure the safe operation and reliability of the Client’s Pressure Equipment.”

The integrity assessment organization should describe the company, and provide a general overview of the organization and the services they provide to their clients. An important aspect of this description should include the industry sectors where these services are provided. It is important that each element identified on the AB-515a form as being within the scope of the integrity assessment organization’s quality management system, be accurately described in the written description. The integrity assessment organization must be able to demonstrate that the necessary resources,

including competent personnel, are available to fully implement the entire scope of the quality management system. The scope and application description will aid the reader in understanding the nature of the work performed by the integrity assessment organization and the areas where their expertise is being utilized.

The integrity assessment organization should include the following information in the description:

- Head office location and satellite office locations. A description of the activities controlled from each location.
- The industry sectors where the integrity assessment activities are being performed. It would certainly benefit the reader if this description included commentary on the types of facilities and equipment being assessed (i.e. upstream and/or midstream oil & gas processing equipment, SAGD heavy oil recovery facilities, upgrader facilities, chemical/petro-chemical plants, downstream refineries, power generation plants, pulp and paper mills, etc.)
- A description of any other quality management systems or manuals external to this integrity assessment quality management system that may impact the implementation of some of the integrity assessment activities (e.g. safety programs, procedure manuals, etc.).
- Any subsidiary companies or contractors that may be utilized for the purpose of completing the integrity assessment activities (e.g. Non-Destructive Examination (NDE), Engineering, etc.)
- Any other information that may assist the reader in understanding the structure of the organization and the scope of the activities undertaken by the integrity assessment organization.

A copy of the AB-515(a) document, which had been submitted to ABSA and which is signed by a company officer, is not required to be included in this section of the manual; however, responsibility must be assigned to maintain the ongoing accuracy of the AB-515(a) form when the scope of the program or personnel within the organization change. There must also be a statement included that reiterates; any inspection work that is not within the scope listed on the AB-515(a) will not be undertaken until a revised AB-515(a) form, that covers the new scope of work, is accepted by ABSA.

4.3 Table of Contents

The written description Table of Contents shall:

- Show a Table of Contents that lists the number and title of each section and its location within the written description of the quality management system.

4.4 Organization

The written description of this element shall include:

- A statement describing that the integrity assessment organization is organized so as to enable it to maintain the capability to perform integrity assessment services in accordance with its authorized scope.
- An explanation of how the organization defines the responsibilities and authorities and how they are communicated within the organization.
- A current organization chart that clearly shows the overall organizational structure of the integrity assessment organization. The positions of the Quality Manager (however named) and Technical Manager (however named), positions that supervise as well as positions completing pressure equipment integrity assessments, and other key functions and lines of authority must be clearly shown on the chart.
- A statement that job descriptions shall be maintained as required, to ensure that the quality management system is effective. As a minimum, current job descriptions shall be kept for: the Quality Manager, the Technical Manager and employees who supervise or perform integrity assessments.
- An outline of the main responsibilities and authorities of key staff.

Note: Refer to implementation guidance for further information on the Technical Manager and Quality Manager positions.

Implementation Guidance

While it is not mandatory that the integrity assessment organization adopt the Quality Manager and Technical Manager titles it must be clear which positions have the responsibilities associated with these positions. In addition, when integrity assessment organizations use the position title “Chief Inspector” within their organization, it can cause confusion; particularly when the integrity assessment organization’s personnel are responsible for the integrity assessment programs within one or more owner-user integrity management systems.

The “Chief Inspector” within an owner’s Integrity Management System (IMS) is specifically defined as the person, within the IMS, that is designated to be responsible for the owner’s integrity assessment program. An integrity assessment organization could have a number of personnel who are each designated to be the “Chief Inspector” within one or more owner’s IMSs. Therefore, to avoid the potential for confusion, it is recommended that integrity assessment organizations consider using titles such as “Technical Manager”, “Quality Manager” or “Integrity Coordinator” for positions, within their AB-515 program, as opposed to the title “Chief Inspector”.

The organization structure for in-house pressure equipment integrity assessments and sub-contract integrity assessment activities should be illustrated, if applicable. It is anticipated that the job descriptions that are developed and maintained by the integrity assessment organization would include the applicable responsibilities referenced throughout the quality management system.

4.5 Definitions of Terms and Acronyms

All terms and acronyms used in the written description of the quality management system shall be defined.

The written description of this element shall include the following definitions:

- **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)]
- **Assessment** – (of persons) means a process for evaluating a person's competence by one or more means such as written, oral, practical or observation.
- **Competent** – in relation to a person, means possessing the appropriate qualifications, knowledge, skills and experience to perform the work safely and in accordance with the Act. [PESR 1(1)(i)]
- **In-Service Inspector (ISI)** – means a person who holds the required Alberta In-Service Inspector Certificate of Competency, has the required competency, and is designated by their employer to perform integrity assessments of pressure equipment under their employer's quality management system Certificate of Authorization Permit.
- **Integrity Assessment** – means an examination of an item of pressure equipment, related processes and documentation to determine its conformity to the requirements established by the Safety Codes Act and the regulations. [PESR 1(1)(q)]
- **PESR** – means Pressure Equipment Safety Regulation, Alberta Regulation 49/2006
- **AB-506** – Inspection & Servicing Requirements for In-Service Pressure Equipment
- **AB-513** – Pressure Equipment Repair and Alteration Requirements
- **AB-515** – Quality Management System Requirements for Integrity Assessment Organizations

Implementation Guidance

All terms and acronyms used within the Quality Management Systems or written quality system manuals shall be defined.

- It is appropriate to use the applicable definitions that are provided in the Safety Codes Act, Pressure Equipment Safety Regulation and other ABSA requirements

documents when they apply (e.g. pressure equipment, boiler, pressure piping system, pressure vessel, etc.).

4.6 Control of Documents and Records

Identify the following requirements within the written description and outline the control methods used. Reference any supporting procedures or other control documents that are used.

- A description of the document and record control methods used with references to any supporting procedures or other control documents that are used.
- A statement to indicate that all the documents created in the management of the owners or clients pressure equipment are the sole property of the pressure equipment owner and must be returned to the owner at their request. The integrity assessment organization is the custodian of these documents only.
- A description of the process for controlling the written description of the quality system (e.g. quality system manual), referenced procedures, codes and standards, records and other documents relevant to the integrity assessment organization's quality management system.
- Establishing that the Quality Manager is responsible for ensuring that all documents are maintained, relevant and current in accordance with this section of the written description.
- A statement that there are documented controls to ensure:
 - The current issues of the appropriate documentation are readily available, electronically or in hard copy, at all relevant locations and to all relevant personnel.
 - All changes of documents or amendments to documents are covered by the correct authorization and processed in a manner that will ensure timely availability at the appropriate location. This shall include ensuring that current versions of the quality system manual are provided to and accepted by ABSA.
 - Superseded documents are removed from use throughout the organization or are appropriately identified as superseded documents.
 - Other parties, as necessary, are notified of changes.
 - The current revision status of documents is identified.
 - Documents remain legible, readily identifiable and retrievable.
 - Documents of external origin are identified and their distribution controlled.
 - The identification, storage, protection, retrieval, retention time, and disposition of records are addressed.
 - All changes to documents are handled through an appropriate review and approval and/or change management process.
- A description of the processes the integrity assessment organization has established to control the documents and records (e.g. equipment

- records and integrity assessment records) that are maintained on behalf of the pressure equipment owner.
- A description of all pressure equipment record keeping processes that are managed on behalf of the owner, by the integrity assessment organization, as applicable.

