

# ABSA THE PRESSURE NEWS

Alberta Boilers Safety Association

Volume 2, Issue 2, April 1997

## Message from ABSA's CEO

On April 1, 1997 ABSA will be starting its third year of operation. As we look back over the last twelve months, I would like to share with you some of the goals and objectives which have been completed. Aside from the physical moves to new office locations in four districts, ABSA has deployed a new Wide Area Network (WAN) system among our seven office locations, allowing for effective communication between employees and their access to our central registration system. Our workforce was increased by ten new full time employees which was as a direct result of the increased workload evident in our busy and buoyant economy, both in the pressure vessel fabrication sector and the petrochemical industry.

The need for shop inspections increased by 30% over 1995 and the design survey and registration unit continues to see record levels of activity. Overall, inspection services increased by nearly 23% and considerable effort has been expended toward the addition of Owner/User program certificate holding companies. Of the 77,500 vessels on annual registration, approximately one-third are now on Owner/User status.

Our activities in 1996 contributed significantly to our pressure equipment safety. Some of the highlights from our 1996 operation:

- \* A total of 26,632 inspections conducted
- \* 11,580 shop fabricated vessels inspected
- \* 651 pressure welders tested (initials)
- \* 3,686 Power Engineers' exams conducted
- \* 6,825 Pressure designs submissions registered
- \* 221 Quality Control certificates issued

Despite everyone's efforts, 23 accidents were reported in Alberta for a total estimated damage of \$3 million. Fortunately, only two injuries

## Results from Customer Survey

In light of the significant changes in ABSA's organizational structure, ABSA felt it was critical to conduct a customer survey to ensure that we are on track in safety programs delivery while meeting our clients' needs. Last fall (1996), ABSA conducted a survey of our customers from the various safety programs by sending out over 1400 questionnaires. In discussions with our customers, during the development of the survey, seven service dimensions were identified:

- \* responsiveness,
- \* reliability,
- \* relationships,
- \* communication,
- \* competency,
- \* finances,
- \* tangibles.

The results were based on a representative sample of 372 clients and 66 employees who participated. This level of response provided us with an acceptable margin of error of +/-5%. We felt it was important that we gauge our employees' perception of what is important to our clients. Similarly, employees' perception on our customers' level of satisfaction were compared to the customers' indicated level of satisfaction.

occurred, with no fatalities.

In our efforts to work with our stakeholders, ABSA was a co-sponsor with SAIT for the First Annual Pressure Equipment Conference in Banff held last February. Please refer to the article in this newsletter for more details. Also in this issue of our newsletter we have provided you with the results of our first Customer Survey held last fall. The valuable input and feedback received from our customers has allowed the Board and ABSA's management to focus on the issues and set our course for the next twelve months and beyond. We have identified the concerns and, with the

Results indicate that clients are most satisfied with competency and relationships and not as satisfied with responsiveness, finances and communications. Results from the employee survey indicate employees are generally aware of the areas their clients are less satisfied with.

Significant gaps were identified in the service dimensions of: *responsiveness*, *reliability* and in some cases in *finances*. Certain programs delivered for Design Survey, Shop Fabricators and Vessel Owners require the most immediate attention. The survey results clearly established that more than 70% of employees and clients believe *responsiveness* and *competency* are either very important or absolutely essential.

The survey has provided ABSA with an important and reliable source for future planning and setting priorities and direction for the delivery of our safety mandate. The development of our business plan and setting of goals for both the business units and individuals has taken these results into account. In closing, we would like to thank all of our customers who have taken the time to participate in this valuable dialogue and feedback which will ultimately make ABSA a better organization.

help of our employees, developed the goals and objectives for the various mandated safety services in order that ABSA serves the needs and meets the priorities set by the Board and our stakeholders.

As we celebrate the completion of the first 100 years of pressure equipment safety and regulation in Alberta, we look forward to starting our second 100 years with renewed enthusiasm and cooperation from our stakeholders. Please do not hesitate to contact me with your suggestions and feedback.

