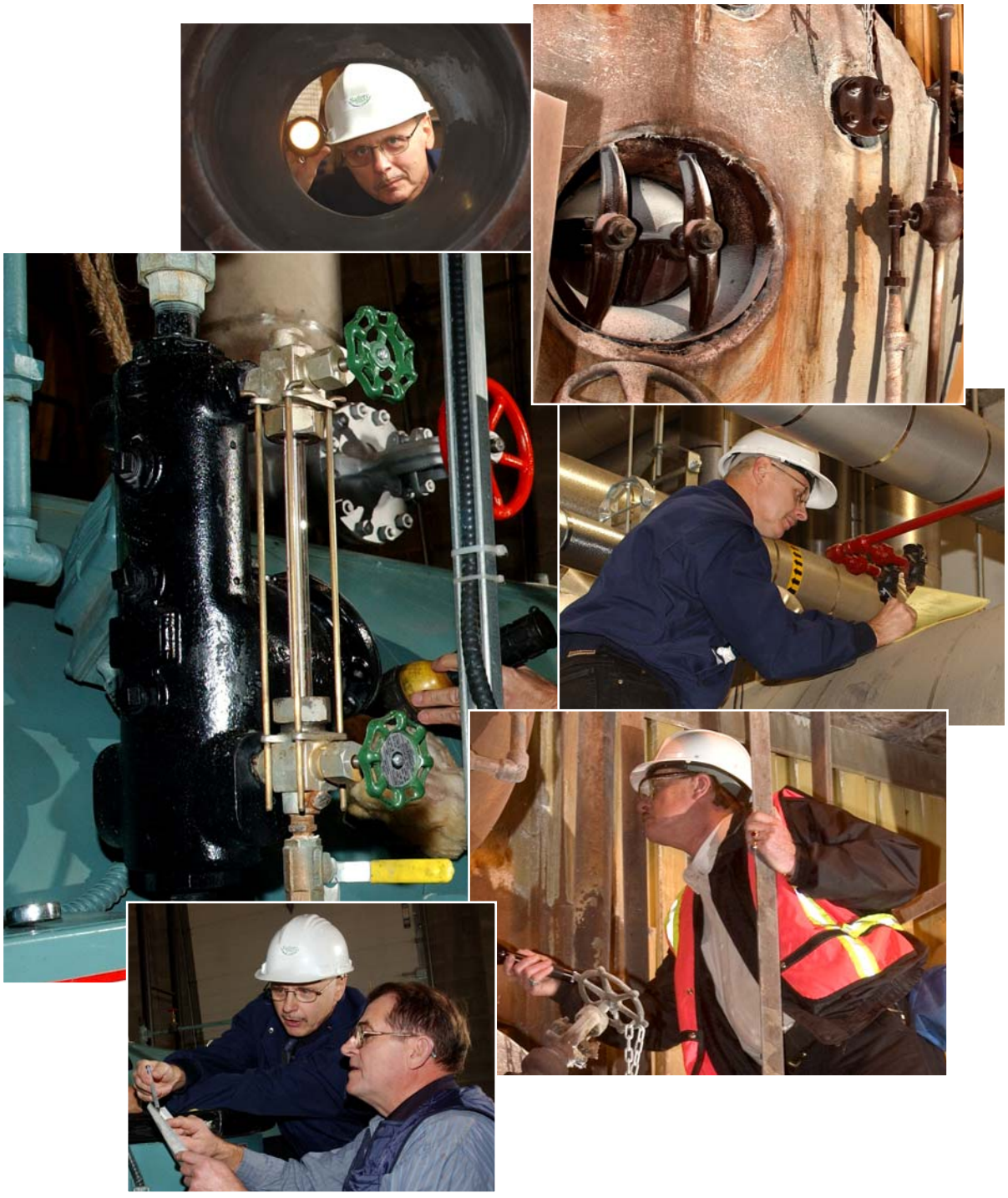
Boiler, Pressure Vessel, and Refrigeration Program

