

Chapter 25

Government Relations—Safe Drinking Water in Northern Settlements

1.0 MAIN POINTS

This chapter reports our second follow-up of five remaining recommendations initially made in 2012 about the Ministry of Government Relations processes to provide safe drinking water to northern settlements. Northern settlements are unincorporated communities in the Northern Saskatchewan Administration District that the Ministry administers.^{1,2}

By September 2018, the Ministry had communicated the safety of drinking water to the residents of the northern settlements of Stanley Mission and Wollaston Lake.

The Ministry needs to:

- Test drinking water samples as required by its water system permits to adequately monitor the safety of drinking water
- Complete water system maintenance and supervise maintenance activities as expected for all drinking water systems to keep water systems working effectively and to reduce the risk of providing unsafe drinking water
- Resolve issues with the safety of drinking water for the northern settlement of Uranium City and other northern settlements with trihalomethane levels exceeding maximum allowable limits to reduce risks to residents' health³

2.0 INTRODUCTION

2.1 Providing Drinking Water to Northern Settlements

The Ministry of Government Relations is responsible for providing safe drinking water to Saskatchewan's northern settlements. The Minister of Government Relations functions as the municipal council for each of the northern settlements.⁴

The Ministry uses various water systems to provide drinking water to northern settlements. As shown in **Figure 1**, it owns and operates water systems for five settlements, and it obtains drinking water for two settlements through contracts with First Nations communities.⁵

¹ The Ministry administers the northern settlements through its Northern Municipal Services branch.

² The Northern Saskatchewan Administration District is a geographical area in northern Saskatchewan, defined under *The Northern Municipalities Regulations*.

³ Trihalomethanes are formed when chlorine, which is generally used for disinfections, reacts with naturally occurring organic compounds present in water. www.saskh20.ca/pdf/epb211b.pdf (19 October 2018).

⁴ The Minister's responsibilities are set out in *The Northern Municipalities Act, 2010*.

⁵ There are additional northern settlements, however, since they do not have water systems, they were outside the scope of our audit and follow-up.

**Figure 1 – Drinking Water Systems for Northern Settlements at October 2018**

Northern Settlement	Dwellings Served	Type of Water Delivery System of Drinking Water to Dwellings (i.e., to residents)
Ministry-Owned Water Systems		
Bear Creek	18	The Ministry transports drinking water from its water treatment plant at Bear Creek to residents' homes.
Brabant Lake	27	Residents contract with a private company to transport drinking water from the Ministry's water treatment plant at Brabant Lake to residents' homes.
Missinipe	56	Ministry pipeline distribution from the Ministry's water treatment plant at Missinipe to residents' homes.
Sled Lake	27	Ministry pipeline distribution from the Ministry's water treatment plant at Sled Lake to residents' homes.
Uranium City	74	Ministry pipeline distribution from the Ministry's water treatment plant at Uranium City to residents' homes.
Ministry Contracts with First Nations Communities that Own Water Systems		
Stanley Mission	28	Ministry pipeline distribution from nearby First Nations community's water treatment plant to off-reserve northern settlement residents' homes.
Wollaston Lake	26	Ministry pipeline distribution from nearby First Nations community's water treatment plant to off-reserve northern settlement residents' homes.

Source: Ministry of Government Relations' records.

As the municipal council for each of the northern settlements, the Ministry must work within the legislative framework established for drinking water. **Section 4.0** describes other provincial government agencies' responsibilities for drinking water in Saskatchewan. For example, the Water Security Agency administers provincial water quality and water system standards in *The Environmental Management and Protection Act, 2010*. The Agency issues permits to the Ministry where the Ministry operates water systems to provide drinking water to northern settlements (see **Figure 1**).

2.2 Focus of Follow-Up Audit

In our *2012 Report – Volume 1*, Chapter 12 we reported the Ministry did not have effective processes to provide safe drinking water to the northern settlements. As of December 31, 2015, the Ministry had implemented 5 out of the 10 original recommendations as reported in our *2016 Report – Volume 1*, Chapter 24.

