TSSA’s summary of the Annual State of Public Safety Report paints a clear picture of the state of safety in TSSA’s regulated sectors and presents the strategies TSSA has undertaken to make them even safer.

Whether you are an owner, operator, homeowner, member of the public or a public safety advocate seeking to better understand TSSA’s safety strategies, we are committed to providing you with relevant and succinct information.

The year’s report contains the state of safety information about TSSA’s regulated sectors for a 10-year period ending April 30, 2017. It includes trend analysis on occurrences and resulting injuries, and insight into the full scope of TSSA’s oversight activities aimed at enforcing and promoting public safety.

This report is one facet of TSSA’s annual public reporting and should be read in conjunction with our safety risk analysis in the complete Annual State of Public Safety Report, our corporate achievements in the Annual Report, and our strategic priorities for the next fiscal year in our Business Plan. All reports are available at www.tssa.org.
Technical Standards and Safety Authority

Mandated by the Government of Ontario, TSSA is Ontario’s public safety regulator in four key sectors: fuels, elevating and amusement devices, boilers and pressure vessels and operating engineers, and upholstered and stuffed articles. Working collaboratively with stakeholders, TSSA reports to the Ministry of Government and Consumer Services (MGCS), the Ontario government body that sets public safety policy, oversees both the delivery of safety services and TSSA’s organizational performance, and retains authority for the Technical Standards and Safety Act, 2000.
Any organization’s success depends on the capabilities and commitment of its employees. This, combined with the close working relationship with our safety partners, makes the organization that much stronger. We call this “safety in action”.

To demonstrate this very essence of safety in action, I am pleased to provide you with the 2017 abridged version of our Annual State of Public Safety Report which summarizes the state of compliance and safety in the areas we oversee – Boilers and Pressure Vessels and Operating Engineers, Elevating and Amusement Devices, Fuels, and Upholstered and Stuffed Articles – over the year ending April 30, 2017. It is based on the information collected through our safety activities, including historic trends and actions taken to enforce and promote safety.

As we now celebrate twenty years of safety service delivery, our dedication remains as steadfast as ever, recognizing, of course, that we must never rest on our laurels but rather continually strive to deliver the highest degree of safety services and standards.

With a team of 400+ safety professionals, and collaborative working relations with the Ontario government, industry stakeholders and safety partners, TSSA champions safety across the province.

Overall, the level of safety in the sectors we regulate remains quite high. However, a number of safety issues, as highlighted in this report, persist. We will continue to explore and apply the most effective risk mitigation strategies to address these top safety priorities while keeping a watchful eye on all other issues.

So whether we’re addressing carbon monoxide risks in apartments and condos, human factor risks in elevators at retirement and long-term care homes, fuel risks in private dwellings, or any other issues that exist or may come to light, our course of action will be predicated by the issue at hand.

To learn more about our top safety priorities, causes and behaviours contributing to risk and the mitigation strategies to address these findings, I invite you to read this report. As a safety organization deeply committed to transparency and accountability, I welcome your feedback.

David Scriven
Acting President and CEO
Our purpose is to enhance safety where Ontarians live, work and play. This is our role and what we do every day. Our vision is to be a valued authority for a safer Ontario. We are transforming our organization, learning from others, and trying new things to continuously enhance our safety impact and operational effectiveness. Our values reflect the attitudes, behaviours and culture that we encourage across our organization. They guide our decision-making, delivery of programs and services, and how we interact with our regulated customers, partners and each other. We do all this with an increased focus on leadership, collaboration and service excellence while maintaining safety as TSSA’s number one priority.
SAFETY IN ACTION

ALL ROADS LEAD TO SAFETY

TSSA’s path to safety is a varied one, guided by risk-informed decisions, greater collaboration, increased compliance and effective public advocacy.

Safety Authorizations
To ensure the highest safety standard, we certify, register and examine occupations regulated under the Act and help ensure training and certification programs are responsive to needs, often through advisory boards comprised of industry representatives. We additionally license facilities and devices, issue permits, invigilate exams, assist in developing training standards and shape certification policies and procedures.

Public Safety Risk Management
Ontario has a reputation for being one of the safest jurisdictions in the world. We have contributed to this level of safety by using leading risk management practices such as Risk-Informed Decision-Making (RIDM) along with our staff’s strong knowledge, technical skills and our leading safety culture.

Safety Advocacy
Advocacy touches everything we do. From our day-to-day interactions to greater industry consultation and strategic safety partnerships, we understand that safety is both a continuum and a shared responsibility. Whether with our regulated customers or seeking safer behaviours from the public, we take an integrated approach with risk analysis and the best course of safety-driven action.

