

Review
of the
Public Safety Report
2020 Edition

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Executive Summary

Last year the Technical Standards and Safety Authority (TSSA) took steps to strengthen the effectiveness of the Safety and Risk Officer (SRO) role. The new mission of the role is to provide the Board of Directors with an independent review of the public safety responsibilities assigned to TSSA, including the review of its' Annual Public Safety Report (ASPR).

An objective centric approach was used to review the ASPR for the purpose of assessing the quality, accuracy and clarity of the data used in the report. This approach was chosen as it provides recommendations that leverage limited resources to increase the certainty that an objective will be achieved.

The approach begins by determining the objective and understanding the obstacles that can get in the way of achieving the objective. The objective anchoring this review was TSSA delivering an ASPR that presented a reliable picture of the state of safety on the sectors that it regulates based on quality, accurate and clear data.

Based on the review of documents and discussions with staff I identified obstacles that could get in the way and developed an understanding of the action TSSA was taking to increase the chances of presenting a reliable picture of safety.

Overall, the quality, accuracy and clarity of the data used in the ASPR continues to be strengthened as TSSA has implemented changes in response to recommendations from the Auditor General and TSSA's Internal Audit department. Progress has been made in strengthening data collection processes, strengthening the analysis of the data and quality control processes.

The review identified three areas that will leverage work underway, make the best use of limited resources and continue to strengthen the ASPR; defining the audience for the ASPR, continuing to strengthen data analysis and interpretation and enhancing the format and presentation of the report.

TSSA took steps to align content and format of the fiscal year 2020 (FY20) ASPR to appeal to two distinct audiences. Continuing work in this area to clarify the primary reader will drive efficiencies as it takes the guess work out of what is needed to improve quality as determined by the reader. It is recommended that steps be taken in fiscal year 2021 (FY21) to clearly identify the primary reader and actively solicit their feedback to confirm the objective of the ASPR and audience needs are being met.

It is generally accepted that the quality of the ASPR would be improved by including content that helps the reader interpret the multiple numeric measures included in the report. For the FY20 edition, steps were taken to more effectively bring together the various skills and expertise needed, and this appears to be making a difference in the analysis, interpretation, and presentation of the data. It is recommended that collaboration between the Public Safety Risk Management (PSRM) department, the Statutory Directors and their teams and Communication staff continue to be strengthened as it will be instrumental in enriching the quality of data in the ASPR.

TSSA also uses various visual graphs and charts to aid in the interpretation and provides case studies and Statutory Director messages to foster an understanding of the significance of the data and several

improvements were implemented for the FY20 edition. As TSSA responds to the suggestions from the Peer Review Forum convened in FY20, it is recommended that improvements to case studies and messages from statutory directors be considered.

As noted above, the quality, accuracy and clarity of the data used in the ASPR continues to be strengthened. Implementing the recommendations in the three areas discussed will continue to build on work underway and improve the quality of the ASPR. It should be noted that the observations and recommendations provided in this report were only made possible through the generous participation and engagement of the participants. Their commitment to acting will strengthen the value of the ASPR in measuring safety outcomes and communicating them to the public.

Introduction

Mandated by the Government of Ontario, the Technical Standards and Safety Authority (TSSA) is Ontario's public safety regulator in key sectors: fuels; elevating and amusement devices; and boilers, pressure vessels and operating engineers. TSSA is governed by a 13-member board of directors and is accountable to the government of Ontario, residents of Ontario and other stakeholders. The Ministry of Government and Consumer Services (MGCS) is the Ontario government body that sets public safety policy, oversees the delivery of safety services and TSSA's organizational performance and retains authority for the Technical Standards and Safety Act, 2000.

A Memorandum of Understanding (MOU) between the MGCS and the TSSA clarifies the roles, duties, and responsibilities of each party in relation to the administration of the Act, and administrative matters under the Act.

The Safety and Risk Officer (SRO) position is established through the Technical Standards and Safety Act and is further outlined in the MOU. The creation of the position was aimed at improving technical safety in the province and over the last year TSSA has taken steps to strengthen the effectiveness of the role.

The new mission of the SRO is to provide the Board of Directors with an independent review of the public safety responsibilities assigned to the TSSA pursuant to the Technical Standards and Safety Act (Act). To this end, the SRO will furnish analysis, recommendations and information concerning the safety activities. In performing its role, the SRO will strive to be an advocate for best practices.

