Chapter 35
Technical Safety Authority of Saskatchewan—Inspecting Boilers and Pressure Vessels

1.0 Main Points

The Technical Safety Authority of Saskatchewan (TSASK) is responsible for administering and enforcing *The Boiler and Pressure Vessel Act, 1999,* and *The Boiler and Pressure Vessel Regulations* (Regulations). By law, TSASK must perform periodic inspections on boilers and pressure vessels. Regular inspection of boilers and pressure vessels helps prevent equipment malfunction. In the event of a boiler or pressure vessel malfunction, there could be significant harm to facilities, the environment, employees, and the general public.

By January 2016, TSASK had addressed all nine recommendations we made in our 2014 audit of its processes for the inspection of boilers and pressure vessels. TSASK began identifying and assessing risks surrounding the inspection of boilers and pressure vessels and it prepared a plan to address its backlog of outstanding inspections. TSASK also established policies and procedures regarding its risk-informed strategy for inspection selection, the handling of incidents and complaints, and its follow up of inspection deficiencies.

2.0 Introduction

This chapter describes our follow-up of management's actions on the recommendations we made in our *2014 Report – Volume 1*, Chapter 14. In the Report, we concluded that while TSASK had effective processes to inspect boilers and pressure vessels, its process could be improved. We made nine recommendations.

To conduct this review engagement, we followed the standards for assurance engagements published in the *CPA Canada Handbook – Assurance*. To evaluate TSASK's progress towards meeting our recommendations, we used the relevant criteria from the 2014 audit. TSASK's management agreed with the criteria in the 2014 audit.

We reviewed and assessed the information provided and discussed actions with key individuals. We reviewed TSASK's processes for assessing risks associated with boilers and pressure vessels. We examined documentation of TSASK's processes to address incidents, complaints, and to reduce its backlog of outstanding inspections. We also reviewed information that TSASK provides to its Board and the Ministry responsible for the Safety Standards Agreement.

3.0 Status of Recommendations

This section sets out each recommendation including the date on which the Standing Committee on Public Accounts agreed to the recommendation, the status of the recommendation at January 31, 2016, and TSASK's actions up to that date. We found that TSASK implemented all nine recommendations.

3.1 Risk-Informed Strategy for Inspection Selection Documented

We recommended that the Technical Safety Authority of Saskatchewan identify and formally assess the risks surrounding the inspection of boilers and pressure vessels. (2014 Report – Volume 1; Public Accounts Committee agreement November 19, 2014)

Status – Implemented

We recommended that the Technical Safety Authority of Saskatchewan use a documented risk-informed strategy for inspection selection. (2014 Report – Volume 1; Public Accounts Committee agreement November 19, 2014)

Status – Implemented

We recommended that the Technical Safety Authority of Saskatchewan establish a policy requiring periodic formal re-evaluation of its risk-informed strategy for inspection selection. (2014 Report – Volume 1; Public Accounts Committee agreement November 19, 2014)

Status – Implemented

In 2015, TSASK documented a policy within its Inspection Manual (Manual) for its risk-informed strategy for inspection selection, and the requirements for periodic re-evaluation of its risk-informed strategy. Also in 2015, TSASK began identifying and assessing the risks surrounding the inspection of boilers and pressure vessels.

During 2014, it implemented a new electronic inspection records system (Basebridge). This system enables a documented assessment of risks for boiler and pressure vessel equipment. Using this system, TSASK considers the following three factors to assess the risks of failure associated with each piece of equipment: probability, severity, and detection.

As of January 2016, TSASK had formally assessed the risks associated with about 34% of the over 26,000 pieces of equipment it is responsible for inspecting. TSASK is assessing risks in conjunction with its inspections carried out when equipment is due for an inspection, or when new equipment is installed. It has taken this approach in that inspectors need to conduct visual inspections to fully assess the risks associated with each piece of equipment. Its Regulations set out the required frequency of equipment inspection (i.e., chronologically). As such, TSASK expects that it may take up to five years to complete risk assessments of all equipment for which it is responsible.

Management expects full implementation of its risk-informed strategy once it has assessed risks for the majority of the equipment in the province. The Regulations establish the minimum inspection frequencies for boilers and pressure vessels, ranging

from annually to every 10 years depending on the type of boiler or pressure vessel. Management indicated that it is considering whether any legislative changes are necessary to better enable risk-based selection for equipment inspections.

TSASK's policy addressing its risk-informed strategy for inspection selection requires management and the Board to formally re-evaluate the risk-informed strategy for inspection selection. This re-evaluation is to be based on data presented to management and the Board throughout the year about assessed risks associated with boiler and pressure vessel equipment.

3.2 Policies and Procedures Established

We recommended that the Technical Safety Authority of Saskatchewan establish written policies and procedures for handling incidents and complaints. (2014 Report – Volume 1; Public Accounts Committee agreement November 19, 2014)

Status – Implemented

Since our 2014 audit, TSASK updated its Manual to document the process it uses to address incidents and complaints. The updated Manual includes flowcharts that set out this process, and identify the position responsible for each step in the process (e.g., reviewing, analyzing, and responding to incidents and complaints).

We recommended that the Technical Safety Authority of Saskatchewan establish a written policy for follow up of inspection deficiencies. (2014 Report – Volume 1; Public Accounts Committee agreement November 19, 2014)

Status – Implemented

In 2015, TSASK established a written policy for follow up on inspection deficiencies. This policy is included in TSASK's manual. It sets out processes for following up on inspection deficiencies, including the required timelines for follow up with equipment owners (i.e., after 30 days, 60 days), and the actions necessary when equipment owners fail to address identified deficiencies (i.e., cancellation of inspection certificate).

