

**DISCUSSION ON
REVISED BOILER AND PRESSURE VESSEL
REGULATIONS**

**LICENSING AND INSPECTIONS BRANCH
DEPARTMENT OF CORRECTIONS AND PUBLIC SAFETY
PROVINCE OF SASKATCHEWAN**

DECEMBER 7, 2006

INTRODUCTION

The Boiler and Pressure Vessel Act and its eight sets of associated regulations have been in effect with minimal amendment since the 1950's and are significantly outdated. In 1998 stakeholder consultations were undertaken on a proposed framework for the reform of the boiler and pressure vessel regulatory regime. As a result *The Boiler and Pressure Vessel Act, 1999* was developed, passed in the spring 1999 session of the legislature, and received Royal Assent on April 21, 1999. Proclamation of this Act and the new Regulations will take effect on January 1, 2007.

The 1999 Act does not change existing core regulatory program components that are essential for an effective public safety regulatory regime. However, it does provide a revitalized framework for the way in which these program components may be administered and enforced through the regulations. The new framework has also relocated the more detailed technical requirements of the regulatory system to the regulation. It has thus been necessary to update the regulations to ensure that policy and practices are aligned and reflect current standards and technology.

The new regulations consolidate the following eight separate sets of regulations, which are currently in force and will be simultaneously repealed on January 1, 2007:

- Sask. Reg. 262/67: *The Regulations Respecting the Design, Construction, Installation and Use of Boilers and Pressure Vessels;*
- Sask. Reg. 97/70: *The Regulations Respecting Examinations and Certificates of Engineers and Firemen;*
- Sask. Reg. 97/70: *The Regulations Pertaining to Liquefied Propane Pressure Vessels and Distributing Plants;*
- Sask. Reg. 99/90: *The Regulations Respecting Compressed Gas Pressure Vessels;*
- Sask. Reg. 311/77: *The Regulations Respecting Examinations and Certificates of Engineers and Fireman;*
- Sask. Reg. 361/77: *The Regulations Respecting Anhydrous Ammonia;*
- Sask. Reg. 61/78: *The Regulations Respecting the Welding of Boilers, Pressure Vessels and Pressure Piping;* and
- *The Boiler and Pressure Vessel Fees Regulations, 1981.*

The 1999 Act provides the enabling authority for core program areas currently found within the existing regulations related to:

- licensing of persons who construct, install, alter, repair, weld, operate or inspect regulated equipment;
- setting standards for the design, registration, and construction of regulated pressure equipment, including welding procedures and quality system manuals;
- permitting, acceptance, and in-service inspection of pressure equipment installations;
- operation of boilers and refrigeration plants;
- examination and certification of boiler operators, pressure welders and pressure equipment inspectors;
- enforcement authority and penalties; and
- establishing a Boiler and Pressure Vessels Safety Board to provide due process for appeals against decisions of the Chief Inspectors

OVERVIEW OF SIGNIFICANT CHANGES TO THE REGULATORY REGIME

Equipment Exemptions

Section 3(1) of *The Boiler and Pressure Vessel Act*, 1999 in conjunction with Section 3 of the new regulations lists a number of exemptions to eliminate potential jurisdictional overlap and small capacity, low risk equipment types. Specific exemptions are listed within 'Annex A'.

Design Review and Registration

The new regulations support the adoption of the latest edition of the applicable codes and standards with very few exceptions. While design review and registration of equipment designs continues to be prescribed, exemptions to registration are provided where:

- The equipment is ASME Code Certified and stamped, and registered with the National Board of Boiler and Pressure Vessel Inspectors and the data report is filed and registered with the Department.
- The equipment is registered by the provincial/territorial jurisdiction in the province/territory of manufacture, is inspected by an inspector employed by that jurisdiction and the data report is filed and registered with the Department.

- Pressure piping systems of 0.5m³ capacity or less are exempt from registration.
- Standard fitting categories A, B and C and capacity certified categories G (Pressure Relief Devices) are exempt from registration.
- Fittings registered with a central registry operated by Canadian Standards Association are exempt from registration.

All pressure piping designs exceeding 0.5m³ require drawings to be stamped and signed by a professional engineer. This is prescribed to ensure appropriate engineering input and professional accountability.

Welding Procedures

Currently welding procedures submitted for registration must be qualified by the manufacturer or contractor based upon the physical testing of welded coupons. Provisions have been incorporated in the regulations to accept for registration certain “pre-qualified” procedures, which are commercially available from the American Welding Society (AWS) at reasonably low cost.

Welder Certification and Testing

Under the new regulations, two new licence categories are being introduced. Licenses could be issued without testing to holders of valid certificates issued by other provinces. Welders are no longer required to maintain a valid ‘basic’ SMAW F3/F4 licence in order to be able to test using other welding processes and filler metals. As well, manufacturers or contractors with appropriately licensed quality control programs would be able to re-test welders they employ.

Boiler Capacity and Operator Attendance Requirements

With respect to high and low pressure boiler plant capacity, capacity for high pressure boiler plants would be calculated on the aggregate capacity of all boilers installed into a common system. For low pressure boiler plants, capacity would be calculated on the basis of the capacity of the largest boiler installed. Under the previous regulations, capacity for both high and low pressure boiler plants were calculated on the basis of aggregate capacity of all boilers connected to the common system. This frequently resulted in unrealistic personal attendance requirements on low pressure boilers.

