



# 2013 Annual Performance Report

## TOWN OF CANMORE WATER & WASTEWATER SYSTEMS

2013 PERFORMANCE HIGHLIGHTS



EPCOR

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## Looking back at 2013

*This past year, the Town of Canmore and southern Alberta faced severe, devastating flooding. During this unprecedented disaster, EPCOR Canmore worked tirelessly to ensure the community's water and wastewater systems weathered this storm. With customers facing a prolonged recovery effort, it was important to demonstrate that they could rely on one of their essential service providers.*

Heavy rain and flooding along Cougar Creek transformed a normally dry creek bed into a raging torrent on June 20. Boulders, trees, storm pipes, and other debris were flowing downstream. Before 6 a.m., the town had declared a local state of emergency.

As flooding wreaked havoc across southern Alberta, EPCOR operations in Banff, the Kananaskis Improvement District, Okotoks and Canmore were impacted to varying degrees. With rising water, power failures and disruptions to natural gas and cellular communication impacting Canmore, EPCOR activated its Emergency Operations Centre (EOC) in Edmonton to provide support to regional employees and deploy additional resources.

### ***Reaching a boiling point***

A Boil Water Order (BWO) for the East Cougar Creek area was called on June 21 due to the strong possibility of the creek washing out water lines running underneath the creek bed. To protect the rest of the system, staff acted quickly to isolate the mains supplying water to the area. The result was a drop in pressure in the pipes, which hampered the system and posed a risk of contamination from backflows. The order was called as a precautionary measure to address the risk of contamination while the system was isolated.

The entire town was under a BWO by nighttime June 22, and tanks of potable water were brought in for residents. Turbidity in the raw water supplying the water treatment plant (Pumphouse #1) caused by surface runoff and mudslides challenged Canmore's main water treatment plant. The increase in solid particles plugged treatment plant filters, compromising their effectiveness.

Significant inflow and infiltration of the collection system and a power failure during high flow periods impacted the wastewater system. This led to sanitary sewer backups in some low-lying areas and the wastewater treatment plant surcharging at times. The rapidly changing river,

groundwater and Cougar Creek conditions led to an emergency evacuation of the EPCOR team at the wastewater treatment plant on June 21.

***Getting back to quality on tap***

By June 26, turbidity in the raw water dropped to treatable levels after reaching levels higher than what the plant was designed to treat. Newly treated water was fed to the reservoir to displace potentially non-potable water produced when the water treatment plant was stressed by high raw water turbidity. Sections of the water distribution system were flushed to remove any non-potable water, and extensive sampling took place before and during flushing.

When tests confirmed the treatment system was producing water that met potable water standards on July 5, Canmore's BWO was lifted.

***The year in full view***

For EPCOR's Canmore staff, operational excellence takes many forms. In 2013, we maintained service reliability and quality, worked to ensure the quality of the community's water source, and provided good value to the Town of Canmore on operational and capital projects.

This report contains highlights of our 2013 activities related to the environment, quality assurance, customer care and community, safety, operational excellence and capital projects. It also includes a summary of Canmore's water and wastewater systems.



## Partnership Overview

With over a century of utility experience, we are the contractor chosen to manage six water and/or wastewater operations in the Bow River Basin: Canmore, Banff, the Evan-Thomas area of Kananaskis Country, Strathmore, Chestermere and Okotoks. In fact, we provide clean drinking water and wastewater services to over 1.5 million people in 80 communities and industrial sites across North America.

Since 2000, we have supplied a wide range of services to the Town of Canmore including water and wastewater treatment, water distribution, wastewater collection, storm drainage, meter reading, customer billing and account management. We have a fixed-price, performance-based utility management agreement with the Town to continue providing services until 2020. The Town sets utility rates and retains ownership of all the waterworks-related assets on behalf of the citizens of Canmore.

## How We Measure Success

We work in partnership with the Town to ensure our performance meets the consistently high standards that Canmore residents expect. This report is part of our commitment to accountability and transparency.

