Water Security Agency




2012-13 ANNUAL REPORT

STATE OF DRINKING WATER QUALITY IN SASKATCHEWAN

Government of Saskatchewan

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Note: An electronic copy of this document is available online at: www.SaskH2O.ca.

Letters of Transmittal

Her Honour the Honourable Vaughn Solomon Schofield,
Lieutenant Governor of Saskatchewan

May It Please Your Honour:

I respectfully submit the Annual Report on the State of Drinking Water Quality in Saskatchewan for the fiscal year ending March 31, 2013.

Responsibility for the Safe Drinking Water Report transferred during the year from Ministry of Environment to Water Security Agency. The Water Security Agency was created in October 2012 to support the Saskatchewan Plan for Growth. The Water Security Agency brings all core aspects of water management together in one agency and strengthens drinking water protection by bringing source to tap protection activities into a single agency.

The Government of Saskatchewan carefully measures and tracks each commitment that is made and kept.

Our government is committed to:

- increased accountability;
- honouring its commitments; and
- responsibly managing expenditures.

Our government will continue to deliver and build on our promises made to Saskatchewan people.

Transparency is imperative as we ensure safe drinking water and protection of our source waters. The initiatives pursued in 2012-13, and the results achieved are communicated to the legislature and to the people of Saskatchewan through this report. The work of protecting our drinking water is ongoing and this report helps to inform future planning and resource allocation for upcoming years.

The 2012-13 Annual Report demonstrates progress toward the commitments that relate to drinking water and source water protection activities of involved agencies and ministries as of March 31, 2013.

Respectfully submitted,

Ken Cheveldayoff
Minister Responsible for
Water Security Agency

Letters of Transmittal

To Minister Ken Cheveldayoff
Minister Responsible for
Water Security Agency

I respectfully submit the Annual Report on the State of Drinking Water Quality in Saskatchewan for the fiscal year ending March 31, 2013. I acknowledge responsibility for this 2012-13 report and declare the information contained within this report is accurate, complete and reliable.

The 2012-13 report describes the drinking water related activities of agencies and ministries involved in drinking water and source water protection activities in Saskatchewan. Key partners in protecting and improving Saskatchewan drinking water supplies and source waters include the Water Security Agency, Ministry of Environment, Ministry of Health, Regional Health Authorities, SaskWater, the Ministry of Government Relations and the Ministry of Agriculture.

On behalf of the key partners, the Water Security Agency provides information on our collective accomplishments in the protection, conservation and sustainable development of drinking water and related source water resources during 2012-13.

The newly formed Water Security Agency is committed to ensuring that all stakeholders are engaged and supported as partners in the management of drinking water supplies and the groundwater and watersheds that supply them. The management of drinking water, wastewater and source water supplies are some of the focal points of the 25 Year Saskatchewan Water Security Plan. Through new and ongoing actions under the 25 year plan the Water Security Agency its partners will work to ensure safe and sustainable drinking water and wastewater management in the province.

Provision of safe drinking water is essential to sustaining growth, improving our quality of life, and making life more affordable in Saskatchewan. This annual report on the status of drinking water outlines the activities undertaken in 2012-13 to improve and maintain safe drinking water through responsive and responsible government.

Respectfully submitted,

Wayne Dybvig
President
Water Security Agency

Introduction

This annual report presents the activities and results of various agencies in managing drinking water in Saskatchewan for the fiscal year ending March 31, 2013. It reports on past commitments and key accomplishments of ministries and agencies engaged in drinking water management in Saskatchewan.

The 2012-13 Annual Report on the Status of Drinking Water in Saskatchewan will be presented in relation to Government's Vision and Four Goals. Safe drinking water relates to some degree to the achievement of Government's Vision and Four Goals as safe drinking water is integral to health, environmental integrity and sustaining growth.

Results are provided on publically committed strategies, actions and performance measures. The report also demonstrates progress made on Government commitments as stated in the *Government Direction for 2012-13: Keeping the Saskatchewan Advantage*, budget, throne speeches and other commitments and activities in relation to drinking water management.

This is the 11th Annual Report on the Status of Drinking Water in Saskatchewan. This report is intended to inform residents and elected officials of Saskatchewan of the status of drinking water quality, waterworks infrastructure, source water protection and water-related items and measures in the province over the April 1, 2012 to March 31, 2013 period. The report is a legislated requirement under *The Environmental Management and Protection Act, 2002* and demonstrates the commitment of agencies and ministries engaged in drinking water management to effective public performance reporting, transparency and accountability to the public.

The 2012-13 Annual Report follows a similar format to the 2011-12 Annual Report. The 2012-13 Annual Report on the Status of Drinking Water also sets the stage for the 2013-14 planning and budget process. The report provides an opportunity to assess the accomplishments, results and lessons learned and how to build on past successes for the benefit of Saskatchewan people.

Safe drinking water is a vital component in the protection of public health and disease prevention and therefore essential for the health and well-being of Saskatchewan's citizens. High quality water is important for maintaining natural ecosystems and the species that depend upon them, ensuring the productivity of industry, sustaining commerce and for sustaining growth in the province. The quality of drinking water, the condition of systems that produce it and the protection of source waters remains an important public health, environmental and growth related issue in Saskatchewan at the present time and into the future.

The report outlines the roles, responsibilities and resources of agencies and ministries involved in water management, as well as the regulatory framework and activities undertaken by the Government of Saskatchewan to manage drinking water. The report also discusses operator certification, drinking water quality monitoring, wastewater management, source protection, information management systems and public education initiatives, which are key actions and indicators of performance in improving drinking water quality in Saskatchewan. This report is completed annually in accordance with recommendation 26(d) of the "*Report of the Commission of Inquiry into matters relating to the safety of the public drinking water supply in the City of North Battleford, March 28, 2002*." Recommendation 26(d) noted "*That The Environmental Management and Protection Act be amended to: (d) provide that the unit produce an annual report to the legislature on the state of drinking water quality in the province*." The "*Report of the Commission of Inquiry*" is available online at: www.northbattlefordwaterinquiry.ca/inquiry/inquiry.htm.

The report includes contributions from the Water Security Agency, Saskatchewan Ministries of Environment (MOE), Health, Government Relations (GR) and Agriculture (AG), as well as material provided by the Saskatchewan Watershed Authority (SWA) and SaskWater. The Water Security Agency's Drinking Water and Wastewater Management divisions compiled the report.

Alignment with Government's Direction

The actions undertaken to protect and sustain drinking water and source water for the future align with government's vision and four goals:

Our Government's Vision

A strong and growing Saskatchewan, the best place in Canada to live, to work, to start a business, to get an education, to raise a family and to build a life.

Government's Goals

- Sustaining growth and opportunities for Saskatchewan people.
- Improving our quality of life.
- Making life affordable.
- Delivering responsive and responsible government.

Government's vision and four goals provide a directional framework for ministries, agencies and third parties. All work reported in this report aligns with the second goal: "Improve our quality of life."

Together, all ministries and agencies support the achievement of the Government's four goals and work towards a secure and prosperous Saskatchewan.

The 2012-13 annual reports provide an opportunity for all ministries and agencies to report on results achieved, or not yet achieved. This honours government's commitment to keep its promises and ensures greater transparency to the people of Saskatchewan.

An Overview of Drinking Water Management in Saskatchewan

Since the waterborne disease outbreaks of May 2000, in Walkerton, Ontario and spring 2001 in North Battleford, Saskatchewan, the Government of Saskatchewan has heightened and focused efforts to improve drinking water supplies and protect source waters in the province. The intent of these efforts is to provide safe drinking water. These actions are also intended to reassure the citizens of the province that government is helping to ensure our drinking water is safe.

Several ministries and agencies are involved in the governance and protection and/or provision of drinking water supplies and source waters in Saskatchewan at various times over the 2012-13 fiscal year. The Water Security Agency, the ministries of Environment, Health, Government Relations, Agriculture, Regional Health Authorities, SaskWater and the former Saskatchewan Watershed Authority.

In October 2012, government reorganized water management in the province through the formation of the Water Security Agency. The Water Security Agency is a new Treasury Board Crown Corporation, which was created by bringing together all programs of the former Saskatchewan Watershed Authority and certain water management activities of the Ministry of Environment, Ministry of Agriculture and Ministry of Health. The creation of the Water Security Agency included the drinking and waste water, aquatic habitat protection permitting, and water quality management programs of the Ministry of Environment. The Water Security Agency now manages the M1 Canal and East Side Pump Plant, and water pumping equipment rental program of the Ministry of Agriculture and limited scope pipelines from Ministry of Health.

The Water Security Agency is responsible for managing the water supply, protecting water quality, ensuring safe drinking water, managing dams and water supply channels, reducing flood and drought damage and providing information on water. The Agency works to integrate all aspects of provincial water management to ensure water supplies support economic growth, quality of life and environmental well-being.

The following is a summary of the major roles, priorities and actions of each of the government ministries and agencies involved in drinking water management and source water protection.

Water Security Agency

The Water Security Agency was formed in October 2012 and has assumed the primary role of the former Saskatchewan Watershed Authority and the Saskatchewan Ministry of Environment in water management.

The role of the Water Security Agency:

- leads ongoing planning, implementation and reporting associated with drinking water governance and management to which all participating ministries and agencies contribute;
- implements, inspects and regulates compliance for 571 licensed municipal waterworks, 70 permitted pipelines, 42 regional or provincial park waterworks, 88 other permitted waterworks (such as trailer courts, institutions and Hutterite colonies), and 588 wastewater facilities under *The Water Regulations, 2002*;
- issues permits for construction and operation of water and wastewater works;
- develops policies, protocols, water quality standards and guidelines to support protection of drinking water and implementation of *The Water Regulations, 2002*;
- liaises with the Operator Certification Board (OCB);
- manages the Water Security Agency's / Ministry of Environment's drinking water information system, Environmental Management System (EMS) that houses water quality and inspection data for all agency/ministry regulated waterworks and wastewater works in the province;
- monitors surface water quality at primary surface water quality stations across the province;
- manages the www.SaskH2O.ca website that supplies a broad range of drinking water related information gathered from water management authorities within the province.
- monitors source (surface/ground) water;
- provides flood forecasting and identifies flood susceptible areas;
- leads watershed and aquifer planning;
- owns, operates and maintains water management infrastructure;
- provides waterworks source water approval (except municipal);
- allocates ground and surface water for use; and
- develops and provides State of Watershed Reporting.

Saskatchewan Ministry of Environment

- implements, inspects and regulates compliance for 25 industrial waterworks and related wastewater facilities under *The Water Regulations, 2002*; and
- issues permits for construction and operation of water and wastewater works at industrial facilities.

Saskatchewan Ministry of Government Relations

- provides financial assistance for water infrastructure under the Canada-Saskatchewan Municipal Rural Infrastructure Fund (MRIF), the Canada-Saskatchewan Building Canada Fund-Communities Component (BCF-CC), the Canada-Saskatchewan Building Canada Fund-Major Infrastructure Fund (BCF-MIC), the Canada-Saskatchewan Provincial/Territorial Base Fund (PT Base), the Saskatchewan Infrastructure Growth Initiative (SIGI) and the Northern Water and Sewer Program for 2012-13;
- legislates and regulates pricing policies and capital investment strategies for municipal waterworks; and
- legislates and regulates municipal protection of water sources through planning bylaws.

Saskatchewan Ministry of Health/Health Regions

- inspects for compliance at semi-public waterworks and certain other waterworks as required by *The Health Hazard Regulations*;
- manages data systems for Public Health Inspectors and laboratory information;
- analyses water through the Saskatchewan Disease Control Laboratory; and
- provides advice and addresses waterborne illnesses.

Saskatchewan Ministry of Agriculture

- has responsibility under *The Agricultural Operations Act* for intensive livestock provisions;
- administers *The Irrigation Act, 1996* and provides water- related advice;
- provides pesticide (applicator) licenses under *The Pest Control Products (Saskatchewan) Act*;
- conducts research, demonstrations and technology transfer;
- provides advice on farm water supplies; and
- coordinates Environmental Farm Planning (Federal/ Provincial Growing Forward Agreement).

SaskWater

- a commercial Crown water utility that provides the following water services in Saskatchewan for municipalities, industries and First Nation communities:
  - potable and non-potable water supplies;
  - wastewater treatment and management;
  - certified operations and maintenance for customer-owned systems;
  - project management services;
  - water leak detection services;
  - operator training; and
  - remote monitoring services.

The Water Security Agency, the Ministry of Health and the individual Regional Health Authorities continue to deliver water and wastewater programming and governance through a system of centralized planning, protocol and standards development and regionalized inspection and compliance services.

At the end of the 2012-13 fiscal year, the Water Security Agency's (formerly Ministry of Environment) staff complement totaled 31.6 full time equivalents (FTEs), including three FTEs devoted primarily to water information management, for delivery of all aspects of the agency's drinking water and wastewater management activities.

The Ministry of Health's Saskatchewan Disease Control Laboratory has 17.5 FTEs that are dedicated to water testing and the accreditation program in support of the Safe Drinking Water Strategy. Health Region Public Health Inspectors, Medical Health Officers and Public Health Nurses also play a role in water related activities (i.e. semi-public water supply inspection, issuance of Emergency Boil Water Orders (EBWO) and water borne disease investigations).

The Ministry of Agriculture has nine FTEs that deliver intensive livestock inspection and regulatory approval services to ensure protection of water resources from intensive livestock operations. Two additional full time positions provide technical assistance to address environmental issues related to livestock development. Ministry of Agriculture staff continues to participate in the Water Security Agency's Aquifer and Watershed Program planning activities and technical committees. It also develops and distributes management and technology information for conservation and grazing and crop production that reduce and/or minimize impacts to water resources. Three FTEs deliver pesticide regulatory services.

The Pest Control Products (Saskatchewan) Act and regulations require any individual who uses or applies a pesticide, as part of their duties or, for commercial gain to hold a valid pesticide applicator license. An applicant for a pesticide applicator license must pass a pesticide applicator course. This training is valid for five years; however, the applicator license is renewed on an annual basis.

Pesticide education and applicator training and certification are recognized as a key tool in risk reduction. Education helps mitigate the risks associated with pesticide application and results in the more responsible use of pesticides. The responsible use of pesticides helps preserve the natural environment while keeping it safe for the use and enjoyment of the general public.

In Saskatchewan, the Saskatchewan Institute of Applied Science and Technology (SIAST) offers pesticide applicator courses. There are currently 1,746 licensed pesticide applicators in the province.

The Ministry of Agriculture administers *The Irrigation Act, 1996*. The legislation ensures soils and water are suitable for sustainable irrigation. Irrigation soils, water quality and water tables are monitored for sustainability.

The water-related programming by the Ministry of Government Relations is mainly provided through centralized policy development and program delivery services.

Key partners outside the provincial government include the federal government through the Building Canada Fund, Federal Gas Tax Program, Canada-Saskatchewan Municipal Rural Infrastructure Fund, participants in the Growing Forward Agreement, municipalities and other waterworks owners, the Saskatchewan Urban Municipalities Association (SUMA), the Saskatchewan Association of Rural Municipalities (SARM), the Saskatchewan Water and Wastewater Association (SWWA) and the Operator Certification Board (OCB). SWWA and the OCB have been instrumental in advancing waterworks operator certification in the province. The OCB is appointed by government, but operates at arm's length in considering the qualification and standing of water and wastewater works operators in the province. Key stakeholders are consulted on a periodic basis to aid in the ongoing development and delivery of drinking water and wastewater related programming and activities of the Government of Saskatchewan.

The following sections of the report provide information on the status of drinking water in Saskatchewan during 2012-13. Further information on drinking water quality is available on the SaskH2O website www.SaskH2O.ca, and on the Water Security Agency's website at: www.wsask.ca. Additional detailed background information regarding drinking water quality in Saskatchewan is available at www.SaskH2O.ca/news.asp, and www.SaskH2O.ca/MyDrinkingWater.asp. The following sections also report on the significant actions and the performance levels in achieving key indicators for the improvement in drinking water and related protection and enhancement measures.

Transparency regarding the status of drinking water is intended to improve trust in drinking water supplies and the waterworks systems that produce it. Public reporting is intended to further the accountability of the ministries and agencies that manage and govern drinking water in the province.

Progress in 2012 - 13

This section presents the key results, activities, accomplishments and outcomes in 2012-13, relating to the protection and status of drinking water in Saskatchewan.

Ministries and agencies engaged in drinking water management in Saskatchewan use performance information to assess overall progress towards improving the safety and management of drinking water in the province. In turn, reviews and assessments each year allow and direct the most effective adjustment of future plans and actions to address priority elements. Management affirms that all major external factors that could have an impact on performance results have been identified and explained. Additionally, significant efforts have been made to ensure performance data is valid through ongoing review and validation of data. In general, performance in addressing drinking water quality and source water protection management in Saskatchewan has paralleled or exceeded performance of other Canadian provinces where similar strategic initiatives are in place.

The results for key actions provided below are organized by common activities focusing on various components of drinking water and source water protection and a report on actual progress. The following is a summary of the most significant achievements related to drinking water and source water status and protection in Saskatchewan during 2012-13. Further information is available by contacting the Water Security Agency or viewing on the internet at www.SaskH2O.ca.

