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OUR VISION, MISSION, AND VALUES 34
On behalf of the Board of Directors, I am pleased to present the BC Safety Authority’s Annual Report on Safety Regulation for 2010. This report reviews the regulatory initiatives that were developed and managed during the past year, and provides an account of how all these impact the province’s system of safety.

The regulatory framework is an inherent part of the safety system. It sets parameters and acknowledges the value that all sectors bring to the system. In the long term, the outcome that we all pursue is a safer province for all British Columbians.

In 2010, we renewed our Administrative Agreement under the Safety Standards Act with the Province of British Columbia – an affirmation that the BC Safety Authority’s operational model works. The renewed administrative agreement clarifies the Province’s expectations of the BC Safety Authority with new performance objectives and targets that align with our strategic plan. It also establishes a separate protocol agreement to spell out the BC Safety Authority’s roles and responsibilities with regards to the development of legislation, the adoption of codes and standards, and communications.

With this mandate, we remain attentive to the need for accountability and transparency. One key endeavour that supports this involves engaging our stakeholders in a series of consultations. We value the contributions of our stakeholders as it helps keep our decisions and actions relevant and timely.

British Columbia is a dynamic and growing province. As such, we will continue to manage changes in the regulatory environment and industry to ensure alignment with our vision of keeping the province safe.

I would like to take this opportunity to thank Harry Diemer, founding President and Chief Executive Officer, who brought vision, leadership and unstinting passion to the BC Safety Authority. Harry retired at the end of March 2011. The Board of Directors conducted a comprehensive and rigorous search process and the President and Chief Executive Officer position was assumed by Catherine Roome, our Chief Operating Officer since 2007.

I thank my fellow Board Members, the Executive Team and BC Safety Authority staff for their excellent work in delivering safety services.

Sincerely,
Peter Cook
Chair of the Board
Managing the evolving nature of this system is a challenge, and requires a forward-looking perspective from all of those involved.

The safety system that we are all a part of, and manage at the same time, is a comprehensive network of processes, practices and regulations. It involves working relationships with industry and stakeholders. Managing the evolving nature of this system is a challenge, and requires a forward-looking perspective from all of those involved.

With this report, we hope to provide information which demonstrates how our pursuit of safety excellence works with regulatory initiatives to strengthen British Columbia’s safety system. We endeavour to continuously enhance our efforts towards meeting our strategic objectives: education and outreach, inspection, enforcement, research and the business of safety — the last referring to an organizational system that binds the other four together.

Other 2010 regulatory initiatives of high significance include: allowances for reduced staffing levels at low pressure thermal fluid plants, provided the plant has an approved automated control system bearing specified features; and the BC Safety Authority’s work with TUV Austria (a technical safety oversight body) in developing procedures to import European biomass boilers to British Columbia.

We appreciate how advances in technology impact safety and present opportunities to enhance the safety system. With the Alternative Safety Approaches in particular, we align safety with innovations in technology. This allows industry to move forward while complying with the Safety Standards Act. In the long term, we expect to see industry adopting a wide-based culture of safety in their operations and that is a significant step towards a safer province.

I would like to thank our hard-working Safety Authority staff who, through all these years, shared my vision and passion for a safer British Columbia. I also thank our Board of Directors which has consistently provided support and direction.

Harry Diemer

President and Chief Executive Officer
*(retired March 2011)*
Overall, the BC Safety Authority is confident that it made substantial progress in 2010 and will continue to do so in the years to come.

In 2010, the BC Safety Authority took steps toward finding a balance between advanced proactive safety oversight and traditional responsive safety oversight. Both types of oversight are necessary in British Columbia and both types need to continually improve to maintain the sustainability of the British Columbia safety system.

One initiative, the introduction of Alternative Safety Approaches into the Safety Standards Act by the Province of British Columbia, addresses two problems associated with the traditional regulatory approach. First, the traditional approach is slow to respond to technological innovation and advances in safety management. Second, the traditional approach does not easily allow for the use of regulated products developed overseas. Through the use of Alternative Safety Approaches, both of those problems can be avoided while ensuring safety is maintained.

The BC Safety Authority also took a leadership role in proactive safety oversight through the formation of the Targeted Incident Reduction Initiative aimed at building coordinated education programs with multiple regulators. These education initiatives will concentrate efforts to get people the information they need to promote their safety.

There is a demand in British Columbia for clean alternative sources of power and heat. The BC Safety Authority worked to help the development of a bioenergy industry in British Columbia by forging partnerships which will allow the safe use of European boiler technology in British Columbia. In a separate initiative aimed at preventing incidents through improved compliance and predicting safety trends, the BC Safety Authority made improvements to their enforcement program in an effort to provide fair deterrence for those who would operate outside of the safety system. The organization also continued development of its research capacity to enable the proactive identification of safety trends so corrective action may be taken in a timely manner. All of these initiatives looked primarily forward rather than simply reacting or responding to needs as they arose.

Maintaining high levels of safety was a top priority for the BC Safety Authority in 2010. The 2010 Olympic and Paralympic Winter Games provided a host of challenges on a world stage and the BC Safety Authority responded by ensuring that the objectives of the Safety Standards Act were met by ensuring that equipment used for everything from cooking to broadcasting was safe. Changes to the regulations also responded to advances in safety control technology in hot oil plants. Those changes allow staffing flexibility so safety is delivered while addressing a growing need for viable forestry and community heating operations. Other new regulations have placed British Columbia as the first regulator in Canada to require the retrofitting of older hydraulic elevators; this change is of particular importance in an active seismic zone, as it directly addresses a serious safety concern in British Columbia.

Throughout 2010, stakeholder engagement initiatives meant the BC Safety Authority continued to listen to clients in an effort to address their concerns in the best ways possible. This type of engagement helps the BC Safety Authority make sure that new issues are brought to light as soon as possible. BC Safety Authority staff participated in over twenty codes and standards committees during 2010 in an effort to continually update and improve traditional ways of achieving safety, keeping the traditional approach to safety oversight as current as possible in British Columbia.
Stakeholder engagement initiatives meant the BC Safety Authority continued to listen to clients in an effort to address their concerns in the best ways possible.

Looking forward, the BC Safety Authority will continue to work with the Province of British Columbia to find a balance between advanced and traditional safety oversight. In 2011, regulations for advanced Alternative Safety Approaches will be finalized, new editions of traditional codes will be adopted, work will continue toward responding to the need for elevator mechanic certification to help prevent injuries to workers and the public, and the legal framework, advanced and traditional, surrounding provincial railways will be reviewed and, where possible, updated to keep the railway industry safe for all involved. Finally, the BC Safety Authority will strive to remain current with respect to IT and provide enhanced client solutions into the future by continuing to focus on the System Transition and Replacement Project which will make it easier to collect and share data as well as interact with clients.

Overall, the BC Safety Authority is confident that it made substantial progress in 2010 and will continue to do so in the years to come.
This Annual Report on Safety Regulation highlights the legal and policy measures that were being developed or deployed from January 1 to December 31, 2010 to help control safety risks in British Columbia. It provides an overview of the legal and policy changes and developments that impacted and will continue to impact how safety is regulated across various industry sectors.

The report then gives an overview of each of the specific technologies regulated under the Safety Standards Act and Railway Safety Act. These overviews include any amendments that occurred to the regulations, a summary of any Safety Orders, Directives and Information Bulletins that were issued, any other policy items unique to a technology and summaries of any consultation initiatives. For quick reference, tables are provided in Appendix A to outline amendments, Safety Orders, Directives, Information Bulletins and Risk Reduction Working Groups as they relate to each technology. Overall, the BC Safety Authority is pleased to report that it continues to make progress in all areas.

This Report differs from the BC Safety Authority's annual State of Safety Report which describes statistical trends across various safety measures such as incident rates and numbers of inspections performed. The Annual Report on Safety Regulation and the State of Safety Report are complementary in that their combined effect is to give a transparent snapshot of the British Columbia safety system and the BC Safety Authority's performance over the previous year.

