

Technical Standards and Safety Authority  
**Annual Public Safety Performance Report**  
For the Period May 1, 2012 to April 30, 2013

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## Report Background

This is TSSA's fifth enhanced Annual Public Safety Performance Report (ASPR). The first State of Public Safety Report summarized calendar year 2002; the first enhanced report coincided with TSSA's 2008/09 fiscal year. This is the second ASPR reviewed by the current Chief Safety and Risk Officer.

This year's ASPR is accompanied with the TSSA-commissioned Risk Sciences International (RSI) report, 'Risk of Injuries and Deaths from TSSA-Regulated Activities in the Context of Other Risks' (summary Table attached). This independent report provides a contextual analysis of TSSA regulated risks relative to other voluntary and involuntary risks within Ontario.

TSSA's mandated risk reduction efforts represent about 0.1% of Ontario's fatality rate due to unintentional injuries (Table 1: 0.23 fatalities/million residents/year for all TSSA activities compared to 233 fatality rate for all Ontario). Nearly two-thirds of the estimated risk is caused by non-compliance largely related to carbon monoxide, CO-poisoning.

## General Overview

The ASPR report and accompanying RSI 'Risk in Context' reports are well written, cogently argued, and provide a comprehensive overview of TSSA's efforts to address and reduce the risks associated with delegated responsibilities.

The report introduces a predictive measure, 'risk of injury or fatality', which facilitates prediction of the expected injury burden during the course of the upcoming year (or other time-frame). The metric is critical for both cross-sector and cross-jurisdiction comparisons. This is a valuable tool for public policy setting and for TSSA to set meaningful and measureable targets and performance metrics on reduced injuries or fatalities.

Understanding the risk of injury or fatality is useful for TSSA's internal planning and programming. For example with 91 percent of amusement device risk and 97 percent of ski lift risk due to external factors (i.e. non-TSSA regulated), the importance of ancillary activities such as public education and 'team-supported' public safety efforts quickly becomes apparent.

## Highlights

**Boilers and Pressure Vessels (BPV)** – 97 percent compliance; 2900 plants under TSSA oversight (i.e. OE regulation; total Province-wide number not known); no trend in compliance rate.

Key issues from Statuary Director: rationalizing and completing inventory of insured and non-insured BPVs; standardization of orders and inspection outcomes (including non-TSSA inspections).

**Operating (Power) Engineers (OE)** – 40 percent compliance rate although only 4% of plants continue to demonstrate full compliance in the studied nine years; increasing compliance trend; 2,900 plants and 12,700 operating engineers in Ontario.

Key issues: continued application of RIDM to refine inspections; addressing the growing shortage of operating engineers.

**Amusement Devices (AD)** – 58% compliance over 5 years; 1,800 devices; 91% of risk due to external factors (outside TSSA regulatory mandate, e.g. user behavior) – 20% increase/year; waterslides represent 42% of total risk (60% of health impacts); only 11% of devices demonstrate full compliance in the nine year study period; no observable trends in fatalities and injuries last six years.

Key issues: specific targeting of reduced risk on water slides; need for more complete reporting of incidents by operators; continued and expanded public safety campaign.

Within TSSA's public education efforts there may be merit, especially in the ADs sector, to develop a long term program with measureable targets that can be cross referenced with similar efforts in other jurisdictions. The ASPR provides an excellent venue to discuss progress toward reduction of this risk.

**Elevating Devices (ED)** – approx. 49,000 elevators in Ontario; non-permanent injuries and occurrences of all types increasing 8% and 12% per year respectively; 75% of estimated risk may be caused by factors external to regulatory requirements; inspection interval for elevators is approximately 1.2 years; 3% of devices fully compliant over studied nine years; no discernable injury trend in last six years; increasing trend in overall occurrences.

Key Issues: continued emphasis on public education; development of standard orders and publication of data, e.g. provision of compliance data to maintenance contractors; Province-wide replacement of single bulkhead hydraulic cylinders on track for May 1, 2015; new fee schedule implementation and integration to periodic inspections scheduling.

An agreed-to metric (before the new fee is fully enacted) would be useful to verify if as suggested by TSSA “the new fee schedule for EDs has a marked effect on getting non-compliances found in periodic inspections resolved in the given time lines”.

With 49,000 elevators currently in Ontario – and a fast growing stock – TSSA should develop a plan to have much of this data, e.g. licenses and inspection dates, publicly available; perhaps as part of the Province of Ontario's 'Big Data' efforts.

**Escalators and Moving Walks** – over 1,850 regulated by TSSA; 16% compliance rate; 97% of risk may be caused by factors external to regulatory requirements; no observed trends in last six years in fatalities, injuries and occurrences; decreasing trend in compliance rate; 16% compliance rate (over 5 year measured period).

Key issues: development of standard inspection orders; moving step/skirt upgrades required by May 1, 2015; launch and sustained delivery of an expansive public education campaign.