Government Goal: Quality of Life

Waterworks systems and operations provide safe, clean and sustainable drinking water

Waterworks staff are capable and well-trained

Provision of safe drinking water is highly reliant on the knowledge and capabilities of waterworks operators and the manner in which they apply their skills to produce and monitor the quality of drinking water. Along with source water protection, sound and capable infrastructure, water quality monitoring, and knowledgeable operators, are some of the elements of a "multi-barrier approach" to ensure safe drinking water.

The following activities supporting the goal of having capable and well-trained waterworks staff were conducted during 2012-13

Results

- As of March 31, 2013, a total of 2,213 waterworks or sewage works operators had been certified by the Saskatchewan OCB since that organization began to formally certify operators in 2002. Of the 2,213 total certified operators to date, 1225 operators retained full active certification as of March 31, 2013.
- The Water Security Agency continued work on revising the Saskatchewan Water and Wastewater Works Operator Certification Standards by adopting the Canadian Best Practices, which were developed by the Canadian Water and Wastewater Operators Certification Committee in conjunction with the Associated Boards of Certification (ABC). The Water Security Agency participated as a member of this committee who is setting the groundwork for reciprocity across Canada within the Agreement on Internal Trade for all certified water and wastewater operators.
- During 2012-13, approximately 88 per cent of operators receiving renewal notification from the OCB actually renewed their certification. This is a decrease from 2011-12, when 94 per cent of operators renewed their certification on notification by the OCB. There is still an issue with late applications for renewal by operators and a higher rate of retirements by operators. The OCB is following up with operators and waterworks owners to resolve outstanding operator certification requirements.
- Operator certification and continuing education requirements were always reviewed and discussed during each waterworks and sewage works inspection to help ensure operators remain current with certification requirements.
- The Water Security Agency continued to liaise with SIAST on the content and requirements for operator training in Saskatchewan as a way to ensure educational opportunities meet the needs of waterworks operators in the province.
- The Water Security Agency directly supported training opportunities including aiding the Saskatchewan Association of Northern Communities, Northern Water Conference in April 2012. The Water Security Agency also supported the Saskatchewan Water and Wastewater Association (SWWA) for their midterm membership meeting in June 2012 and annual convention in November 2012 by providing organizational aid and instruction to operators during training sessions. Water Security Agency staff also supported SWWA by

providing instruction during dedicated operator training workshops hosted at locations across the province throughout the year. The Water Security Agency also contributed to the annual Saskatchewan Association of Rural Water Pipelines (SARWP) conference in December 2012 by providing instruction and workshop presentations.

- SaskWater works on behalf of Aboriginal Affairs and Northern Development Canada (AANDC formerly known as INAC), to provide Saskatchewan First Nations with operator training. In 2012, the company trained approximately 73 water and wastewater operators at 41 First Nations communities. The training program aims to facilitate the delivery of safe water to residents and to protect communities' investment in water and wastewater infrastructure. This program began in 1978 and has evolved and expanded to suit the specific water needs of First Nations communities.
- The OCB continued to certify water and wastewater works operators throughout 2012-13. As of March 31, 2013, there were approximately 657 waterworks licensed by the Water Security Agency with at least one certified operator, regional operator or contract operator (see Table 1). Some operators continue to take exams and are in the process of obtaining certification, or upgrading their certification levels and categories. Some smaller municipal waterworks do not require a certified operator rather a trained operator is required by regulation. Some facilities sought hygienic classification, which does not require a certified operator. The Water Security Agency continues to work with municipalities, waterworks owners and others to maintain and to advance the implementation of operator certification and continuing education in the province. As of March 31, 2013 only three communities, Antler, Calder and Storthoaks did not employ a certified operator or regional operator to oversee the operation of their waterworks.

Table 1 provides additional trend information on the number of waterworks with certified operators since 2000-01, for all waterworks regulated by the Water Security Agency.

	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13
Certified operators*	44	293	403	533	682	1107	1170	1223	1231	1229	1216	1201	1225
All waterworks with certified operators**	24	116	217	219	326	532	614	638	675	659	660	603	778[1]
Number of licensed waterworks***	609	609	617	630	641	714	728	724	765	772	778	789	796
Number of Hygienic Works not Requiring Certified operators	N/A	N/A	N/R	N/R	N/R	92	101	107	114	113	118	117	120

** Operators working in Water Security Agency regulated waterworks.*
*** Includes all waterworks with certified operators in the province.*
****Licensed works includes municipal water treatment works, municipal water distribution systems, pipelines and large privately or government owned waterworks regulated by the Water Security Agency. These values include hygienic waterworks that do not require a certified operator*
[1] Includes all First Nations and federal facilities
N/A: Not Applicable.
N/R: Not Recorded.
Source: Operator Certification Board database and Water Security Agency hygienic waterworks listing

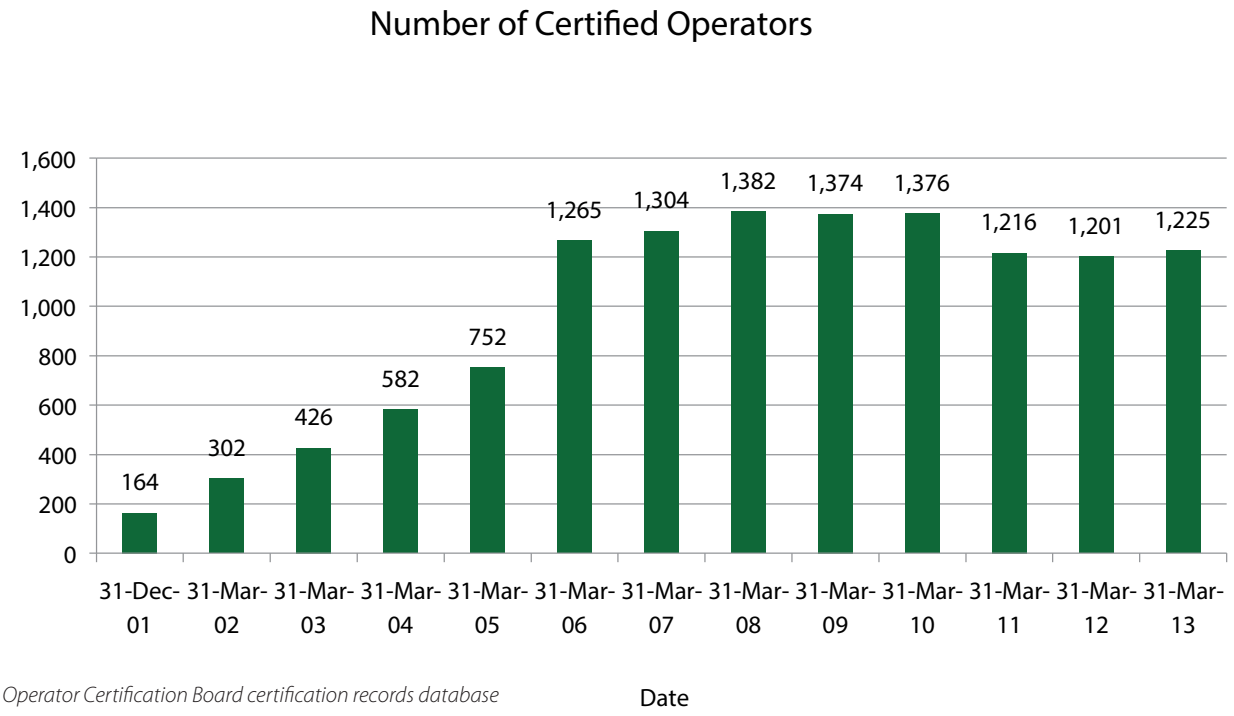
Table 2: Distribution of certified operators at water and wastewater works - fiscal year 2012-13*

System Classification[1]	Water Treatment	Water Distribution	Wastewater Treatment	Wastewater Collection
Small System[2]	136	143	94	94
Class-1	417	512	533	491
Class-2	349	350	120	156
Class-3	76	32	26	16
Class-4	43	17	27	11
Total	1021	1054	800	768

[1] Waterworks system classification is defined by the complexity and size of the waterworks in accordance with standard parameters adopted from the Associated Boards of Certification (ABC). More information on waterworks system classification is available from the Operator Certification Standards EPB139 (see http://www.saskh2o.ca/DWBinder/EPB139OperatorCertificationStandards2002.pdf.
[2] There are several types of Small Systems. A Small Water System is defined as a Class-1 groundwater treatment and/or Class-1 distribution system, serving fewer than 500 people. Small treated drinking water pipelines serving fewer than 500 people can be classified as Small Systems and some of their operators have become certified as Small System operators and are shown only under Water Distribution. A Small Wastewater System is a Class-1 wastewater treatment system (generally a lagoon system) and/or a Class-1 collection system serving fewer than 500 people.
**Note: Table 2 does not include operators that are overdue in certificate renewal as of March 31, 2012.*
Source: Operator Certification Board Database

Figure 1 provides a historical summary of the number of operators certified to date. As of March 31, 2013 the number of all active certified operators reported by the OCB is 1,225. These are all the certified operators in Saskatchewan, including those who operate waterworks that are not regulated by the Water Security Agency. Indian and Northern Affairs Canada (INAC) requires First Nation operators to become certified by the same criteria of education, experience and examination as operators mandated by the Water Security Agency. There were 111 First Nation Operators certified at the end of this fiscal year. In addition, there are 11 operators working in federal facilities such as parks or correctional centers. In addition to the 1,225 active/current operators, 60 are overdue for their certification renewal and are not on the list.

Figure 1: Certified Operator Statistics, December 2001 to March 31, 2013



Source: Operator Certification Board certification records database

The number of certified operators applying for initial certification during the 2012-13 fiscal year was 109, and there were 126 operators who applied to upgrade their certification by either increasing their level of certification or adding new categories of certification. A summary of communities with Certified Operators and Operator Classification, updated after each OCB meeting, is available on the internet (http://www.SaskH2O.ca/foroperators.asp).

Measurement Results

Per cent of communities with human consumptive waterworks whose operators have received some level of certification

Table 3: Per cent of communities with human consumptive waterworks whose operators have received some level of certification

	Sept 30, 2004	Mar 31, 2006	Mar 31, 2007	Mar 31, 2008	Mar 31, 2009	Mar 31, 2010	Mar 31, 2011	Mar 31, 2012	Mar 31, 2013	Annual Change (2012-13)
Per cent of communities with human consumptive waterworks whose operators have received some level of certification	54.3	96.8	98.9	99.2	99.2	98.9	98.3	99.6	99.4	↓0.2

Source: Water Security Agency – Environmental Management System

As of March 31, 2013, 99.4 per cent of communities with human consumptive waterworks have operators that have achieved some level of certification (Table 3). This represents 0.2 percent decrease in compliance from the previous year when 99.6 per cent of community waterworks had an operator certified to some level. Approximately 99.93 per cent of the population served by a community (municipal) human consumptive waterworks have an operator that has received full certification or some level of training (completed any approved training courses). Knowledgeable, certified operators help to ensure safe drinking water.

Compliance with operator certification is primarily controlled by the owner of the waterworks, but also requires cooperation from the waterworks operator(s). Acceptance and uptake of operator certification is key to ensuring the delivery of safe drinking water. As a point of comparison, Alberta's (population 3.6 million) mandatory certification program took effect on January 1, 1983 and its program currently has 2365 certified operators. Currently, there is no cost for their certification examinations, applications and renewals. Saskatchewan (population approximately 1.1 million) has 1,225 certified operators. Examinations cost about $80, and certification, and renewal fees (every two years) are $150. Compared with Alberta, Saskatchewan's certification program has progressed significantly since its inception in 2000.

Infrastructure produces water that meets the national guidelines

Infrastructure design, capability, condition and maintenance are critical in the production of safe drinking water. Standards, incentives, requirements, compliance measures and implementation plans are also important to ensure that waterworks are operated and monitored to achieve drinking water of a quality that protects human health. The "Guidelines for Canadian Drinking Water Quality" (see: www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/2012-sum_guide-res_recom/index-eng.php), are used in Canada as the definitive measure of science-based safety criteria for drinking water. Saskatchewan has adopted the guidelines as standards (see: www.SaskH2O.ca/DWBinder/EPB207Drinking_Water_Standards_post.pdf).

The following is a summary of activities, which were conducted during 2012-13, and the related achievements in working to ensure that infrastructure produces water that meets national drinking water quality guidelines.

Results

- SaskWater delivered 6.2 billion litres of safe, high quality drinking water to its customers.
- During 2012-13, the Water Security Agency continued to support the development of a water main chapter to support the implementation of the Results-Based Regulation framework and proclamation of *The Environmental Management and Protection Act, 2010*. The intent of this chapter of the Saskatchewan Environmental Code is to ensure sound and effective water main infrastructure for water distribution systems serving greater than 5,000 people while eliminating permits to construct in favor of project registration and enhance the opportunities for introduction of innovative technology provided the health and environmental protection objectives are achieved. As of March 31, 2013 the final approval and proclamation of the water main chapter of the code was being considered.
- The Water Security Agency provided technical advice to numerous communities that aided in resolving upset situations such as failures of disinfection systems and system depressurizations as well as operational and water quality concerns, resulting in safer drinking water during 2012-13. Service to waterworks owners and operators of this type is an ongoing activity of the agency and will continue in 2013-14 and beyond.
- The Water Security Agency delivered review and technical advice to support sub-division evaluations for growing communities across the province. The focus of the Water Security Agency's efforts is to assure that community leaders are aware of the need for adequate water infrastructure to meet the provincial drinking water quality standards. In 2012-13, the Water Security Agency continued to implement the "Parallel Growth Policy" as a means to facilitate growth while drinking water infrastructure is being designed and built.
- Waterworks owners were provided with quick notification on bacteriological water quality monitoring results by Water Security Agency staff as a means to address any adverse water quality or upset conditions that may threaten the quality of drinking water.
- The Water Security Agency provided same day advice to waterworks owners, operators, engineering consultants and contractors dealing with water treatment plant and water distribution system construction and upgrades. This approach is intended to minimize costs, move projects to completion as fast as possible while achieving the Water Security Agency's water protection and development goals.
- No water and sewer projects were approved under Canada-Saskatchewan Building Canada Fund - Communities Component (BCF-CC) in 2012-13.
- In 2012-13, $3.37 million in interest-free subsidies were provided for 42 water and wastewater projects under the Saskatchewan Infrastructure Growth Initiative (SIGI).
- Under the federal-provincial infrastructure programs (MRIF, BCF-CC, PT Base, and BCF-CC MIC), $27.3 million was provided for 46 water and wastewater projects in 2012-13.
- In 2012, the Northern Municipal Trust Account (NMTA) spent $7.8 million under the Northern Water and Sewer Program for 16 water and wastewater infrastructure projects. Included in the 16 projects are two new projects. Patuanak is upgrading their waste water treatment plant and Missinipe is undertaking a sewage lagoon pre-design project.
- Under the Emergency Water and Sewer Program, three projects were approved: two in St. Georges Hill and one in Wollaston Lake. In addition to those projects, work continued at a prior year project in Denare Beach. Total costs equaled $139,657. For all water and wastewater infrastructure projects, the NMTA has a contractual arrangement with SaskWater for provision of project management services. Services consist of general engineering, infrastructure assessment and planning, managing, design, and the construction and commissioning of works. Contract expenditures in 2012 were $241,091.
- In addition, the NMTA funded the Circuit Rider Program whereby all 31 communities received technical assistance to ensure their water and wastewater systems were run efficiently and adequately maintained. Total expenditures for the Circuit Rider Program were $335,000. Provision of services was contracted to ATAP Infrastructure Management Ltd. The Circuit Rider Program has been in existence since 2003 and its success has contributed to the reduction in the Emergency Water and Sewer Program claims.
- SaskWater continues to provide project management

services for the Ministry of Government Relations as part of the Northern Water and Sewer Program. Its role is in the planning and managing of the design and construction of water and wastewater infrastructure in northern Saskatchewan. SaskWater also provides ongoing technical advice to northern communities for the expansion and maintenance of water and wastewater infrastructure, including responding to community emergencies related to that infrastructure. Some major projects that SaskWater undertook in 2012 include the Buffalo Narrows water treatment plant upgrade, the Village of Denare Beach and Peter Ballantyne Cree Nation wastewater treatment plant servicing, and the Stony Rapids wastewater lagoon.

- SaskWater spent $25.5 million under its capital program in 2012, expanding industry clients, growing communities and renewing infrastructure for the potable and non-potable lines of business. Of that total amount, SaskWater invested $5.1 million, and the remaining amount was received from clients and customers. Significant potable capital projects in 2012 include:
  - Completion of a new water treatment plant for the Town of Gravelbourg;
  - Completion of a new water treatment plant for the Town of Cupar; and
  - Completion of the Saskatoon Clarence Booster Station.
- In total, SaskWater owns eight water treatment plants, three wastewater facilities, 39 water and wastewater pump stations and approximately 862 km of pipeline. Through this regional network, the Crown Corporation provided professional water and wastewater services to 63 communities, seven rural municipalities, 81 rural pipeline groups, 15 industrial and approximately 236 commercial and end user customers.
- SaskWater signed a five-year potable water supply agreement with the Dundurn Rural Water Utility and began supplying water to the rural water utility in 2012. Under this agreement water is provided to the area southeast of Saskatoon including the towns of Dundurn and Hanley.
- As part of its services, SaskWater remotely monitors all of its corporate-owned and most of its customer-owned facilities 24 hours a day, 365 days a year. In 2012, 48 locations were remotely monitored, allowing continuous facility surveillance of key water quality parameters, equipment operation and water levels, pressures and flows. SaskWater SCADA Control Centre employed five trained technologists and engineers to monitor and maintain the quality of water from the initial source to the final point of delivery.

