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AMENDMENT TO PRESSURE EQUIPMENT SAFETY REGULATION (PESR) AND INFORMATION BULLETINS

The Pressure Equipment Safety Regulation (AR 49/2006) has been amended by Amendment Regulation (AR138/2011). To provide information on the regulation changes and to implement the changes, the following information bulletins have been issued:

- 1) IB11-011 issued for Variance VA11-008 on "Use of 2007 Edition (or later) ASME Section VIII Division 2 Code". VA11-008 supersedes Variance VA09-001 issued on January 12, 2009 .
<http://www.absa.ca/IBIndex/ib11-011.pdf>
- 2) IB011-012 is issued to provide "A Brief Overview of Changes to PESR".
<http://www.absa.ca/IBIndex/ib11-012.pdf>
- 3) IB11-013 is issued to clarify the "Use of ISO 16528 in Alberta".
<http://www.absa.ca/IBIndex/ib11-013.pdf> ❖

ABSA INFORMATION BULLETIN IB11-016

ABSA Information Bulletin IB11-016 (<http://www.absa.ca/IBIndex/ib11-016.pdf>) has been issued providing links to and briefings on STANDATAs of Alberta Municipal Affairs governing both Gas and Pressure Equipment Safety disciplines :

- 1) Gas Safety Information Bulletin, Standata G-02-11-ABSA
Liquefied Petroleum Gas Storage Vessel Installations
<http://municipalaffairs.alberta.ca/documents/ss/STANDATA/gas/G-02-11.pdf>
- 2) Gas Safety Information Bulletin, Standata G-03-11-ABSA
Fuel Gas Pressure Piping in Plants
<http://municipalaffairs.alberta.ca/documents/ss/STANDATA/gas/G-03-11.pdf>
- 3) Gas Safety Information Bulletin, Standata G-04-11-ABSA
Propane Storage Tanks Designed for 200 PSIG
<http://municipalaffairs.alberta.ca/documents/ss/STANDATA/gas/G-04-11.pdf> ❖

WARNING

LOW TEMPERATURE OPERATION

We are repeating our message in an article of December 2007 Pressure News because shortly after the publication of the newsletter, a total of nine heat exchangers were damaged, some beyond repair, due to freezing in two separate incidents. Fortunately, no one was hurt in the incidents which caused very significant financial losses as well down time for the plants involved.

Winter is upon us shortly and we will again be facing hazards of low environmental temperature. **With the winter condition in our province, there is always the potential for severe damage to pressure-retaining components from the freezing of water or other fluids.**

Plant owners are also cautioned that pressure equipment, including valves and other fittings, subject to freezing of contained fluid could result in the equipments being unfit for pressure service. Please review the public alert IB04-003 (<http://www.absa.ca/IBIndex/ib04-003.pdf>) which is as pertinent today as when it was released in 2004. ❖

DRY CLEANING FACILITY BOILER OPERATION

Small power boilers are installed in dry cleaning facilities to provide steam for use in heating water, processing the dry cleaning fluid and for steam irons and presses. Most of these boilers are relatively small (not more than 250 kW) in capacity, but nonetheless can present a considerable hazard and risk to public safety. Owners of these boilers are responsible to ensure they are maintained in good working order and operated in a safe manner by competent and certified persons. The Power Engineers Regulation (Alberta Regulation 85/2003) establish the minimum requirements for supervision of power boilers.

Power Engineers Regulation Section 2(5) establishes the requirement for the boiler operation to be supervised by a person who holds at least a Special Boiler Operators Certificate of Competency.

A stationary power plant that operates at a capacity exceeding 20 kW but not exceeding 250 kW requires general supervision but not continuous supervision or overall supervision and it must be supervised by a person who holds a certificate of competency that meets or exceeds the authorized scope of practice of a Special Boiler Operator's Certificate of Competency.