The SRO duties include the review of the Corporation's Annual Public Safety Report (ASPR) for the purpose of assessing the quality, accuracy and clarity of the data used for the report.

The annual ASPR relates critical information about the documented state of safety in the places where Ontarians live, work and play. It provides key safety related information on the sectors that TSSA regulates and its evaluation of its own performance. It estimates the level of risk Ontarians are exposed to through TSSA-regulated technologies, devices, equipment and certified trades people.

The results of my review of the ASPR are provided in this report. The report is intended for the sole purpose of assisting the Board of Directors and management in taking steps to continually strengthen the value of the ASPR in measuring safety outcomes and communicating them to the public. As such, the observations and recommendations expressed in this report are written exclusively for the use of the Board of Directors and management and will not be suitable for other purposes. The report is not to be interpreted as the results of an audit, review, or assurance engagement as defined by the Canadian Standard on Assurance Engagements.

The report that follows presents the work that was done, observations and recommendations.

Approach

An objective centric approach was used to review TSSA's Annual Public Safety Report (ASPR) for the purpose of assessing the quality, accuracy and clarity of the data used for the report. This approach was chosen as it provides recommendations that leverage limited resources to increase the certainty that an objective will be achieved.

An objective centric approach begins by determining the objective and understanding the obstacles that can get in the way of achieving the objective. The approach considers the actions that are being taken to address the obstacles and determines if additional action is needed to increase the chances that the objective will be achieved. The objective centric approach provides a number of benefits, including a focus on the most significant threats to the objective and developing recommendations that will make the best use of limited resources to increase the chances of success.

The objective anchoring this review was TSSA delivering an ASPR that presented a reliable picture of the state of safety on the sectors that it regulates based on quality, accurate and clear data.

With that in mind, I began by developing an in depth understanding of the processes in place to produce the ASPR. Reliance was placed on the Auditor General's report of the audit of TSSA in 2018; with particular attention paid to the observations and recommendations related to the ASPR and data quality. I also relied on the Public Safety Decision Making Process Audit Report by Internal Audit completed in 2020 and supporting documentation used to inform that audit. It was important that I understood the action TSSA was taking in response to both of these reports in order to avoid wasting time reviewing or drafting recommendations for work that was already in progress.

A number of additional documents were reviewed supported by discussion with individuals involved in producing the ASPR. My review sought to understand what data was used in the various processes related to the three areas of public safety services:

- Boilers and Pressure Vessels and Operating Engineers
- Elevating Devices, Amusement Devices and Ski Lifts
- Fuels

To increase my understanding of the quality assurance processes performed by the Public Safety Risk Management (PSRM) department I followed several data points extracted from the information system through analysis to reference in the final report.

Based on the documents and discussions with staff I identified obstacles that could get in the way of presenting a reliable picture of safety in the ASPR. This was followed by developing an understanding of the action TSSA was taking to increase the chances of achieving this objective and in consultation with TSSA staff we developed recommendations to strengthen the chances of success.

To ensure the proposed recommendations made the best use of limited resources in strengthening the ASPR, the review engaged a participatory approach. Staff most involved in the ASPR processes were consulted and provided feedback on the observations and recommendations throughout the review. This ensured that recommendations did not duplicate efforts that were already underway in response to the Auditor General

and Internal Audit recommendations and fostered an understanding of the rationale for the recommendations and commitment to implementation.

Overview

The annual ASPR provides key safety related information about the documented state of safety by estimating the level of risk Ontarians are exposed to through TSSA-regulated technologies, devices, equipment, and certified trades people. Ensuring that the ASPR presents quality, accurate and clear data is necessary to ensure a reliable picture of the state of safety and to assure readers that the sectors do not present an unacceptable risk of harm.

TSSA has implemented changes in recent years to improve the quality of the ASPR and has responded to recommendations made by the Auditor General in its audit of TSSA in 2018 and in 2020 by TSSA's Internal Audit department. Recommendations were aimed at strengthening the quality of the data in the ASPR as well as the presentation of that data. TSSA's action is making a difference. Clarity in reporting and improvements in the report format can be clearly seen when comparing the ASPR over several years.

