

Chapter 18

Environment – Regulating Landfills

1.0 MAIN POINTS

As of December 2017, the Ministry of Environment had made progress in addressing the seven outstanding recommendations we initially made in our 2013 audit of its processes to regulate landfills. The Ministry had implemented four of seven remaining recommendations and made progress on the other three.

The Ministry moved to monitoring landfills based on the results of environmental risk assessments of the landfills. It requires owners of landfills with assessed risks to monitor groundwater. In addition, the Ministry actively confirmed new constructions, expansions, and landfill closures were done in accordance with its requirements and approved plans. It worked with owners that did not comply with requirements or plans until they achieved compliance or issued sanctions.

The Ministry needs to:

- Finalize and approve guidance for landfill design and operation. Without consistent guidance, landfills may not be built or operated to the required environmental standard.
- Finish the renewal of landfill permits to include requirements for groundwater monitoring. Not monitoring groundwater at landfills increases the risk that groundwater contamination may not be detected in a timely manner.
- Conduct inspections on landfills as scheduled. Timely inspections determine whether landfills operate in compliance with permit requirements and the law.

Clear and consistent guidance for landfill owners along with better monitoring of operating and closed landfills will strengthen the Ministry's processes to regulate landfills and will help to prevent groundwater contamination.

2.0 INTRODUCTION

The Ministry of Environment regulates waste management and enforces landfill and transfer station compliance under *The Environmental Management and Protection Act, 2010*. Municipalities and private companies own and operate landfills throughout the province.

As of February 2018, Saskatchewan had 229 operational landfills, 188 transfer stations,¹ 16 industrial landfills, and 431 closed landfills. Saskatchewan has more landfills per capita than any other Canadian province.² Amongst provinces, Saskatchewan has the second

¹ A transfer station is a facility that is used to temporarily store solid waste before that solid waste is transported to a treatment, recycling, recovery or disposal facility or a landfill.

² Information provided by the Ministry of Environment.



highest waste disposal rate at 897 kilograms per person with only 13% of waste diverted from landfills—the lowest percentage in Canada.³

Landfills must be designed and managed carefully to minimize and mitigate the potential negative effects on the environment, such as the risks of contamination of groundwater, surface water, air, or soil.

This chapter describes our second follow-up of management's actions on recommendations we initially made in 2013. Our *2013 Report – Volume 2*, Chapter 29 concluded that, for the period from September 1, 2012 to August 31, 2013, the Ministry of Environment did not have effective processes to regulate landfills.⁴ By August 2015, the Ministry had implemented two of the nine recommendations and made progress on four others.⁵

To conduct this follow-up audit, we followed the standards for assurance engagements published in the *CPA Canada Handbook – Assurance* (including CSAE 3001). To evaluate the Ministry's progress towards meeting our recommendations, we used the relevant criteria from the original audit. The Ministry agreed with the criteria in the original audit.

To perform our follow-up we discussed actions taken with management and reviewed the relevant documents (e.g., Ministry's planning records, landfill closure plans, landfill operating permits, groundwater monitoring reports).

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 as at December 31, 2017, and the Ministry's actions up to that date.

3.1 Plans to Develop Landfill Guidance Document in Progress

We recommended that the Ministry of Environment adopt guidance on landfills from the proposed Environmental Code as operating practice.

(2013 Report – Volume 2; Public Accounts Committee agreement April 30, 2014)

Status – Partially Implemented

The Ministry is developing a solid waste management strategy and plans to review the 1986 *Municipal Refuse Management Regulations* to ensure they align. After this work is completed, the Ministry plans to develop, by the end of 2018-19, a guidance document for landfill design and operation. As of December 2017, the Ministry referred landfill owners to the Ministry's various guidance documents (e.g., Landfill Design Plan Fact Sheet) and to Government of Alberta guidance documents for landfill design and closure as best practices.

