



Only **Tap Water** Delivers



2009 EPCOR French Creek Annual Performance Report

EPCOR



2009

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 2009 Performance Report provides an overview of the achievements of EPCOR Water (West) Inc. (EPCOR) and looks ahead at plans for 2010. 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 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 its drinking water from both ground water and surface water sources. The surface water from French Creek provides up to 17% 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 amounts of iron and manganese. To deal with these aesthetic issues, a greensand filtration plant was constructed 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 147 fire hydrants and 13 standpipes.

EPCOR French Creek employs three full time and one part-time permanent employee. Additional technical support is available through EPCOR's 27 water professionals in British Columbia and more than 600 staff in EPCOR Water Services.



Did you know...

- In 2009, EPCOR conducted over 7500 water quality tests

EPCOR'S DISTRIBUTION SYSTEM IS COMPRISED OF:

- Six 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;
- 147 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>We conduct all our operations in a fiscally responsible manner to maintain sustainable water systems.</p> <p>We proactively manage all water system infrastructure through regular maintenance, evaluation and improvements.</p> <p>We continually enhance our leadership position 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 timely, ongoing communication with our customers and we regularly identify and engage stakeholders in many aspects of water program planning.</p> <p>We ensure our operations have emergency response plans 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 meets all provincial regulatory requirements and strive to meet recommended guidelines and aesthetic objectives.</p> <p>We provide source-to-tap management for water systems using an effective barrier approach.</p> <p>We work in cooperation with local, provincial and federal health and environmental agencies to advance industry initiatives and research 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 attentive 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 and a Class II Water Treatment 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.
- Annual water quality testing meets or surpasses regulatory requirements.
- Installation of a fourth stand alone water sampling station to provide more accurate and dependable water quality laboratory results.
- 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.
- Ongoing audits for Environmental, Safety, Security, and Quality Assurance.



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 meets or exceeds all BC water quality regulatory requirements.

Iron	Manganese
<p>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. French Creek’s 2009 average for iron was 0.02 mg/L.</p>	<p>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. French Creek’s 2009 average for manganese was 0.0039 mg/L.</p>

TABLE 1A: SUMMARY OF TREATED WATER QUALITY PARAMETERS

SUBSTANCE	UNIT OF MEASURE	MIN	MAX	2009 AVERAGE	CDWG STANDARD*
MICROBIOLOGICAL					
<i>E-Coli</i>	cfu/100mL	< 1	< 1	< 1	0
<i>Cryptosporidium</i>	oocysts/100 L	< 0.42	< 0.95	< 0.42	NA
<i>Giardia</i>	cysts/100 L	< 0.42	< 0.95	< 0.42	NA
Total Coliforms	cfu/100mL	< 1	< 1	< 1	0
MINERALS					
Bicarbonate	mg/L	170	190	180	NA
Calcium	mg/L	35.9	39.8	38.2	NA
Carbonate	mg/L	< 6	< 6	< 6	NA
Potassium	mg/L	0.8	3.1	2.2	NA
Sodium	mg/L	8.9	29.3	20.4	≤ 200(A0)
ORGANICS					
Trihalomethanes	mg/L	0.0329	0.0392	0.0361	≤ 15(A0)
Total Haloacetic Acids	mg/L	0.0592	0.0592	0.0592	NA
OTHER					
Colour	Colour units	< 5	6	< 5	≤ 15(A0)
Conductivity	µS/cm at 25 C	357	416	384	NA
Free Chlorine	mg/L	0.2	1.2	0.8	NA
Hardness	mg CaCO3/L	151	172	164	NA
Hydroxide	mg/L	< 5	< 5	< 5	NA
pH		6.4	7.9	7.3	6.5-8.5(A0)
Sulfur	mg/L	3.0	15.7	8.8	NA
Total Alkalinity	mg/L	143	154	147	NA
Temperature	°C	7	22	12	≤ 15(A0)
Turbidity	NTU	< 0.1	0.3	0.2	NA

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 ½ a bathtub full of water or one second in 12.5 days.
- Some substances are measured in **parts per billion**. One part per billion is equivalent to one drop in 520 bathtubs full of water or one second in 32 years.
- One **part per billion** is also referred to as one microgram per litre (µg/L.)