Program Overview Manual



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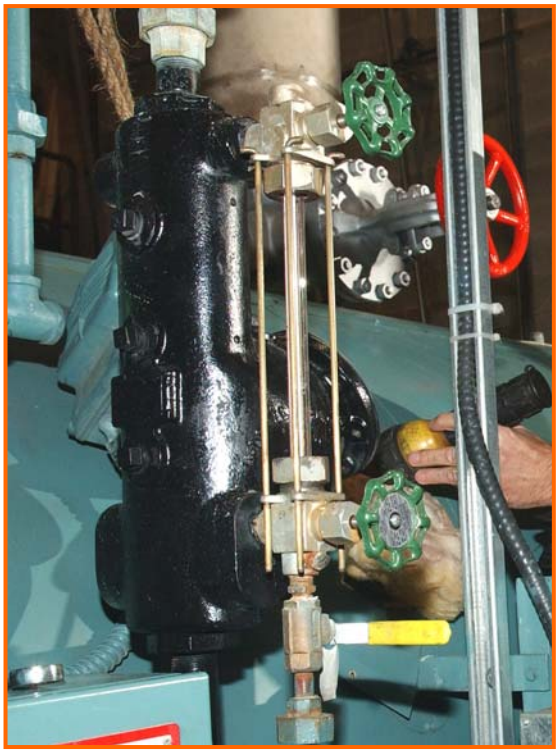
Introduction



The Boiler, Pressure Vessel, and Refrigeration Program (Boiler and Pressure Vessel Program) is a safety program that regulates the safe design, manufacture, operation, maintenance, repair, inspection, and alteration of pressure equipment in British Columbia. Generally, the program oversees the safety of people, products, and work practices regarding all pressure equipment by enforcing the *Safety Standards Act* and the *Power Engineers, Boilers, Pressure Vessels and Refrigeration Safety Regulation.*

Pressure equipment includes boilers, boiler plants, pressure plants, most pressure vessels and pressure piping systems, fittings, refrigeration equipment, and refrigeration plants. These can be found in such places as hospitals, schools, ice arenas, pulp mills, dry cleaning plants, food processing plants, apartment buildings, and office towers.

Boilers are pressure vessels that can generate and pressurize gas, steam, or vapor, or that can pressurize liquids. A pressure vessel can store any fluid, air, liquid, or gas that is expansible. It can cause these elements to expand when it releases pressure. In a refrigeration system refrigerants are compressed, condensed, and vaporized.

The operation of steam boilers was first governed in 1896. Gradually, other pressure equipment and products were to be regulated. By 1911, the American Society of Mechanical Engineers stepped in and formed a committee to develop standard rules for the construction of steam boilers and other pressure vessels. British Columbia had its own code, which was the same one that governed the operation of boilers and pressure vessels used in the railway industry. In 1950, the Boiler and Pressure Vessel Program adopted the American Society of Mechanical Engineers code. The people in the railway industry in British Columbia, however, took an independent direction and continued to use the old British Columbia code. But in 2005, the *Safety Standards Act* was used to regulate the pressure equipment on provincially regulated railways.

The American Society of Mechanical Engineers authorizes and accredits the Boiler and Pressure Vessel Program for its inspection of new pressure equipment manufactured in British Columbia. Furthermore, the National Board of Boiler and Pressure Vessel Inspectors has the authority to commission a Safety Officer as a

Qualified Authorized Inspector. Essentially, the program employs, trains, and qualifies personnel to complete the inspections and enforce the codes and regulations.

It is important for the program to oversee safety in British Columbia. Standards are applied consistently to regulated work and products: All regulated work and products must meet the code and regulatory requirements. The program also serves to issue permits, issue design registrations, and certify power engineers and pressure welders. With all of the activities in the program, any decision made by a Safety Officer can be reviewed by the Safety Manager upon a client's request. If the client is not satisfied with the review, the client can make an appeal to the Safety Standards Appeal Board. This board is independent of the BC Safety Authority.

Services

The Boiler and Pressure Vessel Program delivers its safety services to oversee the safety of people, products, and work practices in British Columbia regarding pressure equipment. It serves to ensure that only qualified tradespersons perform or supervise the regulated work and the operation of regulated products and that all pressure equipment is registered.

