

## Chapter 23

# Parks, Culture and Sport—Providing Safe Drinking Water in Provincial Parks

### 1.0 MAIN POINTS

At July 2019, the Ministry of Parks, Culture, and Sport provided drinking water in 25 provincial parks using 62 drinking-water systems varying significantly in size and complexity. Park visitors rely on the Ministry to provide a safe supply of drinking water. Unsafe drinking water can endanger public health, causing illness or death.

Depending on the volume of drinking water used, the Water Security Agency or the Ministry of Health regulate the Ministry's drinking-water systems.

We found the Ministry had effective processes to provide safe drinking water in provincial parks for the 15-month period ended July 31, 2019, other than it needed to:

- Formalize key operational decisions and processes for its drinking-water systems regulated by the Ministry of Health and where it acts as its own regulator.
- Assign responsibility for preparing and consistently updating written operations and routine maintenance expectations, and carry out routine maintenance consistent with expectations.
- Consistently supervise operations by routinely reviewing key drinking-water system operational records and documenting evidence of its review of water quality test results.
- Specify needed water quantity and require prompt notification where breaches in drinking-water standards occur in the Ministry's agreements with municipalities supplying drinking water to provincial parks.

### 2.0 INTRODUCTION

This chapter outlines the results of our audit of the Ministry's processes to provide safe drinking water in provincial parks.

#### 2.1 Background

The number of people visiting Saskatchewan's provincial parks is increasing. The number of visitor days in provincial parks increased about 20% from 2009 to 2018. In 2018, provincial parks experienced about four million visitor days.<sup>1</sup>

The Ministry of Parks, Culture and Sport is responsible for managing the provincial park system.<sup>2</sup> Where it decides to provide drinking water in its parks system, it is responsible

<sup>1</sup> Ministry of Parks, Culture and Sport records.

<sup>2</sup> *The Parks Act*, section 13.



for ensuring the drinking water is safe and for complying with provincial water quality standards over water used for human consumption.<sup>3</sup> In this chapter, we refer to water used for human consumption (used for drinking, food preparations and cooking, and oral hygiene) as drinking water.

The Ministry provides drinking water in 25 provincial parks. As shown in **Section 5.0**, the Ministry uses 62 water systems in supplying drinking water, including five parks where it receives drinking water from a neighbouring municipal water system. The Ministry operates 39 drinking-water systems seasonally (May to September) and the remaining 23 all year.

These systems vary significantly in size and complexity. Its water systems include water treatment plants, distribution systems, and storage reservoirs (e.g., plastic holding tanks).<sup>4,5</sup>

## 2.2 Risks of Unsafe Drinking Water

When a park provides drinking water, visitors rely on the Ministry to provide a safe supply. Drinking water quality and the condition of the systems producing it remain important public health and environmental concerns in Saskatchewan.<sup>6</sup>

Contaminated drinking water can endanger public health, causing illness and death. Canada and Saskatchewan experienced unsafe drinking water consequences. For example, in North Battleford in April 2001, a parasite in the community's water caused between 6,000 to 7,000 residents to become ill.<sup>7</sup>

Effective processes to provide safe drinking water in provincial parks protect public safety and allow provincial parks to attract tourism to the province. Where the Ministry purports to provide safe drinking water, and it does not, the Ministry risks being held liable for damage to individuals' health and well-being.

## 3.0 AUDIT CONCLUSION

**We concluded that, for the 15-month period ended July 31, 2019, the Ministry of Parks, Culture and Sport had effective processes to provide safe drinking water in provincial parks other than in the following areas. The Ministry needs to:**

- **Formalize key decisions and processes about minimum documentation requirements, expected supervision, and self-regulation.**
- **Assign responsibility for the preparation, update of, and monitoring compliance with documented operating and maintenance procedures**

<sup>3</sup> All drinking water in Saskatchewan is to meet provincial water quality standards. A summary of Saskatchewan's drinking water quality standards is available at [www.sask20.ca/pdf/epb507.pdf](http://www.sask20.ca/pdf/epb507.pdf) (24 September 2019).

<sup>4</sup> A ground water treatment plant is a water treatment facility that draws all of its water supply from ground water beyond the direct influence of surface water. A surface water treatment plant is a water treatment facility that draws all or part of its water supply from a surface water body source. (*The Waterworks and Sewage Works Regulations*).

<sup>5</sup> A distribution system is that portion of a waterworks, including water pipes, storage reservoirs, valves, hydrants and associated components designed or used to convey water for human consumption to a service connection, but does not include tank fill drop tubes, surface piping or hoses attached to a well. (*The Waterworks and Sewage Works Regulations*)

<sup>6</sup> Water Security Agency 25-Year Saskatchewan Water Security Plan, p.13.

<sup>7</sup> [www.thestar.com/news/canada/2017/04/13/after-16-years-victims-of-saskatchewan-citys-tainted-water-get-33-million-settlement.html](http://www.thestar.com/news/canada/2017/04/13/after-16-years-victims-of-saskatchewan-citys-tainted-water-get-33-million-settlement.html) (24 September 2019).

- **Consistently supervise operations**
- **Specify water quantity requirements and require prompt notification where breaches in drinking-water standards occur in agreements with municipalities supplying drinking water to parks**

**Figure 1—Audit Objective, Criteria, and Approach**

**Audit Objective:** To assess whether the Ministry of Parks, Culture and Sport had effective processes, for the 15-month period ended July 31, 2019, to provide safe drinking water in provincial parks where provided.