In terms of the status of drinking water in Saskatchewan, the bacteriological quality of water is a critical parameter because, when the related standards are exceeded, there is a possibility of rapid significant health effects for consumers. Saskatchewan uses coliform bacteria as an indicator of the quality of drinking water. The Saskatchewan Disease Control Laboratory and the Saskatchewan Research Council employed routine analysis for E. coli during the fiscal year to help improve the meaning and speed of monitoring results. Saskatchewan's standards for bacteriological drinking water quality are more stringent than the "Guidelines for Canadian Drinking Water Quality."

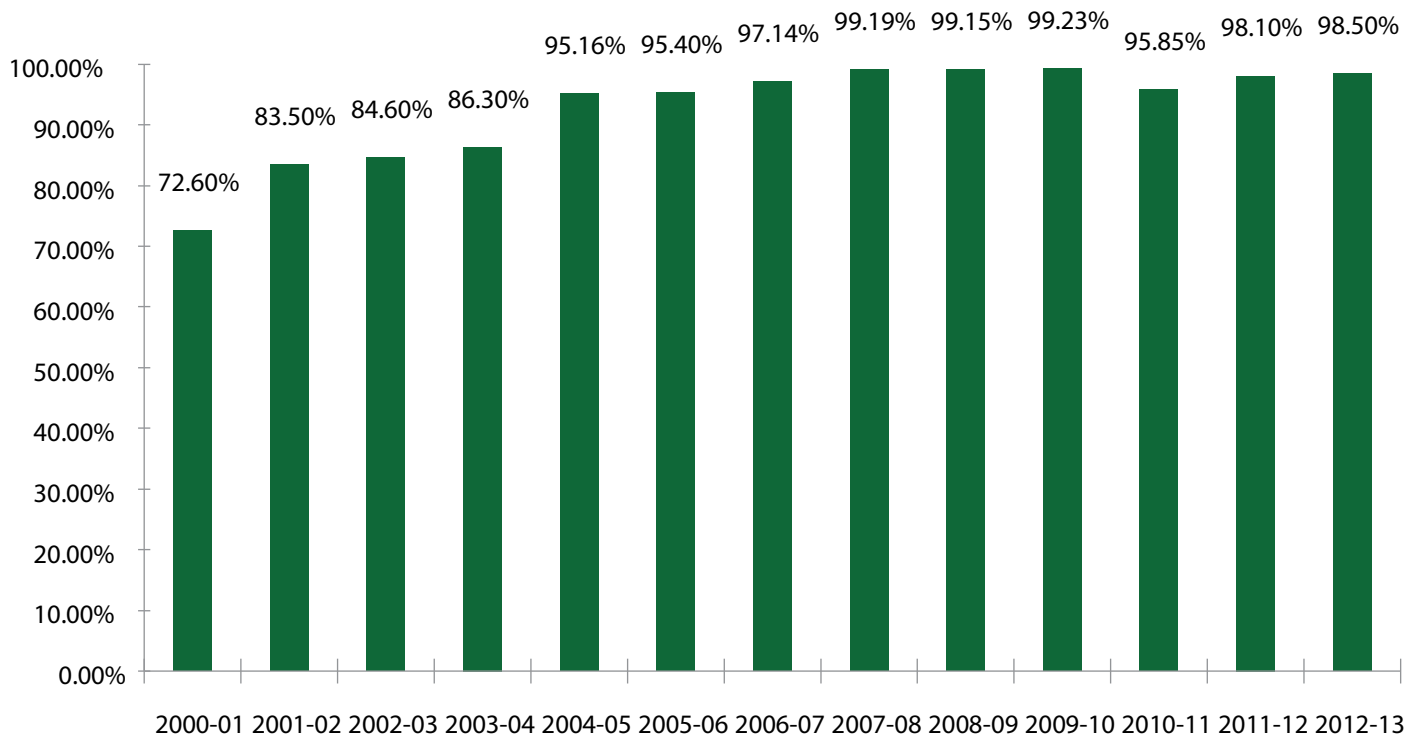
The number of samples required for bacteriological water quality monitoring of a waterworks is based on the number of people served by the system (see "Municipal Drinking Water Quality Monitoring Guidelines" at www.SaskH2O.ca/foroperators.asp), or go directly to www.SaskH2O.ca/DWBinder/EPB202MunicipalDrinkingWaterQualityGuidelinesEdition3.pdf. When a routine water sample shows the presence of bacteria, follow-up activities including repeat sampling are performed. The Water Security Agency issued two Precautionary Drinking Water Advisories (PDWAs) and four Emergency Boil Water Orders (EBWOs) during 2012-13, when bacteriological related problems arose at waterworks.

During 2012-13, there were 20,665 valid Municipal Human Consumptive Use routine bacteriological water quality samples submitted of which 101 samples (0.489 per cent) exceeded the water quality standards of zero total coliforms, zero fecal coliforms or greater than 200 background bacteria per 100 millilitres of water. During 2012-13, more routine bacteriological water quality samples were submitted from municipal waterworks regulated by the Water Security Agency than were required by permit requirements. A total of 20,665 routine bacteriological samples were submitted, 1,609 more than the required number, equating to a sample submission rate of 108.44 per cent. During 2011-12, there were 20,906 valid routine bacteriological water quality samples submitted of which 104 samples (0.50 per cent) exceeded the water quality standards. For the same period, a total of 20,906 out of 18,663 (112.09 per cent) of the required regular samples for bacteriological water quality were submitted from municipal waterworks regulated by the Water Security Agency. The increase in total "required" samples in 2012-13 reflects changes to Water Treatment Plant Classifications and an increase in permitted works and conversion of one Hygienic system back to Human Consumptive use.

Measurement Results

Per cent of facilities that meet bacteriological guidelines 90 per cent of the time

Figure 2: Bacteriological standards compliance



Source: Water Security Agency - Environmental Management System

In 2012-13, there was a 0.4 per cent increase in compliance with bacteriological standards for municipal human consumptive waterworks (90 per cent of the time), when compared with the previous fiscal year. The reason for this increase is due to better compliance by smaller communities. Water Security Agency staff will continue to work to ensure municipalities and the operators of the community water supplies recognize the importance of meeting bacteriological water quality standards as a means to protect consumer health in the future.

In terms of longer trends, there has been a net increase in compliance with bacteriological water quality standards (90 per cent of the time), over the past 12 fiscal years with a 25.9 per cent increase in compliance, from 72.6 per cent in 2000-01 to 98.50 per cent in 2012-13 (Figure 2). The longer term increase in compliance with standards is the result of increased inspection and follow-up on water quality sampling results by the Water Security Agency, as well as increased attention to water treatment and monitoring by waterworks owners and operators.

The bacteriological quality of drinking water is important since contamination of this type can result in significant illness within a short period of time. Compliance with bacteriological water quality standards was selected as a reportable performance measure, since it provides a good indication of drinking water quality, which is important to consumers. Tracking compliance with bacteriological standards over several years indicates a positive trend. Compliance with this measure is primarily controlled by the owner of the waterworks, but also requires cooperation from the waterworks operator(s) in achieving bacteriological water quality compliance. Ongoing inspection and interaction with waterworks owners and operators is conducted to sustain good performance in achieving water that is safe from bacteriological threats.

There were 70 Municipal Human Consumptive Use waterworks in the province that exceeded the bacteriological standards at least one time during 2012-13. During the same period, there were six waterworks that had more than 10 per cent of their routine bacteriological water samples show the presence of bacteria (Martinson's Beach, Antler, Langbank, Senlac, Love and Sleepy Hollow Beach) had exactly 10 per cent of their routine bacteriological water quality samples exceed the bacteriological standards. This is an improvement from 2011-12, when there were

76 Municipal Human Consumptive Use waterworks in the province that exceeded the bacteriological standards at least one time.

Turbidity describes water cloudiness and is an indirect measure of the number of suspended particles in water. Turbidity is a good indicator of the effectiveness of a water treatment system and is important because turbid water can harbor disease-causing organisms. If excessive turbidity is present, the effectiveness of disinfection of drinking water can be impaired. Waterworks regulated by the Water Security Agency are required to measure turbidity at least on a daily basis as a means to track water treatment system performance.

The Water Security Agency's turbidity standards are consistent with the "Guidelines for Canadian Drinking Water Quality, Seventh Edition." During phase-in of the turbidity standards, the Water Security Agency generally applied a turbidity standard of 1.0 Nephelometric Turbidity Units (NTU) for existing waterworks. The provincial turbidity standards presently in effect are: 0.1 NTU for membrane filtration systems; 0.3 NTU for conventional filtration systems, and 1.0 NTU for slow sand filtration and groundwater based systems. During the 2012-13 fiscal year, on-site monitoring for turbidity and record keeping continued to be a requirement and these records were checked during site inspections by Environmental Project Officers. Any turbidity related upsets were addressed through provision of advice on system repairs, reservoir cleaning, distribution system flushing and verification through water quality monitoring.

Water Security Agency staff continued to ensure that waterworks owners and operators track turbidity-monitoring results and manage turbidity related water quality problems. There were 14 PDWAs issued during 2012-13 when turbidity related problems arose at waterworks. Turbidity testing results continue to be reported in conjunction with information submitted with regular bacteriological samples.

The range of turbidity results tested by all agencies in 2012-13, (municipal, private, and government owners) is shown in Table 4.

Table 4: Range of turbidity testing results – 2012-13

Turbidity Range (NTU)	Samples	Per Cent Samples	Systems*
0 – 1	23,400	92.87%	642
1 – 2	942	3.74%	218
2 – 3	339	1.35%	93
3 – 4	186	0.74%	55
4 – 5	149	0.59%	26
5+	181	0.72%	54
Totals	25,197	100 %	N/A*

** The total number of systems is not applicable as some systems reported turbidity testing results in more than one range of turbidity values. There are a total of 796 waterworks systems regulated by the Water Security Agency.*
Source: Water Security Agency - Environmental Management System

Disinfection is widely used in Saskatchewan and Canada as one of the key methods to prevent the spread of waterborne disease. Most disinfection of drinking water in the province is performed using chlorine-based products. Unless otherwise permitted, waterworks regulated by the Water Security Agency are required to maintain:

a) a free chlorine residual of not less than 0.1 milligrams per Litre (mg/L) in the water entering a distribution system; and

b) a total chlorine residual of not less than 0.5 mg/L or a free chlorine residual of not less than 0.1 mg/L in the water throughout the distribution system; and

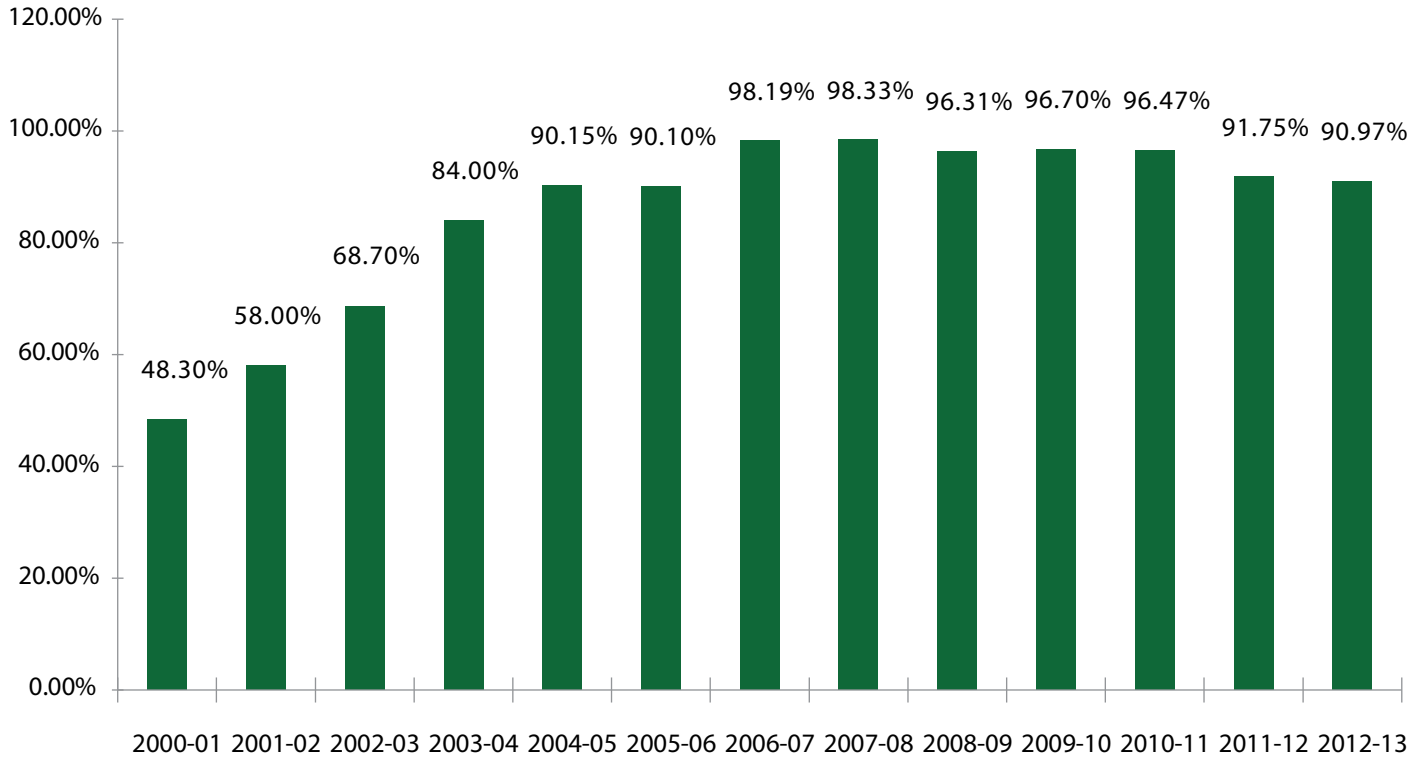
c) chlorine residuals are expected to be within regulatory limits 90 per cent of the time.

Chlorine disinfectant monitoring usually includes two tests: total chlorine residual and free chlorine residual, which are done from samples collected from the water distribution system. Free chlorine residual in drinking water is important in providing lasting protection in water distribution systems. Total chlorine residual is helpful for waterworks operators to understand the effectiveness of disinfection and to judge cleanliness of the water distribution system. On-site monitoring for chlorine residual and associated record keeping is required and these records are checked during site inspections by Water Security Agency's Environmental Project Officers. During 2012-13, the Water Security Agency issued seven PDWA as a result of chlorination related concerns or problems at waterworks.

Measurement Results

Per cent of waterworks [regulated by the Water Security Agency] that meet disinfection requirements 90 per cent of the time

Figure 3: Disinfection standard compliance



Source: Water Security Agency – Environmental Management System

There has been a slight decrease in compliance with the disinfection standards over the past fiscal year to 90.97 per cent in 2012-13 compared to 91.75 per cent in 2011-12 (Figure 3). The decrease from the 2011-12 results is attributed to a failure of smaller communities to achieve and maintain consistent disinfectant levels. The compliance rate remains significantly above the 2000-01 compliance rates of 48.30 per cent of facilities meeting disinfection requirements. Communities that failed to consistently achieve disinfection compliance included Albertville, Big River, Buchanan, Cochin, Coderre, Creelman, Eldora Beach, Endeavour, Evesham, Fairy Glen, Frobisher, Glen Ewen, Grandview Beach, Hawarden, Hitchcock Bay, Hodgeville, Hyas, Jansen, Kannata Valley, Love, Lumsden Beach, Macoun, Maidstone, Major, Markinch, Marquis, Maryfield, Medstead, Mohr's Beach, Paradise Hill, Pelican Narrows, Pelly, Pilger, Radisson, Sheho, Shell Lake, Simpson, Stony Beach, Tobin Lake, Vawn, Wiseton and Wallaston Lake. In instances where low disinfectant levels were detected and reported, Water Security Agency staff followed up with the waterworks owners/operators to resolve the problems.

Proper disinfection of drinking water is one of the most important ways to ensure safe drinking water and prevent the outbreak of waterborne diseases. Compliance with chlorine residual requirements was selected as a measure since it provides a good indication of drinking water protection, which is important to consumers. Compliance with this measure is primarily controlled by the owner of the waterworks, but also requires cooperation from the waterworks operator(s) in achieving disinfection standards compliance. The ongoing inspection and interaction with waterworks owners and operators is necessary to ensure that water is safe from bacteriological threats and meets disinfection standards.

The Water Security Agency uses the "Guidelines for Canadian Drinking Water Quality" as the basis for the water quality standards found in *The Water Regulations, 2002*. These standards are included in each new or renewed waterworks permit. Permitting for municipal waterworks continued though the 2012-13 fiscal year. A total of 240 waterworks operational permits were issued or renewed. The drinking water quality standards for "chemical-health" were

mandatory as of December 2010, for existing waterworks and take effect upon the start-up of any new waterworks. Another 128 wastewater works permits were also issued, renewed or amended during the reporting period.