As the Safety Standards Act, the Railway Safety Act and their associated regulations are authored and approved by the Province of British Columbia, the BC Safety Authority works collaboratively with the Province of British Columbia under Administrative Agreements to try to continually improve performance. The Executive Summary outlines the changes to the Acts, regulations and policies, as described in this Report, and their ultimate goal to improve safety trends as described in the State of Safety Report.
Where the traditional approach is primarily focused on telling people what methods they must use, the Safety Management Plan approach is primarily focused on safe outcomes.

Alternative Safety Approaches

In the 2009 Annual Report on Safety Regulation, it was noted that the BC Safety Authority has been working with the Province of British Columbia towards establishing Safety Management Plans as an optional alternative to more traditional types of regulation. Regulations typically specify all of the steps, in great detail, that someone must take when performing regulated activities. In traditional regulatory approaches, the regulator develops all of the rules that someone needs to follow in order to make sure that something is safe. A Safety Management Plan, on the other hand, is developed by a stakeholder and is a systematic approach toward identifying any hazards and then controlling any risks associated with those hazards. Once accepted by the BC Safety Authority, a Safety Management Plan can replace any number of traditional regulation requirements. Where the traditional approach is primarily focused on telling people what methods they must use, the Safety Management Plan approach is primarily focused on safe outcomes.

In June 2010, the Legislative Assembly of British Columbia passed Bill 20, Miscellaneous Statutes Amendment Act (No. 3), 2010. That Act contained amendments to the Safety Standards Act that will introduce the concept of Alternative Safety Approaches to British Columbia on April 1, 2011. “Alternative Safety Approaches” is the umbrella term used in the Safety Standards Act to describe methods that stakeholders can use to achieve safety outcomes in ways that best suit their circumstances.

The changes to the Safety Standards Act are fairly broad and enabling in nature. New regulations, to be finalized in 2011, will provide more detail. During 2010, the BC Safety Authority conducted consultations with stakeholders throughout BC in order to obtain feedback on the proposed content of the future regulations.

Following consultations, BC Safety Authority staff worked with the Province of British Columbia to begin the process of writing the new regulations.

There are two types of Alternative Safety Approaches. “Equivalent Standard Approaches” replace the Equivalent Standards Agreements that were enabled in the Safety Standards Act until April 1, 2011. An Equivalent Standard Approach is available to stakeholders requiring flexibility around one or two traditional regulation requirements. Under an Equivalent Standard Approach, a stakeholder must replace one requirement with another requirement that has been published in a code or standard that is different than those traditional codes and standards that are adopted for use in British Columbia. Alternatively, a traditional requirement may be replaced with a requirement that has been authored by a qualified professional. An Equivalent Standard Approach can best be thought of as a “like-for-like” approach where one method is substituted for another method. All of the other traditional requirements of the regulations remain in place when a stakeholder uses an Equivalent Standard Approach to replace one or two traditional requirements.

As described in the 2009 Report, “Safety Management Plans” go beyond “like-for-like” solutions by providing an alternative “system” that allows stakeholders the option of managing the safety of their regulated products and work based on safety outcomes, as opposed to following traditional regulations. For example, a stakeholder may be allowed to self-author a plan for managing safety that is based on hazard and risk mitigation principles already in use around the world in a variety of safety settings. Those principles will be presented in the upcoming regulations as requirements that any proposed plan must address in a way that will produce safety outcomes.
that are consistent with the safety outcomes that traditional regulations produce. Safety Management Plans provide flexibility to stakeholders to use new and innovative technology (that traditional regulations and codes do not cover) by recognizing advancements in safety management methodologies.

Once a proposal for a Safety Management Plan has been accepted by the BC Safety Authority, the person who submitted the proposal must adhere to the specifics of the plan. The BC Safety Authority will use a range of monitoring methods, including audits, to evaluate compliance with the plan and to evaluate how well the plan is achieving safety outcomes consistent with the objectives of the Safety Standards Act.

In 2010, the BC Safety Authority began designing processes and materials in support of a Safety Management Plan program. Initial applications for a Safety Management Plan approach are anticipated from the emerging bioenergy sector and will be limited to the electrical, gas, boiler and pressure vessel technologies.

Bioenergy

In the past two Annual Reports on Safety Regulation, several initiatives undertaken by the BC Safety Authority in support of the safe implementation of the Province of British Columbia’s Bioenergy Strategy were detailed. Those initiatives included the production of brochures and working with various Ministries to help ensure that safety is a prime consideration for all as the growing bioenergy sector develops in British Columbia.

2010 saw the development of new legal means that will help promote safety best practices for bioenergy development in British Columbia. Those means are detailed elsewhere in this Report but include changes to the Safety Standards Act to enable Alternative Safety Approaches. Changes to the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation will also provide staffing flexibility for hot oil plants that deploy modern safety control technology. Although the new legal means have potential applicability to industry sectors other than the bioenergy sector, they came about as a result of the safety challenges involved in allowing new and innovative technology to be used specifically in the British Columbia bioenergy sector. Working with the Province of British Columbia, the BC Safety Authority was able to identify and develop progressive ways to deal with advances in technology that outpace the traditional codes and standards approach by recognizing new technology in the regulations and by using modern safety management practices.

Traditionally, British Columbia has required that foreign boiler manufacturers become accredited by the American Society of Mechanical Engineers prior to importing boilers into the province. The American Society of Mechanical Engineers accredits manufacturing shops that have satisfactory quality control systems to ensure safe design and construction. The American Society of Mechanical Engineers standards for construction are used across North America as the basis for boiler and pressure vessel design and manufacture.

In 2010, BC Safety Authority staff traveled to Austria to gain an understanding of the European Pressure Equipment Directive, a process for ensuring safe boiler design and manufacture in Europe. The BC Safety Authority, in collaboration with TUV Austria Services, has developed a process to approve, and register for use in British Columbia, those biomass-fueled boilers that meet the essential safety requirements of the European Pressure Equipment Directive.
Embracing the challenges associated with administering safety for the bioenergy sector as it continues to evolve will ultimately benefit safety in British Columbia across a number of industry sectors. Traditional regulatory approaches tend to limit safety innovation because codes and standards are often slow to adapt to change and new technology. Approaches that treat safety as an objective outcome encourage safety innovation because they do not wait for codes and standards to catch up with technology. Bioenergy development in British Columbia is a good example of how safety regulators can fulfill safety mandates by expanding their regulatory toolkit beyond the traditional approach.

**Targeted Incident Reduction**

In 2010, the BC Safety Authority launched the multi-year Targeted Incident Reduction initiative aimed at reducing incident rates through leadership and educational stewardship.

Under this initiative, the BC Safety Authority will take a leading role in raising awareness among regulators, associations and industry groups regarding preventable incidents involving regulated equipment in British Columbia. Based on incident trending data collected by the research program of the BC Safety Authority, incidents involving serious injury or death stemming from carbon monoxide poisoning warrant a coordinated effort to address. Multiple fatalities occur every year relating to carbon monoxide poisoning. Annual statistics for carbon monoxide incidents can be found in the BC Safety Authority’s State of Safety Report.

Moving forward in 2011, the BC Safety Authority will continue to coordinate efforts between its partners to raise awareness of the risks of carbon monoxide poisoning and the preventative safety measures that can be taken. Working with other organizations will be especially significant because research will consider not only the fuels that are regulated under the Safety Standards Act but all sources of carbon monoxide.

The BC Safety Authority will be compiling data from various agencies and groups, including first responders, local governments and gas utilities for analysis in order to identify what actions can be taken by each agency or group that will ultimately lead to the collective goal of reducing the number of incidents involving carbon monoxide poisoning.

