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## GASKET FAILURE DURING HYDROSTATIC TEST

Recently, during the hydrostatic test of a vessel, a 42" gasket failed. Fortunately no one was hurt but the incident could have had more significant consequences. Sometime back, we also had an incident involving a worn threaded fitting which disengaged during a hydrostatic test, resulting in injuries.

While we are all familiar with the hazards in pneumatic testing, hydrostatic tests can also be hazardous. In this most recent case, we are again reminded that gaskets must be checked thoroughly before installation and all gaskets must be installed properly in accordance with established procedures and the manufacturer's recommendations or specifications.

In all cases, care in conducting hydrostatic tests is critical. All personnel conducting such tests must be mindful of the hazards involved and, specifically for gasketed connections, do not stand where a gasket failure could result in injury. ❖

## OVERPRESSURE PROTECTION FOR FIRE PROTECTION SYSTEMS SPRINKLER TANKS

Sprinkler tanks are used in fire protection sprinkler systems to provide a source of water for fire suppression. A sprinkler tank that is pressurized by air, or by some other expansible fluid, is a pressure vessel and is subject to the rules of the *Alberta Pressure Equipment Safety Regulation*. Pressure equipment must be protected against overpressure.

A Safety Codes Officer found two large pressure vessels in sprinkler tank service in a fire protection system. The vessels had been constructed to ASME Section VIII by a qualified manufacturer in Alberta. Upon installation inspection of the vessels, it was found that the vessels were being pressurize with air to 60 psi.

It was observed that the vessels were not protected by pressure relief valves. Contact with the fire protection installer indicated that the maximum air pressure supplied to the vessels was 100 psi. The vessels' maximum allowable working pressure (MAWP) was 120 psi. The Safety Codes Officer was informed that the installation designer concluded the vessels did not require pressure relief valves because the source air pressure was lower than the vessel MAWP. This conclusion is not acceptable as it does not meet the requirements specified in section 38 of the *Pressure Equipment Safety Regulation* which states:

*38(1) An Owner of pressure equipment must ensure it has overpressure protection that is :*

- (a) a pressure relief valve that meets the requirements of the ASME Code, or*
- (b) other means of overpressure protection acceptable to the Administrator.*

Specific acceptance by the Administrator is required for any means of overpressure protection when a pressure relief valve is not used. Acceptance would be based on submission of a proposal by the owner or their designated agent. The proposal must include the rationale and a full technical justification to use anything other than a pressure relief valve for overpressure protection. ❖

## NOTIFICATION

This is to advise that Mr. Glenn Edwin Doan does not hold a Second Class Power Engineer Certificate of Competency in Alberta.

If anyone has received information otherwise, please contact ABSA's Education & Certification Department immediately at:

Tel. 780-437-9100  
email [power.engr.cert@absa.ca](mailto:power.engr.cert@absa.ca)

## ABSA BOARD OF DIRECTORS

ABSA is looking for two people to fill upcoming positions on our Board of Directors. Our Board provides guidance and direction to ABSA's activities and programs to ensure pressure equipment safety for industry and the public in Alberta. The Board consists of senior representatives of various facets of the pressure equipment industry. Previous governance experience either working with or serving on a Board would be a definite asset. ABSA Board members serve a three-year term with the option to serve an additional three-year term afterward. Board members receive an honorarium in recognition for service and are entitled to reimbursement for travel expenses.

### Member Representing Education and/or Labor:

This position will provide guidance and insight into the educational aspects associated with pressure equipment. The ideal representative will possess senior or executive management and administration experience related to the education and certification of the Alberta workforce in Power Engineering, and/or Pressure Welding.

### Member Representing the General Public:

The requirement of this position will be to represent the Alberta general public. This position is appointed by the Minister, Alberta Municipal Affairs. The ideal representative will hold a senior or executive position and be familiar with the pressure equipment industry.

To apply for these positions please send a resume and cover letter indicating which position you are interested in (or both) to:

Jared Uditsky, Human Resources Manager  
ABSA the pressure equipment safety authority  
9410 20 Avenue, Edmonton, AB T6N 0A4  
Ph: 780-437-9100 Ext 3315; Fax: 780-437-7787; Email: [hr@absa.ca](mailto:hr@absa.ca)

Closing date for applications for the above positions is October 15, 2009. ❖

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## THE 60TH ANNUAL MEETING OF THE CSA B51 CODE TECHNICAL COMMITTEE

The 60th Annual Meeting of the CSA B51 Code Technical Committee was held August 20 and a picture of all attendees of the meeting was taken as a special memento of the occasion. The CSA B51 Code Technical Committee consists of over 50 members who are representatives from various pressure equipment industries and regulators across Canada to address Canadian requirements regarding pressure equipment in Canada. ❖



60th meeting of the CSA B51 Technical Committee, Kelowna, BC August 20, 2009

Photo courtesy of CSA

## CANCELLATION OF CERTIFICATE OF COMPETENCY

ABSA recently cancelled the Certificate of Competency of an individual who had the responsibility of chief power engineer with an Alberta company.