Escalators and moving walks seem to be an excellent area where best practices (human behavior) can be readily replicated. Recognizing possible funding constraints, perhaps TSSA could develop a peer program where 5 – 10 other jurisdictions (at least half outside North America) are reviewed on an ongoing basis; what are they trying, what can they learn from TSSA and *vice versa*. These findings should be available on TSSA's website.

**Ski Lifts** – 270 ski lifts in Ontario; 97% of estimated risk caused by factors external to regulatory requirements; no discernable trend for occurrences, fatalities or injuries; 34% inspection compliance rate (18% of ski lifts compliant over three years, 0% of ski lifts over nine years).

Key Issues: understanding and influencing user behavior; addressing major non-compliance through complimentary inspections and regulation; standardizing inspection orders.

Is there merit in linking TSSA ski lift information directly to facility public sites, e.g. a message from TSSA on every snow resort site? Signs and website information may be insufficient to change user behavior, however as 97% of the risk is exogenous to TSSA's regulatory scope, ancillary approaches are warranted.

**Fuels** – no trend or decreasing trend in fatalities, injuries and occurrences over last six years; approximately 5,500 facilities in Ontario regularly inspected (frequency of inspection at least once every three years; propane facilities inspected annually); compliance rate for all licensed facilities - 49% in FY 2012/13 (no discernable trend – 36% of liquid fuels licensed facilities compliant over last five years, 60% of propane facilities compliant); non-compliance with regulatory requirements is the cause of some 70% of risk (markedly higher than other TSSA regulated sectors); pipeline strikes show a decreasing trend (improper excavation remains dominant cause).

Key Issues: 3.34 fatality equivalent (two-thirds residential) for CO poisoning significantly the highest risk under TSSA's mandate; e.g. all fuel types -- propane and liquid fuels – 1.06 fatality-eq. per million per year; amusement devices – 0.11 fatality-eq.; elevating devices – 0.8 fatality-eq.; escalators and moving walks – 0.15 fatality-eq.; ski lifts – 0.03 fatality-eq. (estimated TSSA overall risk across all sectors 0.83 fatality-equivalents).

Considering the scale and complexity of CO risk within TSSA's safety reporting regime, a separate multi-sector approach may need to be prepared by TSSA. In addition to defining TSSA's role in this sector, the strategy would also serve to catalyze and hopefully coordinate all Provincially managed stakeholders, particularly those under the purview of Ministry of Consumer Services.

**Upholstered and Stuffed Articles** – 64% compliance rate; no discernable trend in compliance; 2% of non-compliances involve articles in a condition that could adversely impact a person's health.

The top compliance infraction this year of “Manufacturer not registered in Ontario” (30%) and second highest infraction “No Provincial Label” (26%) infer a safety issue (e.g. potential for unsafe materials to be used based on country of origin) rather than presenting a clear safety concern.

A summary note in next year’s ASPR on the difference between trade issues and public safety in USA regulated items would be beneficial.

### Regulating ‘Apples and Oranges’

TSSA is a unique amalgam of delegated regulatory responsibilities. No other organization in the world apparently, is tasked with regulating and providing common metrics for relatively disparate activities like Boilers and Pressure Vessels and Elevating Devices, Escalators and Moving Walks. The ‘apples to oranges’ comparison becomes apparent when looking at long-term compliance measures. Over 5 years BPVs have a 97 percent compliance level while Elevating devices have only 3 percent compliance over nine years, and Escalators and Moving Walks have 0 percent compliance over nine years.

The reasons for this marked difference are readily understood (e.g. limited non-insured share of BPVs, more severe responses for ‘non-compliance’, and narrower range of non-compliant activities), however the differences do need to be kept in mind when analyzing and interpreting the ASPR.

The unique amalgam of delegated responsibilities is an important aspect in TSSA’s development over the last ten years, and likely in the future. A powerful strength to have emerged from TSSA’s mandate is the efforts to measure and report on various types of risk. No other agency apparently is tasked with this unique requirement (e.g. report on regulatory mandates with BPVs and EDs). As this year’s ASPR highlights this is now an in-house strength of TSSA and will likely emerge as an even greater strength as other jurisdiction face similar ‘apples to oranges’ risk metrics challenges.

The unique areas that fall under TSSA’s mandate place a premium on the Authority’s core capabilities: namely, (i) inspection processes – standardized approaches, data collection and publication, ability to exhibit ‘value for money’; (ii) data management – early warning systems, trend analysis, rapid availability for public assurance and emergency response; (iii) prevention services – facilities licensing, design review, safety personnel accreditation (e.g. operating engineers); and (iv) public education and multi-stakeholder programming for safety enhancement (e.g. CO public education and Province-wide preventative programming).

### Suggestions for Future Reports

As proposed in last year’s ASPR review, contextualizing TSSA’s delegated risk reduction efforts in relation to other common risks is useful. The inclusion this year of RSI’s independent ‘Risk of Injuries and Deaths from TSSA-Regulated Activities in the Context of Other Risks’ is welcome. An annual summary, e.g. Table 1, in all future ASPR’s would

increase the usefulness even more as this would capture risk related trends, both within TSSA and across Ontario.

