



**Labour and  
Workforce Development**

# **Consultation Paper**

Proposed amendments to the  
**Power Engineers Regulations**  
under the *Crane Operators and Power Engineers Act*

to create the new  
**Power Engineers Regulations**  
under the *Technical Safety Act*

**October 2008**

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# I Introduction

## Background

Industry sectors have told us that there is need to address existing technical safety legislation in light of advanced technology, and modern standards and industrial practices. It became clear to the Department that in order to sustain and improve the Province's level of technical safety, while at the same time responding to innovation and modernization, changes had to be made. The Department responded to industry's concerns by committing to a comprehensive review of technical safety legislation in Nova Scotia.

The focus of the review is on a modernized framework and how it may be streamlined to reflect technological change, improve consistency, and meet the needs of a changing economy now and in the future, while ensuring that minimum regulated safety standards are achieved. The intention is to develop a flexible, risk-managed, and results-based legislative framework, which provides for clear responsibilities and accountability.

The Minister's stakeholder Advisory Group on Technical Safety made 19 recommendations to the Minister for a modernized technical safety framework. In particular, the Advisory Group recommended that the following Acts be consolidated into one Act for technical safety: *Amusement Devices Safety Act*; *Crane Operators and Power Engineers Act*; *Electrical Installation and Inspection Act*; *Elevators and Lifts Act*; *Steam Boiler and Pressure Vessel Act*. The creation of the new Act would initially consolidate the *Steam Boiler and Pressure Vessel Act* and the *Crane Operators and Power Engineers Act*: and complement -- but not replace -- the other above-named Acts until future phases of the review. As well, the Advisory Group recommended that the consolidated Act become the enabling legislation for the *Fuel Safety Regulations* (which are currently under the *Fire Safety Act*). The fuel safety discipline, being technical in nature, has a more appropriate fit under the proposed new Act.

The new *Technical Safety Act* was passed during the Spring 2008 session of the House of Assembly and will receive proclamation (take effect) once new regulations for steam boilers and pressure equipment, crane operators, power engineers, and fuel safety, as well as regulations for general matters, fees, and standards, are made under the new Act. This may take place in early 2009.

The Technical Safety Review Project is part of the Better Regulations, and Competitiveness and Compliance Initiatives: programs to improve regulatory systems and achieve better compliance. Meaningful consultation with stakeholders will take place throughout the entire regulatory review process. Most of the changes to the regulations are to align with the new Act.

## Current Situation

The *Power Engineers Regulations* were created pursuant to the *Crane Operators and Power Engineers Act*. The Regulation was revised in April 2007 as an accelerated phase of the technical safety review. Most of the changes to the *Power Engineers Regulations* were minor. They were intended to add clarity, reflect advances in technology, and adopt the latest versions of standards or codes. Some definitions were added or amended to achieve greater clarity on the intent of the regulations.

As a result of the introduction of the new *Technical Safety Act*, a re-write of the current regulation is required to complement the pending repeal of the *Crane Operators and Power Engineers Act*. The proposed new *Power Engineers Regulations* largely reflects what is currently practiced by industry, and encouraged by the inspectorate, in the field. Under the new *Technical Safety Act*, the inspectors will have the power and authority to enforce these practices.

The proposed changes to the current regulation that will be reflected in the new Regulations are summarized in Part III of this paper. Draft regulations are provided in Part IV. Part III discusses the significant proposed changes to the new regulations and describes why the changes were needed. Some highlights include:

- *excluding certain coiled tube boilers from plant registration*
- *allowing reduced supervision of indirect systems*
- *clarifying requirements for unsupervised plants*
- *introducing power engineers and plant operator licences*
- *removing the appeal provisions (to be replaced by provisions in new Act)*
- *removing Board provisions (to be replaced by new Advisory Board and sub-committees)*
- *moving fees, and references to standards, to separate regulations.*

These changes and others are described in more detail in the following pages.

The Department is aiming to implement the new *Power Engineers Regulations* by early 2009.

## II Submissions

The purpose of this consultation paper is to invite you to comment on the proposed changes to the current regulation, as outlined in Part III and detailed in Part IV. Your response is valuable to us. Please provide your feedback **in writing** to the Department of Labour and Workforce Development by **4:30 p.m. on November 3rd, 2008**.

When providing your feedback on a proposed change to the regulation as listed in Part III, please quote the item number and the title of the item. For example, if providing feedback on the reduced supervision of indirect systems, please quote “#2 Reduced Supervision of Indirect Systems”. When providing feedback on a specific provision of the draft regulations in Part IV, please quote the section number / clause letter. For example, if providing feedback on the draft definition of “boiler plant”, quote “2(f)”.

Submissions should be forwarded to:

Mail / Hand-delivery: Power Engineers Regulations  
c/o Lia Thibault  
Department of Labour and Workforce Development  
5151 Terminal Road, 5<sup>th</sup> Floor  
P.O. Box 697  
Halifax, Nova Scotia B3J 2T8

Fax: (902) 424-0575

E-mail: [lwdpolicy@gov.ns.ca](mailto:lwdpolicy@gov.ns.ca) (please include the title of the regulation in the subject line of your e-mail)

Any questions you may have in relation to the proposed changes may be directed to:

Joseph Simms  
Acting Chief Inspector, Power Engineers  
Public Safety Division  
Department of Labour and Workforce Development  
5151 Terminal Road  
P.O. Box 697  
Halifax, NS B3J 2T8

Phone: (902) 424-8492  
E-mail: [simmsjf@gov.ns.ca](mailto:simmsjf@gov.ns.ca)

**Thank you for taking the time to provide us with your feedback.**

### III Proposed Amendments to the Regulations

The proposed changes to the *Power Engineers Regulations* to create new regulations under the *Technical Safety Act* aim to achieve the following:

- reflect what is actually practiced
- formalize practices for enforcement
- adopt the latest versions of standards or codes used in the industry
- amend / add definition to achieve greater clarity on the intent of the regulations
- increase flexibility, by reducing or removing unnecessary requirements.

The proposed changes to the regulations are described in more detail below:

#### 1. Application

##### *Coiled tube boilers*

The regulations establish threshold limits where high pressure and low-pressure coiled tube boilers no longer require plant registration.

#### 2. Reduced Supervision of Indirect Systems

An indirect system, such as a typical arena, may qualify for reduced supervision. Typically, arenas do not expose the general public to hazards such as ammonia, resulting in a low risk environment. As such, the power rating limits for these plants can be raised, allowing an indirect system to meet periodic or minimum supervision requirements. It should be noted that an indirect system must meet the requirements of CSA B52-05, *Mechanical Refrigeration Code* to be operated under reduced supervision.

#### 3. Clarification

##### a. Definition of trainee

The term “trainee” is currently defined as a person who is in training for certification. This definition has caused confusion because it appears to capture those power engineers who have already obtained certification in a class (i.e. 3<sup>rd</sup>), but are in training for a higher class.

The intent is that once a trainee meets the minimum certification requirements for the size of the plant, they are no longer trainees. A “trainee” is now defined to include a person who is in training for “initial” certification. This would include a person who does not meet the minimum requirements of a plant’s certification such as a 4<sup>th</sup> Class Power Engineer working in a 1<sup>st</sup> Class boiler plant.

As well, a provision has been added (see subsection 47(7) in draft regulation below), requiring an owner to submit to the Chief Inspector the training program for the trainee, if they are not in the Apprenticeship program.

b. Unsupervised plant - self-contained unit

The requirements for the operation of a refrigeration plant as a unsupervised plant have been clarified to accommodate a self-contained unit, such as a rooftop chiller unit. The risk associated with this type of unit is minimal, making the unit eligible for reduced supervision.

### 3. Licence To Do Work

A licence to do work in the Province as a plant operator or power engineer will be required. The licence will essentially replace the current renewal of Certificate of Qualification (CQ). The CQ will remain valid forever; however, a licence will be required to do work. Upon application for a renewal of a CQ, a new CQ with no expiry date, along with a licence, will be issued. There will be a multi-year licensing scheme for both initial licences and renewals.

### 4. Other Changes

a. Adoption of codes and standards

The adoption of codes and standards will appear as a separate regulation and will be made mandatory through Ministerial Order. In other words, under the new *Technical Safety Act*, the Minister has the power to make regulations by adopting codes and standards.

b. Appeal process replaced

The *Technical Safety Act* establishes a new and efficient appeal process. A review by the Administrator may be requested, or an appeal may be made to the Appeal Board. The Act names the Utility and Review Board (UARB) as the Appeal Board. However, if it is later decided that a body other than the UARB should have the authority to hear appeals under the new Act, regulations may be made to create a new Appeal Board.

c. Power Engineers and Operators Board

Provisions creating and governing the Board have been replaced by the creation of a Technical Safety Advisory Board under the new Act. The Advisory Board has the power to create sub-committees for the purposes of providing advice on specific technical matters. As such the Board will continue as a sub-committee of the new Advisory Board.

d. Fees

Fees imposed will appear as a separate regulation. There will be no changes to fees until a full evaluation is conducted at a later date.