In each community where we have water and wastewater contracts, we are accountable to deliver service that meets key measures for Environment, Customer Care, Safety, Quality Assurance, Operational Excellence and Capital Programs.

These measures are set in cooperation with the Town of Canmore and provincial regulators. A capital program and operations budget is also approved annually by Town Council. EPCOR Canmore and the Town are seeking to update performance metrics for the 2015 – 2019 period.



## Environment

EPCOR takes great pride in our role as stewards of your water supply. We divert and treat source water to deliver drinking water to our customers, while encouraging wise water use. At the other end of the system, our wastewater treatment process works to ensure the effluent returned to the Bow River is optimal in quality.

Another example of our commitment to the environment is our ongoing work with EPCOR environmental experts to develop an Environmental Protection Plan for the Canmore wastewater treatment plant. The plan establishes the desired environmental outcomes and strategies for land, air, and water. Many of these activities are preventive management best practices identified in site audits conducted by EPCOR's Risk Assurance group.

### Environmental Index

Activity	Actual Values							Target Values
	2007	2008	2009	2010	2011	2012	2013	
Environmental Releases	8	3	0	2	5	3	4	6
Contraventions to the Approval to Operate License	3	3	3	4	4	9	14	9
Proactive Activities	10	16	0	12	23	70	25	9
Completion of Required Regulatory Reporting	100%	100%	100%	100%	100%	100%	100%	100%

All four releases in 2013 were due to mechanical failure.

Contraventions:

- Of the 14 contraventions, six were attributed to environment conditions – pre-existing soil conditions left from coal mining, low river flow, flood conditions and cold raw source water.
- Two of the contraventions were administrative regarding poor biochemical oxygen demand and carbonaceous biochemical oxygen demand sampling.
- Six of the contraventions were mechanical – failure of sampler, pressure reducing valve and four underground connections.

Starting in 2014, EPCOR's southern Alberta operations' will only report water main breaks to Alberta Environment and Sustainable Resource Development if they pose a risk to public health or cause a widespread service interruption, as per a new agreement with the ministry.



## Quality Assurance

Safe drinking water and proper sanitation is invaluable when it comes to day-to-day living. Our employees work to ensure your drinking water and wastewater management meets or exceeds standards for safety, reliability and quality.

Water quality is measured by analyzing the physical, chemical and microbial properties of the water. Health Canada has established science-based guidelines for drinking water known as the Guidelines for Canadian Drinking Water Quality. They set the maximum acceptable concentrations of chemical, microbial and radiological contaminants found in water. They also address aesthetic water quality issues such as colour and taste.

Our operations employees in Canmore conduct ongoing water quality and wastewater tests in compliance with Alberta Environment and Sustainable Resource Development's (AESRD) Approval to Operate requirements.

We continue to regularly monitor approximately 75 water quality parameters and conducted more than 2,000 water quality tests in 2013. We also carried out about 6,000 tests related to 10 wastewater quality parameters.

EPCOR's Quality Assurance team in Edmonton also supports our Canmore team by conducting semi-annual audits to ensure compliance and the proper calibration of all related laboratory equipment.

We perform tests on a continual basis to ensure water quality and prohibit water distribution if concerns are identified. A groundwater well at Pumphouse #1 was taken out of service in 2012 after testing determined the water's chemical composition did not meet the acceptable range outlined in provincial guidelines. In partnership with AESRD and Alberta Health Services, we will drill a new well at this location in late 2014.



## Customer Care & Community

Our customer care philosophy is integral to how we operate in the communities we serve. We understand the importance our customers place on reliable water and wastewater services, therefore, we are available around-the-clock for emergencies. EPCOR Canmore managed to restore 91 per cent of water outages within 24 hours in 2013, a lower number than usual as a result of the flood.

As a provider of essential services, it is a natural extension for us to support employee volunteering, donations and other initiatives that help create strong communities and healthy families. These initiatives fall in line with EPCOR's three community investment pillars, namely **Water (Food)**, **Energy (Shelter and Safety)**, and **Education**.