Roles and responsibilities of the Safety Manager and Safety Officers focus on administering the *Safety Standards Act* so that all regulated work and products comply with the codes and regulations requirements. However, the program does more than complete inspections: it accepts and registers design submissions of equipment for boilers, pressure vessels, and piping; it certifies power engineers and pressure welders; it issues licences and permits; it investigates incidents; and it updates stakeholders of regulation amendments and of potentially hazardous products.

The BC Safety Authority appoints the provincial Safety Manager, who has the authority to issue, suspend, or revoke a Certificate of Qualification or a contractor's licence. Other responsibilities include the following: issue directives, discipline orders, monetary penalties, and safety orders; evaluate training programs and qualifications of workers; enter into Equivalent Standards Agreements with clients; provide technical expertise to Safety Officers, and review a Safety Officer's decision if requested by a client.

Safety Officers deal directly with clients with regards to pressure equipment and have the following responsibilities: conduct inspections of regulated work and products; monitor operating plants for appropriate staffing; issue Certificates of Inspection, compliance orders, or variances; invigilate and mark exams; issue, suspend, or revoke permits; answer inquiries; and assign British Columbia identification numbers to all pressure vessels, boilers, and refrigeration equipment. Other duties include investigating incidents, supervising installations and repairs of regulated products, and providing input on work related matters to the Safety Manager.

Licences

Through the program, more than 50 new contractor's licences are issued annually. In British Columbia, a contractor must have a licence before obtaining an installation permit. The applicant goes through an audit process consisting of an interview and a review of qualifications and experience before receiving a contractor's licence.

A Safety Officer interviews the applicant and reviews the application package, which should contain the level of qualifications, skills, and experience of the applicant and of all the employees that will be working for the applicant. The package should also include a *letter of understanding,* a Quality Control Manual with all related documents, and any other information requested by the Safety Officer that is needed to complete the application. Should the application be rejected, the Safety Officer may assist the applicant by providing the reasons why or by offering technical advice on future contractor's licence applications.

The Safety Manager issues a licence, which is to be renewed annually, when the appropriate fees are paid and all the contents of the application package meet the code and regulatory requirements. The licence allows the contractor to perform only the regulated work that falls within the scope of that licence.

An individual or company may apply for the following types of contractor's licences in British Columbia:

- A Class – boiler, pressure vessel and pressure piping
- Au Class – pressure vessel and pressure piping
- Ap Class – pressure piping
- B Class – limited capacity boiler, pressure vessel and pressure piping
- REF Class – refrigeration
- SVR Class – safety valve and relief valve service
- MA Class – CSA or ASME or fitting manufacturing shop

Applying for an MA Class licence, which is needed for operating a manufacturing shop, has additional requirements. The Quality Control Manual in the application package should include the following information: current publications of codes and standards; a plan for implementing the work procedures; an agreement to have the Boiler and Pressure Vessel Program provide inspection services; a registry of all staff welders, welding operator records, and welding procedures; qualifications and certifications of any staff conducting nondestructive examinations of equipment; and nondestructive examination procedures. In addition, the Safety Officer must inspect, review, and verify drawings, design calculations, and documentation, and evaluate the Quality Control System and its implementation.

Certifications

The Boiler and Pressure Vessel Program certifies two groups — pressure welders and power engineers. Issuing Certificates of Qualification is a way for the program to ensure that only qualified individuals perform the regulated work in British Columbia. The program issues over 600 power engineer certificates annually, some of which are to applicants who have raised their level of qualifications to a higher class level. To receive certification, the applicant must have the necessary prerequisites as set by the *Boiler, Pressure Vessel and Refrigeration Safety Regulation*. These can be verified by a signed statement, most often from a Chief Engineer of where the applicant was employed, indicating the applicant's relevant qualifications or knowledge and work experience.

Certificates of Qualification	
Description	**Certificate Type**
Power Engineer	Class 1, Class 2, Class 3, Class 4, Class 5 (boiler endorsement), Class 5 (refrigeration endorsement)
Interim Power Engineer	Category A, Category B
Boiler Operator	Greenhouse Boiler, Oil Well Boiler, Antique Show Boiler
Other	Ice Facility Operator, Boiler Safety Awareness, Refrigeration Safety Awareness, Pressure Welder

The Boiler and Pressure Vessel Program issues various Certificates of Qualification.