Implementation Guidance

The maintenance of documents and records (e.g. equipment records and integrity assessment records) shall be in accordance with the Act, PESR and the requirements established by the Administrator. It is important to understand that as a contract Chief Inspector or certified integrity assessment organization, the owner may be using all of or part of the integrity assessment organization's forms and or procedures in the implementation of their Integrity Management System. With this in mind it is important for the integrity assessment organization to delineate in their program which documents are the property of the integrity assessment organization and which are included in the owner's Integrity Management System and are the owner's property. There may be some documents that have revision control under the integrity assessment organization's QMS.

As stated above it must also be clearly understood, and stated in the QMS written description, that any documents created in the management of or assessment of the Owners pressure equipment are the property of the client/owner. This would include, but may not be limited to, all data reports, inspection reports, work plans, integrity assessment records or drawings. Any record that is generated for the purpose of determining the suitability of an items fitness for service or may be used in evaluating the past service history or future suitability in a particular service, as well as determining the next inspection or service interval, must be returned to the owner or Client upon request.

PESR 1(1)(k) states that: "equipment record" includes design information, data reports, inspection plans and integrity assessment, repair and alteration records. The integrity assessment organization must accurately describe which documents or records are controlled, who within the organization is responsible for them and where they are located. A suggestion would be to include a "Document Control Matrix" which establishes the name and type of document (electronic and/or hard copy) which is being controlled, the individual responsible for approving any changes and maintaining it, the location where this document is filed and its latest revision number.

The document control process and information flow should also be described. If a document is processed by multiple individuals it may be beneficial to develop a work flow process or process map to identify the flow of the document and how any changes are authorized and controlled. The understanding of many QMS processes can be improved significantly through process mapping.

If an integrity assessment organization uses a database to manage the records on behalf of owners, then the database use should be explained and types of records stored in the database management system should be defined. It is important that the

location of all controlled documents be clearly identified.

Records may be in hard copy or electronic format. Electronic systems must be able to readily reproduce a written copy, show the required authentication and be protected from unauthorized alteration. The method used to protect the electronic document from unauthorized alteration should be described (i.e. are they password protected or saved and stored as a locked pdf) The individual responsible for the control of this system should be identified. When documents are issued in an electronic format they must include the provision for documenting that key personnel have read and understand the contents of the documents issued.

It should be established that the electronic version is the controlled copy and that any hard-copy versions are uncontrolled documents.

The reference documents, that the integrity assessment organization must have access to, depends on the scope of integrity assessment services authorized. For example, when the integrity assessment organization inspects equipment under the scope of the API code (refining, oil & gas processing, chemical process equipment) they would need to have access to API 510, API 570, and other applicable reference codes and standards. It should be identified which of these codes and standards are managed electronically versus hard copy and where the codes and standards are maintained.

Section 4.12, Integrity Assessment Program, lists the integrity assessment records that must be kept and includes additional guidance information.

4.7 Management Responsibility, Authority and Commitment

The written description of this element shall confirm management's commitment to the IMS and describe key responsibilities pertaining to the IMS. It shall include:

4.7.1 Statement of Authority and Responsibility

- A statement that the quality system written description covers the information specified in AB-515 and accurately describes the quality management system used by the organization, or person.
- A statement that the quality management system has the full support of management who will ensure that adequate resources, including competent personnel, are provided to implement the program.
- A statement that management documents a quality policy and objectives along with a commitment to quality, and shall ensure that this policy is understood, implemented and maintained at all levels in the organization.

- The title of the person, designated by management, to be responsible for the integrity assessment organization's quality management system (e.g. Quality Manager, however named). An explanation that this person, irrespective of other duties, has the defined authority and responsibility to ensure that the processes needed for the quality management system are established, implemented, and maintained, and that this person shall have direct access to, and support from top management to resolve any implementation barriers.
- The title of the person, designated by management, who is qualified and experienced in the operation of the integrity assessment organization and who has overall responsibility for the integrity assessment program activities that are carried out (e.g. Technical Manager, however named).
- Signature of senior (executive) management.

Implementation Guidance

The position/title of Technical Manager (however named) refers to the person appointed to be responsible for all integrity assessment activities. This person must hold the applicable Alberta In-Service Inspector Certificate of Competency and have the required experience, qualifications and skills for the scope of the integrity assessment services provided by the organization. Use the term that best suits the organization (e.g. Asset Integrity Coordinator, Senior Inspector, Inspection Program Manager or Technical Manager).

The size of the integrity assessment organization and its structure will determine who signs the Statement of Authority. A small (one or two person) company may name the same person as Technical Manager and Senior Management. A larger company whose program scope is varied and more complex may have the Chief Executive Officer or President sign the Statement of Authority and appoint a Technical Manager to oversee activities associated with pressure equipment integrity assessment.

4.7.2 Independence, Impartiality and Integrity

Identify the following requirements within the written description and outline the control methods used. Reference any supporting procedures or other control documents that are used.

- Identification of the processes used to ensure independence, impartiality and integrity, along with an outline of the control methods used. Reference any supporting procedures or other control documents that are used.
- Describing the controls that the integrity assessment organization implements to enforce the impartiality of its integrity assessment activities and to prevent commercial, financial or other pressures to compromise impartiality. These controls shall

focus on assuring the impartiality of pressure equipment integrity assessments.

- The integrity assessment organization and its personnel shall not engage in any activities that may conflict with their independence of judgement and impartiality in relation to their integrity assessment activities (e.g. specifying integrity assessments or non-destructive examination activities in excess of that required by AB-506, and of those that are necessary to ensure the safety and fitness for service of the pressure equipment) and shall ensure that all personnel engaged in integrity assessment services on behalf of the integrity assessment organization are aware of and commit to abide by an independence of judgement and impartiality policy adopted by the organization.
- Describe the implemented controls to ensure personnel of the integrity assessment organization are free from any commercial, financial and other pressures which might affect their judgment.
- Describe the implemented controls to ensure that personnel or organizations, external to the integrity assessment organization, cannot influence the results of inspections carried out.
- Contracts for all employees, and sub-contractors completing pressure equipment integrity assessments, shall incorporate measures to prevent conflict of interest and assure the impartiality of pressure equipment integrity assessments.

Implementation Guidance

The ISO/IEC 17020:2012 Standard is a useful document that can be used to provide implementation guidance on this element. The Integrity Assessment Organization should clearly understand and demonstrate compliance to Section 4.1 and Annex A of this Standard.

4.7.3 Confidentiality

Identify the following requirements within the written description and outline the control methods used. Reference any supporting procedures or other control documents that are used.

- Describe the implemented controls to ensure confidentiality of information obtained in the course of its inspection activities and that proprietary rights are protected.
- Describe the implemented controls concerning the observance of the confidentiality requirements of the client and any sub-contractors engaged by the integrity assessment organization, taking into account the legal requirements under the Safety Codes Act and other relevant legislation.

Implementation Guidance

The integrity assessment organization is responsible for the management of all information obtained or created during the performance of inspection and assessment activities. Any information related to work performed for the owner or client must be kept in strict confidence. If the information is to be placed in the public domain by the integrity assessment organization, the client must be informed and written permission obtained. All information related to the owner's equipment is considered proprietary and shall be regarded as confidential.

When the integrity assessment organization is required by law to release confidential information, the client shall, unless prohibited by law, be notified. As well, information about the client obtained from sources other than the client, shall also be treated as confidential.

Standard employee contracts or confidentiality agreements, signed by all employees and contractors, are examples of control methods.

Confidentiality requirements for the client's information should also be covered in client contracts.

It is important that these confidentiality clauses and the process for managing this information be described in the integrity assessment organization's quality management system.