As reported in the June 2009 issue of *The Pressure News*, during a routine site visit, an ABSA safety codes officer observed that a power boiler was in service without the required safety valves in place. The safety codes officer directed an immediate shut down of the boiler and issued an instruction prohibiting further operation of the boiler until authorized by ABSA.

After thorough investigation of this incident, in addition to making a recommendation to take legal action against the company concerned, the Administrator took immediate action to cancel the chief engineer's certificate of competency..

In addition to his decision to operate the boiler without installed, functional safety valves, the chief engineer failed to meet other critical responsibilities. The boiler was in service without being under the continuous supervision of a properly certified shift engineer and the chief engineer's certificate was of a lower classification than required for the capacity of the power plant.

Power engineers must be fully knowledgeable of and accept their responsibilities under the *Safety Codes Act* and the *Power Engineers Regulation* to ensure public safety. Failure to do so can have very serious consequences. ❖

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## RENEW YOUR CERTIFICATE ON-LINE

Power Engineers are able to renew their certificates on-line as long as the certificate is valid or has not been expired for longer than three years. In order to be able to renew a certificate on line, you will need to submit a request for internet access.

To obtain on-line access, request the form 'Application for Internet Access' from any ABSA office. Complete the form and present it in person with picture ID at any ABSA office. We can not process forms that are mailed in – the picture ID must be verified before ABSA will provide access to your information. Once the application has been processed, access information will be sent to the email address provided.

Once you have obtained on-line access, you can also view and change your personal information, schedule examinations and see your examination results . See information on accessing your information on-line at [www.absa.ca/PowerEngineer.aspx](http://www.absa.ca/PowerEngineer.aspx). ❖

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## TIME TO START UP HEATING BOILERS PREVENTIVE MAINTENANCE AND CARBON MONOXIDE POISONING

With the winter heating season fast approaching, it is time again to start getting the boiler ready for winter after a lay-up period. Defective equipment or incorrect installations with inadequate combustion ventilation could lead to many hazards including explosion or carbon monoxide poisoning. With proper preventive maintenance to ensure pressure containment integrity of the boiler and associated pressure fittings and controls, it will prevent the potential hazard.

Articles relating to these subjects were published in previous issues of *The Pressure News*. You can access these articles on ABSA's website.

- Heating Boiler Safety, Volume 1, Issue 3, May 1996
- Starting Heating Boilers after Summer Lay-up, Volume 2, Issue 5, October 1997
- Heating Boilers Preventive Maintenance, Volume 7, Issue 3, September 2002
- Carbon Monoxide Poisoning, Volume 4, Issue 1, March 1999
- Carbon Monoxide Poisoning, Volume 13, Issue 3, September 2008 ❖

## ALBERTA REQUIREMENTS FOR IN-SERVICE PRESSURE EQUIPMENT

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

The Safety Codes Act holds pressure equipment owners responsible to meet requirements of the legislation and the *Pressure Equipment Safety Regulation* (PESR) spells out a number of specific requirements that owners must meet. Section 37 of the PESR requires that the owner maintain an integrity assessment program acceptable to the Administrator, and lists requirements for inspection and other items that owners must include in their integrity assessment (in-service inspection) program.

Pressure equipment installed in Alberta covers a broad range of facilities, from major petroleum and petrochemical plants, pulp mills, and power utilities to small oil and gas processing, other industrial facilities, as well as public occupancy facilities such as schools, offices, shopping malls, apartment complexes, and hotels to dry cleaners and gas stations with air receivers. The policy documents and other information issued by ABSA are intended to assist all stakeholders in meeting the requirements of the PESR and to assure the safe operation of pressure equipment installed in Alberta.

The following documents have been issued by the Administrator for pressure equipment safety under the *Pressure Equipment Safety Regulation* to define the requirements that must be met for in-service pressure equipment:

AB-505, Rev 1 Issued 2005-08-19 [Risk-Based Inspection Requirements for Pressure Equipment](#)

This establishes the mandatory requirements governing the application of risk-based inspection (RBI) in Alberta. Industry took the lead role in developing this document. AB-505 references API RP-580 – *Risk Based Inspection* – and provides additional information to ensure that RBI is appropriately applied.