**Audit Criteria:**

Processes to:

1. Plan to provide safe drinking water
  - 1.1 Have safe drinking water supply processes (e.g., maintain risk-informed policies and procedures, use sufficiently trained and educated personnel, maintain sufficient documentation)
  - 1.2 Develop maintenance plans for Ministry-owned water systems
2. Provide safe drinking water
  - 2.1 Keep Ministry-owned drinking water infrastructure maintained
  - 2.2 Operate Ministry-owned water systems consistent with applicable requirements (e.g., use of qualified personnel, maintaining records)
  - 2.3 Maintain contract for provision of drinking-water to confirm drinking water received meets applicable requirements (e.g., timely receipt of water quality reports)
3. Monitor quality of drinking water
  - 3.1 Test drinking water quality consistent with requirements (e.g., drinking water-quality standards, regulatory requirements, Ministry policies)
  - 3.2 Review results of tests of drinking water quality promptly
  - 3.3 Promptly inform public and park visitors when results of water quality tests do not meet requirements
  - 3.4 Take timely corrective action, as required

**Audit Approach:**

To conduct this audit, we followed the standards for assurance engagements published in the *CPA Canada Handbook—Assurance* (CSAE 3001). To evaluate the Ministry's processes, we used the above criteria based on our related work, reviews of literature including reports of other auditors, and consultation with management. The Ministry agreed with the above criteria.

We examined the Ministry's policies and procedures relating to providing safe drinking water. We interviewed Ministry staff responsible for providing safe drinking water and discussed drinking-water system regulation with the Water Security Agency, the Ministry of Health, and the Saskatchewan Health Authority. In addition, we reviewed related documentation (e.g., drinking-water system permits, records of drinking water quality tests, maintenance records). We observed drinking-water systems at a sample of provincial parks. We tested key aspects of the Ministry's processes including testing drinking water quality, assigning certified operators to drinking-water systems, as well as whether staff followed regulatory processes. We obtained drinking water quality lab-test results from the Water Security Agency and Ministry of Health and compared them to provincial drinking-water quality standards.

## 4.0 KEY FINDINGS AND RECOMMENDATIONS

### 4.1 Understanding of Applicable Regulator Clear

The Ministry has a clear understanding of which drinking water regulations it must follow when supplying drinking water in provincial parks.

In Saskatchewan, either one of two agencies regulate the quality of drinking water including compliance with provincial drinking-water quality standards—the Water Security Agency or the Ministry of Health.<sup>8</sup>

<sup>8</sup> A summary of Saskatchewan's drinking water quality standards can be found at [www.saskh2o.ca/pdf/epb507.pdf](http://www.saskh2o.ca/pdf/epb507.pdf) (24 September 2019).



- The Water Security Agency regulates larger and more complex water systems; it regulates waterworks where the amount of water used exceeds 18,000 litres per day (on average). In this chapter, we refer to drinking-water systems monitored by the Agency as WSA-regulated systems.
- The Ministry of Health (with the assistance of the Saskatchewan Health Authority) regulates smaller and less complex water systems; it regulates waterworks using less than 18,000 litres per day.<sup>9</sup> In this chapter, we refer to drinking-water systems monitored by the Ministry of Health as health-regulated systems.

**Figure 2** briefly describes key responsibilities of each regulator for drinking water quality.

**Figure 2—Description of Provincial Regulators’ Key Responsibilities for Drinking Water**

Regulator	Key Responsibilities for Drinking Water
Water Security Agency	<ul style="list-style-type: none"> <li>• Administers provincial drinking-water quality standards in <i>The Waterworks and Sewage Works Regulations</i></li> <li>• Regulates, under <i>The Waterworks and Sewage Works Regulations</i>, operators (e.g., municipalities, provincial parks) of larger and more complex water systems</li> <li>• Issues operating permits to operators of drinking-water systems (e.g., reservoirs, tanks, buildings, pumps, and pipes). It periodically inspects and enforces compliance with conditions of its issued permits.</li> <li>• Typically issues precautionary drinking water advisories for seasonally operated drinking-water systems during start-up, and removes them once the drinking-water system operator submits two consecutive water quality samples that meet drinking-water standards.</li> </ul>
Ministry of Health	<ul style="list-style-type: none"> <li>• Regulates, under <i>The Public Health Act, 1994</i>, and <i>The Health Hazard Regulations</i>, certain non-municipal drinking-water systems with limited capacity serving tourist accommodations and campgrounds, including provincial parks.</li> <li>• Delegated its regulatory activity to public health inspectors of the Saskatchewan Health Authority who periodically inspect water systems.</li> <li>• Issues, through the Authority, drinking water advisories for identified risks to public safety (e.g., identified harmful bacteria in the water).</li> </ul>

Source: [www.saskh20.ca/RolesAndResponsibilities.asp](http://www.saskh20.ca/RolesAndResponsibilities.asp) and information obtained during the audit (04 October 2019).

For Ministry-owned drinking-water systems, the Ministry recognizes it must comply with the applicable regulators’ requirements. Where the Ministry obtains drinking water from a nearby municipal system, it knows it must also ensure the drinking water supplied complies with provincial drinking-water quality standards.

We found the Ministry clearly identified the applicable regulator for each of its water systems. Of its 62 drinking-water systems, the Water Security Agency regulates 22 systems, and the Ministry of Health regulates 38 systems.<sup>10</sup>

As shown in **Section 5.0**, many provincial parks operate more than one water system. The drinking-water systems of these parks differ in size, resulting in these drinking-water systems being regulated by different regulators in the same park. At July 2019, 10 parks have both WSA-regulated and health-regulated water systems.

The Ministry was fully aware, while the water quality standards of these regulators are similar, the requirements each regulator imposes on drinking-water system operators differ significantly. **Figure 3** highlights key differences.

<sup>9</sup> *The Waterworks and Sewage Works Regulations*.

<sup>10</sup> The Ministry self-regulates the remaining two drinking-water systems.

In general, the Water Security Agency imposes detailed and prescriptive requirements over both the operation and maintenance of the water systems it regulates. Whereas, the Ministry of Health imposes limited requirements over the operation of the water systems it regulates. As shown in **Figure 3**, both regulators require routine water quality sampling and testing.

