the pressure equipment safety authority

THE PRESSURE NEWS

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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Previous issues of The Pressure News may contain information which is outdated or no longer valid.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.

FREEZING DAMAGE TO PRESSURE EQUIPMENT

As we all know, Alberta can experience very cold temperatures throughout the winter months. When pressure equipment is exposed to temperatures below zero, it can easily be damaged by the expansion of contained fluids as they freeze. These incidents often result in significant financial losses for equipment owners both in damage to property and in lost production time. Freezing damage can sometimes be difficult to detect, and subsequent operation can be hazardous, with the potential for pressurization to cause a catastrophic failure of the equipment.

Over the winter months of November 2018 through March 2019, ABSA received notifications of more than twenty incidents related to freezing damage of pressure equipment. Many of these incidents involved damage to piping systems that were left exposed to cold weather, but there were also a notable number of incidents involving well-site equipment such as separator vessels and fuel gas scrubbers, and several more incidents involving air-cooled heat exchangers. It is fortunate that even with the relatively high number of incidents this past year, none of them resulted in serious injuries or fatalities. As can be expected, the costs relating to repairing affected equipment and the associated loss of production time have run into the millions.

In order to help mitigate these occurrences, it is important that equipment owners implement an effective pressure equipment winterization program. It is also imperative that equipment affected by a freezing incident be taken out of service immediately. If freezing damage is suspected or has been observed, the equipment involved must not be placed back into pressure service until it's been subjected to a thorough inspection and integrity evaluation. Freezing damage is not always obvious upon initial inspection, and components damaged by freezing often cannot be repaired.

With the winter heating season also comes the increased use of heating boilers, and it is worth again being reminded of the hazards associated with carbon monoxide. As was seen last year in Alberta, boiler exhaust gases can contain high levels of carbon monoxide, and failure of boiler exhaust piping or improper ventilation of a boiler room can have deadly consequences. Albertans are reminded to ensure that their boilers are in proper operating condition, including facilitation of fresh air intake and the evacuation of exhaust gases, and for proper ventilation of boiler rooms and other occupied spaces. ❖

Guideline Published for High-Pressure Vessels

Section VIII-1 of the ASME Boiler and Pressure Vessel Code is the most common code to which pressure vessels are designed and constructed for use in Alberta. Although it is considered to be reasonably comprehensive and provides design and construction rules for a wide variety of vessel types, there is a statement early in the code indicating that its design principles and construction practices are intended for vessels with internal pressures not exceeding 3,000 psi, and that additional considerations are normally necessary in the construction of vessels designed for higher pressures. Since the code presents this statement as a warning rather than as a firm limitation to its scope, it leaves it to the individual designer's expertise to determine what special considerations and precautions may need to be taken for vessels that need to withstand higher pressures.

Although the majority of pressure vessels intended for common industrial applications have working pressures below this value, manufacturers who are constructing vessels intended for higher pressures commonly ask ABSA's Design Survey Department whether the use of Section VIII-1 is still permitted, and what special considerations are expected to be made.

When high-pressure vessel designs are submitted for registration, design surveyors look for evidence that the designer is familiar with the types of issues that warrant special attention, and that such considerations have been made. In order to provide more open guidance, a document has recently been published on our webpage detailing some of the extra measures that may be expected to be taken. It should be noted that the provided guideline is not intended to be comprehensive, and is not intended to be used as a substitute for adequate expertise and experience on the part of the vessel designer.

The guideline is available on our webpage at https://www.absa.ca, by navigating to 'Design Registration', followed by 'Helpful Guidelines and Information', and finally by selecting 'Guideline for Registering Section VIII Division 1 Pressure Vessels Over 3,000 psi (20 MPa)'. ❖

Alberta Chief Power Engineers Education Conference

The Alberta Chief Power Engineers Education Conference Committee is holding its 5th annual conference on October 30th, 2019, at the Delta Hotels by Marriott's Edmonton South Conference Centre.

