



Only **Tap Water** Delivers



2008 EPCOR French Creek Annual Performance Report

**EPCOR**





# 2008

EPCOR FRENCH CREEK ANNUAL PERFORMANCE REPORT



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## INTRODUCTION

Only **Tap Water** Delivers public health, fire protection, support for the economy and quality of life. Your tap water – it's **safe, reliable** and when compared to other water options, **very affordable**. Your water bills pay for the stewardship of local water resources and the processes required to deliver safe and sustainable water to the community.

The 2008 Performance Report provides an overview of the achievements of EPCOR Water (West) Inc. (EPCOR) and looks ahead at plans for 2009. Our key measures of success include a full range of activities, summarized under the headings of Quality and Efficiency; Customer Care and Community; Safety; and Capital and Rehabilitation Programs.

## BACKGROUND

EPCOR is a Canadian company that provides two life essentials – water and power. EPCOR began serving its customers in the French Creek area, including a number of homes in the Oceanside area of Qualicum Beach, in May 2006, following approval by the British Columbia Water Comptroller for the purchase of the water utility. Approximately, 4,000 residents (1,800 customer accounts) in the area receive their water from EPCOR.

EPCOR French Creek obtains their drinking water from both ground water and surface water sources. The surface water from French Creek provides up to 15% of the total demand during the summer months or irrigation season. There are 15 active wells confined in two separate aquifers. Both aquifers provide good quality drinking water but one aquifer has higher secondary standard limits of iron and manganese. To deal with this aesthetic issue, a greensand filtration plant was constructed and commissioned in 2008. The treatment plant removes up to 95% of the total iron and manganese from the source water. Sodium hypochlorite is used for disinfection of both surface and ground water.

Every water service in the area is metered. Fire protection service is provided to the residents by means of 146 fire hydrants and 13 standpipes.

EPCOR employs four full time permanent employees in French Creek. Additional technical support is available through EPCOR's 35 water professionals in BC and 447 water professionals in EPCOR Water Services.

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## EPCOR'S DISTRIBUTION SYSTEM IS COMPRISED OF:

- Two water storage reservoir sites;
- 15 active wells;
- A booster station pumphouse;
- 30 km of AC, PVC and polyethylene piping;
- A greensand filtration water treatment plant;
- 21 air and/or vacuum release valves;
- 361 mainline valves;
- 146 fire hydrants.



## EPCOR'S LONG TERM VISION

**We are committed to protecting the public health through the production and delivery of high quality drinking water for all our customers.**

A sustainable water utility is not only financially sound and operationally excellent, it also assumes responsibility for the environment in which it operates and is accountable to its customers and the larger community. Financial, social and environmental responsibility is the foundation for all we do.

We put this philosophy into action by following these principles:

FINANCIAL AND/OR OPERATIONAL EXCELLENCE	SOCIAL	ENVIRONMENTAL
<p><b>We conduct all our operations in a fiscally responsible manner to maintain sustainable water systems.</b></p> <p>We proactively manage <b>all water system infrastructure</b> through regular maintenance, evaluation and improvements.</p> <p>We continually <b>enhance our leadership position</b> in the drinking water industry through the development of best practices, support of research and building our staff expertise.</p> <p>We regularly assess and report the performance of our operations to identify opportunities for improvements and efficiencies.</p>	<p>We provide <b>timely, ongoing communication</b> with our customers and we regularly identify and engage stakeholders in many aspects of water program planning.</p> <p>We ensure our operations have <b>emergency response plans</b> and capabilities to deal with situations in a timely and safe manner. This is done in cooperation with health authorities, regulators and other stakeholders.</p>	<p>We provide drinking water that consistently <b>meets all provincial regulatory requirements</b> and strive to meet recommended guidelines and aesthetic objectives.</p> <p>We provide <b>source-to-tap management</b> for water systems using an effective barrier approach.</p> <p>We work in cooperation with local, provincial and federal health and environmental agencies to <b>advance industry initiatives and research</b> to ensure long term safety and supply of drinking water.</p>



## QUALITY & EFFICIENCY

Protecting public health is the priority for EPCOR and water quality is monitored and continually enhanced through diligent operations and high quality standards. EPCOR employees work to ensure that water provided to the community meets or exceeds standards and expectations for safety, reliability and quality.