**Figure 3—Comparison of Key Drinking-Water System Requirements by Regulator**

Requirement	Water Security Agency	Health
<b>Requirement of Water System Operators<sup>A</sup></b>		
Follow detailed permit to operate issued by regulator	✓	
Obtain regulator's written approval before significantly upgrading drinking-water systems	✓	✓
Use certified operator(s) to operate drinking-water system	✓	
Test chlorine and turbidity of water <sup>B</sup>	Daily	
Submit drinking water quality samples to Provincial Lab for testing for presence of harmful bacteria <sup>C</sup> : Drinking-water systems operated all year Drinking-water systems operated seasonally	Weekly or Bi-monthly Weekly or Bi-monthly	Quarterly Annually
Submit drinking water quality samples to Provincial Lab for chemical testing (e.g., magnesium, arsenic, lead)	Every other year	Ground water: Annually Surface water: Every other year
Keep detailed records (operator logbook) about key operating activities (e.g., details on chemicals applied to the water for treatment, any departures from normal operating procedures) and maintenance performed	✓	
Have supervisor review key records (e.g., tracking sheet of daily chlorine and turbidity tests, operator logbook)	Monthly	
Have a qualified engineer assess condition of drinking-water systems	Every five years	
Report publicly on drinking water quality (e.g., annual notice to consumers summarizing drinking water quality test results from the previous year and availability on regulator website)	✓	
<b>Requirement of Regulator</b>		
Complete inspection of drinking-water systems (by regulator)	Annually	Annually
Require the Provincial Lab to report test results to the regulator	✓	✓
Advise the public about unsafe drinking water (based on test results)	✓	✓

Source: Developed by the Provincial Auditor of Saskatchewan.

<sup>A</sup> Requirements listed here summarize an example of a Water Security Agency permit and *The Health Hazard Regulations*. Each WSA permit can be different based on WSA's professional judgment (e.g., required frequency of bacteriological and chemical tests could be different for each drinking-water system).

<sup>B</sup> Turbidity refers to water's cloudiness.

<sup>C</sup> The Provincial Lab is the Roy Romanow Provincial Laboratory (formerly the Saskatchewan Disease Control Laboratory). It is part of the Saskatchewan Health Authority and located in Regina. It works to identify, respond to, and prevent illness and disease in the province. [www.saskhealthauthority.ca/Services-Locations/RRPL%20](http://www.saskhealthauthority.ca/Services-Locations/RRPL%20) (08 October 2019).

Since 2016, the Ministry acts as its own regulator for water systems in two provincial parks—Buffalo Pound and Danielson. For each of these parks, the Ministry distributes drinking water obtained from a nearby municipality. In this chapter, we refer to oversight of



these two water systems as self-regulated.<sup>11</sup> For these two systems, the Ministry informally decided to use past requirements that the Water Security Agency placed on these systems as its basis to self-regulate them.

## 4.2 Certified Water System Operators Used

---

Although not always required by law, the Ministry uses certified operators for water systems to oversee and operate each of its drinking-water systems. By law, only WSA-regulated water systems must use certified operators.

Water system certified operators are individuals with specialized training on several aspects of operating and maintaining water systems (such as water treatment, water distribution, water sampling). The Operator Certification Board offers a certification program with different certification levels.<sup>12,13</sup>

Water systems are classified by their complexity. The Ministry's highest drinking-water system classification is a level 2.

WSA-regulated water systems must use a certified operator with a certification level appropriate for the water system's complexity (e.g., a level 1 water system must use an operator with at least a level 1 certification). WSA-regulated water systems must also ensure certified operators are available by phone for questions and be capable of arriving at a water system location within four hours of receiving a call in emergencies.<sup>14</sup>

The Ministry employs (staffed or through contract) at least one qualified person (i.e., certified water system operator) to operate systems in each provincial park. At July 2019, the Ministry employed 56 certified water system operators on staff or on contract with varying certification levels, with some individuals responsible for water systems at more than one park.

We found the Ministry used certified operators with the appropriate level of certification to oversee its drinking-water systems. In situations where the Ministry was unable to hire the appropriate level of certified operator (i.e., Level 2 operator for a Level 2 drinking-water system), we found it contracted a certified operator with the appropriate level of certification to supervise Ministry staff.

We found the Ministry's agreements with contracted certified operators appropriately included clauses for the operator to be onsite one or two days a week. For WSA-regulated water systems, park staff who are not certified operators cannot add chemicals to the drinking-water system without a certified operator present. Although, staff can perform water sampling and routine maintenance on drinking-water systems.

---

<sup>11</sup> In 2015–16, the Water Security Agency determined and advised the Ministry of Parks, Culture, and Sport it was not required to regulate two of the Ministry's drinking-water systems. These systems receive drinking water from a nearby municipal system—Buffalo Pound and Danielson provincial parks. For example, for Buffalo Pound, the Ministry receives drinking water from the same water treatment plant supplying drinking water to the cities of Regina and Moose Jaw.

<sup>12</sup> A Water Security Agency policy establishes water system classifications and education requirements operators must possess to operate them. Water systems classifications range from the most complex class 4 system to less complex class 1 system.

<sup>13</sup> Based on the Water Security Agency's classification of drinking-water systems, individuals wishing to become certified operators of water systems must complete a certain level of prior education and experience to be eligible to take a certification course. For example, to become a level 1 operator, the individual must have completed grade 12, worked at least one year in a level 1 or higher facility, and received a mark higher than 70% on the Level 1 Certification exam. [www.sask2O.ca/pdf/epb144.pdf](http://www.sask2O.ca/pdf/epb144.pdf) (26 September 2019).

<sup>14</sup> *Water Security Agency Regional/Contract Operator Program* (EPB 286), [www.sask2O.ca/dwbinder.asp](http://www.sask2O.ca/dwbinder.asp) (3 October 2019).

For the nine parks we visited, certified operators and park maintenance staff seemed knowledgeable about their park's drinking-water systems and related regulatory requirements. We observed these drinking-water distribution systems and water treatment plants were clean and staff had extra supplies on hand (e.g., extra chlorine, water testing supplies).