**Vancouver 2010 Olympic and Paralympic Winter Games**

Every day in British Columbia, stakeholders face new situations where the current codes, standards and regulations may not be a perfect fit. The Safety Standards Act and regulations continue to evolve, as detailed throughout this Report, to provide innovative solutions to novel circumstances. Rarely, however, are safety administrators faced with the challenges that are presented by being on the world’s largest stage but this is what happened with the BC Safety Authority as the province prepared to host the 2010 Olympic and Paralympic Games.

In 2010 the BC Safety Authority Olympic & Paralympic Winter Games project focused on the finalization and implementation of the Olympic Safety Plan. This comprehensive plan consolidated three years of work into one operational document that would assist all BC Safety Authority staff in dealing with any issues which could have occurred as a result of regulated work, or the use of regulated products, during the operational period of the Games.

Key components of the Olympic Safety Plan were:

- Venue inventory listings with supporting documentation
- Venue risk assessments and audit reports
- Technology specific risk control plans
- Communication plans

To ensure that the Olympic Safety Plan was fully implemented and operational, approximately 45 BC Safety Authority full-time staff members committed a large percentage of their work activity to the Olympic Safety Plan for the first quarter of 2010. As a result, all identified high-risk venues were audited and identified non-compliances were addressed. Forty-five BC Safety Authority staff members went through the Olympic accreditation process and provided 24-hour coverage from February 11, 2010 to March 22, 2010.

In addition to the novel oversight challenges posed by the Games, regulated products from around the world were used during the Games (i.e., on a temporary basis only) for a variety of Olympic-related activities ranging from media to food services. Processes were developed to ensure that any products that were not compliant with the regulations under the Safety Standards Act were safe.
These processes included sending BC Safety Authority staff overseas to evaluate equipment before it was even shipped into the province and the use of Equivalent Standards Agreements.

A post-Olympic Games survey was conducted to review lessons learned during the Olympic Safety Plan project. Results of the survey have been summarized and logged for future review.

The following are just a few examples of knowledge that the BC Safety Authority could share with other jurisdictions planning on hosting events of Olympic proportions:

- The processes developed to maintain continuity of the Olympic Safety Plan through all phases of the Olympic project;
- The creation of a risk-based framework within which different standards could co-exist; and
- Support for accelerated construction completions through early adoption of a technical safety strategy.

**Enforcement Program Implementation**

The BC Safety Authority continued its efforts in 2010 to implement and further refine the strategic components of its enforcement initiative.

Overall, the main objective of the enforcement initiative is to promote sustained compliance with the law by requiring regulated parties to take timely action in addressing serious safety risks. This can be achieved by imposing sanctions on regulated parties who fail to meet their responsibilities.

The BC Safety Authority’s enforcement initiative is based on the following principles:

- **Risk Based** – Enforcement actions will be focused on the higher risks first as identified within the BC Safety Authority’s established risk assessment processes.
- **Consistent** – The BC Safety Authority will promote fair, equitable and consistent enforcement practices.
- **Proportionate** – The level of enforcement action will correspond with the seriousness of the non-compliance and the extent of the risk.
- **Transparent** – The BC Safety Authority will provide clear and open information on its enforcement program and enforcement actions.
- **Timely** – Enforcement will be timely.

During 2010, the BC Safety Authority implemented the following series of measures designed to support the long-term progression of the enforcement program:

- Refined existing processes and procedures to achieve effective and consistent application of the enforcement tools provided by the Safety Standards Act;
- Established ongoing enforcement training support for Safety Officers; and
- Introduced a standardized information technology system to coordinate and streamline information sharing between Safety Officers and other BC Safety Authority staff.

In the 2009 Report, the BC Safety Authority made a commitment to increase communication with industry and stakeholders regarding enforcement activities undertaken by Safety Officers and Provincial Safety Managers. To this end, the BC Safety Authority began publishing quarterly statistics in 2010 summarizing its enforcement actions and providing the context and the names of companies where escalated enforcement action was undertaken.

Enforcement actions are publicly accessible and are published on the BC Safety Authority website at: http://www.safetyauthority.ca/enforcement/enforcement-actions

Moving forward, the BC Safety Authority will continue to refine its enforcement program. Similar to the role of education and outreach, enforcement is an integral part of maintaining and improving British Columbia’s technical safety system.

**Research**

Research plays a critical role in building the knowledge base necessary to develop effective and dynamic safety system policies that help motivate compliance. Research is an important element in ensuring that BC Safety Authority inspection, education, and enforcement programs are focused and effective at removing or mitigating unsafe conditions. Presently, the research program at the BC Safety Authority is in its very early stages of development.
In 2010 the BC Safety Authority developed a research program strategy and plan to provide a framework for applying research in the near future as well as longer term. The objective of this plan is to develop data gathering and analysis processes which will improve both the quality and consistency of data collection for research purposes.

From 2011 to 2015, the research program will develop the necessary means to establish historical safety patterns and causal factors, forecast trends to identify potential safety issues, recommend actions to control risks, and measure the effectiveness of those risk control actions. By 2015, research will be fully integrated into all aspects of inspection, education and enforcement.

In 2010, the research carried out included the following:

1. Compilation, verification and cleansing of incident data collected from 2006 to 2008. This data was used to establish a baseline measure for incident levels.
2. Development of a clean, consistent and integrated database for the purposes of reporting and research. This will allow for further automation of report-generating processes in order to reduce human entry errors in reports and to reduce the time spent creating reports.
3. Performance measurements of the BC Safety Authority’s processes including:
   - Development of a quantitative linkage between our Risk Assessment Program and reported incidents in order to analyze the validity of the Risk Assessment Program. This will also allow the BC Safety Authority to assess correlations between the risk severity level assigned by Safety Officers to non-compliances found during inspections (i.e., a numerical “risk score”) and the incident severity level determined during incident investigations (i.e., a numerical “incident severity score” assigned by Safety Officers). Those comparisons will reveal any disparities between the two scores; and
   - Development of a performance measurement matrix to establish what data needs to be collected in order to allow for performance evaluation of the enforcement actions (e.g., effectiveness of enforcement tools).
4. Completion of annual incident summaries per technology and the review of specific incident reports.

Developing Codes and Standards

As in previous years, BC Safety Authority staff actively participated as members of both national and international code committees in 2010 to support codes and standards development. By promoting and encouraging the harmonization of technical safety standards, the BC Safety Authority has established a leadership role for British Columbia in those safety forums.

In 2010, the BC Safety Authority participated on more than twenty national and bi-national advisory councils and codes/standards committees including: working with the federal government, provincial governments, other regulatory bodies, and standards development agencies such as the Canadian Standards Association, the American Society of Mechanical Engineers, and the National Board of Boiler Inspectors. Staff from across all BC Safety Authority technical programs have contributed to the development of new standards and to updates, modernizations and revisions of the codes and standards that are already adopted by the technology-specific regulations.

Stakeholder Engagement

Stakeholder engagement plays an important role in the ongoing functioning of the safety system. Industry participants and other stakeholders provide valuable insight into how regulated activities are evolving from a perspective that is different from that of the BC Safety Authority. Many initiatives aimed at changing regulations or changing BC Safety Authority policies and procedures are the result of the BC Safety Authority listening to ideas or concerns communicated by its external stakeholders. Other times, the BC Safety Authority identifies a need for change and engages stakeholders in an effort to make the change as good as possible for all involved. Either way, the BC Safety Authority values what stakeholders have to say.

The BC Safety Authority engages its external stakeholders through both standing committees and as-needed consultation. Through collaborative efforts such as Memoranda of Understanding, the BC Safety Authority works alongside stakeholders to develop better processes to support the safety system.
STANDING COMMITTEES

The BC Safety Authority has two standing committees. The Technology Advisory Committees and the Safety Standards Administrators’ Group provide industry expertise and collaborate with the BC Safety Authority to address issues around safety, regulations and service delivery.