Part IV is a draft regulation for your review. The draft regulation is for discussion purposes only, and does not represent the final policy direction of the Department.

To provide feedback to the Department on the proposed changes to the *Power Engineers Regulations*, please see **Part II – Submissions**, on page 5.

## **Part IV - Draft Power Engineers Regulations**

***The following version of the Power Engineers Regulations is unofficial. It has been prepared for discussion purposes only, and is subject to change.***

### ***Power Engineers Regulations***

#### **Short Title**

**1** These regulations may be cited as the *Power Engineers Regulations*.

#### **Definitions and Interpretations**

**2** In these regulations,

- (a) "Act" means the *Technical Safety Act*;
- (b) "apprentice" means an apprentice registered pursuant to the *Apprenticeship and Trades Qualifications Act* and enrolled in a program under that Act to qualify for a PE Certificate of Qualification to qualify to perform the regulated work of a power engineer or an plant operator;
- (c) "assistant shift plant operator" means a plant operator or power engineer who holds a type and class of PE Certificate of Qualification at least equivalent to 1 class lower than is required for the shift plant operator and who, under the supervision of a shift plant operator or shift power engineer, operates or is responsible for a section of a refrigeration or compressor plant;
- (d) "assistant shift power engineer" means a power engineer who holds a type and class of PE Certificate of Qualification at least equivalent to 1 class lower than is required for the shift power engineer and who, under the supervision of a shift power engineer, operates or is responsible for a section of a plant;

- (e) "automatic control" means a device that starts, stops and modulates the action of a plant without the intervention of a person;
- (f) "boiler plant" means, for the purposes of these regulations, a single boiler that is
  - (i) a power boiler, with a TPPR of more than 500 kW,
  - (ii) a high pressure coiled tube boiler with a water volume of more than 284 litres and a TPPR of more than 500 kW,
  - (iii) a heating boiler, with a TPPR of more than 1500 kW, or
  - (iv) a low pressure coiled tube boiler with a water volume of more than 568 litres and a TPPR of more than 1500 kW;
- (g) "chief plant operator" means a plant operator or a power engineer who has charge of and responsibility for the safe operation of a refrigeration or compressor plant;
- (h) "chief power engineer" means a power engineer who has charge of and responsibility for the safe operation of a regulated plant;
- (i) "coiled tube boiler" means a boiler equipped with one or more coils or tubes with forced water circulation but without a storage tank submitted to flame action;
- (j) "compressor plant" means an installation consisting of pressure vessels, pipes, fittings, machinery or other equipment used for compressing and storing air or other gas under pressure that;
  - (i) uses any type of compressor with a TPPR of more than 350 kW for compressing air or any other non-flammable or non-toxic gas, except oxygen; or
  - (ii) uses any type of compressor with a TPPR of more than 37.5 kW for compressing a flammable or toxic gas or oxygen;
- (k) "continuous supervision" means, in relation to a regulated

plant, that a power engineer or plant operator is located

- (i) in the plant within the audible and visual range of the alarm system for the plant, and
  - (ii) in the primary control area of the plant where they can manually control the plant by starting, stopping, restarting or modulating the operations of the plant;
- (l) "direct supervision" means, in relation to a trainee at a regulated plant, that the power engineer or plant operator who is supervising the trainee is physically in the plant, has control over the trainee's activities, instructs and directs the trainee and is in direct communication with the trainee whenever they are performing the duties of a power engineer or plant operator;
- (m) "expansible fluid" means either
- (i) a vapour or gaseous substance, or
  - (ii) a liquid under a pressure and temperature such that the liquid will change to a gas or vapour when the pressure is reduced to atmospheric pressure;
- (n) "extended alarm system" means an alarm system that
- (i) extends beyond the room that houses the plant,
  - (ii) audibly and visually warns the power engineer, plant operator or any other person in the vicinity of the plant of the occurrence of any abnormal operating condition of the plant, and
  - (iii) cannot be shut off until the abnormal condition is rectified or the plant is shut down;
- (o) "fired" means, in relation to a boiler, that the boiler contents are heated by electricity or the product of combustion of a fuel;
- (p) "Group A1" means a Group A1 refrigerant as defined and classified in the PE Standards;
- (q) "Group A2" means a Group A2 refrigerant as defined and classified in the PE Standards;

- (r) "Group A3" means a Group A3 refrigerant as defined and classified in the PE Standards;
- (s) "Group B1" means a Group B1 refrigerant as defined and classified in the PE Standards;
- (t) "Group B2" means a Group B2 refrigerant as defined and classified in the PE Standards;
- (u) "Group B3" means a Group B3 refrigerant as defined and classified in the PE Standards;
- (v) "guarded" means, in relation to a regulated plant, that the plant is equipped and maintained in accordance with the requirements of these regulations so that it functions automatically under a continuously attended monitoring system;
- (w) "heating boiler" means
  - (i) a fired steam boiler equipped with a safety valve designed to operate at pressures of less than 103 kPa (15 psig), or
  - (ii) any fired high temperature hot water boiler designed to operate at pressures of more than 1100 kPa (160 psig) or with a water temperature at any boiler outlet of more than 121 °C (250°F);
- (x) "indirect system" means a system in which a secondary coolant that is cooled or heated by a refrigeration system is circulated to the air or other substance to be cooled or heated;
- (y) "Inter-provincial Certificate of Qualification" means a PE Certificate of Qualification granted by the PE Chief Inspector to an individual who has successfully completed the examinations prepared by the Standardization of Power Engineers Examinations Committee, established by the Association of Chief Boiler and Pressure Vessel Inspectors, in recognition of the individual's qualifications to perform the type of regulated work covered under the type and class of the PE Certificate of Qualification and as recognized by these regulations;

- (z) "log book" means a bound book with numbered pages or a record kept in an electronic format approved by the PE Chief Inspector used for keeping a record of plant operations and maintenance;
- (aa) "minimum supervision" means, in relation to a regulated plant, that a power engineer or plant operator manually starts the plant when the plant is not operating under automatic control;
- (ab) "PE Advisory Subcommittee" means the Power Engineers Advisory Subcommittee as established in the *Technical Safety General Regulations*;
- (ac) "PE Certificate of Qualification" means an Inter-provincial or Provincial Certificate of Qualification granted by the PE Chief Inspector to an individual in recognition of the individual's qualifications to perform the type of regulated work covered under the type and class of PE Certificate of Qualification and as recognized by these regulations, and it is a certificate of competency for the purposes of the Act;
- (ad) "PE Chief Inspector" means an individual appointed as the Power Engineer Chief Inspector for the purposes of these regulations and is a chief inspector for the purposes of the Act;
- (ae) "PE Fee" means the fee for a Power Engineer Section service provided by the Province as set by the Minister under the *Technical Safety Fees Regulations*;
- (af) "PE Inspector" means an individual appointed as a Power Engineer Inspector for the purposes of these regulations, includes the PE Chief Inspector and is an inspector for the purposes of the Act;
- (ag) "PE License" means a license granted by the PE Chief Inspector to an individual to authorize the license holder to operate a regulated plant or perform type of regulated work covered in the class of the license and specified in the terms and conditions of the license.
- (ah) "PE Standard" means a standard for power engineers or plant operators adopted in the Province by the Minister under the *Technical Safety Standards Regulations*;
- (ai) "periodic supervision" means, in relation to a regulated plant,

that a power engineer or plant operator

- (i) is located on the plant site within range of the extended alarm system for the regulated plant whenever the plant is being operated and any building containing or serviced by the plant is occupied, and
  - (ii) manually starts the plant whenever the regulated plant is not operating under automatic control;
- (aj) "plant operator" means an individual who holds a class of PE License pursuant to these regulations required to perform the type of regulated work covered in the class of the PE License and specified in the terms and conditions of the license;
- (ak) "plant registration certificate" means a certificate issued by the PE Chief Inspector to the owner of a regulated plant that displays the class, rating, plant supervision requirements, and class of PE License necessary for the chief and shift power engineer or plant operator;
- (al) "plant site" means the regulated plant and the property on which the plant is situated that is leased or owned by the owner but does not include property that is separated by a public access route;
- (am) "power boiler" means any fired or unfired steam boiler equipped with a safety valve designed to operate at more than 103 kPa (15 psig);
- (an) "power engineer" means an individual who holds a class of PE License pursuant to these regulations required to perform the type of regulated work covered in the class of the PE License and specified in the terms and conditions of the license;
- (ao) "pressure vessel" means a vessel or other apparatus, other than a boiler, having
- (i) a diameter of more than 152mm(6 inches), and
  - (ii) a capacity of more than 0.043 cu meters (1.5 cu ft.), and
- that is or may be used for containing, storing, distributing, transferring, distilling, processing or otherwise handling gas, air or liquid at a pressure of more than 103 kPag (15 psig);

