

2012 FRENCH CREEK PERFORMANCE REPORT



PROVIDING MORE



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EPCOR'S VISION

We are committed to protecting public health through the production and delivery of high quality drinking water and responsible management of wastewater.

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 and power quality, system reliability, and our efficiency and cost-effectiveness
- **Environment:** Make the environment a priority in everything we do



KEY MEASURES OF SUCCESS

This 2012 Performance Report provides an overview of the achievements of EPCOR Water (West) Inc. (EPCOR) in the French Creek, B.C. district and looks ahead at plans for 2013.

We strive to ensure that our performance meets the consistently high standards that French Creek residents expect. We are accountable to deliver service that meets key measures for quality assurance, operational excellence, capital projects, customer care and community, and safety and environment.

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



“WE JUST DO WHATEVER IT TAKES TO MAINTAIN THE SAFETY AND HIGH QUALITY OF THE WATER AND KEEP THE SYSTEM RUNNING. IT’S A FULL LIFE.”



OUR STORY

Everyone has a story and EPCOR’s is about our people—the ones who keep your water system operating 24 hours a day, all year-round.

LEADING EXPERTS IN FRENCH CREEK

Brian Thorburn knows water treatment so thoroughly that he helps to set the standards for other water treatment operators across Canada and the U.S.

Brian, Senior Operator for EPCOR’s French Creek utility, has a Level 4 Water Treatment Certification, the highest level possible. What’s more, the Qualicum Beach resident is President Elect of the Association of Boards of Certification (ABC) and a Director of the Environmental Operators Certification Program.

He works with other senior operators from across the continent to analyze and improve on the questions that young operators must successfully answer to become certified. He has also been a director for the Coastal Water Suppliers Association and a member of the B.C. Water and Wastewater Small Water Systems Committee.

That doesn’t mean he just sits behind a desk writing reports or attending meetings.

“Far from it,” says Brian. “I work daily in French Creek and I’m on call every second week for night emergencies. Last night for example, I was called out at 3 a.m. because of a communications issue. During the day, you’ll see me out making inspections, doing quality checks, working on fire hydrants. We just do whatever it takes to maintain the safety and high quality of the water and keep the system running. It’s a full life.”

EPCOR began serving customers in the French Creek community in 2006 and Brian has been there ever since. He is very involved in the community: a volunteer firefighter, a minor hockey coach and a curler.

“Brian is an example of EPCOR’s commitment to community,” says Dan Skidmore, French Creek Operations Manager. “He’s also a great example of our commitment to professionalism.”



2012 PERFORMANCE HIGHLIGHTS

For EPCOR's French Creek staff, operational excellence takes many forms. As outlined in this report, this includes care for the environment, our community and the needs of our customers, quality drinking water, service reliability, safety and ongoing capital projects to improve the system.

In 2012, we developed system upgrades with the goal of eliminating use of surface water (except in emergencies such as a house fire) and increasing groundwater capacity. This is a win for the aquatic environment in the French Creek watershed. It will also eliminate the need for the supplementary treatment of French Creek water beyond chlorination.

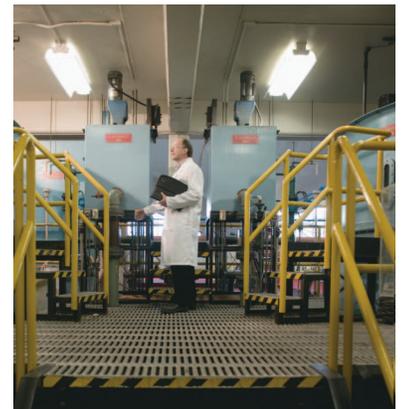
As part of this process of ensuring a safe and reliable water supply, we added a new one-million litre reservoir to the site. This increases our storage capacity by 33%.

We worked to ensure that the community's drinking water met or exceeded regulated standards for safety, reliability and quality. In accomplishing this, we performed more than 6,700 tests of water quality. These results are provided in this report.

All testing in 2012 indicated that the quality of French Creek's drinking water successfully met both Health Canada and B.C. water quality regulatory requirements.



**WE PERFORMED
MORE THAN
6,700 TESTS OF
WATER QUALITY.**





**“PROTECTING
PUBLIC
HEALTH IS A
KEY PRIORITY
FOR EPCOR”**



ELIMINATING RELIANCE ON SURFACE WATER

A win-win for health and for the aquatic environment

Summer means extra demand for water. On average, French Creek residents use about 70% more water in summer months than in the winter.

In the past, this extra demand has required the distribution system to draw on surface water from the French Creek watershed to supplement the water from production wells. The surface water has provided up to 17% of the total summer demand.

EPCOR, however, is developing system upgrades to eliminate the need for surface water in the distribution system. Seven new wells were drilled in 2011 and 2012 and five were determined to be suitable for production. The new wells are being put into service as soon as testing and regulatory approvals are complete and the wells are linked into the system.

When two of the new wells go on line in the summer of 2013, the French Creek water distribution system will no longer need to supplement its supply with surface water from the creek, which has a watershed of only about 68 square kilometres.