Five of the technologies regulated by the BC Safety Authority (Boiler, Pressure Vessels & Refrigeration technology; Electrical technology; Elevating Devices technology; Gas technology and Passenger Ropeways & Amusement Devices technologies) have Technology Advisory Committees. These committees meet quarterly to discuss a wide range of safety issues, regulations and best practices that result in a large number of action items. A smaller number of action items, requiring more focused efforts, are addressed through the development of Risk Reduction Working Groups (subcommittees) that provide specific recommendations to address the particular item the group is working on. The work of Risk Reduction Working Groups for each technology is summarized within the Technology Developments part of this Report.

In order to maximize the potential of the Technology Advisory Committees, the composition of the current committee membership was reviewed. As a result of this review, the recruitment of membership candidates from more industry sectors and a larger geographical region began in late 2010 and will continue in 2011.

In 2010, the Safety Standards Administrators’ Group was formed to develop a dialogue and, where possible, collaborative initiatives between the BC Safety Authority and local governments that have delegated administrative responsibilities for electrical and/or gas safety (see Appendix B for a full list of those local governments). The Safety Standards Administrators’ Group held three administrators’ meetings in 2010 which focused on developing its terms of reference and beginning work on how best to collaborate on obtaining comprehensive incident reports in order to provide province-wide data and trending analysis. One gas and three electrical technical meetings were held which focused on developing common understanding and application of electrical and gas regulations.

AS-NEEDED CONSULTATION

In addition to ongoing input from the standing committees, the BC Safety Authority consults with key stakeholders on specific safety issues. In 2010, as-needed consultation efforts focused on two core BC Safety Authority initiatives: Alternative Safety Approaches and the Elevating Devices Mechanics Certification Program.

In support of the development of Alternative Safety Approaches, the following was undertaken by the BC Safety Authority (see chart below).

As discussed in the Technology Developments section of this Report, the BC Safety Authority is in the process of developing an Elevating Devices Mechanic Certification Program for British Columbia. This is an industry-supported initiative focusing on the qualifications and competencies of elevating devices mechanics. From a stakeholder engagement perspective, the highlights from 2010 are:

- Development and distribution of an initial “Discussion Paper on the Formation of an Elevating Devices Mechanics Certification Program”; and
- A revised discussion paper and province-wide consultation forums to continue into 2011.

### ALTERNATIVE SAFETY APPROACHES

<table>
<thead>
<tr>
<th>Meeting Type</th>
<th>Invitations</th>
<th>Attendees</th>
<th>Meetings</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry Consultation</td>
<td>385 Total</td>
<td>88</td>
<td>6</td>
<td>Alternative Safety Approaches’ Consultation Report that provided important data for both regulatory and policy development.</td>
</tr>
<tr>
<td>Bioenergy Workshop</td>
<td>23</td>
<td>23</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Government Consultation</td>
<td>34</td>
<td>34</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
COLLABORATION WITH OTHER PROVINCIAL SAFETY SERVICE PROVIDERS

In 2010 the BC Safety Authority entered into a Memorandum of Understanding with the Electrical Safety Authority who is responsible for public electrical safety for the province of Ontario. This strategic alliance is intended to promote improvements in safety in both provinces, to create value in supporting common mandates and to build an effective model for cooperation.

Initiatives that are enabled through this memorandum include:

1. Promotion of the harmonization of electrical codes and standards across Canada and Internationally;
2. Creation of a national system for the certification of electrical inspectors and Safety Officers;
3. Establishment of a national system to manage product safety issues;
4. Modernization and harmonization of the electrical regulatory system.

The BC Safety Authority is also part of the National Public Safety Advisory Committee, which is a Canada-wide committee dedicated to sharing best safety practices and discussing key safety trends and issues among safety organizations.

Strategic partnerships with other administrators of public safety help both sides through sharing lessons learned and safety data. Ultimately, public safety is enhanced through these types of cooperative arrangements.

The Stakeholder Engagement Program continued to develop and improve in 2010. The BC Safety Authority will continue to seek opportunities for improvement into the future.

Overall, the Stakeholder Engagement Program continued to develop and improve in 2010. The BC Safety Authority will continue to seek opportunities for improvement into the future.

The Business of Safety: System Transition and Replacement Project

Administering a province-wide safety system requires a lot of support behind the scenes. Although stakeholders interact with the BC Safety Authority through more visible activities (such as inspection, education, certification and enforcement), the IT systems and other support systems can have a big influence on the way that the BC Safety Authority provides those safety services. At the BC Safety Authority, this is referred to as the “Business of Safety”.

Keeping the systems that take care of the Business of Safety current and up to date is a challenge faced by many safety administrators. In 2010, following extensive internal discussions and research, the BC Safety Authority Executive and Board of Directors concluded that the BC Safety Authority had outgrown its current computer operating system. A team of BC Safety Authority users were selected to evaluate several new systems that had the potential to meet BC Safety Authority business needs into the future.

Following a competitive bidding process, a vendor was selected and work began toward developing the business requirements of the new system. Perhaps the greatest benefit of this new system will be the increased capacity of the BC Safety Authority to deliver on all services across all technologies, to all stakeholders, in a modern, speedy and preferred method.
When responsibility, authority and accountability for results of a collaborative effort are shared, the final outcome is more effective. The BC Safety Authority collaborates with stakeholders towards common goals.

Once the new system is fully implemented, the BC Safety Authority’s clients will see an increase in the availability of information which will support both industry needs and technical safety needs. In addition, clients will have increased opportunities and flexibility with respect to managing their own business needs as far as accessing services such as licensing, certification, permitting and design review and acceptance.

Another important feature of the new system will be an array of valuable reports which could be developed into leading indicators in the areas of both business and safety. These and other new features are all expected to raise the BC Safety Authority’s service model to a world class level for the benefit of safety and their stakeholders.

Work on developing the new system will continue in 2011 with a target date for full implementation of the end of 2012.

Future Initiatives

In 2011, the BC Safety Authority will work with the Province of British Columbia to develop an Alternative Safety Approaches Regulation making safety a priority when faced with innovation and advances in safety management techniques. At the same time, the BC Safety Authority will continue to recommend the adoption of new codes and standards as they are published in most of the technologies regulated under the Safety Standards Act and Railway Safety Act. Recognizing that accountability and training are important pieces of the bigger safety puzzle, the BC Safety Authority will continue to work toward uniform certification standards for elevating devices mechanics and for the implementation of the Field Safety Representative program into the gas technology.

Modernizing the regulatory landscape is another key element in safety, so work will continue toward a comprehensive review of all legislation administered by the BC Safety Authority. For a summary of some of the key regulatory changes and initiatives proposed by the BC Safety Authority for the coming year and beyond, please refer to the following table.
## TABLE 1
Planned initiatives of the BC Safety Authority that will be proposed to the Province of British Columbia.

