

# ABSA THE PRESSURE NEWS

Alberta Boilers Safety Association

Volume 1, Issue 4, July 1996

## Message from ABSA's CEO

During the first year of ABSA's operation we have seen many physical changes such as the official opening of our new head office in Edmonton. Our focus has also been directed to the delivery of the programs and the 1993 industry task force reports. We have had several meetings with our customer groups in Ft. McMurray, Grande Prairie, and Edmonton and as you will note further in this issue, we are planning more industry meetings in Edmonton, Red Deer, Calgary and Medicine Hat.

In meeting some of you, I am constantly reminded about the importance of timely response to the submission of designs for review and registration. We recognize that this is an area of major concern and we are attempting to resolve the huge backlog which we acquired from the previous administration. Our employees are working overtime (at no extra cost to our customers) and we have hired on additional help. Because of the continued high number of design submissions and a backlog of over seven weeks of work, we will be adding more staff to our Design Survey group.

We have included an article on Design Survey in this issue in an effort to minimize delays in the review and registration process. At the moment only 68% of the designs submissions are accepted without any changes or revisions. These are responded to on average within 33 calendar days while 32% of the submissions have deficiencies and take on average 48 calendar days. We would like to work with those companies who are having difficulty with the submission requirements, to help streamline the process and reduce cost. Please watch for our future seminars to help clarify our process. We would welcome your suggestions of specific areas where you feel a seminar could provide clarification.

John Verwey, CEO

## Minister of Labour Opens New ABSA Head Office



Left to right: Hon. S. Day; Al Fletcher, Chair; John Verwey, CEO; Al Brekke, Vice Chair; Vic Bogosian, Director of Inspection, National Board; Ken Lau, Chief Inspector and Administrator

Cutting the ribbon, Hon. Stockwell Day, Minister of Labour, officiated at the opening of the new ABSA office in Edmonton on May 9, 1996. Senior officials from Alberta Labour, the National Board and various Corporations accompanied the Minister and toured the new ABSA office facilities. In the afternoon the day earlier, the ABSA Open House welcomed sixty plus visitors from all sectors of the pressure equipment industry. Judging from the comments of the visitors and the glowing and smiling faces of the employees who acted as guides and provided answers to the more inquisitive, the Official Opening and the Open House were great successes.

For the occasion, wall charts and displays highlighted the partnership relationship between Alberta Labour, the Safety Codes Council, ABSA and Industry in pressure equipment safety. Along the tour route, the Inspection Section showed the extensive ABSA field service operation including new construction inspection, quality control systems audits, pressure welder testing, accident investigations, repair and in-service equipment inspection. In the Engineering Section, visitors were able to see how designs were processed through the review and

registration program and statistics on the wall indicated that Alberta has registered the 100,000th design late 1995. Posters also explained the codes and regulatory requirements and the responsibilities of the designers. The Power Engineering Examination Section displayed the different certificates of competency and statistics on the numbers of examination candidates and papers with over 30,000 individuals certified since the beginning of the power engineer program in 1899.

The collection of photographs of accidents drew the most attention as visitors reflected on the huge amount of pressure equipment in use in our province and the potential hazards involved. At the same time, visitors were relieved by the relatively safe environment with close cooperation in pressure equipment safety between government and industry and the contributions from everyone, including ABSA.

Pie chart figures portrayed the enormous increase and the diversity of pressure equipment deployed in the field in the last 50 years. The Records Section also exhibited the collection of manufacturers' data reports and

*(Continued on page 2)*

(Continued from page 1)

pressure equipment installation statistics and accounting records. An old letter from an inspector dating back to 1907, described delays attributed to his horse's running away and the carriage's being damaged. The letter drew smiles from many a visitor and highlighted the progress of pressure equipment safety through this century.

Both Hon. Stockwell Day, Minister of Labour and Mr. Al. Futcher, Chair of ABSA's Board of Directors spoke on the delegation of ABSA to administer provincial pressure equipment programs in Alberta as a big step forward. Noting the support ABSA receives and the favourable responses from the visitors, one can be certain that this big step is definitely in the right direction.

ABSA wishes to acknowledge support from all for the success of the occasion and in particular, flowers and other decorative gifts from Amoco Canada, Armour Valve, Miller Office Group, Western Rockbit and MB Wolski.