EPCOR French Creek is classified as a Class III Water Treatment Plant and a Class II Water Distribution System through the Environmental Operators Certification Program. The Senior Operator is certified as a Class IV Water Treatment Operator and a Class III Water Distribution Operator, while the second operator is certified as a Class II Water Distribution Operator. This ensures the community receives the technical expertise and knowledge required to deliver a safe and reliable drinking supply.

### HIGHLIGHTS

EPCOR conducts ongoing reviews of the existing water system to assess its condition and identify upgrades necessary to operate and maintain the Utility to meet leading water utility standards. The following operating procedures and standards have been implemented or enhanced:

- Annual reporting of water quality information and system upgrades to Vancouver Island Health Authority consistent with provincial regulations.
- A water quality monitoring program that includes more frequent water quality testing for metals to supplement the existing sampling for bacteria.
- Improved lab testing and training to broaden what is tested in the water effective October 1, 2006.
- Operational programs such as uni-directional flushing to maintain water quality in the watermains throughout the system.
- Equipment testing and calibration completed monthly by local operators, supported through the annual testing of all water lab equipment by certified technicians.
- Annual inspection and maintenance of all fire hydrants to ensure fire protection standards are met.
- Numerous improved maintenance procedures through the use of current systems to schedule, log and track all preventive and corrective maintenance activities.
- Implementation of Environmental, Safety, Security, and Quality Assurance Audits.
- Full operation and maintenance manuals for the new greensand filtration plant.
- Implementation of a raw water supply operation and maintenance program.

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## WATER QUALITY INFORMATION

EPCOR monitors the physical, chemical, and microbiological characteristics of your drinking water. Health Canada has established science-based guidelines for drinking water known as The Canadian Drinking Water Guidelines (CDWG). These guidelines set the maximum acceptable concentrations (MAC) of chemical, microbiological and radiological contaminants found in water. They also address aesthetic water quality issues such as colour, taste and odour. Water is considered clean and safe for consumption when the concentrations of the microbiological, chemical, radiological and physical characteristics are below the MAC of CDWG.

All testing undertaken to date indicates that the quality of French Creek's water is excellent relating to microbiological parameters, meeting all BC water quality regulatory requirements. However, manganese and iron levels occasionally exceed the aesthetic objective levels in the Canadian Drinking Water Guidelines (CDWG). With the implementation of the new water treatment plant which removes up to 95% of the total iron and manganese from the source water, future levels are expected to be around the minimum detection level.



Iron	Manganese
Iron is the most abundant heavy metal on earth; this mineral is also an essential element for human nutrition. Iron is usually insoluble and therefore the concentration of soluble iron in water is usually in trace quantities. The majority of our dietary intake of iron generally comes from food; the contribution of iron from drinking water consumption is comparatively insignificant. The CDWG AO (Aesthetic Objective) is therefore based on an aesthetic objective of 0.3 mg/L because iron in excess of 0.3 mg/L can cause staining of plumbing and laundry.	Manganese, a mineral commonly occurring in surface or ground water, is not a health issue, but an aesthetic one. At levels > 0.15 mg/L it can cause staining of plumbing, laundry and cause objectionable taste. In 2008, average concentration of Manganese in French Creek's distribution system was 0.0228 mg/L with the minimum of < 0.005 mg/L and a maximum of 0.0668 mg/L, which was recorded prior to the start up of the treatment plant.

## HOW TO MEASURE

- Most substances listed are reported in **milligrams per litre** (mg/L). One milligram per litre is commonly referred to as one part per million.
- One **part per million** is equivalent to one drop in 1/2 bathtub full of water or one second in 12.5 days.
- Some substances are measured in **parts per billion**. One part per billion is also referred to as one microgram per litre (µg/L).
- One **part per billion** is equivalent to one drop in 520 bathtubs full of water or one second in 32 years.