³ Ministry of Environment, *Saskatchewan Solid Waste Management Strategy*, Discussion Paper, (2017), pp. 1 and 2.

⁴ The original report regarding these recommendations can be found at www.auditor.sk.ca/publications/public-reports. We reported the original audit work in our *2013 Report – Volume 2* (Chapter 29, pp. 205-217).

⁵ We reported this work in our *2015 Report – Volume 2* (Chapter 45, pp. 319-323).

At the time of our initial 2013 audit, the draft Environmental Code included the Landfill and Transfer Station chapter which set out the Ministry's expectations for landfill site developments. Before *The Environmental Management and Protection Act, 2010* and the Environmental Code came into effect, the chapter was removed from the final Environmental Code because of concerns raised by municipalities. *The Environmental Management and Protection Act, 2010* and the Environmental Code came into effect June 1, 2015.

Without consistent guidance for landfills, landfills may not be built and operated to the same required environmental standard.

3.2 Construction or Expansion Requirements Met

We recommended that the Ministry of Environment obtain evidence, in a timely manner, that landfills are constructed in compliance with approved design plans. (2013 Report – Volume 2; Public Accounts Committee agreement April 30, 2014)

Status – Implemented

The Ministry receives confirmation that construction and expansions of landfills are done as planned.

Upon the completion of construction or expansion of landfills, the Ministry requires the landfill owner to submit “as-built” drawings or a certificate from an authorized third party engineer that supports that the construction has been carried out per the design plan that the Ministry approved. For new landfills, the Ministry issues a permit to operate the landfill after the receipt of the required information.

From August 2015 (the timing of our last follow-up) to December 2017, there were ten new construction and expansion projects. For the three of these construction/expansions we tested, the Ministry properly approved each construction/expansion application. In addition, for all three landfills, the Ministry had received either summary “as-built” drawings or a certificate from an authorized engineer in a timely manner. It used this information to verify that the construction was done as planned.

Proper construction of landfills is essential for storing waste in a manner that protects water resources and the environment.

3.3 New Risk Ranking System Being Used to Amend Permit Requirements

We recommended that the Ministry of Environment amend operating permits for all high-risk landfills to ensure they require appropriate groundwater monitoring. (2013 Report – Volume 2; Public Accounts Committee agreement April 30, 2014)

Status – Partially Implemented



Since the beginning of 2016, the Ministry has been implementing a revised way to evaluate landfills based on contamination risks as opposed to its previous approach based on the size and location of the landfill. It is starting to use this revised process to identify high-risk landfills and set groundwater monitoring requirements in its permits (e.g., frequency of site inspections, use of groundwater monitoring wells) consistent with assessed risks.

The Ministry is using the National Classification System for Contaminated Sites (NCSCS)⁶ to score all new and existing landfills.

The Ministry obtains the NCSCS score from the results of an environmental site assessment (ESA) of a landfill site. Besides assessing the risk of contamination, an ESA determines the need for environmental monitoring and the locations to install groundwater monitoring wells. The Ministry requires landowners to submit ESAs of sites completed by a Qualified Person as follows:^{7,8}

- Immediately at the time of any new construction/expansion of a landfill
- Within five years of the issuance date of an operating permit for a landfill (depending on certain site specifics, the timeframe may be shorter)⁹
- Within five years of the date of a landfill closure (depending on certain site specifics, the timeframe may be shorter)

It may also require an ESA in a short time frame (i.e., less than two years) for a landfill that has been found to burn waste if the Ministry deemed the landfill to be high risk. For each landfill, the Ministry sets a timeframe for owners of the landfill to submit a completed ESA to the Ministry.

As of December 31, 2017, the Ministry had received ESAs for 11 landfills and is aware that ESAs are in progress for another 20 landfills. It has NCSCS scores for the 11 landfills with completed ESAs.