This chapter is our second follow-up of the five remaining recommendations initially made in 2012. To conduct this follow-up audit, we followed the standards for assurance engagements published in the *CPA Canada Handbook – Assurance (CSAE 3001)*. To evaluate the Ministry's progress towards meeting our recommendations, we used the relevant criteria from the 2012 audit. The Ministry agreed with the criteria in the 2012 audit.

To complete our follow-up audit, we interviewed staff and management responsible for the provision of drinking water to northern settlements. In addition, we reviewed management records relating to maintaining water systems used to provide drinking water, tested a sample of water quality test results, and reviewed related monitoring activities, and other supporting documentation.

3.0 STATUS OF RECOMMENDATIONS

This section sets out each outstanding recommendation including the date on which the Standing Committee on Public Accounts agreed to the recommendation, the status of the recommendation at September 30, 2018, and the Ministry's actions up to that date.

3.1 Ministry Not Consistently Completing All Required Drinking Water Tests

We recommended that the Ministry of Government Relations test drinking water samples and document the results as required by its water system permits issued by the Water Security Agency. (2012 Report – Volume 1, p. 120, Recommendation 7; Public Accounts Committee agreement January 13, 2014)

Status – Partially Implemented

The Ministry does not consistently test or document the results of testing drinking water samples required by drinking water system permits.

The permits require operators of these systems to regularly test the quality of the drinking water to ensure it is safe to drink. Permits set out both the frequency and types of water quality tests required—required water quality tests vary for each water treatment plant.

Since 2014, the Ministry requires its staff to review, each month, results of daily water quality tests as recorded in logs.⁶ These reviews are to assess completeness of daily testing, and whether test results meet requirements (e.g., daily chlorine levels met standards) of the permits.

Seventy-eight out of 79 of the monthly logs we examined had evidence of staff review of the daily water quality tests results—the log for one month was missing. However, as noted below, 1.4% of daily water tests were not completed in accordance with the related permits.

Figure 2 shows the detailed results of our testing, including the communities where we noted deficiencies in documenting or completing water quality tests. For the sample of drinking water tests that we examined, we found:

- 1.4% of daily water tests were not completed in accordance with the related permit
- 25% of bi-monthly tests were not completed in accordance with the related permit

⁶ Water system operators of ministry-owned and First Nation-owned water systems complete water tests and record test results in a log. They provide these logs to Ministry staff every month.



- 10% of quarterly tests were not completed in accordance with the related permit
- All weekly, monthly and bi-annual water quality tests were completed in accordance with the related permit

Figure 2—Provincial Auditor of Saskatchewan Review of Drinking Water Test Results January 1, 2017 to June 30, 2018 (shaded rows highlight where not all required tests were done)

Required Water Quality Tests (per Permit)	Required Frequency of Tests (per Permit)	Provincial Auditor Results of Testing of Sample of Permits for each Water System
Turbidity and Chlorine	Daily	210 daily tests we examined were documented or completed as required except: <ul style="list-style-type: none"> - 1 of 30 not documented at Missinipe (ministry-owned and operated) - 2 of 30 not completed at Uranium City (ministry-owned and operated)
Bacteria	Various (monthly, every two weeks, weekly)	All weekly and monthly tests we examined were completed as required. 16 twice-monthly tests we examined were completed as required except: <ul style="list-style-type: none"> - 4 of 4 not completed at Wollaston Lake (First Nations community operated)
Chemical (general)	Various (e.g., every two years)	All tests we examined were completed as required
Chemical (health)	Once every two years	All tests we examined were completed as required
Trihalomethanes ^A (new permit requirement since December 2015)	Quarterly	30 quarterly tests we examined were completed as required except: <ul style="list-style-type: none"> - 1 of 6 not completed at Missinipe (ministry-owned and operated) - 2 of 6 not documented at Stanley Mission (First Nations community operated)

Source: Individual water system operating permits and Provincial Auditor of Saskatchewan testing results.