4.7.4 Management Review

- Establish that top management will review the quality management system at appropriate intervals to ensure its continued suitability and effectiveness, and that records of such reviews will be maintained.

Implementation Guidance

Management reviews should take into consideration any relevant information, such as reports from supervisory and managerial staff, the outcome of recent internal quality audits and external assessments, complaints from clients, nonconformance to the quality system, changes needed in the quality system, the adequacy of current human and equipment resources, future plans and estimates for new work and additional staff, as well as, the need for training of both new and existing staff.

The frequency of management reviews should be determined by the integrity assessment organization, taking into account the results from internal audits and previous reviews and reports from an accreditation body. Once a year is normally considered an acceptable minimum frequency.

4.7.5 Communication

Identify the following requirements within the written description and outline the control methods used. Reference any supporting procedures or other control documents that are used.

- Describe the communication processes that are established within the organization to ensure compliance with the legislation and the effectiveness of the integrity assessment organization's quality management system.
- Describe how communication is maintained with the clients and ABSA to ensure effective delivery of the contracted services in accordance with the Safety Codes Act and to ensure that the owner is made aware of their responsibilities under the Safety Codes Act regarding integrity assessment program requirements, provision of reports and other relevant requirements of the Act.
- Describe the implemented controls to ensure there are effective communication processes in place for reporting accidents, incidents, unsafe conditions, pressure equipment nonconformity, and other information to the pressure equipment owner, and ABSA when applicable.

Implementation Guidance

The integrity assessment organization is responsible for developing and maintaining service contracts with all of their clients. These contracts should include a description of how the lines of communication are maintained between the integrity assessment organization's personnel and the owner. This communication process may take on many forms; telephone conversations, emails, project meetings and emergency response requirements. One method of ensuring the communication is established and maintained is to develop work flow processes which show the lines of communication between the owner and the integrity assessment organization. These work flow processes will assist in ensuring the owner is fully cognizant of all their responsibilities under the Safety Codes Act.

Suitable processes should be in place for reporting and tracking inspection findings. Scheduling and documenting regular project review meetings may be an appropriate method of communicating with the owner on the program status. Meeting minutes should be maintained for all such meetings. These meetings should be detailed in the contractual arrangement with the client.

Section 35 of the PESR establishes the owner's responsibility to report to the Administrator unsafe conditions, accidents or fires. It is also mandated that unsafe conditions and Safety Codes Act nonconformance, that can impact the pressure equipment certification conditions, be reported to ABSA. The integrity assessment organization should ensure that the conditions and responsibility for reporting these to ABSA are clearly defined when the contracts for services are established with the owner.

ISO 17020 states that the inspection body is expected to participate in an exchange of experience with other integrity assessment organizations. Stakeholder groups such as the Contract Chief Inspectors Association provide a forum to demonstrate that this expectation is met, and are valuable for ensuring that there is appropriate dialogue maintained with ABSA regarding the application of requirements under the Safety Codes Act.

Staff meetings held, emails, tool box meetings and ongoing communication with staff are examples of internal communication processes that may be used.

The processes used for maintaining communication with the owner's field personnel to ensure integrity assessment program implementation should be described. Particularly how the owner ensures that the integrity assessment organization is promptly notified of any issues that can impact on the inspection requirements of the equipment. This includes changes in process and equipment that is moved sold or taken out of service.

4.8 Resource Management

4.8.1 Personnel

Identify the following requirements within the written description and outline the control methods used. Reference any supporting procedures or other control documents that are used.

- The integrity assessment organization has a Technical Manager (however named); who is qualified and experienced in the operation of the integrity assessment organization and who has overall responsibility that the inspection activities are carried out in accordance with the Safety Codes Act. This position shall be part of the permanent personnel within the integrity assessment organization.

- The integrity assessment organization provides effective supervision by competent personnel familiar with the integrity assessment methods and procedures, the objectives of the integrity assessment and the assessment of the examination results.
- The Technical Manager, persons who supervise the organization's staff performing integrity assessments, and persons who certify pressure equipment shall hold the required Alberta In-Service Inspection Certificate of Competency for the scope of integrity assessment work and meet all the qualification requirements established by the Administrator.
- The qualifications, training and competency level of all persons supervising and assessing pressure equipment integrity is defined.
- The integrity assessment organization has named individuals who will be delegated in the absence of any manager (e.g. Technical Manager, however named) responsible for integrity assessment services.
- Descriptions for each position and category affecting the quality of the integrity assessment services. These job descriptions shall include the requirements for education, training, technical knowledge and experience.

Implementation Guidance

The integrity assessment organization shall define the resources required to address the scope of the program and the competency requirements for all personnel that are needed to ensure the pressure equipment owner's needs are addressed and dealt with in an appropriate amount of time. It is prudent that these expectations be fully delineated to the client in the service contract.

Permanent personnel are those who are employed by, or are under contract to the integrity assessment organization. They may be employed either on a full-time basis or, if insufficient integrity assessment work exists, on a part-time basis. Where it is necessary to use personnel for temporary situations, such personnel should be formally contracted for the period that the integrity assessment organization uses them. The integrity assessment organization should ensure that such personnel are supervised and competent and that they work in accordance with the integrity assessment organization's quality management system. Depending on the size of the organization and its scope of work, an organization may require more than one person to fulfill the responsibilities of the Technical Manager. Whereas for a smaller organization, it may be appropriate for the integrity assessment organization to designate one person to be the Technical Manager and also to be the Quality Manager with overall responsibility for the entire quality management system and technical program delivery.

AB-526 establishes the qualification requirements, set by the administrator under the PESR, for persons undertaking pressure equipment integrity assessments.

The personnel resources required by the integrity assessment organization will also be dependent upon the scope of integrity assessment activities [i.e. types of facilities/industries specified on the AB-515(a) form].

4.8.2 Competence, Awareness and Training

Identify the following requirements within the written description and outline the control methods used. Reference any supporting procedures or other control documents that are used.

- The integrity assessment organization has established a documented training and competence verification system to ensure that the training of its personnel in the technical and administrative aspects of the work in which they will be involved is kept up-to-date in accordance with its policy, and that personnel are competent for their work scope and have the qualifications required under the PESR, including any required Alberta In-Service Inspector Certificates of Competency. The training required depends upon the scope of the organization's program and upon the ability, qualifications and experience of persons involved. The organization shall establish the necessary stages of training for each of its personnel. These may include:
 - An induction period,
 - A supervised working period with experienced inspectors, and
 - Continuous training throughout employment to keep pace with developing technology.
 - A documented competency assessment process shall be available for all personnel who may be involved in the integrity assessment activities or whose activities may impact the integrity of pressure equipment.
- Records of academic or other qualifications, training and experience of each member of its personnel are maintained by the organization. This shall include records relating to any Certificates of Competency under the Safety Codes Act and records of job functions, training and competency assessment and reassessment.
- For all personnel who assess the integrity of in-service pressure equipment, inspect and certify pressure equipment repairs, inspect and certify pressure piping construction or whose work activities may impact on the integrity of pressure equipment, the integrity assessment organization shall implement a process for and maintain records of assessment, reassessment as applicable, and certification of competence for the associated activities that is consistent with the integrity assessment organization's authorized scope of activities.

- The organization has controls to ensure that contract personnel who perform integrity assessment tasks meet the same training and competence requirements as employees.
- The organization provides guidance for the conduct of its staff.
- The remuneration of personnel engaged in integrity assessment activities shall not directly depend on the number of integrity assessments carried out and, in no case, on the results of such integrity assessments.