Power Engineers Regulation Section 2(9) establishes the minimum responsibilities for the person in charge of the plant :

If a power plant is required to be under general supervision but not under continuous supervision or overall supervision, the power engineer in charge of the power plant must:

- (a) remain on the power plant site whenever a boiler is in operation.*
- (b) put each boiler into a safe shutdown condition before leaving the power plant site.*
- (c) update and maintain the log book in accordance with Section (6).*
- (d) supervise the power plant in accordance with recommendations set out in the ASME Boiler and Pressure Vessel Code, Section VII, Recommended Guidelines for the Care of Power Boilers , as declared in force under the Act.*
- (e) conduct checks of the power plant's equipment at least every 2 hours while a boiler is in operation.*
- (f) keep an accurate record of the power plant's checks as set out in the ASME Boiler and Pressure Vessel Code, Section VII, Recommended Guidelines for the Care of Power Boilers, as declared in force under the Act, and*
- (g) notify the owner of the power plant and the Administrator of any accident that involves the pressure equipment of that power plant.*

Compliance with the Regulation will help to ensure that power boilers in dry cleaning facilities are operated in a safe and reliable manner. ❖

CLARIFICATIONS ON THE APPLICATION OF APPENDIX 1-10(C) OF ASME SECTION VIII, DIV.1 IN ALBERTA

The following does not pertain to providing interpretation or clarification of the ASME Code but rather, clarifications as to the application of the ASME Code adopted as part of the Pressure Equipment Safety Regulation in Alberta.

The ASME Boiler and Pressure Vessel Code, Section VIII, Div. 1, allows alternate design rules to nozzle reinforcement provisions under UG-37, with requirements such as those presented in Appendix 1-9 and 1-10 (see UG-36(c)(2)(c) and UG-36(c)(2)(d)).

Design registration submissions found limited usage of the alternate design method of Appendix 1-9 and this may be because Appendix 1-9 is intended for integrally reinforced type of nozzles and has several limitations. At the same time, Appendix 1-10 is increasingly used as alternative to and in lieu of meeting the provisions of UG-37 and Appendix 1-7.

The review of a recent design submission revealed that the designer failed to comply with spacing provisions for nozzles under 1-10(c). The designer then proposed to use finite element analysis (FEA) to justify the design under the provisions of U-2(g).

A pressure vessel designer may select to use UG-37 mandatory rules or 1-10 alternative rules for nozzle reinforcement. If the designer selects the alternative rules of 1-10, it is expected that the provisions of 1-10 will be met. However, if the design fails to comply with the requirements of 1-10, the use of U-2(g) to justify the design would not be appropriate. As stated in the Foreword of the Code, "Engineering judgments must be consistent with Code philosophy and such judgments must never be used to overrule mandatory requirements or specific prohibitions of the Code". ❖

VISUAL EXAMINATION OF PRESSURE RELIEF DEVICES

Pressure relief devices (PRD) are critical for the safe operation of pressure equipment as they provide the means of protecting the equipment from overpressure. It is imperative that all the components in the entire relief path, including the inlet piping, PRD and discharge piping, are properly designed, constructed, installed and maintained to provide assurance that the system will function properly in the event of an overpressure incident in the protected pressure equipment. PRD servicing and periodic visual examination (inspection) are required to ensure that the PRD systems are in good working order.

Requirements for PRD servicing and examination are specified in the *Pressure Equipment Inspection and Servicing Requirements* (AB-506) document:

“An online external visual examination of pressure-relief devices shall be carried out by a competent person at appropriate intervals, based on the pressure-relief device history. The maximum interval for this on-stream examination is five years.