Number of Exams per Class Certification	
Class Certification	**Exams**
Class 1	8
Class 2	6
Class 3	4
Class 4	2
Class 5 (Boiler Endorsement)	2
Class 5 (Refrigeration Endorsement)	2
Boiler Safety Awareness	1
Ice Facility Operator	1
Oil Well Boiler Operator	1
Refrigeration Safety Awareness	1

Applicants may write more than one other exam for a Certificate of Qualification.

Exams for certification as a power engineer are theory based and require a passing mark of 65 percent. For a specific class, an applicant may be required to write more than one exam to receive a Certificate of Qualification. Applicants can write their exams in various locations throughout British Columbia on specified dates. The BC Safety Authority website lists a schedule of all exam times, dates, locations, and fees. Examinees must also have the qualifications of a lower class before receiving certification of a higher class. A Certificate of Qualification allows a power engineer to perform only the regulated duties that are within the scope of the certified class indicated or that of a lower class.

The program serves to help applicants prepare and study for the power engineer exams by developing a Syllabus (course outline) and a set of learning objectives. The course outline may determine the exam questions; however, the Standardization of Power Engineers Examination Committee still authorizes the course outline and exam questions. To maintain exam consistency at a national level, the program has an agreement with the other provinces in Canada to harmonize the exams.

Jurisdictions outside of British Columbia may recognize and accept a Certificate of Qualification that was issued through the Boiler and Pressure Vessel Program. Similarly, an applicant may have had equivalent training and experience as a power

engineer outside of the province. If so, the Safety Manager may determine if this training and experience meet the requirements for an equivalent power engineer class and may issue a corresponding certificate.

Other Certificates of Qualification are available for interim power engineer, greenhouse boiler operator, oil well boiler operator, antique show boiler operator, ice facility operator, boiler safety awareness, and refrigeration safety awareness.

In contrast to the power engineers, refrigeration mechanics that perform regulated work must be certified under the *Industry Training Authority Act* to carry out the regulated work on refrigeration equipment. Furthermore, an applicant for certification as a pressure welder must perform a practical exam and demonstrate pressure welder capabilities before receiving a Certificate of Qualification.

Design Submission Registrations

To account for all pressure equipment in British Columbia, the program accepts and registers design submissions for boilers, pressure vessels, pressure piping systems, fittings, and plant or refrigeration equipment. Under the *Safety Standards Act*, regulated work can only be performed on regulated products that are registered with the BC Safety Authority. Every year, the program reviews and registers close to 3,000 new boiler and pressure vessel designs.

The applicant submits an application package containing all the drawings, design specifications, calculations and codes of conformance to the Safety Manager for review. If the Safety Manager finds any defects in the design submission, the applicant must revise them before registration. The Safety Manager authorizes a letter to the applicant confirming the approval of the design submission and that the pressure equipment has been accepted and registered. Attached to the letter should be a *Canadian Registration Number* that can be affixed to the equipment.

The Safety Manager also ensures that the regulated work is done in accordance to the design specifications. If it is necessary, a Safety Officer may be called upon to conduct periodic inspections, investigations, and tests on the pressure equipment during its construction or after its completion.

Installation Permits

All regulated products and equipment must meet code and standard requirements. Installation permits for pressure equipment are issued once only; almost 700 permits are issued through the program annually. A permit is required to install or alter a boiler, refrigeration system or any part of the refrigeration system. In some cases, the contractor needs to forward engineering design submissions to the Safety Manager for review and approval.

A Safety Officer of the program inspects the installation of the equipment to ensure that it meets the codes and regulation requirements and issues a Certificate of Inspection. Any non-compliance, which is any work or equipment that fails to meet the codes and regulation requirements, is noted on the certificate with a due date for when the non-compliance must be corrected.

A permit is required to install or alter a refrigeration plant. Contractors do not need a permit for installing refrigeration equipment with a plant capacity of less than 5 kW but require one if the electric motor or prime mover used to drive the compressor is 5 kW or greater. Likewise, boilers with a certain capacity require an installation permit (See table below). Some boilers, however, require a piping design approval and registration before the Safety Manager can issue a permit.