- (ap) "Provincial Certificate of Qualification" means a PE Certificate of Qualification granted by the PE Chief Inspector to an individual in recognition of the individual's qualifications to perform the type of regulated work covered under the type and class of PE Certificate of Qualification and as recognized by these regulations;
- (aq) "refrigeration" means the thermodynamic process of using a refrigerant to lower the temperature of an item or an area and maintain it at the lower temperature;
- (ar) "refrigeration plant" means, for the purposes of these regulations, a refrigeration installation that
  - (i) is located in a public assembly, institutional or residential occupancy as defined in the PE Standards and consists of a refrigeration circuit
    - (A) containing a Group A1 or B1 refrigerant and having a TPPR of more than 75 kW, or
    - (B) containing a Group A2, A3, B2 or B3 refrigerant and having a TPPR of more than 37.5 kW; or
  - (ii) is located in a commercial or industrial occupancy as defined in the PE Standards and consists of a refrigeration circuit
    - (A) containing a Group A1 or B1 refrigerant and having a TPPR of more than 150 kW, or
    - (B) containing a Group A2, A3, B2 or B3 refrigerant and having a TPPR of more than 37.5 kW;
- (as) "regulated plant" means a boiler plant, refrigeration plant, compressor plant or any part of a plant within the scope of these regulations;
- (at) "self contained system" means a complete factory made and factory tested system, in a suitable frame or enclosure, that is fabricated and shipped in one or more sections and does not have refrigerant containing parts connected in the field other than by companion or block valves;

- (au) "shift power engineer or shift plant operator" means a power engineer or plant operator who has charge of and operates a regulated plant under the direction and supervision of a chief power engineer or chief plant operator and who is the holder of a type and class of PE License at least equivalent to 1 class lower than the class of PE License required for the chief power engineer or chief plant operator;
- (av) "supervision" means, in relation to an individual in a regulated plant other than a trainee, that the power engineer or plant operator who instructs and directs the individual is also responsible for their actions at the plant and provides assistance and support to them;
- (aw) "TPPR" means the total plant power rating as measured in kilowatts (kW);
- (ax) "trainee" means an individual in a training program and actively pursuing an initial class of PE Certificate of Qualification to perform the regulated work of a power engineer or an plant operator, and includes an apprentice;
- (ay) "unfired" means, in relation to a boiler, that steam is generated in the boiler without the combustion of a fuel or the direct application of an electrical heat source;
- (az) "unsupervised plant" means, in relation to a regulated plant, that the plant may be operated without a power engineer or plant operator.

### **Application**

- 3**
- (1) A boiler plant, refrigeration plant, compressor plant, or any part or section of a regulated plant referred to in these regulations are prescribed as included in the definition of regulated product for the purposes of the Act and these regulations.
  - (2) Work as or duties of a power engineer or plant operator are prescribed as activities included in the definition of regulated work for the purposes of the Act and these regulations.
  - (3) Notwithstanding subsections (1) and (2), the following are exempt from the scope of the Act and these regulations
    - (a) workers engaged in installing, setting up or testing any plant or

equipment prior to the plant's registration;

- (b) workers setting up or testing equipment which is part of a regulated plant while under the supervision of a licensed power engineer or plant operator;
- (c) railways operating under an enactment of the Parliament of Canada or the Province;
- (d) centrifugal blowers used in an application in which the air or other non-flammable or non-toxic gas is not stored under pressure; or
- (e) any kind of plant situate on a vessel floating on navigable waters to which the *Canada Shipping Act* applies.

## **REGULATED PRODUCTS**

### **Rating of Plant Equipment**

#### **Power rating**

- 4** (1) The rating of a regulated plant must be determined by the PE Chief Inspector in accordance with this Section.
- (2) Except as provided in subsection (3), the power rating for any boiler must be determined by dividing the maximum heat output, as specified by the boiler manufacturer and measured in British Thermal Units per hour, by 3412.
- (3) Where the maximum heat input or output of the boiler is unavailable, the PE Chief Inspector may determine the power rating by any of the following methods:
- (a) by multiplying the boiler horsepower, calculated by the manufacturer, by 9.81;
  - (b) where electric power is used as a heat source, by determining the maximum aggregate capacity of all heating elements; or
  - (c) by measuring the maximum steam flow of the boiler.
- (4) The power rating for a refrigeration compressor, air compressor or gas compressor must be the power rating of the electric motor or prime mover driving the compressor.
- (5) The power rating for an electric motor or prime mover used in a

regulated plant must be the maximum power, specified by the manufacturer, that can be delivered at the drive shaft during continuous operation.

- (6) An owner of a regulated plant may apply to the PE Chief Inspector to have the TPPR reduced as a result of non-operating equipment that has been sealed in accordance with these regulations.

#### **Effect of common distribution system on power rating**

- 5 (1) Subject to subsections (2) and (3), boilers, refrigeration compressors or air or gas compressors that share a common distribution system, must have their respective power ratings added together and must be considered a single plant.
- (2) Unfired boilers must have their respective power ratings added together separate from fired boilers.
- (3) Refrigeration systems that share an evaporator or condenser must have their power ratings added together.

### **Requirements for Plant Registration**

#### **Plant classes**

- 6 (1) The PE Chief Inspector must classify a regulated plant in accordance with subsection (2)
- (2) The classes for regulated plants are:
  - (a) A First Class Boiler Plant is a power boiler plant with a TPPR of more than 20 000 kW;
  - (b) A Second Class Boiler Plant is a power boiler plant with a TPPR of 10 000 kW or more, but less than 20 000 kW or less;
  - (c) A Third Class Boiler Plant is any of the following
    - (i) a power boiler plant with a TPPR of 3500 kW or more, but less than 10 000 kW,
    - (ii) a heating boiler plant with a TPPR of 10 000 kW or more,
    - (iii) an unfired power boiler plant with a TPPR of 3500 kW or more;

- (d) A Fourth Class Boiler Plant is any of the following
  - (i) a power boiler plant with a TPPR of more than 500 kW, but less than 3500 kW,
  - (ii) a heating boiler plant with a TPPR of more than 1500 kW, but less than 10 000 kW;
- (e) A First Class Refrigeration Plant is any of the following
  - (i) a refrigeration plant that uses a Group A1 or B1 refrigerants and with a TPPR of more than 1000 kW,
  - (ii) a refrigeration plant that uses Group A2, A3, B2, or B3 refrigerants and with a TPPR of more than 450 kW;
- (f) A Second Class Refrigeration Plant is any of the following
  - (i) a refrigeration plant that uses Group A1 or B1 refrigerants and with a TPPR of less than 1000 kW,
  - (ii) a refrigeration plant that uses Group A2, A3, B2, or B3 refrigerants and with a TPPR of less than 450 kW;
- (g) A Compressor Plant is any of the following
  - (i) a compressor plant that compresses air or a non-flammable or non-toxic gas, except oxygen, and uses any type of compressor and with a TPPR of more than 350 kW,
  - (ii) a compressor plant that compresses oxygen or a flammable or toxic gas and with a TPPR of more than 37.5 kW.

### **Plant registration**

- 7 (1)** The owner of a regulated plant must ensure, prior to its operation and at any time while it is under operation, that all of the following requirements are met
- (a) the plant is registered with the PE Chief Inspector in the appropriate class,
  - (b) the plant has a plant registration certificate displayed on site at all times,

- (c) the applicable PE Fees are paid, and
  - (d) the plant is in compliance with any requirements for its registration or use.
- (2) A submission by the owner for the registration, re-classification or re-registration of a regulated plant must include all of the following;
- (a) complete registration form,
  - (b) identification of the type of plant for classifying,
  - (c) any information on the operation of the plant requested by the PE Chief Inspector, and
  - (d) payment of the applicable PE Fees.
- (3) A plant registration certificate is valid until the earliest of all of the following dates:
- (a) the expiry date provided upon the plant registration certificate;
  - (b) the date on which there is a change in a condition under which the plant operates that differs from the conditions under which the plant was registered;
  - (c) the date on which there is a change in the ownership of the plant.
- (4) The PE Chief Inspector may issue a temporary plant registration certificate that is valid for less than a year if the conditions for the temporary plant registration are met and the applicable PE Fees are paid.
- (5) Without limiting the general powers under the Act, the PE Chief Inspector may cancel the registration for a regulated plant if the owner or operator is not in compliance with the requirements for plant supervision, guarding or for the type or class of plant or its registration.

### **Change of ownership**

- 8** The owner or vendor of a regulated plant must notify the PE Chief Inspector as soon as possible if the ownership of the plant changes and provide details on the identity and contact information for the new owner.

### **Sealing of equipment upon reclassification**

- 9 (1) Where the PE Chief Inspector re-classifies a registered plant, the PE Chief Inspector must seal the equipment that is no longer part of the plant.
- (2) No person is permitted to use or operate, or cause or permit to be used or operated any equipment sealed under subsection(1).