A critical area that has a direct impact on the quality of data reported in the ASPR is the data collection process. If data is not collected or errors are made in reporting source data, conclusions drawn from analysis may be impacted, areas of concern may not be highlighted or addressed, and the reliability of the safety picture may be compromised.

TSSA has made good progress over the last year in strengthening data collection processes. The phased implementation of OASIS (Operations Analytics Safety Innovation System), TSSA's Information and IT system project, is planned to strengthen data collection as it will contain safeguards to prevent data entry errors at the time of manual collection; thereby increasing the accuracy of data collection.

In the meantime, steps have been taken to strengthen existing manual data collection processes. For example, the backlog of inspection data is being addressed and work continues to prevent backlogs from developing in the future. This work will strengthen the quality of data and conclusions as presented in the FY20 ASPR.

Plans are underway to continue to improve data collection in fiscal year 2021 in response to previous recommendations. TSSA will take steps to streamline data collection processes, enhance definitions, instructions, and training for those collecting and entering data and strengthen monitoring of data collection processes. Once implemented these steps will improve the quality of the safety data as presented in the ASPR.

The Public Safety Risk Management (PSRM) department plays a key role in the analysis of data from the field and preparation of the ASPR. Over the last year, they have taken a number of steps to strengthen the analysis of the data. Recommendations from Internal Audit to update formulas and algorithms driving data analysis were implemented along with recommendations from a Peer Review to improve trend analysis, including incorporating external data, and refining risk weightings and scores. These improvements will enhance the understanding of the safety picture as presented in the ASPR and lead to a better understanding of the impact of trends on safety.

PSRM has also strengthened its quality control processes to improve the accuracy of its analysis and conclusions. It has formalized its review process with the implementation of the Quality Management

System (QMS) Manual that includes a system of checks and balances to ensure data is accurate and valid. In following through several data points through the quality control process from data extraction to reference in the report nothing came to my attention that indicated the processes were not designed effectively.

Overall, the quality, accuracy and clarity of the data used in the ASPR continues to be strengthened. The following observations and recommendations are intended to build on the work in progress and continue to strengthen the value of the ASPR in measuring safety outcomes and communicating them to the public.

Observations and Recommendations

In developing the observations I considered the obstacles that would get in the way and the actions that TSSA is currently taking to deliver a report on safety data that provides a complete, accurate and reliable picture of the safety risks present in the sectors the TSSA regulates.

Recommendations to respond to the observations were developed in collaboration with key participants and are intended to make the best use of limited resources while strengthening future versions of the ASPR.

Observation #1: Audience Definition

The quality and value of a report can only be determined by the intended readers of a report. In situations where more than one primary audience for a report is identified it becomes challenging to balance the needs of the readers. In doing so there is a risk that neither audience is satisfied and the quality and value of the report in the eyes of the reader are diminished.

The intended audience for the ASPR appears to be the clients that TSSA regulates however there are varying views and discussion as to other readers that may have an interest and the best way to address their needs.

Although additional work in this area, such as defining the primary reader of the report and their needs was originally planned for fiscal year 2020 (FY20) the impact of COVID on resources prohibited any significant changes. Instead smaller changes were made to the report presentation.

TSSA took steps to align content and format of the FY20 report to two distinct audiences; anyone in Ontario interested in understanding safety and sources of risk and industry stakeholders. The language and visuals used in each section are intended to appeal to the needs of the two audiences.

Without further clarity as to the primary reader of the ASPR and their needs, it will continue to be a challenge to deliver a report in an appropriate format with the correct level of information. It will also be difficult to incorporate any feedback offered and reconcile any conflicting needs such as providing more or less content.

Clarity in this area will drive efficiencies as it will take the guess work out of what is needed to improve the quality of the report. For example, a solid understanding of the needs of the primary reader will provide clear direction as to the type of content and level of detail to include in the report. Identifying the primary reader will also make it easier to solicit feedback directly from the audience and adjust the report, as necessary. Finally, clearly defining the audience will assist the Statutory Directors in drafting their message and responding directly to the needs of the audience.

In fiscal year 2021 (FY21) TSSA expects resources will allow for further clarity as to the primary reader of the report. As an initial step TSSA will seek feedback on the FY20 ASPR from industry experts through the advisory councils.