Engineering Services
Prior to the manufacturing or registration of equipment and/or devices under the Act, we review all engineering design submissions to ensure safety compliance with regulations, safety codes and standards. We conduct design registrations, variance reviews, component or design filings, and provide expert consulting services. We additionally conduct field approvals of uncertified equipment and appliances to ensure the design and inspection of its installation comply with all safety standards.
Inspections/Investigations
We inspect equipment, devices and processes, including installation and maintenance requirements, audit contractors and investigate incidents and reports of non-compliance. We also perform periodic and adhoc inspections to ensure equipment remains in compliance with the initial approval and is being operated within current codes and standards. If an incident occurs, TSSA conducts a thorough investigation to determine root-cause, which may lead to further enforcement or prosecution.

Safety Partnerships
We seek a broader reach for high priority safety areas, like carbon monoxide and other risks associated with human factors, through effective safety partnerships. From a unique relationship with the Office of the Fire Marshal and Emergency Management to national and international partners, positioning CO as public health issue, we are increasing awareness, gaining greater ground and spreading the word on public safety.

Enforcement/Prosecution
We apply a variety of enforcement options in a progressive manner. Enforcement decisions are based on the nature of the violation, non-compliance with statutory requirements, challenges to TSSA’s inspection or enforcement authority, such as disregard for inspector’s orders or statutory licensing requirements. Prosecution is an important tool of enforcement; however working with stakeholders toward compliance and cooperation, often in proactive partnership, is the cornerstone of safety.

TSSA’s purpose is to enhance safety where Ontarians live, work and play. This is what we do every day, working collaboratively with our stakeholders, partners and the public to promote safety and reduce risks.

Public Policy
Supporting the Government of Ontario in developing regulations and participating in code development and standard setting, we are a trusted safety advisor that advocates evidence-based decision-making, enhanced safety outcomes and considers broader industry concerns, reflective of government priorities and the larger public interest.
How We Manage Public Safety Risks

TSSA uses an evidence-based, scientific approach to analyze and manage safety risks to Ontarians in TSSA-regulated sectors.

 identifying and analyzing Public Safety Risk
We gather and analyze information such as inspection and incident reports to understand the nature and source of risk in each area we regulate.

Examining Options for Managing Risks
We consider a variety of tools such as regulatory changes, technological solutions, enforcement activities and public education to help us best manage public safety risks.

Selecting the Most Effective Risk-Management Techniques
Working with stakeholders in government, industry and the public, we analyze the impacts each of our risk management strategies will have on public safety and select the best approach for managing each risk.
Risk-informed decision-making (RiDM) is all about understanding safety issues in the areas we regulate, identifying the level of risk and prioritizing those that require the most attention.

While the concept may sound simple, the steps taken to understand risks and develop mitigation strategies are intricate, involved and above all else informed.

We start off by gathering and analyzing information from the occurrences reported to TSSA (the who/what/where/when/how of an incident), quantifying data (number of incidents, injuries and/or fatalities) and identifying the level of safety risk (high, medium or low) that Ontarians are exposed to through their interactions with the technologies, devices, equipment and/or products TSSA regulates.

We then prioritize those issues requiring the most attention and focus our resources, including working in partnership with stakeholders, to develop appropriate strategies to address safety hazards and determine and select the best technique for enhancing safety outcomes.

Last, but not least, we measure results, and validate efforts – all aimed at ensuring continuous improvement in our overall performance – and publicly report on our findings and activities.
THE STATE OF SAFETY

OVERALL STATE OF SAFETY

Based on analysis of all reported occurrences and injuries over the past ten years, the overall state of safety in TSSA’s regulated sectors remains excellent.

TSSA’s Risk Sources

Unacceptable Risk
- CO Risks in Apartments & Condominiums
- Fuel Risks in Private Dwellings
- Human Factor Risks on Elevators in Retirement & Long-Term Care Homes
- Fuel Risks in Academic Locations

Tolerable Risk
- Fire Risks in Food Service Locations
- Fuel Risks in Business Units
- Fuel Risks in Retirement & Long-Term Care Homes

Acceptable Risk
- Failure of Technologies
- Periodically Inspected by TSSA

Priority Safety Areas
- CO Risks in Apartments & Condominiums
- Fuel Risks in Private Dwellings
- Human Factor Risks on Elevators in Retirement & Long-Term Care Homes
- Fuel Risks in Academic Locations
- Fire Risks in Food Service Locations