ABBREVIATIONS	
<	Less Than Detection Limit
ACU	Apparent Colour Unit
N	Nitrogen
TCU	True Color Unit
GM	Geometric mean
NTU	Nephelometric Turbidity Unit
µS/cm	microsiemens
CFU	Colony forming unit

TABLE 1B: SUMMARY OF TREATED WATER QUALITY PARAMETERS

SUBSTANCE	UNIT OF MEASURE	MIN	MAX	2009 AVERAGE	CDWG STANDARD*
TRACE METALS					
Aluminum	mg/L	< 0.005	< 0.05	< 0.05	0.1/0.2(A0)
Antimony	mg/L	< 0.0002	< 0.001	< 0.001	0.006
Arsenic	mg/L	< 0.001	0.0011	< 0.001	0.01
Barium	mg/L	0.006	0.010	0.008	NA
Beryllium	mg/L	< 0.00004	< 0.0002	< 0.0002	NA
Boron	mg/L	0.037	0.054	0.046	5
Cadmium	mg/L	< 0.00001	< 0.0004	< 0.0004	0.005
Chromium	mg/L	< 0.0004	< 0.002	0.00060	0.05
Cobalt	mg/L	< 0.00002	< 0.0001	0.00003	NA
Copper	mg/L	0.01	0.17	0.08	≤ 1.0(A0)
Iron	mg/L	< 0.01	0.05	0.02	≤ 0.3(A0)
Lead	mg/L	< 0.0001	0.002	0.0008	0.01
Lithium	mg/L	< 0.001	< 0.005	< 0.005	NA
Magnesium	mg/L	15.5	18.3	16.9	NA
Manganese	mg/L	0.0017	0.0062	0.0039	≤ 0.05(A0)
Molybdenum	mg/L	< 0.0001	0.0006	0.0004	NA
Nickel	mg/L	< 0.001	< 0.005	< 0.005	NA
Phosphorus	mg/L	< 0.05	0.437	0.244	NA
Selenium	mg/L	< 0.0006	< 0.003	< 0.003	0.01
Silicon	mg/L	11.9	12.9	12.3	NA
Silver	mg/L	< 0.00001	0.0024	0.0008	NA
Strontium	mg/L	0.1160	0.1380	0.1247	NA
Thallium	mg/L	< 0.00001	< 0.00005	< 0.00005	NA
Thorium	mg/L	< 0.0001	< 0.002	< 0.002	NA
Tin	mg/L	< 0.0001	< 0.0005	0.0001	NA
Titanium	mg/L	< 0.002	0.0026	< 0.002	NA
Uranium	mg/L	< 0.0004	< 0.002	< 0.002	0.02
Vanadium	mg/L	0.0006	0.004	0.002	NA
Zinc	mg/L	0.006	0.020	0.012	≤ 5.0(A0)
Zirconium	mg/L	< 0.0001	< 0.0005	0.0001	NA

FRENCH CREEK WATER QUALITY

During 2009, over 7500 different water quality tests were performed. Testing included: chlorine residual, turbidity, conductivity, temperature, iron, manganese, and microbial contaminants on a regular basis as well as various other external laboratory tests.

Since EPCOR began operating the French Creeks utility in May 2006, many improvements have been implemented, including well video examinations, operational efficiencies, and increased water quality monitoring. The construction of the Drew Road Water Treatment Plant that utilizes greensand filtration in 2008 has reduced levels of iron and manganese to near detection limits. This treatment plant draws water from wells, therefore the use of surface water from French Creek continues to decline. It is anticipated French Creek will not be used as a water source by December 2012.