In 2013, EPCOR continued to sponsor the Canmore and Area Health Care Foundations' Annual Golf Tournament to support health care enhancements in the Bow Valley. Another way in which EPCOR Canmore gave back to the community was through its sponsorship of the Canmore Folk Music Festival and the Towards Zero Waste initiative. To help encourage waste reduction and recycling at the event, EPCOR provided funds for resource recovery tents this past year.

The EPCOR Community Essentials Council contributed \$19,200 to the Environmental Law Centre Alberta Society for Protecting Watersheds through Regional Planning, an educational and outreach program to improve the health of our watersheds. Throughout 2013 and 2014, EPCOR experts are participating in this program that touches communities across Alberta, including Canmore and the Bow Valley.

We also continue to sponsor the EPCOR Chair for the United Nations Water for Life Decade, Bob Sandford. This initiative began in 2005 to promote efforts linked to fulfilling international commitments made on water and water-related issues. A Canmore resident and internationally-recognized expert, Bob also continues to work with EPCOR communities to help Canadians appreciate the importance and fragility of their natural resources.

### Your Guide to a Smaller Footprint

Our [epcor.com](http://epcor.com) website offers an extensive library of resources, including water efficiency and energy guides, plus tips, calculators and tools to help you save energy and water around your home or small business. We also offer educational resources and games for children, parents and teachers through eSmartKids at [esmartkids.epcor.ca](http://esmartkids.epcor.ca)

## 50 Best Corporate Citizens

EPCOR takes pride in its continued place on Corporate Knights magazine's list of 50 Best Corporate Citizens in Canada. Corporations do not apply to be included on this list but are instead ranked based on information sought out by the editors. Companies are assessed based on their environmental performance, including water and electricity efficiency, as well as social responsibility, diversity, transparent reporting and governance.

## Customer Service Index

Activity	Actual Values							Target Values
	2007	2008	2009	2010	2011	2012	2013	
Percentage of Service Outages Restored in less than 24 hours	100%	100%	100%	100%	100%	100%	91%	90%
Customer Satisfaction Survey	94%	N/A	91%	N/A	99%	N/A	N/A*	85%
Community Events Supported	10	10	12	7	7	2	8	4
Completion of Reporting and/or Internal Communication Targets	100%	100%	100%	100%	100%	100%	100%	100%

\* Customer Satisfaction Surveys are typically conducted every second year. While EPCOR did not complete a survey in 2013, one is planned for 2014 when an independent market research company will again measure the overall customer satisfaction with the water and/or wastewater service supplier.



## Safety

People are at the heart of everything EPCOR does — and making sure our employees and contractors get home safely after work is a priority. In fact, our staff and contractors in Canmore haven't had a single lost time accident since the Safety Index was introduced in 2006. These positive results stem from our continual emphasis on safety training for existing staff, new employees and contractors.

The Safety Index below shows each employee received 25.6 hours of training on various important topics – chlorine handling, transportation of dangerous goods, WHMIS, and gas testing, just to name a few. It also notes there were 439 preventative activities carried out, including regular site safety inspections, safe work plans, and confined space entry permits.

### Safety Index

Activity	Actual Values							Target Values
	2007	2008	2009	2010	2011	2012	2013	
Safety Training	37.8	55.2	21.5	41.5	35	26	25.6	8
Preventative Activities	132	115	83	104	164	233	439	55
Safety Meetings	12	12	12	12	12	12	12	11
Lost Time Incidents	0	0	0	0	0	0	0	0



## Operational Excellence

While our employees' response to record flooding as outlined earlier was the most noteworthy way in which we demonstrated operational excellence in 2013, a number of other highlights exist.

Operational excellence also includes good fiscal management. We negotiated a new two-year biosolids contract with Stickland Farms. In effect for 2014 and 2015, this new contract has the potential to save the Town an additional \$33,000 per year.