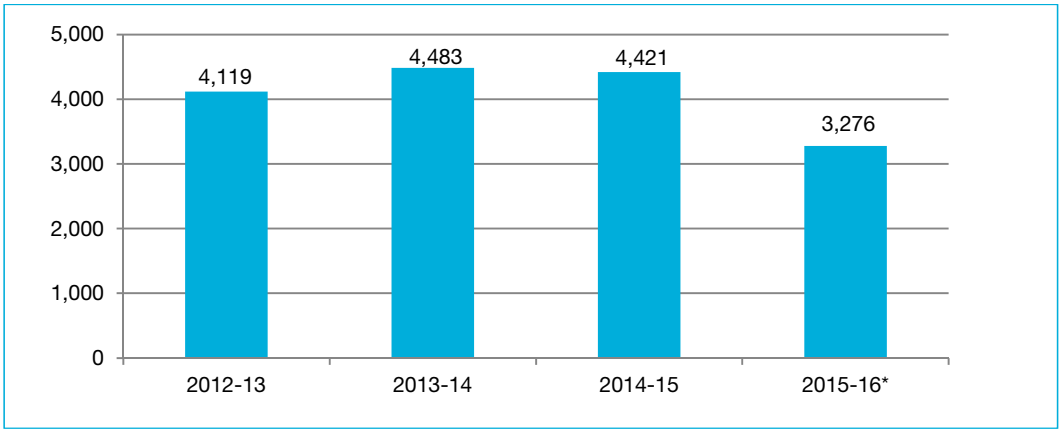
3.3 Process to Address Outstanding Inspections Established

We recommended that the Technical Safety Authority of Saskatchewan formalize the process to clear its backlog of outstanding inspections for boilers and pressure vessels within a reasonable amount of time. (2014 Report – Volume 1; Public Accounts Committee November 19, 2014)

Status – Implemented

In 2015, TSASK prepared an Overdue Inspections Plan (Plan) to clear its backlog of outstanding inspections for boilers and pressure vessels. As illustrated in **Figure 1**, TSASK has reduced its backlog of outstanding inspections by about 21% since our 2013 audit, with the majority of the reduction occurring since July 2015.

Figure 1—Number of Outstanding Boiler and Pressure Vessel Inspections from 2012 to 2016



Source: TSASK inspections database.
*The data for 2015-16 is as at December 31, 2015.
The data for 2012-13 to 2014-15 is as at the end of June of each respective year.

TSASK's Plan to reduce its backlog of inspections involved forecasting the growth in boiler and pressure vessel equipment inventories and forecasting the required resources (i.e., inspectors) necessary to reduce overdue inspections. As a result of these forecasts, TSASK hired additional inspectors to address the backlog in inspections. Management presented the Plan to the Board in February 2015, and began providing quarterly updates to the Board in September 2015.

3.4 Processes Address Accuracy and Completeness of Electronic Records

We recommended that the Technical Safety Authority of Saskatchewan establish processes to ensure the accuracy and completeness of its electronic inspection records. (2014 Report – Volume 1; Public Accounts Committee agreement November 19, 2014)

Status – Implemented

Since our 2014 audit, TSASK has implemented processes designed to ensure the accuracy and completeness of its electronic inspection records (the Basebridge system). These processes include:

- Requiring inspectors to enter their own inspection data into the system. Because inspectors have the source knowledge of the inspections and understand the data, this helps increase the integrity of the data entered into the system.
- Doing queries of data, at least every three months. These queries are designed to identify inconsistencies in data in its electronic inspection records that require correction.

Also, when implementing the Basebridge system in 2014, TSASK reviewed the equipment records and made sure all equipment was completely and accurately captured within the new system. Management indicated that the new system is better than its old one in that it requires inspectors to input data for mandatory fields, and automatically calculates next inspection dates.

3.5 Reporting Requirements Met

We recommended that the Technical Safety Authority of Saskatchewan give its Board and the relevant Ministry responsible for the Safety Standards Agreement written analysis of:

- Trends for regulated sectors
- Measures implemented to monitor trends and mitigate risks (2014 Report – Volume 1; Public Accounts Committee agreement November 19, 2014)

Status – Implemented

Amendments to the Safety Standards Agreement,[1] effective June 30, 2015, require TSASK to give a quarterly report to the Ministry responsible for the Safety Standards Agreement, containing the following information:

- Total number of inspections conducted during the reporting period
- Total number of accidents reported to TSASK since the last report
- Details related to any corrective action reports published or issued during the reporting period
- The number of inspections required to be completed where the required inspection interval has been exceeded

We found that TSASK gave the responsible Ministry the above information each quarter. Management also provides this information, along with other information relevant to boiler and pressure vessel inspections (e.g., overdue inspections, equipment inventories, equipment deficiencies), to its Board on a quarterly basis.

3.6 Track and Monitor QMS Operators

We recommended that the Technical Safety Authority of Saskatchewan establish processes to track and monitor completion of inspections by Quality Management System operators, to confirm inspections have been completed in accordance with their approved manuals. (2014 Report – Volume 1; Public Accounts Committee agreement November 19, 2014)

Status – Implemented

[1] The Safety Standards Agreement is an agreement between TSASK and the Ministry of Government Relations, assigning TSASK with the responsibility of administering and enforcing *The Boiler and Pressure Vessel Act, 1999* and *The Boiler and Pressure Vessel Regulations*.

Since our 2014 audit, TSASK has established processes to track and monitor completion of inspections by Quality Management System (QMS) operators. Staff maintain records to help monitor whether QMS operators submit required reports twice a year (i.e., in May and November), and track when notices are sent to the QMS operators about past due reports.