



# Drinking Water

## Source-to-Tap Solutions

### Safe Drinking Water Strategy

October 2002

Saskatchewan has a new three-point strategy to ensure safe and reliable drinking water. It includes:

#### INSIDE . . .

Safe Drinking Water Strategy

Principles of the Strategy

Practical Solutions Across Saskatchewan

Lakes, Rivers Tested Regularly

The Value of Water

Where Does Your Water Come From?

Community Water Tests to be Published

What Kind of Water System Do You Have?

National Quality Standards

Inspections Increased

Post Walkerton Improvements

#### 1 A. Clear and Effective Regulatory System

##### Actions Beginning in 2002-03:

- ▶ \$2.4M in new funding, including 18 new positions to help communities meet their drinking water challenges.
- ▶ an average of 1-2 water treatment plant inspections per year and 1 sewage treatment plant inspection per year
- ▶ assessment of each water treatment plant every 5 years (to be phased in for small communities)
- ▶ system owners required to report when pieces of equipment break down or when chlorine levels are low
- ▶ every treatment plant will have a certified operator by 2005 and operators maintain their certification through continuing education
- ▶ a new computer system to flag communities whose water tests are out of compliance and also allow more thorough and faster tracking of water problems

#### B. Consumers Have All the Information They Need About the Quality of Their Drinking Water.

##### Actions Beginning in 2002-03

- ▶ public Internet access to municipal drinking water test records so people can check on how consistently their local water treatment plant operators are testing their water and the results of those tests
- ▶ the province will draft regulations and work with the municipal sector to develop a process to support greater accountability for water quality. By 2005 citizens will receive an annual report on their municipality's financial plans for water systems, their compliance with submitting water samples, and the quality of water they produce

#### 2 Source Water Protection - Watershed Planning and Management Improvements

##### Actions Beginning in 2002-03:

- ▶ consolidating watershed planning, protection and management activities of three agencies (SaskWater, Sask Environment, Sask Wetland Conservation Corporation) into the Saskatchewan Watershed Authority to oversee watershed and source water protection
- ▶ the Authority will be responsible for watershed planning, reduction/elimination of contaminants, protection of aquifers, conservation of wetlands, water allocation, care and operation of provincial water management infrastructure, flood and drought policy, public awareness and monitoring the ecological health of aquatic ecosystems

#### 3 Better Water Treatment to Provide Safe, and Sustainable Drinking Water.

##### Actions Beginning in 2002-03

- ▶ all waterworks to meet national standards for drinking water
- ▶ user pay principle recognizes and respects municipalities' traditional responsibility for providing safe drinking water
- ▶ SaskWater is being refocused to provide technical and quality management assistance to help municipalities fix water problems
- ▶ provincial financing assistance to municipalities will continue to be made available through the Municipal Financing Corporation (MFC). Up to 100% of water and sewer projects can be financed by MFC
- ▶ provincial and federal funding assistance will continue to be provided through the Canada-Saskatchewan Infrastructure Program (CSIP)

Questions  
about water?  
Call the toll-free  
Water Inquiry Line  
1-866-SASK H2O  
(1-866-727-5420)



Government of  
Saskatchewan



## Principles of the Strategy

To help us achieve safe, clean and sustainable drinking water, we have developed several principles to guide us. These include:

**Human Health** is our primary concern

**Avoiding Risks** to drinking water is the first priority

**Openness and Clear Communication** will ensure everyone understands and carries out their responsibilities

**Realistic Pricing** acknowledges the value of safe drinking water

**Accurate and Timely Information** about water problems and solutions is essential for waterworks owners, operators, regulators and users

**All Levels of Government and Citizens must Work Together** to develop and implement water management solutions

## Practical Solutions Across Saskatchewan

Many communities in Saskatchewan are looking for ways to improve their water and waste water systems. Every community is different and faces different challenges, but by seeking advice and working with neighboring communities, many are finding creative solutions.

### Gravelbourg

Population: 1187  
Location: 40 miles southwest of Moose Jaw

The Gravelbourg water supply and treatment system, owned and operated by SaskWater, consists of a raw water pumpstation on Thomson Reservoir, 10.7 kilometres of pipeline and a treatment plant. Construction was completed by SaskWater in November, 1997.