AB- 506, Rev 6 Issued 2009-05-29 [Inspection and Servicing Requirements for In-service Pressure Equipment](#)

This document has been extensively revised to include key requirements of the *Pressure Equipment Safety Regulation* (PESR) and reflect current business practices. It incorporates applicable information that was previously covered in AB-514 and provides additional information to assist owners in ensuring the safe operation of their pressure equipment. AB-514 has been withdrawn.

AB-512, Rev 2 Issued 2007-10-22 [Owner–User Pressure Equipment Integrity Management Requirements](#)

This specifies quality system management requirements for owners who are required to hold a Certificate of Authorization Permit under PESR 11(3). There are currently 130 owner-users who hold an Alberta Certificate of Authorization Permit.

AB-513, Rev 1 Issued 2007-01-30 [Pressure Equipment Repair and Alteration Requirements](#)

This covers inspection and certification and other requirements for post-construction repairs and alterations to pressure equipment.

AB-515, Rev 4 Issued 2009-06-03 [Requirements for Inspection Companies](#)

This document was developed with input from inspection companies and other stakeholders. It specifies quality management system requirements for companies that are required to hold a Certificate of Authorization Permit to provide integrity assessment services per 11(2) of the PESR.

ISO/IEC 17020 is an internationally recognized standard governing inspection bodies. 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 programs that ABSA administers under this Act. AB-506 and AB-515 provide information to assist in determining when an inspection company must hold a Certificate of Authorization Permit. Alberta Certificate of Authorization Permit holders are listed on the [absa.ca website](http://absa.ca).

IB02-002 [Certification of In-Service Pressure Equipment Inspectors](#)

A person performing in-service integrity assessments must be competent to carry out appropriate integrity assessments and must perform that activity under a Certificate of Authorization Permit.

An individual who inspects and certifies boilers and pressure vessels must hold a certificate of competency per the requirements established in [Information Bulletin IB02-002 Rev 1](#).

Attention is also drawn to the following guidance documents that have been issued by ABSA:

AB-507 Rev 2 Issued 1999 [Guidelines for the Inspection of Fired Heaters](#)

AB-516, Rev 1 2006-04-18 [Pressure Equipment Safety Regulation User Guide](#)

This lists each requirement of the PESR with valuable guidance information to assist users in meeting the requirements of the PESR and assuring the safe operation of pressure equipment.

(Continued from page 4)

ABSA policy documents and guidelines were developed in close cooperation with owners and other stakeholders. Their input has been invaluable in compiling ABSA policy documents. In particular, we would like to acknowledge the input from the following user groups that represent different industry sectors in Alberta:

Alberta Refinery & Petrochemical Inspection Association (ARPIA)  
Upstream Chief Inspectors Association (UCIA) – (Oil and Gas processing industry)  
Contract Chief Inspectors Association (CCIA) – (Companies who provide in-service inspection services to owners)  
Generation Utilities Advisory Committee (GUAC)  
Integrity Management Association Pulp Producers (IMAPP)

ABSA documents are living documents that are reviewed periodically to ensure they are aligned with current industry practices. You can access the latest version of these documents on ABSA's website: [www.absa.ca](http://www.absa.ca). We also welcome any suggestions you may have to improve these documents. Please provide your comments to:

Mike Poehlmann  
Manager of Inspections  
[poehlmann@absa.ca](mailto:poehlmann@absa.ca) ❖

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## RESULTS OF AN UNPLANNED PLANT TOUR

A Safety Codes Officer (SCO) was requested by an owner/user to visit a plant site to register an aerial heat exchanger, and to witness the installation of a replacement nameplate on a compressor bottle. This particular facility had been in operation for some time, but had just recently been acquired by the owner/user. While at the site and waiting for the operator to attach the nameplate to the vessel, the SCO requested a walk through of the plant to inspect the plant equipment in operation.

The SCO noticed the following items of concern:

- A Power Boiler had block valves locked open in the path of the two safety valves, and the discharge piping entered the ground with no indication of where it terminated. It is not permitted to have isolation valves in the relief path of a power boiler.
- The locks used to secure the isolation valves in the path of vessel pressure relief valves had no tags to identify them, and there were no written procedures for handling the locks. If isolation valves are installed in the relief path of pressure vessels, the owner must have written procedures in place and received approval from ABSA for doing so.
- There was a written list of locks used on isolation valves in the relief path, but the list had no sign-off confirming / documenting that checks were made. When isolation valves are installed in the relief path of a pressure vessel, the procedure must include documented verification that the valves have been checked to ensure that they are in the correct open position.
- None of the aerial heat exchangers on site that required registration had Alberta registration "A-numbers". A vessel may not be operated without a certificate of inspection permit, and no permit is issued to a vessel unless it has an A-number.

