ABSA
the pressure equipment safety authority

THE PRESSURE NEWS

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ABSA BOARD OF DIRECTORS

Mr. Robert Emmott

Mr. Tony Robinson

Mr. Robert Emmott will be joining ABSA's Board of Directors for a 3 year term beginning July 1st, 2013. He was selected by a 3 member nominating committee consisting of a Board member, the Assistant Deputy Minister of Municipal Affairs and a member of the public.

Mr. Emmott is Executive Vice President and Chief Engineer, TransAlta Corporation and will represent the power generation and utilities sector on ABSA's Board. He is a Professional Engineer and senior energy industry executive with over 25 years of progressive experience in power generation management, power engineering, quality systems and safety management. In his role at TransAlta, Mr. Emmott is responsible for engineering and environmental health and safety (EH&S) performance and technical decision making fleet wide.

We look forward to the industry insight and strategic guidance that Mr. Emmott will bring to ABSA.

He will be joining Dr. Gordon Nixon, Vice President Academic, SAIT Polytechnic; Dale Myggland, Owner, BRIAS Inc. and Minister's Appointee; Tony Robinson, Operations Manager, Enerflex Ltd.; and Mark Demchuk, Vice President, Business Services, Cenovus Energy.

Mr. Emmott will replace Mr. John Ell on ABSA's Board of Directors. Mr. Ell is President of ATCO Power, and will be completing two terms on ABSA's Board of Directors at the end of June. He served as Board Chair for the last year. We would like to take this opportunity to thank Mr. Ell for his significant contributions and valued leadership. Mr. Robinson will be replacing Mr. Ell as the newly elected Chair of ABSA's Board of Directors. ❖

NEWS FROM GAS SAFETY, ALBERTA MUNICIPAL AFFAIRS* FOR OIL AND GAS INDUSTRY UTILIZING FUEL GAS

The gas safety regulations under the Safety Codes Act require that all installations, alterations or additions of gas systems utilizing fuel be permitted. Compliance monitoring by gas safety discipline Safety Codes Officers for permitted installations will address the natural gas and propane installations. Permits for oil and gas installations are issued to gasfitters. Equipment related to gas systems shall be certified in compliance with the gas code regulation or inspected and accepted through Third-party approvals of uncertified equipment by certification bodies and inspection bodies accredited by the standards Council of Canada.

The oil and gas industry has been served by an alternate pathway for fuel gas installations that has supported regulation and compliance in Alberta. Under the current Alberta Municipal Affairs Gas Safety Variance VAR-GAS - 05-05 Rev 3 (http://www.municipalaffairs.alberta.ca/documents/ss/STANDATA/gas/Var-G05-05-GasOil-Rev3.pdf), entitled *"Engineer Designs for Site-specific Gas-fired Process Equipment"* the Gas Code Regulations had been varied to allow a professional engineer to inspect and accept uncertified equipment at oil and gas sites. Options for compliance as well as changes to regulations and provincially adopted codes require revisions to the variance. Accordingly, on January 12, 2013, notice was given that Gas Safety Variance VAR-GAS-05-05 Rev 3 is set to expire June 30, 2013 (see http://www.municipalaffairs.alberta.ca/documents/ss/STANDATA/gas/Notice-ExpirationOfVarianceGas05-05.pdf).

Current limitations in the abilities of existing recognized certification bodies and inspection bodies has supported the issuance of a new province wide Gas Safety Variance VAR-GAS-01-13 (http://www.municipalaffairs.alberta.ca/documents/ss/STANDATA/gas/Var-G01-13.pdf) for the oil and gas industry. This new variance addresses Professional Engineers as a third option for the inspection and acceptance of uncertified equipment and clarifies the scope of their activities under the requirements of the Safety Codes Act. A supporting Gas Safety Information Bulletin G-02-13 (see http://www.municipalaffairs.alberta.ca/documents/ss/STANDATA/gas/G-02-13-OilAndGas.pdf) has also been issued to provide further clarity for gas installations utilizing fuel in the oil and gas industry. ❖

For additional information, please contact Alberta municipal affairs at 1-866-421-6929

**Article courtesy of Gas Safety, Alberta Municipal Affairs*

LOW TEMPERATURE OPERATION & FLEXIBLE BRAIDED CONNECTION INCIDENTS

Recently, two separate but almost identical incidents were reported to ABSA involving the freezing and failure of flexible braided connections. In both cases, fluid froze within the lines causing them to fail. One of the failures occurred in a pressure plant and resulted in minor injuries to an operator. Unfortunately, and far more seriously, the other one which happened as part of a pipeline, resulted in a fatality. In both cases, as a result of freezing and operational errors, the flexible braided connections were subject to considerably higher pressures than they were originally intended for.