### Kinistino

Population: 702  
Location: 25 miles west of Melfort

Kinistino has connected to a Sask Water treated water pipeline system located in the region. SaskWater provides the community with treated water and the community re-distributes the water to commercial and residential users.

### Pierceland

Population: 449  
Location: 80 miles north of Lloydminster

Prior to 2000, Pierceland did not have a distribution system and the individual water supplies had contamination problems. SaskWater worked with the community to build a new well and a raw water pipeline, construct a conventional ground water treatment plant, and establish a distribution system. SaskWater operates the water supply and treatment process on a contract basis.



## Lakes, Rivers Tested Regularly

Saskatchewan Environment tests the quality of water in the province's major rivers and lakes regularly to ensure the water is safe for things like swimming, fishing, and irrigation.

Surface water is tested monthly for general chemical content (nitrogen, phosphorus magnesium, sodium, etc.), quarterly for heavy metals (mercury, arsenic, etc.), and in the summer/fall/winter a pesticide scan is done.

When problems are discovered Saskatchewan Environment identifies the source and helps to reduce the pollution. Health authorities reviews the test results and if the problem is bad enough to create a risk to human health, they notify the public.

# The Value of *water*

While the vast majority of Saskatchewan people have access to safe drinking water, some communities have problems with their water quality. Others have water supply problems. And either quality or supply problems can have costly implications.

The amount people in Saskatchewan pay for their water varies. Some Saskatchewan residents are charged nothing for drinking water because it is built into their tax system. For those communities that charge water rates, the price varies from about \$2.50 per month to well over \$80 per month (based on an average provincial consumption of 7,000 gallons per household per month). While communities fortunate enough to have good supplies of quality water typically pay less, other communities with poor water supplies or poor quality water requiring costly treatment pay more.

Many communities do not include the cost of long-term upgrades or replacement of their water treatment systems. As a result, the price that many consumers pay for water does not reflect its true cost.

A community's waterworks will not be sustainable unless the rates charged include the full cost of water treatment and the need to put money aside for maintenance and upgrading of the treatment plants.



## *bottled water* VERSUS *tap water*

An “expensive” water treatment system costs about one cent per gallon, while a typical bottle of filtered water bought in a store usually costs more than \$1 per gallon - 100 times the cost of treated tap water.



## Where Does Your Water Come From?

Drinking water supplies in Saskatchewan come from surface water bodies and underground sources, both of which present unique challenges to people wanting to use them.

Ground water, the technical name for well water, provides about three-quarters of the province's drinking water supplies. Runoff and precipitation seeps through the soil and is added to the underground reservoirs called aquifers. In Saskatchewan, aquifers vary in size from a few hectares to thousands of square kilometres in area and from a few metres to almost a hundred metres thick.

Most ground water is hard water, because of high levels of calcium and magnesium, but these minerals can be easily removed by domestic water softeners or reverse osmosis filters. Saskatchewan's ground water frequently has high levels of iron and manganese, which can stain plumbing fixtures and laundry and may affect the taste of the water. Removing these minerals presents a challenge for most water treatment plants.

About a quarter of municipal drinking water supplies come from surface water. Lakes, rivers, streams or man-made reservoirs cover about 12 per cent of Saskatchewan's surface area. Most of our surface water comes from rain or snowfall and run-off from the Rocky Mountains.

Surface water usually has lower mineral content than ground water, but the long sunny days and nutrient-rich shallow waters of southern Saskatchewan combine to produce abundant growth of aquatic plants.

Surface water is susceptible to more types of immediate contamination than ground water and most surface water must be treated to remove algae, sediment, bacteria and cysts such as giardia and cryptosporidium.

## Accountable to You Community Water Tests to be Published

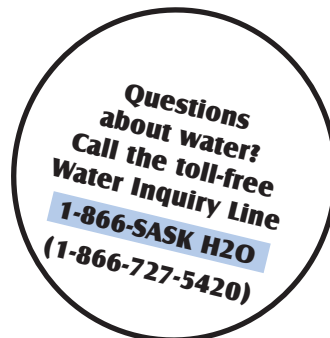
The people who run your water utility will soon have to provide you with a report on their performance.

