

# ABSA THE PRESSURE NEWS

Alberta Boilers Safety Association

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## NEW POWER ENGINEERS REGULATION

On May 1, 2003, the Power Engineers Regulation (Alberta Regulation 85/2003) replaced the Engineers' Regulations (AR 319/75). The Regulation has been rearranged to provide information in a more logical flow. Some of the changes are noted below. There is more information available at [www.absa.ca](http://www.absa.ca).

All of the references to the Boilers & Pressure Vessels Act have been removed. The new Regulation has more definitions and a greatly enhanced section on Supervision. The section relating to Thermal Liquid Heaters has been expanded for greater clarity.

The duties and responsibilities of Chief Power Engineer have been defined and it has now been clearly stated that the Chief Power Engineer is to be present at the plant during regular working hours. (Regular working hours is interpreted as Monday to Friday, 8 AM to 5 PM).

All Power Engineering examination candidates must now attain a mark of 65% to pass each paper. Failure of any three Power Engineering examinations in succession, with few exceptions, will result in a 12-month penalty's being imposed before the candidate will be permitted to attempt any Power Engineering examination.

The Fifth Class Power Engineering examination candidates are now required to have 6 months' experience in either a heating plant or power plant and must also successfully complete an acceptable course in power and heating plant operation leading to the Fifth Class Certificate examination.

The minimum Certificate requirements for all plants are now presented in a table format. These Tables graphically show the Chief Power Engineer or Engineer in Charge positions together with other related Certificate holder positions. ❖

## COMPLIANCE TO THE PRESSURE WELDERS REGULATION ON OCTOBER 1, 2003

Pressure Welders Regulation (AR 169/2002), under the Safety Codes Act, came into force on October 1, 2002. Some of the key elements in this Regulation include establishing the Welding Examiner Certificate of Competency and requiring additional information about welding variables to be included on performance qualification cards.

Information Bulletin No. IB02-007 Variance was issued on October 18, 2002 to facilitate compliance with the new Regulation by allowing a period of time for the authorized testing organization to revise their existing quality control program to address the new requirements of Section 6 of the Pressure Welders Regulation and to implement the revisions, while continuing to issue performance qualification cards to previously accepted standards.

According to the new Pressure Welders Regulation (AR 169/2002), and the Variance (IB02-007), compliance to the following is required effective October 1, 2003:

- ABSA-authorized testing organizations shall employ one or more welding examiners, holding a valid Welding Examiner Certificate of Competency issued by ABSA, to conduct performance qualification tests.
- The application deadline for Welding Examiner certification without examination is September 30, 2003. For applications received on or after

*(Continued on page 4)*

## NEW CSA B51 CODE EDITION AND UPDATES ON ASME AND NBIC

All organizations holding quality control Certificates of Authorization from ABSA should be aware of the release of the new edition of CSA B51 Code affecting their quality control program. The new 2003 edition of the CSA B51 was released in March 2003. There are a number of changes introduced in this new code edition which supersede the 1997 edition of the CSA B51. For further details on the code and how you can purchase your copy, you may wish to visit the Canadian Standards Association Web site, [www.csa.ca](http://www.csa.ca)

It should also be noted that the 2003 addenda to the 2001 edition of the

ASME Boiler and Pressure Vessel Code will be published July 1, 2003 and changes introduced in these addenda will become mandatory on January 1, 2004. Also, the latest addenda to the 2001 Edition of the National Board Inspection Code were released December 31, 2002. Changes to these Codes may affect your company's operation. Further details on these codes may be obtained from the Web sites of the respective standards-writing organizations:

ASME - [www.asme.org](http://www.asme.org),  
and  
National Board -  
[www.nationalboard.org](http://www.nationalboard.org). ❖

**Have you visited us on the Internet yet? - [www.absa.ca](http://www.absa.ca)**

## IMPACT TESTING REQUIREMENTS FOR INDIRECT FIRED HEATER COIL MATERIALS

In Alberta, Indirectly Fired Heater Coils for Pipeline Service are generally constructed to the ASME B31.3 Process Piping Code. Design registration and third party inspection of these coils is performed by ABSA in accordance with Alberta Energy and Utilities Board (AEUB) requirements.

To avoid potential nonconformance, manufacturers of these coils must be aware of current B31.3 design requirements for the materials of construction, at the selected design minimum temperature (DMT). This is particularly important when constructing coils to designs that were based upon the ASME B31.3 Code prior to the 1994 addenda, which permitted most common carbon steel materials to be used at  $-29^{\circ}\text{C}$  ( $-20^{\circ}\text{F}$ ) without impact testing. This article has been prepared considering the requirements of the 2002 edition of ASME B31.3.