Implementation Guidance

The integrity assessment organization must define and document the qualifications, training, experience and level of knowledge required for the integrity assessments to be carried out.

A person performing in-service integrity assessments of pressure equipment must be competent to carry out appropriate integrity assessments and report on the same. In general terms, their area of knowledge should encompass as a minimum the following:

- An understanding of the technology and fabrication processes used to manufacture the components inspected.
- An understanding of the pressure equipment operating processes and the potential threats (damage mechanisms) that may be encountered.
- An understanding of the methods that may be used to mitigate any threats and/or refurbish the equipment so as to make it fit for the service it is intended.
- Be able to communicate their integrity assessment findings in a clear and concise manner to the pressure equipment owner.

An individual who inspects and certifies boilers and pressure vessels is required to hold a Certificate of Competency. AB-526 establishes the requirements for certification of in-service inspectors. The Administrator may also establish additional requirements.

The integrity assessment organization is required to communicate to each employee or contractor their responsibilities and duties. This process should be documented.

A person with an In-Service Inspector's Certificate of Competency may only perform integrity assessments within the scope of an ABSA accepted quality management system. If additional human resources are required to complete the assessment activities, the integrity assessment organization shall identify the resources required and have them available. These additional resources shall also be assessed and verified as competent for the assigned activities.

A key requirement for integrity assessment organizations and owner-users is to have suitable processes for ensuring that persons performing integrity assessments are competent, have the necessary resources available to them to complete the work as defined, and to perform their assigned integrity assessment activities effectively in accordance with the Safety Codes Act and their employer's quality management system.

Records of qualifications and training assist in demonstrating the competency of each member of the staff to perform specific inspection tasks and, where relevant, to use specific equipment. Assessments and verification of competence would be documented, using methods such as examinations, task observations, and interviews.

Guidance regarding the conduct of staff can be in the form of a code of conduct. It may include issues relating to work ethics, impartiality, personal safety, relationship with customers, company rules and any other issues necessary to assure the proper conduct of the integrity assessment organization's staff.

4.8.3 Facilities and Equipment

Identify the following requirements within the written description and outline the control methods used. Reference any supporting procedures or other control documents that are used.

- The integrity assessment organization has available to it, suitable and adequate facilities and equipment to permit all activities associated with the integrity assessment services to be carried out.
- Establishing clear rules for the access to, and the use of, the owner's and the integrity assessment organization's facilities and equipment.
- The integrity assessment organization ensures the continued suitability of its facilities and the equipment for the intended use.
- The integrity assessment organization ensures that all such equipment is properly identified and maintained, in accordance with documented procedures and instructions.
- Describing how the integrity assessment organization deals with defective equipment. Defective equipment shall be removed from service by segregation, prominent labeling or marking. The integrity assessment organization shall examine the effect of defects on previous integrity assessments.
- Relevant information on the equipment is recorded. This will normally include identification, calibration and maintenance.

Implementation Guidance

If the integrity assessment organization uses computers or automated equipment in connection with inspections, it shall ensure that:

- Computer software is tested in order to confirm that it is adequate for use.
- Procedures are established and implemented for protecting the integrity of data (e.g. electronic records backup procedures are established).
- Computers and automated equipment is maintained in order to ensure proper functioning.
- Procedures are established and implemented for security of data (e.g. password protection is implemented).

- Effectiveness in restoring data from backup is verified.
- Effective virus and malware protection is established.

4.9 Planning and Controls for Services

4.9.1 Planning

Identify the following requirements within the written description and outline the control methods used. Reference any supporting procedures or other control documents that are used.

- The integrity assessment organization ensures it has appropriate planning processes to assure the services provided are effective and meet the client's needs and the quality management system, and outlines this planning process in the written description of the QMS.
- The integrity assessment organization shall implement a suitable work planning process to ensure that pressure equipment integrity assessment activities (i.e. pressure equipment integrity assessments and servicing of safety critical equipment) are completed in accordance with requirements established by the Administrator, and are appropriate to ensure the safety and fitness for service of the pressure equipment.
- Personnel who perform integrity assessments and certify installed pressure vessels, boilers, fired equipment and similar equipment, and those who supervise in-service integrity assessment staff, hold the required Alberta in-service pressure equipment inspector certification and are certified as competent by the integrity assessment organization to perform the specific types of integrity assessments, and meet the requirements established by the Administrator.

Implementation Guidance

The integrity assessment organization must plan for and have access to personnel with qualifications established by the Administrator as well as the competencies necessary to meet the needs of its clients.

The requirements set by the Administrator for an In-Service Inspector's Certificate of Competency are defined within AB-526.

AB-506, Section 8.0 also provides additional clarification regarding the qualifications of persons performing integrity assessments.

4.9.2 Contracts for Services

Identify the following requirements within the written description and outline the control methods used. Reference any supporting procedures or other control documents that are used.

- The integrity assessment organization has a written contract or work order control system that ensures:
 - Work to be undertaken is within its expertise and that the organization has adequate resources to meet the requirements.
 - The requirements of the pressure equipment owner (i.e. client) are adequately defined and that special conditions are understood so that clear instructions can be issued to staff performing the duties that are required.
 - Work being undertaken is controlled by regular review and corrective action.
 - Completed work is reviewed to confirm that requirements have been met.
 - There is a written contract, between the pressure equipment owner and the contracted integrity assessment organization, which defines the scope of integrity assessment activities that are to be completed by the integrity assessment organization.
 - The pressure equipment to be assessed or inspected has received all necessary preparation, or whether the client requires preparation to be undertaken or arranged by the integrity assessment organization.
- All employees, and sub-contractors to the integrity assessment organization, that complete pressure equipment integrity assessments must have an employment agreement or contract in place for the services they provide.

Implementation Guidance

The PESR establishes the owner's responsibility for ensuring that there is an effective integrity management system in place for the equipment that the owner operates, and for maintaining an integrity assessment program unless otherwise exempted by the Administrator.

When an integrity assessment organization performs an integrity assessment of an item of pressure equipment, they are acting as an agent of their employer (the owner) to meet the owner's duty under PESR Section 41 to have integrity assessments done of its pressure equipment. The pressure equipment owner has control over who they employ to perform these integrity assessments, and they are responsible for the actions of their employees, and to also ensure the employees are competent.

The integrity assessment organization should ensure that the responsibilities and scope

of provided services are clearly defined in the contract for services with the pressure equipment owner (i.e. their client). The contract for services also provides the integrity assessment organization with the opportunity to address their liability with respect to integrity assessments that are completed in good faith.

4.9.3 Purchasing and Material Control

Identify the following requirements within the written description and outline the control methods used. Reference any supporting procedures or other control documents that are used.

- Where relevant to the quality of integrity assessment services, the integrity assessment organization shall have suitable controls to ensure that purchased materials and services meet the specified requirements. These shall cover:
 - How suppliers are qualified as approved vendors, including organizations that provide NDE and contract integrity assessments for the integrity assessment organization.
 - Issuing appropriate purchasing documents.
 - Examination, identification and issue of received materials.
 - Ensuring appropriate storage facilities. Where applicable, the condition of stored items shall be assessed at appropriate intervals to detect deterioration.

Implementation Guidance

The controls to ensure purchased materials and services (e.g. approved vendors list with applicable documented evaluations) meet specified requirements will include:

1. NDE services that are procured on behalf of pressure equipment owners.
2. Sub-contract organizations or persons performing pressure equipment integrity assessment or any other activities that can affect pressure equipment integrity.
3. Organizations that are contracted to calibrate measuring and test equipment used by the integrity assessment organization for pressure equipment condition assessment.