During 2018–19, the Ministry hired a consulting firm to train and assist some drinking-water system operators. For example, consultant work included training new operators on how to maintain water filters and operate water systems at Meadow Lake Provincial Park.

Using qualified staff (like certified water system operators) helps staff understand regulatory requirements and good practice in operating drinking-water systems. Use of qualified staff also increases the likelihood of adherence to provincial water quality standards and regulatory requirements.

### 4.3 Formalization of Key Decisions and Processes Needed

The Ministry has not formalized key operational decisions and processes related to providing safe drinking water.

For its 38 **health-regulated drinking-water systems**, the Ministry has not established minimum documentation staff operating them must maintain, or determined the expected level or frequency of supervision of key activities.

Regulatory requirements for health-regulated water systems (*The Health Hazard Regulations*) only specify the frequency to test drinking water for bacteria and chemicals, and, unlike for WSA-regulated systems, do not outline operating requirements, such as record-keeping and supervisory activities (see **Figure 3** for detail).

We found not having written guidance resulted in inconsistent operations of health-regulated water systems; for example:

- Two of 11 health-regulated drinking-water systems tested did not keep operator logbooks.<sup>15</sup>
- Four of 11 health-regulated drinking-water systems tested did not perform daily chlorine and turbidity testing. Frequency of completed chlorine and turbidity testing for these four water systems ranged from almost daily (e.g., only missing a few days) to only a few days per month.

We also found the Ministry does not have a policy or written guidance outlining its decision to use certified operators to operate these drinking-water systems. Job descriptions for these positions do not require individuals to be certified operators.

For its two **self-regulated drinking-water systems**, the Ministry has not formalized its processes for how it will self-regulate and operate them—Danielson and Buffalo Pound water distribution systems.

<sup>15</sup> Water system operators record important activities in logbooks such as water sampling performed, situations arising outside the normal course of operations, maintenance performed, and chemicals added to the water system.





The Ministry assigned an individual from head office to oversee these two drinking-water systems. The individual understands the Ministry wants to oversee these drinking water systems following the Water Security Agency's 2016 cancelled permit requirements. We found this individual had sufficient training/experience, and performed annual inspections of these systems using an inspection checklist similar to the Water Security Agency's inspection checklist.

However, we found the Ministry does not have a policy or written guidance that outlines its 2016 decision to continue to operate these water systems following the requirements outlined in the Water Security Agency's cancelled permits for each system.

We also found the Ministry had not established written processes to monitor these two drinking-water distribution systems on an ongoing basis. For example, how often it would inspect these drinking-water systems, and when and how it will issue water advisories. Or, when or how it will update its requirements for these drinking-water systems when the Water Security Agency changes its requirements for systems it regulates (i.e., changes its best practice established in the operational permits it issues). For example, the Ministry indicated it was aware drinking-water quality standards may be changing for manganese in the future.<sup>16</sup>

Not formalizing key decisions or processes (through policies or written procedures) increases the risk of staff not fully understanding requirements, and not operating systems consistent with regulatory requirements. In addition, without sufficient written guidance, staff may not operate drinking-water systems consistent with good or expected practice.

1. **We recommend the Ministry of Parks, Culture and Sport document key operational decisions and processes for its drinking-water systems regulated by the Ministry of Health or itself.**

## 4.4 Clear Responsibility for Preparation of Procedural Manuals Needed

---

The Ministry did not assign clear responsibility for the preparation and maintenance of key procedures necessary to provide safe drinking water.

Management indicated it expected staff at each park to prepare and maintain key procedures. Park staff we interviewed were unaware of this expectation.

For its **seasonal drinking-water systems** (i.e., water systems operating from May until September), for two health-regulated and one self-regulated drinking-water systems we visited, the Ministry had not made sure staff documented water system start-up and shutdown procedures (39 of the Ministry's 62 drinking-water systems operate seasonally).

Seasonal drinking-water systems must have water lines opened at the beginning of each season and blown out at the end of the operating season. Documented procedures set tasks to start-up and shutdown properly. Proper start-up helps ensure clean lines upon start-up, and do not contaminate water distributed through them. Proper shutdown helps ensure removal of all water from lines to avoid freezing and line breakage.

---

<sup>16</sup> Manganese is a chemical element.



Three of nine parks we visited did not have documented start-up and shutdown procedures for seasonal water systems (two health-regulated, one self-regulated).

For its **WSA-regulated drinking-water systems**, the Ministry did not make sure it maintains quality control procedures as the Water Security Agency's permits require.

Formal quality control procedures include providing additional operational details about permit requirements, and outlining task responsibilities for each person in the park relating to the specific drinking-water system (e.g., Park Manager is to review operational records and logs).

We found, for two of six WSA-regulated drinking-water systems tested, the Ministry did not prepare or approve quality control procedures.

Not having written procedures for key processes to operate drinking-water systems increases the risk of staff not having a clear understanding of Ministry requirements or expectations. In addition, without sufficient written guidance, staff may not operate drinking-water systems consistent with good practice or regulatory requirements.

2. **We recommend the Ministry of Parks, Culture, and Sport assign clear responsibility for preparing and maintaining written procedures necessary to operate its drinking-water systems.**

## 4.5 Operating Permits Current for WSA-Regulated Systems

The Ministry obtained the required permits for its WSA-regulated drinking-water systems.

By law, the Ministry must maintain a current permit with the Water Security Agency for its WSA-regulated drinking-water systems. The permit outlines the operating conditions for the system. See **Figure 3** for typical permit conditions.

For all six WSA-regulated drinking-water systems tested, the Ministry held an approved and current permit to operate.

## 4.6 Condition of Larger Water Systems Monitored

The Ministry uses well-established processes to assess the condition of its large drinking-water systems and to decide when to make improvements.