To determine the minimum temperature permitted for a material, refer to B31.3, Table A-1, column "Min. Temp., °F". For each listed material, Table A-1 identifies either an actual minimum permitted temperature or lists the design curve (A, B, C or D in Fig. 323.2.2A) that applies to the material. If Table A-1 provides a minimum permissible

temperature value, it pertains to the material specification regardless of thickness. If a design curve letter is specified then the nominal thickness must also be considered to determine a minimum permissible temperature.

Note that the provision of an actual minimum permitted temperature in Table A-1 does not necessarily mean that specification and grade of pipe is impact tested per its specification. (Table 323.2.2A provides tabular values for minimum temperatures without impact testing for carbon steel materials based upon the material nominal thickness).

To illustrate the application of ASME B31.3 rules, it is informative to consider a piping material for which Table A-1 denotes a curve from Fig. 323.2.2A and one for which the Table provides a specific minimum permitted temperature. In the first example, consideration has not been given to the possibility of using a stress ratio less than 1 to obtain a reduction in minimum design metal temperature (MDMT).

For material that has been assigned a curve in Fig. 323.2.2A, e.g. A-106 Gr. B, if the design thickness and DMT fall below the exemption curve in Figure 323.2.2A (Curve B) then the material requires impact testing at or

below the DMT and use of an applicable impact tested welding procedure specification (impact tested at or below the DMT). To highlight the significance of this requirement, consider that for a DMT of  $-29^{\circ}\text{C}$  ( $-20^{\circ}\text{F}$ ), any material thickness in excess of one-half inch will require impact testing and the use of an impact tested welding procedure specification.

For material that has an assigned minimum permitted temperature, e.g. A-333 Gr. 6, impact testing of the material is not required providing that the DMT is at or above the temperature provided by Table A-1 (in this case  $-46^{\circ}\text{C}$  or  $-50^{\circ}\text{F}$ ). For a DMT colder than  $-29^{\circ}\text{C}$  ( $-20^{\circ}\text{F}$ ), an applicable impact tested welding procedure specification (impact tested at or below the DMT) is required. ❖

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## FRAUDULENT CERTIFICATES

It seems to be a sign of the times. Once again, the fraudulent use of a Power Engineer's Certificates of Competency has been brought to our attention. An Alberta company thought that they had hired a 2<sup>nd</sup> Class Power Engineer. Upon checking with ABSA, it was discovered that the certificate was originally a 4<sup>th</sup> class certificate which had expired in 1994 and had been modified to a 2<sup>nd</sup> class certificate of competency. Needless to say, the individual has lost his new job and charges are pending.

This seems like a good time to remind all of the Chief Power Engineers and company officials to validate the credentials of any potential new hires. The risk and liability is placed heavily on the company if incidents should occur and operators are not properly certified.

In today's world of high tech computer graphics and copiers, it is relatively easy to make a forgery which appears like the real thing. Fortunately, ABSA is available to aid in verifying certificates and to answer any questions. ❖

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## BILL LITVINCHUK NEW MANAGER, EDUCATION AND CERTIFICATION



In this position, Bill will be responsible for providing leadership in the development and delivery of internal training programs for our staff and external training

that meets the needs of our stakeholders, in certification of power engineers and in coordinating development of technical guidelines and standards.

Bill has been involved in the operation, installation, maintenance,

repair and inspection of pressure-retaining equipment for many years. He worked in the Petroleum industry prior to joining ABSA in 1995 and has a broad technical knowledge base. Bill graduated in Mechanical Engineering from the University of Manitoba and is a professional engineer. Bill also holds a National Board Commission with "A" and "B" Endorsements, and is an Alberta Safety Codes Officer in the Boilers Discipline.

Thank you for giving Bill your full support as he takes on the challenge of his new position in our organization. ❖

## WARNING

### BLOCK VALVES UNDER PRESSURE RELIEF VALVES

With recent incidents, this topic is worth addressing again. The requirements for a procedure to address isolating a vessel from its pressure relief valve are outlined in Appendix M in Section VIII Div 1. ASME Section I does not allow block valves below pressure relief valves. The procedure for having block valves under pressure relief valves must be documented and accepted by an ABSA Safety Codes Officer. This is only a small part of the overall procedure.

There must be documented training of all involved with the procedure. There must be continuous auditing and monitoring of the program.

We have, on file, incidents that relate to the failure of programs within large companies that seemingly had good programs in place. In many cases it

might have been an element of the program that was not considered. For example, two vessels were in tandem with a safety valve on the top vessel and a block valve between the two vessels. The procedure for startup was to close the valve between the two vessels. This in fact caused the lower vessel not to be protected during startup and created a potential of overpressure. This block valve between the two vessels needs to be controlled the same as if it were directly under the safety valve.