With the winter conditions 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 cautioned that pressure equipment, including flexible hoses or connections, subject to the freezing of the contained fluid could result in the equipment being unfit for pressure service. Any pressure equipment that has been subject to freezing of the contained fluid should be taken out of service. If freezing has been suspected or observed, pressure equipment involved in the incident **must not** be placed back in pressure service without proper inspection and integrity evaluation. The use of damaged components in pressure service can be highly hazardous and components damaged by freezing can not likely be repaired. Please review the public alert Information Bulletin No. IB09-002 (http://www.absa.ca/IBIndex/IB09-002.pdf). ❖

Lot Sizes and Random Non-Destructive Examination For Pressure Piping in Process Plants

For pressure piping fabrication, industry has always deemed it important to perform progressive non-destructive examination (NDE). This is done so that one may be able to remedy any construction issues/problems before it would be too late (or indeed too expensive) to do so. Also, doing the NDE at the end of the project will not necessarily serve the purpose of quality control as a tool. Thus, it is important to configure/establish "lot" sizes so that the NDE performed will be relevant to the specific "lot". A “lot” could be the whole project, or a predetermined portion like a set number of joints: the amount of joints completed in a set time; etc. The lot sizes should be sufficiently small that the random NDE is performed at the end of each lot and not before the lot is completed. Establishing a "designated lot" would be a matter dependent on a company's quality control and operation policies/ needs as well as what is within the contracts/agreements a company has with construction contractors.

However, irrespective of how the lot sizes are established, it is important to note that "Random NDE" can not be taken to pre-qualify work that has not yet been performed. To put it simply, NDE cannot be performed on a "lot" when the "lot" has not yet been fully completed. If the "lot" has not been completed, any NDE taken can never be considered as randomly chosen since part of the work is outside the "random" part of the choice. The Random NDE can be part of the progressive NDE being performed for the project as a whole. This point is what lead to the issuance on June 10, 2013 of IB13-006 (which encompassed and supersedes IB07-002).

If the NDE is to be considered for satisfying the legislated requirements, then all the legislated requirements must be complied with. It should be noted that the regulations state that all adopted Codes and Standards are also considered as legislated requirements. In addition, one should remember that all provisions in the legislation and the adopted Codes and Standards are just the minimums. The Pressure Equipment Safety Regulation notes that *"The codes and standards declared in force by this Regulation, and any codes and standards referenced in the codes and standards, do not make or imply any assurance or guarantee by the Crown with respect to the life expectancy, durability or operating performance of equipment and materials referenced in the codes and standards"*. All Codes and Standards also have similar statements such as in the case of CSA B51 which states that *"it is important to note that it remains the responsibility of the users of the standard to judge its suitability for their particular purpose"*. ❖

Grade “B” Pressure Welder Certification Examination
Test Option - Proposed Revision to Reference Syllabus AB-061

To obtain the initial Grade “B” Pressure Welder Certification of Competency, the welding examination (test) presently uses the SMAW weld process with an E-6010 (F No.3) electrode for the root pass and an E-7018 (F No.4) electrode for fill and cap passes.

It has been proposed that an option to the present test be made available to candidates for Grade B pressure welder certification. The proposed optional test, if so selected by a candidate attempting the Grade B examination, would use the GTAW welding process for the root pass with an ER70S-2 electrode together with a shielding gas (100% Argon) and no backing gas. For the fill and cap passes, the SMAW weld process using an E-7018 electrode would continue to be used as in the past.

It is very important to note that if a candidate chooses this optional test, the initial performance qualification card issued would state “GTAW (F No.6) no backing and SMAW (F No.4) with backing”. If a welder so qualified with the optional test for the Grade “B” certification desires to obtain the F3/F4 performance qualification (which is issued with the regular examination), this would now be considered an additional performance qualification. The welder would then have go to an authorized testing organization to obtain the added F3/F4 qualification.