Drinking water health and toxicity parameters include a range of naturally occurring substances (arsenic, barium, boron, lead, nitrate, selenium, uranium, etc.), and other substances such as trihalomethanes, which may be produced during chlorine based disinfection processes. These substances represent a small potential for adverse health effects over longer time periods. While the safety gains associated with eliminating microbial threats far outweighs any possible adverse health risks associated with disinfection by-products, it is important to monitor to ensure they remain within safe levels. A complete list of the health and toxicity substances monitored at Water Security Agency regulated waterworks is available at www.SaskH2O.ca/foroperators.asp (see "Municipal Drinking Water Quality Monitoring Guidelines", or go directly to www.SaskH2O.ca/DWBinder/EPB202MunicipalDrinkingWaterQualityGuidelinesEdition3.pdf).

Water quality standards are achieved through permitting, inspection and follow-up on monitoring results. For existing waterworks, a regulatory phase-in period required that all works meet health and toxicity standards by December 2008, (population of 5,000 or more) or by December 2010, (population of less than 5,000). Table 5 depicts compliance with sample submission requirements and testing compliance for health and toxicity parameters during the 2012-13 to 2009-10 fiscal years based on routine samples submitted by Water Security Agency permitted waterworks.

Table 5: Health and toxicity sample submission and parameter result compliance 2012-13 to 2009-10 fiscal years*

Fiscal Year	Health and Toxicity Sample Submission Compliance Rate (Percentage)	Parameter Standards Compliance Rate (Percentage)
2012-13	75	89.55
2011-12	75	89.1
2010-11	89	84
2009-10	86	88

**Health and Toxicity parameters include: Aluminum, Arsenic, Barium, Boron, Cadmium, Chromium, Copper, Lead, Selenium, Uranium and Zinc*
Source: Water Security Agency – Environmental Management System

Sample submission rates remained the same in 2012-13 in comparison to the 2011-12 fiscal year at a compliance rate of 75 per cent in 2012-13. This is likely the result of limited monitoring by some smaller existing waterworks to determine compliance with the health and toxicity standards that took effect in December 2010. The number of samples submitted is related to communities that had previously verified compliance with drinking water quality standards that took effect in December, 2010 and the variable timing of sample submission used by some communities. The Water Security Agency has and will continue to follow up on a quarterly basis with waterworks owners who have not submitted the required samples as a means to help ensure compliance with monitoring and drinking water quality standards.

In 2012-13, there were 51 of 488 human consumptive waterworks that exceeded at least one health and toxicity related chemical standard resulting in a total of 125 exceedences. When exceedences for health and toxicity parameters, such as arsenic or uranium, were encountered and would represent a short-term health risk, waterworks owners are advised of the results and PDWA in the form or do-not-drink or do-not-use advisories for the affected water supplies. The 66 arsenic exceedences occurred in 23 human consumptive systems. Additional arsenic testing was conducted by six human consumptive systems. The 48 uranium exceedences occurred in 18 human consumptive systems. Additional uranium testing was conducted by nine human consumptive systems. Table 6 provides a list of the parameters and number of excursions at all Water Security Agency regulated waterworks.

Table 6: Health and toxicity parameter specific excursion totals for Water Security Agency regulated waterworks during 2012-13, 2011-12 and 2010-11.

Parameter	Number of Excursions in 2010-11	Number of Excursions in 2011-12	Number of Excursions in 2012-13
Arsenic	46	55	66
Barium	0	1	0
Copper	2	0	0
Nitrate	0	0	0
Lead	3	2	2
Selenium	4	8	9
Uranium	60	62	48

Source: Water Security Agency – Environmental Management System

During 2012-13, four of 673 human consumptive facilities exceeded the maximum acceptable concentration for fluoride on 21 sampling occasions. Two of these facilities, Frontier and La Loche, have high, naturally occurring fluoride in their ground water supplies, which accounted for 17 of the 21 exceedences. The Water Security Agency monitors results from all human consumptive systems that artificially fluoridate or have high naturally occurring fluoride.

Implementation of the trihalomethane drinking water quality standard continues with the intent to assure full compliance with the requirements that took effect as of December 2010. The standard for trihalomethane is 100 parts per billion based on an average of four seasonal samples.

A total of 210 surface water treatment and delivery facilities were required to participate in the trihalomethane monitoring program during the 2012-13 fiscal year, which should result in 861 samples being submitted each year. The actual number of regulated waterworks that submitted samples was 183 (87.14 per cent). A total of 739 samples (85.83 per cent overall submission compliance) were submitted by the facilities. During 2012-13, 157 regulated waterworks (74.76 per cent) submitted 559 samples for analysis that met the maximum acceptable concentration for trihalomethanes in drinking water. During 2012-13, 140 of 210 regulated waterworks (66.67 per cent) produced water that met the trihalomethane objective of 100 ug/L based on the annual average of seasonal sampling. During 2011-12, 135 of 190 regulated waterworks (71.05 per cent) produced water that met the trihalomethane objective of 100 ug/L based on the annual average of seasonal sampling.

- To aid in the resolution of elevated Trihalomethane (THM) concentrations at waterworks in the province, Water Security Agency staff also supervised a group of University of Regina engineering students during 2012/13 who worked on developing a predictive model for THM that can be used by communities in Saskatchewan to predict the THM levels in their distribution system in various seasons. Communities can use this information in their feasibility study to predict THM levels and appropriate treatment. The students collected samples from five communities in Saskatchewan and used the data in developing the predictive model for THM. The predictive model for pre-Granular Activated Carbon (GAC) values based on chlorine dosage for summer season is shown in Figure 4. Regression analysis showed that the predictive model pre GAC levels correlated very well with the measured THM levels of Buffalo Pound Water Treatment Plant and is shown in Figure 5.

Figure 4: Predictive THM model based on pre GAC values and chlorine dosage for summer season

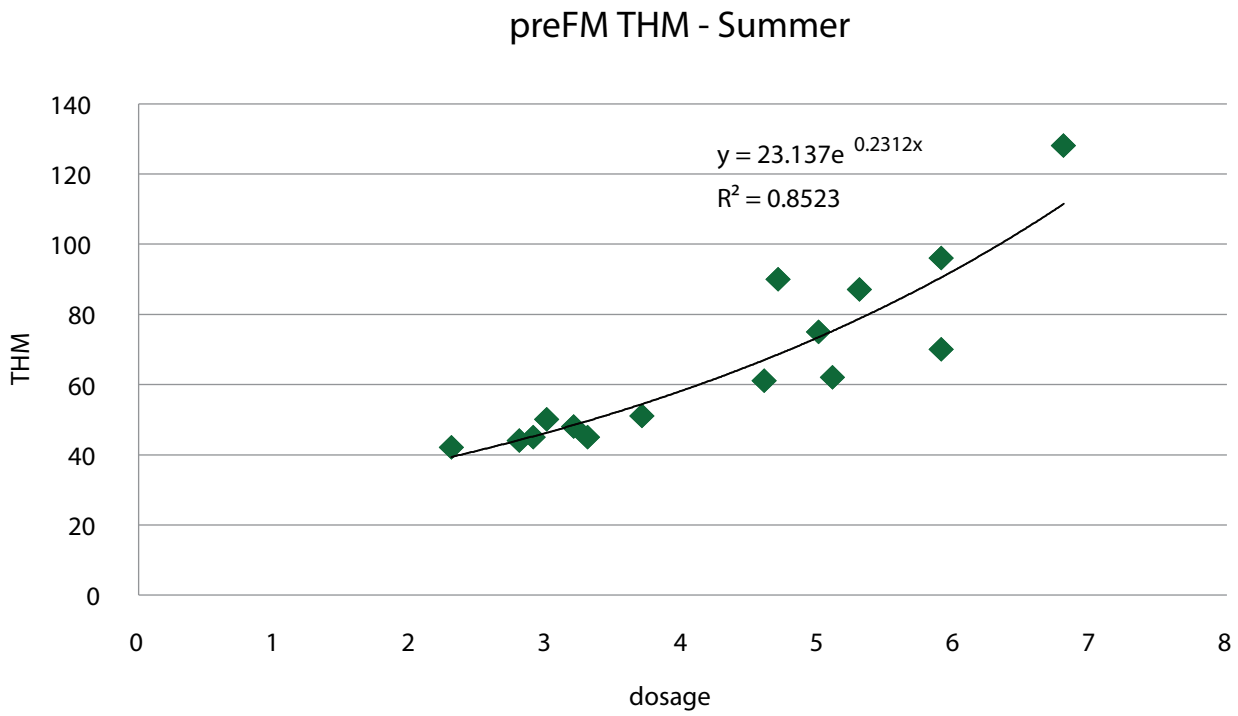
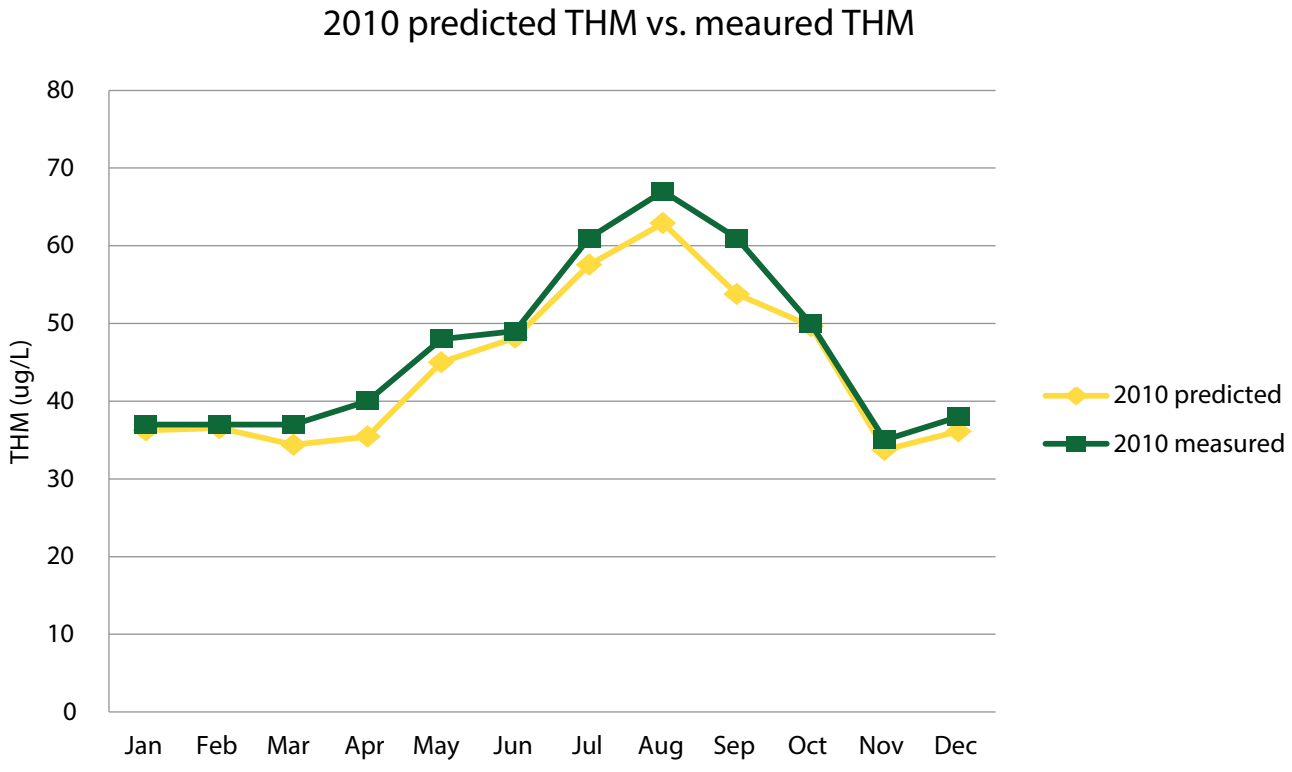


Figure 5: Comparison of Predictive model pre GAC values with the existing 2010 data of Buffalo Pound Water Treatment Plant



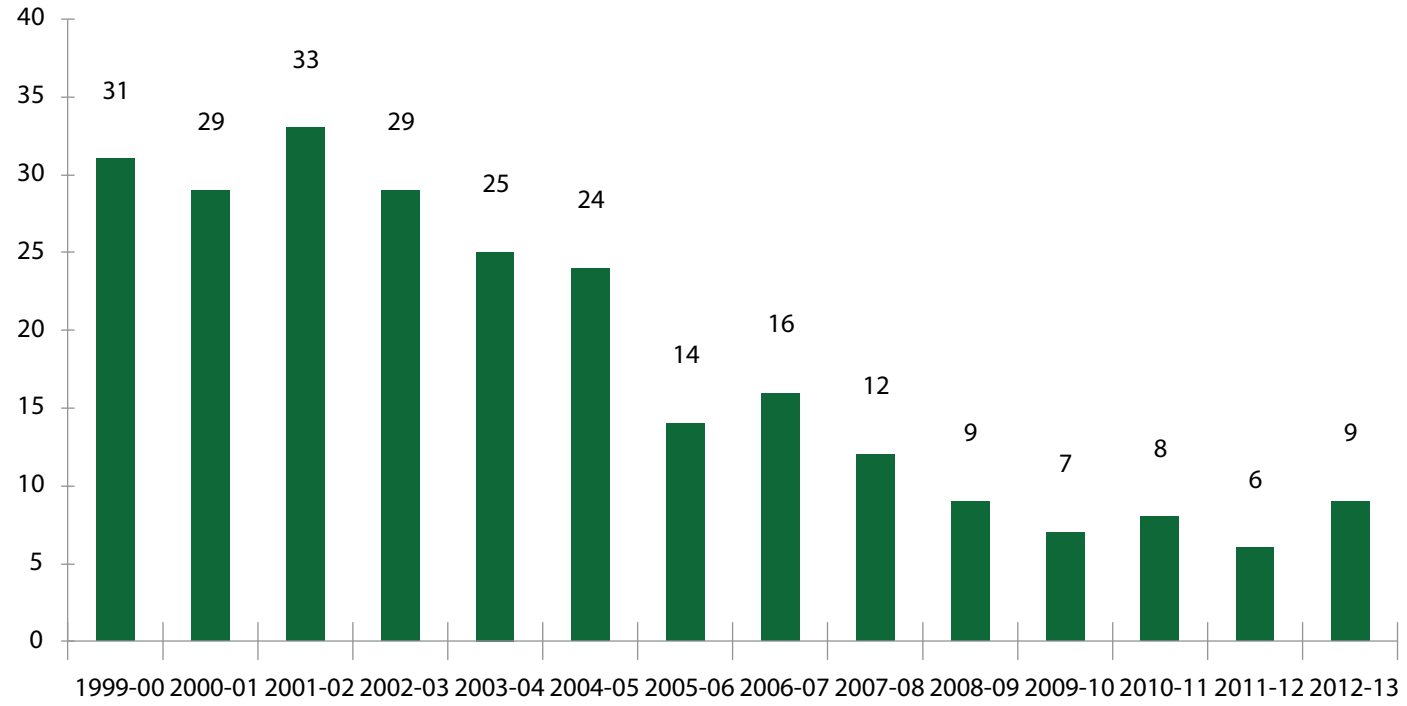
- In 2011 and 2012, SaskWater piloted the use of chlorine dioxide at the Edenwold treatment plant, after the community's water source deteriorated from high levels of runoff. Although the method reduced trihalomethanes (THM) in the water, levels did not decrease enough to meet the Water Security Agency's regulations on THM's. SaskWater discontinued this project and switched to aeration of the raw water source. Adding aeration has improved the quality of the water, but the Corporation has identified the need for enhancements to the method in order to reduce the THM to below the regulatory limit. These enhancements will be undertaken in 2013.

- SaskWater continues to work with engineering firms, suppliers and university researchers in developing and applying emerging technologies to ensure its customers are provided with quality drinking water. For the past nine years, SaskWater has collaborated with Consulting Engineers of Saskatchewan (CES) to review technology, and exchange information and best practices.

Measurement Results

Number of waterworks that do not meet Water Security Agency's minimum treatment requirements

Figure 6: Number of waterworks regulated by Water Security Agency that do not meet minimum treatment requirements*



**Minimum treatment requirements include: an approved form of filtration and disinfection for waterworks reliant upon surface water or shallow groundwater sources; and disinfection alone for waterworks reliant on deep, well protected groundwater sources. The measure counts non-compliance with minimum treatment requirements for permitted waterworks.*
Source: Water Security Agency Advisory Tracking Spreadsheet

As of March 31, 2013, there were nine permitted waterworks that did not meet Water Security Agency's minimum treatment requirements, a net increase of three waterworks, or 50 per cent since the previous year (Figure 6). The increase resulted from two waterworks becoming regulated by the Water Security Agency due to growth and inspection of another determining minimum treatment requirements were no longer in place. Educational efforts and discussion on upgrading options and requirements continue; however, upgrading to meet minimum treatment requirements can be a costly venture and all infrastructure grant programs that may aid in upgrading waterworks are currently fully allocated. The Water Security Agency's educational and compliance activities will continue during 2013-14, in efforts to reduce the number of waterworks not meeting minimum treatment requirements; however, harsher compliance measures may be required to resolve treatment deficiencies. The owner of the waterworks primarily controls the achievement of this measure; however, the regulator has significant influence through a number of mechanisms such as permit requirements for upgrading, issuance of notices of violation and related compliance actions. Periodically, as newly regulated waterworks are permitted, inadequacies in water treatment capability are discovered.

The number of waterworks that do not meet minimum treatment requirements is a direct indication of potential water quality concerns because of infrastructure inadequacies. As of March 31, 2013, human consumptive waterworks with a permanent population that did not meet minimum treatment requirements served approximately 761 residents or 0.07 per cent of the provincial population (2011 census provincial population of 1,033,381). Six of the waterworks that do not meet minimum treatment requirements are systems regulated since the passage of The Water Regulations, 2002. The remaining three systems, which do not meet minimum requirements, were regulated prior to the regulatory changes of 2002.