Require Monitoring
- Fuel Risks in Business Units
- Fuel Risks in Retirement & Long-Term Care Homes

The Priority Safety Areas and those that Require Monitoring identified above are determined by the Statutory Directors, on a combination of historical data analyses, stakeholder considerations, cost-benefit analyses and controls or regulatory tools that could be leveraged. Using an innovative methodology, TSSA proactively assesses risk by analyzing occurrences and considers the injuries that were sustained as well as those that could have been sustained in those incidents.
THE STATE OF SAFETY

All Safety Program Areas Comprehensive Overview FY2017

2,474 Occurrences  1 Fatality  56 Serious Injuries  1,038 Minor Injuries

Reported occurrences include completed investigations only and are subject to change as investigations are concluded.

Compliance*

Inventory Risk Profile as of FY 2017

How Safe are the Devices?
The inventory risk profile reflects the state of safety of devices based on the past three inspections conducted.

- Low Risk 89%
- Medium Risk 10%
- High Risk 2%

Compliance Risk Spectrum for FY 2017

Types of Issues Found
When TSSA conducted periodic inspections these were the outcomes.

- Low Risk 39%
- Medium Risk 58%
- High Risk 2%

*Numbers may not add up to 100% as they have been rounded.

Enforcement activity

While working with stakeholders toward compliance is the cornerstone of safety, TSSA must resort, at times, to legal action as an effective tool of enforcement. Depending on the nature of a violation and the past conduct of the offender, we apply a variety of enforcement options which can range from legal orders, including cease and desist, to prosecutions.

In fiscal year 2017, we pursued a total of 37 prosecutions. Prosecutions send a powerful message that Ontario’s safety laws must be respected, and any violator who puts the public at risk will face the full extent of the law.
While you’re relaxing by the gas fireplace, barbecuing your favourite meal, filling up at the gas station, or grabbing a bite from a food truck, TSSA is looking out for your safety. TSSA’s Fuels Safety Program regulates the transportation, storage, handling and use of fuels including natural gas, propane, fuel oil, gasoline, diesel, butane, hydrogen, digester gas, and landfill gas.

We carry out inspections and license pipelines, gas stations, propane fuelling stations, marinas and tanker trucks. We also issue licences to operate fuel facilities, register contractors and certify tradespersons who install and service equipment.

We also review and approve facility plans for TSSA-licensed sites and perform custom equipment approvals and inspections to ensure fuel is handled and used safely.
Ten Year Safety Activities FY2008-2017

<table>
<thead>
<tr>
<th>Occurrences</th>
<th>Fatalities</th>
<th>Serious Injuries</th>
<th>Minor Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td>7,371</td>
<td>47</td>
<td>135</td>
<td>492</td>
</tr>
</tbody>
</table>

Top Safety Concerns

Fuels Safety Priority Areas

Based on occurrences and injuries that have been reported to TSSA over the past 10 years, we use our innovative risk-informed methodology to assess the top risks impacting Ontarians and identify the top safety priorities.

1. **CO Risks in Apartments and Condos**
   - **Issue:** Inadequate maintenance.
   - In addition to working with Municipal Licensing & Standards to revise the apartment building bylaw for rental buildings in Toronto and our participation in building audits to confirm the state of safety, we will engage with other industry and safety partners to communicate the importance of maintaining fuel-burning equipment, explore potential technological advancements to detect CO at source, and address the state of safety in multi-unit residences through regulatory/enforcement activities.

2. **Fuel Risks in Private Dwellings**
   - **Issue:** Inadequate or lack of maintenance procedures, poor installation, defective or failed material, improper or negligent work practices.
   - The launch of one of our biggest public facing safety awareness campaigns to date, “The Silent Killer”, and our first international conference of global dialogue on CO as a public health issue has set the foundation for future campaigns and events to follow along with exploration of technological and regulatory solutions to manage and reduce risks at private dwellings.

3. **Fuel Risks in Academic Locations**
   - **Issue:** Inadequate maintenance, improper installation or defective components.
   - Partnering with the Operation, Maintenance and Construction Committee of the Ontario Association of School Board Officials has resulted in risk management workshops and a task force to address risks in schools. We will continue to execute our Special Buildings Program, partner with internal and external stakeholders to educate, build awareness and reduce CO – the largest source of risk at these locations.

4. **Fire Risks in Food Service Locations**
   - **Issue:** Defective or failed materials and components, inadequate maintenance or improper/negligent work practices.
   - Our participation in Restaurants Canada’s Tradeshows allowed for interaction with restaurant owners, equipment manufacturers, and a host of food industry members to promote fuel safety, highlighting known risks associated with the maintenance of appliances. We also distributed TSSA’s publication “Lowering the Heat in the Kitchen” focused on increasing awareness.
FUELS SAFETY

Compliance Risk Spectrum for FY 2017

Types of Issues Found
When TSSA conducted periodic inspections during FY2017, these were the outcomes.