\*\*\*\*\*

### DESIGN SURVEY AND REGISTRATION

One of the programs ABSA administers under the Delegation Agreement is the review and registration of pressure vessel, fitting and pressure piping designs for the province of Alberta. Design submissions are logged into a computer database and Design Survey Engineers are assigned to do the reviews. Generally, the designs are processed in the order they are received by the Design Survey Engineer.

Design drawings are reviewed for compliance with Code requirements. When ABSA's Code calculations do not support the dimensions on the drawings, the client's calculations will be reviewed to find the source of the error. Once the Design Survey Engineer is satisfied that the design meets the regulations, a Canadian Registration Number (CRN) is issued. Sometimes, after consultation with the client, minor errors on the drawings may be corrected and initialled by the Engineer but major errors and multiple minor errors will result in a request for revision and resubmission of the drawings before a CRN can be issued. Design information such as material specifications, head forms and dimensions must be on the drawing,

not in the calculations, which are not shop-level documents.

The most common reasons for vessel design rejection are:

- 1) Missing information on weld sizes, material specifications, etc.
- 2) Inadequate reinforcement of nozzles in shells or heads.
- 3) Misapplication of the rules for exemption from impact testing leading to too low a minimum design metal temperature.
- 4) Inadequate nozzle neck thickness (usually because of threading or corrosion allowance - Ref. UG-45(b)).
- 5) The item shown on the drawing is not the same as the item in the calculations e.g. different materials, dimensions, different head form.
- 6) Manual changes to CAD drawings which do not follow the design control section of the company's QC manual.

Delays are experienced with submissions of fittings because:

- 1) There is no proof of an acceptable QC program vetted by an acceptable third party.
- 2) The standard to which the fittings are to be manufactured is not specified (e.g. "ASME/ANSI" alone is insufficient )
- 3) The Statutory Declaration Form is not countersigned by a Commissioner for Oaths/Notary Public.

Piping designs are most often rejected for:

- 1) Inadequate pipe wall thickness (corrosion allowance not considered).
- 2) Use of unlisted materials such as CSA Z245.1 without proper qualification.
- 3) Wrong flange rating for the specified design temperature.
- 4) Inadequate testing pressures or procedures.
- 5) Incorrect setting of safety valves.

ABSA is fully committed to processing the designs as expeditiously as possible and would like to work with our clients to facilitate this process. We are making a concerted effort to catch up on our backlog over the next few months in order to achieve and maintain a quick response time for our clients in the near future. If you have any questions regarding the review process or have any suggestions which might enhance our service, we would be pleased to hear from you.

### Industry Meetings

A general information meeting will be held by ABSA in Red Deer on July 30 and in Medicine Hat July 31 from 9:00 am till 12:00 noon

Also a meeting for companies requiring information on Owner/User QC programs will be held in Edmonton on September 17 and in Calgary on September 18

For more information please contact our Edmonton and Calgary offices

### Owner/User Summary Report

We are in the process of updating our owner/user quality manual guidelines to reflect current standards and input from clients.

One item that has been included is the provision of a summary report to enable an owner to submit the inspection data for several vessels in a single report, rather than sending individual reports for each item.

We have developed a typical summary report that contains the information needed to update our inspection records. This report must include: the A-number, Owner ID, Item description, Last Inspection Date, Inspection Type (Int. Ext. UT), Comments e.g. condition (Good, Satisfactory, Etc.), Next Inspection Date and PSV data.

We request that summary reports of completed equipment inspections be submitted quarterly. This will ensure that our records are current and will enable us to provide accurate equipment and inspection information lists to our clients. Once we have reviewed and accepted the summary report, a copy, annotated with our signed acceptance, will be returned to the sender. Copies of a typical summary report are available at our offices. The summary report may be presented in any suitable format and we hope we will eventually have the capability to allow our clients to submit this information electronically.



**New Minister of Labour**

On May 31, Hon. Stockwell Day moved on to a new position within the provincial cabinet and Hon. Murray Smith was

appointed Minister of Labour. Murray Smith lives in Calgary and was previously Minister of Economic Development and Tourism. He brings an entrepreneurial spirit and a wealth of workplace experience to his duties as MLA for Calgary-Varsity and Minister of Labour.

The minister, through the delegation agreement with ABSA, is responsible for :

- establishing public safety policy
- considering regulatory changes as proposed by ABSA
- approving ABSA bylaw changes and fee structure
- appointing one of ABSA's board members and the Technical administrator
- hearing appeals and conducting prosecutions of violations of the Safety Codes Act

ABSA staff wish to acknowledge the great contribution and support from Hon. Stockwell Day in his former capacity as Minister of Labour. We welcome Murray Smith to his new position and look forward to working with him in the future.