The Water Security Agency continues to place all regulated waterworks not meeting minimum treatment on PDWA to protect consumers. The Water Security Agency also provides technical advice to communities not meeting minimum treatment requirements to assist waterworks owners to work towards system improvements. Cost of improvements is the main impediment to progress.

Waterworks systems and operations are financially sustainable

Ensuring the financial sustainability of waterworks is critical in the production of safe drinking water over the long term. Waterworks deteriorate over time and may need to be expanded or replaced. Therefore, municipalities will need to know the condition of their waterworks and put in place pricing and capital investment policies for these systems. Public transparency will aid in ensuring that waterworks systems are sustainable into the future. The following is a summary of activities conducted during 2012-13, and the related achievements to ensure financially sustainable waterworks systems and operations.

Results

- By April 18, 2013, 79 per cent of municipalities submitted public information on the financial sustainability of their waterworks for 2011 to the Ministry of Government Relations. Of these municipalities, 81 per cent indicated they had a waterworks rate policy and a capital investment strategy in place. This was the seventh year the applicable regulations, including *The Municipalities Regulations, The Northern Municipalities Public Reporting on Municipal Waterworks Regulations* and *The Cities Regulations* were in effect. The percentage of municipalities submitting public information on the financial sustainability of their waterworks has decreased by 10 percent since 2011-12, when 89 per cent of municipalities submitted information.
- SaskWater uses a Cost of Service Methodology to analyze and set customer rates. SaskWater continues to work on aligning its rates to ensure they are based on the full cost to provide water and are fair, equitable and transparent. The Corporation is currently in year two of its three-year rate increase approved by Cabinet in Fall 2011. The rate increase affects customers that do not have scheduled annual rate adjustments as part of their agreements and is designed to recover increased operating costs (i.e. treatment, water purchase and labour) and fund infrastructure upgrades/replacements to ensure a continued supply of safe and reliable water.

Measurement Results

Percentage of municipalities that have reported waterworks information on the financial sustainability of their systems and percentage of municipal waterworks that have reported that have rates that cover waterworks expenditures and debt payments

Of the municipalities that submitted their public waterworks information to the Ministry of Government Relations, 44 per cent (49 per cent in 2011-12) reported waterworks revenues that covered the waterworks expenditures and debt payments.

Waterworks rates that cover waterworks expenditures and debt payments are a direct indicator of waterworks financial sustainability. The public reporting regulations facilitate consumers' understanding of the need for, and possibly acceptance of, waterworks rates that cover costs.

Municipalities must submit their long-term financial sustainability plan for their waterworks as part of their application for most infrastructure programs provided through the Ministry of Government Relations.

Lack of municipal capacity will limit some smaller municipalities from establishing these waterworks policies and strategies.

The drinking water regulatory system is clear and effective

Regulations are clear and ensure that health and drinking water quality will be protected

Providing safe drinking water requires clear regulations communicated to and understood by the waterworks owners and operators. Additionally, accepted standards and practices are required to ensure requirements are met. Program delivery and related policies are necessary to track and ensure regulatory requirements are being met. Collectively, these measures will help ensure that drinking water is safe and wastewater effluent discharges do not threaten the quality of source waters or adversely impact the environment. The following activities were conducted during 2012-13, and the related achievement are working to ensure that regulations are clear and ensure that health and drinking water quality will be protected.

Results

- The Water Security Agency continued to work towards implementation of chemical health, trace metal, and trace pesticide related water quality standards, which took effect for small waterworks in December 2010. As of March 31, 2013, approximately 70 waterworks had yet to achieve compliance with standards. Of the 70 affected communities in the province, 61 have upgrades underway and/or have received infrastructure upgrade funding to aid with improvements. Six communities may be suitable for or had applied for hygienic classification and three may be resolved through operational optimization. Material has been provided to waterworks owners to provide clear direction on what needs to be upgraded and the reasons why during waterworks inspections or special meetings with the facility owners.
- The Water Security Agency participated as a member of the Federal-Provincial Committee on Drinking Water in 2012-13 and the Saskatchewan representative served as the vice-chair of the committee. During that time, review of national guidelines was initiated or conducted for waterborne pathogens, "other microbiological" parameters, lead, selenium, chromium, benzo(a)pyrene, atrazine, tetrachloroethylene, microcystins. ammonia and nitrate/nitrite. In 2012-13, the Water Security Agency consulted with Saskatchewan stakeholders on national guidelines for vinyl chloride, nitrate, nitrite and ammonia as a means to further advancement of national guidelines in Saskatchewan. These national guidelines form the basis for drinking water quality standards in the province and other jurisdictions across Canada.
- During 2012-13 the Water Security Agency prepared draft revisions to the drinking water regulatory standards for bromate, chlorate, chlorite, haloacetic acids, MCPA, radiological parameters and arsenic.
- *The Planning and Development Act, 2007* (PDA) requires municipal land use policies on source water protection to be included in new official community plans (OCPs). Also, *The Statements of Provincial Interest Regulations* (SPI) include source water protection considerations, which apply to planning, development and subdivision decisions. Both the PDA and SPI are implemented through local planning bylaws and decisions.
- The ministries of Health, Environment and Government Relations, and the Water Security Agency released the *Guidance Document for Developments and Subdivisions where Onsite Wastewater Treatment Systems are Proposed* in July 2012. A copy of the document is posted on the Ministry of Health's website.
- During the fiscal year, Health Region public health inspectors inspected 1,209 public water supplies that fall under The Health Hazard Regulations.
- Ongoing implementation of the Water Security Agency's "Drinking Water and Wastewater Enforcement Protocol" resulted in 31 written warnings, one Ministerial Order and two charges laid under *The Water Regulations, 2002*, and *The Environmental Management and Protection Act, 2002* in 2012-13. In addition, there was one conviction for drinking water and wastewater related violations. One charge is still before the courts.
- A total of 726 waterworks inspections were conducted during the reporting period in accordance with the Water Security Agency's inspection protocol and targets. Environmental Project Officers stress the need for activities or upgrading to meet drinking water quality standards and requirements during waterworks inspections. During 2012-13, emphasis continued to be focused on infrastructure planning and the need to meet increased water quality related demands arising from growth.
- The results of all waterworks inspections can be found online at www.SaskH2O.ca/MyDrinkingWater.asp, and the results of wastewater system inspections can be found online at www.saskh2o.ca/wastewaterinfo.asp . Having inspection results online is intended to increase transparency and public trust in drinking water supplies and the associated processes.

Waterworks inspections are carried out by the Environmental Project Officers and are the most important point of contact and compliance mechanism to ensure proper management of drinking water. During a three-year cycle, at least one inspection will be unannounced. Water sources, such as wells or surface water intakes, are re-inspected every second year. Table 7 summarizes the findings of key elements for inspections conducted during 2012-13.

Table 7: Waterworks inspection finding summary (2012-13)

Inspection Element	Non-Compliant	N/A or No Response*	Compliant
Disinfection continuous at plant	18	9	699
Disinfection Free chlorine > or = 0.1 mg/L leaving the plant	93	70	563
Monitoring daily chlorine	44	14	668
Reservoirs in good repair	21	87	618
Water treatment plant in clean and orderly condition	28	28	670
A total chlorine residual not <0.5 mg/l or a free chlorine residual not <0.1 mg/l in the distribution system	89	24	613
Bacteriological testing after completion, alteration, extension or repair	5	72	649
Reporting of chlorine upsets	32	88	606
Record keeping	49	45	632

**N/A = Non-applicable. Some waterworks inspected do not have a treatment plant such as pipeline systems. These may be recorded as N/A or No response.*
Source: Water Security Agency– Environmental Management System

The Bacteriological Follow-up Protocol for Waterworks Regulated by the Saskatchewan Water Security Agency and Ministry of Environment EPB 205 provides for the issuance of PDWAs by the Water Security Agency when there is a concern that problems (due to microbial or chemical contamination) may exist. Water Security Agency staff members also use a protocol for upset reporting and follow-up to protect consumer health and drinking water quality. Waterworks owners and operators continue to be advised of upset reporting requirements during inspections. Emergency Boil Water Orders (EBWO) are issued by Health Region officials to deal with confirmed public health threats such as microbial contamination of drinking water. Tables 8 and 9 outline statistics for PDWAs and EBWOs issued for Water Security Agency and Health Region regulated waterworks during the 2012-13 fiscal year.

Table 8: EBWO/PDWA Statistics for 2012-13 – Water Security Agency Regulated Waterworks

Time	EBWO	PDWA
In effect prior to reporting period	2	76
Added during the reporting period	5	367
In effect at end of reporting period	1	55

Source: Water Security Agency

Table 9: EBWO/PDWA Statistics for 2012-13 – Health Region Regulated Waterworks*

Time	EBWO	PDWA
In effect prior to reporting period	66*	100*
Added during the reporting period	12	43
In effect at end of reporting period	65	98

Source: Information provided by the Health Regions in Saskatchewan
** 2011/12 EBWO and PDWA numbers have been adjusted due to delays in data entry during that reporting period*

Tables 10 and 11 provide information regarding the reasons for PDWAs and EBWOs issued during the 2012-13 fiscal year for waterworks regulated by the Water Security Agency and Regional Health Authorities. Further information on the nature of a PDWA and EBWO issued by the Water Security Agency is available from the agency or on the Internet (http://www.SaskH2O.ca/advisories.asp).

During 2012-13, a total of 262 unexpected water quality reasons affecting waterworks regulated by the Water Security Agency were reported and addressed such as system depressurizations, water main breaks, or other failures or upsets, which resulted in Precautionary Drinking Water Advisories (PDWA). Unexpected upsets or events accounted for 55.9 per cent of all PDWA's issued in 2012-13 for operational reasons, which was 4.4 per cent less than when 60.3 per cent of the PDWA's issued were because of unexpected events in the operational reason category. Line breaks or pressure loss was the most frequent water quality related reason for issuance of a PDWA in 2012-13. From the operational reason category, power outage resulting in system pressure loss or reduced storage of treated water was the most frequent reason for issuance of a PDWA with 102 instances of these reported events. A total of 130 (35.4 per cent) of all PDWA's (operational reason) during 2012-13, were issued due to anticipated events such as planned maintenance activities or startup of seasonal or new waterworks.

Table 10: Reason for issuing PDWAs and EBWOs during 2012-13 – Water Security Agency regulated waterworks

Summary of Reasons for Precautionary Drinking Water Advisories (PDWA) Issued by the Water Security Agency Between April 1, 2012 and March 31, 2013

PDWAs by Reasons		
Water Quality Reasons	**Number**	**Percentage**
Line break or pressure loss in distribution system	262	71.4
No applicable water quality reason	47	12.8
Suspected contamination	31	8.4
Unacceptable turbidity or particle counts in treated water	14	3.8
Significant deterioration of source water quality due to environmental conditions	1	0.3
Exceedences of MAC or drinking water standard	6	1.6
Total coliforms detected in drinking water system	2	0.6
Excess disinfection levels	1	0.3
Insufficient quantity	3	0.8
Total	367	
Operational Reasons		
Planned system maintenance	98	26.7
Power outage resulting in system pressure loss or reduced storage of treated water	102	27.8
Treatment or distribution equipment failure or damage	63	17.1
Start-up of waterworks	32	8.7
No applicable operational reason	32	8.7
Treatment unable to cope with significant deterioration of source water quality	3	0.8
Inadequate disinfection residual in distribution system	6	1.6
Contamination during construction, repair or operation	13	3.5
Does not meet minimum treatment / design requirements	3	0.8
Does not meet monitoring requirements	5	1.4
Non-commissioned plant	1	0.3
Damaged well components	3	0.8
Damaged cistern or holding tank	6	1.6
Total	367	
EBWO's by Reasons		
Water Quality Reasons		
E.coli detected in drinking water system	4	80.0
Line break or pressure loss in distribution system	1	20.0
Total	5	
Operational Reasons		
Undetermined source of contamination	3	60.0
No applicable operational reason	1	20.0
Treatment or distribution equipment failure or damage	1	20.0
Total	5	

Source: Canadian Network for Public Health Intelligence based on Water Security Agency PDWA and EBWO Tracking Records

Table 11: Reason for issuing EBWOs and PDWAs during 2012-13 – Health Region regulated waterworks

Summary of reasons for Precautionary Drinking Water Advisories (PDWA) and Emergency Boil Water Orders (EBWO) Issued by Saskatchewan Regional Health Authorities between April 1, 2012 and March 31, 2013
Note: More than one reason can be identified per PDWA or EBWO

Number of PDWAs by Reasons		
Water Quality Reasons	**Number**	**Percentage**
Total coliforms detected in drinking water system	31	72.1
Suspected contamination	5	11.6
No applicable water quality reason	3	7.0
Unacceptable turbidity or particle counts in treated water	2	4.7
Line break or pressure loss in distribution system	1	2.3
E.coli detected in drinking water system	1	2.3
Total	43	
Operational Reasons		
Undetermined source of contamination	13	30.2
No applicable operational reason	11	25.6
Inadequate disinfection residual in distribution system	6	14.0
Does not meet minimum treatment / design requirements	5	11.6
Does not meet monitoring requirements	3	7.0
Start-up of water works	2	4.7
Power outage resulting in system pressure loss or reduced storage of treated water	1	2.3
Damaged well components	1	2.3
Contamination during construction, repair or operation	1	2.3
Total	43	
Number of EBWO's by Reasons		
Water Quality Reasons		
E.coli detected in drinking water system	12	100
Total	12	
Operational Reasons		
Inadequate disinfection residual in distribution system	5	41.7
No applicable operational reason	3	25
Undetermined source of contamination	2	16.7
Does not meet minimum treatment / design requirements	2	16.7
Total	12	

Source: Information provided by the Health Regions in Saskatchewan

- There were 10 Precautionary Drinking Water Advisories (PDWA) issued on SaskWater-owned potable water systems in 2012. The majority of these PDWA's were issued due to pipeline depressurization as a result of either power outages, interruptions in water supplied to SaskWater due to the supplier's planned maintenance events, or SaskWater system upgrades to ensure infrastructure is safe and reliable.
- There is an ongoing PDWA issued by the Water Security Agency (formerly Ministry of Environment) in 2008 on SaskWater's Saskatoon Non-Potable Water Supply System – East and West. This is a situation where the Water Security Agency determined that these systems need to be permitted under *The Environmental Management and Protection Act 2002* and *The Water Regulations 2002*. This is a non-potable water supply system that was originally developed to supply industrial customers. However, over time household users have been provided access to the supply with notice that the water is unsuitable for drinking unless treated. SaskWater has been working with these customers and has a plan in place to discontinue the supply of non-potable water while providing guidance on converting to alternative potable water sources.

The Water Security Agency's Drinking Water and Wastewater Enforcement Protocol EPB 222 continues to provide direction and guidance for Environmental Project Officers to ensure that uniform and efficient compliance and enforcement practices are followed in dealing with non-compliance for drinking water and wastewater related violations. Protecting public health, safety of people and the environment is the overall purpose. The enforcement protocol requires that compliance be obtained initially through the use of public education and prevention as initial priorities while enforcement is a tool of last resort. Compliance related actions might also be applied when an issue is causing, or has the potential to cause, a significant risk to public health and safety, or the environment.

The implementation of the enforcement and compliance protocol continued in 2012-13 and was integral in gaining compliance in problematic or difficult situations. Thirty-one written warnings were issued for waterworks and sewage works related infractions. As well, one protection order was issued to a non-compliant party. Two charges were laid for drinking water and wastewater related infractions. There was one conviction registered for these offences. One charge is still before the courts as of March 31, 2013. The nature of water and wastewater related infractions encountered during the reporting period are summarized in Table 12.

Compliance Mechanisms

Compliance mechanisms consist of verbal warnings, written warnings, protection orders, and prosecution actions. Verbal warnings are issued for minor offences encountered during inspection duties. Verbal warnings are documented on inspection forms used by inspection staff to ensure proper follow-up. Written warnings consist of letters of non-compliance and notices of violation. They are issued for non-compliance detected during inspections, or when follow-up requirements identified through previous inspections or correspondence was not complied with. Waterworks and Sewage Works Protection Orders are issued to a person responsible for a system to protect human health or the environment. Table 12 provides a breakdown of infraction details during 2012-13.