Propane

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk</td>
<td>76%</td>
</tr>
<tr>
<td>Medium Risk</td>
<td>21%</td>
</tr>
<tr>
<td>High Risk</td>
<td>2%</td>
</tr>
</tbody>
</table>

Liquid Fuels

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk</td>
<td>43%</td>
</tr>
<tr>
<td>Medium Risk</td>
<td>56%</td>
</tr>
<tr>
<td>High Risk</td>
<td>0%</td>
</tr>
</tbody>
</table>
Inventory Risk Profile as of FY 2017

The inventory risk profile reflects the state of safety as of FY17 of each fuel facility based on the past three inspections conducted.

Propane

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk</td>
<td>79%</td>
</tr>
<tr>
<td>Medium Risk</td>
<td>13%</td>
</tr>
<tr>
<td>High Risk</td>
<td>8%</td>
</tr>
</tbody>
</table>

Liquid Fuels

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk</td>
<td>82%</td>
</tr>
<tr>
<td>Medium Risk</td>
<td>15%</td>
</tr>
<tr>
<td>High Risk</td>
<td>3%</td>
</tr>
</tbody>
</table>

Issues Requiring Monitoring

1. **Fuel Risks in Business Units**
   - **Issue:** Improper or negligent work practices, defective equipment.
   - We will continue to work with natural gas fuel distributors to consider enhancements with meter barriers as a means to mitigate risks. Additionally, we will enhance communications with distributors and contractors, and continue to monitor occurrences involving equipment.

2. **Fuel Risks in Retirement and Long-Term Care Homes**
   - **Issue:** Improper installation and inadequate maintenance.
   - Through our on-going partnership with the Ontario Retirement Communities Association a TSSA portal has been added to their online learning centre, where owners and operators of retirement homes can obtain information about fuels safety, such as responsibilities, maintenance requirements and reporting obligations. Plans are also in place to deliver webinars in Autumn of 2017 to educate stakeholders on their regulatory responsibilities.

Ensuring Compliance

**Liquid Fuels Licensed Sites**
As we have seen a low number of occurrences at fuel storage and dispensing locations that have been periodically inspected by TSSA over the past five years, we see the value of continuing our inspections at these sites and will look at initiatives to improve this to further enhance public safety.

**Propane Licensed Sites**
As we have seen a low number of occurrences at propane sites that have been periodically inspected by TSSA over the past five years, we see the value of continuing our inspections at these sites and will periodically inspect these sites on a risk-based scheduling regime.
As you take that elevator to get to your desired floor, TSSA is right there with you delivering important safety services – from the initial design until the device is taken out of service. We also work with safety partners to ensure the safety of every elevator during its entire life cycle.

We review designs and register devices, issue licences, conduct inspections prior to start-up and periodically during operation, certify and register mechanics and contractors, and perform incident investigations.

While we are responsible for all that, we of course, recognize that safety is not a one-way street. We work closely with industry, through advisory councils and technical risk reduction committees, to propose improvements and implement effective safety strategies and solutions. Collectively we strive to ensure a safe environment for the riding public.

Elevators Comprehensive Overview FY 2017

502 Occurrences
0 Fatalities
8 Serious Injuries
138 Minor Injuries
ELEVATOR SAFETY

Elevator Ten Year Safety Activities FY2008-2017

<table>
<thead>
<tr>
<th>Occurrences</th>
<th>Fatalities</th>
<th>Serious Injuries</th>
<th>Minor Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,509</td>
<td>6</td>
<td>76</td>
<td>1,317</td>
</tr>
</tbody>
</table>

Inventory Risk Profile as of FY 2017

How Safe are the Devices?
The inventory risk profile reflects the state of safety as of FY17 of elevators based on the past three inspections conducted.

Compliance Risk Spectrum for FY 2017

Types of Issues Found

When TSSA conducted periodic inspections during FY17, these were the outcomes.

Elevator Priority Safety Area

Human Factor Risks In Retirement & Long-Term Care Homes

Issue: External to the regulatory environment, e.g. doors closing on passengers.

In addition to our partnership with the Ontario Retirement Communities Association to deliver targeted information sessions to their members and educate owners on the potentially adverse effects of timing associated with doors closing and staying open, we are working with ORCA members to gather data on door closing time before and after changes so as to hopefully measure the long-term effect of slower door times.