Boilers requiring Installation Permits		
Potable Hot Water Heaters	Natural gas or propane	400,000 Btu/h
	Oil fired	200,000 Btu/h, heating surface area more than 3m^2 inside diameter more than 610 mm
	Electric	More than 30 kW, inside diameter more than 610 mm
High pressure	Steam, hot water or thermal fluid with a boiler or assembly of boilers	Heating surface area more than 2 m^2 more than 20 kW for electric boilers
Low pressure	Steam, hot water or thermal fluid with a boiler or assembly of boilers	Heating surface area more than 3 m^2 more than 30 kW for electric boilers
Boilers and Piping Design Registration requiring Installation Permits		
High Pressure	Steam, hot water or thermal fluid with a boiler or assembly of boilers	Heating surface area more than 10 m^2 more than 100 kW for electric boilers piping system more than NPS3
Low Pressure	Steam plant with a boiler or assembly of boilers	Heating surface area more than 30 m^2 more than 300 kW for electric boilers piping system more than NPS3
Low Pressure	Thermal fluid with a boiler or assembly of boilers	Heating surface more than 75 m^2 more than 750 kW for electric boilers piping system more than NPS3
Refrigeration requiring Installation Permits		
Plant Capacity	Refrigerant	5kW or more Prime Mover
	Refrigerant Group A1, A2, or B1	Less than 125 kW
	Refrigerant Group A3, B2, or B3	Less than 25 kW
Refrigeration and Piping Design Registration requiring Installation Permits		
Plant Capacity	Refrigerant Group A1, A2, or B1	125 kW or more
	Refrigerant Group A3, B2, or B3	25 kW or more

A licenced contractor needs an installation permit for these boilers and refrigeration systems.

Some situations require applying for multiple installation permits. For example, a client may have taken out a gas or electrical permit initially, and then may need to apply for a separate or additional permit for installing a boiler or refrigeration unit.

Operating Permits

The program ensures that only qualified workers operate boiler plants and refrigeration systems. Owners need an operating permit for each separate boiler, pressure vessel, or refrigeration system and must renew these permits annually. Once the owner of the equipment receives an installation permit and Certificate of Inspection, the owner can apply for an operating permit. After the appropriate fee has been paid, the Safety Manager issues or renews the operating permit.

Inspections

Safety Officers inspect steam boilers annually and hot water boilers every three years. Periodic inspections of regulated work and regulated equipment are necessary to ensure that all equipment and its operations in British Columbia comply with the code and regulatory requirements.

A typical inspection scenario goes like this. An owner of a dry cleaning plant needs to install a new steam boiler. A licenced contractor is retained, who applies for an installation permit. A Safety Officer reviews the installation, the plans and design specifications, and the manufacturer codes of the boiler against the codes and regulatory requirements. After completing the inspection, the Safety Officer records the results into the BC Safety Authority computer system. and issues a Certificate of Inspection. On this certificate is noted any non-compliance that the owner must correct within a certain timeframe.

During any inspection, the client is responsible for ensuring that the inspection site is safe and that the equipment is accessible. The Safety Officer may request the removal of such items as jackets, coverings, casings, or manhole covers. Boilers and pressure vessels must also be open, thoroughly cleaned, and ventilated. To further ensure that the inspection area is safe, the Safety Officer may request that steam, gas, hot water, and other liquids are to be kept from entering into the inspection area.