Table 12: Enforcement and Compliance Activities-Drinking Water/Wastewater 2012-13

Infraction	Written Warnings Issued	Ministerial Orders issued	Charges Laid	Convictions	Alternative Measures
Failure to report upset condition at waterworks	2				
Failure to comply with permit conditions	14		1	1	
Failure to report upset condition at sewage works	3				
Failure to do required testing/sampling	8				
Chlorine residuals below minimums	1				
Failure to report low disinfection levels					
Improper record keeping	1				
Construction on waterworks/ sewage works without permit	1	1	1		
No monthly review of records					
Failure to maintain records for five years					
Failure to review records					
Failure to report adverse water quality					
Operate waterworks without permit					
Failure to comply with order	1				
Total	**31**	**1**	**2**	**1**	**0**

- The Water Security Agency issued 240 new or renewed waterworks operational permits during 2012-13, as a means to ensure waterworks technology and requirements to keep pace with new developments and to help protect consumer health and drinking water quality. A total of 17 pre-existing waterworks permits were amended. Another 128 wastewater works operational permits were issued, renewed or amended during the fiscal year. A total of 322 permits to construct or upgrade waterworks (175) and sewage works (147) were issued or amended over the 2012-13 reporting period. Compared with last year, this is a five per cent decrease in the number of construction permits issued. Permit application materials are available online at www.SaskH2O.ca/foroperators.asp under the heading "Forms".
- The total estimated value of the construction work for all water and wastewater projects approved by the Water Security Agency is estimated at $215 million ($116M for water and $99M for sewer), based on data from 66 per cent of projects reporting cost estimates. Compared to last year, this is a 27 percent decrease in the total estimated value of constructed works. Notable large projects permitted this year (>$5M) include the PCS Scissors Creek water treatment plant and the Saskatchewan Landing Regional Water Pipeline Utility Waterworks water treatment plant in Elrose, Saskatchewan and associated rural distribution lines.
- For the period of this report, a total of 34,437 drinking water samples were processed at the Saskatchewan Disease Control Laboratory. A breakdown indicated that 72.7 per cent of the samples for water supplies were from Water Security Agency regulated waterworks. 15.1 per cent were from private customers and 12.2 per cent of the water samples were from Ministry of Health/Health Regions.

Measurement Results

Number of accredited drinking water testing laboratories

Table 13: Number of accredited drinking water testing laboratories

Mar 2002	Mar 2003	Mar 2004	Mar 2005	Mar 2006	Mar 2007	Mar 2008	Mar 2009	Mar 2010	Mar 2011	Mar 2012	Mar 2013	Annual Change
1	2	4	6*	6*	6*	6*	6*	6*	7*	7*	6*	↓1

** All labs performing or have performed analysis for waterworks regulated by the Water Security Agency*
Source: Canadian Association for Laboratory Accreditation web http://www.cala.ca/.

Laboratory accreditation shows that the facility has a recognized quality assurance and quality control system that assures representative analytical results. Laboratory accreditation was selected as a measure to help gauge results in ensuring safe drinking water for Saskatchewan residents. As of March 31, 2013, all six laboratories in Saskatchewan that perform analysis of drinking water samples retained accreditation to Standards Council of Canada standards by Canadian Association for Laboratory Accreditation (Table 13). Accredited laboratories include: Ministry of Health – Saskatchewan Disease Control Laboratory, Saskatchewan Research Council, ALS Laboratory Group, Cameco Corporation, the City of Saskatoon Laboratory and the Buffalo Pound Filtration Plant Laboratory.

Professional regulatory staff has access to the tools necessary to ensure compliance

Providing safe drinking water requires accessible training and tools for staff. The tools take the form of working agreements, computerized information systems, rugged notebooks for data collection in the field, as well as examples, guidelines and educational information needed to deliver programming. Staff qualifications must also be assured and kept current with new or evolving water management and information gathering processes. Collectively, these tools help staff to ensure that drinking water is safe and that wastewater effluent discharges do not threaten the quality of source waters or adversely impact the environment. The following activities conducted during 2012-13 resulted in the related achievements which are working to ensure that professional regulatory staff have access to the tools necessary to ensure compliance.

Results

- In conjunction with the Ministry of Environment's Compliance and Field Services Branch, the approach to compliance used by the Water Security Agency was further refined and optimized during 2012-13. Development of a Memorandum of Understanding for delivery of compliance and enforcement services by the Ministry of Environment's Compliance and Field Services Branch was commenced in early 2013 and was ongoing as the end of the 2012-13 fiscal year.
- The Water Security Agency program delivery staff and managers held several formal meetings with Health Region representatives in 2012-13, to discuss drinking water and wastewater related programming, progress and waterworks concerns in their particular service regions.
- Routine maintenance of the Water Security Agency's Environmental Management System (EMS) and enhancements of the digitized Remote Inspection forms were completed. These databases continue to provide information to the saskh2o.ca public website.
- During 2012-13, over 43,000 samples and 249,000 measurements were updated in the Water Security Agency's Environmental Management System (EMS). These samples/measurements include, but are not limited to surface water, distributed water, effluent and precipitation.

Measurement Results

Number and average duration of visits to the www.SaskH2O.ca website

Table 14: Number and average duration of visits to the www.SaskH2O.ca website

Time Period	June 21, 2003 to March 31, 2004*	April 1, 2004 to March 31, 2005	April 1, 2005 to March 31, 2006	April 1, 2006 to March 31, 2007	April 1, 2007 to March 31, 2008	April 1, 2008 to March 31, 2009	April 1, 2009 to March 31, 2010	April 1, 2010 to March 31, 2011	April 1, 2011 to March 31, 2012	April 1, 2012 to March 31, 2013
Number of Visits to SaskH2O Website	27,015	49,862	58,837	68,834	91,418	109,399	130,228	164,566	184,570	217,204
Duration of Website Visit (Minutes: Seconds)	7 : 28	7 : 55	7 : 24	10 : 53	25 : 43	10 : 00	09:06	09:39	11:44	9:40

**SaskH2O.ca website launched on June 21, 2003.*
Source: Webtrends information system

The number and average duration of visits to the SaskH2O.ca website is a good measure of the use of tools that help ensure the protection of drinking water. During 2012-13, there was a significant increase in the number of visits to the website (Table 14). However, there was a slight decrease in the duration of visits compared to the previous fiscal year.

High quality source waters are protected now and into the future

Risks to source water quality are known

Protecting source water quality is a vital part of providing safe drinking water. Identifying risks to source water quality is the first step in developing actions and strategies to protecting it; thereby minimizing the cost of treating drinking water. Through the watershed planning actions, it is expected that other risks to source water quality will be identified. The following activities conducted during 2012-13 are working to ensure that risks to surface water quality are known.

Results

- A water demand study to examine potential future water use by major drainage basin and economic sectors of the province was completed.
- The Lower Qu'Appelle River Watershed Plan was completed March 31, 2013. Presently, 10 community-based watershed stewardship groups are implementing 11 watershed and aquifer plans in Saskatchewan with technical and financial support of the provincial government.
- The Old Wives Lake watershed planning process was kicked off June 2012 and is forecast to be complete in June 2014. When complete, this suite of plans will cover approximately 40 per cent of the province geographically and 88.5 per cent of the human population, including all of Saskatchewan's cities.
- Work toward refining the watershed planning model by the Water Security Agency, including developing a watershed plan renewal process was ongoing throughout the fiscal year and this initiative is forecast to be complete and ready for implementation in 2014.
- The Water security Agency continued negotiations with Alberta on development of a bilateral water management agreement for the trans-boundary waters of the Mackenzie River Basin. The jurisdictions met twice in the 2012-2013 fiscal year and also met once at a multilateral forum with all the other five signatory jurisdictions of the Mackenzie River Basin Trans-boundary Waters Master Agreement (1997). The Saskatchewan – Alberta bilateral water management agreement is forecast to be complete and ready for signing by the Ministers in 2014.
- The Water Security Agency conducted biological monitoring of select watercourses in southern Saskatchewan in fall 2012. Although the results of the work are still pending, it is intended to better describe the health of aquatic ecosystem and thereby protect source waters for a variety of uses into the future.
- The Water Security Agency implemented wastewater effluent characterization monitoring at approximately 91 municipal wastewater systems across Saskatchewan from spring 2011 to winter 2013. Effluent toxicity testing was conducted for 23 medium and small communities in the province that are affected by the Canadian Council of Ministers of Environment "Canada-wide Strategy on Municipal Waste Water Effluents" (CCME MWWE).
- The Water Security Agency reviewed applications and issued 39 permits during 2012 for chemical control of Aquatic Nuisances in and/or near surface water in accordance with Section 35 of *The Environmental Management and Protection Act, 2002*.
- The Water Security Agency provided technical guidance to large effluent emitters on monitoring that is necessary to achieve compliance with the wastewater requirements and effluent characterization activities in accordance with the "Canada Wide Strategy on Municipal Waste Water Effluents." The Water Security Agency worked in close consultation with the City of Regina in establishing the effluent quality requirements and a schedule for upgrading of the city's sewage treatment works. The Water Security Agency also continued to work with other MWWE affected communities in Saskatchewan in establishing the effluent quality requirements. Further information on the "Canada Wide Strategy for Municipal Waste Water Effluents" is available at: www.ccme.ca/assets/pdf/cda_wide_strategy_mwwe_final_e.pdf .
- Water Security Agency staff routinely addressed compliance associated with wastewater effluent releases, particularly during the spring and fall treated wastewater effluent release periods.
- During the 2012-13, 468 inspections at wastewater works were completed by Water Security Agency staff. Information gained from comprehensive inspection results is useful in protecting source water and aquatic habitat. It will also be used to move towards compliance with the pending "Canada-Wide Strategy for Municipal Waste Water Effluents," thereby advancing wastewater management in the province. A total of 128 additional wastewater works were issued, renewed or amended in 2012-13.
- Under The Pest Control Products (Saskatchewan) Act, there were 1,746 pesticide applicator licenses issued, 630 service (businesses) licenses and 402 pesticide vendor licenses. Each vendor maintains an approved storage facility registered and approved by the industry and the Ministry of Environment. An applicant for a pesticide applicator license must pass a recognized pesticide applicator course. The applicator training is valid for a five-year period; however, the applicator license is renewed on an annual basis.

Measurement Results

Number of sewage effluent discharges that represent a risk to source waters

Table 15: Number of sewage effluent discharges that represent a risk to source waters

Mar 2004	Mar 2005	Mar 2006	Mar 2007	Mar 2008	Mar 2009	Mar 2010	Mar 2011	Mar 2012	Mar 2013	Annual Change
93	93	85	116	114	114	112	105	128	120	↓8

Source: Water Security Agency – File Information and Environmental Management System

As of March 31, 2013, approximately 120 wastewater systems have been identified as having a discharge that may reach a surface water body and represent a risk to source waters under certain conditions (Table 15). Of these 120 systems, approximately 91 may require compliance with pending Canada-wide Standards for Municipal Waste Water Effluent (MWWE) and 74 may need to comply with the Wastewater System Effluent Regulations (WSER) passed into law in July 2012 pursuant to the federal Fisheries Act. The final number of wastewater systems, which must be managed to the MWWE and WSER standard, will be finalized once an administrative agreement is developed between the Water Security Agency and Environment Canada. Growth in Saskatchewan communities continues to place additional pressure on sewage infrastructure as some communities were at treatment and/or storage capacity. On an annual basis, Water Security Agency staff review the quality of effluent from each regulated sewage works.

Reduction of ammonia emissions within treated wastewater effluent, sewage works capacity or other treatment capability issues typically involve significant planning, investment and construction. Therefore, it can be expected that reductions in the number of works, which represent a risk to source waters, will be a time consuming process.

The number of sewage effluent discharges that represent a risk to source waters is a direct indication of the potential for source water contamination due to poor wastewater treatment. This measure now incorporates the need for future compliance with MWWE standards and pending WSER requirements. This measure was selected since it is the most direct measure of the number of potential significant contamination point sources. Work to resolve problematic wastewater systems will continue in the foreseeable future.

Watersheds are protected, natural purification and protection processes are maximized, and potential for contamination is minimized

Protection of source waters can reduce the cost of water treatment and improve water quality while helping to sustain the resource for other uses. Sound water resource management means the processes responsible for breaking down wastes must be protected, as must the land use practices responsible for protecting water from contamination. Actions in terms of both organizational structure and watershed/water management are improving source water protection in the province. The following activities conducted during 2012-13 are working to ensure that watersheds are protected, natural purification and protection processes are maximized and potential for contamination is minimized.

Results

- The Water Security Agency and the Ministry of Environment continued to participate in the Canadian Council of Ministers of the Environment (CCME) Municipal Waste Water Effluent Coordinating Committee to help assure consistent implementation of national performance standards across Canada as well as to improve source water protection and water quality management in the rivers and lakes of Saskatchewan. Implementation of the CCME MWWE strategy commenced with active monitoring to improve source water protection and water quality management in the rivers and lakes of Saskatchewan. The Water Security Agency represented Saskatchewan on the CCME Environmental Effects Monitoring (EEM) working group, attended face-to-face meetings, teleconference meetings, and continued working on developing a receiving environment monitoring program to aid jurisdictions including Saskatchewan.
- The Water Security Agency and the Ministry of Environment continued to participate in Biosolids Task Group (BTG), formed under the CCME, to develop national guidance/practices and a beneficial use policy on the management of residual solid materials (biosolids), which arise through treatment processes. The Council of Ministers (COM) of CCME approved the Canada-wide approach for the management of wastewater biosolids during fall 2012. Presently, the Water Security Agency is working on revising the biosolids guideline document incorporating the BMPs developed by the task group.
- The Water Security Agency maintained its representation on the Canada-wide Science Research Co-ordination Body (SRCB) and provided input for improved science, research and coordination among regulators, researchers and municipalities during implementation of the CCME Strategy for the Management of Municipal Wastewater Effluent and biosolids.
- The Water Security Agency represented the province on the CCME, Water Quality Task Group (WQTG) for the development of science-based water quality, sediment, and tissue residue guidelines (Canadian Environmental Quality Guideline-CEQG) for the protection of aquatic life and other beneficial water uses in the province. During 2012-13, review of guidelines for silver, manganese and cadmium was undertaken. The task group also worked on developing a guidance manual for developing nutrient objectives for rivers. Work also continued with WQTG members, including direct representation of the Saskatchewan Ministry of Agriculture, in revising/developing CEQG for irrigation and livestock water use. Substances of priority were identified, a consultant report was reviewed, and work on finalizing guidelines for pathogens in irrigation water and sulphate for livestock watering was conducted.
- The Drinking Water and Wastewater Management Division (DWWMD) of the Water Security Agency undertook sampling and research studies in Saskatchewan to characterize/evaluate the treated effluent of selective municipalities that are affected by the MWWE strategy. The studies were also aimed to determine the impact of effluent discharges on fish-bearing surface water bodies and help the municipalities in establishing site-specific Effluent Discharge Objectives (EDOs) for various wastewater parameters. Effluent toxicity analysis was performed by a specialized laboratory and the results of all seasonal sampling to date has shown that over the Spring 2011 to Winter 2012/13 time period nearly 12 per cent of the sampled communities failed with respect to acute toxicity requirements. Repeat sampling will continue in the next fiscal (2013/14) at some of the communities that failed acute toxicity requirements. The sampling results are shown in Figures 7 and 8.

Figure 7: Acute Toxicity Results – Total Pass/Fail (Spring 2011 to Winter 2012-13)

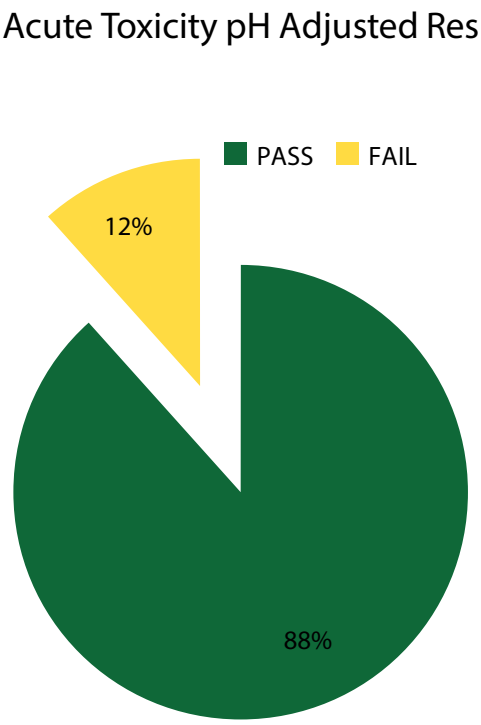
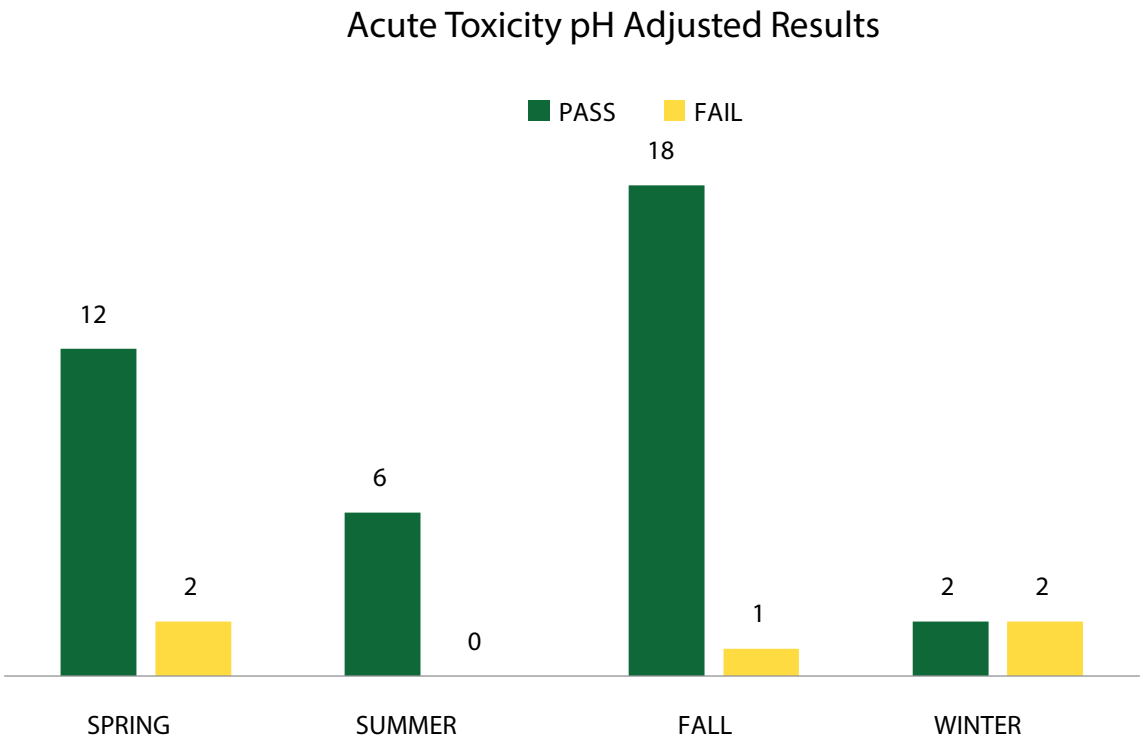