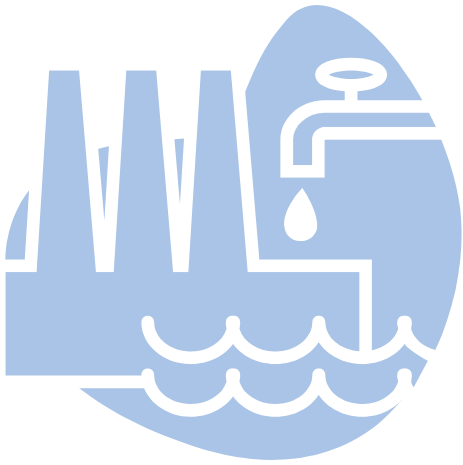
The province will draft regulations and work with the municipal sector to develop a process to support greater accountability for water quality. By 2005 citizens will receive an annual report on their municipality's financial plans for water systems, their compliance with submitting water samples, and the quality of water they produce.

Saskatchewan Environment will prepare annual reports to the Legislature on the overall quality of drinking water across the province. Government is also creating an Internet accessible water quality database so that the people of the province can have access to the most recent water quality information for their community at any time.

Increased public accountability and access to water quality information will help to ensure that everyone involved in drinking water production and distribution is performing their duties.

Saskatchewan Health is developing new regulations for semi-public waterworks. These regulations will be enforced by the Health Districts and will require owners/operators of the waterworks to ensure the water is safe for drinking.





## What Kind of Water System Do You Have?

In Saskatchewan, there are three types of drinking water delivery systems: public, semi-public, and private.

### Public Waterworks

This category includes all municipal waterworks and municipal supply wells that feed a distribution system. Regional and rural pipelines and water plants operated by SaskWater are in this category, as are many privately and co-operatively owned waterworks such as trailer parks, large institutions and government-owned parks, which have a minimum output of 18 cubic metres (about 4,000 gallons) per day. There are about 570 public water systems across the province. They are regulated by Saskatchewan Environment and serve about 850,000 people, 650,000 of them in the cities and larger towns.

### Semi-Public Waterworks

This category includes individual on-site water systems serving restaurants, motels, campgrounds, small parks, municipal wells with no distribution systems and privately owned systems. Generally, these systems deliver less than 18 cubic metres per day, so they are under the jurisdiction of Saskatchewan Health and the local health districts. There are about 1,600 semi-public waterworks across the province.

### Private Waterworks

This category includes privately owned water systems at farms, rural homes and cottages. Drinking water quality in these systems is not regulated, but the local health districts will interpret test results and provide water treatment advice. The Provincial Lab does water testing and SaskWater may also provide subsidized water testing. About 150,000 Saskatchewan people rely on private waterworks.



## National Quality Standards

Saskatchewan Environment uses the Guidelines for Canadian Drinking Water Quality as the provincial criteria for public systems. Key parameters such as the limits on bacteria will be enforced as legal standards.

All new public waterworks will be required to meet the full list of criteria in the Canadian guidelines.

In existing waterworks, some criteria, such as limits on turbidity (or cloudiness), will be phased in as treatment systems are upgraded. Similarly, specific requirements in the operating permit of each waterworks will deal with concerns about dissolved substances in drinking water that may have long-term health implications.

Saskatchewan Health uses the national standards as a reference for water systems under its jurisdiction.

## Post-Walkerton Improvements

Increased Plant Inspections ■ Mandatory Operator Certification ■ Infrastructure Assessment

## More Treatment Plant Inspections

Waterworks inspections are a key component for ensuring public health and safety. Over the last two budget years, the provincial government has added \$3.8 million and 33 people to help communities.

Most municipal waterworks will be inspected twice per year and there will be annual inspections at other regulated waterworks and sewage treatment plants.