^ATrihalomethanes includes chloroform, bromodichloromethane, dibromochloromethane, and bromoform. Formed when chlorine (used to disinfect) reacts with naturally occurring organic compounds present in water.

Management indicated some tests were not completed because of broken equipment and difficulty in receiving timely information from water system operators.

Monitoring and completing all drinking water tests that permits require is essential to ensure the safety of drinking water being consumed by residents of northern settlements.

3.2 Maintenance and Maintenance Records Not Always Complete

We recommended that the Ministry of Government Relations consistently carry out all required maintenance for its water systems.

(2012 Report – Volume 1, p. 117, Recommendation 4; Public Accounts Committee agreement January 13, 2014)

Status – Partially Implemented

We recommended that the Ministry of Government Relations document its monthly supervision of maintenance carried out on its water systems to evidence that all required maintenance is occurring.

(2012 Report – Volume 1, p. 118, Recommendation 5; Public Accounts Committee agreement January 13, 2014)

Status – Partially Implemented

Since our 2016 follow-up, although the Ministry has better documented its supervision of maintenance for its water systems, significant documentation gaps persist.⁷

The Ministry uses its supervision process to know if maintenance is consistently carried out for its water systems—without adequate supervision of maintenance, the Ministry does not know if required maintenance is being done.

As described in **Figure 3**, the Ministry uses somewhat different processes to supervise maintenance of the five ministry-owned and operated water systems, and the two water systems operated by First Nations communities.

Figure 3—Processes to Supervise Maintenance of Water Systems

- For both types of water distribution systems, the Ministry engages a consultant to prepare bi-annual reports on the condition of each of the water systems. The Ministry is to review these along with annual regulatory inspection reports of the Water Security Agency. The Agency's annual inspection reports contain information on the condition of each of its distribution systems.
- For First Nations owned and operated water distribution systems, the Ministry, through its contract with each First Nations community, makes the relevant First Nations communities responsible for all normal maintenance of these systems. The Ministry does not receive detailed maintenance records to show whether maintenance is being done on these systems. The Ministry told us that, at September 2018, it was working with the First Nations to receive maintenance logs to enable better monitoring of the completion of maintenance of these systems. In the meantime, the Ministry staff are to review the aforementioned bi-annual consultant reports to monitor each community's completion of maintenance.
- For ministry-owned water systems, the Ministry requires water system operators in the northern settlements to submit monthly maintenance logs to the Ministry's La Ronge office. La Ronge office staff are to review and initial water system maintenance logs at least monthly to determine whether each operator completed proper maintenance.

Source: Provincial Auditor Saskatchewan based on information provided by the Ministry.

⁷ During our previous follow-up, the Ministry was not consistently receiving and documenting its review of maintenance records from operators for four out of five northern settlements timely.



Both Types of Water Systems

We found the Ministry continued to use bi-annual consultant and Water Security Agency reports to monitor maintenance of ministry-owned water systems. While these reports provide useful information, they did not contain sufficient information to enable the Ministry to ensure it provides safe drinking water to northern settlements.

For each of the five northern settlements and for the two contracted First Nations community-owned systems, the Ministry received and reviewed:

- The bi-annual consultant reports on the condition of each of the water systems in 2017 and 2018 as expected.⁸

The consultant's 2017-18 reports also indicate significant outstanding maintenance at Uranium City (e.g., water pipes leaking, water pipes require cleaning). While the Ministry was aware of these issues, its progress in determining a strategy to address the long-standing drinking water concerns at Uranium City was slow (**Section 3.3**).

The Ministry indicated it is changing its processes to ensure it receives maintenance records from First Nations communities in the future.

- The Agency's annual regulatory inspection reports on each of the water systems in 2017 or 2018 (timing of inspection varies for each water system).

Reports for Uranium City indicated issues with completion of maintenance at the water treatment facility.⁹ For example, the June 2017 Agency inspection report for Uranium City indicated that the majority of the floor drains within the water system building did not work properly. Reports for other settlements noted minor maintenance issues (e.g., leaking valves, hydrant repairs).