Ensuring Compliance

We have seen a reduction in the number of high-risk devices. This change can be attributed to both our inspectors’ increased focus and the efforts and actions of the owners and contractors maintaining them.

However, we continue to see a downward trend of compliance in the elevator sector. To help address this decline, we will, over the coming year, use the full suite of compliance tools at our disposal to send messages of specific and general deterrence and work with our Ministry partners to explore additional regulatory reforms and tools.
Escalators and moving walks take us one step closer to where we need to go and TSSA is with you every step of the way by delivering important safety services.

We review designs and register the devices, issue licences, conduct inspections prior to start-up and periodically during operation, certify and register mechanics and contractors and investigate incidents. While we are responsible for all that, we of course, recognize that safety is not a one-way street. We work closely with industry, through advisory councils and technical risk reduction committees, to propose improvements and implement effective safety strategies and solutions. Collectively we strive to ensure a safe environment for the riding public.
**Escalators and Moving Walks Ten Year Safety Activities FY2008-2017**

<table>
<thead>
<tr>
<th>Occurrences</th>
<th>Fatalities</th>
<th>Serious Injuries</th>
<th>Minor Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,783</td>
<td>1</td>
<td>41</td>
<td>3,969</td>
</tr>
</tbody>
</table>

**Inventory Risk Profile as of FY 2017**

- **Low Risk**: 97%
- **Medium Risk**: 3%
- **High Risk**: 0%

**Compliance Risk Spectrum for FY 2017**

- **Low Risk**: 12%
- **Medium Risk**: 88%
- **High Risk**: 0%

**Managing Risks**

As we continue to see the vast majority of incidents on escalators related to user actions, we released four new public safety videos depicting some of the most common and highest risk actions that lead to incidents.

**Ensuring Compliance**

As the levels of compliance and failure to meet established escalator maintenance and testing code requirements are an ongoing concern, we will, over the coming year, place an increased focus on these tasks and utilize both communication and regulatory tools at our disposal to reverse the trend.
Most skiers and snowboarders only think about the fun going down the slopes and rarely about getting up the hill. At TSSA, getting up the hill safely is just as important as having a fun run.

We review and register lift designs, license lift devices, conduct inspections and perform incident investigations. Together with the Ontario Ski Resorts Association and the ski industry, we promote safety awareness and educate skiers and snowboarders on safe loading and unloading practices.
Ski Lift Safety Ten Year Safety Activities FY2008-2017

<table>
<thead>
<tr>
<th>Occurrences</th>
<th>Fatalities</th>
<th>Serious Injuries</th>
<th>Minor Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td>871</td>
<td>0</td>
<td>24</td>
<td>712</td>
</tr>
</tbody>
</table>

Inventory Risk Profile as of FY 2017

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk</td>
<td>94%</td>
</tr>
<tr>
<td>Medium Risk</td>
<td>6%</td>
</tr>
<tr>
<td>High Risk</td>
<td>0%</td>
</tr>
</tbody>
</table>

Compliance Risk Spectrum for FY 2017

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk</td>
<td>56%</td>
</tr>
<tr>
<td>Medium Risk</td>
<td>36%</td>
</tr>
<tr>
<td>High Risk</td>
<td>8%</td>
</tr>
</tbody>
</table>

Managing Risks

While statistics support our view that passenger ropeways in Ontario remain extremely safe we are continuing to work with partners such as the Canadian Ski Instructors Alliance and Ontario’s ski industry to address the slip and fall type incidents that we are seeing by educating skiers and snowboarders on how to safely use the lifts.

Ensuring Compliance

The overall industry risk profile for passenger ropeways continues to be very low and, as such, indicates that the existing regulatory system and controls are working effectively.
When you’re out for fun taking a few laps around a go-kart track, splashing down a waterslide, or getting an adrenaline rush on a roller coaster, TSSA is riding alongside with you. TSSA regulates the devices designed to entertain thrill seekers, including roller coasters, Ferris wheels, merry-go-rounds, water slides, go-karts, bumper cars, inflatables, bungee devices and zip lines.

Before a new amusement device is registered, we review engineering designs to ensure compliance with Ontario’s safety requirements. We license amusement rides and operators, issue certificates to qualified mechanics and permits for each ride in every year it operates. We inspect new devices prior to start-up and again at the start of every new season, and, when necessary, conduct investigations.
Amusement Devices Ten Year Safety Activities FY2008-2017

<table>
<thead>
<tr>
<th>Occurrences</th>
<th>Fatalities</th>
<th>Serious Injuries</th>
<th>Minor Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,407</td>
<td>0</td>
<td>170</td>
<td>3,061</td>
</tr>
</tbody>
</table>

**Inventory Risk Profile**

How Safe are the Devices?
The inventory risk profile reflects the state of safety as of FY17 of amusement devices based on the past three inspections conducted.