Where relevant to the quality of integrity assessment services, the integrity assessment organization shall have suitable controls to ensure that purchased materials and services meet the specified requirements. These should cover:

Integrity Assessment Organization

- Issuing appropriate purchasing documents; including identifying the requirement for any supporting documentation (test certificates, partial data reports, quality control documentation, etc.) for material purchased.
- Processes for the inspection, identification, receiving and distribution of received materials, including appropriate transportation documentation when dealing with dangerous goods.
- Ensuring appropriate storage facilities. Where applicable, the condition of stored items shall be assessed at appropriate intervals to detect deterioration.
- Periodic audits of vendors, ensuring vendor qualification aligns to the integrity assessment organization's quality system

Vendor (Service Providers / Suppliers)

- Identify if the vendor has implemented a quality system
Examples: ISO 9001; ISO 17020; ISO 17025; ISO 9712; AB-515; CSA W178.1; NB-369; SNT-TC-1A; CP-189; CSA W47.1; etc.
- Establish if the Vendor is required to hold a Certificate of Authorization Permit (e.g. CAP for pressure relief valve servicing and setting).
- Identify how service providers/suppliers are qualified. What processes/controls are in place to ensure personnel qualifications or company accreditations are maintained.
- Processes for the inspection, identification, receiving and distribution of received materials, including appropriate transportation documentation when dealing with dangerous goods.

4.10 Measuring and Test Equipment

Identify the following requirements within the written description and outline the control methods used. Reference any supporting procedures or other control documents that are used.

- Define the methods used to ensure that, where applicable, equipment used for integrity assessments is calibrated before being put into service and, thereafter, according to an established program.
- Each measuring device is calibrated or verified, at specified intervals or prior to use, against measurement standards traceable to international or national measurement standards, and where no such standards exist, the basis used for calibration or verification shall be recorded.
- Each item of measuring equipment is identified to enable the calibration status to be determined.
- Prior to the issuance of equipment, it is examined to ensure that it is suitable for intended use, the calibration is current, and it is inspected after use.
- Measures are taken to ensure that reported integrity assessment data, based on equipment that is subsequently identified to be out of calibration, remains valid.

Implementation Guidance

The M&TE controls include processes to ensure pressure equipment integrity assessments are completed using calibrated measuring and test equipment, and would also include controls to ensure that such equipment used by sub-contractors is maintained in calibration (e.g. subcontract NDE companies).

This section shall define the methods used to ensure that, where appropriate, equipment used for integrity assessments is calibrated before being put into service and, thereafter, according to an established program.

- Each measuring device is calibrated or verified, at specified intervals or prior to use, against measurement standards traceable to international or national measurement standards, and where no such standards exist, the basis used for

calibration or verification shall be recorded.

Caution: Pit gauges and measuring tools are commonly used visual aids when performing visual inspections. Pit gauges and measuring equipment can wear through use and have a potential to become inaccurate, it is recommended that the integrity assessment organization have processes and controls in place to verify small simple tools such as pit gauges, Vernier calipers, etc. that are utilized during integrity assessments.

- Each item of measuring equipment is identified to enable traceability of the calibration status.
- Processes and controls are in place to issue testing equipment to personnel; to ensure that the issued equipment is suitable for intended use, the calibration is current, and it is examined after use.
- Processes and controls are in place to segregate out-of-service testing / measuring equipment.
- Processes and controls are in place to ensure that verifications accepted based on equipment that is subsequently found to be out of calibration are valid (e.g. by having traceability to the M&TE used for measurements).

4.11 Integrity Assessment Program

The written description of this element shall establish the methods used to ensure that pressure equipment integrity assessment is completed in accordance with the requirements of the PESR and the requirements defined by the Administrator.

Identify the following requirements within the written description and outline the control methods used. Reference any supporting procedures or other control documents that are used.

4.11.1 Pressure Equipment Asset and Integrity Assessment Documents/Records

(also refer to Control of Documents and Records section)

- Appropriate integrity assessment documents and pressure equipment records must be maintained by the owner and/or integrity assessment organization, as applicable, and include:
 - Integrity assessment services contract.
 - Integrity assessment procedures.
 - Equipment specific integrity assessment plans and strategies.
 - Analysis of corrosion rates etc.
 - Detailed integrity assessment reports.
 - ABSA Electronic Summary Reports, used to report thorough integrity assessments to ABSA.

- Facility mechanical integrity hazard survey report, or facility Process Hazard Assessments (e.g. HAZOP) or similar documentation.
- Integrity assessment and overpressure protection servicing work implementations plans.
- Certificate of Inspection permit(s).
- NDE reports, (UT thickness surveys, etc.).
- Mechanical and process design information.
- Records of repairs and alterations and pressure equipment installations.
- Maintaining an accurate inventory of all the owner's pressure equipment.
- Maintaining equipment records for each item of pressure equipment (as defined in PESR Section 1(1)(k) and as required by PESR Section 41).
- Maintaining accurate records of maintenance, service and tests for safety critical equipment (e.g. pressure relief devices and other protective devices).

Implementation Guidance

Documents may be in hard copy or electronic format. Electronic systems must be able to readily reproduce documents as a written copy, incorporate evidence of authentication by an Alberta in-service certified inspector designated by the Technical Manager (e.g. for detailed integrity assessment reports that are required to be certified), and protected from unauthorized alteration.

The scope of services provided by the integrity assessment organization may not include just compiling the inventory. The integrity assessment organization must ensure that the owner is aware of their responsibility to maintain a current accurate inventory of all their pressure equipment as required under the PESR, and for providing an integrity assessment program in accordance with PESR Section 41 along with the required integrity assessment records.

All pressure equipment installed at the owner's facilities, including mothballed equipment and inventory equipment in storage, must be included in the integrity assessment program.

Permanent and progressive inspection and maintenance records of pressure vessels and associated safety critical equipment (e.g. pressure relieving devices) must be maintained throughout the life of each pressure equipment item. Progressive records must be regularly updated to include new information pertinent to the operation, inspection and maintenance history of the equipment.

Section 4.6 covers requirements for control of documents and records and provides further guidance information.

Section 5.16 (Integrity Assessment Program) of AB-512 also provides detailed

informative guidance regarding integrity assessment records.

4.11.2 Integrity Assessment Procedures

- Integrity assessment procedures, consistent with the integrity assessment organization's authorized scope, are developed and maintained in accordance with requirements established by the Administrator, and ensuring that these are available, understood and used by personnel performing the integrity assessments.
- The integrity assessment organization shall ensure that personnel are provided with documented instructions for carrying out integrity assessments safely.

Implementation Guidance

Integrity Assessment Procedures will detail the organization's safety, technical and reporting requirements that are specific to the type of pressure equipment being inspected.

Examples of items that procedures may include:

- Safety protocols, details of inspection requirements with checklist when applicable, specific reporting requirements as well as measurements and photographs that must be provided.

Detailed guidance information on integrity assessment and other requirements for in-service equipment is provided in the following ABSA documents:

AB-506 [Inspection & Servicing Requirements for Pressure Equipment](#)

AB-505 [Risk-Based Inspection Requirements for Pressure Equipment](#)

These documents provide requirements regarding inspection practices and procedures for determining inspection requirements and appropriate inspection and servicing intervals. They also reference the relevant sections of recognized international standards that represent best practices; such as the American Petroleum Institute Code API 510 Inspection of Pressure Vessels, API 570 Piping Inspection Code and the National Board Inspection Code NB23.

Section 5.16 (Integrity Assessment Program) of AB-512 also provides detailed informative guidance regarding integrity assessment procedures.