The French Creek water system monitoring program consists of daily, weekly, monthly, and annual monitoring of chemicals, physical, and microbial parameters in the reservoirs and the distribution system.

Routine daily sampling along with continuous online monitoring of chlorine residual and turbidity 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 microbial, chemical, and physical parameters from eight sample locations chosen in collaboration with the Vancouver Island Health Authority Drinking Water Coordinator to represent the water quality for the entire French Creek system.

Vancouver Island Health Authority (VIHA) has implemented the 4-3-2-1 Surface Water Treatment policy that involves providing enhanced treatment for all surface water sources. EPCOR has until December 2012 to discontinue its use of the French Creek surface water source. EPCOR aims to be no longer using the French Creek source before this date. As such, the utility is looking at options for drilling new wells to replace the surface water source.



Did you know...

- The average North American home loses 14% of its water through leaks
- Efficient front load clothes washers use 68% less energy and 38% less water compared to older, standard models.
- Efficient 6L/flush toilets use 67% less water than standard 20L/flush models.

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
- Four customer newsletters per year (mailed out with bills), providing customers with operational updates, efficiency tips, and water quality information
- A Community Advisory Panel (CAP) established in 2008 is used to seek input from community members and key stakeholder groups on issues related to water service in French Creek
- EPCOR sponsors community organizations and events, including:
 - French Creek Kid's Dock Derby
 - Fire & Ice event; Society Street Festival
 - Parksville Beach Festival Society Canadian Open Sand Sculpting Competition
 - Pacific Salmon Foundation Oceanside Dinner and Auction
 - Continued support to the United Way Campaign, with employee donations directed to local organizations of their choice

CUSTOMER SERVICE INDEX

ACTIVITY	2009	2008	2007	2006
Customer Calls				
- Low Pressure	4	7	5	4
- Taste & Odour	12	5	4	3
- Water Quality (brown water)	4	27	75	31
- Misc (info, billing, etc)	23	n/a	n/a	4
- TOTAL	43	39	84	42
Community Events Supported	5	8	8	1

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...

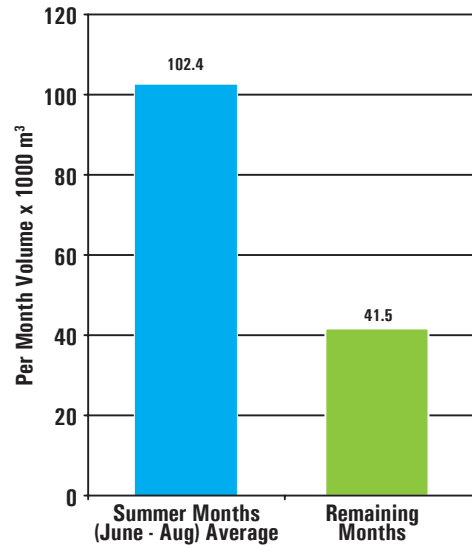
Small leaks can continuously waste many litres of water. Regularly check faucets, pipes, taps, hoses and washing machine fittings for leaks and immediate repair. Leaks can often be repaired by replacing a washer.



