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Wishing you a happy
holiday season and
a prosperous and
safe New Year .



NEW YEAR HOLIDAY MESSAGE

Once again, we are pleased to report that ABSA staff had a very safe year in terms of injuries to employees, with no lost time incidents. From an industry perspective, there were fewer incidents and unsafe conditions reported in comparison with previous years. In fact, we had the lowest number of accidents reported in the last five years. There were no major pressure equipment accidents involving fatalities or serious injuries in Alberta this year that were caused by the failure of pressure equipment subject to the Safety Codes Act. Unfortunately, there were four people killed in accidents that involved pressurized equipment outside the scope of ABSA's programs. These incidents serve to remind us of the dangers of pressurized equipment.

As we look back, last year continued to present a number of economic challenges in Alberta. The economic downturn resulted in significantly reduced demand for ABSA services, particularly in the areas of design registration and new construction inspections. ABSA has managed to weather the economic downturn so far without impacting on the delivery of pressure equipment safety services to our stakeholders or affecting staff capacity to deliver on ABSA's mandate. Financially, ABSA's revenues and expenses were on budget, and reserves at year end met the Board's targets for financial health. The independent external auditor gave ABSA a clean financial audit again this year. With our stable, well-experienced workforce and solid infrastructure, ABSA is well positioned to deliver its mandate. In addition to a knowledgeable and skilled staff, ABSA is very fortunate to have a dedicated and committed Board of Directors.

Mr. Gordon Campbell retired from the position of ABSA's General Manager at the end of April 2016. We wish to thank Gordon for his 18 years of dedicated service in which he successfully led the organization through considerable growth and transformation during two very significant swings in the economic cycle.

It is my opinion that ABSA's Board and staff have once again demonstrated their capability in the area of pressure equipment safety and we are well positioned to meet the challenges that lie ahead in 2017.

On behalf of the Board of Directors and all the staff at ABSA, I would like to take this opportunity to wish you all the best for the holiday season as you share it with family and friends.

Mike Poehlmann
General Manager

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MINISTER'S APPOINTEE TO ABSA BOARD



Mr. Dale Myggland



Ms. Michelle Colleton

We would like to take this opportunity to thank Dale Myggland for his significant contributions and valued leadership as he steps down from his role on ABSA's Board of Directors. Dale was appointed to this role by the Minister of Municipal Affairs in January of 2010. In addition to providing leadership and governance, he also took on the role of Board Treasurer. He will be replaced by Michelle Colleton.

Michelle will be joining the board for a 3-year term beginning December 1, 2016. She was selected by a 4-member nominating committee consisting of a current board member, a past board member, the Assistant Deputy Minister, and an additional representative of the Minister's office.

Michelle is the Director of Health, Safety, and Environment at EPCOR, and her role on the board will be to represent the Minister and interests of public safety. She has been involved in the Occupational Health & Safety field for the past 20 years and has served on a number of boards relating to workplace safety.

She will be joining current board members Tony Robinson (Manufacturing Representative), Mark Demchuk (Industry Representative), Robert Emmott (Industry Representative), and Neil Fassina (Education Representative). We look forward to the industry insight and strategic guidance that Michelle will bring to ABSA. ❖

REGISTRATION REQUIREMENTS FOR APPLICATION-SPECIFIC PNEUMATIC TEST PROCEDURES

Construction codes for new pressure equipment typically require that a pressurized leak test be performed after the completion of construction. Leak tests are typically also required after some types of repairs and alterations prior to returning used equipment to service. Although hydrostatic pressure testing with liquid water is the preferred method, pneumatic testing is permitted by some codes of construction.

A pneumatic test is significantly more hazardous than an equivalent hydrostatic test because the amount of energy stored in the pressurized fluid is much higher. The potential for property damage or injury to personnel is much higher in the event of an accident. If the construction code includes provisions for pneumatic testing then a manufacturer or owner may choose to conduct a pneumatic test, but such a test conducted in Alberta is a construction activity that must be carried out within the scope of a certificate of authorization permit and it must be completed in accordance with an accepted procedure.

ABSA recently issued a new publication, AB-532, *Design Registration Requirements for Application-Specific Pneumatic Test Procedures*, which establishes requirements for certain types of pneumatic tests to be conducted in Alberta. Although the previously-published AB-522 document permits some lower-energy pneumatic tests to be carried out in accordance with a procedure accepted as a part of the testing organization's quality management system, tests to be performed outside the scope of such a procedure must meet the requirements of the new AB-532. Such a pneumatic test procedure is expected to be specific to the intended application and must be registered by ABSA prior to conducting the test.

The intention of the AB-522 and AB-532 documents is to provide guidance as to how manufacturers and owners of pressure equipment in Alberta can comply with legislated requirements, and to help ensure that pneumatic tests are designed and carried out safely. These documents are available on our website.