The scope of this examination shall ensure that:

- ◇ the correct device is installed and that the seals are intact;
- ◇ there is no external damage or leaks;
- ◇ the company identification provides means to establish the last servicing date and correct set pressure for the equipment protected by the device;
- ◇ there are no blinds or closed valves that would prevent the device from functioning;
- ◇ any isolating valves in the path of relief valves are locked and controlled;
- ◇ discharge piping is secured and clear; and correctly installed to prevent build up of liquids;
- ◇ any weather protection is in place;
- ◇ suitable records are maintained to document the on-line visual examination;
- ◇ any lifting lever is operable and positioned correctly; and
- ◇ any rupture disc is properly installed and oriented.”

ABSA Safety Codes Officers have noted a significant number of findings during recent Integrity Management System audits that visual examinations of PRD systems are not being performed, or if performed are not documented. Follow up visual examination of the PRD systems by ABSA Safety Codes Officers and Owner's In-Service Inspectors as part of the Integrity Management System audits revealed problems including :

- ◇ A wrong relief valve was installed after shutdown servicing and the valve had a significantly higher set pressure than that required for the protected equipment;
- ◇ One PRD was installed incorrectly after servicing: insufficient or improperly sized studs, discharge piping not re-installed so that any discharge from the safety valve would have been directed at a fairly busy walkway;
- ◇ Isolation valves in the relief path found in the closed position, or isolation valves not fixed (e.g., car-sealed) in the open state;
- ◇ Additional skidded equipment had been installed, and no consideration had been given to the relief discharge flare which was no longer sized sufficiently.

When we look at the causes of these problems, it seems that the maintenance activity (removal, servicing and re-installation of the PRD's) and plant modifications provide opportunity to introduce unsafe conditions. Therefore, it is quite important that visual inspection occur immediately after these activities in order to be effective in identifying the unsafe conditions.

Corrective actions were undertaken immediately following the findings and it was fortunate that an overpressure incident did not occur prior to the Integrity Management System audits. However, we are deeply concerned that similar PRD issues may not yet have been found in other operating plants, and so we urge owners to ensure these visual online examinations are completed and documented in accordance with their procedures with immediate corrective action taken with respect to any findings before it is too late. ❖

CERTIFICATE OF INSPECTION PERMIT AND ITS RETENTION

A “certificate of inspection permit” (hereunder referred to as “the certificate”) is a legal document that indicates that the pressure equipment is in compliance with the Pressure Equipment Safety Regulation. The certificate also states the terms and conditions under which the equipment may be operated. In accordance with Section 33(1) of the Pressure Equipment Safety Regulation, any pressure equipment that requires a permit shall not be operated unless:

1. *a certificate of inspection permit has been issued in respect of it, and*
2. *all terms and conditions, if any, of the permit have been met.*

All pressure equipment owners are responsible to ensure that these conditions are complied with.

Section 34 of the Pressure Equipment Safety Regulation requires that the certificate must be retained in a manner acceptable to the Administrator. Generally acceptable practices include posting the certificate beside the corresponding pressure equipment, and maintaining the certificate on file. Some owners of large inventories of pressure vessels and boilers maintain electronic copies of the certificates. The key is the method used needs to provide a practical method of ready access to the certificates. Posting the certificate near the corresponding pressure equipment is the preferred method for pressure equipment in public occupancy service (such as schools, hospitals, shopping malls, and apartment buildings). ❖

EXTERNAL TRAINING NEWS

- ◇ Our new seminar, “Repair and Alteration” is scheduled to go public on October 31st and November 1st, 2011 in Edmonton. This seminar is also scheduled for November 23rd and 24th, 2011 in Calgary. The seminar is filling fast and we are encouraging all who wish to attend to check out our 2012 seminar schedule and book early. Check our seminar calendar at www.absa.ca for our fall and winter schedule for all of our offerings to see what may be of value to you.
 - ◇ ABSA will soon be developing an on-line (e-Learning) seminar. With e-learning, learners will be able to progress at their own speed; learners can be more selective in their topics; and it may be more cost effective for employers with little or no traveling time involved for the attendees. E-Learning is designed to compliment our existing seminars and we will be able to reach clients worldwide without the barriers of travel and time zones that often restrict classroom style training.
- ABSA is currently targeting the delivery of on-line Design Registration Seminars in the spring of 2012. ABSA is planning to continue the delivery of our existing “Design Registration” face-to-face seminar and break it down into e-Learning components.
- ◇ ABSA has developed a Continuing Education and Training Standard. This standard will assist ABSA in formalizing a set of quality continuing education and training practices and in providing a framework for adhering to the quality practices. Our existing and new seminars are being reviewed to this new standard. ❖