Ministry-Owned Water Systems

We found the Ministry did not have records to show that maintenance was completed for all five settlements as expected. The Ministry noted that it continues to have difficulty receiving reports timely from water plant operators—this is sometimes because of staff turnover at plants. We noted evidence of Ministry staff reviewing logs it had received, and its consultant and Water Security Agency reports for all five settlements.

However, the Ministry did not consistently receive or review maintenance records for three settlements (Missinipe, Brabant Lake, Sled Lake). For example, for the sample of maintenance records that we tested, the Ministry did not have records to prove that maintenance was done for: 14 of 30 daily and 4 of 5 weekly maintenance activities for Missinipe; 22 of 30 daily, 4 of 5 weekly, and 2 of 2 monthly maintenance activities for Brabant Lake. A precautionary drinking water advisory came into effect for Brabant Lake on October 31, 2018 related to treatment or distribution equipment failure or damage.¹⁰

The Ministry received and reviewed the majority of the maintenance records for two settlements (Uranium City, Bear Creek). Management indicated monthly maintenance in

⁸ The Ministry contracted an infrastructure management consulting company to do this work.

⁹ Summary reports are available at www.saskh20.ca/pdf/epb211b.pdf (19 October 2018).

¹⁰ www.saskh20.ca/reports/GOC/EnvActive.pdf (05 November 2018).

Bear Creek was not done as planned because the Ministry does not have the equipment needed to do this testing at Bear Creek.

Timely maintenance is required to keep water systems working effectively and to reduce the risk of providing unsafe drinking water to residents of northern settlements.

3.3 Solutions to Provide Quality Drinking Water Options to Northern Settlements Needed

We recommended that the Ministry of Government Relations take prompt action to address problems in providing safe drinking water to northern settlements. (2012 Report – Volume 1, p. 122, Recommendation 10; Public Accounts Committee agreement January 13, 2014)

Status – Partially Implemented

The Ministry, as part of its responsibility as the municipal council, has not found cost-effective solutions to supply quality drinking water to dwellings in the seven northern settlements listed in **Figure 1**. As noted in our 2012 audit, drinking water quality in certain northern settlements has been a long-term problem. Residents of these communities are subject to precautionary drinking water advisories and/or emergency boil water orders.

Figure 4—Description of Water Advisories and Orders

Water Security Agency issues precautionary drinking water advisories where drinking water quality problems may exist but an immediate public health threat has not been identified. Under a precautionary drinking water advisory, water must be boiled before it is used for drinking purposes, or used for other activities where it could be consumed, such as brushing teeth, dishwashing, or washing fruits and vegetables.

The Saskatchewan Health Authority issues emergency boil water orders when a confirmed threat to public health exists (i.e., microbial contamination).

A listing of these orders and advisories are publicly available on the SaskH2O website at www.saskh20.ca/advisories.asp.

Source: www.saskh20.ca/advisories.asp (10 October 2018).

As of October 2018, the Ministry had not decided on a strategy to address the long-standing drinking water concerns in Uranium City.¹¹ A precautionary drinking water advisory has been in place for Uranium City since May 2001, and an emergency boil water advisory since February 2015. Saskatchewan Water Security Agency public water advisories note that the Uranium City water treatment plant does not meet minimum treatment/design requirements, lacks minimum water treatment processes, and has inadequate disinfection residual in the distribution system with E.coli detected in the drinking water system.^{12,13,14}

¹¹ The Ministry completed a water system assessment in May 2015 to determine potential solutions.

¹² www.saskh20.ca/reports/GOC/EnvActive.pdf (05 November 2018).

¹³ The Ministry assumed responsibility for the water system in Uranium City in 1984. The system was initially built for a much larger population. Statistics Canada 2016 census reports the population of the Uranium City as 73. The Ministry notes the system is expensive to maintain and operate.

¹⁴ E.coli, Escherichia coli, is a bacteria that can make people sick.