In the area of exemptions from operator attendance, there are no current exemptions for high pressure boilers or plants, and exemptions for low pressure boilers or plants exist for boilers or plants less than 300 kilowatts. The new regulations would introduce an exemption for high pressure boilers or plants of 150 kilowatts or less and increase the exemption for low pressure boilers or plants to 500 kilowatts or less.

With respect to operator attendance, three new categories of attendance requirements would be introduced: continuous supervision, periodic supervision and general supervision. The Chief Inspector would have the authority to authorize different

categories of supervision according to the capacity of the plant and subject to the installation of prescribed safety controls.

Currently, log books are not required. The new regulations would require log books when operator supervision is mandatory.

Power Engineers' Examinations

Current regulations impose a minimum pass mark of 60% for any exam and an overall average of 70% for all 1st and 2nd Class certifications. Under the new regulations, the averaging would be eliminated and a standardization of 65% as a minimum pass mark would be required for all exams. This change is being introduced in order to maintain consistency with other provinces and territories participating in the interprovincial Standardization of Power Engineering Examinations Committee (SOPEEC).

In-Service Inspections

Currently, inspections can only be performed by inspectors employed by the provincial government. Under the new regulations, inspections would continue to be performed by provincial inspectors except under the provisions of a Quality Management System of Inspections. Inspection frequencies would be prescribed.

Quality Management System of Inspections

The program would be voluntary. Owners or insurers with a registered Quality Management System employing licenced inspectors would be permitted to inspect equipment they own or insure. Department inspectors would periodically audit the implementation of the Quality Management System of inspections. The quality program authorization would be valid for three years

Three new certificates of authorization are now available, which would allow for varying levels of inspection according to established authorization certificates or registered designs.

Inspection intervals on equipment administered under a Quality Management System may exceed prescribed inspection frequencies subject to an approved risk-based inspection program.

Due Process and Appeals

Under the 1999 Act, the Boiler and Pressure Vessel Safety Board was established to hear appeals against a decision of the Chief Inspector. The Board membership must include registered professional engineers experienced in and representing owners of boilers and pressure vessels, as well as board members representing manufacturers, trade unions, and faculty members teaching power engineering.

Fees

There have been no increases in fees carried over from existing regulations. In order to address industry's requests for providing additional services at the request of the stakeholder, additional fees for 'demand' and 'special' inspections and services have been introduced.

Payments Due At the Time of Application for Services

Payments for examinations, licenses, and certifications are now due at the time of application. Licensing and Inspections is now equipped to receive credit/debit card payments.

Licence to Operate

Owners of boilers, pressure vessels, and refrigeration plants are now required to apply for a licence prior to June 30 of each calendar year. Renewal applications for these licenses will be issued by our department in the Spring of each year.

ANNEX A

LEGISLATIVE EXEMPTIONS

Through *The Boiler and Pressure Vessel Act 1999*:

- a) a pressure vessel that is used for the transportation of dangerous goods as defined in the *Transportation of Dangerous Goods Act, 1992* (Canada);
- b) a boiler or pressure vessel to which the *Canada Shipping Act* applies or that is subject to the jurisdiction of the Canadian Transportation Agency pursuant to the *Canada Transportation Act*;
- c) a pipeline as defined in *The Pipelines Act, 1998*;
- d) gas equipment or a gas installation as defined in *The Gas Licensing Act*;
- e) a boiler that is used in connection with a hot liquid heating system that has no valves or other obstructions to free circulation between the boiler and an expansion tank that is fully vented to the atmosphere;
- f) a high pressure boiler that has a heating surface with an area of two square metres or less;
- g) a low pressure boiler that has a heating surface with an area of three square metres or less;
- h) a pressure vessel that has a volume of 0.0425 cubic metres or less;
- i) a pressure vessel that has an internal diameter of 152 mm or less;
- j) a pressure vessel that is used for the storage of hot water and has an internal diameter of 610 mm or less;
- k) a pressure vessel or pressure piping system that operates at, and has pressure relief valves set at, a pressure of 103 kpa or less;
- l) a pressure vessel that is intended to be installed in a closed hot water heating system, that has a working pressure of 207 kpa or less and that has an internal diameter of 610 mm or less;
- m) a pressure vessel that is used exclusively for hydraulic purposes at atmospheric temperature;
- n) a pressure vessel that is designed for human occupancy;
- o) a refrigeration plant that has a capacity of three tonnes or less of refrigeration in 24 hours; and
- p) any class of boilers, pressure vessels, plants, pressure piping systems or fittings that is designated in the regulations.

Through the *New Boiler and Pressure Vessel Regulations*:

- a) pressure piping systems that:
 - contain hot water at a pressure of 1103 kpa or less or at a temperature of 121C or less; and
 - form part of a low pressure boiler plant;
- b) pressure piping systems that are not connected to, or used in connection with, a boiler or pressure vessel;
- c) medical gas piping systems;
- d) air piping with a diameter of 25.4 mm or less;
- e) any of the following types of pressure vessels that are used in connection with a pipeline as defined in *The Pipelines Act, 1998*:
 - odourizer tanks;
 - dust pots;
 - gas drips;
 - storage tanks for hydraulic valve operators;
 - pig traps;
 - indirect fired heater coils;
- f) potable water heaters with an internal diameter greater than 610 mm that:
 - operate at a pressure not exceeding 1103 kpa;
 - have a heat input not exceeding 58.67 kw;
 - produce a water temperature not exceeding 99C; and
 - have a water capacity not exceeding 454 litres;
- g) pressure vessels used as the external enclosure of pressurized gas-filled electrical high voltage switch gear or control gear;
- h) low pressure boilers installed in a private residence designed to accommodate not more than three families.