

2011 FRENCH CREEK PERFORMANCE REPORT



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INTRODUCTION

The 2011 Performance Report provides an overview of the achievements of EPCOR Water (West) Inc. (EPCOR) and looks ahead at plans for 2012. Our key measures of success include a full range of activities that are summarized under the headings of Quality Assurance, Operational Excellence, Capital Projects, Customer Care and Community, and Safety and Environment.

These measures are set by EPCOR Water Services. They are submitted to, and consistent with, our Regulators' requirements (B.C. Water Comptroller's Office and Vancouver Island Health Authority). Capital program and operations budgets are approved by the B.C. Water Comptroller's Office in accordance with their regulatory process. Detailed reporting is submitted as required to both the B.C. Water Comptroller's office and Vancouver Island Health Authority (VIHA).

EPCOR'S VISION

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

To achieve our vision, we focus on:

- **People and safety:** Be a place where people choose to work, known for our zero-injury culture and focus on continuous improvement
- **Operational excellence:** Be recognized as an expert in our business by adopting best available technology and solutions that enhance water quality, system reliability and our efficiency and cost-effectiveness
- **Environment:** Make the environment a priority in everything we do



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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 employs four full-time employees. Additional technical support is available through EPCOR's water professionals in British Columbia and more than 900 staff in EPCOR Water Services.



UTILITY ASSETS & OPERATIONS

Water treatment plant

- EPCOR French Creek utility obtains its drinking water from both ground water and surface water sources. The surface water from French Creek provides up to 17 per cent of the total demand during the summer months or irrigation season. There are a total of 15 active wells confined in four well fields. These aquifers provide good quality drinking water but one well field 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 per cent of the total iron and manganese from the source water. Sodium hypochlorite is used for disinfection of both surface and ground water.
- EPCOR French Creek is classified as a Class III Water Treatment Plant through the Provincial Environmental Operators Certification Program.
- The senior operator is certified as a Class IV Water Treatment Operator and the second operator is certified as a Class II Water Treatment Operator.

Water distribution system

- EPCOR French Creek's distribution system is comprised of: seven water storage reservoirs; 15 active wells; a booster station pump house; 30 km of asbestos cement (AC), PVC and polyethylene piping; 31 air and/or vacuum release valves and 361 mainline valves.
- Fire protection service is provided to the residents by means of 150 fire hydrants and 14 standpipes.
- Every water service in the area is metered.
- EPCOR French Creek uses surface water and well water.
- EPCOR French Creek is classified as a Class II Water Distribution System through the Provincial Environmental Operators certification Program.
- The senior operator is certified as a Class III Water Distribution Operator and the second operator is certified as a Class II Water Distribution Operator.

QUALITY ASSURANCE

Protecting public health is a top priority for EPCOR. Our employees work to ensure that water provided to the community meets or exceeds standards and expectations for safety, reliability and quality.

EPCOR monitors the physical, chemical and microbial characteristics of your drinking water. Health Canada has established science-based guidelines for drinking water known as Guidelines for Canadian Drinking Water Quality (GCDWQ). These guidelines set the maximum acceptable concentrations (MAC) of chemical, microbial 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 microbial, chemical, radiological and physical characteristics are below the MAC in the GCDWQ.

All testing undertaken to date indicates the quality of French Creek's drinking water successfully meets both GCDWQ and B.C. water quality regulatory requirements, including microbial parameters.

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 (VIHA)
- Annual water quality testing meets or surpasses regulatory requirements
- Equipment testing and calibration completed daily by local operators is supported through the annual testing of all water lab equipment by certified technicians
- Ongoing audits for Environmental, Safety, Security and Quality Assurance

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 GCDWQ AO (Aesthetic Objective) is 0.3 mg/L because iron in excess of 0.3 mg/L can cause staining of plumbing and laundry. French Creek's 2011 average for iron in drinking water was much less than the AO at <0.01 mg/L.</p>	<p>The GCDWQ aesthetic objective (AO) for manganese is 0.05 mg/L. At levels above 0.15 mg/L, it can cause staining of plumbing, laundry and objectionable taste. New studies, however, are suggesting some levels of manganese may also be associated with health effects. In 2011, the average concentration of manganese in French Creek's water was much less than the AO at <0.005 mg/L.</p>



FRENCH CREEK WATER QUALITY INFORMATION

Since EPCOR began operating the French Creek utility in May 2006, many improvements have been implemented, including video examinations of wells, operational efficiencies and increased water quality monitoring. The construction in 2008 of the Drew Road Water Treatment Plant, with greensand filtration, has reduced levels of iron and manganese to near detection limits.