## ABBREVIATIONS

ABBREVIATIONS	
<	Less Than Detection Limit
ACU	Apparent Colour Unit
AO	Aesthetic objective
CFU	Colony Forming Unit
GM	Geometric mean
MPN/mL	Most Probable Number per mL
N	Nitrogen
NA	Not applicable; no limits set
NTU	Nephelometric Turbidity Unit
pS/cm	microsiemens/cm
TCU	True Colour Unit

## TABLE 1: 2008 SUMMARY OF TREATED WATER QUALITY PARAMETERS

SUBSTANCE	UNIT OF MEASURE	MIN	MAX	2008 AVERAGE	CDWG STANDARD*
<b>BACTERIA</b>					
Total Coliforms	CFU/100 mL	< 1	< 1	< 1	0
<i>E. Coli</i>	CFU/100 mL	< 1	< 1	< 1	0
<b>MINERALS</b>					
Beryllium	mg/L	< 0.00004	< 0.00004	< 0.00004	NA
Bismuth	mg/L	< 0.0001	< 0.0001	< 0.0001	NA
Calcium	mg/L	21.5	34.9	30.2	NA
Potassium	mg/L	0.7	1.1	0.9	NA
Sodium	mg/L	7.1	8.4	7.7	200 (AO)
<b>OTHER</b>					
Free Chlorine	mg/L	0.3	1.9	0.8	NA
Temperature	°C	6	20	11.5	15 (AO)
Turbidity	NTU	0.1	1.5	0.3	1.0
<b>TRACE METALS</b>					
Aluminum	mg/L	< 0.005	< 0.02	< 0.02	0.1
Antimony	mg/L	< 0.0002	< 0.0002	< 0.0002	0.006
Arsenic	mg/L	0.0003	0.0006	0.0005	0.01
Barium	mg/L	0.009	0.011	0.010	1
Boron	mg/L	0.010	0.011	0.011	5
Chromium	mg/L	< 0.0005	0.0018	0.0009	0.05
Cobalt	mg/L	< 0.0002	< 0.0002	< 0.0002	NA
Copper	mg/L	0.005	0.056	0.024	≤ 1.0 (AO)
Iron	mg/L	< 0.01	0.1	0.04	0.3 (AO)
Lead	mg/L	0.0001	0.0006	0.0004	0.01
Lithium	mg/L	< 0.001	< 0.001	< 0.001	NA
Magnesium	mg/L	9.8	17.5	14.0	NA
Manganese	mg/L	< 0.005	0.0668**	0.0228	≤ 0.05 (AO)
Molybdenum	mg/L	0.000003	0.00023	0.00019	NA
Nickel	mg/L	< 0.001	0.001	< 0.001	NA
Selenium	mg/L	< 0.0006	< 0.0006	< 0.0006	NA
Silicon	mg/L	7.0	11.4	9.9	NA
Silver	mg/L	< 0.001	< 0.0001	< 0.001	NA
Strontium	mg/L	0.090	0.118	0.107	NA
Thallium	mg/L	< 0.00001	< 0.00001	< 0.00001	NA
Tin	mg/L	< 0.0001	< 0.004	< 0.004	NA
Titanium	mg/L	< 0.0004	< 0.0005	< 0.0005	NA
Vanadium	mg/L	0.00095	0.00444	0.0032	NA
Zinc	mg/L	0.017	0.022	0.019	≤ 5 (AO)

\* Maximum allowed under Canadian Drinking Water Guideline requirements.

\*\* Recorded prior to the start-up of the treatment plant.

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## FRENCH CREEK WATER QUALITY

Since EPCOR began operating this utility in May 2006, many improvements have been implemented, including well video examinations, operational efficiencies and increased water quality monitoring. Completion of the greensand filtration plant occurred in June 2008, providing exceptional results in the removal of iron and manganese from the well water. The inception of the new treatment plant enabled 35% less use of French Creek as a surface water source than in previous years.

More information on manganese and iron is available in the Environmental & Workplace Health section at [www.hc-sc.gc.ca](http://www.hc-sc.gc.ca).

French Creek monitoring program consists of daily, weekly, monthly and annual monitoring of chemical, physical and microbiological parameters in the reservoirs and distribution system.