John Verwey, CEO

## Alberta Labour's New Deputy Minister

On January 15, Mr. Peter Kruselnicki was appointed the Deputy Minister of Labour. Mr. Kruselnicki, who received his degree in Civil Engineering in Manitoba, moved to Alberta in 1980 and has worked with Alberta Public Works Supply & Services (APWSS) for the last 16 years. Prior to his current position, he was Acting Deputy Minister with APWSS. We look forward to working closely with Mr. Kruselnicki in all areas of pressure equipments safety in our Province.

### Pressure Under Control Celebrating 100 years of Boiler and Pressure Vessel Safety in Alberta

To celebrate the 100th year of pressure equipment safety in our province, a book entitled "Pressure Under Control - Celebrating 100 years of Boiler and Pressure Vessel Safety in Alberta" is being published. This 200-page full colour publication is being funded through industry sponsorship and is available on a pre-publication basis for \$25.00 Canadian.

The book, a collection of written and photographic historic and recent events, can be used for promotion of the pressure equipment industry and your organization as well as a gift to your clients or your employees. Anyone interested in helping to sponsor this project or wishing to buy copies of this publication should contact Norma Turtle (Fax 403-437-7787) at ABSA.

### Power Engineering Information Sessions

Information sessions regarding the proposed new 4th and 5th Class Certificates of Competency will be held from 6:00 to 9:00 p.m. at the following locations:

#### Edmonton

29 April 97, Coast Terrace Inn  
Grande Prairie

1 May 97, Golden Inn

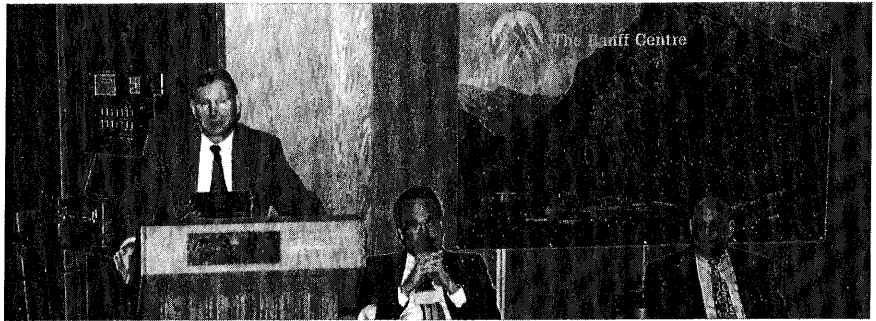
#### Calgary

13 May 97, Port O'Call Inn

#### Medicine Hat

14 May 97, Medicine Hat Lodge

## First Annual Pressure Equipment Industry Conference Highlights



Left to right: Mr. Owen Baker, Dean of Energy & Natural Resources Department, SAIT ; Keynote Speaker - Mr. Doug Graham of MacLeod Dixon Barristers & Solicitors; Mr. Milt Deck, SAIT.

The Pressure Equipment Industry Conference sponsored by The Southern Alberta Institute of Technology (SAIT) and supported by ABSA, was an overwhelming success thanks to joint participation from industry leaders and supporters.

On February 24 and 25, the First Annual Pressure Equipment Industry Conference brought representatives from all facets of the pressure equipment industry together for an informative two days of presentations and discussions.

Delegates represented all sectors including oil and gas, utilities, pulp and paper, manufacturing and insurance. Guest presenters from a wide range of companies hosted insightful seminars on pertinent topics such as standards for risk based inspection, selecting inspection methods, reporting and tracking, and engineering critical assessment.

The conference was the first of its kind that was entirely industry driven. The event represented significant cooperation among a wide-range of industry representatives. It was completely industry supported with coordination handled by SAIT's Energy

& Natural Resources Department.

To meet the needs of all the participants, two programs ran simultaneously. Program one focused on risk based inspection, repair and alteration, while program two was centred around design, fabrication and inspection of new and used vessels. These issues were identified by industry as key points of focus for the conference and addressed through seminars facilitated by guests from across North America.

The conference ran at the world-renowned Banff Centre which is set against the majestic backdrop of the Rocky Mountains in Banff, Alberta. Participants enjoyed access to the Centre's outstanding facilities and enjoyed professional entertainment that complimented the working sessions.

This conference was a tremendous opportunity for participants to share ideas and concepts with industry leaders all in one room. Don't miss the conference in 1998. We understand planning is under way now.

Call Milt Deck at (403)284-7118 at SAIT for details on the conference.

