

## Information Bulletin IB10-006 Rev.3

April 22, 2015

### Steam Pipelines

Information Bulletin IB10-006 Rev.3 is hereby issued for immediate implementation. This revision includes technical and editorial changes. IB10-006 Rev.2 issued on February 23, 2011 is hereby rescinded.

#### I INTRODUCTION

Steam pipelines used in the recovery of hydrocarbons from a reservoir or oil sands deposit are regulated under the *Pipeline Act*, R.S.A. 2000, c. P-15. These steam pipelines are exempt from the Safety Codes Act and Pressure Equipment Safety Regulation by section 2(1)(e) of the Pressure Equipment Exemption Order (AR 56/2006), but they require design registration by ABSA as a condition of licensing under the Pipeline Rules AR 91/2005, and in accordance with Alberta Energy Regulator (AER) Directive 077 issued May 19, 2010. (Most recent revision was issued Dec 22, 2011.)

Directive 077 explains the AER legislative requirements, and clarifies the responsibilities of the AER and ABSA with respect to steam pipelines. In general, design registration, construction, operation, and maintenance of steam pipelines is under ABSA's programs.

This Information Bulletin specifies the application of ABSA's programs to steam pipelines that are regulated under the Pipeline Act in accordance with AER Directive 077. This Information Bulletin is intended to supplement, and should be reviewed with, AER Directive 077.

#### II SCOPE

This Information Bulletin specifies the application of ABSA program requirements that shall be applied to steam pipelines within the scope of AER Directive 077, Part B, Section 3.1.

The requirements contained herein are applicable to pipelines intended to carry steam, produced fluids, or recovered steam. In February 2015, the AER issued further clarification regarding the pipeline services that require ABSA design registration on their website, <http://www.aer.ca/rules-and-regulations/directives/faqs-pipelines-technical>. According to this clarification, the steam distribution pipelines carrying steam at temperatures greater than 120°C from steam generators at the steam generation

facility to the well pads, and/or certain production pipelines carrying some combination of fluids at temperatures greater than 120°C (oil, natural gas, water, and recovered steam) back from the well pads to the central processing facility, are considered to be “steam” pipelines in the context of AER Directive 077.

A schematic of criteria for registration of design and license application is provided in figure 3.1 of AER Directive 077, Part B (page B-30) and in the AER web page referenced above. The clarification issued in the AER FAQ reference above contains more specific direction as to how to apply the principles expressed in AER Directive 077 and it is important that the owner and designer carefully study the information contained in the AER FAQ. It is the responsibility of the owner and the designer to determine which pipelines require design registration and compliance with this Information Bulletin. Acceptable pipeline designs are registered with the condition that the pipelines will comply with all requirements (construction, pressure testing, inspection, operations, etc.) specified in this Information Bulletin.

The requirements of this Information Bulletin do not apply to steam pipelines of internal aggregate capacity less than 0.5 m<sup>3</sup>. Treatment of exemptions is described under Section IV of this document.

### III ABSA Program Requirements

#### 1) Registration of Design

Registration of design with ABSA shall be in accordance with Section 16(1) of the *Pressure Equipment Safety Regulation, AR 49/2006 (PESR)*, and all the provisions therein.

The design shall also satisfy the requirements of *Canadian Standards Association (CSA) Z662: Oil and Gas Pipeline Systems*, Clause 14.

#### 2) Design Submission Requirements

The design shall be submitted to ABSA for review and registration. The submission shall include all information required by Section 16(1) of the PESR, and shall include a completed Design Registration Application Form AB-31 together with other documentation and applicable forms (available on the ABSA Web site [www.absa.ca](http://www.absa.ca)). The submission shall clearly identify and distinguish the pipelines for which design registration is being sought from those which do not require registration. The submitted documentation shall be stamped by a Professional Engineer.

**All pipeline design registration submissions shall address overpressure protection.** As stated in AER Directive 077, Part B, Section 3.3, pressure control and overpressure protection shall satisfy the requirements of CSA Z662, Clause 4.18, and overpressure protection shall be acceptable in accordance with Section 38 of the PESR.

If Overpressure Protection by System Design (OPPSD) is proposed for pipelines, the submission shall address all requirements specified in ABSA document AB-525 – *Overpressure Protection Requirements for Pressure Vessels and Pressure Piping*.

Design submissions of steam pipelines with PRVs need to show that each PRV set pressure is equal or lower than the maximum allowable working pressure of the pipeline it is intended to protect.

If the use of CSA Z662, Annex I is proposed, design submissions shall clearly identify and distinguish the steam pipelines or sections of steam pipelines to which Annex I was applied. Design submissions shall include documentation to demonstrate compliance with the Annex I and, if applicable, address specific Annex I requirements (thermal stress limits, fatigue evaluation considerations, etc.).