Recommendation:

It is recommended that steps be taken in FY21 to clearly identify the primary reader for the ASPR and actively solicit their feedback to confirm the objective of the ASPR and audience needs are being met.

Observation #2: Strengthening of Data Analysis and Interpretation

The ASPR strives to deliver critical information about the documented state of safety in the places where Ontarians live, work and play. In doing so, multiple numeric measures are used to convey this information and some descriptions of measures may be difficult to understand.

Although some readers may be very adept at arriving at their own conclusions as to the state of safety based on the data alone, it is generally accepted that the quality of the report would be improved by including content that helps the reader with their interpretation. It is also viewed as important to provide the TSSA's view on the data and what it means to them.

The preparation of the ASPR draws upon various skills and expertise in TSSA. Statutory Directors require an understanding of the analysis and conclusions provided by PSRM to effectively align data points and safety indicators with observations and feedback from the field. PSRM needs feedback from the Statutory Directors to direct further analysis or interpretation of data and validate their conclusions. Finally, the Communication team plays an important role in pulling together a cohesive document that balances a consolidated picture of the state of safety with individual highlights in program areas.

To be effective the teams need to work together. No one team can be relied upon to deliver the ASPR in isolation. Only an effective joint effort will increase the certainty of delivering a quality ASPR report. For the FY20 edition of the ASPR important steps were taken to increase collaboration between the Communication department, the Statutory Directors, and their teams and the PSRM department.

Presentations on the preliminary analysis and conclusions of the data, led by PSRM, included the Statutory Directors and their teams and Communication staff. Subsequent discussion identified areas requiring further analysis, validated data, and explored content that would be important to a variety of readers of the report. The joint discussions were instrumental for Communication staff in ensuring important key messages and highlights were included in the ASPR and consistency of language was used throughout the report.

Accessing the skills of a copy editor for comprehension and readability of the report as well as a graphic designer to improve the visual presentation of data has improved the quality of the interpretation and presentation of the data in the ASPR.

The increased collaboration for FY20 appears to be making a difference in the analysis, interpretation, and presentation of the data.

Feedback received on the collaboration process this year was positive and thought to be helpful. The value of the collaboration is apparent in the FY20 edition as it provides increased context and colour to the numerical data and conclusions regarding the state of safety are more readily apparent.

Recommendation:

It is recommended that collaboration between PSRM, the Statutory Directors and their teams and Communication staff continue to be strengthened as it will be instrumental in enriching the quality of interpretation, conclusions, and presentation of data in the ASPR.

As a first step it is recommended that the teams review the process for FY20, identify what worked, and implement action to strengthen collaboration for FY21. Formalizing the process by clarifying roles and the timing of activities may be helpful. To build familiarity and strengthen the interpretation of the data it is recommended that the collaboration process include regular review of key metrics throughout the year. This will also help to alleviate some of the year end pressure associated with producing the report.

Observation #3: ASPR Format and Presentation

The FY20 ASPR strives to “paint a picture of public safety in Ontario¹” by exploring and interpreting “trends and patterns and the impact they have on people in Ontario²”. In doing so, the application of formatting and presentation of the data plays a critical role in inhibiting or supporting the reader in understanding the data. Ideally TSSA will want the reader to feel they have a good understanding of the state of safety and feel confident TSSA is taking the necessary steps to monitor risk levels or reduce them to an acceptable level.

To ensure the data is interpreted correctly by the reader, TSSA uses various visual graphs and charts to aid in the interpretation and provides case studies and Statutory Director messages to foster an understanding of the significance of the data. The supporting visuals and content are applied consistently to each of the safety programs and helps the reader to understand the safety picture and note areas that may be of concern.

To improve the clarity of the data presented in the ASPR TSSA implemented several improvements for the FY20 edition.

Changes to the layout of the report were made by providing a short “core” report supported by appendices presenting data tables and technical content on the processes and methodologies supporting the content of the ASPR. Much of the content previously included for program areas has been shifted to appendices and the readers attention is captured with succinct bullet points that highlight trends and provide context. The new layout permits the reader to satisfy their level of curiosity as to the details supporting the information supplied in the “core” report. This approach acknowledges that not all readers will be interested in the same level of detail for all safety programs.