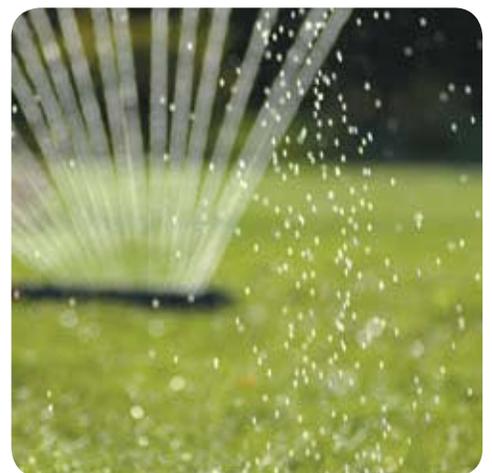
Routine daily sampling along with continuous online monitoring of chlorine residual, turbidity, and temperature is carried out at the Drew Road water treatment plant and the Church Road reservoir. The Distribution system is also monitored on a weekly and monthly basis for microbiological, chemical, and physical parameters from seven sample locations chosen by the Drinking Water Coordinator to represent the water quality for the entire French Creek system.

Completion of the SCADA upgrade capital improvement project allowed better real time monitoring and operation of the French Creek system.



### Did you know...

In 2008, EPCOR conducted over 7600 water quality tests.





### Did you know...

A single lawn sprinkler spraying 10 litres per minute uses more water in one hour than a combination of ten toilet flushes, two five-minute showers, two dishwasher loads and a full load of clothes.



French Creek Kid's Dock Derby

## CUSTOMER CARE AND COMMUNITY

EPCOR Staff provides 24 hour emergency services, is available to answer customer questions and is committed to resolving customer concerns in a timely manner. A variety of information on your water supply including ways to reduce water use in your home and outside is available through the EPCOR website. EPCOR is proud to actively support the community and strives to build sustainable partnerships that enhance community life and promote wellness.

### HIGHLIGHTS

Since beginning operations in French Creek, EPCOR has undertaken a number of initiatives to improve customer service and communications. These include:

- Tracking all customer complaints and inquiries.
- Introducing a customer newsletter (mailed out with bills), providing customers with operational updates and efficiency, quality and water information.
- Implementing a Community Advisory Panel (CAP) to seek input from community members and key stakeholder groups on issues related to water service in French Creek.
- Sponsoring community events:
  - Pacific Salmon Foundation Oceanside Dinner & Auction;
  - Oceanside Hospice Golf Tournament;
  - French Creek Kid's Dock Derby;
  - Parksville Beach Fest; Fire & Ice Event;
  - Friends of French Creek Hof Waldeck Farm Restoration Project;
  - Qualicum Beach Fire Department Association Hose and Reel Dance Fundraiser.
- Supporting the United Way, with employee donations directed to local organizations of their choice.

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CUSTOMER SERVICE INDEX			
ACTIVITY	2008	2007	2006
Customer Calls			
- Low Pressure	7	5	4
- Taste & Odour	5	4	3
- Water Quality (brown water)	27	75	31
- Misc (info, billing, etc)			4
- TOTAL	39	84	42
Customer Satisfaction Index			*Benchmark survey:
- Water Service Supplier			84%
- Quality of tap water			76%
Community Events Supported	8	8	1

In 2007, the customer calls database was expanded to track several categories. Prior to 2007 the calls were not categorized.

\*Survey is conducted every 3–4 years.

## REMEMBER! BE A LEAK SEEKER

A leaking toilet can waste more than 400 litres of water each day. Most toilet leaks are silent. To check for leaks, put a few drops of food colouring into your toilet tank. If, without flushing, the colour begins to appear in the bowl after 15–20 minutes you have a leak. Most internal leaks do not require a plumber to repair. Your local hardware store can assist you by recommending the best method of replacement or repair.

## Did you know...

Water wisely outdoors:

- Set your sprinkler to deliver water in large droplets which are more resistant to evaporation;
- Use timers to avoid over-watering;
- Water before 10 am to eliminate evaporation on hot days;
- Avoid watering during windy days.