If the use of unlisted materials according to CSA Z662, Clause 14.3.2 or Annex I, Clause I.3.2.1 is proposed, the owner or owner's agent shall develop project-specific material specifications and include them with the design submission. As a minimum, project-specific material specifications shall be numbered documents with revision numbers and need to specify material chemical properties, mechanical properties at the maximum design temperatures and room temperatures, material testing requirements according to CSA Z662, Clause 14.3.2 or Annex I, Clause I.3.2, and allowable stress values established as specified in Paragraph 302.3.2(d) of ASME B31.3.

The design registration will be approved following a review to determine that the design meets the requirements of this Information Bulletin, the PESR and relevant codes and standards. The applicant will be notified in writing that the design has been registered in accordance with this Information Bulletin.

### 3) **Construction and Inspection**

Construction shall be by an organization that holds a quality system certificate of authorization permit issued under section 11 of the PESR. The scope of the certificate of authorization permit shall include "Z662 steam pipeline construction".

Welding procedure specifications shall be registered with ABSA per section 18 of the PESR. Welding procedures specifications shall be in accordance with the requirements of CSA Z662 Clause 14.4.2 or Annex I, Clause I.4.1 as applicable. Welder certification and performance qualification testing shall be in accordance with the Pressure Welders Regulation and CSA Z662 Annex I Clause I.4.1 when applicable.

Construction documentation, including completed AB-83 forms, shall be maintained and distributed in accordance with the construction organization's

quality management system. Construction inspections shall be completed by a competent owner's inspector, and documented by the inspector's certification of the completed AB-83 forms. The completion of construction declaration (ABSA form AB-81) shall be submitted to ABSA in accordance with Section 32 of the PESR. Construction may be subject to inspection by an ABSA Safety Codes Officer.

#### 4) **Pressure Testing**

The pressure test requirements are specified in CSA Z662, Clause 14.5. Test pressures, mediums, and procedures shall be accepted by ABSA, in accordance with Sections 16(1) and 30 of the PESR before the test is conducted. Testing shall be conducted in a manner that satisfies CSA Z662 and Section 30 of the PESR. Records of the successful pressure test shall be in accordance with the construction organization's quality management system, the Pipeline Rules, and Sections 31 and 32 of the PESR.

#### 5) **Operations**

In-service inspections and integrity management for the pipelines shall be addressed in the company's pressure equipment integrity management system in a manner acceptable to ABSA. The integrity management system shall address steam pipelines inventory, inspection plans, operating procedures, operator training and change management. Unsafe conditions and incidents not associated with a failure (as defined below) must be reported to ABSA.

#### 6) **Failure Investigation**

For the purpose of this Information Bulletin only, a failure is defined as a condition where the pipeline is incapable of retaining the fluid being transported; however, a fluid release of a temporary nature caused by a leakage at flanges, packing glands, and similar fittings, that can be corrected by mechanical adjustments such as the tightening of bolts, is not considered a failure. This definition is only applicable to the pipelines addressed in this Information Bulletin..

Failures, as defined hereinabove, of a pipeline under this Information Bulletin shall be reported immediately to ABSA, and a written report shall also be submitted to ABSA without delay. The failure will be investigated by ABSA as a pressure equipment incident, and the conclusions of the investigation will be provided to the AER. In certain circumstances, ABSA and the AER may conduct a joint investigation of the incident. If a failure causes the injury or death of any person, the failure investigation may also involve representatives of Workplace Health and Safety and other regulatory authorities.

## 7) Changes to Registered Designs

Changes to a registered design will be handled by ABSA, in accordance with Section 22 of the PESR. A submission for registration of a change to an existing registered design shall clearly indicate what has changed.

Management of change procedures shall be in place to ensure appropriate engineering consideration is given to any proposed changes to the design of the system. This requirement applies throughout the design, construction and in-service life of the pipeline.

The ABSA process does not provide for design registration of an existing AER regulated pipeline to accommodate a change to steam service from existing service with any other fluid.

## IV TREATMENT OF EXEMPTIONS

Details for exemptions and treatment of exemptions are as prescribed under Section 3.4 of Part B of the AER Directive 077. In general:

- 1) Temporary steam pipelines of a capacity greater than 0.5 cubic metres (m<sup>3</sup>) require design registration, without regards to the length of time they are to be in service. The usual ABSA registration procedure applies.
- 2) Steam pipelines confined strictly within the facility surface lease boundaries of a steam generating plant, satellite, battery or well site, and steam manifolds and measuring facilities at multi-well satellites are considered to form pressure piping systems, as defined in the PESR, and are not exempted from registration by ABSA if of a capacity greater than 0.5 cubic metres (m<sup>3</sup>). The usual ABSA registration procedure applies.

## V STATUTES AND REGULATIONS REFERENCED

References in this Information Bulletin to statutes, regulations, codes and standards, include amendments thereto made from time to time.

*<original signed by>*

Mike Poehlmann, P.L. (Eng.)  
Chief Inspector  
ABSA the pressure equipment safety authority