If you have questions or concerns, or require more information you may contact Djordje Srmic, Manager of Codes and Standards, by email at dsrmic@absa.ca. ❖

PRESSURE RELIEF DEVICE “PRE-TEST” AND “TEST-ONLY” FUNCTION TESTS

Recently ABSA has had numerous inquiries from pressure relief valve (PRV) owners and servicing facilities regarding “pre-test” and “test-only” function tests being performed on relief valves in Alberta. There have been cases of confusion as to the differences between these tests, and whether these tests in themselves comprise adequate servicing of the relief valve.

AB-506, *Inspection & Servicing Requirements for In-Service Pressure Equipment*, requires an “as-received pop test” to be performed on a PRV before it is serviced. Commonly referred to as a “pre-test”, this is a test of valve function performed to determine whether the relief valve would have operated as required when it was taken out of service, helping to assess the adequacy of the valve service interval.

The 2015 Edition of NB-23: *National Board Inspection Code, Part 2*, suggests periodic testing and inspection of relief valves during their service lives to ensure they are functional and will operate in accordance with the original code of construction. This is often referred to as a “test-only” function test, because the valve is only tested, and not serviced. Although suggested by the NB-23 for heating boilers, the test-only function test is not considered practical for many applications in Alberta.

Although in some circumstances, a Safety Codes Officer can use a valve function test to waive valve servicing or to extend its service interval, neither the pre-test nor the test-only function tests in themselves constitute complete servicing of a pressure relief device, and neither of these tests justifies resetting the valve service interval. The test-only function test, when performed, justifies continued service of the valve during a given service interval. The pre-test demonstrates the condition of the valve when it is taken out of service, prior to complete servicing. Complete valve service is then carried out and also involves disassembly, inspection, reconditioning and replacement of parts, reassembly, setting, testing, sealing, and tagging of the device. ❖

FINAL CASE STUDY RELEASED ON LOUISIANA PROCESS PLANT ACCIDENT

In October, the U.S. Chemical Safety Board (CSB) released its final case study relating to the June 2013 explosion and fire that killed two workers and injured many more at the Williams Olefins plant in Geismar, Louisiana. The explosion occurred in the early morning of June 13, 2013, when a propane fractionator reboiler was to be brought online. This reboiler was one of two heat exchangers that were used interchangeably to heat a process fluid comprising mostly propane. Each of the units had previously been retrofitted with block valves that could be used to isolate them from the process for maintenance while the other remained in service, but the retrofitted valves also isolated the units from their shared pressure relief device.

At the time of the incident, the reboiler had been offline for 18 months and had inadvertently filled with liquid propane. When an operator opened a valve admitting hot water into the channel-side of the heat exchanger, the liquid propane began to heat and its resulting thermal expansion quickly increased the shell-side pressure enough to cause catastrophic failure of the heat exchanger. The sudden release of pressurized liquid propane at a temperature above its atmospheric-pressure boiling point caused a massive boiling liquid expanding vapor explosion (“BLEVE”), and an associated fireball when it found a source of ignition. Two workers were killed, and 167 others reported injuries.

The CSB in its case study outlined the causes of the accident as relating to improper over-pressure protection of the equipment and to poor process safety culture at the plant. Although OSHA regulations mandated several administrative reviews at the time the block valves were added, they were ineffective because they were poorly implemented. A management of change (MOC) review was completed only after the fact and did not identify the significant new hazard created by isolating these units from their pressure relief device. Process and instrumentation diagrams (P&IDs) were not updated to show the new block valves, which may have helped process engineers to identify the new hazard. After installation of the valves, a pre-startup safety review that also was mandated by OSHA regulations was completed haphazardly, with the most relevant questions on the forms skipped over, or answered incorrectly. Several years after installation of the valves, a process hazard analysis identified the potential hazard, but recommendations made by the hazard analysis team were incorrectly implemented.

Finally, on the day of the accident, plant safety relied solely on block valves being operated in the correct order, and there was no prepared procedure given to the operator that was specific to the task at hand. As the case study points out, although correct operation of the valves would have prevented the accident, consideration must be given to a “Hierarchy of Controls,” recognizing that an inherently safe process design is a much more robust guarantee of process safety than relying on procedural or administrative safeguards, which are prone to human error in their implementation. In this case, incorrect operation of poorly protected equipment was the final link in a chain of unfortunate events that caused the explosion which killed two people and brought the plant out of service for 19 months.