Several northern settlements (Brabant Lake, Missinipe, Uranium City, Stanley Mission) have, at times, trihalomethane levels that exceed maximum allowable limits. As noted in **Figure 2**, some of these settlements are not consistently testing these levels as required.

As of October 2018, the Ministry was studying strategies to reduce trihalomethane levels in Brabant Lake. The Ministry indicated that it planned to use this information to help it determine strategies to address higher than allowable trihalomethane levels in northern settlements.

Not taking prompt corrective action to resolve drinking water quality issues places the health of residents in affected northern settlements at risk.

3.4 Ministry Communicating Required Information on Water Quality

We recommended that the Ministry of Government Relations implement a formal process for communicating in writing about the safety of drinking water to residents of the northern settlements of Stanley Mission and Wollaston Lake, as required by its water system permits issued by the Water Security Agency. (2012 Report – Volume 1, p. 120, Recommendation 8; Public Accounts Committee agreement January 13, 2014)

Status – Implemented

The Ministry communicated with residents of the northern settlements of Stanley Mission and Wollaston Lake as required by its water system permits.

The Waterworks and Sewage Works Regulations require permit holders to annually provide water consumers with the following information:

- The quality of the water provided in comparison to the water quality standards in the regulations
- The permittee's compliance with the permit for completing water quality testing¹⁵

For the northern settlements of Stanley Mission and Wollaston Lake, we found starting in 2015 and 2017 respectively, the Ministry adopted the same process for annually communicating these requirements as it used for northern settlements where it owns and operates the water systems.

We found it is following this process. In February 2018, the Ministry communicated the required information to the northern settlements of Stanley Mission and Wollaston Lake for the 2017 year. For example, for Stanley Mission, it communicated:

- Fifty-one bacteria tests were completed (52 required) and all tests met water quality standards

¹⁵ *The Waterworks and Sewage Works Regulations*, section 42. These regulations came into effect June 1, 2015.

- Fifty-one chlorine residual tests were completed (52 required) and all tests met water quality standards
- 100% of daily chlorine tests were completed and chlorine levels were adequate in all samples

Communicating the results of water quality testing to residents promotes transparency and their confidence in the management of drinking water.

4.0 OTHER PROVINCIAL GOVERNMENT AGENCIES INVOLVED WITH DRINKING WATER

Name of Agency	Responsibilities for Drinking Water
Water Security Agency	<p>The Agency is the regulator of municipal waterworks, privately owned (publicly accessible) waterworks that have a flow rate of 18,000 litres or more per day, certain pipeline systems, and municipal sewage works. The Agency also focuses on watershed management and source protection, and works to balance competing water and land uses that impact water quality.</p> <p>The Agency administers provincial water quality standards in <i>The Environmental Management and Protection Act, 2010</i>, and <i>The Waterworks and Sewage Works Regulations</i>. The Agency issues permits to municipalities, including the Northern Saskatchewan Administration District, to operate water systems. This includes reservoirs, tanks, buildings, pumps, and pipes.</p> <p>The Agency is responsible for periodically inspecting and enforcing compliance with permits it issues. The Agency does not regulate non-public water systems, nor is the Agency responsible for drinking water on First Nations reserves.</p>
Saskatchewan Water Corporation (SaskWater)	SaskWater owns and operates certain regional water systems throughout the province. It also provides system assessments and project management of water infrastructure projects.
Ministry of Health/Saskatchewan Health Authority	The Ministry of Health and the Saskatchewan Health Authority regulate certain non-municipal water systems with limited capacity that service locations such as tourist accommodations and campgrounds.
Ministry of Agriculture	The Ministry of Agriculture is responsible for the protection of surface and groundwater with respect to intensive livestock operations. The Ministry is also responsible for irrigation-related services.
Ministry of Environment	The Ministry of Environment is the regulator of industrial waterworks and sewage works.

Source: www.sask2o.ca/RolesAndResponsibilities.asp and selected references (10 October 2018).