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

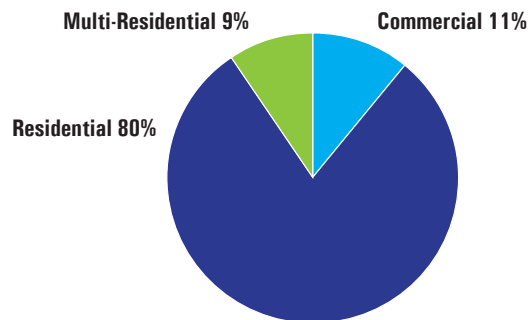


French Creek 2009 Seasonal Water Use

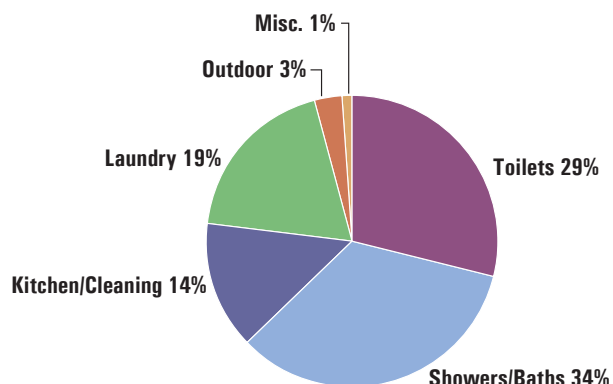


*Includes Commercial, Residential and Multi-residential use

French Creek 2009 Water Consumption by User Group



Typical Canadian Household Water Consumption



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

- No Lost Time incidents in 2009
- Applied Safety Performance Index (SPI) to track activities at all facilities, relating to safety and the environment
- Incorporated preventive talks, site inspections and safe work plans into regular work activities to ensure promotion of safe work practices
- Annual review and update of EPCOR's Emergency Response Plan (ERP)
- Updated Environmental Assurance Plan
- Training in Confined Space Entry for all operations staff



CAPITAL AND REHABILITATION PROGRAM

HIGHLIGHTS

During 2009, a number of capital projects were implemented, including:

Church Road Reservoir Cell #2 Roof Replacement

- A structural review of the reservoir conducted by Sotola Engineering identified the need to replace the existing deteriorated wooden roof. The reservoir roof is more than 20 years old and has already exceeded its life expectancy. Design options were reviewed and evaluated to determine appropriate replacement options for the roof. This roof replacement is scheduled for 2010.



New Reservoir at the Church Road Reservoir

- EPCOR Water West Resource Plan identified the need for an additional storage reservoir. The key reasons are to meet forecast demand growth and requirements for fire storage in the future. Fire storage requirements are set by Fire Underwriters Survey – Water Supply for Public Fire Protection. Design began on the new reservoir in 2009 with construction to begin in 2010.



New Wells

- This project includes construction of six new wells. One new well will replace an existing “end of life” well. Two wells have been identified to replace the French Creek surface supply and meet the Vancouver Island Health Authority’s new 4-3-2-1 surface water regulation. Another three wells will provide additional supply for projected growth requirements in the French Creek system.
- Investigation and planning began in 2009 for the new well locations. It may take up to 3 years before the wells are completed due the need for design plans, regulatory applications, construction, and connection to the existing system.

Ongoing Capital and Maintenance Programs

- Continuation of meter replacement program
- Annual maintenance of all fire hydrants, standpipes, and air valves
- Continuation of the unidirectional flushing (UDF) program that uses less water and provides better scouring than regular flushing procedures for water mains

WHAT'S AHEAD

QUALITY AND EFFICIENCY

- Moving forward with Vancouver Island Health Authority's 4-3-2-1 Surface Water Treatment Policy
- Ongoing monitoring of French Creek's water supply includes regular maintenance of laboratory equipment and 24/7 testing procedures to ensure quality of water
- Annual system maintenance and preventative programs
- Ongoing 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
- Community involvement and event sponsorship activities vary annually
- Continued customer communication to increase awareness of French Creek's water supply and the importance of using it wisely

SAFETY AND ENVIRONMENT

- Continued commitment to EPCOR Safety Program, ensuring the safety of staff and the public at large
- Continued encouragement of staff to attain highest level of Environmental and Safety certification

CAPITAL AND REHABILITATION

- A new reservoir will be built at the Church Road Reservoir #2 site in 2010. This will improve fire and emergency storage and provide for projected growth
- Ongoing water meter replacement program to ensure water system reliability and efficiency
- The approved capital program has identified well replacement, rehabilitation and addition of production wells along with replacement of the French Creek surface supply with groundwater wells in 2010 and beyond

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 that may impact environmental issues, legislative and technical changes, communication methods, rate changes and community support.



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