Managing Risks

This past year, we developed and enhanced our human factors checklist used when collecting data related to incidents – the majority of which are user-related and occur on and/or around waterslides. We will review and analyse all amusement device data gathered over the past season to better understand why incidents are occurring and determine additional actions that may be taken to lower the number and severity of incidents.

Ensuring Compliance

The overall industry risk profile for amusement devices continues to be very low and, as such, indicates that the existing regulatory system and controls are working effectively.
Whether it’s the laughing gas at the dentist’s office, oxygen in the hospital room, refrigerant keeping dairy products fresh at grocery stores or dry cleaners giving clothes a fresh, clean feeling, TSSA plays a role in safety by regulating boilers and pressure vessels.

We regulate the design, construction, maintenance, use, operation, repair and service of all pressure retaining components manufactured or used in Ontario. This includes equipment that produces and distributes hot water, steam, compressed air, and other compressed liquids and gases used in commerce and industry. We are involved in all aspects of the lifecycle of pressure vessels: from design, manufacture and installation to operation, maintenance and decommissioning. We conduct engineering reviews, examine pressurized equipment and facilities prior to start-up, conduct periodic inspections on uninsured boilers and pressure vessels and certify inspectors employed by insurers licensed to conduct periodic inspections of insured equipment.

BPV Safety Comprehensive Overview FY 2017

3
Occurrences

0
Fatalities

0
Serious Injuries

0
Minor Injuries
### Managing Risks

Together with the Ministry of Government and Consumer Services, we have embarked on a review of Ontario Regulation 220/01: Boilers and Pressure Vessels, with the goal of improving the means for managing risks on boilers and pressure vessels.

With a regulatory proposal and public consultation completed in July 2017, we are finalizing an implementation plan and operational strategy for the revised regulation which is targeted to become effective July 2018.

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### Ensuring Compliance

While the compliance rate over the last five years has been very high and demonstrates no significant trend, we remain committed and focused on working with our regulated customers to help them understand and address the top non-compliances identified during our periodic inspections: owner/operator requirements necessary to facilitate a proper inspection; and, owner requirements to ensure equipment is maintained and operating safely.

We will continue to conduct periodic inspections of uninsured boilers and pressure vessels to determine the level of compliance in Ontario as this inspection process contributes to the preventative management of risk associated with boilers and pressure vessels.

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### BPV Ten Year Safety Activities FY2008-2017

<table>
<thead>
<tr>
<th>Occurrences</th>
<th>Fatalities</th>
<th>Serious Injuries</th>
<th>Minor Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>0</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>
Whether you’re in a lecture hall at university, visiting someone in the hospital, watching a curling match, shopping in the frozen food section at your grocery store, or just having fun at your community ice rink, TSSA is there behind the scenes playing an important public safety role.

We are responsible for registering, inspecting and regulating the safety of power plants in Ontario that generate electricity, refrigeration, heating and cooling. We are also responsible for the examination and certification of the professionals who manage power plant operations.

Our comprehensive registration, inspection and certification activities ensure that operating engineers and operators have the skills and knowledge to safely manage, operate and maintain boilers, steam turbines and engines, gas compression plants, refrigeration plants, and associated mechanical and electrical systems in power generation, industrial processes and environmental plants.

Operating Engineers Safety Comprehensive Overview FY 2017

5 Occurrences
0 Fatalities
0 Serious Injuries
0 Minor Injuries
Operating Engineers Ten Year Safety Activities FY2008-2017

<table>
<thead>
<tr>
<th>Occurrences</th>
<th>Fatalities</th>
<th>Serious Injuries</th>
<th>Minor Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Inventory Risk Profile as of FY 2017

The inventory risk profile reflects the state of safety as of FY17 of operating plants based on the past three inspections conducted.

Compliance Risk Spectrum for FY 2017

When TSSA conducted periodic inspections during FY17, these were the outcomes.

Managing Risks

Over the course of the year, we have been engaged in a number of initiatives to modernize safety processes and requirements, including a fundamental rewrite of Ontario Regulation 219/01: Operating Engineers – a top priority for TSSA. With an expert panel review launched in November 2016, a public review of the panel’s recommendation report is planned for late summer 2017.