At December 2017, the Ministry was in the process of requiring operating landfills to monitor groundwater. In 2016, the Ministry began issuing permits to require operators of new or existing landfills to conduct groundwater monitoring (unless an ESA determined such monitoring is not necessary). Based on the risk of contamination and the history of a particular landfill, the Qualified Person determines the frequency of the groundwater reporting. By December 2017, the Ministry had required, through permits, nearly half of the 229 operating landfills in Saskatchewan to conduct groundwater monitoring.¹⁰ It expects to complete renewing permits for existing operating landfills by 2021, when the last of the old permits become due for renewal.

For eight of ten landfills with permits requiring groundwater monitoring that we tested, the operator had not yet completed their ESA. Operators of two of the ten landfills had recently completed an ESA. One had determined groundwater monitoring was not necessary. The other had submitted the 2015 and 2016 groundwater monitoring reports showing the

⁶ National Classification System for Contaminated Sites (NCSCS) is a method for evaluating contaminated sites according to their current or potential adverse impact on human health and the environment.

⁷ Under the Environment Code, a Qualified Person is an independent environmental consulting firm. The landowner is responsible for hiring qualified persons.

⁸ An ESA can take several months to complete.

⁹ Permits are typically issued for five-year terms, but may require more frequent permitting if so determined by the Ministry.

¹⁰ As of December 31, 2017, 111 operating landfills had a new or renewed permit issued with a groundwater monitoring requirement.

results of its installed groundwater monitoring wells. At the time of this follow-up, the 2017 report was not yet due.

Not monitoring groundwater at landfills increases the risk that groundwater contamination may not be detected in a timely basis.

3.4 Landfills Appropriately Closed and Assessed for Groundwater Monitoring

We recommended that the Ministry of Environment confirm landfill closures are done in accordance with approved closure plans. (2013 Report

– Volume 2; Public Accounts Committee agreement April 30, 2014)

Status – Implemented

We recommended that the Ministry of Environment perform a risk assessment of closed landfills and require landfill owners to undertake groundwater monitoring where required. (2013 Report – Volume 2; Public

Accounts Committee agreement April 30, 2014)

Status – Implemented

Before approving the closure of a landfill, the Ministry consistently reviews the adequacy of landfill closure plans and final closure documents including risk assessments submitted by the landfill operator's independent environmental consulting firm. It is using the results of risk assessments of closed landfills to determine when to require landfill owners (e.g., town, municipality) to monitor groundwater.

As part of the closure process, the Ministry reviews the owners' applications for landfill closure and either requires the landfill owner to complete specific actions or to create closure plans. Depending on the size, history, and location of the landfill, the Ministry may require an ESA, or both an ESA and a corrective action plan.

Since our August 2015 follow-up, five landfills were closed in Saskatchewan.

For the three closures we tested, each closure was done according to Ministry requirements. We found that each submitted an ESA completed by an independent environmental consulting firm and were monitoring groundwater consistent with their ESAs.

Since 2016, for any landfills closed prior to 2014, the Ministry recommends owners have an ESA on their landfill to determine necessary environmental monitoring, if any. The Ministry does not require formal decommissioning of these landfills. As of December 2017, almost all of the 431 closed landfills were closed before 2014 (pre-2014 closed landfills).

As of December 31, 2017, owners of 39 pre-2014 closed landfills had opted to complete this process including having an ESA conducted. The Ministry has set deadlines by which owners are to submit their ESA.



For five pre-2014 closed landfills we tested, two sites had submitted their completed ESAs and the required 2016 groundwater reporting.¹¹ The ESAs of each of three other pre-2014 closed landfills tested were not due at the time of this follow-up (i.e., ESA was due in either 2018 or 2019). Management indicated that when it does not receive the ESA when expected, it follows up on the status of the ESA with the owner.

Confirming the sufficiency of landfill closure plans and requiring, based on risk assessments, owners of closed landfills to actively monitor groundwater better protects groundwater from the risk of contamination. Groundwater is a key source of drinking water for many Saskatchewan residents.