### **Plant Supervision**

#### **Operation of regulated plants**

- 10 (1) An owner must provide continuous supervision of a regulated plant unless the PE Chief Inspector authorizes a level of reduced supervision under Section 11.
- (2) No owner or person in charge of a regulated plant that requires supervision, as determined by the regulations, is permitted to operate the plant or permit the plant to be operated unless it is operated
- (a) under the supervision of a power engineer or a plant operator with a class of PE License that qualifies the holder to act as the chief power engineer or chief plant operator of the plant; and
- (b) under the method of supervision as established in the regulations for that plant.
- (3) Where the PE Chief Inspector is not satisfied that the number of power engineers or plant operators employed by an owner is sufficient for the safe operation of a plant or that the power engineers or plant operators employed by the owner hold the required class of PE License, the PE Chief Inspector may direct the owner to employ additional power engineers or plant operators with the required class of PE License.
- (4) Where the PE Chief Inspector is not satisfied that the method of supervision referred to in clause (2)(b) is appropriate for the safe operation of a boiler, refrigeration or compressor plant, the PE Chief Inspector may attach additional requirements for the safe operation of that plant.

#### **Authorization for reduced supervision**

- 11 (1) An owner may apply to the PE Chief Inspector for authorization for reduced supervision of a regulated plant.

- (2) The PE Chief Inspector may authorize periodic supervision or minimum supervision of a regulated plant or authorize that the plant be operated as an unsupervised plant if the plant meets all of the following:
- (a) the plant is a guarded plant;
  - (b) the plant is equipped with an extended alarm system;
  - (c) the plant meets the specifications for the type of plant and any requirements for the level of reduced supervision in Sections 13 to 16.
- (3) On application by an owner for reduced supervision of their plant, the PE Chief Inspector may authorize reduced supervision or a change in the required supervision level of a plant on a temporary basis if the conditions set out in subsection (1) are met.
- (4) An owner must not operate or permit to be operated a regulated plant that is authorized under this Section to be operated under periodic or minimum supervision, or as an unsupervised plant, unless the plant continues to meet the specifications for the type of plant and any requirements for the level of reduced supervision in the regulations.

#### **Loss of reduced supervision status**

**12** An owner of a regulated plant that is authorized to operate with a level of reduced supervision under Section 11 must provide continuous supervision of the plant if any of the following occurs:

- (a) the extended alarm system or one of the control, alarm and safety devices and systems or requirements of a guarded plant is inoperative or ineffective;
- (b) the specifications for the type of plant and any requirements for the level of reduced supervision in Sections 13 to 16 are not met;
- (c) if the PE Chief Inspector is not satisfied that the method of supervision is appropriate for the safe operation of a boiler, refrigeration or compressor plant, the PE Chief Inspector may attach additional requirements for the safe operation of that plant.

#### **Periodic supervision**

**13 (1)** Periodic supervision may be authorized by the PE Chief Inspector under Section 11 for any of the following types of regulated plants:

- (a) a fired power boiler plant with a TPPR of 3500 kW or less;
  - (b) a heating boiler plant with a TPPR of 10 000 kW or less;
  - (c) a refrigeration plant whose primary occupancy is a commercial or industrial occupancy and that meets all of the following:
    - (i) the plant uses Group A2, A3, B2 or B3 refrigerants,
    - (ii) the plant has capacity control, failure detection and controller systems,
    - (iii) the plant has a TPPR of 1000 kW or less, or is an indirect system.
  - (d) a refrigeration plant whose primary occupancy is a public assembly, institutional or residential occupancy and that meets all of the following:
    - (i) the plant uses Group A2, A3, B2 or B3 refrigerants,
    - (ii) the plant has a TPPR of 450 kW or less, or is an indirect system with a TPPR of 1000 kW or less;
  - (e) a compressor plant with a TPPR of 350 kW or less that compresses oxygen or a flammable or toxic gas;
  - (f) an air or non-flammable or non-toxic gas compressor plant of any TPPR.
- (2)** When a regulated plant is operating under periodic supervision, a power engineer or plant operator is not permitted to leave the plant site without ensuring all of the following
- (a) the plant is operating under automatic control safely and in accordance with the manufacturer's specifications;
  - (b) the plant is guarded as required;
  - (c) any building containing or serviced by the plant is unoccupied.
- (3)** The power engineer or plant operator for a regulated plant that is operating under periodic supervision must visit the plant at least once in every 12-hour period during which the building containing or

serviced by the plant is unoccupied, to ensure all of the following

- (a) the requirements for a guarded plant in Sections 16 to 21 respecting control, alarm and safety devices and systems and guarded controls are complied with; and
- (b) the plant is operating safely and in accordance with the manufacturer's specifications.

### **Minimum supervision**

**14 (1)** Minimum supervision may be authorized by the PE Chief Inspector under Section 11 for any of the following types of regulated plants:

- (a) a fired power boiler plant with a TPPR of 1000 kW or less;
- (b) a heating boiler plant with a TPPR of 2000 kW or less;
- (c) an unfired power boiler plant that meets the guarded control requirements for a guarded plant specified by the PE Chief Inspector;
- (d) a refrigeration plant whose primary occupancy is a commercial or industrial occupancy and that meets all the following:
  - (i) the plant uses Group A2, A3, B2 or B3 refrigerant,
  - (ii) the plant has capacity control, failure detection and controller systems,
  - (iii) the plant has a TPPR of 450 kW or less, or is an indirect system with a TPPR of 1000 kW or less.
- (e) a refrigeration plant whose primary occupancy is a commercial or industrial occupancy and that meets all the following:
  - (i) the plant uses Group A1 or B1 refrigerants,
  - (ii) the plant has capacity control, failure detection and controller systems,
  - (iii) the plant has a TPPR of 1000 kW or less;
- (f) a refrigeration plant whose primary occupancy is a public assembly, institutional or residential occupancy and that meets all of the following:

- (i) the plant uses Group A2, A3, B2 or B3 refrigerants,
  - (ii) the plant has a TPPR of 150 kW or less, or is an indirect system with a TPPR of 450 kW or less.
- (g) a refrigeration plant whose primary occupancy is a public assembly, institutional or residential occupancy and that meets all of the following:
- (i) the plant uses a Group A1 or B1 refrigerant,
  - (ii) the plant has a TPPR of 450 kW or less, or is an indirect system.
- (h) a compressor plant that compresses oxygen or a flammable or toxic gas that has a TPPR of 150 kW or less; or
- (i) an air, or a non-flammable or non-toxic gas compressor plant that has a TPPR of 750 kW or less.
- (2) When a regulated plant is operating under minimum supervision, a power engineer or plant operator is not permitted to leave the plant site without ensuring all of the following
- (a) the plant is operating under automatic control safely and in accordance with the manufacturer's specifications;
  - (b) the plant is guarded as required.
- (3) The power engineer or plant operator for every regulated plant that is operating under minimum supervision must visit the plant at least once during every 24-hour period to ensure that the requirements for a guarded plant in Sections 16 to 21 respecting control, alarm and safety devices and systems and guarded controls are complied with.

### **Unsupervised plant**

- 15** (1) Operation as an unsupervised plant may be authorized by the PE Chief Inspector under Section 11 for a refrigeration plant if the plant meets all of the following:
- (a) it has a self-contained system installed in accordance with the PE Standards and the plant has a TPPR of 350 kW or less;

- (b) it is made up of centrifugal chillers that
    - (i) are used for air conditioning for the comfort of inhabitants and cool the air by circulating chilled water only, and
    - (ii) use a Group A1 or B1 refrigerant;
  - (c) it operates at a pressure of less than 103 kPa (15 psig);
  - (d) it is a self contained unit which is located either outside or on a rooftop and uses a Group A1 or B1 refrigerant.
- (2) An unsupervised plant must operate in accordance with
    - (a) a maintenance procedure acceptable to the PE Chief Inspector; and
    - (b) the manufacturer's specifications.
  - (3) An owner of an unsupervised plant must provide the name of the maintenance contractor to the PE Chief Inspector.
  - (4) An unsupervised plant must operate in compliance with the PE Standards.

### **Requirements for Guarded Plants**

#### **Maintenance schedule and testing**

- 16** (1) An owner, chief power engineer or chief plant operator of a guarded plant must establish a maintenance schedule for the control, alarm and safety devices and systems and the guarded controls required by Sections 17 to 21 and must maintain them in accordance with the maintenance schedule.
- (2) An owner, chief power engineer or chief plant operator of a guarded plant must test and calibrate, in accordance with the manufacturer's specifications, the control, alarm and safety devices and systems and the guarded controls required by Sections 17 to 21.