In Alberta, ABSA does not oversee process operations at plant sites, nor do we register day-to-day operating procedures. Nonetheless, this incident and the lessons brought forth in the case study serve as a reminder to plant designers of the importance of safe process design with careful recognition of hazards and robust consideration of overpressure protection. It serves also as a reminder to pressure equipment owners of the importance of encouraging process safety culture, and of the importance of effective implementation of management of change (MOC) procedures and other hazard assessment techniques, recognizing them as vital contributors to workplace safety rather than as administrative technicalities. ❖

OCTOBER 2016 REVISIONS TO THE PRESSURE TACK WELDER EXAMINATION

October saw significant revisions to the AB-250 Reference Syllabus for the Pressure Tack Welder Certificate of Competency Examination. The previous reference syllabus issued in October of 2014 has been rescinded, and the new 2nd Edition is now in effect.

Principal changes involved updates to align it with proposed changes to ASME Section IX. Some of the highlights of the new test syllabus include:

- Tests coupons now consist of two carbon steel plates
- Candidates complete groove welds in the overhead and vertical positions
- Evaluation of the welded coupons includes visual examination and two side-bend specimens for each of the tested positions

Once a candidate successfully passes the examination, they are issued a Pressure Tack Welder Certificate of Competency.

The [revised syllabus](#) can be found on ABSA's website at www.absa.ca. ❖

RECOGNIZED AND GENERALLY ACCEPTED GOOD ENGINEERING PRACTICES (RAGAGEP)

In April of 2010, a Tesoro Refinery in Anacortes, Washington experienced a catastrophic rupture of a heat exchanger, fatally injuring seven employees who were working in the vicinity. This was the largest fatal incident at a US petroleum refinery since 2005. The accident investigation concluded with four citations issued to Tesoro for failing to follow Recognized and Generally Accepted Good Engineering Practices (RAGAGEP) for mechanical integrity, "such as those published by the American Petroleum Institute."

RAGAGEP is defined in the Center for Chemical Process Safety's [Guidelines for Mechanical Integrity Systems](#): "Recognized and Generally Accepted Good Engineering Practices (RAGAGEP) are the basis for engineering, operation, or maintenance activities and are themselves based on established codes, standards, published technical reports or recommended practices, or similar documents. RAGAGEP detail generally approved ways to perform specific engineering, inspection, or mechanical integrity activities, such as fabricating a vessel, inspecting a storage tank, or servicing a relief valve."

There are 3 primary sources of RAGAGEPs:

1. Published and Widely Adopted Codes – Certain codes and standards have been adopted by a large number of jurisdictions. The ASME Boiler and Pressure Vessel Code is an example of a widely adopted code that can be referred to even where it has not been formally adopted. An example of this in Alberta might be the application of ASME Section VIII-1 for non-expansive fluid service that is not within the jurisdiction of the Pressure Equipment Safety Regulation.
2. Published Consensus Documents – Certain organizations like the National Board and the American Petroleum Institute (API) publish consensus standards and recommended practices. The NB-23 National Board Inspection Code is widely accepted as an international standard for the installation, inspection, and repair and alteration of pressure equipment, even when it has not been formally adopted by the jurisdiction. Similarly, API 579 - Fitness for Service describes condition assessment techniques for pressure equipment used in the oil and gas, petrochemical, and chemical industries, and in many areas has not been formally adopted by law.
3. Published Non-Consensus Documents – Some industries publish non-consensus engineering documents that do not meet ANSI's Essential Requirements for publication as a standard. The Welding Research Council publishes bulletins that fit into this category. Peer-reviewed technical articles may also fall into this category and can be referred to when published standards or recommended practices don't adequately address specific hazards.

In Alberta, the legislated requirements of the Safety Codes Act are paramount; however, in the absence of specific requirements prescribed by adopted codes, RAGAGEPs must be used to ensure that the standard of safety is maintained. In the absence of direction from adopted codes and standards, the correct course of action would be for the Owner to use Recognized and Generally Accepted Good Engineering Practices. ❖

ONLINE EXAMINATION SCHEDULING AND CERTIFICATE RENEWAL FOR POWER ENGINEERS

ABSA is pleased to announce that power engineers in Alberta can now renew their certificates of competency online. Once the fee has been processed, the power engineer receives confirmation that their certificate has been renewed, and their renewal card is immediately available to print. With this new process it is no longer necessary for certificate holders to wait several days or weeks to receive a hard copy of their renewal cards.

We are also pleased to announce that power engineering examination applicants can schedule their examinations online. After logging in, an applicant chooses the examination to write and then chooses when and where to write from a list of available examination sessions. Once the appropriate fee has been processed, the applicant receives immediate confirmation of their scheduled exam, rather than being required to choose suitable alternatives and wait for confirmation once exams are scheduled manually. ❖

THE ROLES OF SOPEEC AND IPECC IN STANDARDIZING POWER ENGINEERING

The Standardization of Power Engineer Examinations Committee (SOPEEC) and the Interprovincial Power Engineering Curriculum Committee (IPECC) are interprovincial committees which have worked closely together for more than four decades to help standardize education and certification requirements among Canadian provinces. A person holding a power engineering certificate of competency in Alberta with the SOPEEC seal imprinted on it has successfully completed standardized examinations for that qualification level, and can seek certification as a power engineer in other participating jurisdictions without having to rewrite the exams.