Consistent with WSA-regulatory requirements, the Ministry regularly assessed the condition of its WSA-regulated, and the two self-regulated water systems. The WSA-regulated systems are the Ministry's larger and more complex water systems.

The Water Security Agency requires a condition assessment of WSA-regulated water systems every five years.<sup>17</sup> The Ministry informally adopted the same practice for its two self-regulated systems.

<sup>17</sup> WSA issues permits to operate every five years. Therefore, water systems must undergo a water system assessment once during the five-year permit period.



The Ministry hired an appropriately qualified engineer to do these assessments. The last assessments occurred in 2015–16. These assessments analyzed equipment condition (estimated remaining asset service life) and recommended system improvements.

We found the Ministry actively tracked the status of actions it took, or was taking, to address the 2015–16 recommendations. For significant recommendations not implemented at July 2019, we found it either planned to address them, or was considering how best to address them. For example, the Ministry planned significant upgrades to its water treatment plant at the Battlefords Provincial Park.<sup>18</sup>

We also found the Ministry used the assessments’ results to help evaluate its provincial parks’ drinking-water systems’ infrastructure risks, and considered these risks during its annual capital planning process (see **Figure 4**).

**Figure 4—Brief Description of the Ministry’s Capital Budgeting Process**

Annually, the Ministry undergoes a capital budgeting process that includes a risk assessment of provincial parks’ drinking-water systems’ infrastructure. It uses its asset management IT system to record information about its infrastructure, including drinking-water systems. Ministry staff enter information into the system for identified improvements.

The Ministry’s Capital Planning Committee meets regularly to review identified asset improvement requests accumulated in the system. The Committee ranks requests using a Ministry-established priority matrix, and allocates capital funding to address the most needed improvements. This Committee includes members of senior management.

Source: Developed by the Provincial Auditor of Saskatchewan.

We observed the Ministry used its asset management IT system to track infrastructure improvement needs. Our review of the Ministry’s Capital Planning Committee minutes found the Committee discussed needs and prioritized them, including ones related to its drinking-water systems. We further found the Ministry’s 2018–19 capital budget consistent with the Committee’s work.

Good Spirit Provincial Park was the only drinking-water system with an active drinking water advisory at July 2019 (the end of our audit period), which remained active since at least May 2017. The Ministry identified drinking water quality issues and completed significant system upgrades to the drinking-water system from 2016 to 2018. While these upgrades improved water quality somewhat, it did not significantly improve turbidity. As a result, the precautionary drinking water advisory remained. We found the Ministry plans to add a reverse osmosis system to the Good Spirit water treatment plant in 2019–20 to address the turbidity issue.<sup>19</sup> This upgrade comes at an additional estimated cost of \$630,000.

Having a systematic process to assess the condition of large drinking-water systems helps ensure the Ministry has sufficient information to assess the risk of infrastructure being incapable of providing safe drinking water and it can take appropriate actions to reduce risk.

<sup>18</sup> [www.globalnews.ca/news/4380964/saskatchewan-provincial-parks-facilities-infrastructure](http://www.globalnews.ca/news/4380964/saskatchewan-provincial-parks-facilities-infrastructure) (03 October 2019).

<sup>19</sup> Reverse osmosis is a water treatment process that removes contaminants from water by using pressure to force water molecules through a semipermeable membrane. During this process, the contaminants are filtered out and flushed away, leaving clean drinking water.

---

## 4.7 Drinking-Water System Improvements Appropriately Permitted

---

The Ministry obtained the required written approval before making significant upgrades to its drinking-water systems.

Both WSA-regulated and health-regulated water systems must have written approval from the applicable regulator before the water system operator makes significant upgrades.

The Ministry hires engineering firms to prepare the necessary construction drawings for significant upgrades. Because of their expertise, these firms also prepare and submit the application for regulatory approval.

For all three major upgrades, we found the Ministry obtained the appropriate written approvals before it commenced construction on the drinking-water systems for the 15-month period ending July 2019.

---

## 4.8 Written Guidance for Routine Maintenance Needed

---

The Ministry does not have written routine maintenance expectations for its drinking-water systems.

Very detailed and voluminous manufacturers' operation and maintenance manuals exist for staff to consult for information about maintenance of large drinking-water systems (e.g., water treatment plants). Recommended maintenance procedures are scattered throughout these lengthy, not user-friendly manuals.

The Ministry depends primarily on its certified operators' knowledge and experience to determine maintenance requirements.

We found operators base routine maintenance primarily on regulatory requirements. While WSA-regulated water systems have detailed requirements, as noted in **Section 4.1**, health-regulated systems have limited regulatory requirements. The Ministry operates 38 health-regulated systems varying in design and complexity. We found the Ministry had not established clear, routine maintenance requirements for each type of drinking-water system.

In addition, even though the Ministry uses certified operators, each drinking-water system differs. Operator certification does not train operators for variances between each of the Ministry's drinking-water systems (e.g., new, highly-automated drinking-water systems versus old filter and pump drinking-water systems).

We found only one of 19 drinking-water systems tested had documented maintenance procedures (i.e., a WSA-regulated water system).

Because the Ministry did not have documented routine maintenance procedures, we could not determine whether staff completed all expected maintenance. However, our testing



found staff did not always complete some routine maintenance activities the Ministry indicated it expected. We found:

- For two of the 19 drinking-water systems tested, the system's daily water testing equipment did not have an annual recalibration performed (one WSA-regulated system, one health-regulated system).

Typically, the Ministry requests recalibration from the equipment's manufacturer.

Not annually calibrating equipment used for chlorine and turbidity testing increases the risk certified operators receive inaccurate test results. Maintaining proper chlorine levels helps ensure drinking water is safe and meets water quality standards.

- Five of the 19 drinking-water systems tested had no record of maintenance performed during the 15-month period ending July 2019 (one WSA-regulated system; three health-regulated systems; one self-regulated system).