## Did you know...

A tap that drips once a second wastes 33 litres a day – in a year, that's enough for 446 showers!

### Did you know...

Small leaks can continuously waste many litres of water. Regularly check faucets, pipes, taps, hoses and washing machine fittings for leaks and immediate repair. Leaks can often be repaired by replacing a washer.

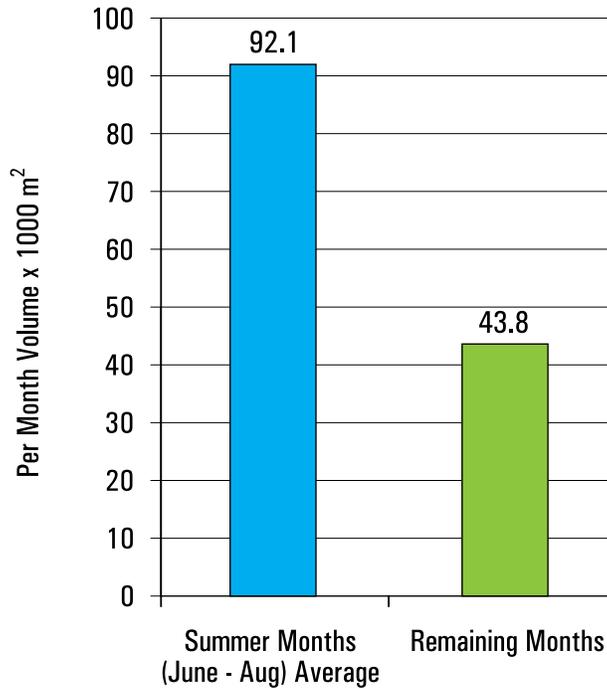


Blue dye tablets can be used to test for toilet leaks.

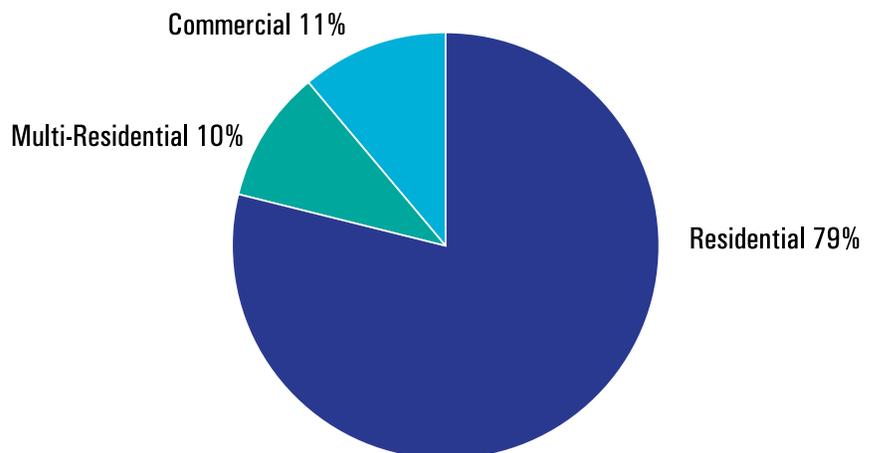
### Did you know...

If your toilet is more than 10 years old, it is probably a water waster. Replacing it with a new, efficient low-flush toilet will use between 50% and 80% less water per flush, depending on the model you buy.

### 2008 Seasonal Water Use



### 2008 Water Consumption by Customer Group



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## SAFETY AND ENVIRONMENT

EPCOR is committed to the ongoing safety of our employees with the promotion of safe work practices incorporated into regular work activities with regular inspections conducted in all work areas. Lost time incidents are reported monthly and a target of zero is set annually.

### HIGHLIGHTS

- Safety Performance Index (SPI) implemented to track safety and environmental activities at all facilities.
- Zero Lost Time incidents in 2008.
- Preventive talks, site inspections and safe work plans are incorporated into regular work activities to ensure promotion of safe work practices.
- Assessment by EPCOR Corporate Security and Safety to identify risks and recommend actions to encourage prevention of incidents.
- Reviewed and updated EPCOR's Emergency Response Plan (ERP).
- Installed spill containment at the Drew Road water treatment plant for sodium hypochlorite.
- Installed guard rails on Drew Road reservoir for safer entry.
- Installed fire monitoring equipment at all sites.
- Updated Environmental Assurance Plan.