4.11.3 Integrity Assessment Plans and Strategies

- Equipment specific integrity assessment plans and strategies, as specified within AB-506, are established for pressure equipment and are approved by a competent person (e.g. Technical Manager, however named), who meets the

qualification and certification requirements established by the Administrator.

Implementation Guidance

Assessment of the pressure plant by competent personnel is a key activity in ensuring that the fluid service and other relevant data needed to develop a suitable inspection plan and strategy for the equipment is available.

From a facility perspective, in order to manage risks the hazards must first be identified and then the risks may be evaluated to determine if they are tolerable. The earlier in the facility life cycle that effective risk analysis is performed, the more cost effective that future safe operation of the process will be.

It should be noted that the need for work site hazard assessment, elimination and control is also referenced (as a requirement) within Part 2 of the Alberta Occupational Health and Safety (OH&S) Code. The understanding of risk developed from the Process Hazard Assessment (PHA) process forms the basis for establishing most of the other process safety management activities for the facility. The policies implemented by most owners (e.g. in compliance with OH&S Code requirements) will also specify the frequency at which facility PHAs will be re-validated. This typically involves updating the original study to reflect any facility changes since the original PHA or the last revalidation.

Inspection plans and strategies for new equipment should be prepared within a reasonable period of time after the installation inspection (not to exceed 12 months). Existing inspection plans should be reviewed at appropriate intervals, and updated as required based on inspection results, advances in technology and other information.

The integrity assessment organization must develop and follow a documented process to ensure all pressure equipment integrity assessment strategies and Pressure Relief Device (PRD) servicing intervals have a basis for the equipment type and the identified damage mechanisms. Essentially, this basis is the inspection plan and strategy for the specific equipment. As an example, this is the process used to evaluate all of the damage mechanisms and other factors to assign appropriate inspection tasks (e.g. crack inspection using the Magnetic Particle Testing (MT) NDE method at a specific interval for a compressor pulsation vessel, based upon the identified mechanical fatigue damage mechanism). The person making the decisions and developing the strategy must possess, or be under direct supervision of, a valid In-Service Inspector as described in AB-506. The QMS should also describe how the process has been communicated to the owner, what input the owner has in validating the process hazards and damage mechanisms, how the owner is informed of their responsibility to monitor the process and notify the integrity assessment organization of any process changes or conditions that may affect the plans and/or strategies, and the owner's approval of the strategies and the work plans that follow.

As specified within AB-506 pressure equipment and piping inspection plans and strategies, or supporting documents, shall include:

- Credible damage mechanisms (modes of deterioration) that could be expected to affect the specific equipment.
- Primary areas of degradation and expected rate/susceptibility.
- The type and extent of NDE and inspection techniques required to detect and evaluate the damage mechanisms.
- Corrosion monitoring plans, NDE surveys, monitoring of process variables, etc.
- Preparation required for the examinations and inspections.
- Inspection interval and dates of the next external and thorough inspections and servicing intervals and next servicing date for the associated pressure relief device(s).
- Where applicable; individual piping circuits may require their own specific Piping Corrosion Surveys and/or Strategies to be developed.

Other relevant Publications and Documents include:

API-570 – Piping Inspection Code

API-510 – Pressure Vessel Inspection Code

ANSI/NB-23 – National Board Inspection Code

API RP-572 – Inspection of Pressure Vessels

API RP-574 – Inspection Practices for Piping System Components

API RP-576 – Inspection of Pressure Relieving Devices

Section 5.16 (Integrity Assessment Program) of AB-512 also provides detailed informative guidance regarding integrity assessment plans and strategies.

4.11.4 Integrity Assessment Work Plans

- Work plans encompassing integrity assessments activities and servicing of safety critical devices are developed and communicated to pressure equipment owners.

Implementation Guidance

Work plans should include references to the integrity assessment organization’s procedures and practices and document all scheduled integrity assessment work (e.g. work required to comply with the pressure equipment integrity assessment plan and strategy, as well as AB-506) as well as follow-up from previous inspection findings and recommendations.

Integrity assessment work plans are normally prepared well in advance of the required equipment inspection and PRD servicing dates (e.g. on a once per calendar or fiscal year period). Typically, all of the integrity assessment work necessary within a specified calendar or fiscal year is summarized in the work plan, which is then communicated to and authorized by, the pressure equipment owner.

Section 5.16 (Integrity Assessment Program) of AB-512 also provides detailed informative guidance regarding integrity assessment planning.

4.11.5 Integrity Assessment Prior to Entering Service

- An integrity assessment of each item of pressure equipment is completed after the equipment has been installed and prior to entering service.
- The integrity assessment shall include confirmation all ABSA inspections for issuance of permits (i.e. Certificates of Inspection Permits) required under the Safety Codes Act have been completed prior to the pressure equipment being placed into service.
- For pressure piping systems; that all of the inspections and reports are completed and on file prior to initial operation (e.g. AB-83 pressure piping construction and test data report and, if applicable, AB-81 completion of construction declaration).

Implementation Guidance

Section 5.16 (Integrity Assessment Program) of AB-512 provides detailed informative guidance regarding integrity assessment prior to entering service and the scope of the typical installation inspection for pressure equipment.

In many cases the installation inspection process will also include baseline thickness readings, at the locations of future corrosion monitoring, in order to normalize the data for future corrosion monitoring.

4.11.6 Periodic Integrity Assessments

- Periodic assessments are done in accordance with the requirements established by the Administrator and integrity assessment plans to ensure fitness-for-purpose of the pressure system. These shall include:
 - External integrity assessments.
 - Thorough (internal or equivalent) integrity assessments.
 - Corrosion surveys (Ultrasonic Thickness (UT) surveys, etc.) and other condition monitoring activities needed to assure the continued safe operation of the equipment.
 - NDE and other monitoring results, which are reviewed by a competent individual who holds the required In-Service Inspector (ISI) Certificate.
 - Appropriate integrity assessment intervals are assigned in accordance with requirements set by the Administrator.

Implementation Guidance

The AB-506 document provides maximum thorough inspection and servicing intervals and references the relevant sections of recognized international standards that must be followed, such as, the American Petroleum Institute Code API 510 Inspection of

Pressure Vessels, API 570 Piping Inspection Code, and the National Board Inspection Code NB23.

Section 5.16 (Integrity Assessment Program) of AB-512 provides detailed informative guidance regarding periodic integrity assessments.

4.11.7 Reports

- Detailed integrity assessment reports for each item identified in the integrity assessment plan are prepared and maintained. Observations and data obtained in the course of integrity assessments are recorded in a timely manner to prevent loss of relevant information.
- Reports are certified by an In-Service Inspector that meets the requirements established by the Administrator, and by the Technical Manager or their designate.
- Summary reports of integrity assessment and other reports as required by an Alberta Safety Codes Officer, authenticated by the Technical Manager or his designee are submitted to ABSA within a time period acceptable to ABSA.

Implementation Guidance

Reporting shall be maintained in accordance with the integrity assessment organizations manual or formal management system documentation process, as per Section 4.6 – Control of Documents and Records.

4.11.8 Close-Out of Integrity Assessment Findings

- Appropriate timely corrective action is taken for integrity assessment findings and for other integrity assessment activities that require follow-up. This may require interface with the controls pertaining to the non-conformities and corrective action element of the quality management system.

Implementation Guidance

Within the integrity assessment organization's program, there must be an effective process implemented for identifying, reporting, dispositioning and tracking the resolution of inspection findings or integrity assessment issues (e.g. Safety Codes Act nonconformance on pressure equipment that is found during integrity assessment) that are discovered. This process shall include a system to ensure the owner has access to the information and is made aware of the findings and status.