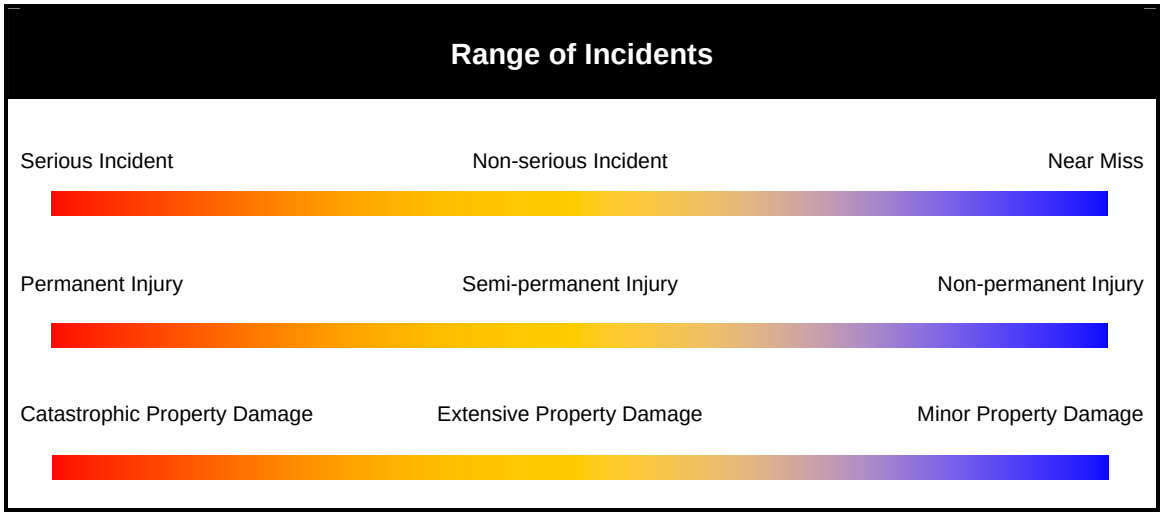
For a detailed inspection, the client must hire someone qualified from a testing company to perform a nondestructive examination of the equipment. This company would forward the test results to the Safety Officer.

When the internal, hydrostatic, or operating inspection is complete the Safety Officer issues a Certificate of Inspection. This certificate allows the client to operate the regulated equipment, finalize the job, continue working, or correct any non-compliance accordingly. The Safety Officer may provide the client with regulatory expertise on correcting the non-compliance and may proceed with a follow-up inspection once the non-compliance has been reported as corrected.

Inspections may occur at any time. If a non-compliance or an incident is suspected, a Safety Officer has reasonable grounds and the authority to enter the premise at a reasonable time to investigate any incident and to inspect all regulated work or products and related equipment records.

Investigating Incidents

Incidents involving pressure equipment can be potentially dangerous. According to the *Safety Standards Act*, an incident is the occurrence of a death, personal injury, or damage to property, or the risk to personal injury or damage to property. The incident must be the result of regulated work or the testing, use or operation of a regulated product. A Safety Officer may investigate an incident as soon as it is brought to the attention of BC Safety Authority. Levels of incidents, personal injuries, and damage to properties can range from serious to minor.



Incidents involve personal injury or damage to property and range from serious to minor.

All serious incidents are investigated immediately. A Safety Officer arrives at the site and conducts an investigation, assesses the seriousness of the incident, and works to or attempts to identify the cause of the incident. When the incident has resulted in an

injury or death, the owner is required to isolate the equipment from further use until so directed by the Safety Manager. If necessary, a Safety Officer may take the equipment away for metallurgical testing, for example a damaged air tank or compressor. After completing the investigation, the Safety Officer documents the incident and files a report with the BC Safety Authority, where the Regional Business Manager reviews for accuracy and clarity before forwarding the report to the Safety Manager. Investigating incidents is important to the program. If a certain model of equipment poses a potential hazard, the Safety Manager would issue a Safety Order calling for the inspection of all similar models across the province. This issue is to prevent a similar incident from occurring or to lead to the disposal of the equipment. Data obtained from investigating incidents can lead to recommendations and follow-ups to prevent future incidents from occurring and can be used to evaluate and improve inspection procedures and allocation of resources.

To preserve the integrity of an investigation, Safety Officers do not investigate serious incidents that have occurred on their assigned inspection sites unless no other Safety Officer is immediately available to attend. Safety Officers may also investigate non-serious incidents when it is considered necessary to do so.

Technical Expertise

It is important for the Safety Manager and Safety Officers in the Boiler and Pressure Vessel Program to stay current with advancements in the pressure equipment industry as stakeholders and clients rely on their expertise. An issue concerning a regulated product or regulated work may be brought to the attention of the program that could lead to amendment of the codes and regulations.