Figure 8: Acute Toxicity Results of Seasonal Samples (Spring 2011 to Winter 2012-13)

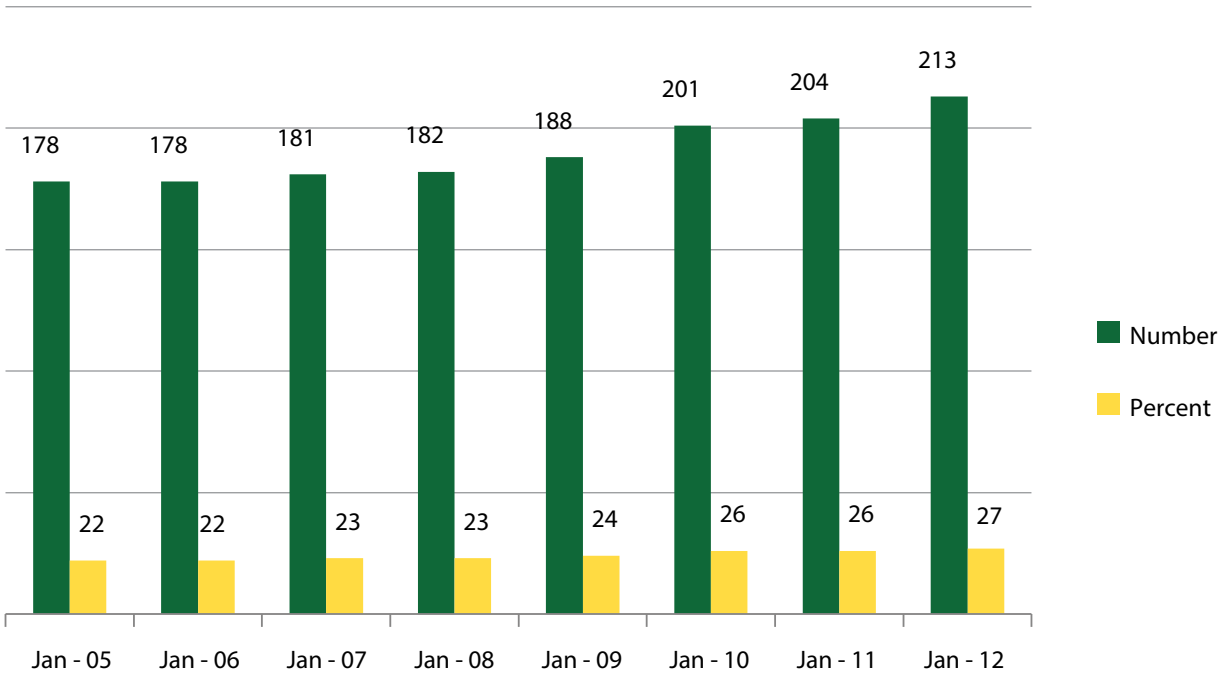


- The Water Security Agency continued to collect water samples in the upstream/downstream of receiving environment of selected MWWE affected communities and analyze various water quality parameters. Water Security Agency staff supervised a group of University of Regina engineering students who worked on a research project and used the water quality data/ effluent parameters to establish site-specific effluent discharge objectives (EDOs) for selected communities in Saskatchewan. Water Security Agency staff also developed a protocol/model for determining EDOs and hired a summer student to work during summer 2013 and develop EDOs for the affected communities.
- SaskWater is now two years into its five-year woodlot effluent irrigation research project. In 2012, the Corporation completed construction of a scalable irrigation system to be used as an example for full-sized community projects. The project uses wastewater effluent to irrigate tree plots and is expected to significantly lower capital and operating costs, resulting in zero discharge into surface water bodies. Several tree varieties are being examined to determine the most suitable type. This project is a partnership between SaskWater, the City of Moose Jaw, Communities of Tomorrow, Prairie Adaptation Research Collaborative (PARC), the Ministry of Agriculture and the Agroforestry Development Centre (ADC).
- A new primary water quality monitoring station was established on the Clearwater River at #955 highway crossing as a means to assess water quality in the northwest portion of the province and possible effects from oilsands operations.
- Work continued with the Prairie Provinces Water Board (PPWB) to undertake a comprehensive review of surface water quality objectives at 12 PPWB monitoring stations on the interprovincial borders. The comprehensive review considered established national and international objectives, site specific characteristics and various approached to the setting of site-specific objectives. Revised water quality objectives, including objectives for nutrients, are expected to be established by the PPWB during 2013-14.
- The Statements of Provincial Interest Regulations (SPI) was adopted on March 29, 2012. The SPI ensures that the water interests of the province are reflected in local and regional planning documents under several interests. The SPI contains an interest specifically for source water protection of resources used for human hygienic use and further addresses the importance of water under interests relating to public works, sand and gravel, biodiversity and natural ecosystems, shorelands and water bodies and public safety. The SPI are implemented through local planning bylaws and decisions. The Ministry of Government Relations, Community Planning Branch, has developed training material and delivered it to municipal administrators, municipal councillors and professional planners at a variety of conferences and training workshops.
- The Ministry of Agriculture provides funding through the Agriculture Development Fund to support research and development, including agricultural technologies for improved management and/or reduced environmental risks of pesticides, fertilizers and livestock manure. There are eight ongoing water-related projects with a total funding allocation of $637,868. Of those, three projects ($21,688) are funded under Growing Forward in partnership with Agriculture and Agri-Food Canada. Projects are in irrigation agronomy and technology, water conservation and water quality.
- The Ministry of Agriculture administers The Irrigation Act, 1996. The legislation ensures soils and water are suitable for sustainable irrigation. Irrigation soils, water quality and water tables are monitored for sustainability. Technical assistance is provided to the Water Security Agency on effluent disposal via land application to help ensure a high level of environmental protection and ongoing agricultural productivity.
- The Ministry of Agriculture requires intensive livestock operations to develop waste storage and management plans that will not contaminate water resources and in 2012-13, there were 13 plan approvals issued for intensive operations. Some approvals were for expansions and/or modifications to existing operations. Approximately 129 site inspections were completed. Monitoring continues for surface quality in watercourses adjacent to intensive livestock operations. The 2003 Surface Water Quality Monitoring Report is available online at http://www.agriculture.gov.sk.ca/Default.aspx?DN=ab517097-0749-4293-b98e-dbe1935deefa
- The Ministry of Agriculture is responsible for the delivery of the environment component of Growing Forward. It consists of Environmental Farm Planning, Agri-Environmental Group Planning and the Farm Stewardship Program. Environmental Farm Planning and the Farm Stewardship Program are delivered through a third party contract with the Provincial Council of Agriculture Development and Diversification (ADD) Boards (PCAB). Agri-Environmental Group Planning is delivered on a watershed basis and is led by farmers who live in the watershed. There is also one group plan that is delivered on a provincial basis through a third party contract with SARM. It deals with education and planning on the control and eradication of invasive plant species. In the 2012-13 fiscal year, spending on the delivery of the environment component was as follows: Group plan delivery - $920,000; PCAB delivery – $1,420,000. This is the last year of the current program and up until March 31 spending on the Farm Stewardship Program is $8,665,470. Final accounting on farm stewardship is not available at this time. The number of new endorsed environmental farm plans in this fiscal year was 153 with1308 plans produced since the start of Growing Forward in 2009.

Measurement Results

Number and percentage of municipalities with bylaws in place to protect their drinking water supplies

Figure 9: Number and percentage of municipalities with bylaws in place to protect their drinking water supplies



Source: Ministry of Government Relations

The number of municipalities with bylaws in place to protect their drinking water supplies is a direct indication of the level of municipal protection of water sources.

In 2012, nine municipalities adopted new municipal planning bylaws that require drinking water protection provisions. The per cent of the urban and rural municipalities with some form of water management policy contained in their community planning bylaws increased to 27 per cent. Through the Planning for Growth Program, 158 municipalities, both urban and rural, participating in 22 groups received funding to develop regional planning capacity and plans. The Planning for Growth Northern Program assisted 23 northern municipalities to develop official community plans. Along with the ongoing work of the Municipal Capacity Development Program, municipalities are becoming increasingly aware of their responsibilities for source water protection, which is reflected in their bylaws.

Water Quality Index ratings for rivers

Table 16: Water quality index ratings for rivers (three-year average water quality index values and ratings for rivers)

Location	2006-08*	2006-08 Rating*	2007-09	2007-09 Rating	2008-10	2008-10 Rating	2009-11	2009-11 Rating
Assiniboine River (Highway #8)	75.6	Fair	83.2	Good	83.0	Good	82.9	Good
Battle River (Battle Rapids)	84.3	Good	81.1	Good	72.4	Fair	78.3	Fair
Beaver River (Beauval)	83.3	Good	91.4	Good	74.6	Fair	91.3	Good
Beaver River – (Dorintosh)	76.3	Fair	83.3	Good	74.2	Fair	82.0	Good
Churchill River (Otter Rapids)	90.8	Good	83.4	Good	83.5	Good	100	Excellent
North Saskatchewan River (Upstream Highway #16 Bridge)	92.7	Good	91.7	Good	91.7	Good	91.4	Good
North Saskatchewan River (Borden Bridge)	82.2	Good	83.3	Good	91.7	Good	91.2	Good
North Saskatchewan River (Prince Albert)	71.5	Fair	66.6	Fair	83.4	Good	91.7	Good
North Saskatchewan River (Cecil Ferry North Bank)	80.6	Good	75.2	Fair	83.4	Good	91.7	Good
North Saskatchewan River (Cecil Ferry – South Bank)	80.2	Good	75.2	Fair	83.4	Good	91.7	Good
Qu'Appelle River (below Qu'Appelle Dam)	100.0	Excellent	100.0	Excellent	100.0	Excellent	100.0	Excellent
Qu'Appelle River (at Highway # 2)	80.3	Good	74.8	Fair	83.2	Good	83	Good
Qu'Appelle River (above Wascana Creek)	65.5	Fair	82.2	Good	74.9	Fair	74.5	Fair
Qu'Appelle River (Highway #11 at Lumsden at rock dyke)	61.4	Fair	82.9	Good	74.8	Fair	74.7	Fair
Qu'Appelle River (Highway #56)	70.3	Fair	90.6	Good	90.8	Good	91.5	Good
South Saskatchewan River (Leader)	71.5	Fair	74.2	Fair	65.6	Fair	74.6	Fair

Location	2006-08*	2006-08 Rating*	2007-09	2007-09 Rating	2008-10	2008-10 Rating	2009-11	2009-11 Rating
South Saskatchewan River (near Outlook)	94.8	Good	83.3	Good	83.2	Good	83.2	Good
South Saskatchewan River (near Queen Elizabeth power station)	95.5	Excellent	91.7	Good	91.7			
Good	91.5	Good						
South Saskatchewan River (west Clarkboro)	91.0	Good	91.7	Good	91.7	Good	91.7	Good
South Saskatchewan River (near Muskoday)	72.8	Fair	75.0	Fair	83.4	Good	83.4	Good
Saskatchewan River (Highway #6)	86.3	Good	83.5	Good	91.7	Good	100.0	Excellent
Souris River (Highway #39)	63.5	Fair	62.9	Marginal	69.3	Fair	74.3	Fair
Tobin Lake (at E.B. Campbell Dam)	81.9	Good	82.7	Good	76.3	Fair	85.5	Good

**Index values and ratings were re-calculated in May 2010 for 2006-2008, based on the Canadian Environmental Sustainability Indicator (CESI) methodology. The CESI methodology differs from methodologies used to calculate the index in previous years and therefore the results are not directly comparable to previous values. The Water Security Agency intends to employ the CESI water quality index methodology in future years.*

Source: Water Security Agency surface water quality monitoring results

The Water Quality Index (WQI) is a measure of the quality of ground and surface water for specific uses, such as the protection of aquatic life, livestock watering, recreation, etc., that may not otherwise be apparent through individual water quality test results. The levels of chemicals and organisms in the samples are compared with the WQI levels for the safety and health of the people. The WQI is a composite measure of different chemicals and organisms in the water and whether the water quality is safe for particular uses. The WQI incorporates three elements:

- scope - the number of variables that do not meet the water quality objectives;
- frequency - the number of times that variables do not meet the objectives; and
- amplitude - the amount by which the objectives are not being met.

The following descriptive categories are used to further explain the WQI results:

- Excellent: (value 95-100) - water quality is protected with a virtual absence of threat or impairment; conditions very close to desirable levels. These index values can only be obtained if all measurements are within objectives virtually all of the time.
- Good: (value 80-94) - water quality is protected with only a minor degree of threat or impairment; conditions rarely depart from desirable levels.
- Fair: (value 60-79) - water quality is usually protected, but occasionally threatened or impaired; conditions sometimes depart from desirable levels.
- Marginal: (value 45-59) - water quality is frequently threatened or impaired; conditions often depart from desirable levels.
- Poor: (value 0-44) - water quality is almost always threatened or impaired; conditions usually depart from desirable levels.

The WQI ratings provide a measure of the quality of water in Saskatchewan's rivers and allow a comparison of results over time. However, a limited number of samples are taken in any year and this, as well as changes in water levels and river flow from year to year, can produce significant annual changes in the index. To provide a more meaningful picture of longer term change that is still sensitive to underlying changes, the WQI for rivers has been presented as a three-year mean. The latest WQI values were provided for 2009-2011. Some stations showed a modest improvement in water quality based on the index calculations.

From these elements, the WQI produces a score between zero and 100. The government has limited direct control over the results of this broad measure of water quality. While the government regulates point source pollution, many human and natural factors can influence water quality.

Citizens and consumers trust and value their drinking water and the operations which produce it

Consumers value quality water and are willing to pay for it

The following activities were conducted during 2012-13 to help ensure consumers value quality water and recognize the need to pay for it.

Results

- The Water Security Agency participated in the SWWA annual convention in November 2012, and also provided instruction during dedicated operator training workshops hosted at locations across the province throughout the year. The Water Security Agency also contributed to the annual Saskatchewan Association of Rural Water Pipelines (SARWP) conference in December 2012 by providing instruction and workshop presentations. Information continued to be provided through fact sheets on water conservation, by means of discussion with waterworks owners and through the SaskH2O.ca website, as a means to help increase consumer confidence in their water supplies. The Water Security Agency also assisted with the planning and delivery of a northern water workshop over April 17-19, 2012, for the ninth year in succession.
- During 2012-13, the Water Security Agency maintained up-to-date information on the SaskH2O website at www.SaskH2O.ca/DWBinder.asp, to provide information to the public on the topics of water cost and value. These documents were also distributed directly during waterworks inspections.
- SaskWater continued to deliver its "The Value is Clear" campaign in 2012. The campaign aims to create higher awareness of the value of water and of the value of SaskWater as a water and wastewater service provider. As part of the campaign, the Corporation placed billboards in a few different Saskatchewan communities and circulated handbills highlighting tips on saving water.
- On a biennial basis, SaskWater polls customers on key customer satisfaction measures including water quality, the importance of water services, and the price of water. In 2012, SaskWater conducted its customer satisfaction survey and found that the overall satisfaction with SaskWater is strong, with 92 per cent of respondents stating they are either very satisfied or moderately satisfied with the Corporation. The overall average satisfaction rating increased from 8.42 in 2010 to 8.54 in 2012. SaskWater also ranked very high in providing safe drinking water.

Based on a poll conducted by the Water Security Agency in May 2013, 66.4 per cent of people polled are willing to pay more to improve their drinking water (strongly agree

Measurement Results

Per cent of survey respondents indicating that they are willing to pay more for their drinking water

Table 17: Per cent of survey respondents indicating that they are willing to pay more for their drinking water

Dec 2001	May 2003	Mar 2005	Mar 2006	May 2007	Feb 2008	May 2009	Mar 2010	May 2011	May 2012	May 2013	Change
61	61.9	68	70.8	67.8	68.8	66.5	65.5	65.8	71.3	66.4	↓4.9

Source: Water Security Agency Polling Results – May 2013

or agree) (Table 17). This value is 4.9 per cent less than the previous poll in May 2012, and is 5.4 per cent greater than the December 2001 poll results. This increase is considered to be a significant change since May 2012. May 2013 polling results continue to show ongoing public recognition of the value of water and related willingness to pay for it. The May 2013 polling results indicate that the majority of those somewhat or strongly disagreed with willingness to pay more for their drinking water believed that there was no concern with their community drinking water, the community drinking water was reported as safe, it would be a stress on their financial situation, or improvements have been or are being made to their community drinking water system. Relatively few respondents to the May 2013 poll noted they are served by a private well or have a water purification system installed in their residence.