#### **General technical requirements for guarded plants**

- 17** (1) An owner must equip a regulated plant authorized under Section 11 to operate under a level of reduced supervision as a guarded plant with

- (a) an extended alarm system that is capable of initiating an alarm to a continuously attended monitoring system whenever the plant is operating; and
  - (b) an automatic control system that will safely operate the plant when the power engineer or plant operator in charge stops manually operating the controls.
- (2) An owner must ensure that whenever an alarm signal is initiated by the extended alarm system, the power engineer or plant operator responsible for the plant is immediately notified by the person monitoring the system.
- (3) An owner must equip every tripping device referred to in Sections 17 to 21 with a manual reset that is secured to prevent access by any person other than a power engineer or plant operator.

#### **Guarded power boiler plant**

**18** In addition to the requirements in Section 17, an owner must equip a guarded power boiler plant with all of the following

- (a) a device that will purge the furnace chamber in accordance with the manufacturer's specifications each time the boiler is put into use;
- (b) a flame failure tripping device that will detect a flame failure and instantly stop and prevent the supply of fuel to the boiler if a flame failure occurs;
- (c) a low water level tripping device, separate from any other device that controls the water level in the boiler during normal operation under automatic control, that will instantly stop and prevent the supply of fuel to the boiler if the boiler water falls below the safe operating level specified by the manufacturer;
- (d) a high water level tripping device, separate from any other device that controls the water level of the boiler during normal operation under automatic control, that will instantly stop and prevent the supply of fuel to the boiler if the water in the boiler exceeds a safe operating level specified by the manufacturer;
- (e) except where the manufacturer's design does not include one, a low combustion air pressure tripping device that will instantly stop and prevent the supply of fuel to the boiler if the

combustion air falls below the safe operating pressure specified by the manufacturer;

- (f) a high pressure tripping device that will instantly stop and prevent the supply of fuel to the boiler, if the boiler pressure reaches the lower of
  - (i) the maximum allowable working pressure, or
  - (ii) an established high pressure limit specified by the manufacturer;
- (g) a "kill switch" device, mounted in a visible and readily accessible location outside the boiler room, that will allow a person to turn the boiler off safely in an emergency.

#### **Guarded hot water heating boiler plant**

**19** In addition to the requirements in Section 17, an owner must equip a guarded high temperature, high pressure, hot water heating boiler plant with

- (a) a high water temperature tripping device that will instantly stop and prevent the supply of fuel to the boiler when the water in the boiler exceeds the safe operating temperature specified by the manufacturer; and
- (b) the devices referred to clauses 18(a), (b), (c), (e), (f) and (g).

#### **Guarded refrigeration plant**

**20 (1)** In addition to the requirements in Section 17, an owner must equip a guarded refrigeration plant with all of the following

- (a) a high level liquid tripping device in the evaporator or the refrigerant suction accumulator, that will instantly stop the electric motor or prime mover of the compressor and prevent it from re-starting if the liquid in the refrigerant level exceeds the safe level specified by the manufacturer, unless the design prevents the possibility of liquid refrigerant being drawn into the compressor;
- (b) a high temperature tripping device, located in the coolant discharge line or in the discharge line of the compressor, that will instantly stop the electric motor or prime mover of the compressor and prevent it from re-starting if the coolant or discharge gas exceeds the safe operating temperature

- specified by the manufacturer;
- (c) a high discharge pressure tripping device that will instantly stop the electric motor or prime mover of the compressor and prevent it from re-starting if the discharge of the compressor exceeds the safe operating pressure specified by the manufacturer;
  - (d) in the case of a pressurized lubricating oil system, a low oil pressure tripping device that will instantly stop the electric motor or prime mover of the compressor and prevent it from re-starting if the oil falls below the safe operating pressure specified by the manufacturer;
  - (e) a "kill switch" device that is mounted in a visible and readily accessible location outside the compressor room that will allow a person to turn the compressor off safely in an emergency;
  - (f) a machinery room as required by the PE Standards.
- (2) An owner must equip a guarded refrigeration plant with a vapour detector that actuates at a value less than the threshold limit value-time weighted average (TLV/TWA) concentration value for the refrigerant.
- (3) Despite subsection (2) if the refrigerant is ammonia an owner must set the vapour detector to activate at the maximum concentration value for ammonia established in the PE Standards.

### **Guarded compressor plant**

**21** In addition to the requirements in Section 17, an owner must equip a guarded compressor plant with all of the following

- (a) each of the devices described in clauses 20(1)(c), (d) and (e);
- (b) a high discharge temperature tripping device in the discharge line of the compressor that will instantly stop the electric motor or prime mover of the compressor and prevent it from re-starting if the discharge gas exceeds the safe operating temperature specified by the manufacturer;
- (c) where the compressor is water-cooled,
  - (i) a low water pressure tripping device in the cooling water

inlet line, or

- (ii) a high water temperature tripping device in the cooling water outlet line

that will instantly stop the electric motor or prime mover of the compressor and prevent it from re-starting if the cooling water pressure or temperature is outside the safe operating pressure or temperature specified by the manufacturer;

- (d) where the compressor is air-cooled, a fan motor overload tripping device that will instantly stop the electric motor or prime mover of the compressor and prevent it from restarting if the air cooling fan becomes overloaded;
- (e) where the compressor is driven by an electric motor, with a motor overload tripping device that stops the electric motor of the compressor and prevents it from re-starting if the motor becomes overloaded.

## **REGULATED WORK**

### **PE Certificates of Qualification**

#### **Application for PE Certificate of Qualification**

- 22** (1) An individual may apply to the PE Chief Inspector for the granting of a specified type and class of PE Certificate of Qualification.
- (2) An applicant in subsection (1) must include all of the following
- (a) completed application form;
  - (b) proof of the identify of the applicant;
  - (c) specify the type and class of PE Certificate of Qualification sought;
  - (d) evidence of the practical experience requirements for the type and class of PE Certificate of Qualification sought;
  - (e) evidence of successful completion of all examinations required for the type and class of PE Certificate of Qualification sought;
  - (f) payment of any applicable PE Fees.

- (3) For purposes of clause (2)(d), an applicant must provide written verification of their practical experience from the chief engineer or chief plant operator of the plant where they obtained their practical experience.

### **Types and Classes**

**23 (1)** The classes for Inter-provincial type certificates of qualification are as follows:

- (a) first class power engineer;
- (b) second class power engineer;
- (c) third class power engineer;
- (d) fourth class power engineer;
- (e) second class refrigeration plant operator.

**(2)** The classes for Provincial type certificates of qualification are as follows:

- (a) first class power engineer;
- (b) second class power engineer;
- (c) third class power engineer;
- (d) fourth class power engineer;
- (e) first class refrigeration plant operator;
- (f) second class refrigeration plant operator;
- (g) compressor plant operator;
- (h) unfired power boiler plant operator.

**(3)** Except for a Provincial Certificate of Qualification granted under subsection (4) or subsection 52(1), the following Provincial Certificates of Qualification may be granted by the PE Chief Inspector only to renew or replace Provincial Certificates of Qualification that were previously issued and remain valid:

- (a) first class power engineer;
  - (b) second class power engineer;
  - (c) third class power engineer;
  - (d) fourth class power engineer.
- (4) The PE Chief Inspector may grant a Provincial Certificate of Qualification with or without restrictions where the PE Chief Inspector decides that it is appropriate.

### **Practical Experience Required for PE Certificates of Qualification**

#### **Power Engineer Practical Experience**

- 24 (1)** An applicant for an Inter-provincial First Class Power Engineer Certificate of Qualification must have one of the following for practical experience
- (i) 30 months' experience as a chief power engineer in a second class boiler plant;
  - (ii) 30 months' experience as a shift power engineer in a first class boiler plant;
  - (iii) 42 months of operating experience as an assistant shift power engineer in a first class boiler plant;
  - (iv) 15 months of the experience described in paragraphs (i), (ii), or (iii), and 30 months of experience in the design, construction, installation, repair or maintenance of equipment of a boiler plant; or
  - (v) 15 months of the experience described in paragraphs (i), (ii) or (iii), and 15 months of experience as a professional engineer in the design, maintenance or operation of a boiler plant.
- (2)** An applicant for an Inter-provincial Second Class Power Engineer Certificate of Qualification must have one of the following for practical experience
- (a) 24 months' experience as a chief power engineer in a third class boiler plant;