In all areas a clear indication on the comprehensiveness of reviews within the sector should be provided. This is largely available but is not always clear. For example what percent of Ontario's BPVs or EDs are (i) licensed and (ii) regularly inspected? Similarly in BPVs and fuels facilities, an annex should be attached that states how many design plans and as-built facilities were inspected (and any broad observations or discernable trends in the sector).

Sector summary tables can be difficult to interpret. For example Table ED-4 states there was "No trend in 'observed trend in Compliance Rate' (line 2) and 'Observed Trend in average number of non-compliances/inspection'" (line 4) yet the 'Major non-compliance Trend' has an "Increasing Trend" (line 6). Ideally all tables should have a common trend timeframe (likely 3 or 5 years). Also an indication on the severity of 'non-compliance' is also needed and should be presented within an agreed-to timeframe, say 5 years. Metrics should be harmonized for the sectors, ideally in a framework readily comparable to other jurisdictions.

A clearer differentiation on 'compliance' is needed. Professional judgment, i.e. an opinion from the Statutory Director on the meaning of, say, 100% non-compliance of escalators in Ontario (over nine years), would provide important assurance to laypeople reading the report. There is also a need to discuss the various degrees of compliance within a 'value for money' context. For example do other jurisdictions have similar compliance challenges when investing roughly similar resources in the sector?

Fee schedule – much is inferred in this year's ASPR that the new fee schedule will have a 'marked effect in reducing non-compliances' in several sectors. This should be measured over the next fiscal year and reported in the next ASPR.

As TSSA rolls out common approaches to licensing and 'standardized orders' across mandated sectors the need for a common approach to defining the scope and severity of 'non compliance' will also likely emerge. For example BPVs have 97% compliance over five years, while EDs have 3% compliance over nine years.

### Safety in Ontario – Mind the Gaps

Within the delegated sectors (BPV, OE, AD, ED, Es&MW, Ropeways, Fuels, USA) there are important safety aspects that are not fully encompassed through TSSA's efforts. For example, TSSA staff regularly inspects less than 5 percent of Ontario's BPVs. And yet as highlighted by the boiler explosion at Canada's Parliament Buildings October 2009 (not subject to TSSA oversight) with one fatality and two serious injuries, all BPVs have an appreciable risk profile to the Ontario public.

There may be merit in including a brief section in the ASPR that outlines areas where TSSA, and MCS, have identified regulatory (and non-regulatory) priorities for enhancement of public safety.

The public does not readily discern the nuances of regulatory accountability (inspections, licensing, operation) thereby presenting reputational risks to all regulators, insurers and operators in the sector. Regulations, by definition need to be specifically targeted, with discrete orders on execution and coverage. This is the nature of regulation and public policy, however in a few key areas the ASPR could reinforce the proscribed limits to TSSA's regulatory capacity and highlight potential sector 'gaps'.

Carbon monoxide is a good example of an important safety issue that transcends any one agency (or even several). Interventions will need to be both broad and targeted. TSSA issued Directors' Orders to address deficiencies with the installation and maintenance of natural gas natural draft boilers. Survey results show that there is already 80% compliance with maintenance requirements and 94% of target homes have CO alarms. A private members bill is currently being debated that would require installation of CO detectors in residential buildings with fuel-burning appliances and storage garages (similar to the requirements for smoke detectors as per the Fire Marshall's Office under the to-be-amended Fire Protection and Prevention Act, 1977)<sup>1</sup>.

However like fire prevention a comprehensive safety enhancement program to address carbon monoxide will likely have numerous related, and at times overlapping aspects (which is preferable to gaps). Lead roles may also vary by target location, e.g. schools and hospitals versus single family dwellings.

TSSA is already showing leadership in the CO topic area, however the sector may need to be addressed within an 'enhanced TSSA safety mandate' that explicitly states the Authority's regulated involvement in the sector as well as the broader multi-stakeholder programming in areas like public education, complementary licensing and regulation, and trend analysis (pending MCS authorization). This 'core and supporting' approach to the issue is likely to emerge as a common approach for TSSA (and other public safety agencies).

A core and supporting approach by TSSA should minimize regulatory (and behavioral) gaps. The approach – strong within the 'stove pipe', and flexible and expansive along the 'edges' – should also yield the highest increases in public safety within mandated staffing compliments and operational tools. TSSA is very well positioned to take the lead in this approach as evidenced in this year's ASPR with its detailed and defensible risk profiling.

### Messages from Statutory Directors

The messages from statutory directors are important annual 'check points'. They currently provide very useful information and a good overview of the Director's envisaged key priorities (success in last year and key plans going forward). These sections would benefit from strengthening in two areas:

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<sup>1</sup> Bill 18, Hawkins Gignac Act (Carbon Monoxide Detectors) 2013: Ernie Hardeman; First Reading February 28, 2013.