3.5 Landfills Not Inspected Within Expected Timeframes

We recommended that the Ministry of Environment perform landfill inspections in accordance with its established frequency requirements.

(2013 Report – Volume 2; Public Accounts Committee agreement April 30, 2014)

Status – Partially Implemented

The Ministry is behind schedule on inspecting landfills due to the large number of landfills requiring inspection and its staff size. It is not inspecting landfills consistent with its priority-based inspection strategy.

Since the beginning of 2016-17, the Ministry uses a priority-based inspection strategy to determine when to inspect landfills.¹² See **Figure 1** for details. Using a risk-based strategy for scheduling inspections is consistent with good compliance management and enforcement practices.

Figure 1 – Prioritized List of Landfills Scheduled for Inspections

- Landfills with overdue inspections (the last inspection done more than three years ago)
- Landfills with immediate complaints/issues that arise
- New construction/expansions of landfills
- Landfills with high-risk/numerous non-compliance issues from previous year inspections
- Landfills identified for annual inspection
- Landfills identified for three-year inspection
- Landfills that require an inspection to confirm closure

Source: Ministry of Environment records.

While annual work plans of the Ministry's four environment protection officers scheduled inspections as outlined in **Figure 1**, the number of planned inspections was lower than the number of landfills requiring inspection. It expects each officer to inspect 15 to 20 sites each year. The Ministry augments these inspections by utilizing summer students to inspect lower-risk closed landfills, transfers stations, and other sites. For example:

- In 2017-18, the Ministry expected to inspect about 85 landfills as compared to at least 265 landfills that were due for inspection. At the beginning of 2017-18, based on its priority-based strategy, inspections of 159 landfills and 4 closed landfills were overdue, and 102 landfills were due for their annual or three-year inspections in 2017-

¹¹ As of December 2017, the reports for 2017 were not yet due.

¹² The Ministry previously scheduled inspections of landfills based on landfill size.

18. For the nine-month period ending December 31, 2017, the Ministry had inspected 73 landfills.

- In 2016-17, the Ministry inspected 133 landfills as compared to 191 landfills that were due for inspection. It inspected 33 out of 59 landfills that were overdue, 19 of 51 landfills planned for annual inspection, 18 closed landfills, and 63 landfills for either non-compliance issues, their regular three-year inspection, or new construction or expansion.

At December 2017, the Ministry did not have a plan or strategy to address its growing shortfall in inspection activity.

Also, starting in 2018-19, the Ministry intends to use an Environmental Compliance Management System for all industrial and large or regional landfill sites. It plans to complete this by the end of 2020 and eventually use the system for all operating landfill sites. The system will help it further determine the complexity associated with each landfill and how often to inspect.

Timely inspections determine whether landfills operate in compliance with permit requirements and the law. Permit requirements and laws exist to keep the environment and the public safe. Inspections are a key enforcement tool to assist the Ministry in fulfilling its regulatory role and fostering compliance.

3.6 Addressing Non-Compliance Has Been Improved

We recommended that the Ministry of Environment establish guidelines that will aid staff in consistently addressing landfill owners that do not comply with the law and permit requirements. (2013 Report – Volume 2; Public Accounts Committee agreement April 30, 2014)

Status – Implemented

The Ministry established guidelines for environment protection officers to deal with non-compliance at landfills. Ministry staff follow these guidelines when inspecting landfills and addressing non-compliance issues and violations.

The Ministry has established a compliance framework. The compliance framework provides staff with possible alternatives for communicating and enforcing landfill owner non-compliance issues including documenting issues on inspection reports, issuing verbal warnings and letters of non-compliance, or laying charges.

All ten items of repeated non-compliance we tested were addressed as directed by Ministry guidelines. The Ministry appropriately followed up with the landfill owners until owners achieved compliance, and applied escalation measures as necessary.