Correction to  
 Heating Boiler Safety  
 The Pressure News  
 Volume 1, Issue 3, May 1996

In the above article it was stated that heating systems must be repaired by a person who has been authorized by ABSA's Chief Inspector (Administrator). This was intended to apply only for welded repairs to the pressure parts of the boiler.

**Employment Opportunities**

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

**RIG BOILER SAFETY**

Rig boilers are those portable and self-contained (skid mounted and housed) boilers used to produce high pressure steam for use by drilling rigs. These boilers are frequently relocated from site to site along with drilling rigs and associated equipment and are classified as Power Plants under the Safety Codes Act and the adopted codes and standards.

Section 4.2(a) of the Engineers' Regulation states that *"the owner of a power plant shall ensure that it is operated under the continuous supervision of a person who holds a certificate of competency that authorizes the person to undertake the continuous supervision of such a power plant"*. Further, Section 5(6) notes that *"No person other than the holder of a First Class . . . , Fireman's or a Special Oilwell Operator's Certificate of Competency may take charge of a power plant operating on an oil drilling site having an aggregate capacity not exceeding 1000 kW"* (100M<sup>2</sup> of heating surface).

Some of the instrumentation and control devices on rig boilers include:

- 1) Pressure Gauge
- 2) Water level gauge glass and column
- 3) Water level controls
- 4) Automatic low water fuel cutoff device that serves no other purpose. This device shall be installed so that it cannot be rendered inoperative; no isolation valves
- 5) On-off pressure control/modulating control optional
- 6) High-pressure steam fuel cutoff control
- 7) Flame failure / ignition / start-up system
- 8) Safety Valve
- 9) Firing controls to meet applicable regulations ie: NFPA etc.

Installation of Audio/visual alarms is strongly recommended especially for low water level situations when the firing shutdown device/control fails to shut the fuel off. Similarly, these boilers should be equipped with dual pressure controls; this is a mandatory requirement for operation in Saskatchewan.

For the *Water Level Gauge Glass and Column*, Section I of the ASME Code states that for horizontal firetube boilers the lowest visible portion of the gauge glass (top of the bottom gauge glass nut) shall be at least 3" above the highest point of the tubes, flues or

crowns-sheets. Any deviations from this requirement must be reviewed by your local ABSA inspector.

*Safety valves* must have the required Canadian Registration Number (CRN) for Alberta in addition to manufacturers' serial number, set pressure and capacity in lb/hr and the ASME Code "V" stamp on the nameplate. In accordance with code requirements, safety valves must be installed as close as possible to the boiler without unnecessary pipe & fittings and not more than the face to face dimensions on the corresponding tee fitting of the same diameter. Accordingly, as an example, for an NPS 2 PSV inlet, this distance shall not exceed 5 inches.

A *discharge pipe* from the pressure relief valve which is horizontal to the side wall of the building may pose a physical hazard to the operators and other personnel. In such cases, to meet the requirements of PG.71.3, a vertical or 45 degree offset is recommended. Discharge piping must be adequately supported and provided with sufficient drainage points.

*Blowdowns* from these boilers usually do not enter a sewer system and a blowdown tank constructed to CSA B-51 is not mandatory. The question of personal safety arises during the blowdown period and safety procedures must be developed. An example would be with two operators, one inside to carry out the blow down operation and one outside to warn others to stay away. A perforated pipe as the last section of the blowdown line is installed in some cases. In that situation the area of the perforations must be greater than the cross sectional area of the pipe to minimize any restriction of flow. Also, a series of guard rails would be a good preventive safety measure.

Rig boilers have to undergo internal *inspection* and are subject to a *hydrostatic test* (1.5 X MAWP) annually unless circumstances such as hours of use justify otherwise (consult with the ABSA inspector). A Certificate of Inspection from ABSA is necessary to meet both AEUB (previously ERCB) and ABSA requirements. Owners are advised to arrange for inspections when units are in locations close to ABSA offices to avoid travel time and mileage costs.

Safety valves for rig boiler applications normally need to be serviced by an ABSA - authorized safety valve

*(Continued on page 4)*

(Continued from page 3)

servicing organization every year. Extension of this interval to a maximum of two years may be permitted by an ABSA inspector with proper documentation and justification.