Preventive maintenance is another component of operational excellence and regular maintenance, evaluations and improvements are all ways in which we proactively manage all infrastructure. Using current performance metrics, the Quality/Efficiency Index below shows how our preventive maintenance activities met or exceeded targets. For example, ongoing maintenance included cleaning and flushing of sanitary mains in approximately 40 per cent of the town. As well, 430 fire hydrants and 32 pressure reducing valves were inspected in 2013.

### Quality/Efficiency Index

Activity	Actual Values							Target Values
	2007	2008	2009	2010	2011	2012	2013	
Rehabilitation Reporting	New index measure as of 2010			100%	100%	25%	100%	100%
Maintenance Activities	100%	100%	100%	100%	100%	100%	100%	100%
Contract Reports	New index measure as of 2010			100%	100%	100%	100%	100%
Natural Gas Reports	New index measure as of 2010			Below	Below	Below	Below	Below Thresholds
Power Reports	New index measure as of 2010			Below	Below	Below	Below	Below Thresholds

Delivering operational excellence also depends on knowledgeable employees so we actively encourage them to attain the highest level of water and wastewater certification available through the AESRD. This year, three of our operators upgraded their AESRD certification by one level.

## **Capital Project Highlights**

Continued investment in capital projects demonstrates a commitment to maintaining a sustainable water and wastewater system for the Town of Canmore.

The wastewater treatment plant upgrade and expansion plan was the most significant capital project that continued into 2013. The overall plan provides a solution to the plant's challenges in removing solids from the waste stream, which can result in effluent quality that does not meet regulatory standards. The plan also addresses the plant's present and future capacity needs. Currently, the capacity is sufficient to meet the Town's population of 12,000 permanent and 6,000 non-permanent residents. The proposed expansion will ensure Canmore can meet its potential build-out population of 31,000, including new regional services to the MD of Bighorn's Dead Man's Flats area.

To further ensure public safety, a chemical scrubber was installed at each water treatment plant to treat chlorine gas in the unlikely event of an accidental release.

Other capital project highlights in 2013 include the submission of a 2014-2018 capital plan, focused primarily on the wastewater treatment plant upgrade and capacity expansion. The Lift Station #1 upgrade will address capacity and operational challenges and will be complete in May 2014. While this work is underway, the Town is replacing and upgrading the force main under 5<sup>th</sup> Avenue in Canmore. Together, these projects will ensure more wastewater can be conveyed from the south Canmore collection system during high groundwater events.

Beyond replacing the Town-owned meter truck, we also changed 450 water meters to Automated Meter Reading (AMR) technology. This new technology ensures meter readings are more efficient and convenient for our customers, as the need to access private property no longer exists.



## What's Ahead

### Environment

When it comes to the environment, EPCOR Canmore's focus is on watershed protection in the Bow River Valley. Throughout the next year, staff will continue to work with partners on the development and coordination of river water quality sampling programs, while also providing funding toward AESRD Bow River monitoring program. Work on the Government of Alberta's Bow River Phosphorus Management Plan and on a source water protection plan are ongoing.

### Customer Care & Community

EPCOR takes pride in contributing to the communities where we operate, including Canmore. A number of opportunities exist to obtain support for initiatives, programs and events that enhance the community's quality of life. This includes our Helping Hands grant program that supports community service organizations for which staff volunteer. Looking ahead to 2014, EPCOR Canmore will partner with our neighbouring sites to support the Alberta Winter Games.

### Safety

Continuous training is a sign of our commitment to the safety of both staff and the public. The most significant activity in 2014 will see two staff attending a week-long Safety 2000 course at the Global Training Centre in Strathmore.

### Quality Assurance

We will update the Drinking Water Safety Plan that was developed in 2013 in cooperation with AESRD, the Town of Canmore and EPCOR's environmental specialists. The plan assesses any potential risks to maintaining a good quality supply of drinking water and subsequent mitigation strategies.