Additionally, an Operating Engineers Risk Task Group that was convened to apply risk-informed decision-making principles to the plant rating system is expected to wrap up in April 2018.

Ensuring Compliance

We remain committed and focused on continuous improvement, including working with our regulated customers to help them understand the source of their deficiencies, rather than purely through enforcement activities. To date these efforts are contributing factors to a drop in the number of high risk plants from 13% in 2013 to 2% in 2017.
A plush pillow and a cozy mattress, your child’s favourite stuffed toy, the down-filled jacket keeping you warm in winter; no matter which, TSSA is there to protect you from hazards associated with the use of unclean or unsafe filling materials in household and personal items such as these, and many more.

We inspect manufacturers, importers and distributors, and retailers to make sure their stuffed and upholstered products are properly labelled, clean, and free of contamination, and to make sure the manufacturers of those products are registered with TSSA. In addition to promoting health and safety, our aim is to protect consumers against fraud and misrepresentation of filling materials.
Managing Risks

Seeking to reduce regulatory burden on business, Ontario’s Ministry of Government and Consumer Services (MGCS) recently made a decision to modernize Ontario Regulation 218/01: Upholstered and Stuffed Articles.

After reviewing a commissioned report and incorporating broader public and industry input, MGCS has proposed that the revised regulation applies only to bedding, mattresses and upholstered furniture. All other articles will be exempt unless data and evidence demonstrate a public safety risk.

The following remain in scope:
- Labelling requirements to give businesses greater flexibility to comply;
- Annual licensing will not apply to home hobby and craft operators;
- Second-hand material if it complies with appropriate sterilization standards; and
- Mandatory incident reporting will be introduced.

MGCS is continuing its consultation and will consider any new data or evidence demonstrating safety risks associated with out-of-scope articles under the proposed regulation.
MGCS expects to roll-out the changes by July 1, 2018.

With the more narrowed scope of this change, we will focus our attention on inspecting customers with a broader article base within a wider geographical area. With mandatory incident reporting to be included in the regulatory change, our team will continue to be responsive and focus on investigations and the management of actual incidents.
THE STATE OF SAFETY

1997

TSSA assumes its delegated authority from the government of Ontario and opens its doors on May 5th 1997, as a not-for-profit, self-funded, arms-length corporation dedicated to promoting and enhancing public safety in Ontario through its delivery of public safety services on behalf of the government of Ontario in four key sectors: boilers and pressure vessels, and operating engineers; elevating devices, amusement devices and ski lifts; fuels; and, upholstered and stuffed articles.

2001

Technical Standards and Safety (TSS) Act, 2000 comes into effect in June 2001. It replaces the Energy Act, Gasoline Handling Act, Boiler and Pressure Vessel Act, Operating Engineers Act, Amusement Devices Act, Elevating Devices Act and the Upholstered and Stuffed Articles Act. The TSS Act, 2000 provides key improvements: amalgamation of seven statutes into one - creation of 16 regulations; increased fines for successfully prosecuted persons; and greater inspection powers. This modernizes the regulatory regime, providing for greater consistency and enhanced public safety.

2005

The Risk and Insurance Management Society, Inc. (RIMS - a not-for-profit organization dedicated to advancing the practice of risk management, a professional discipline that protects physical, financial and human resources) recognizes TSSA for our outstanding contribution to improving safety in the province of Ontario and we are presented with the Arthur Quern Quality Award which honours significant contributions within the field of risk management, and acknowledges activities and programs that demonstrate a commitment to improving quality.

2007

TSSA’s Risk-Informed Decision Making (RIDM) framework is implemented. An evidence-based, scientific approach to identifying, analyzing, measuring and managing risk of injury or fatality to Ontarians caused through interaction with TSSA-regulated technologies, devices and products, the RIDM framework assists in the effective use of available regulatory tools under the TSS Act, through efficient allocation of the TSSA’s resources, and leverages partnerships with stakeholders. Legislative/regulatory enhancements include TSSA’s adoption of a national code which requires the certification of plastic venting, and, amendments to the TSS Act and associated regulations that TSSA can regulate hydrogen when used as a fuel.
Following the August 2008 explosion at Sunrise Propane, an expert panel reviews propane safety in Ontario and provides 40 recommendations to enhance safety. TSSA completes its review of the recommendations and releases its action plans and activities to improve propane safety in the province, including continuing to update technology, a re-audit of all propane facilities in Ontario using a risk-informed approach and mandatory risk and safety management plans.