A Non-Conformance Report (NCR) was generated by the owner/user to manage correction of these issues. As this owner/user company was due to renew its Certificate of Authorization Permit shortly, this NCR was also passed on to the assigned auditor for follow up. The chief inspector for the owner/user company subsequently contacted ABSA to advise us that corrective action has been taken and, as a result of the NCR, the company had initiated a program to audit for similar non-conformances at their other facilities. ❖

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## NON-COMPLIANT CONSTRUCTION

During a field audit at an upstream gas processing facility, an unidentified fuel gas scrubber vessel was observed in operation. It was relatively large for a fuel gas scrubber; it appeared to have been constructed on site from 8 inch pipe and was approximately 20 feet in height. There was no stamping or documentation available to indicate this vessel had been designed and constructed as a pressure vessel. A fuel gas scrubber of this dimension must be designed and constructed as a pressure vessel, and a certificate of inspection permit issued for operation in Alberta. As there was no evidence to indicate the item was designed and constructed as a pressure vessel, and there was no certificate of inspection permit, the owner was instructed to remove the vessel from service immediately until they could demonstrate that it complies with requirements of the Alberta Pressure Equipment Safety Regulation. ❖

## CATEGORY H PRESSURE VESSELS

The ASME Code Section VIII Division 1 includes a limit of 6 inch diameter as part of the scope for pressure vessels (this is not true for all Divisions of ASME Section VIII Code). Some jurisdictions also use a limit of 1.5 cu ft or 6 in diameter, or both, in their definition for pressure vessels. However, for both the CSA B51 Code and the Alberta *Pressure Equipment Safety Regulation* (PESR), there is no limit of, or reference to, 1.5 cu ft and 6 inch relative to the need for small pressure vessels to be designed and constructed as pressure vessels.

Clause 3 of CSA B51 defines a pressure vessel as a 'closed vessel for containing, storing, distributing, transferring, distilling, processing, or otherwise handling a gas, vapour, or liquid' while Section 1(1)(cc) of the PESR defines pressure vessel as 'a vessel used for containing, storing, distributing, processing or otherwise handling an expansible fluid under pressure'. There is no mention of 1.5 cu ft or 6 in diameter in either definition. For reference, a fitting is defined respectively as 'an appurtenance attached to a boiler, pressure vessel, or piping, including such items as valves' and 'a valve, gauge, regulating or controlling device, flange, pipe fitting or any other appurtenance that is attached to, or forms part of, a boiler, pressure vessel, fired heater pressure coil, thermal liquid heating system or pressure piping system' under CSA B51 and PESR. In both the CSA B51 and the PESR, it is not possible to consider a small pressure vessel as a fitting.

In Alberta, and similarly across Canada, the design of a small pressure vessel can be registered as a Category H fitting, as provided for under CSA B51 Code. Nevertheless, as clarified under the latest edition of CSA B51-09, irrespective of registration as a 'pressure vessel' or as a 'Category H fitting', a pressure vessel, large or small, must be designed and constructed as a pressure vessel and can not be considered as pressure piping nor can piping codes be used for its design and construction.

As noted earlier, it is possible that some jurisdictions, because of provisions in their legislation, may use a limit of 1.5 cu ft or 6" diameter or both to define the scope of a pressure vessel and thus, may actually allow the design of smaller pressure vessels to be in accordance with the 'piping codes'. But that is not believed to be the intent of the CSA B51 Code nor the piping codes, because pressure piping is typically for transmission purposes where likely other forms of loading and not just internal pressure, would be the governing factors. For that reason, pressure piping codes exclude in their scopes such things as 'pressure vessels, heat exchangers, pumps, compressors, and other fluid handling or processing equipment, including internal piping and connections for external piping' (see Paragraph 300.1.3(d) of ASME B31.3). The requirements in Alberta are in line with CSA B51 Code and are no different from the requirements of a majority of other jurisdictions in that respect.

To conclude, in general, fittings have not been, and will not be, required to conform to all requirements of ASME Section VIII Division 1. However, there will continue be the need for pressure vessels to be designed and constructed to pressure vessel codes. And that would include small pressure vessels which may be registered as Category H fittings under the provisions of the CSA B51 Code. ❖



CAUTION

Previous issues of The Pressure News may contain information which is outdated or no longer valid. Please be cautious when using information from old articles.

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