1. Directors should be encouraged to present key performance targets for the upcoming year. These performance targets (safety related) should be measurable and results should be reported in the subsequent ASPR. Perhaps at least one of these KPI could be set in the context of another jurisdiction.
2. Directors have an excellent understanding of their delegated sector; trends, areas of concern, value for (regulatory) money, jurisdictional overlaps and missing aspects. The ASPR should provide a venue for Statutory Directors to opine on 'state of their sector' in a broad Provincial and even global context (while maintaining their primary focus on matters that directly impact the safety of Ontarians). For example does the Director have an opinion on the number and density of new elevators in the City of Toronto?

## Comparison to Other Jurisdictions

Stating within the ASPR that, “only 3% of [elevating] devices continue to demonstrate full compliance in the studied nine-year period”, begs the questions, ‘isn’t this extremely low, how does this relate to other jurisdictions?’ Many reviewers may not appreciate the broader context of value from inspections. Highlighting the sector in relation to other jurisdictions may help with those assessments.

The ASPR is a very useful tool to facilitate the introduction of national and international comparisons and best practice benchmarking. Perhaps starting in one or two sectors, the ASPR could introduce a ‘best practice benchmarking’ section that compares the public safety aspects in a sector vis a vis other jurisdictions. In elevating devices for example, what do jurisdictions like British Columbia, Chicago, Netherlands, New Zealand, New York City, experience in terms of fatality-equivalents, how often are elevators inspected, which agency is mandated the task, what is the cost for building owner and local government, which agency has publicly available information, why, why not.

Eventually all delegated TSSA sectors should have regular and publicly available best practice assessments. Other jurisdictions may follow suit thereby enhancing public safety in Ontario, and elsewhere.

**Table 1. Fatality rates for Ontario and Canada, including both voluntary and involuntary risks.**

<b>Jurisdiction/ Source</b>	<b>Cause/ Years</b>	<b>Fatality Rate (per 1M pop/yr)</b>
TSSA, Ontario	elevating devices 2012-2013	0.076
	Fuels 2012-2013	0.153
	all regulated technologies 2012-2013	0.229
Canada (all provinces but Quebec) 2001-2007 - Chen et al. (2012)	all cause unintentional injury standardized mortality 29.7 per 100,000	297
Ontario 2009 - StatsCan 2009	all unintentional injuries 2009	233
Ontario Injury Data report	all injury causes 2001-2005	297
	Drowning 2001-2005	9
	falls 2001-2005	76
	road motor vehicle 2001-2005	54
	pedal cyclist 2001-2005	2
	motorcycle 2001-2005	4
	ATV 2001-2005	3
	all sports 2001-2005	<1
Ontario - Chen et al. 2007	all causes unintentional injury - average standardized mortality 2001-2007	2.63
Alberta Injuries Report	average annual injury mortality 2008 – 2010	470
	unintentional falls 2010	44
	motor vehicle related 2010	90
	poisoning 2010	97

Paragraph No.	CSRO's Comments/Recommendation	TSSA Response to CSRO Review of TSSA's Annual Public Safety Performance Report
<b>Report Background</b>		
1	This is TSSA's fifth enhanced Annual Public Safety Performance Report (ASPR). The first State of Public Safety Report summarized calendar year 2002; the first enhanced report coincided with TSSA's 2008/09 fiscal year. This is the second ASPR reviewed by the current Chief Safety and Risk Officer.	Noted.
2	This year's ASPR is accompanied with the TSSA-commissioned Risk Sciences International (RSI) report, 'Risk of Injuries and Deaths from TSSA-Regulated Activities in the Context of Other Risks' (summary Table attached). This independent report provides a contextual analysis of TSSA regulated risks relative to other voluntary and involuntary risks within Ontario.	Noted.
3	TSSA's mandated risk reduction efforts represent about 0.1% of Ontario's fatality rate due to unintentional injuries (Table 1: 0.23 fatalities/million residents/year for all TSSA activities compared to 233 fatality rate for all Ontario). Nearly two-thirds of the estimated risk is caused by non-compliance largely related to carbon monoxide, CO-poisoning.	Noted.
<b>General Overview</b>		
4	The ASPR report and accompanying RSI 'Risk in Context' reports are well written, cogently argued, and provide a comprehensive overview of TSSA's efforts to address and reduce the risks associated with delegated responsibilities.	Thank you.
5	The report introduces a predictive measure, 'risk of injury or fatality', which facilitates prediction of the expected	Agreed.