- (b) 24 months' experience as a shift power engineer in a second class boiler plant;
  - (c) 24 months of operating experience as an assistant shift power engineer in a first class boiler plant;
  - (d) 12 months of the experience described in clauses (a), (b), or (c), and at least 24 months of experience in the design; construction, installation, repair or maintenance of equipment of a boiler plant;
  - (e) 12 months of the experience described in clauses (a), (b) or (c), and 12 months of experience as a professional engineer in the design, maintenance or operation of a boiler plant.
- (3) An applicant for an Inter-provincial Third Class Power Engineer Certificate of Qualification must have one of the following for practical experience:
- (a) 12 months' experience as a chief power engineer in a fourth class boiler plant;
  - (b) 12 months' experience as a shift power engineer in a third class boiler plant;
  - (c) 12 months of operating experience as an assistant shift power engineer in a second class boiler plant;
  - (d) 6 months of the experience described in clauses (a), (b) or (c) and at least 18 months' experience in the design, construction, installation, repair or maintenance of equipment of a boiler plant;
  - (e) successful completion of a course in power engineering acceptable to the PE Chief Inspector leading to an Inter-provincial Third Class Power Engineer Certificate of Qualification;
  - (f) 6 months of the experience described in clause (a), (b) or (c) and a degree in mechanical or chemical engineering, or the equivalent;
  - (g) 6 months of the experience described in clause (a), (b) or (c) and 12 months' experience as a chief power engineer in a fourth class boiler plant that is an unfired power boiler plant;

- (h) 6 months of the experience described in clause (a), (b) or (c) and 12 months' experience as a shift power engineer in a third class boiler plant that is an unfired power boiler plant.
- (4) An applicant for an Inter-provincial Fourth Class Power Engineer Certificate of Qualification must have one of the following for practical experience:
- (a) 12 months' experience training in the operation of a fired power boiler plant that has a TPPR of more than 500 kW;
  - (b) 12 months' experience training in the operation of a heating boiler plant that has a TPPR of more than 1500 kW;
  - (c) 6 months of the experience described in clause (a) or (b) and at least 12 months' experience in the design, construction, installation, repair or maintenance of equipment of a boiler plant;
  - (d) successful completion of a course in power engineering acceptable to the PE Chief Inspector, leading to an Inter-provincial Fourth Class Power Engineer Certificate of Qualification;
  - (e) 3 months of the experience described in clause (a) or (b) and a degree in mechanical or chemical engineering, or equivalent;
  - (f) 6 months of the experience described in clause (a) or (b) and 12 months' experience training in the operation of an unfired power boiler plant.

#### **Refrigeration Plant Operator Practical Experience**

- 25 (1) An applicant for a Provincial First Class Refrigeration Plant Operator Certificate of Qualification must have one of the following for practical experience:
- (a) 24 months' experience as a chief plant operator of a second class refrigeration plant;
  - (b) 24 months' experience as a shift plant operator of a first class refrigeration plant;
  - (c) 12 months of the experience described in clauses (a) or (b), and at least 24 months' experience in the design, construction,

installation, repair or maintenance of equipment of a refrigeration plant;

- (d) 12 months of the experience described in clauses (a) or (b), and a degree in mechanical or chemical engineering, or the equivalent.

(2) An applicant for a Provincial or an Inter-provincial Second Class Refrigeration Plant Operator Certificate of Qualification must have one of the following for practical experience:

- (a) 12 months' experience training in the operation of refrigeration equipment in a registered refrigeration plant;
- (b) a Nova Scotia Refrigeration and Air Conditioning Mechanic Certificate, or the equivalent;
- (c) 3 months of the experience described in clause (a) and a degree in mechanical or chemical engineering, or the equivalent.

#### **Compressor Plant Operator Practical Experience**

**26** An applicant for a Provincial Compressor Plant Operator Certificate of Qualification must have one of the following for practical experience:

- (a) 12 months' experience training in the operation of air or gas compressor equipment in a compressor plant;
- (b) 6 months of the experience described in clause (a) and at least 12 months' experience in the design, construction, installation, repair or maintenance of equipment of a compressor plant; or
- (c) 3 months of the experience described in clause (a) and a degree in mechanical or chemical engineering, or the equivalent.

#### **Unfired Power Boiler Plant Operator Practical Experience**

**27** An applicant for Unfired Boiler Plant Operator Certificate of Qualification must meet one of the following requirements for practical experience:

- (a) 12 months' experience training in the operation of boiler equipment in an unfired power boiler plant;
- (b) a combination of 6 months of the experience described in

clause (a) and at least 12 months' experience in the designing, constructing, installing, repairing or maintaining the equipment of an unfired boiler plant;

- (c) a combination of 3 months of the experience described in clause (a) and a degree in mechanical or chemical engineering, or the equivalent.

### **Equivalents**

- 28 (1)** In place of some or all of the practical qualification requirements in these regulations, the educational requirements in subsection 29(2) or the 1 class lower minimum PE Certificate of Qualification requirements in subsection 29(4), the PE Chief Inspector may accept
- (a) relevant service or training in the Canadian Forces or the equivalent; or
  - (b) successful completion of courses in a technical or trade school recognized by the PE Chief Inspector;
  - (c) experience in the construction, operation, repair, or testing of a plant relevant to the type and class of PE Certificate of Qualification being sought; or
  - (d) the completion in whole or part of a correspondence course or formal course of study in power engineering recognized by the PE Chief Inspector.
- (2)** For purposes of clauses (1)(b) and (d), completion of part or all of a course in power engineering that is acceptable to the PE Chief Inspector may be considered equivalent up to
- (a) 12 months of power boiler plant operating experience for an Inter-provincial First Class Certificate of Qualification; or
  - (b) 9 months of power boiler plant operating experience for an Inter-provincial Second Class Certificate of Qualification.
- (3)** For Sections 25 to 27, the PE Chief Inspector may consider completion of all or part of a course of study to be equivalent to practical experience required and determine the amount of experience that it is equivalent to.
- (4)** In Sections 24 to 27, 166 hours of practical experience is equal to 1

month of practical experience and any more hours of experience acquired in a month cannot be carried over to another month.

## **Examinations**

### **Application and eligibility**

- 29** (1) An applicant for examination leading to a type and class of PE Certificate of Qualification under the regulations may make an application to the PE Chief Inspector to write the examination.
- (2) Subject to subsection (3), every individual who applies for a PE Certificate of Qualification must have successfully completed grade 12 from a Nova Scotia high school or the equivalent.
- (3) The successful completion of a course in power engineering acceptable to the PE Chief Inspector at the same level as the type and class of PE Certificate of Qualification the examination for which the individual is applying, may be approved by the PE Chief Inspector as equivalent to the requirement under subsection (1).
- (4) An applicant for examination must hold a PE Certificate of Qualification at least equivalent to 1 class lower than the type and class of PE Certificate of Qualification the examination applied for is leading towards.
- (5) Subsection (4) does not apply to applicants for an examination leading to an entry level class of PE Certificate of Qualification.
- (6) An applicant in subsection (1) must include all of the following
- (a) complete application form;
  - (b) proof of the identify of the applicant;
  - (c) specify the particulars of the examination requested including the type and class of PE Certificate of Qualification the examination is leading towards;
  - (d) evidence verifying the educational qualifications required;
  - (e) evidence of the portion of the practical experience requirements for the type and class of the PE Certificate of Qualification the particular examination is leading towards;
  - (f) evidence of type and class of PE Certificates of Qualification

held as required by subsection (4);

(g) payment of any applicable PE Fees.

(7) For purposes of clause (2)(e), an applicant must provide written verification of their practical experience from the chief power engineer or chief plant operator of the plant where they obtained their practical experience.

### **PE Advisory Subcommittee**

**30** (1) The PE Advisory Subcommittee may make recommendations on

(a) questions or examinations for a type or class of PE Certificate of Qualification ;

(b) criteria for training program, and

(c) qualifications for a type or class of PE Certificate of Qualifications.

(2) The PE Advisory Subcommittee may make recommendations on equivalences.

### **Examination process**

**31** (1) The passing grade for every examination leading to a PE Certificate of Qualification is 65%.

(2) Except as provided in subsection (3), an individual who fails an examination may, 60 days after the date of their examination, apply in writing to the PE Chief Inspector for a re-examination for that particular exam.

(3) An applicant under subsection (1) must pay the applicable PE Fee.

(4) An individual who fails an examination 3 consecutive times cannot retake that particular exam for at least 6 months from the date they last took the exam.

## **PE LICENSE**

### **PE License requirement to perform the duties of a power engineer or plant operator**

**32** (1) No person is permitted to perform the duties of a power engineer or

plant operator unless that person holds a class of PE License with terms and conditions that authorizes the License holder to perform that type of regulated work.

- (2) A person performing the duties of a power engineer or plant operator must produce their PE License when requested by a PE Inspector.
- (3) If a person fails to produce a PE License under subsection (2), the failure is *prima facie* evidence that the person is not a PE License holder.

### **Application for a PE License**

- 33** (1) An individual may apply to the PE Chief Inspector for the granting of a specified class of PE License.
- (2) An applicant in subsection (1) must include all of the following
- (a) complete application form;
  - (b) proof of the identify of the applicant;
  - (c) specify the class of PE License sought;
  - (d) evidence of holding the type and class of PE Certificate of Qualification required for the class of PE License sought;
  - (e) payment of any applicable PE Fees.
- (3) An applicant for a class of PE License or for renewal of a class of PE License must hold, in the opinion of the PE Chief Inspector, a PE Certificate of Qualification of the appropriate type and class;
- (4) The PE Chief Inspector may not issue a class of PE License to authorize an individual to perform a type of regulated work that exceeds the type of regulated work covered by the type and class of PE Certificate of Qualification held by the applicant.

