ABSA
the pressure equipment safety authority

THE PRESSURE NEWS

Volume 23, Issue 3, September 2018

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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Previous issues of The Pressure News may contain information which is outdated or no longer valid.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 both in damage to property and in plant down-time. Worse still, such damage can sometimes be difficult to detect, and subsequent operation of the equipment may have huge safety implications, with the potential for a catastrophic failure causing injury or death.

Over the last few years, we have received a number of incident reports detailing damage to equipment due to freezing. There have also been reports of significant overpressure events due to operation of equipment when freezing damage to adjacent lines had isolated the equipment from its pressure relief device. Fortunately, in the last five years, there have been no serious injuries or fatalities as a result of these types of incidents, although the costs relating to repairing affected equipment and loss of production time have run into the millions.

Over the winter months of December 2017 through March 2018, ABSA received three accident notifications relating to freezing damage to pressure equipment. Two of the accidents involved pressure vessels at well-head sites that ruptured when their contents froze, due to a loss of building heat. One such vessel is shown in the adjacent picture, with a large longitudinal crack along a significant portion of the vessel shell. In the third accident, a pig depressurizing vent line had gradually accumulated liquid water, which froze when exposed to low temperatures, rupturing the line.

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 any equipment affected by a freezing incident be taken out of service immediately. If freezing is suspected or has been observed, the equipment involved must not be placed back into pressure service until it's been subjected to a proper inspection and integrity evaluation. The use of damaged components in pressure service can be highly hazardous, and components damaged by freezing often cannot be repaired.

With the winter heating season also comes increased use of heating boilers, and an unfortunate incident in the past year reminded Albertans of the hazards associated with carbon monoxide. As has been seen, the failure of boiler exhaust piping and improper ventilation of a boiler room can have deadly consequences. Albertans are reminded to ensure that their boilers are in proper operating condition, including facilities providing for fresh air and evacuation of flue gases, and for proper ventilation of boiler rooms. ❖

What's New in Design Survey

Although the workload in ABSA's Design Survey department for review of submitted pressure equipment designs continues to increase at a moderate rate, the department has proven to be able to keep up to demand with favorable initial response times, and with no accumulation of designs that have been on hold for an excessive period of time. Several successful programs over the last two years have contributed to the continuously improving level of service we have been able to achieve.

The Quality Plan programs for expedited review of pressure vessel and pressure piping designs have been successful, and have seen more than 1,400 designs registered on an expedited basis. These designs are registered with a more cursory review and with occasional detailed design audits, based on commitments made by participating organizations to ensure that an additional thorough review is performed by a designated competent individual before the package is submitted for registration.

The electronic submissions program has increased its scope and capacity, permitting the electronic submission of fittings, and providing for return of a greater proportion of registered designs via email rather than in hard copy by mail or courier. We now have the capacity to scan large-format drawings, enabling us to quickly return electronic copies of registered designs having large-format drawings to submitters, and allowing us easier access to more registration records when quick reference is required. Submitters have expressed gratitude with respect to the speed and quality of service that has been achieved.

We expect to continue to expand and improve upon both of these programs in the future by expanding the Quality Plan program to include registration of engineered pressure enclosure installation procedures, and by the incorporation of electronic stamping for submissions that were received electronically. Please stay tuned for further details. ❖

Online Directory for Welder Performance Qualification Cards

One important factor that contributes to the integrity of fabricated pressure equipment is the technology used to produce pressure-containing welds, and the skill levels of the individual welders that produce them. Section IX of the ASME Boiler and Pressure Vessel Code prescribes requirements for the qualification of weld procedures and to qualify the performance of individual welders, and is referred to by each of the pressure equipment construction codes. When a welder demonstrates their skill level with respect to a given welding process, they are issued a welder performance qualification (PQ) card as documented evidence that they are skilled with respect to that process.

In 2014, ABSA investigated several instances of fraudulent welder performance qualification cards being presented to employers by welders in Alberta, posing an obvious potential threat to public safety. In order to combat the use of fraudulent qualification records, ABSA has developed an online web directory to allow users to independently verify welders' qualifications.

Upon its launch in October, quality control personnel, inspectors, plant owners, and other interested parties will be able to use it to independently verify an individual's welding qualifications by searching with the individual's name or assigned 'W' number. The online directory will provide the information they need to verify the presented qualifications, including a list of qualified welding processes and applicable expiry dates.

The contents of the online directory will be maintained by the independent testing organizations that administer the tests and issue the qualification cards; fabrication shops will be excluded from providing content at this time. When the online directory is launched in the coming weeks, it will be listed in the 'Directories' drop-down menu of ABSA's website. It should be noted that it may take several months for some independent testing organizations to completely populate the public database once it has been launched. ❖

The 2019 IPEIA Conference

The International Pressure Equipment Integrity Association (IPEIA) will be holding its 23rd annual industry conference and exhibition at the Banff Center from February 25 to March 1, 2019. The conference will feature more than 40 presentations on pressure equipment integrity, to be delivered by Canadian and international specialists. Information on codes, standards, inspection technologies, software, case studies, and similar topics will be presented. An 80-booth exhibition will showcase integrity-related products and services, providing information on the latest technologies, techniques, and best practices.

Registration is now open and more information is available at www.ipeia.com. Several ABSA seminars will be available as pre-conference training, to be scheduled in the coming months – please keep an eye on our website for more details. ❖

Drawing Numbers on Manufacturer's Data Reports

Although Canadian manufacturers are accustomed to filling out the required paperwork for pressure vessels manufactured in Canada, foreign manufacturers often experience problems due to their unfamiliarity with the Canadian design registration system. One error that is commonly encountered is that foreign manufacturers fill out the required Manufacturer's Data Report for a pressure vessel, indicating that construction was performed in accordance with a construction drawing that does not match the drawing registered with the provincial authority in the destination province. This creates confusion when owners and Authorized Inspectors attempt to verify that the Manufacturer's Data Report matches and adequately documents the vessel in question.