### Operational Excellence

To ensure our ongoing operational excellence, EPCOR works with each of our operators to maintain or expand upon their current level of certification. Ten of 11 operators are certified by AESRD. As we look to the future, the water distribution and collection system will require Level III certification, a requirement for which we intend to prepare our staff. We also continue to cross-train operators to provide them the experience necessary to increase their certification levels in all four disciplines – water treatment and distribution, and wastewater treatment and collection.

## **Capital Projects**

A number of capital-related highlights are anticipated for 2014:

- EPCOR will tender the wastewater treatment plant solids handling upgrade project by mid-year, with construction expected to begin late in the year. Around that same time, EPCOR will also drill a new raw water supply well at Pumphouse #1.
- Spring will see the completion of the wastewater treatment plant hydrovac disposal pad project.
- As part of the Inflow and Infiltration Program, we will continue the sanitary flow monitoring plan that was started in 2013. Sanitary camera work will continue in the LS#1 and LS#5 catchment areas, while a significant repair will be completed in the sanitary main leading into LS#5. Work on this project will be ongoing throughout the year.
- The Meter Replacement Program continues, with 400 replacements scheduled for 2014.

## **Water & Wastewater Systems in Canmore**

### **Water Treatment**

With Canmore attracting a varying number of visitors, our certified operators manage fluctuating demands for water throughout the year, relying on the community's two water sources.

Pumphouse #1 can meet a peak demand of 8 megalitres per day (ML/day) and is fed via a groundwater source (two wells) that only needs chlorination to treat the raw water. Meanwhile Pumphouse #2 can meet a peak demand of 9 ML/day and uses a surface water source treated with direct filtration, free chlorine and ultraviolet light disinfection. In 2013, these sources supplied a combined average demand of approximately 6 ML/day.

### **Water Distribution System**

Our crews operate and maintain more than 100 kilometres of water distribution pipes that supply treated water to customers across all of Canmore. Canmore continues to sell and distribute water to the MD of Bighorn.

Canmore's geology continues to present a challenge when it comes to repairing leaks. Water from leaking pipes quickly disappears into the granular soils, rather than surfacing where it can be easily detected.

Leak detection and system leak repairs decreased water loss in the distribution system from over 30 per cent in 2002 to 17 per cent in 2007. While water loss has risen somewhat, it remained stable at 23 per cent in 2012 and 2013. Comprehensive leak detection will continue in areas with ductile iron water mains in 2014, and any leaks discovered will be repaired. The replacement of distribution meters at Pumphouse #1 and Pumphouse #2 will help provide accurate water production numbers. The residential and commercial meter replacement program will also further ensure water consumption is more accurately metered and billed.

### **Collection System**

The Town's sewage collection system is divided into 11 catchment areas that each flow via gravity to one of 11 lift stations. Approximately 180 homes, mostly in south Canmore, are serviced by a low-pressure sewage system rather than a gravity one. Each home is required to have a sump and grinder pump to transfer sewage from the house to the collection main in the street. To

prevent backflow into their homes, residents are encouraged to regularly inspect and maintain their pump and sump systems.

Even with a diligent maintenance program, the high groundwater levels in Canmore's downtown can still lead to substantial infiltration of groundwater into the wastewater collection system. As a result, the additional volumes of wastewater requiring treatment add to the utility costs, energy consumption and associated greenhouse gas production.

## **Wastewater Treatment**

Canmore's Level III tertiary system is the premier level of wastewater treatment. To ensure the effluent returned to the Bow River is high-quality, EPCOR's treatment process includes primary screening, biological aerated filtration for secondary and tertiary treatment, and UV disinfection.

The plant is currently designed to treat a peak demand of 22 ML/day. In 2013, the average daily influent flow was 8.79 ML/day, with daily flows varying between 3.4 ML/day and 28.6 ML/day during the June flood.

## **Storm Sewer Management**

The Town of Canmore has approximately 35 km of storm sewers. Most of these are located in the newer subdivisions. Given the valley's flat terrain, Canmore's mature neighbourhoods do not have storm sewers. In areas located above the valley bottom, storm water is collected via drywells which allow the storm runoff to percolate down into the ground and ultimately reach the water table.