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>POSSIBLE REGULATION OR POLICY IMPACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure codes adopted under the Power Engineers, Boiler, Pressure Vessel</td>
<td>Amendments to the Schedule of the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation to adopt updated versions of various codes.</td>
</tr>
<tr>
<td>and Refrigeration Safety Regulation are kept current.</td>
<td>Amendments to the B44 Safety Code for Elevators and Escalators, as adopted under the Elevating Devices Safety Regulation.</td>
</tr>
<tr>
<td>To resolve inconsistencies between local government bylaws, the BC Building</td>
<td>Adoption of the latest edition of the B355 Safety Code for Lifts for Persons With Disabilities under the Elevating Devices Safety Regulation.</td>
</tr>
<tr>
<td>Code and codes adopted under the Elevating Devices Safety Regulation.</td>
<td>Any amendments to the Elevating Devices Safety Regulation that may be required in support of elevating devices mechanic certification/contractor licensing changes.</td>
</tr>
<tr>
<td>To ensure codes adopted under the Elevating Devices Safety Regulation are</td>
<td>Adoption of the 2010 Natural Gas and Propane Code.</td>
</tr>
<tr>
<td>kept current.</td>
<td>Correction of text in the Gas Safety Regulation concerning scope of work for B Gasfitters.</td>
</tr>
<tr>
<td>To enable a robust elevator mechanic certification program.</td>
<td>Establishment of an Alternative Safety Approaches Regulation.</td>
</tr>
<tr>
<td>To ensure codes adopted under the Gas Safety Regulation are kept current.</td>
<td>Amendments for British Columbia to adopted provisions under the Railway Safety Act that will be automatically adopted into British Columbia when Federal Bill C-33 comes into force.</td>
</tr>
<tr>
<td>To correct an error in the Gas Safety Regulation as it relates to the scope of work of ‘B’ Gasfitters.</td>
<td>May lead to recommendations for changes to various regulations under the Safety Standards Act.</td>
</tr>
<tr>
<td>To ensure that Federal regulations that are adopted for use in British Columbia under the Railway Safety Act are suitable for use.</td>
<td></td>
</tr>
<tr>
<td>To streamline systems and processes across technologies as part of System Transition and Replacement Project.</td>
<td></td>
</tr>
<tr>
<td>To develop policy and other support documentation in support of Alternative Safety Approaches Regulation.</td>
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</tr>
</tbody>
</table>

The BC Safety Authority’s role in regulatory development is that of technical advisor to the Province of British Columbia. It is the Province of British Columbia that ultimately decides which changes will occur to the Safety Standards Act, Railway Safety Act and associated regulations. As an advisor, the BC Safety Authority looks forward to the continual and steady improvement of British Columbia’s safety system as it evolves, through provincial legislation and BC Safety Authority policy, into a recognized world leader in managing technical safety in a balanced and forward-looking manner. Working with their Provincial counterparts, the BC Safety Authority is confident that the legislative changes made in 2010 and those to come in 2011 and beyond indicate that they are well on their way to achieving this goal.
The Technology sections that follow highlight any changes to the regulations that were made during 2010 as well as any other developments of interest within each technology. Then, any Safety Orders or Directives that were issued for each technology are summarized along with any Information Bulletins. Each section concludes with summaries of any work done by Risk Reduction Working Groups, as described earlier in this Report, during 2010 for each technology. All changes to the regulations, Safety Orders, Directives, Information Bulletins and Risk Reduction Working Groups are summarized for convenience in Appendix A.

Definitions:

**Safety Orders**
Binding orders issued by Safety Managers to prevent, avoid or reduce the risk of personal injury or damage to property.

**Directives**
Documents that clarify interpretations of code or regulation requirements, or provide direction concerning how a regulation will be applied.

**Information Bulletins**
Non-binding documents that provide general information to employees, stakeholders and the public.
Amusement Devices Technology

CODE AND OTHER TECHNOLOGY UPDATES

Harmonization of the Canadian Amusement Ride and Device Standards with US Standards

The participation by the BC Safety Authority on this harmonization strategy was identified in the 2009 Annual Report on Safety Regulation. This important initiative aims to facilitate collaboration between Canada and the US on the development of Amusement Ride and Device Standards and remains ongoing. It was anticipated that a standards document acceptable for adoption by Canadian regulators would be produced in October of 2010; however, unforeseen issues have resulted in a delay. The Harmonization Committee hopes to have a harmonized document finalized by the end of 2011. BC Safety Authority Amusement Devices Program staff will be reviewing all relevant standards in 2011 in preparation for possible code adoption in British Columbia early in 2012.

Boilers, Pressure Vessels & Refrigeration Technology

REGULATORY CHANGES

Boiler Code Adoption

The Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation adopts a large number of Codes authored by numerous standard writing bodies such as the Canadian Standards Association and the American Society of Mechanical Engineers. Those standard writing bodies update their Codes at different intervals, so the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation is amended annually to reflect updates to, and new editions of, Codes adopted under it.

Exemption from Certification Requirements to Operate Low Pressure Thermal Fluid Plants With Advanced Automated Control Systems

As noted in last year’s Report, low pressure thermal fluid plants utilize thermal fluids such as mineral, synthetic or organic-based oils for heat transfer to provide heat for industrial purposes (e.g., wood kilns), or can be adapted to provide a heat source for community heating system projects that provide building heat or hot water. Low pressure thermal fluid plants with a heating surface area over 150m² require prescribed staffing by appropriately certified power engineers. Under an amendment to the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation made in March 2010, low pressure thermal fluid plants that are equipped with advanced automated control systems that are fail-safe and have been approved by a professional engineer may register their automated control system with a Provincial Safety Manager in order to be exempt from prescribed staffing by power engineers. Two Directives, as noted below, were issued to support this change to the regulation.

Expansion of Qualification Requirements for Boiler Safety Officers

Prior to March 2010, the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation specified that only first class power engineers (or those who would shortly become first class power engineers) were eligible to apply to the BC Safety Authority to become Boiler Safety Officers. However there are many other engineering professions, technical accreditations and training that provide the knowledge and necessary experience for people to carry out the duties of a Boiler Safety Officer.
Under 2010 amendments to the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation, applicants for positions as Boiler Safety Officers must now either hold a valid National Board Commission as a boiler and pressure vessel inspector or meet the qualification criteria for obtaining that commission. The newly expanded criteria ensure that people performing the duties of Safety Officers are appropriately qualified while expanding the potential hiring pool for Safety Officer positions. The criteria are in line with other Canadian jurisdictions and provide for a more diverse skill set that will help the BC Safety Authority to move forward with innovative programs such as Alternative Safety Approaches as described earlier in this Report.

**DIRECTIVES**


This Directive was issued to owners, licensed contractors, consulting engineers, manufacturers and designers of low pressure thermal fluid plants to provide guidance on the registration of automated control systems in support of the exemption for certified operator requirements for low pressure thermal fluid plants under the Safety Standards Act as described earlier in this Report.

Directive No. D-B6 100604 2: Individuals Responsible for Operating and Maintaining Low Pressure Thermal Fluid Plants that are Subject to Section 6(l) of the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation (the “Regulation”) (Issued June 4, 2010)

This Directive provides owners of low pressure thermal fluid plants with the interpretation and application of section 79 of the Regulation. Plant owners are subject to this Directive if they have registered an automatic control system and are exempt from the certified operator requirements of the Regulation.

**INFORMATION BULLETINS**


This information bulletin was issued by the Director of Technical Programs to announce the amendments to the Regulation that exempt low pressure thermal fluid plants from certified operator requirements and to amend the qualification requirements of Boiler Safety Officers as described in this Report.

**RISK REDUCTION WORKING GROUPS**

Mandatory maintenance on <30m² low pressure steam vessels

This Risk Reduction Working Group created a checklist of mandatory maintenance items for low pressure steam vessels with a heating surface of less than 30m². At a Boiler Technology Advisory Committee meeting, it was discussed that these low pressure units, which do not require operators, may not be adequately maintained and may have contributed to a number of incidents. Following approval of the Working Group’s recommendations by the Boiler Technology Advisory Committee, the BC Safety Authority will review the recommended actions in 2011.

**Electrical Technology**

**CODE AND OTHER TECHNOLOGY UPDATES**

Industry Safety Education

Electrical “Tech Talks” are a multi-year program designed to educate electrical professionals about specific technical and regulatory topics through an ongoing series of interactive tutorials. Tech Talks originated on Vancouver Island with the BC Safety Authority Electrical Safety Officers in the Capital Regional District. The talks provide an opportunity for Electrical Safety Officers and contractors to discuss new technology and the application of existing technology in an open forum with a common goal of safety.