### SAFETY HEROES PROGRAM

The Safety Heroes program is a series of informal talks aimed at raising safety awareness, with a focus on workers' responsibility to work safely, provide good mentoring examples and look out for co-workers' safety. Each presentation features a speaker sharing their personal story of how a serious, preventable injury impacted their lives and the lives of those close to them. Guest speakers Kathleen Higgins, mother of an injured young worker, and Don Rawson, injured on the job, shared their stories with EPCOR French Creek employees.



Safety Heroes speaker Don Rawson, injured on the job, shares his stories with French Creek staff.



Kathleen Higgins shows the video Lost Youth, which portrays her son, John, injured on the job.



## CAPITAL AND REHABILITATION PROGRAM

### HIGHLIGHTS

During 2008, a number of capital projects were implemented, including:

#### System Controls/Supervisory Control and Data Acquisition (SCADA) Upgrades

- Installation of remote monitoring equipment for monitoring of the water supply.
- Enhanced level of warning and safeguards in the event of incidents.
- Installation of flow monitoring meters to gather data, identify water losses in the system, enable demand management during the summer months and assist in identifying water loss in the system.
- Enhanced level of control of entire water system.
- Enhanced monitoring of ground water wells with optimization of radio communication between well sites.
- Refinement and optimization of the SCADA system.

#### Security Upgrades

- Developed and implemented new security measures to protect EPCOR French Creek's water supply with intrusion and security alarms installed at all sites and the main office.

#### Ongoing Capital and Maintenance Programs

- Continuation of meter replacement program.
- Annual maintenance of all fire hydrants, standpipes, and air valves.
- Development of a well maintenance and operations manual along with a five-year schedule maintenance plan.
- Continuation of the Uni-Directional Flushing (UDF) program that uses less water and better scouring than regular flushing of the watermains.
- Development of Operations and Maintenance manuals for Drew Road water treatment plant and Church Road reservoir.

#### Drew Road Water Treatment Plant

- Completion and successful commissioning of the greensand filtration water treatment plant at Drew Road.

#### Well Sustainability Evaluation and Operational Planning

- Commissioned and completed an aquifer management study by a professional hydrogeologist.

#### Water Treatment Plant Sewer Connection

- Completion of the water plant's sewer line to regional sewer system.

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## WHAT'S AHEAD

### QUALITY AND EFFICIENCY

- Ongoing monitoring of French Creek's water supply includes regular maintenance of laboratory equipment and testing procedures to ensure quality of water.
- Enhanced reliability of water provision by using around the clock remote monitoring.
- Annual system maintenance and preventative programs.
- Diligent operation and maintenance of distribution system facilities to ensure all regulatory requirements are met or exceeded.
- Promotion of cross connection control awareness with customers and local government.



### CUSTOMER CARE AND COMMUNITY

- Monitoring, tracking and follow-up on all customer inquiries and concerns.
- Customer communication to increase awareness of French Creek's water supply and the importance of using it wisely.
- Continued community involvement and event sponsorship.

### SAFETY AND ENVIRONMENT

- Commitment to EPCOR Safety and Environmental Programs that ensure the safety of staff and the public at large.
- Encouragement of staff to attain highest level of Environmental and Safety certification.

### CAPITAL AND REHABILITATION PROGRAM

- Ongoing water meter replacement program to ensure water system reliability and efficiency.
- New well drilling to reduce dependency on French Creek as a surface water supply.
- Well rehabilitation/replacement to better optimize aquifer management.

### COMMUNITY ADVISORY PANEL (CAP)

- The Community Advisory Panel (CAP), which includes representation from customers, community and stakeholder groups, continues to meet three times a year. This group provides valuable input on issues that impact customers, e.g. water efficiency, groundwater and environmental issues, legislative and technical changes, communication methods, rate changes and community support.





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