Candidates should also be aware that this optional certification examination may not be available at all the ABSA test locations due to welding equipment availability.

The proposed implementation date for this optional test is September 2013. Individuals having concerns or wishing to provide input regarding this proposed optional test for the Grade B Pressure Certification examination, please forward these to either Jason Reinhart (email: reinhart@absa.ca) or Bob Roseberg (email: roseberg@absa.ca). ❖

PRESSURE EQUIPMENT "A LIFECYCLE APPROACH"

Section 37 (b) of the Pressure Equipment Safety Regulation (AR 49/2006), "Responsibility of owners", states that *"the owner must ensure that an integrity management system is in place for the pressure equipment"*. This requirement is for all pressure equipment unless otherwise exempted by the Pressure Equipment Exemption Order, AR 56/2006.

Section 11(2) of the PESR states that *"the Administrator may require that a person who performs integrity assessments of pressure equipment must hold a certificate of authorization permit"* and 11(3) that *"the Administrator may require that an owner of pressure equipment must hold a certificate of authorization permit."*

AB-512 "*Owner-User Pressure Equipment Integrity Management Requirements*" first issued April 01, 2006 (and subsequently revised) by the Administrator to specify integrity management system requirements.

Owners must have effective systems for managing the integrity of their pressure equipment throughout its full **lifecycle**; from when the equipment is designed, constructed and installed, through its service life (operation, maintenance, repairs, alterations, integrity assessments, etc.), and finally, decommissioning. Prior to April 01, 2006, Integrity Management Systems may have focused primarily on inspection and associated functions. An effective Integrity Management System will ensure that **all** elements of the lifecycle of pressure equipment are addressed and not just inspection based functions.

The extent of an owner's documentation needed to achieve an effective and practical Integrity Management System that meets the Integrity Management Requirement (IMR) will vary considerably to suit the varied types of pressure equipment and service in industry. Therefore the (IMS) for each owner must be suitable for the organization's structure and business practices to ensure that the integrity of the pressure equipment is managed throughout its full lifecycle. ❖

HEATING PLANT PIPING

Pressure piping that forms part of a heating plant as described in the *Power Engineers Regulation* (AR85/2003) as a plant in which steam or other vapor generated does not exceed 103kPa (15 psig) at a temperature not exceeding 121C (250F) or water or other liquids may be heated to a pressure of 1100kPa (160 psig) at a temperature not exceeding 121C (250F). Although these piping systems are exempt per the *Pressure Equipment Exemption Order* (AR56/2006), there are concerns that owners must address to ensure the safety of residents and/or employees living and working with heating plants.

◊ Proper Material Selection: Materials to be used in construction of the piping system (i.e.: pipe, flanges and fittings) should be selected properly. In general, material must conform to ASME Section II Part A.

◊ Joining Method: The two main joining methods used in piping system construction are mechanical (threaded) and welding.

When using the mechanical method, ensuring proper thread pitch, thread count, thread engagement and sealant are used to create a leak free joint.

If welding is the chosen method, the Pressure Welders Regulation (AR169/2002) remains in effect. Welders performing welding on the piping system must hold a Pressure Welder Certificate of Competency (Grade B Pressure Ticket) together with a valid Performance Qualification Card for the welding process to be used during fabrication of the of the plant.

◊ Routing of piping system: The piping system should be routed in a manner that will prevent it from intersecting with structural foundations, other piping systems, and/or other equipment. Valves should be installed so that they are easily accessible for operation as well as for future repairs that may be unavoidable.

The majority of companies performing these types of piping installations and repairs are very knowledgeable and will take into account the many safety concerns. However, it is advisable that owners understand the type of work that is being carried out. ❖

How Healthy is Your Heating Boiler's Low Water Level Fuel Cut-Out?

INTRODUCTION

The Low Water Level Fuel Cut-Out (LWLFCO) is an essential safety device and is a key part of the shut-down safety interlock system. When a boiler's water level falls below the preset level, the LWLFCO safety device will trigger the boiler gas valve to automatically shut off.