4.11.9 Overpressure Protection and Protective Devices

- Assuring that the pressure equipment owner services pressure relief devices and safety critical equipment in accordance with the requirements established by the Administrator, and at appropriate intervals to ensure operation in accordance with their design.
- Assigning appropriate in-service intervals based on the testing, servicing condition reports and other operating information (refer to AB-506 Section 15.4 and Appendix D) and providing documented evidence of the AB-506 required work process, including provisions to verify that the documented online external visual examinations of pressure-relief devices have been completed by competent personnel as required by AB-506.
- Describe the pressure relief device assessment process (e.g. how pressure relief device in-service interval decisions are made) implemented by the integrity assessment organization.

Implementation Guidance

Integrity assessment organizations are responsible to notify the pressure equipment owner that a Certificate of Authorization Permit is required to manufacture, assemble, repair, set or seal PRDs and implement processes to ensure the owner has PRDs serviced at the specified intervals. AB-506, Section 15.4 describes required work process and Table 1 shows the maximum periods of time a pressure relief valve may remain in service.

Owners are to be made aware of their responsibility to notify the integrity assessment organization of any process changes or conditions that may affect the PRD servicing intervals.

A documented online visual inspection of PRDs is required after re-installation and at a maximum 5 year interval as specified by AB-506, Section 15.3.

Appropriate documented work processes, methodology, and assessments must be in place to optimize the PRV servicing interval (typically the servicing interval is based on device cleanliness and mechanical condition, and valves that do not perform, or would not have performed, as required either in the field or when tested should have a root cause failure analysis conducted and the interval adjusted accordingly) in accordance with the AB-506, Appendix A.

Other relevant Publications and Documents include:

AB-524 – Pressure Relief Devices Requirements

AB-525 – Overpressure Protection Requirements for Pressure Vessels and Pressure Piping

API-579 – Inspection of Pressure-relieving Devices

ANSI/NB-23 – National Board Inspection Code Section 5.19 (Overpressure Protection and Protective Devices) of AB-512 provides detailed informative guidance regarding integrity assessment processes for overpressure protection and protective devices.

4.12 Repairs and Alterations

Identify the following requirements within the written description and outline the control methods used. Reference any supporting procedures or other control documents that are used.

- Describe the processes and controls used to ensure the inspection and certification of repairs and alterations services provided by the integrity assessment organization are completed in accordance with the Safety Codes Act and AB-513 Alberta Requirements for Repairs and Alterations.
- All pressure equipment repair/alteration work is done by an organization that has a valid Alberta Quality Program Certificate of Authorization Permit for the scope of work.
- The repair or alteration procedure covers all the required technical and quality standards for the service in which the item will be placed.
- An ABSA Safety Codes Officer is notified prior to the repair or alteration of boilers, pressure vessels, fired-heater pressure coils, indirect fired heater coils, boiler external piping and thermal fluid heating systems.
- The repair is approved by the owner's authorized person, and as applicable by ABSA, in accordance with AB-513.
- All alterations are accepted by ABSA Design Survey except as specifically exempted from this requirement within AB-513.
- Repairs that are inspected and certified by the integrity assessment organization are inspected in accordance with AB-513 and certified by persons who hold the appropriate Alberta In-Service Inspector Certificate and have the required competence for the scope of work.
- Required inspections are completed and documented in accordance with AB-513.
- The repair and alteration report, AB-40 (or AB-83 for boiler external piping) is retained on file by the owner and the original form is provided to ABSA.

Implementation Guidance

The integrity assessment organization must ensure they have appropriate competencies for inspecting and certifying pressure equipment repairs listed within their authorized scope [i.e. on the AB-515(a) form].

The scope of pressure equipment repairs that may be inspected and certified by the integrity assessment organization must be equivalent to the scope of owner certified repairs that is included within certified pressure equipment integrity

management systems (i.e. owner-user Programs) in which the integrity assessment organization has responsibility for the owner's integrity assessment program and provides a Chief Inspector.

Requirements established by the Administrator for repairs and alterations are included in the following ABSA documents posted on the ABSA website at www.absa.ca:

- [PESR](#) Section 40 covers requirements for repairs and alterations
- [AB-513](#) *Alberta Repair and Alteration Requirements* document
- [AB-512](#) *owner-user Pressure Equipment Integrity Management Requirements* document
- [AB-40](#) *Boilers and Pressure Vessels Repair and Alteration Report*, with preparation guide (AB-40a) to assist in completing the document

4.13 Audits

Identify the following requirements within the written description and outline the control methods used. Reference any supporting procedures or other control documents that are used.

- The integrity assessment organization has a system of planned and documented internal quality system audits to verify compliance with the criteria within this AB-515 document, and the effectiveness of the quality management system.
- Describing that the personnel performing the audits are suitably qualified and independent from the functions being audited.

Implementation Guidance

The purpose of internal quality audits is to verify that the documented operational procedures of the integrity assessment organization are being implemented as required. Quality audits are normally planned and organized by the Quality Manager and carried out in accordance with a pre-determined schedule. The audit scope encompasses all aspects of the quality system, including the performance of inspections. The audit scope, dates and detailed scheduling of audits should be planned and conducted in accordance with an established procedure. The established procedure should also indicate how audit findings would be addressed within the corrective and preventative action element, and who is responsible for tracking the follow-up required as a result of the audit and closing out findings. Audit reports should also include the date, location, results, and attendance list.

4.14 Non-Destructive Examination (NDE) and Testing

Identify the following requirements within the written description and outline the control methods used. Reference any supporting procedures or other control documents that are used.

- The integrity assessment organization has suitable controls for ensuring that all required non-destructive examinations that are done directly, or out-sourced by the integrity assessment organization, are effective and meet the requirements under the Safety Codes Act (also refer to Purchasing and Material Control element).
- Special process contractors are approved in accordance with requirements defined within the integrity assessment organization's quality management system.
- Written requirements are provided to special process contractors.
- Written procedures are developed and followed for special processes.
- Special process procedures are validated (e.g. NDE technologies are verified as being capable of producing acceptable results prior to their use).
- NDE personnel qualification and certification requirements are verified.
- Contract activities are coordinated.
- Corrosion monitoring plans are developed by competent personnel, and approved by the Technical Manager or designee, and that results are reported and are on file.
- Competent personnel assess corrosion monitoring results and the results are verified promptly.

Implementation Guidance

When contracting an NDE organization, it is appropriate to review the NDE organization's Quality Management System in regards to the NDE services provided and to verify that NDE procedures meet ASME Section V requirements.

Particularly with newer NDE technologies, it is very important to ensure that the NDE method is capable of producing acceptable results. Depending on the particular NDE method(s) this may involve obtaining flawed samples that are similar to the actual pressure equipment configuration/material etc., to conduct validation testing of the NDE procedure and/or examiner.

An NDE organization conforming to ISO 9712, SNT-TC-1A, or CP-189 (ACCP/ASNT), is desired.

It is recommended to identify the following requirements within the written description and outline the control methods used. Reference any supporting procedures or other control documents that are used.

- Special process contractors are approved per requirements of the integrity assessment organization's quality management system.
- NDE contractors have validated their NDE procedures (e.g. procedure demonstrations in accordance with to ASME Section V, paragraph T-150) or documented validations on acceptable test pieces for new NDE technologies.
- NDE organization has a written practice identifying their process for qualification and certification of NDE examiners.
- NDE examiner, personnel qualification and certification requirements are verified.
- NDE organization has a Level III available (contract or employee).