The operator logbooks for the other 14 drinking-water systems tested included evidence of maintenance activities. These included checking and replacing, when required, water filters, replacing tubing, flushing tanks, and cleaning equipment that add chemicals to water.

Not having documented routine maintenance expectations increases the risk of staff not understanding or knowing what routine maintenance is required. This risk increases when staff turnover occurs. In addition, routine maintenance keeps drinking-water systems working effectively and helps avoid costly repairs or replacements. Improper or insufficient maintenance increases the chance of infrastructure failure. If drinking-water system infrastructure fails, the Ministry cannot provide safe drinking water to its park visitors.

**3. We recommend the Ministry of Parks, Culture and Sport document routine maintenance expectations for its drinking-water systems.**

**4. We recommend the Ministry of Parks, Culture and Sport complete routine maintenance on its drinking-water systems consistent with documented routine maintenance expectations.**

## 4.9 Consistent Supervision of Operations Needed

The Ministry does not consistently review daily activity tracking sheets and operator logbooks. In addition, it did not consistently maintain operational records for its 38 health-regulated water systems.

As noted in **Figure 3**, staff of WSA-regulated water systems must maintain records of key operating activities, and appropriate personnel must review these records. For example:

- Park staff of each WSA-regulated system must maintain daily activity tracking sheets and an operator logbook. Tracking sheets record the daily chlorine and turbidity tests. Logbooks document key operating activities (e.g., chemicals applied to water treatment plant, departures from normal operating procedures).

- Certified operators must regularly review operator logs.
- Each month, supervisors must review daily activity tracking sheets and operator logs. Supervisors are typically park managers.

The Ministry informally decided to follow this same process for its two self-regulated water systems. As noted in **Section 4.3**, it has not formally decided what process it expects staff responsible for health-regulated water systems to follow.

In our testing of water systems, we found:

- No evidence of the contracted certified operator responsible for Good Spirit Provincial Park reviewing logbook entries; Good Spirit has both WSA-regulated and health-regulated water systems
- Three of the six WSA-regulated drinking-water systems tested lacked evidence of permit-required supervisory review of daily activity tracking sheets
- All six WSA-regulated drinking-water systems tested lacked evidence of permit-required supervisory review of the operator logbook
- Nine of 11 health-regulated drinking-water systems tested lacked evidence of supervisory review of daily activity tracking sheets
- Nine of the 11 health-regulated drinking-water systems with an operator logbook lacked evidence of supervisory review of the logbook

Not regularly supervising the completion of key activities increases the risk that Ministry staff do not complete key operational procedures as required. For example, not testing chlorine and turbidity levels daily increases the risk that drinking water is not safe.

**5. We recommend the Ministry of Parks, Culture and Sport routinely review key drinking-water system operational records including daily activity tracking sheets and operator logbooks.**

## 4.10 Drinking Water Tested as Required

The Ministry completed bacteriological and chemical tests consistent with requirements.

As shown in **Figure 3**, operators must submit water samples to test for the presence of harmful bacteria and chemicals for both WSA-regulated and health-regulated water systems.

For WSA-regulated systems, the permit outlines testing frequency required for each test type (e.g., daily chlorine and turbidity tests). For health-regulated systems, *The Health Hazard Regulations* outline testing frequency required for each test type. For its two self-regulated systems, the Ministry informally decided to follow the frequency outlined in the cancelled WSA permits.



For 19 water systems tested, we found the Ministry submitted water samples for testing consistent with the requirements of the applicable regulator. Ministry staff appropriately took water samples from various points throughout the drinking-water distribution system. It most commonly submitted samples to the Provincial Lab for detailed analysis.<sup>20</sup>

## 4.11 Documentation of Lab-Test Results Review Needed

Ministry staff do not document evidence of reviewing drinking-water lab-test results. As a result, the Ministry cannot show it promptly reviewed lab-test results.

We confirmed key Ministry staff responsible for provincial parks received, and were aware of, lab-test results for water systems for which they were responsible. We observed three Ministry staff (i.e., a central park water system specialist at the Ministry's head office, the Park Manager, and the certified water system operator) received lab-test results directly via email from the Provincial Lab.

Documenting its timely review of drinking-water quality test results enables the Ministry to demonstrate it actively identifies when drinking water is unsafe, should it occur. This is especially important for the two drinking-water systems it self-regulates, as the Ministry is the only one reviewing these water quality test results.

### 6. We recommend the Ministry of Parks, Culture and Sport document evidence of its review of water quality test results.

We found the Ministry took appropriate action when drinking-water test results identified unsafe bacteria levels.

Three lab-test results for the 19 drinking-water systems tested indicated the presence of bacteria in the water. We found the operator informed the applicable regulator of the results; and the Ministry took the appropriate steps to address the findings. We found operators re-tested the water and found the previous test result incorrect. For example, this can happen when the person taking the sample has dirty hands and touches the inside of the sample cup. Also, when the regulator issued a drinking water advisory, the operator took steps to rectify the problem (e.g., fixed a piece of equipment that failed at a water treatment plant). **Figure 5** briefly describes drinking water advisories or boil water orders regulators can issue.

**Figure 5—Description of Drinking Water Advisories and Boil Water Orders**

**Precautionary drinking water advisory:** Regulators issue a precautionary drinking water advisory where drinking water quality problems may exist (e.g., something went wrong at the water treatment plant), but have not identified an immediate public health threat.

**Emergency boil water order:** Regulators issue an emergency boil water order when a confirmed threat to public health exists (i.e., microbial contamination).

Under both advisories and orders, users must boil water at a rolling boil for at least one minute before consuming to ensure bacteriological safety. Consuming includes drinking, brushing teeth, dishwashing, or washing fruits and vegetables.

A listing of these orders and advisories are publicly available on the SaskH<sub>2</sub>O website at [www.saskh2o.ca/advisories.asp](http://www.saskh2o.ca/advisories.asp).