After receiving much high praise from attendees, in 2010 the BC Safety Authority expanded Tech Talks to other parts of the province. The sessions have been well attended by the contracting community and provide a real opportunity for shared learning and business improvement. Safety is ultimately enhanced when the industry has all of the most up-to-date information. The BC Safety Authority’s Education Team provides Safety Officers with support and materials in order to help make Tech Talks as valuable as possible for all involved.
SAFETY ORDERS

Safety Order No. SO-E3 100817 1 (Issued August 17, 2010)

This Safety Order required the electrical utility to terminate the electrical supply to an address and meter. Law enforcement officers had investigated a suspected marijuana grow operation and the electrical system was deemed unsafe by an electrical contractor.

DIRECTIVES


These Directives provide guidance on the interpretation and application of a number of rules included in the 21st Edition of the British Columbia Electrical Code. Both supersede Directives that were issued in 2007.

INFORMATION BULLETINS

Information Bulletin No. B-E3 100224 1 Revision 01, Minimum Requirements Retrofit of Fluorescent Luminaires (Issued November 15, 2010)

This Information Bulletin was issued to provide additional information around requirements concerning the safe retrofit of lighting fixtures with energy efficient fixtures. The Information Bulletin also provides guidance to stakeholders on how to apply for and obtain a variance from the BC Safety Authority. The Information Bulletin was issued following consultations with the Ministry of Energy and BC Hydro.

RISK REDUCTION WORKING GROUPS

Review of the Electrical Safety Regulation Section 18 and CSA Z462

The Electrical Technology Advisory Committee noted inconsistencies between Section 18 of the Electrical Safety Regulation and the CSA Z462 Electrical Workplace Safety Standard. The current wording of Section 18 of the Regulation may result in unqualified individuals exposing themselves to electrical hazards. A Risk Reduction Working Group is being formed to propose new wording for the Electrical Safety Regulation.

Dairy Farm Voltage

A Risk Reduction Working Group is being formed to assess the effect of stray voltage on livestock and to develop information packages for the electrical industry and for the farming industry.

Elevating Devices Technology

REGULATION CHANGES

Adoption of 2007 Safety Codes for Elevators and Escalators Including Retrofitting of Single Bottom Cylinder Hydraulic Elevators

Following extensive analyses in 2009, the BC Safety Authority recommended the adoption of the 2007 edition of the Safety Code for Elevators and Escalators. For the first time, the 2007 edition of the Code was harmonized with the American Code and jointly published by the Canadian Standards Association and the American Society of Mechanical Engineers. The Code is now published as three separate documents. The first is the new edition of the Code, the second is a maintenance Code unique to Canadian jurisdictions while the third provides an objective-based safety code for novel elevating devices that are unable to comply with the “base” Code.

In the process of adopting the 2007 edition, British Columbia became the first Canadian jurisdiction to require the mandatory retrofitting of older hydraulic elevators known as “single bottom cylinder” elevators. Those elevators are nearing the end of their engineered life and there have been several incidents around North America where the hydraulic cylinder has failed resulting in a sudden drop of the elevator car. Research into the susceptibility of these types of elevators in active seismic zones (i.e., California) further indicated that these devices required one of three available retrofitting safety solutions. All single bottom cylinder hydraulic elevators in British Columbia must be retrofitted by October 8, 2015. A Safety Order, a Directive and an Information Bulletin, as detailed later in this Report, were issued in support of this amendment.

CODE AND OTHER TECHNOLOGY UPDATES

Elevating Devices Mechanics Certification Program

At present, there are no uniform standards for the qualifications of approximately 1000 people working as elevating devices mechanics.
in British Columbia. There have been a number of incidents involving elevating devices mechanics over the past several years including a fatality. In order to address this problem and to implement one of the findings in the Coroner’s Report concerning the fatality mentioned above, the BC Safety Authority is in the process of developing an Elevating Devices Mechanic Certification Program that will establish uniform standards for elevating devices mechanics and implement a mechanism for assessing their competency on an ongoing basis.

In 2010, the BC Safety Authority led the development of standards for education with direct support from the elevating devices industry under the guidance and facilitation of the British Columbia Institute of Technology. The outcomes of five separate workshops held with industry participants were four standards for education, also known as program outlines; one for each class of elevating devices mechanic the BC Safety Authority is planning to roll out in 2012. The participation by a cross-section of industry was extremely high and helped greatly to contribute to a cause that will benefit the whole industry and bring a higher level of safety. Industry participants demonstrated a shared commitment through their sharing of technical expertise, insightfulness, and professionalism.

In 2011, the BC Safety Authority will continue to engage industry in the development of standards for on-the-job competency achievement. Broader consultations and targeted educational sessions will also be held with industry to bring greater understanding and clarity to the overall program.

SAFETY ORDERS


This Safety Order provided guidelines to owners of elevators with single bottom cylinders and to licensed elevating devices contractors concerning the retrofitting requirements described in this Report.

DIRECTIVES


This Directive replaced Directive NO. D-L4 051206 1 and required all class A, RA, MR and H licensed elevating devices contractors to submit current lists of all of the elevating devices that the contractor has under mandatory maintenance contracts with their clients using the specified process. Submission of those lists is required under the Elevating Devices Safety Regulation.

Directive No. D-L4 100311 2: Mandatory Requirements for Elevator Updating or Modernization of Motion and Operation Control (Issued March 11, 2010)

This Directive detailed the terms and conditions attached to permits issued for existing traction and hydraulic elevators that will, under permit as required, be modernized.


This Directive was issued to elevator contractors in order to clarify the requirements regarding glass in elevator cars, hoistway doors and in the construction of hoistway enclosures.


This Directive was issued to all elevating contractors, building owners and property managers to clarify maintenance requirements and intervals for elevators, material lifts, dumbwaiters, limited use/limited application elevators, escalators and moving walks.


This Directive clarified requirements that had been changed or added as a result of adopting updated Codes.

INFORMATION BULLETINS


This Information Bulletin provided general information to owners of elevators with single bottom cylinders and to licensed elevating devices contractors concerning the retrofitting requirements described in this Report.
RISK REDUCTION WORKING GROUPS

Elevating Devices Mechanic Certification

The recommendations from the Elevating Devices Mechanic Certification Risk Reduction Working Group were further recommended by the Elevating Devices Technology Advisory Committee in 2009. From these recommendations, the BC Safety Authority and the elevating devices industry created a proposed program for certifying elevating devices mechanics of all classes. The “Code and Other Technology Updates” section contains details on the program’s progress.

Emergency Operations

A Risk Reduction Working Group is reviewing and discussing the changes in the CSA B44-07 Code that pertain to building and elevator emergency services and identifying issues that need to be addressed. The Working Group will identify any conflicts between the B44-07 Code and the British Columbia Building Code and municipal bulletins regarding elevator recall and make recommendations that would help with consistent interpretation. The Working Group will also make recommendations on minimum safety requirements for elevator upgrades on existing buildings for compliance with new codes as upgrading or replacing the building fire alarm system may prove too costly for some older buildings and thus discourage some owners to upgrade their elevators altogether.

Gas Technology

REGULATION CHANGES

Definition of “Pipeline” in New Oil and Gas Activities Act

In 2010, the Province of British Columbia made one regulatory change with respect to the Gas Safety Regulation.

In October 2010 both the Oil and Gas Commission Act and the Pipeline Act were repealed and replaced with the Oil and Gas Activities Act. Consequently, it was necessary to update both the Safety Standards Act and the Gas Safety Regulation to reference the Oil and Gas Activities Act instead of the formerly referenced Pipeline Act. Pipelines as defined in both the old and new Acts, are exempt from application of the Safety Standards Act in respect of certain regulated products.

The BC Safety Authority is continuing to monitor the development of the Oil and Gas Activities Act and its subsidiary regulations. The definition of “pipeline” in the Oil and Gas Activities Act is slightly different than the definition that appeared in the Pipeline Act. Further refinements may be necessary to the regulations under the Oil and Gas Activities Act to ensure that the status quo with respect to operational jurisdiction for safety is maintained.