### **Expiry, Renewal and Reinstatement**

- 34** (1) A PE License is valid until the expiry date provided upon the PE License unless suspended or revoked earlier by the PE Chief Inspector.
- (2) Subject to subsection (3) if a PE License has expired, in order to apply for reinstatement, an individual may reapply under Section 33.

- (2) If a PE License expired more than 4 years ago, in order to apply for reinstatement, an individual, in addition to the requirements in Section 33, may also be required by the PE Chief Inspector to successfully write an examination approved by the PE Chief Inspector.

### **Classes of PE Licenses**

#### **Inter-provincial first class power engineer**

**35** An individual, with an Inter-provincial First Class Power Engineer Certificate of Qualification, may apply for an PE License (Inter-provincial First Class Power Engineer) to act as any of the following for any regulated plant:

- (a) chief power engineer;
- (b) chief plant operator;
- (c) shift power engineer;
- (d) shift plant operator;
- (e) assistant shift power engineer;
- (f) assistant shift plant operator.

#### **Inter-provincial second class power engineer**

**36** An individual, with an Inter-provincial Second Class Power Engineer Certificate of Qualification, may apply for PE License (Inter-provincial Second Class Power Engineer) to act as any of the following:

- (a) chief power engineer or chief plant operator for any of the following regulated plants:
  - (i) a fired power boiler plant with a TPPR of 20 000 kW or less,
  - (ii) an unfired power boiler plant,
  - (iii) a heating boiler plant,
  - (iv) a refrigeration plant,
  - (v) a compressor plant;
- (b) for any plant, any of the following:

- (i) shift power engineer,
- (ii) shift plant operator,
- (iii) assistant shift power engineer,
- (iv) assistant shift plant operator.

**Inter-provincial third class power engineer**

**37** An individual, with an Inter-provincial Third Class Power Engineer Certificate of Qualification, may apply for PE License (Inter-provincial Third Class Power Engineer) to act as any of the following:

- (a) chief power engineer or chief plant operator for any of the following regulated plants:
  - (i) a fired power boiler plant with a TPPR of 10 000 kW or less,
  - (ii) an unfired power boiler plant,
  - (iii) a heating boiler plant,
  - (iv) a refrigeration plant that uses Group A1 or B1 refrigerant and has a TPPR of 1000 kW or less,
  - (v) a refrigeration plant that uses Group A2, A3, B2 or B3 refrigerant and has a TPPR of 450 kW or less,
  - (vi) a compressor plant;
- (b) shift power engineer or shift plant operator for any of the following regulated plants:
  - (i) a fired power boiler plant with a TPPR of 20 000 kW or less,
  - (ii) an unfired power boiler plant,
  - (iii) a heating boiler plant,
  - (iv) a refrigeration plant,
  - (v) a compressor plant;

- (c) assistant shift power engineer for any regulated plant;
- (d) assistant shift plant operator for any regulated plant.

**Inter-provincial fourth class power engineer**

**38** An individual, with an Inter-provincial Fourth Class Power Engineer Certificate of Qualification, may apply for a PE License (Inter-provincial Fourth Class Power Engineer) to act as any of the following:

- (a) chief power engineer or chief plant operator for any of the following plants:
  - (i) a fired power boiler plant with a TPPR of 3500 kW or less,
  - (ii) an unfired power boiler plant,
  - (iii) a heating boiler plant with a TPPR of 10 000 kW or less,
  - (iv) a refrigeration plant that uses a Group A1 or B1 refrigerant and has a TPPR of 750 kW or less,
  - (v) a refrigeration plant that uses Group A2, A3, B2 or B3 refrigerant and has a TPPR of 150 kW or less,
  - (vi) a compressor plant;
- (b) shift power engineer or shift plant operator for any of the following regulated plants:
  - (i) a fired power boiler plant with a TPPR of 10 000 kW or less,
  - (ii) an unfired power boiler plant,
  - (iii) a refrigeration plant that uses a Group A1 or B1 refrigerant and has a TPPR of 1000 kW or less,
  - (vi) a refrigeration plant that uses Group A2, A3, B2 or B3 refrigerant and has a TPPR of 450 kW or less,
  - (v) a compressor plant;
- (c) assistant shift power engineer or assistant shift plant operator for any of the following regulated plants:

- (i) a fired power boiler plant with a TPPR of 20 000 kW or less, unless special approval to act for a plant with a higher TPPR is given in writing by the PE Chief Inspector,
- (ii) an unfired power boiler plant,
- (iii) a heating boiler plant,
- (iv) a refrigeration plant,
- (v) a compressor plant.

**Provincial first class power engineer**

**39** An individual, with a Provincial First Class Power Engineer Certificate of Qualification, may apply for a PE License (Provincial First Class Power Engineer) to act as any of the following for a boiler plant or a compressor plant:

- (a) chief power engineer;
- (b) shift power engineer;
- (c) assistant shift power engineer.

**Provincial second class power engineer**

**40** An individual, with a Provincial Second Class Power Engineer Certificate of Qualification, may apply for a PE License (Provincial Second Class Power Engineer) to act as any of the following:

- (a) chief power engineer for any of the following plants:
  - (i) a fired power boiler plant with a power rating of 20 000 kW or less,
  - (ii) an unfired power boiler plant,
  - (iii) a heating boiler plant,
  - (iv) a compressor plant;
- (b) shift power engineer or assistant shift power engineer for any of the following plants:

- (i) a boiler plant,
- (ii) a compressor plant.

**Provincial third class power engineer**

**41** An individual, with a Provincial Third Class Power Engineer Certificate of Qualification, may apply for a PE License (Provincial Third Class Power Engineer) to act as any of the following:

- (a) chief power engineer for any of the following plants:
  - (i) a fired power boiler plant with a TPPR of 10 000 kW or less,
  - (ii) an unfired power boiler plant,
  - (iii) a heating boiler plant,
  - (iv) a compressor plant;
- (b) shift power engineer for any of the following plants:
  - (i) a fired power boiler plant with a TPPR of 20 000 kW or less,
  - (ii) an unfired power boiler plant,
  - (iii) a heating boiler plant,
  - (iv) a compressor plant;
- (c) assistant shift power engineer for any of the following plants:
  - (i) a fired power boiler plant,
  - (ii) an unfired power boiler plant,
  - (iii) a heating boiler plant,
  - (iv) a compressor plant.

**Provincial fourth class power engineer**

**42** An individual, with a Provincial Fourth Class Power Engineer Certificate of Qualification, may apply for a PE License (Provincial Third Class Power

Engineer) to act as any of the following:

- (a) chief power engineer for any of the following plants:
  - (i) a fired power boiler plant with a TPPR of 3500 kW or less,
  - (ii) an unfired power boiler plant.
  - (iii) a heating boiler plant with a TPPR of 10 000 kW or less,
  - (iv) a compressor plant;
- (b) shift power engineer for any of the following plants:
  - (i) a fired power boiler plant with a TPPR of 10 000 kW or less,
  - (ii) an unfired power boiler plant,
  - (iii) a heating boiler plant,
  - (iv) a compressor plant;
- (c) assistant shift power engineer for any of the following plants:
  - (i) a fired power boiler plant with a TPPR of 20 000 kW or less, unless special approval to act for a plant with a higher TPPR is given in writing by the PE Chief Inspector,
  - (ii) an unfired power boiler plant,
  - (iii) a heating boiler plant,
  - (iv) a compressor plant.

**First class refrigeration plant operator**

**43** An individual, with a Provincial First Class Refrigeration Plant Operator Certificate of Qualification, may apply for a PE License (First Class Refrigeration Plant Operator) to act as any of the following for any refrigeration plant:

- (a) chief plant operator;

- (b) shift plant operator;
- (c) assistant shift plant operator.

#### **Second class refrigeration plant operator**

**44** An individual, with an Inter-provincial or Provincial Second Class Refrigeration Plant Operator Certificate of Qualification, may apply for a PE License (Second Class Refrigeration Plant Operator) to act as any of the following:

- (a) chief plant operator for any of the following plants:
  - (i) a refrigeration plant that uses a Group A1 or B1 refrigerant and has a TPPR of 1000 kW or less,
  - (ii) a refrigeration plant that uses Group A2, A3, B2 or B3 refrigerants and has a TPPR of 450 kW or less;
- (b) shift plant operator for any refrigeration plant;
- (c) assistant shift plant operator for any refrigeration plant.

#### **Compressor plant operator**

**45** An individual, with a Provincial Compressor Plant Operator Certificate of Qualification, may apply for a PE License (Compressor Plant Operator) to act as any of the following for any compressor plant:

- (a) chief plant operator;
- (b) shift plant operator;
- (c) assistant shift plant operator.