Appendix W of ASME Section VIII-1 provides guidance on the completion of Manufacturer's Data Reports. It should be noted that the guidance provided for the 'Drawing Number' field specifically indicates that for a vessel registered in Canada, the drawing number is to be the one that is approved by the provincial authorities.

Typically, before certifying a data report, an Authorized Inspector will insist that it refer to the drawing that was used for construction of the vessel. In cases where one drawing was registered with the appropriate provincial authority and a separate drawing was used for construction, the registered drawing number must be indicated in the required 'Drawing Number' field, and the construction drawing number and associated revision number must separately be indicated as such on the data report under 'Remarks'. ❖

ABSA Code Update Seminar

The agenda for the 2018 ABSA Code Update Seminar has been set and is available on our website. This year's seminar will include a discussion of changes in the recently published 2018 edition of the ASME B31.1 power piping code, special presentations focusing on code requirements for hydrostatic and pneumatic testing, and discussion of the recently published AB-535 document relating to submission requirements for pressure equipment alterations based on fitness-for-service assessments. The full agenda can be found on our website under 'Seminar Schedule' in the 'Seminars' menu.

The seminar is to be presented in Edmonton, Calgary, and Red Deer, on October 11th, 18th, and 25th, respectively. For more information and to register, please visit https://seminars.absa.ca. ❖

Documents Issued by ABSA

The following documents issued by ABSA are available at www.absa.ca.

2018-06-27 – AB-535, *Requirements for Alteration Design Registrations Based on Fitness for Service Assessment*, was issued to provide guidelines and establish requirements for fitness-for-service assessments.

2018-07-01 – AB-240, *Special Steam-Powered Traction Engine Operator Examination Syllabus, Edition 2*, was issued to establish a syllabus for the new examination that became available on July 1.

2018-07-05 – IB18-013, *Notification: Rescind and Reissue of Pressure Tack Welder Certificate of Competency Cards*, was issued to notify holders of obsolete pressure tack welder certificate cards that replacement cards must be obtained.

2018-07-24 – IB18-010R1, *Interpretation: Bolted Replacement Parts for Heat Exchangers*, was issued to clarify rules for design and registration of bolted replacement parts for some types of heat exchangers.

2018-07-26 – IB18-016, *Alert: Technical Safety BC Releases Fernie Investigation Report*, was issued to draw awareness to the recently released report relating to the October 2017 ammonia release in Fernie BC that killed three workers.

2018-08-10 – IB18-017, *Interpretation: Design Registration and Inspection of CNG and Hydrogen Refuelling Stations,* was issued to clarify rules pertaining to registration and engineering supervision of compressed gas refuelling stations in Alberta.

2018-08-29 – IB18-018, *Alert: Propane Tank Fire* was issued to draw attention to a recent accident in Alberta in which a scrap dealer attempted to dismantle a large vessel filled with propane, resulting in an explosion and fire.

2018-08-31 – IB18-019, *Notification: Authority Having Jurisdiction for the CSA B52 Mechanical Refrigeration Code*, was issued to introduce new ABSA form AB-275, to be used for documenting the compliance of refrigeration systems. ❖

2018 ACI AND CSA B51 / B52 ANNUAL MEETINGS

The annual meetings of the Association of Chief Inspectors and of the CSA B51 and B52 technical committees were held in Montreal, Quebec, from August 20th to 23rd.

The Association of Chief Inspectors (ACI) comprises the chief boiler inspectors from every Canadian province and territory, and representatives from the Government of Canada, the Canadian Nuclear Safety Commission, and the National Board of Boiler and Pressure Vessel Inspectors. The purpose of these meetings was to share information and to promote a harmonized approach with respect to the application of adopted codes and standards across Canada.

The CSA B51 and B52 technical committees are made up of subject matter experts from industry and regulatory organizations. They work together to manage ongoing development and revision of the CSA B51 Boiler, Pressure Vessel, and Pressure Piping Code, and of the CSA B52 Mechanical Refrigeration Code. A large portion of the committees' business this August was comprised of the review of public comments received for proposed changes to these codes during the open review stage. A task group was formed by the CSA B52 committee to perform an in-depth review of Technical Safety BC's recently released report documenting findings on the 2017 Fernie arena incident, and to make recommendations for appropriate changes to CSA B52.

Each of these codes is on a five-year publication cycle, with a new edition of CSA B52 to be published in the coming months; a new edition of CSA B51 is planned for 2019.

Next year's meetings are expected to be held in Vancouver, BC, from August 19th to 22nd, 2019. ❖

POWER ENGINEERS EMPLOYMENT STATUS SURVEY

Demand for power engineers over the last several years has been inconsistent, and has been observed not to follow expected trends. Although available data suggests that there are more than enough power engineers to operate boilers in the province, industry has at times expressed concerns of a shortage. It is expected that the apparent discrepancies may be due to workers being employed outside of the province, or may be due to certified workers being employed in positions related to power engineering but for which such credentials are not required.

In order to better understand these employment trends, ABSA is conducting a survey of registered power engineers. The survey was initiated in mid-August and power engineers are being asked to complete it online when they renew their certificates or register for examinations. Preliminary results based on only approximately 10% of the certified workforce suggest that 81% of respondents are employed in Alberta. Of those that are employed, 36% are employed at power plants, 20% at heating plants, and 15% at thermal liquid heating systems. An additional 11% are employed operating process equipment, with another 14% employed in positions for which their employer requires a power engineering certificate that is not required by the regulation. Results from this survey will be used to help assess the need for future development of the power engineering certification program. ❖

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