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	injury burden during the course of the upcoming year (or other time-frame). The metric is critical for both cross-sector and cross-jurisdiction comparisons. This is a valuable tool for public policy setting and for TSSA to set meaningful and measurable targets and performance metrics on reduced injuries or fatalities.	
6	Understanding the risk of injury or fatality is useful for TSSA's internal planning and programming. For example with 91 percent of amusement device risk and 97 percent of ski lift risk due to external factors (i.e. non-TSSA regulated), the importance of ancillary activities such as public education and 'team-supported' public safety efforts quickly becomes apparent	Agreed.
<b>Highlights</b>		
7	<b>Boilers and Pressure Vessels (BPV)</b> – 97 percent compliance; 2900 plants under TSSA oversight (i.e. OE regulation; total Province-wide number not known); no trend in compliance rate.	Noted.
8	Key issues from Statuary Director: rationalizing and completing inventory of insured and non-insured BPVs; standardization of orders and inspection outcomes (including non-TSSA inspections).	TSSA is working with the Ministry of Consumer Services to identify a path forward to address identified regulatory gaps as well as gaps in the current application of the regulations.. TSSA has provided the CSRO with related information on this initiative.
9	<b>Operating (Power) Engineers (OE)</b> 40 percent compliance rate although only 4% of plants continue to demonstrate full compliance in the studied nine years; increasing compliance trend; 2,900 plants and 12,700 operating engineers in Ontario.	The intent of providing the compliance rate for the nine year period was to validate the positive impact of inspections on compliance rates. TSSA recommends using the annual rate as a measure of compliance.

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10	Key issues: continued application of RIDM to refine inspections; addressing the growing shortage of operating engineers.	While the shortage of operating engineers is not directly within TSSA's mandate, the program is working collaboratively with industry and others to address this matter.
11	<p><b>Amusement Devices</b>  58% compliance over 5 years; 1,800 devices; 91% of risk due to external factors (outside TSSA regulatory mandate, e.g. user behavior) – 20% increase/year; waterslides represent 42% of total risk (60% of health impacts); only 11% of devices demonstrate full compliance in the nine year study period; no observable trends in fatalities and injuries last six years.</p>	Noted. (see note above regarding the validity of using the nine year compliance rate)
12	Key issues: specific targeting of reduced risk on water slides; need for more complete reporting of incidents by operators; continued and expanded public safety campaign.	Agreed.
13	Within TSSA's public education efforts there may be merit, especially in the ADs sector, to develop a long term program with measureable targets that can be cross referenced with similar efforts in other jurisdictions. The ASPR provides an excellent venue to discuss progress toward reduction of this risk.	Agreed. TSSA measures the performance of its public engagement programs and will continue to share our knowledge and experience with other Canadian jurisdictions. The ultimate measurement for this initiative is the reduction of related health impacts risk as outlined in this report.
14	<p><b>Elevating Devices (ED)</b> – approx. 49,000 elevators in Ontario; non-permanent injuries and occurrences of all types increasing 8% and 12% per year respectively; 75% of estimated risk may be caused by factors external to regulatory requirements; inspection interval for elevators is approximately 1.2 years; 3% of devices fully compliant over studied nine years; no discernable injury trend in last six years; increasing</p>	Noted. (see note above regarding the validity of using the nine year compliance rate)

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	trend in overall occurrences.	
15	Key Issues: continued emphasis on public education; development of standard orders and publication of data, e.g. provision of compliance data to maintenance contractors; Province-wide replacement of single bulkhead hydraulic cylinders on track for May 1, 2015; new fee schedule implementation and integration to periodic inspections scheduling.	Agreed.
16	An agreed-to metric (before the new fee is fully enacted) would be useful to verify if as suggested by TSSA "the new fee schedule for EDs has a marked effect on getting non-compliances found in periodic inspections resolved in the given time lines". With 49,000 elevators currently in Ontario – and a fast growing stock – TSSA should develop a plan to have much of this data, e.g. licenses and inspection dates, publicly available; perhaps as part of the Province of Ontario's 'Big Data' efforts.	TSSA will assess the impact of the fee changes on compliance using existing compliance metrics.  TSSA plans in the near future to assess opportunities to use technology to enhance compliance. In addition, TSSA's is engaged with the Province of Ontario and other stakeholders regarding opportunities to leverage its data base.
17	<b>Escalators and Moving Walks</b> - over 1,850 regulated by TSSA; 16% compliance rate; 97% of risk may be caused by factors external to regulatory requirements; no observed trends in last six years in fatalities, injuries and occurrences; decreasing trend in compliance rate; 16% compliance rate (over 5 year measured period).	Noted.
18	Key issues: development of standard inspection orders; moving step/skirt upgrades required by May 1, 2015; launch and sustained delivery of an expansive public education campaign.	Agreed.

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19	Escalators and moving walks seem to be an excellent area where best practices (human behavior) can be readily replicated. Recognizing possible funding constraints, perhaps TSSA could develop a peer program where 5 – 10 other jurisdictions (at least half outside North America) are reviewed on an ongoing basis; what are they trying, what can they learn from TSSA and <i>vice versa</i> . These finding should be available on TSSA's website.	TSSA agrees in principle with this suggestion.
20	<b>Ski Lifts</b> – 270 ski lifts in Ontario; 97% of estimated risk caused by factors external to regulatory requirements; no discernable trend for occurrences, fatalities or injuries; 34% inspection compliance rate (18% of ski lifts compliant over three years, 0% of ski lifts over nine years).	Noted. (see note above regarding the validity of using the nine year compliance rate)
21	Key Issues: understanding and influencing user behavior; addressing major non-compliance through complimentary inspections and regulation; standardizing inspection orders.	Agreed.
22	[Is there merit in linking TSSA ski lift information directly to facility public sites, e.g. a message from TSSA on every snow resort site? Signs and website information may be insufficient to changes user behavior, however as 97% of the risk is exogenous to TSSA's regulatory scope, ancillary approaches are warranted.	Ski lift owners have safety messaging signage that is very consistent with that delivered during TSSA on-site public engagement teams. Our research and experience demonstrates that signage, while useful, has a finite value in reaching and influencing the safety behavior of the high risk users. This knowledge has informed our decisions on the design, implementation and assessment of our ski lift public education strategies. TSSA will continue to work cooperatively with ski lift owners in this regard.
23	<b>Fuels</b> – no trend or decreasing trend in fatalities, injuries and occurrences over last six years; approximately 5,500	Noted.