Code and Standard Check

Refer to the following codes and standards for steam and hot water boilers:

- ASME Section IV HG-606 steam boiler & HG-614 Hot Water Boiler
- CSA B-51 6.3.2.1 for steam boiler & 6.3.2.2 for Hot Water Boiler
  **Note: as provided for under Section 2(2) of the Pressure Equipment Safety Regulation (AR49/2006), CSA standard overrides and prevails over ASME provisions on the same subject.*

Proper Installation Check

1. Correct the location of the LWLFCO sensing devices, ASME Code sect. IV;
2. Avoid the electrical conduit attached to the boiler casing and use high temperature wire when exposed to boiler heat (cases of overheated wire occurred recently);
3. The drain valve for Float type LWLFCO should be located approximately 4ft from the floor (user friendly height);
4. Verify the float type LWLFCO chamber design pressure is the same as the boiler design pressure and,
5. Ensure that the proper safety guard is installed on the water level gauge of the steam boiler and it is well lit.

Routine Operation Check

For proper testing of a boiler's LWLFCO on a regular basis, see AB-502:

1. Verify the water in the level gauge glass of the steam boiler (the water should be lively and approximately 50% full when in operation);
2. Lock open the isolation valves (car-seal) to water column on an older type of steam boiler;
3. Reset the safety device's interlock control system after a power supply failure due to a heavy storm and/or other interruptions and,
4. Do not put the LWLFCO in bypass or jumper mode when the boiler is in operation, even if someone attempts to force you to do it.

Maintenance and Inspection Check Reminders

1. Maintain the water column and float type of the LWLFCO chamber in a sludge and barnacle-free condition by a regular blow-down schedule and an effective boiler water treatment program.
2. Flow switch shut-down is commonly used in hot water boilers and once-through boilers. Set up a routine check and maintenance program.
3. Prepare for inspection by opening the LWLFCO float chamber and remove the LWLFCO electric probe for inspection.

The checks listed above will help prevent or reduce boiler accidents caused by LWLFCO malfunction. ❖

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

Power Engineer Examiner – Edmonton
Power Engineer Examiners at ABSA are responsible for the certification of Power Engineers in Alberta which includes exam invigilation, marking, and evaluating experience of exam candidates.

For more information on these positions please consult our website (www.absa.ca/ABSA-Info/Career.aspx). ❖

EXAMINATION OF NEW CORROSION TOPIC FOR THE SECOND CLASS PART A PAPER 2

"*Candidates for writing the Second Class Part A Paper 2 examination should be aware that up to half of a question on this new topic may be included in the 2014 examinations. We understand that PanGlobal, a power engineering course material provider, will have material on this new corrosion topic available on their website on July 1, 2013*".

This information was previously provided in an article in our March 2013 issue of "The Pressure News" and we subsequently sent out either a letter or an email on this subject matter to alert all persons holding a valid Alberta Third Class Power Engineer's Certificate of Competency as they may be applying to challenge the 2nd Class examination.

Visit our website www.absa.ca for further information.

STUDENTS ENTERING A 3RD CLASS PROGRAM WITHOUT HOLDING A VALID 4TH CLASS

Alberta power engineering students going to the second year of a 2-year program, or entering a Third Class program, without holding a valid Fourth Class Certificate of Competency should be aware that the regulation requires that any operating time leading towards the issuance of a Third Class Certificate of Competency must be earned while holding a valid Fourth Class certificate. This means that operating experience in that program WILL NOT be recognized and the student would need to earn the full experience required by the Power Engineers Regulation while holding a valid Fourth Class certificate of competency to have experience qualified for a Third Class Certificate of Competency.

POWER ENGINEERING STUDENTS WORKING OUTSIDE OF ALBERTA

Alberta Fourth Class Power engineering students working outside of Alberta to gain operating experience for certification in Alberta must either first obtain a Fourth Class certificate or licence from the jurisdiction where they work by transferring their Alberta certificate to that jurisdiction OR confirm with that jurisdiction that the jurisdiction would accept the Alberta Fourth Class certificate while working in their jurisdiction. The student must also obtain that jurisdiction's written confirmation of his/her operating experience at the end of the work term. The same process would be applicable for all classes. Please refer to IB13-007 for further information. ❖

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