CODE AND OTHER TECHNOLOGY UPDATES

Technical Training and Regulatory Dialogue Session

In April 2010 the BC Safety Authority piloted a unique educational training initiative aimed at bridging the understanding between the technical and the regulatory aspects of the gas safety system in British Columbia. This two-day session brought together participants from the entire gas community, including local governments, gas utilities, educational institutes, contractors, gas fitters and Safety Officers to not only learn about the technical developments in their industry but also about how regulatory developments can have an impact on their industry. This was an important aspect of this session because the participants were given a forum where they could learn about proposed changes to their regulations and openly comment on these changes. Following consideration of the feedback that we received, the proposed changes to the regulations will be forwarded to the Province of British Columbia in 2011.

Following the session, survey results revealed that the vast majority of participants left with a greater understanding of the regulatory system and how it affects their operations. In fact, a number of the participants would later go on to integrate the regulatory material from the session into their own educational programs and training courses for their staff.

Moving forward, the BC Safety Authority is currently reviewing and refining the Technical Training and Regulatory Dialogue Sessions for possible expansion into other technologies.

SAFETY ORDERS

Safety Order No. SO-G5 100409 1: Flexmaster Z Vent Special Vent Systems (Issued April 9, 2010)

This Safety Order was issued to Flexmaster Canada Ltd and was subsequently rescinded in August 2010. The BC Safety Authority
concluded there was no defect or deficiency with the venting product that was the subject matter of the Safety Order and Flexmaster agreed to take actions relating to installation procedures of this product. In particular, Flexmaster agreed to replace any materials directly damaged by improper installation, revise and re-issue installation instructions, attach clear directions on labels attached to their product and present proper installation procedures directly to contractors through wholesalers and other means.

DIRECTIVES


This Directive was issued to clarify the installation requirements for gas-operated refrigerators. The Directive was issued following documented fatalities associated with the use of unvented refrigerators installed in occupied spaces. BC Safety Authority root cause analyses of the fatal incidents led to national acceptance of changes to the Natural Gas and Propane Code to improve safety with respect to the installation of propane refrigerators.


This Directive was issued to clarify the installation requirements for device clearances to openings and ignition sources.

Directive No. D-G5 101230 1: Truck to Truck Transfer of Propane (Issued December 30, 2010)

This Directive clarifies the requirements for the allowance of transfer of propane from one tank truck to another tank truck.

RISK REDUCTION WORKING GROUPS

Non-Refillable Propane Cylinders

The Gas Technology Advisory Committee initiated the formation of a Risk Reduction Working Group to research the risk associated with the disposal of propane cylinders. The Working Group found that information on the proper refill of these cylinders is widely available and instructions on proper disposal are attached to each cylinder. With no statistics regarding incidents or accidents related to propane cylinders available, the Working Group recommended that the issue be removed from the risk registry at this time due to the perceived low risk to public safety. The Working Group also recommended that the BC Safety Authority develop information pamphlets to be available at propane cylinder retail locations with funds from the government’s collection of eco-fees. The BC Safety Authority would like to conduct further investigation into this issue by researching how other provinces are mitigating this potential public safety hazard and therefore did not remove the issue from the risk registry in 2010.

Passenger Ropeways Technology

REGULATION CHANGES

Errata to CSA Z98

From time to time, the Canadian Standards Association issues documents that correct errors that are discovered in the codes and standards that they publish. Those documents are referred to as “errata”. In 2010, the Canadian Standards Association published errata to the Z98 Passenger Ropeway and Passenger Conveyor Code that were subsequently adopted for application in British Columbia by the Elevating Devices Safety Regulation.

CODE AND OTHER TECHNOLOGY UPDATES

Equivalent Standards Agreement for Cable-Crane Passenger Ropeway

In 2010 the BC Safety Authority received a request from an Austrian company that wanted to install a cable-crane ropeway to facilitate the installation of a penstock for an independent hydroelectric project just east of Sechelt, British Columbia. The cable-crane ropeway would be used for the transportation of equipment and passengers to the project. The technology for this installation is similar to that of a reversible passenger ropeway in that it is designed with a cable-crane carriage that travels on track ropes that are supported by towers. As an initial review by the BC Safety Authority determined that this ropeway would not meet the CAN/CSA Z98-07 standard for passenger ropeways, an “Equivalent Standards Agreement” is currently being written. This agreement would require the proponent to submit an integrity management plan that would demonstrate an equivalent level of safety to Canadian standards.
The application process for the Equivalent Standards Agreement was still in progress at the end of 2010. The BC Safety Authority has been made aware of other similar installations that are being proposed for other locations in British Columbia. These sorts of situations where technology new to Canada is being introduced illustrate the need for a flexible safety system that is capable of recognizing different ways of achieving safety outcomes.

**Excalibur Gondola Incident Investigation and Final Report**

In July 2010, the Provincial Safety Manager for Passenger Ropeways concluded a 16-month investigation into the December 16th, 2008 structural failure of a tower on the Excalibur Gondola located on Blackcomb Mountain in Whistler, British Columbia. The investigation concluded that forces created from the expansion of ice within the tower were the primary contributors to the stresses that initiated a crack and caused the tower to fail. As a result of the investigation, two Safety Orders were issued that required passenger ropeway contractors to provide drainage or other means to prevent accumulations of water within passenger ropeway structures throughout British Columbia. The Safety Orders required that the method to prevent accumulations of water must be identified by the manufacturer or a professional engineer licensed in British Columbia.

The incident investigation resulted in final report (available on the BC Safety Authority website) that made a total of six recommendations. One of those recommendations resulted in the issuance of the Safety Orders noted above. The other five recommendations were:

- That clear and effective safety bulletins be issued by manufacturers;
- That passenger ropeway contractors review their internal communications regarding manufacturer’s safety bulletins;
- That passenger ropeway contractors ensure that as-built conditions are identified on technical drawings;
- That the investigation findings be reviewed by the CAN/CSA Z98 Passenger Ropeway and Passenger Conveyor technical committee to determine if national code changes are required; and
- That the BC Safety Authority review its processes regarding safety bulletins issued by manufacturers.

This Excalibur incident investigation was the largest investigation ever undertaken by the BC Safety Authority. The work put into the investigation has led to improvements to BC Safety Authority processes for establishing the root causes of major incidents.

**SAFETY ORDERS**

*Safety Order No. SO-P4 100708 1: Potential Accumulations of Water within Passenger Ropeway Tower Tubes or Other Hollow Steel Station Structures (Issued July 8, 2010)*

This Safety Order was issued to all passenger ropeway contractors operating above-surface and surface passenger ropeways. The Safety Order requires passenger ropeway contractors to ensure methods are implemented for the evacuation of water from tower tubes or other hollow steel structures.

**INFORMATION BULLETINS**


This Information Bulletin was released to advise industry of the key findings and recommendations that resulted from the extensive 2008 Excalibur incident.

**RISK REDUCTION WORKING GROUPS**

*Proactive Approach to Aging Passenger Ropeways*

A Risk Reduction Working Group is being formed to review the current state of aging passenger ropeways in British Columbia and determine if periodic engineering reviews would be feasible. The Working Group would also identify any passenger ropeways in British Columbia that may require a review based on age, operating hours and cycles.

**Railways Technology**

**REGULATION CHANGES**

**Regulation Review**

The BC Safety Authority in partnership with the Ministry of Transportation and Infrastructure regulates railways that operate

In 2010, the BC Safety Authority and the Ministry of Transportation and Infrastructure initiated a review of all adopted legislation and regulations. The objective was to ensure consistency between federal and provincial requirements and to ensure that the BC Safety Authority’s roles and responsibilities under the delegation of authority are clear.

This initiative will continue in 2011 by reviewing the suitability of the existing adopted federal legislation and the impact of proposed changes. It is anticipated that the results will be incorporated into a revised Administrative Agreement with the Province of British Columbia in 2012.