Another example of failure of a system occurred when a vessel over-pressured during startup. During the follow-up investigation it was found that the block valve below the pressure relief valve have been closed. There was no explanation as to how the block valve got closed as

there was an audit of all the block valves after the shutdown and all were logged as being in the correct position and the seals were applied. This indicates that there is lack of understanding of the system. It is imperative to understand that pressure relief valves are the last line of defense in any plant. The potential of vessel failure and plant damage is high if pressure relief valves are not in place and in proper working order.

In summary, we ask that procedures for administering block valves under pressure relief valves be reviewed on a regular basis. There should be a documented, periodic training program in place for all personnel involved. And finally, the program needs to have regular audits to verify that the procedure is being understood and followed. ❖

## PRESSURE PIPING NOT OVER 0.5 m<sup>3</sup> IN CAPACITY

One of the mechanisms for minimizing the need for companies to register their piping designs is the provision in the regulations that "a pressure piping system having an aggregate internal capacity of 0.5m<sup>3</sup> or less is exempt from" the design registration requirements of the Act and regulations. This provision also means that the designs of small piping additions to a power plant or pressure plant do not have to be registered. Pressure piping additions in excess of 0.5m<sup>3</sup> must always be registered. It must be recognized that, irrespective of piping design registration, the requirements for meeting the code of construction, having a Certificate of Authorization to construct the piping system, using qualified welding procedure specifications and certified and qualified welders, *etc.* must still be met.

In practice, many packaged units (skids) do not, in themselves, constitute more than 0.5m<sup>3</sup> of aggregate internal volume of the piping. Hence, the manufacturers of these skids do not register the designs of this piping.

However, many circumstances arise where a plant is composed of two or more interconnected skids from one or more manufacturers and the aggregate volume of the pressure piping in the plant exceeds 0.5m<sup>3</sup>. Or, a small skid is incorporated into a much larger field-erected pressure piping system. In such cases, the skid piping must be considered to be part of the pressure piping system for which design registration is required.

There are at least two ways to handle this registration. First, the prime contractor who is purchasing the packaged units can stipulate in his bid documents and purchase orders that the package piping must have its design registered by the package's manufacturer. This would require ensuring that the manufacturer be made aware of either the existing 'PP' number for an existing plant, or the plant name, the plant owner's name and the LSD of the plant in order that piping designs for parts of the total plant which are submitted by different firms will all be assigned the same identification number. Secondly, the prime contractor could have the individual skid package designs submitted to him and he could submit

the whole package at once.

Questions will undoubtedly arise as to whose registered professional engineer must seal and sign the skid package piping designs. This is a contractual matter and is not covered by the pressure equipment legislation. However, if only one seal and signature is affixed to the design submission, it will be assumed that that engineer is taking responsibility for the entire pressure piping design. If that engineer opts specifically to exclude some piping from his area of responsibility, the package will be deemed incomplete and ABSA will request the missing seals and signatures for the pressure piping for which no engineer has as yet taken responsibility.

As this is a very short article, you can undoubtedly think of situations about which you still have questions. The main consideration is that if more than 0.5m<sup>3</sup> of pressure piping is being installed in a project, whether supplied by one company or more than one company, the design or designs of all that piping have to be registered. ❖

(Reprinted from Volume 2, issue 3)

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October 1, 2003, a candidate is required to pass up to 4 written examinations to be certified.

- A welder performance qualification card must show all the information specified in Section 6 of the Pressure Welders Regulation. A previously accepted performance qualification card that does not meet the requirements of the new Regulation must not be issued after September 30, 2003.
- ABSA-authorized testing organizations shall have their quality control programs revised to reflect the Regulation requirements, and **accepted** by ABSA **before** October 1, 2003. The revision to the quality control manual should be submitted as soon as possible to ensure the quality control program is

approved before the deadline.

Revisions to the Quality Control Manual should include:

- Use of a welding examiner and the examiner's qualifications;
- Design of the Welder's Performance Qualification Card;
- Approval of the revisions by the QC Manager and by ABSA

Questions about the quality control program can be directed to any ABSA office. Questions about Welding Examiner certification should be directed to ABSA Education and Certification Department at (780) 437-9100 ext. 327 or, outside the Edmonton area, on the toll free line 1-877-433-8910 or email [welding@albertaboilers.com](mailto:welding@albertaboilers.com). ❖

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St. Paul  
 Please note that our St. Paul office has been closed. All services will be provided through the Edmonton Office.

Internet address  
<http://www.absa.ca>

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