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

Over 6,400 water quality tests were performed regularly in 2011. They included: chlorine residual, turbidity, conductivity, temperature, iron, manganese, and microbial contaminants on a regular basis; as well as various other external laboratory tests.

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 from eight sample locations chosen in collaboration with the VIHA Drinking Water Coordinator to represent the water quality for the entire French Creek system.

VIHA's 4-3-2-1 Surface Water Treatment policy requires water treatment plant operators to provide enhanced treatment to all surface water sources. EPCOR has until December 2012 to discontinue its use of the French Creek surface water source. As such, new wells have been drilled to replace the surface water source.



Table 1A: Summary of Treated Water Quality Parameters

Substance	Unit of Measure	Min.	Max.	2011 Average (GM= Geomean)	GCDWQ (NA= not applicable)
MICROBIOLOGICAL					
<i>E.Coli</i>	CFU/100mL	<1	<1	<1 ^{GM}	0
<i>Cryptosporidium*</i>	oocysts/100 L	<0.3	<0.7	<0.7 ^{GM}	NA
<i>Giardia*</i>	cysts/100 L	<0.3	<0.7	<0.7 ^{GM}	NA
Total Coliforms	CFU/100mL	<1	<1	<1 ^{GM}	0
MINERALS					
Calcium	mg/L	8.4	38.4	23.4	NA
Potassium	mg/L	0.1	2.8	1.45	NA
Sodium	mg/L	1.5	24.9	13.2	200(AO)
ORGANICS					
Trihalomethane	mg/L	0.050	0.071	0.061	0.1
OTHER					
Free Chlorine	mg/L	0.2	1.6	0.8	NA
pH	pH	7.0	8.5	7.8	6.5-8.5(AO)
Temperature	°C	7	20	12	15(AO)
Turbidity	NTU	<0.1	0.8	0.2	1

Abbreviations

<	Less Than Detection Limit
ACU	Apparent Colour Unit
N	Nitrogen
TCU	True Colour Unit
GM	Geometric mean
NTU	Nephelometric Turbidity Unit
µS/cm	Microsiemens
CFU	Colony Forming Unit
AO	Aesthetic Objective

* *Cryptosporidium* and *Giardia* measured in French Creek source during operation



DID YOU KNOW...
In 2011, EPCOR French Creek conducted over 6,400 water quality tests





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 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).

Table 1B: Summary of Treated Water Quality Parameters

Substance	Unit Of Measure	Min.	Max.	2011 Average (GM= Geomean)	GCDWQ (NA= not applicable)
TRACE METALS					
Aluminum	mg/L	<0.005	<0.005	<0.005	0.1/0.2(AO)
Antimony	mg/L	<0.0002	<0.0002	<0.0002	0.006
Arsenic	mg/L	0.0003	0.0006	0.00045	0.01
Barium	mg/L	0.010	0.014	0.012	1
Boron	mg/L	<0.005	0.048	0.024	5
Chromium	mg/L	<0.0004	0.0016	0.0008	0.05
Cobalt	mg/L	0.00004	0.00004	0.00004	NA
Copper	mg/L	0.025	0.063	0.044	≤1.0(AO)
Iron	mg/L	<0.01	0.016	<0.01	0.3(AO)
Lead	mg/L	0.0001	0.0003	0.0002	0.01
Magnesium	mg/L	3.6	16.5	10.1	NA
Manganese	mg/L	<0.005	<0.005	<0.005	≤0.05(AO)
Nickel	mg/L	<0.001	<0.001	<0.001	NA
Selenium	mg/L	<0.0006	<0.0006	<0.0006	0.01
Silicon	mg/L	2.3	12.1	7.2	NA
Thallium	mg/L	<0.00001	<0.00001	<0.00001	NA
Tin	mg/L	<0.0001	0.0033	0.0017	NA
Titanium	mg/L	<0.001	<0.001	<0.001	NA
Uranium	mg/L	<0.0004	<0.0004	<0.0004	NA
Vanadium	mg/L	0.0019	0.0040	0.0030	NA
Zinc	mg/L	0.006	0.015	0.011	≤5(AO)
Zirconium	mg/L	<0.0001	0.0001	<0.0001	NA

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OPERATIONAL EXCELLENCE

EPCOR proactively manages all infrastructure through regular maintenance, evaluations and improvements. Preventive maintenance activities met or exceeded French Creek's 2011 targets.