NATIONAL 4TH CLASS POWER ENGINEERING STUDENTS AWARD RETURNED TO ALBERTA

At this years annual Interprovincial Power Engineering Curriculum Committee (IPECC) and the Standardization of Power Engineer Examinations Committee (SOPEEC) meetings held in June, an Alberta 4th Class Power Engineering student won the top power engineering student award from PanGlobal Training Systems Ltd.

Mr. Hussein Husseinali, from Keyano College in Fort McMurray, obtained the highest combined college mark and SOPEEC examination mark average of **96.50%** in Canada for last year. The award was presented to Mr. **Husseinali** by Mr. Bob Clarke, Chief Operating Officer of PanGlobal. This was the fifth time in the last six years that an Alberta student obtained an award. It is good to see that Alberta power engineering students continue to excel. ❖



CHANGE OF PRESSURE EQUIPMENT OWNERSHIP AND LOCATION

Under the provisions of Section 36 of the Pressure Equipment Safety Regulation, it is the responsibility of all owners of pressure equipment with a certificate of inspection permit to provide information about changes in ownership or changes of location to ABSA. The ABSA AB-10 Status Report form may be used to report any of these changes. When pressure equipment is sold for pressure service, Section 36(3) requires the seller to provide equipment records to the new owner. These records include, where applicable, design specifications, integrity assessment records, maintenance records, servicing and test records, repair and alteration records, and the certificate of inspection permit.

In addition to requesting the owner or vendor disposing of the pressure equipment to provide the equipment records, the purchaser of the pressure equipment is responsible to "ensure that the acquired pressure equipment meets the requirements" of the Pressure Equipment Safety Regulation and is in safe operating condition before using it or placing it in service.

Owners, sellers and purchasers of pressure equipment are advised to review their responsibilities respecting ownership and location changes as specified in section 36 of the Pressure Equipment Safety Regulation. ❖

SAFETY AWARENESS

In January of this year, a DuPont chemical manufacturing facility in West Virginia experienced 3 accidents in a two day period that resulted in the release of, and workers' exposure to, highly toxic and harmful chemicals. The third accident resulted in the death of an employee. A link to the U.S. Chemical Safety Board's (CSB) summary report regarding this accident is below.

Even though DuPont is an industry leader in safe workplaces and practices, the CSB investigation found deficiencies in several plant management systems that could have prevented or minimized exposure to the released chemicals.

These types of accidents should serve as a reminder to industry that we need to remain proactive and vigilant in our safety programs.

Summary Report

<http://www.csb.gov/newsroom/detail.aspx?nid=379>

More information (accident animation & draft investigation report)

http://www.csb.gov/investigations/detail.aspx?SID=92&Type=1&pg=1&F_AccidentTypeId=3 ❖

CAREERS WITH ABSA

ABSA is currently looking for safety and service oriented professionals to fill key technical positions in our organization.

Safety Codes Officer (Inspector) – Grande Prairie

Under the authority of the Safety Codes Act, Safety Codes Officers are responsible for verifying and enhancing safety of pressure equipment.

Design Survey Engineer – Edmonton

Design Survey Engineers at ABSA are responsible for reviewing and registering the designs of pressure equipment for use in the province of Alberta in accordance with Alberta regulations and applicable codes and standards. .

For more information on these positions please consult our website at <http://www.absa.ca/ABSA-Info/Career.aspx>. ❖

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