Table 18: Summary of regional polling results on survey respondents indicating that they are willing to pay more for their drinking water

% Somewhat Agree or Strongly Agreeing	May 2012				May 2013			
	North	Regina	Saskatoon	South	North	Regina	Saskatoon	South
I am willing to pay more to improve the safety or the quality of my drinking water.	71.6%	62.9%	75.0%	73.3%	68.4%	57.7%	68.5%	68.6%

Source: Water Security Agency Polling Results – May 2013

In terms of regional differences (Table 18), all regions show a decrease in somewhat or strong agreement since 2012, in terms of willingness to pay more for improved water quality and safety.

Citizens and consumers trust the quality and reliability of their drinking water systems and are confident in the regulatory system

Consumers trust in drinking water and in the regulatory systems that govern water-related activities is vital to ensuring the long-term sustainability of waterworks. Consumers who trust the quality and reliability of their water supplies are more willing to support the production of safe drinking water in the future. Release of polling results also bolsters transparency and public trust. The following activities were conducted during 2012-13 to improve citizen and consumer trust in the quality and reliability of their drinking water systems and confidence in the regulatory system.

Results

- The Water Security Agency conducted polling to determine public opinion associated on drinking water safety in May 2013. The polling results show the measurement of results. Since public polling was initiated in the wake of the North Battleford water crisis in 2001 it has remained as an important mechanism in determining the level of success in attaining government's safe drinking water goals.
- The Water Security Agency directly supported training opportunities including aiding the Saskatchewan Association of Northern Communities, Northern Water Conference in April 2012. The Water Security Agency also supported the Saskatchewan Water and Wastewater Association (SWWA) for their midterm membership meeting in June 2012 and annual convention in November 2012 by providing organizational aid and instruction to operators during training sessions. Support to SWWA was also given by providing instruction during dedicated operator training workshops hosted at locations across the province throughout the year. The Water Security Agency also contributed to the annual Saskatchewan Association of Rural Water Pipelines (SARWP) conference in December 2012 by providing instruction and workshop presentations. Information continued to be provided through fact sheets on water conservation, by means of discussion with waterworks owners and through the SaskH2O.ca website, as a means to help increase consumer confidence in their water supplies.

Measurement Results

Per cent of survey respondents indicating that they are very or somewhat confident in the quality of their tap water

Table 19: Per cent of survey respondents indicating that they are very or somewhat confident in the quality of their tap water

Dec 2001	May 2003	Mar 2005	Mar 2006	May 2007	Feb 2008	May 2009	Mar 2010	May 2011	May 2012	May 2013	Change
72	87	86	87.3	82.6	86.6	89.9	88.7	85.5	89.7	88.1	↓1.6

Source: Water Security Agency Polling Results – May 2013

Based on a poll conducted by the Water Security Agency in May 2013, 88.1 per cent of people polled strongly agreed or agreed they are confident in the safety of their own drinking water (Table 19). These polling results continue to show a high level of confidence and represent small decrease of 1.6 per cent from the previous fiscal year. The results are 16.1 per cent greater than December 2001, when 72 per cent of people surveyed were very or somewhat confident in the quality of their tap water. Actions such as consumer education efforts, waterworks inspections, media coverage of water contamination events affecting larger centres, implementation of water quality standards, water workshops, and consumer notification help maintain confidence in the safety of drinking water at a relatively high level, in the mid to high 80 per cent range since 2003. Ongoing attention to these elements of drinking water protection will help to maintain the high level of public confidence in safety of drinking water in the future. The measure is important since it provides an indication of how efforts to ensure safe drinking water are progressing.

Table 20: Summary of regional polling results on survey respondents indicating that they are very or somewhat confident in the quality of their tap water

% Somewhat and Strongly Agreeing	May 2012				May 2013			
	North	Regina	Saskatoon	South	North	Regina	Saskatoon	South
Saskatchewan residents have safe drinking water.	87.1%	87.9%	84.8%	86.9%	81.9%	84.6%	89.3%	84.0%
I am confident that my drinking water is safe.	85.3%	92.2%	95.5%	87.3%	83.9%	88.5%	93.3%	87.2%

Source: Water Security Agency Polling Results – May 2013

In terms of regional differences (Table 20) in May 2013, Saskatoon and Regina residents are more likely to somewhat agree or strongly agree that Saskatchewan residents have safe drinking water than residents of southerly or northerly regions. Further, in May 2013, Saskatoon and Regina residents are also more likely to somewhat agree or strongly agree that they are confident in the safety of their drinking water, compared to residents of northerly and southerly regions. Confidence in the safety of individual resident drinking water was high across the province with polling results ranging from 83.9 per cent in northerly regions to 93.3 per cent in Saskatoon. Polling results did not provide any direct indication as to why confidence levels changed from 2012 to 2013.

Citizens have meaningful access to information about their water quality

Information on water quality is important in building public trust in water systems. It must be understandable, current and readily accessible. To build full trust, information needs to be available both from the waterworks owner and the regulator. The following is a summary of activities conducted during 2012-13, and the related achievements in working to ensure citizens have meaningful access to information about the quality of their drinking water.

Results

- SaskWater publishes an annual comprehensive Water Quality Report highlighting water quality parameters for all of its service areas. The Water Quality Report 2012 is available at http://www.saskwater.com/MediaCentre/Documents/2012SkWaterWaterQualityReport.pdf.
- Drinking water quality data and the results of waterworks inspections can be found online at www.SaskH2O.ca/MyDrinkingWater.asp, and the results of wastewater system inspections can be found online at www.saskh2o.ca/wastewaterinfo.asp. Having inspection results online is intended to increase transparency and public trust in drinking water supplies and the associated regulatory processes. Statistics regarding the use of the SaskH2O website can be found on page 27 of this report.

Measurement Results

Number of system owners that publicly release water quality results

Table 21: Number of system owners that publicly release water quality results

Mar 2002	Mar 2003	Mar 2004	Mar 2005	Mar 2006	Mar 2007	Mar 2008	Mar 2009	Mar 2010	Mar 2011	Mar 2012	Mar 2013	Annual Change
3	118	359	508	494	511	637	653	681	698	715	568	↓147

Source: Water Security Agency - Environmental Management System

As of March 31, 2012, 568 of 796 Water Security Agency regulated waterworks owners publicly released water quality results to the consumers that they serve (Table 21). This value represents a significant decrease of 147 since the 2011-12 fiscal year and represents 71.4 per cent of waterworks regulated by the Water Security Agency in 2012-13. Notification to consumers is required on an annual basis for waterworks regulated by the Water Security Agency.

The Water Security Agency will continue to pursue further progress on attainment of public reporting requirements during 2013-14, and beyond. The number of system owners that publicly release water quality results is a good way to determine if consumers have direct meaningful access to information about the quality of their water. Additional waterworks specific information on drinking water quality is also available at www.SaskH2O.ca/MyDrinkingWater.asp.

Reduced consumption of water

Reduced consumption of water is important in minimizing costs and thereby, properly valuing water. Water conservation is also necessary to protect water source quality and abundance, particularly in time of increased demand. The following activities were conducted during 2012-13 to reduce consumption of water.

Results

The Water Security Agency successfully completed the Provincial Toilet Replacement Rebate Program for the residential sector as well as institutions, non-profit organizations, municipalities, and First Nations. The program ran from January 1, 2009 to December 31, 2012 and processed 49,853 applications and 47,841 households participated in the program. More than 30 communities also offered additional incentives for toilet replacements. In total, 65,425 water efficient toilets were replaced under the program, which has saved more than 4.46 billion litres of water and avoided more than 13,400 tonnes of CO_2 emissions to date.

Measurement Results

Average per capita consumption [litres per capita per day]

Table 22: Average per capita consumption [litres per capita per day]

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Annual
346	368	348	367	331	323	338	333	328	332*	299*	280	N/A	↓18

N/A: A complete dataset for 2012 is not available at the time this report was prepared. The database source of the performance results for this measure has a time lag of about six months; January 1 to December 31, 2012 data and will be available in July 2013.
**Average per capita consumption is restated from 335 to 332 in 2009 and from 325 to 299 in 2010 based on a revised dataset and calculation performed in May 2013.*
Note: Commencing with the 2009 year, water consumption values are reported in metric units. Water use for previous years have also been converted to metric units using a more precise conversion factor that accounts for slight differences reported for 2008-09, and previously.
Source: Saskatchewan Community Water Use records for 2011, published June, 2012.

Measuring the municipal per capita water consumption provides for total annual urban water use (in-home, business and municipal irrigation) within communities (Table 22). The annual consumption is affected by summer irrigation demands, which vary between wet and dry years causing the performance measure to vary between years. The Water Security Agency does not have direct control over this measure but, through water conservation programs, does influence the measure.

This measure is computed by summing the Litres per Capita per Day (LCD) for each community and dividing by the number of communities. The weighted LCD is computed by summing the yearly water consumption for each community and dividing by the total population and 365 days. The Saskatchewan Community Water Use Records maintained by the Water Security Agency is the dataset used in this determination. The change in the water consumption rate is attributed to the natural annual variability found in water consumption records and climatic, technological and behavioural influences on water use.

A complete dataset for 2012 is not available at the time this report was prepared. The database source of the performance results for this measure has a time lag of about six months; January 1 to December 31, 2012 data and will be available in July 2013.

Over the 2005 to 2012 period, the Water Security Agency has promoted responsible water use through a variety of public education, partnerships and programs. The Provincial Toilet Replacement Rebate Program is one example of how water conservation has been promoted within the province.

2012-13 Financial Overview

Actual expenditures relating to drinking water management in 2012-13 were $47.5 million, which was $14.4 million lower than the budgeted expenditures of $61.9 million.

The Ministry of Health FTE utilization for the Saskatchewan Disease Control Laboratory was at the full level of 17.5 FTEs during the reporting period. In addition to the FTEs within the Ministry of Health, funding is provided to Regional Health Authorities for water related programs and surveillance. It is not possible to state the actual number of Regional Health Authority FTEs that are dedicated to water as a number of different disciplines (i.e. Medical Health Officers, Public Health Inspectors and Public Health Nurses) can become involved in water and/or water related disease surveillance, and issue-specific time is not tracked.

Under the Canada-Saskatchewan Municipal Rural Infrastructure Fund (MRIF), Canada-Saskatchewan Building Canada Fund - Communities Component (BCF-CC), Provincial Territorial Base Fund (PTBase), and Saskatchewan Infrastructure Growth Initiative (SIGI), the Ministry of Government Relations provides financial support to municipalities for priority drinking water and wastewater infrastructure improvements. In 2012-13, $0.201 million in federal-provincial funding was paid out under the MRIF; $18.830 million in federal-provincial funding was paid out under BCF-CC; $1 million in provincial funding was paid out under BCF-MIC; $7.253 million in federal-provincial funding was paid out under PT Base; and $3.375 million in provincial funding was paid out under SIGI for water and wastewater projects.

Expenditures

The following table outlines information on the budgeted and actual expenditures based on original 2012-13, and revised estimates relating to water management. Funding for water management activities comes from various government ministries and agencies and is contained in their respective budgets. Explanations have been provided for all variances greater than $5,000.

Ministry or Agency	Estimates Budget ($000s)	Actual Expenditure ($000s)	Variance Over (Under) ($000s)
Ministry of Environment*	2,893 (full year)	2,896	3
Saskatchewan Watershed Authority/Water Security Agency**	12,234	12,234	0
Ministry of Government Relations ***			
- BCF-CC	31,532	18,830	(12,702)
- BCF-MIC	1,000	1,000	0
- MRIF	919	201	(718)
- PT Base	8,110	7,253	(857)
- SIGI	3,580	3,375	(205)
Ministry of Government Relations - Total	45,141	30,659	(14,482)[1]
Ministry of Health			
Regional Health Services	476****[2]	476	0
- Regional Health Authorities (Health Regions) Base Operating Funding	30	0	(30) [3]
- Regional Targeted Programs and Services	0[4]	0	0
- Regional Programs Support	1,145	1,211	66 [4]
Saskatchewan Disease Control Laboratory – Environmental Services			
Ministry of Health – Total	1,651	1,687	36
Total	**61,919**	**47,476**	**(14,443)**

* Expenditures shown include the actual expenditures incurred by the drinking water staff at the Ministry of Environment prior to being transferred to the Water Security Agency and the portion of the grant that was paid to the Water Security Agency which related to the drinking water function.

** Expenditures shown are grants from the General Revenue Fund to the Saskatchewan Watershed Authority for these programs. Value does not include the mid-year grant associated with the transfer of the water responsibilities from the Ministry of Environment to the Water Security Agency or the Interim General Revenue Fund Grant which transferred a capital asset from the Ministry of Agriculture.

*** The Ministry of Government Relations budget is determined by program, not by infrastructure category (e.g. water and wastewater). The budget estimate is based on a ratio of the water and wastewater expenses compared to total program expenses multiplied by the total program budget for 2012-13.

*** *This amount does not include additional funding provided to Health Regions to offset increases to salaries and benefits through collective bargaining agreements.

Note: As SaskWater is a Crown Investments Corporation subsidiary, its financial budgeting process, including timing and approvals, is separate from that of the ministries and/or agencies. Its activities are not related to water management, but rather the provision of water services to its customers. For full financial information, see SaskWater's annual report http://www.saskwater.com/MediaCentre/Documents/2012_SaskWater_Annual.pdf

Explanations of Major Variances

[1] In 2012-13, Saskatchewan had an early onset of winter which caused construction delays in various areas of the province especially in smaller or remote communities. Contractors could not work on the projects, or were delayed at other projects due to the weather. Delays were also caused by lack of engineering capacity and lack of construction firms available to complete the work. Some of the projects came in under budget therefore resulting in savings.

[2] $20,000 was transferred from Regional Programs Support to Regional Health Authorities' base operating funding (Mamawetan Churchill River Regional Health Authority) to address costs associated with inspection of remote health regulated water supplies in the far north.

[3] $30,000 under-expenditure in Regional Targeted Program due to deferred projects.

[4] $211,000 over-expenditure for the Saskatchewan Disease Control Laboratory is due to the purchase of new analytical equipment.

Revenues

There are no revenues that arise specifically in relation to delivery of drinking water activities for the ministries of Government Relations and Agriculture. Any revenues that arise from government commitments and activities relating to drinking water and source water protection within the Ministry of Health or SaskWater are reported within their respective annual reports.

For More Information

For an electronic copy of this report or more information on the status of drinking water in Saskatchewan visit:

www.SaskH20.ca/news.asp or http://www.saskh2o.ca/WaterInformationFactSheet.asp

Or contact:

Drinking Water and Wastewater Management Division
Water Security Agency
111 Fairford Street East
MOOSE JAW, SK S6H 7X9
Telephone: (306) 694-3900

Feedback on the key actions and results may also be provided to the Water Security Agency through the contact information immediately above.

Next year's annual report will address status of drinking water for the 2013-14 fiscal year.

Appendix A: List of Acronyms Contained in this Document

ABC	Association of Boards of Certification
ADD	Provincial Council of Agriculture Development and Diversification (ADD) Boards
ATAP	Advanced Technologies Applications
BCF-CC	Canada-Saskatchewan Building Canada Fund - Communities Component
BCF-MC	Canada-Saskatchewan Building Canada Fund – Major Infrastructure Component
BMP	Beneficial Management Practices
CAC	Certification Advisory Committee
CCME	Canadian Council of Ministers of the Environment
CES	Consulting Engineers of Saskatchewan
CESI	Canadian Environmental Sustainability Indicator
CEU	Continuing Education Units
COM	Certified Operations and Maintenance
CSIP	Canada-Saskatchewan Infrastructure Program
DWQI	Drinking Water Quality Index
EBWO	Emergency Boil Water Order
EFP	Environmental Farm Plans
EMS	Environmental Management System
EPO	Environmental Project Officer
FSIN	Federation of Saskatchewan Indian Nations
FTE	Full Time Equivalent
GUDI	Groundwater Under Direct Influence
INAC	Indian and Northern Affairs Canada
ISF	Infrastructure Stimulus Fund
LCD	Litres per Capita per Day
MCPA	2-Methyl-4-Chlorophenoxy Acetic Acid
MRIF	Canada-Saskatchewan Municipal Rural Infrastructure Fund
MWWE	Canada-wide Strategy for Municipal Waste Water Effluent
NTU	Nephelometric Turbidity Units
OCB	Operator Certification Board
OCP	Official Community Plans
PCAB	Provincial Council of Agriculture Development and Diversification (ADD) Boards
PCAP	Prairie Conservation Action Plan
PDWA	Precautionary Drinking Water Advisory
PPWB	Prairie Provinces Water Board
PT Base	Provincial Territorial Base Fund
RHA	Regional Health Authority
RWQP	Rural Water Quality Program
SARM	Saskatchewan Association of Rural Municipalities
SARWP	Saskatchewan Association of Rural Water Pipelines
SCADA	Supervisory Control and Data Acquisition
SCWMC	Spirit Creek Watershed Monitoring Committee
SIAST	Saskatchewan Institute of Applied Science and Technology
SIGI	Saskatchewan Infrastructure Growth Initiative
SPI	The Statement of Provincial Interest Regulation
SUMA	Saskatchewan Urban Municipalities Association
SWWA	Saskatchewan Water and Wastewater Association
WEBs	Watershed Evaluation of Beneficial Management Practices sites
WQI	Water Quality Index