## Fall Protection on the Work Sites

Late last year, one of our Safety Codes Officers was injured while performing a routine inspection at a fabrication shop. As a result, considerable discussion regarding fall protection at the work sites has taken place within ABSA. Our Safety Codes Officers are constantly involved in various inspections of boilers and pressure vessels either during the construction stage at a fabrication shop or during plant shutdowns.

These inspections must be performed

in a safe manner and while climbing on or around a vessel there are specific regulations that must be followed. The Occupational Health and Safety Act is very specific regarding climbing and the precautions that must be taken. The Act states that: "An employer shall ensure that where it is possible for a worker to fall a vertical distance greater than 3.5 metres from a temporary work area or 1.2 metres from a permanent work area, the worker is protected from falling by:

1. a guardrail around the work area;
2. a safety net;
3. a fall arresting device;
4. a safety belt or harness securely attached to an anchor point; or
5. an alternative means of protection acceptable to the Director.

Although our Safety Codes Officers are trained and each has many years of experience, they become very vulnerable once they are on customer work sites inspecting in unfamiliar conditions. We at ABSA have to comply with the OH&S Act for fall limits and we ask the cooperation of all of our customers in helping us to meet those requirements. ABSA's Safety Codes Officers have been instructed to follow these requirements and to refuse to complete an inspection if the OH&S regulations are not followed. It is important that our customers understand their responsibilities as the "employer" regarding the protection of personnel on their sites. We thank you for your cooperation and understanding in protecting our employees and your own.

### Propane Bottle Turned "Boiler" Killed One and Maimed Another

An explosion killed one man and seriously injured another on February 25, 1997 in a private residence near Edmonton, Alberta. It was reported that the men "modified a 20-pound propane bottle to use it as a steam boiler" and "did not realize how much pressure was inside the vessel. The top blew off and it was like a bomb. The base turned into shrapnel". This accident further highlights the importance of pressure equipment safety and the possible serious consequences if it is disregarded. It must be noted that not only it is illegal to design, construct and operate pressure equipment not in compliance with Alberta Regulations, the result could be fatal as illustrated by this accident.

#### Upcoming Activities and Events

1. SAIT Power Engineering Technology program class reunion, May 2 & 3, 1997. Contact Gwen Fox at 403-284-7214 / fax 403-284-8394.
2. Welding for Sour Service and Low Temperature Service Conference, November 20 & 21, 1997. Contact Dave Taylor at 403-290-7828 / fax 403-290-6773.

### Modification of Power Boiler to Heating Boiler

A resolution has been passed by the Boilers and Pressures Technical Council "not to allow modification of high pressure boilers in power plants to be used as low pressure heating plant boilers on a temporary (*i.e., intermittent*) basis". The Technical Council's decision was to ensure that ASME Section IV, Paragraph H-701.5 is complied with whereby shutoff of any description placed between the safety or safety relief valve and a low pressure heating boiler is prohibited. The resolution also aims to minimize the risk of low design pressure equipment's being installed in the high pressure part of the system. The Technical Council ruled that a high pressure power boiler should not be allowed to operate as a low pressure heating boiler intermittently unattended.

### ASME Section I Heating Surface Change

Changes to Paragraph PG-70 and the introduction of P-7 Data Report Form in the ASME Section I Power Boiler Code would result in capacity rating rather than heating surface being the controlling code process in design and reporting. The basis for heating surface calculation and boiler rating determination of the Alberta Regulations is independent of the Code and the old PG-70 (which is now placed in Appendix A-44 of the Code). Accordingly, these code changes will not have any implication on heating surface determination for operator requirements or fees in our jurisdictional rules and regulations. The significance of the changes in our case is in the new P-7 Data Report Form which mandates the manufacturer of the complete boiler unit to list all safety and safety relief valves, set pressure, and the capacities installed on new boilers regardless of who provides or installs the valves. Further information on this subject may be obtained from the National Board Internet website:

<http://www.nationalboard.org/article1.html>

#### Employment Opportunities

Visit the ABSA Internet e-mail address for current ABSA job opportunities.

### Export to China

The Peoples' Republic of China (PRC) announced the "Implementation Regulations of Import Boiler and Pressure Vessel Safety Quality Licensing System" under which, manufacturers of boilers and pressure vessels must first receive Boiler and Pressure Vessel Safety Quality Licence from the Ministry of Labour, PRC, before the product will be allowed to be imported to China.