These activities included:

- Significant reduction in reportable water quality issues because of efficient operation of the water treatment plant
- Unidirectional flushing (UDF) in the spring of 2011 to remove sediment and deposits from the distribution system
- Annual inspection and maintenance of all fire hydrants to ensure fire protection standards are met

CAPITAL PROJECT HIGHLIGHTS

In 2011, a number of Capital Projects were completed or were in progress, including:

- New reservoir at Church Road Reservoir increased storage volume by 25%
- New roof covering Church Road Reservoir #2
- Drilling of replacement and test wells. Further development of the wells to continue in 2012
- Ongoing project to replace old water meters, with 47 exchanged in 2011



DID YOU KNOW...

For drinking water, aesthetics such as taste, odour and appearance are characteristics that impact people's willingness to drink or use the water. Aesthetics do not necessarily have health impacts.





CUSTOMER CARE AND COMMUNITY

EPCOR employees are available to answer customer questions, are committed to resolving customer concerns in a timely manner and provide 24-hour emergency service. 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 of French Creek and strives to build sustainable partnerships that enhance community life and promote wellness. These include:

- EPCOR Community Essentials Council contribution to the Friends of French Creek Conservation Society
- Pacific Salmon Foundation Oceanside Dinner and Auction
- United Way Campaign with employee donations directed to local organizations of their choice

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

- Tracking all customer inquiries and complaints
- Issuing four newsletters per year (mailed out with bills) informing customers about operational updates, efficiency tips and water quality information
- A Community Advisory Panel (CAP) to seek input from community members and key stakeholder groups on issues related to local water service in French Creek



DID YOU KNOW...

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

Blue food dye placed in the toilet tank can be used to test for leaks.

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SAFETY AND ENVIRONMENT

EPCOR is committed to building a culture that supports a workplace free of occupational injury and illness and minimizes harm to people and the environment. Safety achievements for 2011 included:

- Zero lost time incidents
- Conducted a monthly safety meeting along with numerous safe work plans, tailgate talks and worksite inspections
- Met all internal Safety Key Performance Index measures for leadership, hazard management, training and monitoring
- Quarterly review and annual update of the Emergency Response Plan
- Safety upgrades and training addressed in 2011 include:
 - Training in hazard recognition for all Operators
 - Improved outside lighting at Church Road Reservoir
 - First aid, fall protection and Workplace Hazardous Materials Information System (WHMIS) training for all operators
- No reportable environmental spills in 2011
- Completed annual update of the Environmental Assurance Plan

REGULATORY

On May 12, 2011, the office of the B.C. Deputy Comptroller of Water Rights issued its approval on EPCOR's new rate design model which is intended to encourage efficient use of water in the community. The per unit charge for water now remains steady no matter the volume used.



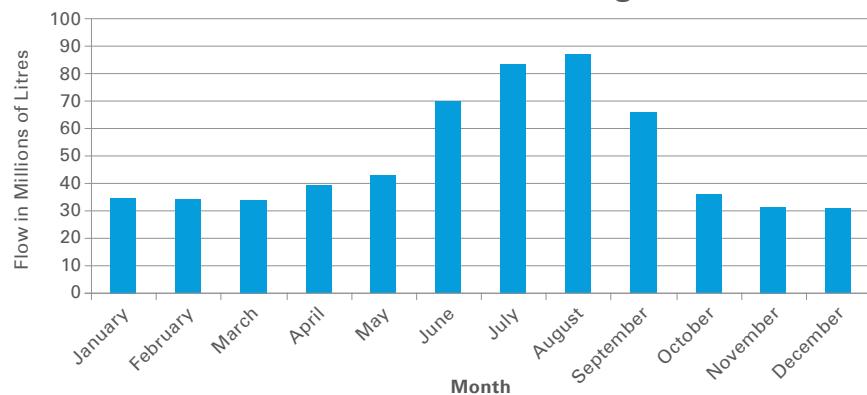
DID YOU KNOW...