Source: [www.saskh2o.ca/advisories.asp](http://www.saskh2o.ca/advisories.asp) (04 October 2019).

<sup>20</sup> The lab also sent drinking water test results directly to the applicable regulator.

## 4.12 Updates Needed to Drinking Water Provider Agreements

The Ministry did not have sufficiently robust agreements with nearby municipalities supplying drinking water to certain provincial parks.

The Ministry obtained drinking water from a nearby municipal drinking-water system for five of its provincial parks (see grey highlighted items in **Section 5.0**). We assessed four of the Ministry's agreements with these five provincial parks.<sup>21</sup>

None of the four agreements tested specified that the municipality must promptly inform the Ministry if water quality standards are breached (e.g., provincial drinking-water quality standards). Also, one of the four agreements did not include the quantity of drinking water the Ministry required from the municipality.

By not having municipalities promptly inform the Ministry of drinking-water quality standard breaches, the Ministry exposes itself to additional risk of receiving water that does not meet provincial drinking-water standards, and having that water contaminate its distribution systems. In addition, by not agreeing on the minimum quantity of drinking water it requires, the Ministry increases the risk of not having enough safe drinking water to provide to park visitors.

**7. We recommend the Ministry of Parks, Culture and Sport update its agreements with municipalities supplying drinking water to provincial parks to set needed water quantity and require municipalities to promptly advise the Ministry of breaches in provincial drinking-water standards.**

## 4.13 Park Visitors Notified about Drinking Water Quality

The Ministry appropriately advises park visitors about concerns with drinking water quality.

For WSA-regulated and health-regulated water systems, the Ministry must communicate to the public when drinking water may be unsafe (e.g., by posting precautionary drinking water advisories). For example, in September 2019, an active precautionary drinking water advisory remained in effective at Good Spirit Provincial Park since May 2017.<sup>22</sup>

During our onsite visits, we found Good Spirit Provincial Park posted adequate signage to inform park users of the precautionary drinking water advisory in effect, including on all drinking water access points (e.g., water taps, entry points into the campgrounds/cabins, bathrooms).

Also, for WSA-regulated drinking-water systems, the Ministry must annually prepare and post an 'Annual Notice to Consumer' report in the park. We found the Ministry appropriately prepared and posted the report (see **Figure 3**) for the six WSA-regulated systems we tested.

<sup>21</sup> The Ministry does not have an agreement with the third-party that supplies drinking water to Fort Carlton Provincial Park because the third-party only provides (i.e., hauls) drinking water on an as needed basis.

<sup>22</sup> [www.sask20.ca/reports/GOC/EnvActive.pdf](http://www.sask20.ca/reports/GOC/EnvActive.pdf) (24 September 2019).





Advising park visitors about drinking water quality concerns, if concerns exist, allows visitors to take necessary precautions before drinking the water (e.g., boil water).

## 4.14 Regulator-Issued Drinking Water Advisories and Orders Publicly Available

As described below, each regulator publishes information on issued precautionary drinking water advisories and boil water orders including those issued for provincial parks it regulates. At July 2019, the Ministry has not determined how it will advise the public about unsafe drinking water conditions at the two parks it self-regulates. See **Section 4.3** and **Recommendation 1**.

Regulators must advise the public of unsafe drinking water based on lab-test results (see **Figure 3**). As shown in **Figure 6**, the Water Security Agency and the Ministry of Health publish advisories on the same website. In addition, other provincial government agencies (such as Tourism Saskatchewan) publish information about advisories and orders on their respective websites.

The Ministry's campsite reservation system does not advise potential provincial park visitors where to find published information about drinking water quality before arriving at a provincial park. Potential visitors may find this information useful to help them properly prepare for their visit (e.g., bring potable water or equipment to boil water before consumption if necessary).<sup>23</sup> We suggest the Ministry add reference(s) to this published information on its campsite reservation system.

We found regulators issued, each calendar year, about 30 drinking water advisories for drinking water in provincial parks. The majority of these were short-term precautionary drinking water advisories when the Ministry starts up WSA-regulated drinking-water systems each spring. See **Section 4.6** for discussion on the only long-standing drinking water advisory for a provincial park.

**Figure 6—Public Sources of Information on Saskatchewan Drinking Water**

Website	Information Typically Provided
Tourism Saskatchewan <a href="http://www.tourismsaskatchewan.com/places-to-go/provincial-parks/our-parks#sort=relevancy">www.tourismsaskatchewan.com/places-to-go/provincial-parks/our-parks#sort=relevancy</a> (26 September 2019)	Detailed information about the provincial park selected (e.g., services, amenities, accessibility, activities, maps, contact information), including a section for any advisories (e.g., active drinking water advisories, trail closures) to inform potential park visitors of unusual situations they may experience when visiting the park.
Water Security Agency's SaskH <sub>2</sub> O <a href="http://www.saskH2O.ca/">www.saskH2O.ca/</a> (26 September 2019)	Detailed information on quality of drinking water in the province by listing drinking water advisories for health- and WSA-regulated drinking-water systems.  Detailed drinking water lab-test and inspection results for WSA-regulated drinking-water systems.  Does not include information about active drinking water advisories, should they exist, for the Ministry's self-regulated drinking-water systems.

<sup>23</sup> <https://saskparks.goingtocamp.com/> (26 September 2019).

Website	Information Typically Provided
SaskAlert <a href="http://emergencyalert.saskatchewan.ca/">http://emergencyalert.saskatchewan.ca/</a> (08 October 2019)	Lists some but not all active drinking water advisories for health- and WSA-regulated drinking water systems including advisories for provincial park water systems (e.g., did not include the ongoing Good Spirit water advisory).

Source: Developed by the Provincial Auditor of Saskatchewan.