We have recently been notified by the Bureau of Occupational Safety and Health and Boiler and Pressure Vessel Administration of Ministry of Labour, PRC with a confirmation of the effective date of October 1, 1997 for the implementation of the import licence. Also, the Bureau advises that they do not intend to delegate to any organizations outside of PRC to review and audit such applications. Although the Bureau acknowledges the acceptance of ABSA's inspection by PRC as provided under the Inspection Agreement between Alberta and China signed in 1993, they advise that boiler and pressure vessel manufacturers in our province, not unlike other manufacturers in the world, will have to apply directly to the Bureau to obtain the import licence from the Ministry of Labour, PRC for export of product to China after October 1, 1997. The Bureau's address is: - 12 Hepinglizhongjie, Beijing, China 100716.

### National Board/ASME 66th Annual General Meeting

The 66th Annual General Meeting of the National Board of Boiler and Pressure Vessel Inspectors and the ASME International Boiler and Pressure Vessel Code Committee will be held in Kansas City, Missouri and Kansas on May 5-9, 1997. The theme of this year's meeting is "Safety in Numbers" and the week will feature speakers on various aspects of pressure equipment safety in addition to numerous ASME Boiler and Pressure Vessel Code committees' meetings. Anyone interested in attending should visit the website of the National Board:

<http://www.nationalboard.org>  
or contact Joan Webster of the National Board at (614)888-8320 Ext. 228 or Fax (614)847-1827.

## Hot Water Heating System<sup>1</sup> Expansion Tanks

Closed hot water heating systems require provision of a means of accommodating thermal expansion of the heating fluid (water) during operation. This is usually accomplished by the installation in the system of pressure vessels commonly called expansion tanks or cushion tanks. As a matter of safety, it is important that the installation of these devices meets the requirements of the *Safety Codes Act*.

Under the *Act*, the *Design Construction and Installation of Boilers and Pressure Vessels Regulations* adopt the ASME Boiler and Pressure Vessel Code and the CSA B51 Code as forming part of the regulations. Section IV of the ASME Code, *Heating Boilers*, requires that "expansion tanks for systems designed to operate above 30 psi [207kPa] shall be constructed in accordance with [ASME] Section VIII, Division 1." CSA B51 further requires that a cushion tank exceeding 610 mm (24 in) diameter, regardless of working pressure, shall be designed to Section VIII, Division 1. For purposes of applying these requirements, the *system* allowable working (*design*) pressure may be taken to be the set pressure of the installed safety relief valve [even though Section IV requires a design pressure of the boiler of not less than 30 psi (207 kPa)]. It is important that the set pressure of the safety relief valve must not exceed the maximum allowable working pressure of the boiler. Also if a change of the operational requirements necessitates an increase to the system's design pressure, consideration must be given to the suitability of the existing expansion tank for that change.

For expansion/cushion tank internal diameters of 610 mm or less and system allowable working pressures of 207 kPa (30 psi) or less, the *Act* does not apply, although ASME Section IV requires that the tank be "suitably designed for a minimum hydrostatic test pressure of 75 psi."

<sup>1</sup> Hot water heating system includes any system covered by the definition of *heating plant* as given in section 1(2)(d) of the *Boilers and Pressure Vessels Regulation*.

## Canadian Registration Number

Canadian Registration Numbers (CRNs) are issued in accordance with the Canadian Standards Association (CSA) B51 Code for vessel or fitting designs which have been accepted by a province or territory. Each province or territory issues an independent set of numbers starting with 0001 and continuing to 9999, always followed by a decimal point. The next series of 9999 CRNs will start with a letter followed by the same series of digits; Alberta is currently on its 'N' series CRNs. What makes each province's numbers independent is the number after the decimal point; Alberta's identifier is '2'. Once a CRN is issued, the design may then be registered in the other jurisdictions in any order or simultaneously. The jurisdictions must be informed of the CRN assigned by the first province of registration to preclude the issuance of twelve different CRNs for the same design. For example, CRN B0719.21 would have been first registered in Alberta and subsequently registered in BC ("2" for Alberta and "1" for BC).

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