Chief Power Engineers and persons in charge of a power plant, heating plant, or thermal liquid heating system are invited to attend, and can bring one other person with them as a guest. Approved power engineering training providers are also welcome, such as representatives of colleges and other organizations that teach power engineering.

Some of the topics for this year's conference include hazards associated with legionella, lock-out / tag-out practices, over-speed trip systems for turbines, and hazards associated with electric arc flash. As with previous years, a pre-conference networking event will be held in the hospitality suite the preceding evening.

This year, ABSA will be presenting a full-day seminar, "Regulatory Information for Power Engineers," the day before the conference on October 29th. Please visit ABSA's website if you would like to register for the conference or the pre-conference seminar. ❖

ABSA Code Update Seminar

In 2019, the five-year publication cycles of CSA B51 and CSA Z662 coincide with the two-year publication cycle of the ASME Boiler and Pressure Vessel Code, resulting in updates to an unprecedented number of codes and standards that are adopted by Alberta pressure equipment legislation.

Each year in October, the ABSA Code Update Seminar is made available at several locations across Alberta to give industry an opportunity to learn about relevant changes to codes and related topics. The seminar is prepared and delivered directly by ABSA's technical experts, and provides opportunities for learning and networking.

This year's seminar will be presented in Edmonton on October 10th, in Calgary on October 17th, and in Red Deer on October 23rd. With the Calgary session already sold out and the Edmonton session almost full, extra capacity has been arranged at the Red Deer venue, which will function as an overflow. For more information and to register, please visit the seminars registration portion of our website at https://seminars.absa.ca. ❖

New Examination for Ammonia Refrigeration Plants

As mentioned in a previous issue of The Pressure News, ABSA is a contributing member of the Standardization of Power Engineer Examinations Committee (SOPEEC) and has aided in the development of a new examination to assess competency in the area of operating ice arena refrigeration plants. Development of a new examination involves a substantial amount of work: it begins with establishing a knowledge syllabus upon which the questions are to be based, and then authoring a set of questions that represent the full breadth of the syllabus. Individual examinations are compiled randomly for each candidate at the time of the examination sitting.

Although pressure equipment legislation in Alberta does not require refrigeration facilities to be operated by personnel having any specific qualifications or certification, the Pressure Equipment Safety Regulation does require that equipment owners ensure that persons operating the equipment are competent. Due diligence and reasonable care dictate that facility owners ensure that operators have the knowledge, skill, and experience required to carry out these tasks safely. With the fatal 2017 accident involving the release of ammonia refrigerant at an ice arena in Fernie, British Columbia still in recent memory, equipment owners hardly need to be reminded of the hazards involved with some types of refrigeration systems.

Development of the new examination is now in its final stages, and it is expected to be made available in the upcoming months. Candidates who wish to challenge this examination, or whose employers intend to use it to establish their competence, will be able to do so toward the end of this calendar year. Since there is no associated certificate of competency for refrigeration operators in Alberta, successful examination candidates will be issued a letter indicating their successful completion of the exam. It should be noted also that the syllabus and question bank have been accepted by the Association of Chief Inspectors, and results will thus be transferable to other Canadian SOPEEC jurisdictions, and will be recognized by those provinces which do have certification requirements in place.

Further information about the availability of this exam will be posted to our website as it becomes available. ❖

ABSA Online Seminars

Over the past year, ABSA has been working on a project with a third party to convert two of our seminars into a modern, online format. Web-based delivery of these seminars will allow users to take them at a time and location of their convenience, through a computer or mobile device. This new delivery format is expected to have a greater appeal to the portion of our audience that is more comfortable with technology and expects it to be used in the delivery of training materials.

The seminars chosen for the initial launch of online training include the *Pressure Equipment Safety Legislation* seminar, which provides a comprehensive introduction to ABSA's programs and services and the regulations under which they operate; and the *AB-528: Requirements for Reduced Supervision of Power Plants, Thermal Liquid Heating Systems, and Heating Plants* seminar, which elaborates on the guidelines introduced by the AB-528 document for plants which do not require close supervision by power engineers.

It is anticipated that both seminars will be ready for launch near the end of October, 2019. ❖

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