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	<p>facilities in Ontario regularly inspected (frequency of inspection at least once every three years; propane facilities inspected annually); compliance rate for all licensed facilities - 49% in FY 2012/13 (no discernable trend – 36% of liquid fuels licensed facilities compliant over last five years, 60% of propane facilities compliant); non-compliance with regulatory requirements is the cause of some 70% of risk (markedly higher than other TSSA regulated sectors); pipeline strikes show a decreasing trend (improper excavation remains dominant cause).</p>	
24	<p>Key Issues: 3.34 fatality equivalent (two-thirds residential) for CO poisoning significantly the highest risk under TSSA's mandate; e.g. all fuel types -- propane and liquid fuels – 1.06 fatality-eq. per million per year; amusement devices – 0.11 fatality-eq.; elevating devices – 0.8 fatality-eq.; escalators and moving walks – 0.15 fatality-eq.; ski lifts – 0.03 fatality-eq. (estimated TSSA overall risk across all sectors 0.83 fatality-equivalents).</p>	Agreed.
25	<p>Considering the scale and complexity of CO risk within TSSA's safety reporting regime, a separate multi-sector approach may need to be prepared by TSSA. In addition to defining TSSA's role in this sector, the strategy would also serve to catalyze and hopefully coordinate all Provincially managed stakeholders, particularly those under the purview of Ministry of Consumer Services.]</p>	<p>Agreed, this position largely reflects TSSA's overall strategy to address CO. That is, to test and be able to demonstrate to potential partners that safer behavior can be achieved through public awareness actions. Concurrently, TSSA has been supporting current and building new partnerships in recognition of the clear need for a multi stakeholder approach. TSSA hopes to move forward on this strategy during the next two years.</p>
26	<p><b>Upholstered and Stuffed Articles</b> 2% of non-compliances involve articles in a condition that could adversely</p>	<p>Note that based on a closer assessment of the compliance rate metric for USA (noted as 64% last year), TSSA has decided to</p>

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	impact a person's health.	remove references to this metric subject to further future refinement to ensure that it is consistent with compliance metrics in the other sectors, . The information provided by the inspection orders metric does provide useful information that assists the statutory director in making enforcement decisions.
27	The top compliance infraction this year of "Manufacturer not registered in Ontario" (30%) and second highest infraction "No Provincial Label" (26%) infer a safety issue (e.g. potential for unsafe materials to be used based on country of origin) rather than presenting a clear safety concern.	While current data does not support an assessment of safety impacts, the lack of required labels indicates the potential for unsafe materials to be used.
28	A summary note in next year's ASPR on the difference between trade issues and public safety in USA regulated items would be beneficial.	The statutory director will consider this suggestion.
<b>Regulating 'Applies and Oranges'</b>		
29	TSSA is a unique amalgam of delegated regulatory responsibilities. No other organization in the world apparently, is tasked with regulating and providing common metrics for relatively disparate activities like Boilers and Pressure Vessels and Elevating Devices, Escalators and Moving Walks. The 'apples to oranges' comparison becomes apparent when looking at long-term compliance measures. Over 5 years BPVs have a 97 percent compliance level while Elevating devices have only 3 percent compliance over nine years, and Escalators and Moving Walks have 0 percent compliance over nine years.	Noted. (see note above regarding the validity of using the nine year compliance rate)
30	The reasons for this marked difference are readily understood (e.g. limited non-insured share of BPVs, more severe	Noted.

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	<p>responses for 'non-compliance', and narrower range of non-compliant activities), however the differences do need to be kept in mind when analyzing and interpreting the ASPR.</p>	
31	<p>The unique amalgam of delegated responsibilities is an important aspect in TSSA's development over the last ten years, and likely in the future. A powerful strength to have emerged from TSSA's mandate is the efforts to measure and report on various types of risk. No other agency apparently is tasked with this unique requirement (e.g. report on regulatory mandates with BPVs and EDs). As this year's ASPR highlights this is now an in-house strength of TSSA and will likely emerge as an even greater strength as other jurisdiction face similar 'apples to oranges' risk metrics challenges.</p>	Thank you.
32	<p>The unique areas that fall under TSSA's mandate place a premium on the Authority's core capabilities: namely, (i) inspection processes – standardized approaches, data collection and publication, ability to exhibit 'value for money'; (ii) data management – early warning systems, trend analysis, rapid availability for public assurance and emergency response; (iii) prevention services – facilities licensing, design review, safety personnel accreditation (e.g. operating engineers); and (iv) public education and multi-stakeholder programming for safety enhancement (e.g. CO public education and Province-wide preventative programming).</p>	Agreed.
<b>Suggestions for Future Reports</b>		
33	<p>As proposed in last year's ASPR review, contextualizing TSSA's delegated risk</p>	Agreed.