#### **Unfired power boiler plant operator**

**46** An individual, with a Provincial Unfired Power Boiler Plant Operator Certificate of Qualification, may apply for a PE License (Unfired Power Boiler Plant Operator) to act as any of the following for any unfired power boiler plant:

- (a) chief plant operator;
- (b) shift plant operator;
- (c) assistant shift plant operator.

## **Trainees**

- 47 (1)** A trainee is not required to hold the applicable class of PE License while performing regulated work provided that
- (i) the trainee is under the direct supervision of a power engineer or plant operator who has charge of any regulated plant at all times,
  - (ii) any regulated work performed by the trainee is within the scope of the class of PE License held by the supervising licensed individual, and
  - (iii) the trainee complies with all the other requirements of the Act and these regulations.
- (2)** An owner must ensure that a trainee, who is not registered under the Nova Scotia Apprenticeship Program, registers with the PE Chief Inspector before working in a regulated plant.
- (3)** An owner must ensure that a trainee only performs the duties of a power engineer or plant operator for the type and class of PE Certificate of Qualification the individual is currently training for or a lower class of PE Certificate of Qualification.
- (4)** An owner of a regulated plant must ensure that a trainee is under the direct supervision of a licensed individual who holds a class of PE License for the type and class of PE Certificate of Qualification that the trainee is being trained for, or a higher class.
- (5)** An owner must ensure that the extent of the direct supervision by a licensed individual who holds a PE License over the trainee is appropriate for the risk associated with the regulated work the trainee is performing.
- (6)** An owner must not use a trainee as a replacement for a power engineer or plant operator at the type and class of PE Certificate of Qualification the trainee is training for or higher.
- (7)** An owner must submit the training program for the trainee for approval by the PE Chief Inspector if the trainee is not in the Nova Scotia Apprenticeship Program.
- (8)** The examinations and training requirements for a type and class of PE Certificate of Qualification or PE License and payment of the

applicable PE Fees apply to a trainee.

### **Duties and responsibilities**

#### **Duties of the owner**

- 48** (1) Subject to subsections (2) and (3), every owner of a regulated plant must designate one power engineer or operator as a chief power engineer or chief plant operator for each plant.
- (2) Where more than one plant exists on one plant site, the owner may designate one chief power engineer or chief plant operator to act as chief power engineer or chief plant operator of all the registered plants on that plant site.
- (3) Where an owner has one or more guarded plant that have been authorized to operate under minimum supervision under Section 14, the owner may designate the chief power engineer or plant operator of one plant to act as chief power engineer or chief plant operator of all those plants.
- (4) When the chief power engineer or chief plant operator of a registered plant is absent from the plant site for more than 96 consecutive hours, the owner must assign the duties and responsibilities of the chief power engineer or chief plant operator during their absence to another power engineer or plant operator in accordance with:
- (a) a power engineer or a plant operator who is absent from any plant due to sickness or while on holidays may be replaced by a power engineer or a plant operator holding a class PE License not more than 1 class lower than the class of PE License required of the power engineer or plant operator who is absent.
  - (b) the temporary staffing procedure referred to in subsection (a) shall not exceed thirty calendar days per year per registered plant or the number of days per year authorized in writing by the PE Chief Inspector.
  - (c) with the approval of the PE Chief Inspector, to be given only in special circumstances, the holder of a class of PE License may perform, in accordance with conditions established by the PE Chief Inspector and for a period specified by the PE Chief Inspector, the duties of a person holding a class of PE License of the next highest class.

- (5) An owner must ensure that the chief power engineer or chief plant operator of a regulated plant is available during the regular working hours of the plant and does not work as a shift power engineer while employed as a chief power engineer in a first or second class boiler plant.
- (6) An owner must ensure that the chief power engineer or chief plant operator complies with Section 49.
- (7) Without limiting the general compliance audit powers of the PE Inspector under the Act, the owner must provide or make available the following for conducting a compliance audit as requested by the PE Inspector
  - (a) any information that pertains to the operation of the regulated plant,
  - (b) evidence or records of all requirements for registration of the regulated plant,
  - (c) evidence or records of supervision or the existence of the conditions for reduced supervision in the regulated plant,
  - (d) evidence or records of a current maintenance contract or any other information that pertains to the operation of an unsupervised plant, or
  - (e) evidence or records of PE Certificate of Qualification or PE License.

**Duties of chief power engineer or chief plant operator**

- 49** (1) A chief power engineer or chief plant operator must establish and implement procedures for safely installing, inspecting, operating and maintaining a regulated plant and plant equipment in accordance with the applicable PE Standards.
- (2) A chief power engineer or chief plant operator must, in order to ensure the safe installation, inspection, operation and maintenance procedures referred to in subsection (1), supervise the work and duties of
- (a) a power engineer or plant operator on the regulated plant site;

- (b) a trainee; and
  - (c) any other person doing maintenance work in the plant that affects the operation of the plant.
- (3) A chief power engineer or chief plant operator must
- (a) maintain a log book in accordance with Section 50;
  - (b) ensure that the plant is operated by a sufficient number of power engineers or plant operators who hold the required class of PE License and are adequately trained to operate the regulated plant; and
  - (c) ensure that a copy of the applicable PE Standards, the Act and these regulations is available to the power engineers and plant operators on the plant site.
- (4) If an incident under Section 13 of the Act occurs at a regulated plant within the scope of these regulations that endangers the health or safety of a person, the chief power engineer or chief plant operator of the regulated plant must report the incident to the PE Chief Inspector either by telephone, fax or e-mail within 24 hours of the incident occurring and when requested by the PE Chief Inspector must provide him with a written report.

### **Log Books**

- 50** (1) An owner must provide a log book at each regulated plant site.
- (2) A power engineer or plant operator in charge of a shift must, for each shift, record in the log book the following information:
- (a) the time, date and designation of the shift;
  - (b) the name and signature of the power engineer or plant operator providing the required supervision on each shift;
  - (c) the name of any other power engineer or plant operator on the shift;
  - (d) the name of any people on the shift who are in training to be a power engineer or plant operator;
  - (e) the plant conditions;

- (f) any abnormal plant conditions and any corrective actions required or taken;
  - (g) any order or direction given that is contrary to or in addition to normal operating procedure;
  - (h) the name of the person giving an order referred to in clause (g), the time at which the order was given and the reason for the order;
  - (i) the nature and frequency of any preventative maintenance procedures provided for any part of the plant, including the testing and recording of all operational logging, control, alarm and safety systems; and
  - (j) any repairs to any part of the plant, including the time that the repairs were commenced, the time of their completion and the name of the person who conducted the repairs.
- (3) Despite clauses 2(i) and (j), where the information required in those clauses is recorded separately by the owner in records that are readily available to a PE Inspector and the chief power engineer or chief plant operator, the plant operator or power engineer does not have to record the information in the log book.
  - (4) An owner must keep the log book available for inspection by a PE Inspector, for at least 12 months from the date of the last entry in the log book.
  - (5) The information recorded in a logbook may be computerized.
  - (6) The signature of a supervisor may be in the form of an electronic signature if the electronic signature can only be entered into the computer by the individual who is signing the record.

### **Standards and Compliance Audits**

#### **PE Standards**

- 51** An owner of a regulated plant or any person performing the duties of a power engineer or plant operator must ensure that any regulated work performed is in compliance with the applicable PE Standards.

## Transition Provisions

### Recognition of other Jurisdictions and Organizations

- 52 (1)** Subject to subsection (2), on application from an individual who holds a Certificate of Qualification from another jurisdiction or organization, the PE Chief Inspector may grant a Provincial Certificate of Qualification to an individual who
- (a) provides evidence of their experience and qualifications that are sufficiently equivalent to the requirements for the Provincial Certificate of Qualification set out in these regulations;
  - (b) provides evidence as to their identity; and
  - (c) pays the applicable PE Fees.
- (2)** An applicant from another jurisdiction who holds a valid certificate of qualification from the other jurisdiction that is equivalent to a class of an Inter-provincial Certificate of Qualification may, upon meeting the requirements of clauses 1(b) and (c), be eligible for the associated class of PE License.
- (3)** If an applicant in subsection (2) holds an Inter-provincial Certificate of Qualification with an expiry date, the applicant is also eligible for the associated type and class of PE Certificate of Qualification.
- (4)** An individual who holds a Certificate of Qualification issued under the *Crane Operators and Power Engineers Act* which qualified the holder to perform a type of regulated work at the date when these regulations came into effect is deemed to hold a equivalent class of PE License to authorize the same regulated work until the expiry date on the previously issued certificate of qualification.
- (5)** An individual in subsection (4) must apply for a renewal of a PE License under Section 34 in order to continue to be authorized to perform regulated work after the expiry date on the certificate of qualification.