The Safety Manager and Safety Officers continue to upgrade their knowledge of new products and work practices. They attend association and national board meetings periodically, the American Society of Mechanical Engineers meetings annually where they receive information on changes to the codes, and meetings with other regulators as necessary. In addition, seminars are held and training sessions are provided within the boiler industry on a regular basis.

Variances

A variance is a formal document that allows a client to deviate from the codes and regulations for a one-time circumstance without compromising safety. Very few variances are issued through the program and are generally for minor deviations to the codes and regulatory requirements. To illustrate, a variance may involve a client requesting product approval on equipment that is not covered under the regulations, for example, an imported hot water heater with a low risk to safety.

Equivalent Standards Agreements

The Boiler and Pressure Vessel Program is the first technology in the BC Safety Authority to implement an Equivalent Standards Agreement. These are agreements that a Safety Manager enters into with clients and are becoming an innovative way for the program to develop a working partnership with clients to oversee safety regarding pressure equipment.

This agreement allows a client operational flexibility on performing regulated work or using a regulated product in a different manner as per the codes and regulations. For example, a client may wish to hire qualified personnel to inspect and maintain its own pressure equipment and forward the inspection reports to the Safety Manager.

Before entering into the agreement, the Safety Manager must be satisfied that the alternative approach to work or use of the product is consistent with the objectives of the regulations and does not increase or create additional risk to injury or damage to property.

Accessibility and Communications

With regards to safety, communicating information and being accessible to everyone are important to the Boiler and Pressure Vessel Program. Many of the documents and forms can be obtained at any BC Safety Authority office or accessed through the website. Available are forms for licences and permits, exam applications, design registration numbers, and requests for data reports. The program also informs the public, clients, and stakeholders on safety issues, potentially hazardous products, and regulatory amendments.

The Safety Manager can issue any of four types of documents. Safety advisories are non-binding and non-statutory and inform or remind the public of existing potential hazardous products or unsafe practices. The Safety Manager issues a directive to clarify the interpretation of the codes and regulations, to provide directions on the application of a regulation, or to exercise the powers granted under the *Safety Standards Act*. Directives are binding unless they are in conflict with a section of the *Safety Standards Act*, regulations, or code. Information bulletins are issued to provide general information to staff, stakeholders, and the public. These are non-binding and non-statutory. Finally, safety orders are binding and are issued to prevent, avoid, or reduce the risk of personal injury or damage to property. A safety order can be processed within a few days and is sent out to reach as many affected clients as possible.

Other Services

The Safety Manager and Safety Officers are qualified professionals and experts in the industry and need to stay current on new advances in technology and regulatory amendments. They may be called upon for other services, such as to provide expert witness testimony or to attend a coroner's inquest or inquiry.

Resources

The Safety Manager has several years of experience and competent technical knowledge, possesses excellent interpersonal communication skills, and is a major resource for providing technical expertise to the Safety Officers.

Experience and training are essential for becoming a Safety Officer, who needs a Class 1 Power Engineer Certificate of Qualification, or a Class 2 Power Engineer Certificate of Qualification with the condition of obtaining a Class 1 within three years. An inspector's exam must be successfully written and the National Board of Boiler and Pressure Vessel Inspectors must commission the Safety Officer as an authorized inspector. The BC Safety Authority provides additional training and resources for Safety Officers to conduct inspections and to enforce the codes and regulations.

Safety Officers should have full knowledge of the Safety Standards Act and regulations, which undergo continuous reviews and amendments to keep pace with advancements in the industry. To further guide the Safety Officers, the BC Safety Authority provides additional training and resources and continues to update and develop internal policies and procedures for them to follow. The more experienced Safety Officers may also provide training to recently hired Safety Officers.

Inspections ensure that clients and pressure equipment are complying with the codes and regulatory requirements. Safety Officers conduct visual inspections of pressure equipment and use such tools as a hammer, flashlight, mirror, wire brush, scraper, pressure gauges, hydrostatic pump, and number or letter stamps. They also wear coveralls and safety wear for protection. One tool that helps to get a better view of the

surface area and interior of pressure equipment is a boroscope. This tool has rigid or flexible optical tubes for the interior inspection of holes, bores, and cavities. After completing the inspection, the Safety Officer records the results into the BC Safety Authority computer system.