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	reduction efforts in relation to other common risks is useful. The inclusion this year of RSI's independent 'Risk of Injuries and Deaths from TSSA-Regulated Activities in the Context of Other Risks' is welcome. An annual summary, e.g. Table 1, in all future ASPR's would increase the usefulness even more as this would capture risk related trends, both within TSSA and across Ontario.	
34	In all areas a clear indication on the comprehensiveness of reviews within the sector should be provided. This is largely available but is not always clear. For example what percent of Ontario's BPVs or EDs are (i) licensed and (ii) regularly inspected? Similarly in BPVs and fuels facilities, an annex should be attached that states how many design plans and as-built facilities were inspected (and any broad observations or discernible trends in the sector).	This information is provided when available in quarterly report provided to Ministry of Consumer Services. These can be shared with the CSRO and TSSA will explore how to expand the ASPR in this respect.
35	Sector summary tables can be difficult to interpret. For example Table ED-4 states there was "No trend in 'observed trend in Compliance Rate' (line 2) and 'Observed Trend in average number of non-compliances/inspection'" (line 4) yet the 'Major non-compliance Trend' has an "Increasing Trend" (line 6). Ideally all tables should have a common trend timeframe (likely 3 or 5 years). Also an indication on the severity of 'non-compliance' is also needed and should be presented within an agreed-to timeframe, say 5 years. Metrics should be harmonized for the sectors, ideally in a framework readily comparable to other jurisdictions.	TSSA will conduct a "best practices" assessment of how it represents its findings with a view to increasing their ease of understanding and comparison.
36	A clearer differentiation on 'compliance' is needed. Professional judgment, i.e. an	Agreed . TSSA recognizes that some of the compliance data that has been reported

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	opinion from the Statutory Director on the meaning of, say, 100% non-compliance of escalators in Ontario (over nine years), would provide important assurance to laypeople reading the report. There is also a need to discuss the various degrees of compliance within a 'value for money' context. For example do other jurisdictions have similar compliance challenges when investing roughly similar resources in the sector?	on since inception can be easy for the general public to misinterpret. A new initiative was established in March 2013 to review the way that TSSA reports compliance data, notwithstanding the value of the current metrics being used internally for RIDM purposes.
37	Fee schedule – much is inferred in this year's ASPR that the new fee schedule will have a 'marked effect in reducing non-compliances' in several sectors. This should be measured over the next fiscal year and reported in the next ASPR.	Agreed. Several rewards and deterrents were built into the new fee schedule in several areas, that with the fullness of time are expected to influence compliance positively.
38	As TSSA rolls out common approaches to licensing and 'standardized orders' across mandated sectors the need for a common approach to defining the scope and severity of 'non compliance' will also likely emerge. For example BPVs have 97% compliance over five years, while EDs have 3% compliance over nine years.	<p>The compliance rate (percentage of compliance observed during inspections) for elevating devices is 32%. The 3% results for ED is a measurement of compliance over a longer time frame than the inspection cycle intended to assess the value of timely periodic inspections.</p> <p>Otherwise TSSA agrees with the suggestion. TSSA has launched a pilot review of compliance across all sectors with a view to determining if there are opportunities to enhance consistency and standardization.</p>
<b>Safety in Ontario – Mind the Gaps</b>		
39	Within the delegated sectors (BPV, OE, AD, ED, Es&MW, Ropeways, Fuels, USA) there are important safety aspects that are not fully encompassed through TSSA's efforts. For example, TSSA staff regularly inspects less than 5 percent of Ontario's BPVs. And yet as highlighted by the boiler explosion at Canada's Parliament Buildings October 2009 (not	TSSA takes all efforts to ensure that it is in full compliance with the regulations and where gaps of this nature are identified, they are treated as a top priority (e.g. backlogs in periodic inspection commitments). In addition, TSSA has a responsibility to advise MCS of any identified gaps in the regulations or other substantive safety policy matters that