The average North American home loses 14 per cent of its water through leaks.

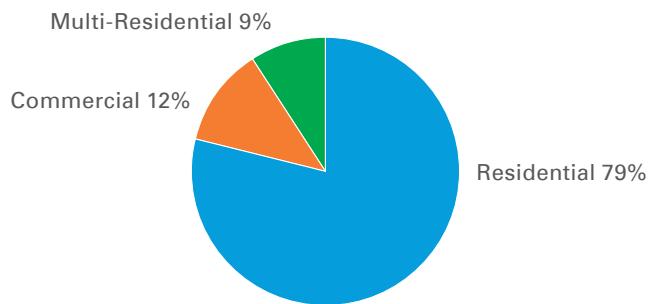




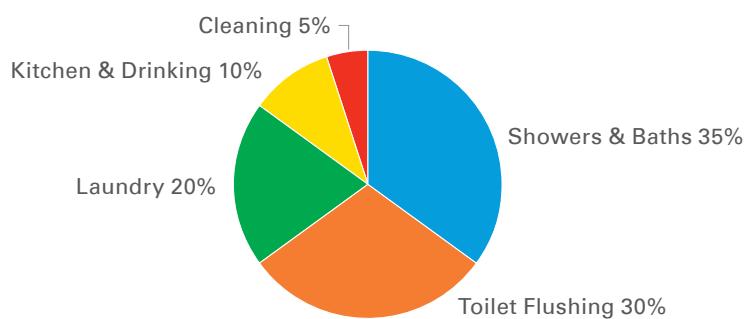
French Creek Water Usage 2011



Typical French Creek Water Consumption 2011



Typical North American Household Water Consumption



Reference: Handbook of Water Use and Conservation, Amy Vickers, 2001.

WHAT'S AHEAD

QUALITY ASSURANCE

- Continue implementing VIHA'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 water quality
- Ongoing promotion of cross connection control awareness with customers and local government

OPERATIONAL EXCELLENCE

- EPCOR encourages all staff to attain the highest level of provincial certification available, resulting in increased operational knowledge and, in turn, a safer and more productive work environment
- Complete a "Growth Assessment" report for the next five-year period
- Annual system maintenance and preventative programs

CAPITAL

- Ongoing water meter replacement program to ensure water system reliability and efficiency
- Installation of back-up power generation at both reservoirs to increase fire protection in the event of a power outage
- Replacement of one service vehicle
- The approved capital program has identified the need for well rehabilitation and addition of production wells, along with replacement of the French Creek surface supply. Additional wells were drilled in 2011 and will be put into service in 2013

SAFETY AND ENVIRONMENT

- Continued commitment to EPCOR Safety Program, ensuring the safety of staff and the public at large
- Achieve a six-year no lost-time accident record
- Annual update of the Emergency Response Plan
- Continue to encourage staff to attain highest level of environmental and safety certification
- Achieve a six-year no reportable spills record

REGULATORY

- EPCOR will be submitting its 2012 – 2014 rates filing as per the requirements of the Water Comptroller's Office
- Implement the "uniform rate" water conservation rate structure (a uniform rate is one that remains constant for all metered consumption of water on a year-round basis)
- Develop a capital program for the 2012–2014 rates filing



DID YOU KNOW...

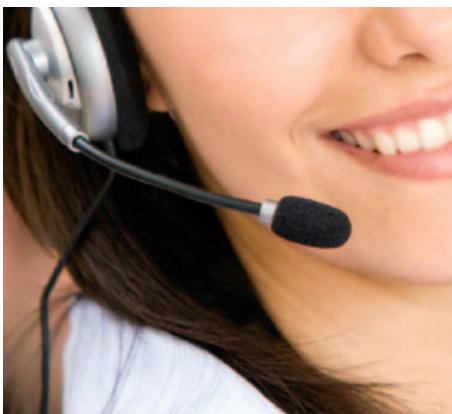
A tap that drips once a second wastes 33 litres a day – in a year, that's enough for 240 showers!

CUSTOMER CARE AND COMMUNITY

- Monitor, track and follow-up on all customer inquiries and concerns
- Community involvement and event sponsorship activities are re-assessed annually
- Continued customer communication to increase awareness of French Creek's water supply and the importance of using it wisely

COMMUNITY ADVISORY PANEL (CAP)

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



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NOTES

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