Water treatment plant inspections consist of:

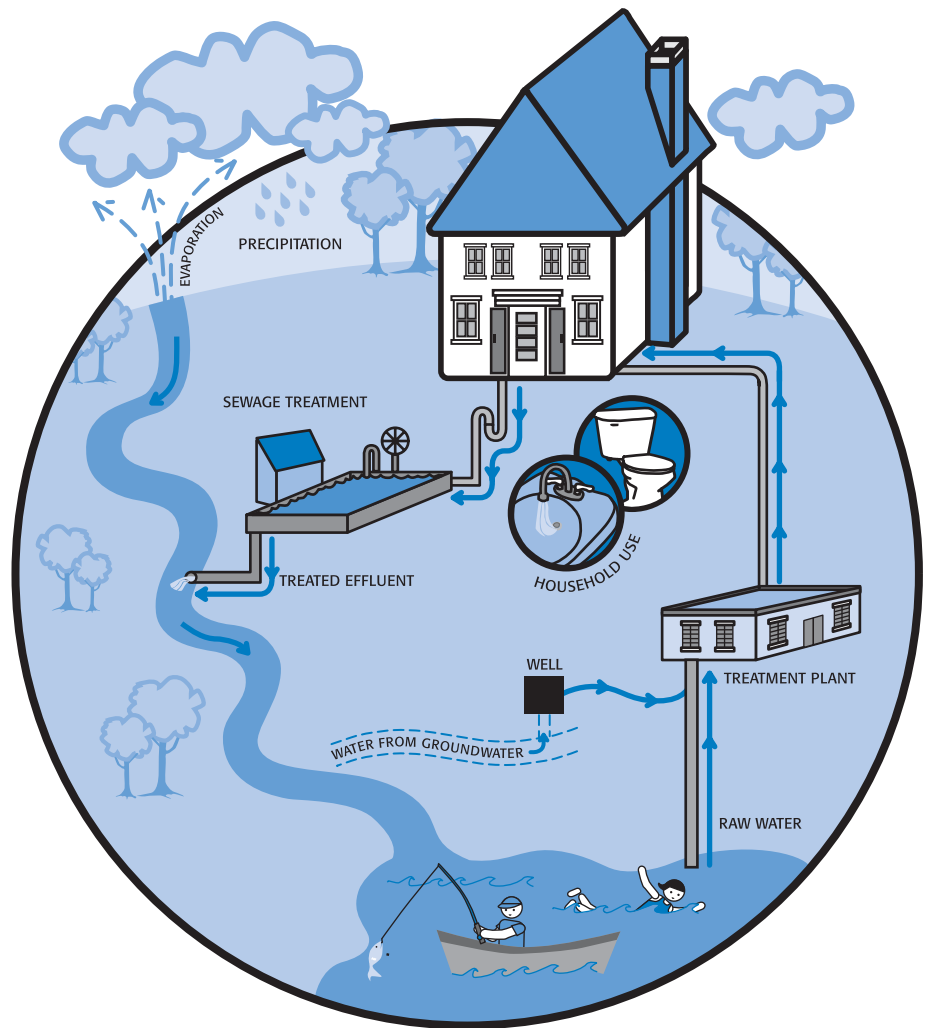
- ▶ Inspecting the source supply
- ▶ Examining treatment and distribution system processes
- ▶ Testing water quality and reviewing quality control records
- ▶ Discussing operational issues with plant operators

Sewage treatment plant inspections consist of:

- ▶ Reviewing wastewater quality data, quality control testing and records
- ▶ Examining treatment processes
- ▶ Discussing operational issues with plant operators

## Testing Your Private Water Supply

If your drinking water comes from a private well, you should have your water tested for bacteria at least annually, or anytime you think it may have become contaminated. This testing can be done by the Saskatchewan Provincial Health Lab. For instructions on collection, shipping and costs for testing your water, call the Provincial Lab at 1-866-450-0000 (or 798-2125 in Regina). For information on disinfecting wells, contact your local Public Health Inspector.



### The Water Cycle

In most communities throughout the world, water is treated, used, then treated again before being released back to the environment, where it is mixed with other surface water, for use by someone else downstream. This means it is critical to care for our water.

We hope this publication will help you understand how the province is working with you and with municipalities to ensure our drinking water is safe and reliable. If you have more questions, please feel free to call the toll-free Water Inquiry Line at 1-866-SASK H2O (1-866-727-5420), or visit the Saskatchewan Environment website at [serm.gov.sk.ca](http://serm.gov.sk.ca) or the SaskWater website at [saskwater.com](http://saskwater.com).