SOPEEC is ultimately responsible for the content of power engineering examinations written across the country. Its main objective is to improve the mobility of power engineers between member jurisdictions by producing standardized examination content and by promoting a standardized system by which exams are administered. The committee was formed in 1972 and held its first national meeting in 1973, comprising representatives from all jurisdictions across Canada. Members get together once a year to support collaborative development of power engineering syllabuses and examination content, and also aim to align some certification requirements between provinces.

IPECC was formed in 1974 and is a separate open-membership committee comprised of industry representatives and any other parties having an interest in the education and development of power engineering candidates. Its primary function is to involve industry stakeholders and other parties in advising SOPEEC on matters related to required examination and syllabus content. Industry participation in this committee ensures that curriculum learning objectives and certification requirements adequately reflect the knowledge and skills needed for candidates to safely operate the technologies seen in modern pressure equipment. ❖

2016 SOPEEC ANNUAL GENERAL MEETING

In June of 2016, ABSA hosted the 42nd Annual General Meeting for SOPEEC, the Standardization of Power Engineer Examinations Committee, at its main office in Edmonton. This meeting was attended by representatives from jurisdictions across Canada for the purpose of carrying out standard SOPEEC business.

The SOPEEC Working Group presented to the Committee a draft update to the SOPEEC Policy document, to be submitted for approval by the Association of Chief Inspectors (ACI), to whom SOPEEC is responsible. This document defines the overall scope and purpose of the Committee; proposed changes bring it in line with the current way of doing business amongst member jurisdictions. The Working Group also presented the Committee with the latest draft of changes to the proposed National Standard for Plant Ratings. Major changes involved adjustments to the proposed kilowatt rating cut-offs used to determine required boiler supervision levels.

As the coordinating province for SOPEEC, ABSA was assigned to restructure the revised 4th Class examination banks to align them with the new syllabus due to be in effect in September of 2017. This will include the development of 300 new examination questions that will be introduced to the power engineering examination bank over the next two years.

Immediately prior to the SOPEEC meeting, the Interprovincial Power Engineering Curriculum Committee (IPECC) met with the purpose of aligning the power engineering curriculum with today's technology. Through a series of workshops pertaining to five key syllabus topics, IPECC members collaborated with representatives from industry to provide feedback to SOPEEC as to recommended syllabus updates.

IPECC's next annual meeting will be held in Montreal in mid-June 2017, with SOPEEC's Annual General Meeting to follow immediately thereafter. ❖

UPCOMING IPEIA CONFERENCE TRAINING SEMINARS

ABSA will be presenting both the Repair & Alteration seminar and the Pressure Equipment Safety Legislation (PESEL) seminar as pre-conference training at the 2017 International Pressure Equipment Integrity Association (IPEIA) Conference in Banff, Alberta. Both seminars will be held on February 27 and 28, immediately prior to the main conference. Industry members who would like to attend are encouraged to register early, as seating is limited. ❖

21ST ANNUAL PRESSURE EQUIPMENT CONFERENCE

The International Pressure Equipment Integrity Association (IPEIA) was organized by the Alberta Boiler Safety Association (ABSA) and SAIT over 20 years ago. It is now a not-for-profit organization managed by industry volunteers. The conference attracts 600 specialists in pressure vessel integrity such as inspectors, engineers, academics, and manufacturers with expertise in the oil, gas, power generation, chemical, and forestry industries. IPEIA is dedicated to improving safety for industry people, the public, and the environment through pressure equipment integrity management. IPEIA involves young people in our industry and shares knowledge garnered over years of service.

The 21st conference, which will be held at the Banff Center, a mere 90 minutes from Calgary, on March 1-3, 2017, marks a milestone for North America's only annual conference of its kind. IPEIA features over 30 presentations on pressure equipment integrity by Canadian and international specialists. Information on codes, standards, inspection technologies, software, case studies, and similar topics will be presented. A 90-booth exhibition showcases integrity-related products and services on the latest technologies, techniques, and best practices.

Registration is now open and more information is available at www.ipeia.com. ❖

ABSA FEE SCHEDULE ANNOUNCEMENT

ABSA is not planning any changes to the fee schedule for 2017. Our current fee schedule is posted on our website www.absa.ca under the heading "Fee Schedule".

ABSA is a self-sustaining not-for-profit organization. We recover our costs through revenues generated by fees charged to customers and we place a high importance on ensuring value for cost. Fees are necessary to ensure the operational effectiveness of ABSA and we are committed to giving you our best effort with regard to the effective delivery of pressure equipment safety programs in Alberta. ❖

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