In the operation of these boilers, usually there are no condensate returns and no softeners are available; these boilers are fed 100% raw feed water. ABSA strongly recommends a boiler water treatment consultant be contracted to advise the type and amount of water treatment to be used.

Historically, some of the problems revealed from inspections are:

- 1) Incorrect valves not suitable for power boiler application.
- 2) Excessive quantities of scale requiring expensive cleaning.
- 3) Lack of required controls, especially high pressure fuel cutoffs.
- 4) Leakage and/or Overheating due to poor maintenance of controls and operational procedures
- 5) Excessive quantities of soot as a result of poor combustion
- 6) Lack of PSV exhaust pipe supports & drainage of the pipe required to prevent freezing.
- 7) Leakage of steam & water causing deterioration of external cladding and resultant corrosion of the boiler's external shell. This may result in expensive repairs.
- 8) Leakage around manway & handhole covers which again, may result in expensive repairs.

The Safety Codes Act with the associated regulations and the adopted codes and standards have been formulated to ensure a reasonable level of personnel safety and to minimize the downtime and expensive repairs resulting from poor construction, operation or maintenance of these boilers. Water will expand to over 1600 times its volume as steam at the operating pressures of these boilers and the potential energy release could be catastrophic to say the least. One only needs to check the history books for the results of high pressure boiler failures to confirm that it pays to look after your rig boiler.

### National Board Announced WEBSITE

The National Board of Boiler and Pressure Vessel Inspectors announced the Internet site as "http://www.nationalboard.org". Information on the National Board and its jurisdiction members on this site will be of particular interest to those proposing to register data report with the National Board or export equipment to other jurisdictions.



### ABSA's Work Force Examiner

Vaughan Ellis became responsible late last year for the delivery of the examination department

programs, including the Power Engineers' and the Safety Code Officers' examinations as well as the written pressure welders' examinations. Vaughan also assumes the duties and functions of the Coordinator of Examinations position within the Standardization of Power Engineers' Examinations Committee (SOPEEC) which is an interprovincial committee setting the standards for Power Engineers' competency evaluations. He joined ABSA with considerable senior administrative experience and holds a First Class Power Engineer's certificate and is a Certified Engineering Technologist. If you have any specific questions with respect to our overall program please contact our examinations department at (403)433-0281 Ext. 320 or Ext. 321.

### Contents

Message from CEO .....	1
Opening of ABSA Head Office .....	1
Design Survey and Registration .....	2
Owner/User Summary Report .....	2
New Labour Minister .....	3
Correction to Heating Boiler Safety .....	3
Rig Boiler Safety .....	3
ABSA's Work Force Examiner .....	4

### ABSA OFFICES

**Edmonton - Head Office**  
#200, 4208 - 97 Street  
Edmonton, Alberta T6E 5Z9  
Tel (403) 437-9100  
Fax (403) 437-7787

**Calgary**  
Tower 3, #590 1212-31 Avenue N.E.  
Calgary, Alberta T2E 7S8  
Tel (403) 291-7070  
Fax (403) 291-4545

**Grande Prairie**  
3rd Floor, 10320 - 99 Street  
Grande Prairie, Alberta T8V 6J4  
Tel (403) 538-8004  
Fax (403)538-5462

**Lethbridge**  
3rd Floor, 200 - 5 Avenue South  
Lethbridge, Alberta T1J 4C7  
Tel (403)381-5423  
Fax (403)382-4428

**Medicine Hat**  
Main Fl., 346 - 3rd Street S.E.  
Medicine Hat, Alberta T1A 0G7  
Tel (403)529-3520  
Fax (403)529-3623

**Red Deer**  
#402, 4406 Gaetz Avenue  
Red Deer, Alberta T4N 3Z6  
Tel (403) 341-6677  
Fax (403) 341-3377

**St. Paul**  
Room 407, 5025 - 49 Avenue  
St. Paul, Alberta T0A 3A4  
Tel (403)645-6350  
Fax (403)645-6352

**Internet address**  
<http://www.freenet.edmonton.ab.ca/absa>

This Newsletter is a publication of Alberta Boilers Safety Association (ABSA). ABSA grants readers permission to make photocopies of this Newsletter for non-profit distribution to employees and business associates.



Alberta Boilers Safety Association  
#200, 4208-97 Street  
Edmonton, Alberta  
T6E 5Z9

### MAIL POSTE

Canada Post Corporation / Société canadienne des postes

Postage Paid

Port payé

Bik

Nbre

0398221199

Edmonton, Alberta