Graphs and charts have been improved in FY20. Formatting maximizes white space to make it easier to interpret the graph or chart, data points in graphs have been reduced to highlight the most relevant information and colours in the report comply with AODA (Accessibility for Ontarians with Disabilities Act) standards.

Case studies were implemented in the fiscal year 2019 version and photographs have been added for FY20 to enhance the presentation of examples of TSSA activities and investigations.

Despite the changes, interpretations of trends and the impact on Ontarians is often left to up the reader.

¹ Message from Viola Dessanti, Director, Strategic Analytics, TSSA Public Safety Report 2020, pg. 4

² Ibid

Case studies demonstrating TSSA activities do not always link to the safety data or trends presented in the report. For example, the case study on the alkaline hydrolysis machine incident in Quebec clearly describes the incident, the conclusions drawn from the TSSA investigation and the TSSA action implemented. It is not clear how this investigation relates to observed injury burden or risk of injury or fatality; the two main measures of public safety and risk. Readers may wonder if the slight increase in risk of injury or fatality in FY20 was related to conclusions from the case study.

Messages from Statutory Directors offer an opportunity to provide a perspective on the safety trends and TSSA's response. In the FY20 edition there appears to be several formats and the purpose of these messages does not appear to be consistent. Some messages address current initiatives and plans for the upcoming year while others describe a specific situation and what was done, like the case studies. It is often not clear from the message how the reader is to connect the trends in data with TSSA action and impact on people.

Some of the confusion over the purpose of the Statutory Director's message may be attributed to discussion over the years as to how much context to provide to the reader. Does TSSA just provide the data and let the reader come to their own conclusion or provide context to help the reader understand and interpret the data? Enhancements to the presentation of the report over the last few years indicate that TSSA is moving in the direction of helping the reader with the interpretation. Some of this confusion may be cleared as the primary audience is defined in response to recommendation #1.

If the intention of the Statutory Director's message is to demonstrate the connection between trends and patterns and the impact they have on people in Ontario, then the Fuels message achieves that purpose. The Statutory Director's message refers to the decline in risk of injury and fatality, notes a reduction in the severity of harm experienced by Ontarians and attributes the change to 2017 regulation changes, educational campaigns, and awareness initiatives. By explicitly linking the relevant pieces together the reader can easily understand what has changed, why it has changed and action that TSSA is taking or implemented.

The Statutory Director's message also provides an opportunity to highlight the difference TSSA is making in Ontario safety. Noting the TSSA activities beyond inspections and investigations is particularly important to understanding how external factors or human behaviour beyond the control of TSSA are addressed. The value of TSSA activities of education and collaboration with industry councils that are making a difference is not readily apparent from reading the report

TSSA is committed to continuous improvement of the ASPR and additional improvements are being investigated for the FY21 edition. Suggested improvements to the TSSA risk model resulting from a Peer Review Forum convened in FY20 will impact the ASPR format and presentation. For example, plans are underway to continue to improve the ASPR format to make it more user-friendly, interactive and answer such questions for the reader as to "why?" and "so what?"

Recommendation:

As TSSA responds to the suggested improvements from the Peer Review, it is recommended that improvements to case studies and messages from statutory directors be considered.

Choosing case studies that can be linked directly to incidents or trends in data would assist the reader in linking TSSA activities with safety data. Clearly stating conclusions and TSSA actions will provide confidence in TSSA's ability to respond.

Enhancing the Statutory Director's message as to the activities that TSSA is taking to respond to the data will help the reader to begin to grasp the value of TSSA activities and how they are improving the safety.

These improvements may be instrumental in addressing the Peer Review recommendations on answering readers questions as to "why" and "so what?".

Conclusion

Overall, the quality, accuracy and clarity of the data used in the ASPR continues to be strengthened as TSSA implements improvements.

Applying an objective centric approach to my review and drawing on the insight and wisdom of those involved in producing the ASPR, we were able to focus on three areas that will leverage work underway, make the best use of limited resources and continue to strengthen the ASPR. Defining the audience for the ASPR, strengthening data analysis and interpretation, and enhancing the format and presentation of the report will contribute to the value of the ASPR in measuring safety outcomes and communicating them to the public.

I greatly appreciated the willingness of participants to actively engage in the review of the FY20 ASPR and their willingness to explore and share their insight and wisdom. The observations and recommendations provided in this report were only made possible through their participation and engagement.