Clients and Stakeholders

Maintaining an open and active relationship with clients and stakeholders in the pressure equipment industry is important to the program in the practicable delivery of safety services in British Columbia. There are currently close to 20,000 clients and some who operate as many as 1,000 units. The Safety Manager realizes the importance of listening to the concerns of clients and keeping an open dialogue with them in order to oversee safety regarding pressure equipment in British Columbia.

Consulting and working with various industry boards and associations is beneficial to staying current on industry technical advancements and issues. The program interrelates with the following groups:

- American Society of Mechanical Engineers (ASME)
- American National Standards Institute (ANSI)
- American Petroleum Institute (API)
- Association of Chief Inspectors (ACI)
- Canadian Standards Association (CSA)
- National Board of Boiler and Pressure Vessel Inspectors (NB)
- Standardization of Power Engineers Examination Committee (SOPEEC)
- Tubular Exchangers Manufacturers Association (TEMA)

An extension of the program is the technology committee. Members of this committee review industry standards, identify safety issues, recommend changes to regulations, and evaluate the delivery of safety services regarding pressure equipment. They also help the program to develop policy and to propose regulatory changes. Furthermore, the Safety Manager plays an active role in the industry, such as sitting on the Canadian Standards Association committees and attending industry conferences.

Future Growth

Keeping up with all the industry activities of British Columbia can become a challenge. Many regulated pressure equipment in the province are nearing the end of their lifespan. It may mean an influx of new or imported equipment from other countries, such as China, that needs to be registered and inspected over the coming years.

With the continuing demand for tradespersons across industry, the program serves to ensure that only qualified people are performing regulated work. This is to ensure that their skills with specific pressure welding techniques meet established standards. Agencies that are recognized by the BC Safety Authority would be administering these tests.

Joint efforts with Alberta are taking place to harmonize and implement power engineer requirements under the *Trade, Investment, and Labour Mobility Agreement* by April 2009. Meanwhile, the program continues to work with other jurisdictions across the country to harmonize worker qualifications in order to permit labour mobility. As well, the harmonization of codes and standards on a global level and how this will impact the people and industry in the province will be monitored on a continual basis.

Working in partnership with clients will increase. Through the program, several Equivalent Standards Agreements will be entered into with clients. These agreements will most likely be of the owner-user type and will allow a plant with properly qualified people and an integrity management system to inspect its own plant equipment. Clients benefit by being able to schedule their own inspection dates, which helps them to minimize disruptions to plant production.

Progress on where to prioritize inspection and audit activities continues. Improvements to the BC Safety Authority computer system enable the program to make full use of the recorded data. Data such as incident reports, non-compliance information, and risk registers will help to focus on where to allocate the program's resources. In addition, working closely in partnership with clients and educational institutions enhances the knowledge base of the program in its delivery of the best safety services possible.

The BC Safety Authority has a vision of being an internationally recognized authority in the delivery of safety services by the year 2014. The program strives to offer the best and most up-to-date services and to retain qualified people with expertise to deliver those services.

Revision History

Revision	Revision Date	Revision history	Revised by
00	2006/05/12	New release	J. Taylor
01	2006/07/06	Design Submission section: changed "approves" to “accept”; deleted "Approvals"	J. Taylor
02	2006/07/12	Introduction section: deleted “approves” regarding design registrations. The program only registers designs and does not provide approvals.	J. Taylor
03	2006/11/13	Removed editorials, changed “contract” to “agreement” in Equivalent Standards Agreement section, and expanded on Future Growth section to reflect advances in the program.	J. Taylor
04	2006/12/21	Installation Permits – expanded on table. Formatting of headings and tables.	J. Taylor
05	2007/01/31	Page 2, 1st paragraph: changed “responsible for….” to “that regulates….”	J. Taylor

Approval

This document has been approved for adequacy by:

Malcolm Bishop
Provincial Safety Manager – Boiler / Pressure Vessel

January 31, 2007
Date