- NDE organization has NDE procedures in place and has been approved and signed by a Level III.
- Written requirements are provided to NDE contractors, identifying specific examinations required, the acceptance criteria for examinations, and the examiner qualifications and competencies required.
- Corrosion monitoring plans are developed by competent personnel, and approved by the Technical Manager or designee, and that results are reported and are on file. Competent personnel assess corrosion monitoring results and results are verified promptly.

Section 5.17 (Non-Destructive Examinations and Testing) of AB-512 provides detailed informative guidance regarding integrity assessment processes for non-destructive examinations and testing.

4.15 Non-Conformities and Corrective Action

Identify the following requirements within the written description and outline the control methods used. Reference any supporting procedures or other control documents that are used.

- The integrity assessment organization has suitable processes and controls for handling non-conformities relating to; pressure equipment, the service contract, the integrity assessment organization's quality management system, and any accidents and unsafe conditions that must be reported under the Safety Codes Act.
- These processes and controls shall include:
 - Reviewing non-conformities, including customer and jurisdiction complaints, determining the cause of non-conformities and evaluating the need for action to ensure that non-conformities do not recur.
 - Determining the remedial, corrective and preventative action(s) needed.
 - Method(s) for controlling and tracking the completion of any remedial, corrective and/or preventative actions.
 - Records of the results of actions taken.
 - Reviewing the effectiveness of actions taken.

Implementation Guidance

The purpose of establishing a corrective action system is to implement and document preventative measures and corrective actions. The effectiveness of the system will depend on the definition of a reasonable completion date and the follow-up process. Some method should be developed to send reminders or alarms to check the completion status.

For example, if during a management review with an owner it was found that equipment was installed without communication to the integrity assessment organization.

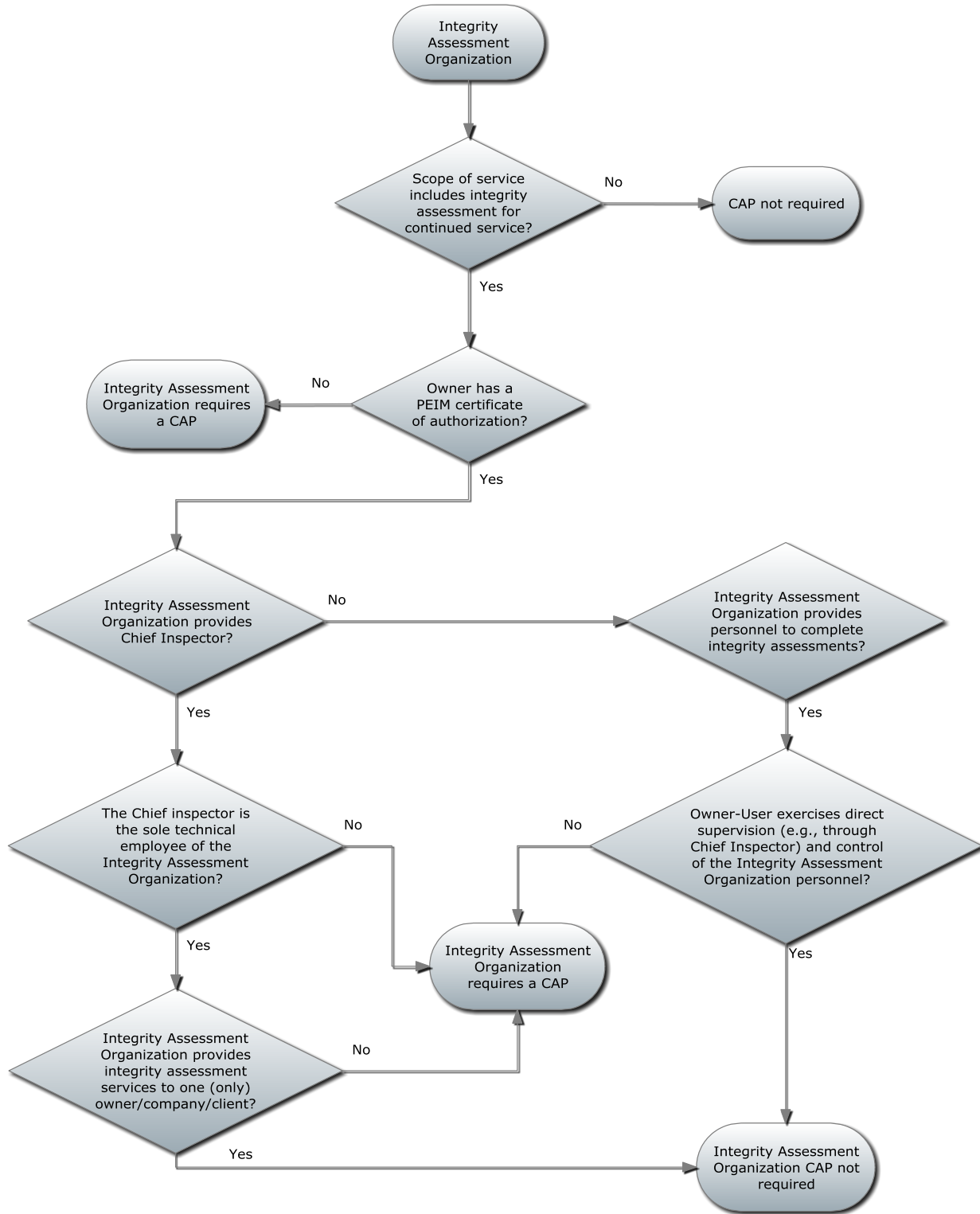
The non-conformance report must answer:

- what is to be done immediately to rectify any potential safety concerns

- how will this be avoided in the future
- who is responsible for communication
- what process has been implemented to verify communication has improved
- if communication has not improved, what remedial actions will be taken

It is important that the integrity assessment organization implement effective processes to not only address quality management system issues but to also effectively address non-conformities relating to pressure equipment that are found during the organization's integrity assessment activities (pressure equipment non-conformance processes may be addressed within 4.12.8).

APPENDIX A INTEGRITY ASSESSMENT ORGANIZATION CERTIFICATE OF AUTHORIZATION PERMIT CHART



6.0 REVISION LOG

Edition	Rev #	Date	Description
1	1	2007-07-25	Removed AB-504 “Boiler and Pressure Vessel Repair and Alteration Matrix” on page 3 under Reference Publications. Removed “AB-504 Boiler and Pressure Vessel Repair and Alteration Matrix on page 25 under Implementation Guidance. The AB-504 Boiler and Pressure Vessel Repair and Alteration Matrix document has been rescinded. The AB-504 described responsibilities for reviewing repair and alteration procedures and the scope of inspection and certification of repairs that can be done by owners under their Alberta owner-user Certificate of Authorization. These responsibilities are now described in the AB-513 Pressure Equipment Repair and Alteration Requirements document.
1	2	2007-10-22	Added a revision log
1	3	2008-03-19	Deleted the administrative section entirely. This section included insurance and financial audits. Added Appendix A. This shows when a certificate of authorization permit is needed. Made changes to text, as required, to improve clarity by, deleting areas of duplication, moving text to improve flow and reformatting.
1	3	2009-06-03	Editorial Revision to delete reference to the now obsolete AB-514
1	4	2010-10-29	Editorial Revisions: Typographical error on page 4 last paragraph (removed was) Corrected Section reference on page 12 – Section 12 not 13
		2011-09-26	Editorial change only – did not change date on document Replaced chart on page 32 with the current chart identical to the chart in AB-506.
2	0	2017-01-10	Second Edition Issued
2	1	2017-03-17	Editorial Updates: Title for the AB-515(a) was revised and updated Section 5.0 to Appendix A