## 5.0 SUMMARY OF DRINKING WATER SYSTEMS BY REGION AND PROVINCIAL PARK AT JULY 1, 2019

Provincial Park	Number of Water Systems Supplying Park Drinking Water	Water System Regulator <sup>B</sup>	Number of 2018 Visitor Days <sup>E</sup> (000s)	Water Source for Drinking Water
<b>Northern Parks</b>				
Bronson Forest recreational site	1	Health	17	Ground water
Candle Lake	4	WSA & Health	112	Ground and surface water
Great Blue Heron	2	WSA & Health	87	Ground and surface water
Lac La Ronge	3	Health	49	Surface water
Makwa Lake	2	WSA & Health	115	Ground water
Meadow Lake	16	WSA & Health	380	Ground water
Narrow Hills	4	Health	77	Ground water
<b>Central Parks</b>				
The Battlefords	1	WSA	215	Ground water
Blackstrap <sup>D</sup>	1	WSA <sup>D</sup>	115	Park receives drinking water from a nearby municipal system. Ministry distribution system used.
Duck Mountain	2	WSA	239	Ground water
Fort Carlton	1	Health	7	Park receives hauled drinking water from a nearby municipal system.
Good Spirit	3	WSA & Health	192	Ground water
Greenwater Lake	1	WSA	196	Surface water
Pike Lake	3	WSA & Health	264	Ground water
<b>Southern Parks</b>				
Buffalo Pound <sup>C</sup>	1	Self-regulated <sup>C</sup>	190	Park receives drinking water from a nearby municipal system. Ministry distribution system is used.
Cannington Manor	1	Health	1	Ground water



Provincial Park	Number of Water Systems Supplying Park Drinking Water	Water System Regulator <sup>B</sup>	Number of 2018 Visitor Days <sup>E</sup> (000s)	Water Source for Drinking Water
Crooked Lake	1	WSA	58	Ground water
Cypress Hills	2	WSA & Health	333	Ground water
Danielson <sup>C</sup>	2	Self-regulated <sup>C</sup> & Health	87	Park receives drinking water from a nearby municipal system. Ministry distribution system used and separate Ministry system for visitor centre.
Douglas	2	WSA & Health	92	Ground water
Echo Valley	3	WSA & Health	182	Ground water
Katepwa	1	Health	-- <sup>A</sup>	Ground water
Moose Mountain	1	WSA	369	Ground water
Rowan's Ravine	1	WSA	171	Ground water
Saskatchewan Landing <sup>D</sup>	3	WSA & Health <sup>D</sup>	232	Part of this park receives drinking water from a nearby municipal system and Ministry's distribution system used. Other systems that supply other parts use ground water.
Remaining parks	--	Not in audit scope	171	--
<b>Total</b>	<b>62</b>		<b>3,951</b>	

Source: Ministry records.

Grey shading in the table above identifies provincial parks that receive some or all drinking water from nearby municipal systems.

<sup>A</sup> The Ministry did not keep visitor statistics for this provincial park.

<sup>B</sup> Ministry of Health (Health), Water Security Agency (WSA). See Figures 2 and 3 for a description of the differences between these agencies.

<sup>C</sup> The WSA regulates the nearby municipal water treatment system. The WSA chose to no longer regulate the distribution system distributing drinking water within the provincial park. The Ministry self-regulates the distribution system in the park.

<sup>D</sup> The WSA regulates the nearby municipal water treatment system and the Ministry's distribution system.

<sup>E</sup> Visitor days is the total days spent in Saskatchewan's provincial parks, recreation sites, and historic parks between Thursday of the Victoria Day long weekend in May and Monday of the Labour Day long weekend in September. A visitor day represents a single person spending up to 24-hours in one of these locations, and can include day visits, camp visits, and cottage visits. The Ministry makes numerous assumptions to estimate visitor days (e.g., estimates number of days visitors with seasonal passes visit the park).

## 6.0 SELECTED REFERENCES

Office of the Auditor General of Alberta. (2006). *2005–06 Annual Report – Volume 1, Drinking Water*. Edmonton: Author. [www.oag.ab.ca/reports/report-auditor-general-october-2006-volume-1](http://www.oag.ab.ca/reports/report-auditor-general-october-2006-volume-1) (18 June 2019).

Office of the Auditor General of Nova Scotia. (2002). *2002 Annual Report, Chapter 5, Drinking Water Safety System*. Halifax: Author. [www.oagns.ca/sites/default/files/publications/2002%20-%20Ch%2005%20-%20Drinking%20Water%20Safety%20System.pdf](http://www.oagns.ca/sites/default/files/publications/2002%20-%20Ch%2005%20-%20Drinking%20Water%20Safety%20System.pdf) (18 June 2019).

Provincial Auditor of Saskatchewan. (2012). *2012 Report – Volume 1, Chapter 12, Provision of Safe Drinking Water to Saskatchewan's Northern Settlements*. Regina: Author. [auditor.sk.ca/pub/publications/public\\_reports/2012/Volume\\_1/2012v1\\_12\\_SafeWater.pdf](http://auditor.sk.ca/pub/publications/public_reports/2012/Volume_1/2012v1_12_SafeWater.pdf) (18 June 2019).

Provincial Auditor of Saskatchewan. (2013). *2013 Report – Volume 1, Chapter 17, Regulating Drinking Water*. Regina: Author.  
[auditor.sk.ca/pub/publications/public\\_reports/2013/Volume\\_1/2013v1\\_17\\_RegulatingDrinkingWater.pdf](http://auditor.sk.ca/pub/publications/public_reports/2013/Volume_1/2013v1_17_RegulatingDrinkingWater.pdf) (18 June 2019).

Provincial Auditor of Saskatchewan. (2009). *2009 Report – Volume 3, Chapter 18, Provincial Park System Capital Asset Plan*. Regina: Author.  
[auditor.sk.ca/pub/publications/public\\_reports/2009/Volume\\_3/2009v3\\_18\\_Tourism.pdf](http://auditor.sk.ca/pub/publications/public_reports/2009/Volume_3/2009v3_18_Tourism.pdf) (18 June 2019).