TSSA successfully prosecutes two large regulated parties. 1. Fujitec Canada on three counts of safety violations stemming from an elevator that dropped several stories in downtown Toronto, seriously injuring five passengers, resulting in a fine of $400K. 2. Enbridge Gas Distribution Inc. pleading guilty to safety violations stemming from the 2003 Bloor Street West Explosion that resulted in seven fatalities, four serious injuries and destruction of commercial and residential buildings and extensive damage to adjacent properties, resulting in a $350K fine. The excavator, Warren Bitulithic Ltd., was previously fined $225K for damaging the pipeline.

TSSA establishes the position of Chief Safety Risk Officer, whose mission is to provide TSSA’s Board of Directors with an independent review of safety activities related to TSSA’s public safety responsibilities under the TSS Act, 2000. Established through amendments to the Act, the position aims to make further improvements to technical safety in the province and increase accountability and transparency between the government of Ontario and TSSA.

TSSA’s innovative approach to managing public safety risks, RIDM, continues to gain momentum as a leading edge safety tool. One of the most significant validations of RIDM comes with the issuance of a US patent for TSSA’s work on risk-based scheduling for elevators and other people moving devices.
TSSA receives three more patents: two patents in Canada and USA for covering Risk-Based Scheduling for all technologies and facilities, and another in the US for TSSA’s ‘Time to Compliance’ approach. TSSA establishes its first Ombudsman Office to serve in a variety of roles, including, but not limited to, that of a confidant, mediator or resource, with the objective to assist stakeholders in resolving or addressing their particular issue prior to initiating more formalized processes and offer industry and regulated parties an independent and confidential means to engage on all types of issues, including reporting misconduct, without fear of retaliation.

2014

TSSA hosts its first-of-its-kind International Conference & Business Meeting on Carbon Monoxide (CO) Risk Assessment and Management, bringing together multi-disciplinary international experts to gain a common understanding of CO risks and its impacts on public health, and to identify strategies to enhance the learnings on CO risks.

2015

TSSA successfully prosecutes Calypso Water Park and is fined $400K for operating its rides in an unsafe manner and not properly trained operators.

2016

TSSA successfully prosecutes Schindler Elevator Corporation and ThyssenKrupp (Canada) for elevator safety offences under the TSS Act – to the sum of $80k and $375K respectively - for incidents in the GTA.

TSSA launches an award-winning public-focused carbon monoxide awareness campaign - ‘The Silent Killer’. Co-branded with the Office of the Fire Marshal and Emergency Management and sponsored by Kidde Canada, the multi-media movie-release concept is aimed at educating Ontarians on the need to protect themselves and their loved ones from this deadly killer.

2017
THE STATE OF SAFETY

THE FUTURE IS... SAFETY

The next evolution of safety will modernize regulatory principles, address new technologies and ensure greater collaboration with industry and government.

You will notice that photos of TSSA staff have been highlighted throughout this report. There’s a very good reason for doing this. Every day, TSSA staff work diligently throughout the province to keep Ontarians safe where they live, where they work and where they play. From inspecting facilities, reviewing engineering plans, and licensing, testing and certifying technicians to analysing risks, investigating incidents and prosecuting offenders, TSSA staff put safety first and have been doing so for 20 years.

Over those 20 years, our focus has been on improving compliance, leveraging risk knowledge, instilling a shared responsibility for safety and implementing organizational effectiveness – and we have made progress in many of these areas:

- We recently convened an international workshop on carbon monoxide where experts from all over the world discussed risks, ideas, and leading best practices associated with carbon monoxide poisonings;
- Our focus on operational efficiency and cost control has allowed us to extend a freeze on fees in all regulated sectors; and
- The permanent elimination of inspection backlogs in all areas ensures the timely completion of safety orders on an ongoing basis and prevents backlogs in the future.

Work has been underway to modernize our business processes and IT infrastructure, all to our betterment and that of our partners and regulated customers.

As we move forward, we will utilize innovative tools and technology, make decisions and evaluate our impact with reliable data, and become more transparent to empower stakeholder decision-making. We’ll do all this through an increased focus on leadership, collaboration with our partners and regulated customers, and overall service excellence while maintaining safety as our number one priority. The path forward will require an engaged workforce that is open to change, committed to continuous improvement and driven to be leaders and innovators in safety regulation and, we will depend on each and every member of our team to get us there – just as we have done so in the past.

We are excited to build on the momentum and success of the past and embrace change for the future. Our resolve for continuous improvement and evolution will see us working toward becoming a modern regulator, addressing technological advances and ensuring greater collaboration with industry and government. In collaboration with our partners and stakeholders, we will continue to uphold Ontario’s reputation for being one of the safest places in the world to live, work and play.