**Amendments to the *Railway Safety Act***

On June 4, 2010 the Federal Government introduced amendments to the *Railway Safety Act* into the House of Commons under Bill C-33. The amendments address the 56 recommendations in the 2007 report: *“Stronger Ties: A Shared Commitment to Railway Safety”* and 14 additional recommendations from the House of Commons Standing Committee on Transportation, Infrastructure and Communities in their own May 2008 report. The amendments do not address security related provisions that Transport Canada is considering for all forms of transportation.

The proposed amendments would extend federal rules to local railways, impose a new requirement for a railway operating certificate and create an administrative penalty regime. The amendments would substantially impact the regulatory business process of the BC Safety Authority and the Ministry of Transportation and Infrastructure as provisions of the federal act have been adopted for provincially regulated railways administered by both agencies. If Bill C-33 is approved the Province of British Columbia will have to determine how these amended provisions will be applied on Provincially regulated railways. The BC Safety Authority will be working closely with the Ministry of Transportation and Infrastructure to assess the impact on provincial railways.

**CODE AND OTHER TECHNOLOGY UPDATES**

**Collaboration on Incident Reporting**

In 2010 the BC Safety Authority Railway Program worked with British Columbia Rapid Transit Company (SkyTrain) and InTransit BC (Canada Line) to review and revise the adopted Transportation Safety Board Regulation for Reporting Accidents and Incidents. The group was brought together to provide clarity to the reporting process in an effort to ensure consistent and uniform reporting is taking place and to allow for proper analysis of railway accidents and incidents.
In 2010, changes to the *Safety Standards Act* improved the ability of British Columbia’s safety system to be prepared for a rapidly evolving world of technology. The Province of British Columbia and the BC Safety Authority worked hard toward providing British Columbia with a leadership role in establishing innovative ways of regulating safety through the introduction of Alternative Safety Approaches into the *Safety Standards Act*.

The responsive changes made in 2010, such as changes to the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation that recognize modern safety control technology and changes to the Elevating Devices Safety Regulation that will require the retrofitting of older hydraulic elevators, will have a lasting positive impact on the safety of regulated products and regulated work in British Columbia. Other policy initiatives that were completed, continued or launched in 2010, such as the Targeted Incident Reduction initiative and improvements to the enforcement program, promise to help ensure that the British Columbia safety system continues to strike the right balance between prevention and responsiveness. The BC Safety Authority’s continuing commitments to engaging stakeholders, working proactively with government and looking for new and better ways to provide safety oversight will remain in 2011 and beyond.
Contributions

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### APPENDIX A

**Summary Tables:** Regulation Changes; Safety Orders, Directives and Information Bulletins; Risk Reduction Working Groups

<table>
<thead>
<tr>
<th>AMUSEMENT DEVICES</th>
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<td>None</td>
<td>New editions of CSA and ASME codes for boilers, pressure vessels and refrigeration adopted</td>
<td>None</td>
<td>None</td>
<td>Safety Standards Act and the Gas Safety Regulation to reference new Oil and Gas Activities Act Future changes to regulations under Oil and Gas Activities Act necessary to maintain jurisdictions as stands as definition of “pipeline” has changed</td>
<td>Adopt errata to CSA Z38 Passenger Ropeway and Passenger Conveyor Code into Elevating Devices Safety Regulation</td>
<td>All adopted legislation and regulations under review to ensure correct delegations to BC Safety Authority and adherence to Administrative Agreement with the Province of British Columbia</td>
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<td>Low pressure thermal fluid plants equipped with registered fail-safe advanced automated control approved by a professional engineer exempt from prescribed staffing</td>
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<td>SO-L1 101214 1</td>
<td>Provides guidelines to owners of elevators with single bottom cylinders and to contractors for retrofitting requirements</td>
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<td>SO-G5 100409 1</td>
<td>Issued and rescinded as Flexmaster agreed to re-issue installation instructions</td>
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### Summary Tables: Regulation Changes; Safety Orders, Directives and Information Bulletins; Risk Reduction Working Groups (cont.)

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<tr>
<td>None</td>
<td>D-B6 100604 1 Provides guidance on the registration of automated control systems in support of the exemption for certified operator requirements for low pressure thermal fluid plants under the Safety Standards Act</td>
<td>D-E3 101110 1 and D-E3 101110 2 Provide guidance on the interpretation and application of a rules included in the 21st Edition of the British Columbia Electrical Code. Supersedes Directives issued in 2007</td>
<td>D-L4 100222 1 Replaces D-L4 051206 1. Requires class A, RA, MR, and H contractors to submit current lists of all units under mandatory maintenance contracts as required under the Regulation</td>
<td>D-G5 100831 2 Clarifies installation requirements for gas-operated refrigerators</td>
<td>None</td>
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<td>D-B6 100604 2 Interpretation and application of section 79 of the Regulation for owners of plants with registered automatic control systems, if exempt from the certified operator requirements of the Regulation</td>
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<td>D-L4 101125 5 Clarifies requirements after adoption of new editions of Codes</td>
<td></td>
<td></td>
<td>D-G5 101230 1 Clarifies requirements for transfer of propane between tank trucks</td>
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## APPENDIX A

### Summary Tables: Regulation Changes; Safety Orders, Directives and Information Bulletins; Risk Reduction Working Groups (cont.)

<table>
<thead>
<tr>
<th>AMUSEMENT DEVICES</th>
<th>BOILERS, PRESSURE VESSELS AND REFRIGERATION</th>
<th>ELECTRICAL</th>
<th>ELEVATING DEVICES</th>
<th>GAS</th>
<th>PASSENGER ROPEWAYS</th>
<th>RAILWAYS</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

### INFORMATION BULLETINS

- **B-B1 100308 2**  
  Announces amendments to the Regulation exempting low pressure thermal fluid plants from certified operator requirements and amending the qualification requirements of Boiler Safety Officers

- **B-E3 100224 1 Revision 01**  
  Provides additional information around requirements concerning the safe retrofit of lighting fixtures with energy efficient fixtures. Also provides information on how to apply for and obtain a variance from the BC Safety Authority

- **B-L4 101214 1**  
  Provides information to owners of elevators with single bottom cylinders and contractors concerning the retrofitting requirements

- **B-P4 100713 1**  
  Key findings and recommendations from report on 2008 Excalibur incident

### RISK REDUCTION WORKING GROUPS

- **Mandatory maintenance on <30m² low pressure steam vessels**  
  Maintenance checklist for low pressure steam boilers with a heating surface of less than 30m² recommended

- **Review of the Electrical Safety Regulation Section 18 and CSA Z462**  
  Formed to review inconsistencies between Electrical Safety Regulation Sec 18 and CSA Z462 and propose new wording for regulation

- **Emergency Operations**  
  Conflicts between B44-07 Code and British Columbia Building Code regarding elevator recall to be identified

- **Non-Refillable Propane Cylinders**  
  Determined non-refillable propane cylinders to be low risk to public safety. Recommended development of information pamphlets for propane cylinder retail locations

- **Proactive Approach to Aging Passenger Ropeways**  
  Formed to review the current state of aging passenger ropeways in British Columbia
APPENDIX B
Local Governments Administering the Safety Standards Act

Ten of the 226 Local Governments in British Columbia administer the gas and electrical sections of the Safety Standards Act.

Gas and Electrical:
- City of Burnaby
- City of North Vancouver
- District of North Vancouver
- District of Maple Ridge
- City of Vancouver

Gas only:
- City of Richmond
- City of Kelowna

Electrical only:
- City of Surrey
- District of West Vancouver
- City of Victoria
Our Vision
We inspire safety excellence in British Columbia.

Our Mission
We collaborate with British Columbians to enhance the safety of technical systems, products, equipment and work.

Our Values

Integrity
We are impartial and use a disciplined approach.

Pride
We are passionate about protecting the public from safety risks.

Trust
We earn the respect and credibility of each other, our clients and the public.