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	subject to TSSA oversight) with one fatality and two serious injuries, all BPVs have an appreciable risk profile to the Ontario public.	require MCS approval. Based on this approach, TSSA and MCS have identified a list of regulatory priorities.  In addition, TSSA has committed to go beyond its delegated mandate to promote public safety, in particular through its public education and research programs.
40	There may be merit in including a brief section in the ASPR that outlines areas where TSSA, and MCS, have identified regulatory (and non-regulatory) priorities for enhancement of public safety.	Noted.
41	The public does not readily discern the nuances of regulatory accountability (inspections, licensing, operation) thereby presenting reputational risks to all regulators, insurers and operators in the sector. Regulations, by definition need to be specifically targeted, with discrete orders on execution and coverage. This is the nature of regulation and public policy, however in a few key areas the ASPR could reinforce the proscribed limits to TSSA's regulatory capacity and highlight potential sector 'gaps'.	TSSA agrees with this point and currently makes efforts to address this matter through its communications strategy.
42	Carbon monoxide is a good example of an important safety issue that transcends any one agency (or even several). Interventions will need to be both broad and targeted. TSSA issued Directors' Orders to address deficiencies with the installation and maintenance of natural gas natural draft boilers. Survey results show that there is already 80% compliance with maintenance requirements and 94% of target homes have CO alarms. A private members bill is currently being debated that would require installation of CO detectors in	Agreed.

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	residential buildings with fuel-burning appliances and storage garages (similar to the requirements for smoke detectors as per the Fire Marshall's Office under the to-be-amended Fire Protection and Prevention Act, 1977) <sup>2</sup> .	
43	However like fire prevention a comprehensive safety enhancement program to address carbon monoxide will likely have numerous related, and at times overlapping aspects (which is preferable to gaps). Lead roles may also vary by target location, e.g. schools and hospitals versus single family dwellings.	Agreed.
44	TSSA is already showing leadership in the CO topic area, however the sector may need to be addressed within an 'enhanced TSSA safety mandate' that explicitly states the Authority's regulated involvement in the sector as well as the broader multi-stakeholder programming in areas like public education, complementary licensing and regulation, and trend analysis (pending MCS authorization). This 'core and supporting' approach to the issue is likely to emerge as a common approach for TSSA (and other public safety agencies).	TSSA defers to MCS regarding its mandate. As already noted, TSSA is committed to a larger role that include promotion of public safety.
45	A core and supporting approach by TSSA should minimize regulatory (and behavioral) gaps. The approach – strong within the 'stove pipe', and flexible and expansive along the 'edges' – should also yield the highest increases in public safety within mandated staffing compliments and operational tools. TSSA is very well positioned to take the lead in this approach as evidenced in this year's	Agreed and thank you.

<sup>2</sup> Bill 18, Hawkins Gignac Act (Carbon Monoxide Detectors) 2013: Ernie Hardeman; First Reading February 28, 2013.

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	ASPR with its detailed and defensible risk profiling.	
<b>Messages from Statutory Directors</b>		
46	The messages from statutory directors are important annual 'check points'. They currently provide very useful information and a good overview of the Director's envisaged key priorities (success in last year and key plans going forward). These sections would benefit from strengthening in two areas:	Thank you. .
47	1. Directors should be encouraged to present key performance targets for the upcoming year. These performance targets (safety related) should be measurable and results should be reported in the subsequent ASPR. Perhaps at least one of these KPI could be set in the context of another jurisdiction.	Agreed, TSSA currently does attempt to measure the effectiveness of initiatives, for example a Director's Order was issued for natural draft boilers. These efforts are limited by the data that TSSA is able to collect.
48	2. Directors have an excellent understanding of their delegated sector; trends, areas of concern, value for (regulatory) money, jurisdictional overlaps and missing aspects. The ASPR should provide a venue for Statutory Directors to opine on 'state of their sector' in a broad Provincial and even global context (while maintaining their primary focus on matters that directly impact the safety of Ontarians). For example does the Director have an opinion on the number and density of new elevators in the City of Toronto?	Agreed. While statutory directors will continue to give a primary focus on matters that directly impact the safety of Ontarians, they will continue to seek opportunities to work cooperatively with other jurisdictions and share experiences respectively.

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<b>Comparison to Other Jurisdictions</b>		
49	<p>Stating within the ASPR that, “only 3% of [elevating] devices continue to demonstrate full compliance in the studied nine-year period”, begs the questions, ‘isn’t this extremely low, how does this relate to other jurisdictions?’ Many reviewers may not appreciate the broader context of value from inspections. Highlighting the sector in relation to other jurisdictions may help with those assessments.</p>	<p>As noted above, 3% compliance for ED should be considered in the broader context of assessing the value of inspections.</p>
50	<p>The ASPR is a very useful tool to facilitate the introduction of national and international comparisons and best practice benchmarking. Perhaps starting in one or two sectors, the ASPR could introduce a ‘best practice benchmarking’ section that compares the public safety aspects in a sector vis a vis other jurisdictions. In elevating devices for example, what do jurisdictions like British Columbia, Chicago, Netherlands, New Zealand, New York City, experience in terms of fatality-equivalents, how often are elevators inspected, which agency is mandated the task, what is the cost for building owner and local government, which agency has publicly available information, why, why not.</p>	<p>Agreed.</p>
51	<p>Eventually all delegated TSSA sectors should have regular and publicly available best practice assessments. Other jurisdictions may follow suit thereby enhancing public safety in Ontario, and elsewhere.</p>	<p>TSSA will continue to support other Canadian jurisdictions to this end.</p>