“It’s a win-win for health and for the aquatic environment,” says Senior Operator Brian Thorburn. “There will be more water in the creek for the salmon, trout, birds and all the aquatic life. It’s an unprotected watershed, which means the need for additional treatment beyond our chlorination of the well water. We’ve worked hard to get to the point of no longer needing creek water.”



15 CAREFUL STEPS FOR DRILLING NEW WELLS

The task of putting new wells on line for public drinking water is long and complex.

Developing new wells for a community's water supply is a long and exacting process. But the whole process is designed to ensure the quality of the water and the sustainability of the water flow. On average, the process can take 3 – 4 years from start to finish.

Opposite is a step-by-step description of the process followed in French Creek.

Over the next several years, monitoring of neighbouring wells and the new wells will continue to determine interference, drawdown and sustainability.

Step 1: EPCOR applies to the B.C. Water Controller for new or replacement wells, based on a feasibility and sustainability study by a professional hydrogeologist.

Step 2: If the Comptroller approves the well, a professional hydrogeologist and a well company are engaged to provide a scope of work and estimates for a competitive bid.

Step 3: EPCOR establishes potential site locations based on accessibility and land ownership and reviews them with all appropriate regulatory agencies.

Step 4: Once a good site is determined, EPCOR applies for access to the area and for permits to drill. Application is made to the B.C. Ministry of Transportation and Infrastructure, Fisheries and Oceans Canada, BC Hydro and private owners.

Step 5: Electrical Resistivity Tomography (ERT) testing is performed on selected sites to gain more accurate insight into the exact location, depth and thickness of potential water-bearing aquifers.

Step 6: The exact positioning of the wells is determined.

Step 7: EPCOR works with the selected drilling contractor to prepare the site for access. This could be by building a new road or using new or negotiated rights-of-way.

Step 8: Well drilling begins and all drill cuttings are sampled on site by the hydrogeologist.

Step 9: Testing determines whether the drilled wells have reached an adequate water-bearing aquifer.

Step 10: Pump tests are conducted on wells to determine water quality and extraction rates. The test must be performed during the time of the year when aquifer levels are at their lowest.

Step 11: All data is analyzed by the hydrogeologist to determine the sustainable extraction rate.

Step 12: EPCOR submits all pumping rates and water quality results to the appropriate agencies. A source water approval application is sent to Vancouver Island Health Authority (VIHA).

Step 13: Once approval is obtained, EPCOR applies for a construction permit from VIHA.

Step 14: Final pump and well infrastructure is installed.

Step 15: New wells are chlorinated, flushed and sampled. Once satisfactory results are obtained, the wells can be brought on line.

QUALITY ASSURANCE

All testing undertaken in 2012 indicated that the quality of French Creek's drinking water successfully met both Health Canada and B.C. water quality regulatory requirements.

Our employees work to ensure that your drinking water meets or exceeds standards for safety, reliability and quality.

We have made many quality assurance improvements since EPCOR began operating the French Creek utility in May 2006. These include 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 reduced levels of iron and manganese to near detection limits.

We measure water quality by analyzing the physical, chemical and microbial properties of the water. This is carried out under Health Canada guidelines. They set out the maximum acceptable concentrations of chemical, microbial and radiological contaminants found in water. The guidelines also address aesthetic water quality issues such as colour, taste and odour.

We performed more than 6,700 tests of water quality in the system in 2012. They included: chlorine residual, turbidity, conductivity, temperature, iron, manganese, and microbial contaminants on a regular basis; as well as various other external laboratory tests. Tests at various levels and for different parameters are conducted daily, weekly and monthly.

The distribution system is also monitored from eight sample locations chosen in collaboration with Vancouver Island Health Authority (VIHA) Drinking Water Coordinator.

We perform continuous online monitoring of chlorine levels and turbidity. Turbidity is the cloudiness or haziness of water caused by suspended solids, similar to smoke in air. The measurement of turbidity is a key test of water quality.

Our equipment used in reporting water quality results is tested and calibrated daily by our local operators. This is backed up by annual testing of all water lab equipment by certified technicians.

All testing undertaken in 2012 indicated that the quality of French Creek's drinking water successfully met both Health Canada and B.C. water quality regulatory requirements.

We report our quality assurance, environmental, safety and security data and information to VIHA for review. VIHA must be satisfied that French Creek's drinking water successfully meets all water quality regulatory requirements, including microbial requirements.

Our 2012 water quality parameters are reported in tables 1A and 1B.

[We welcome your questions.](#)

[For further information, please drop by our office: 10D -1343 Alberni Highway in Parksville or contact Vancouver Island Health Authority \(VIHA\).](#)

[Water quality results are also posted on www.healthspace.ca/viha](http://www.healthspace.ca/viha)



Table 1A: Summary of Treated Water Quality Parameters

Substance	Unit of Measure	Min.	Max.	2012 Average (GM= Geomean)	GCDWQ (NA= not applicable)
MICROBIOLOGICAL					
E.Coli	CFU/100mL	<1	<1	<1 ^{GM}	0
Cryptosporidium*	oocysts/100 L	<0.3	3.3	<1.0	NA
Giardia*	cysts/100 L	<0.3	<0.7	<0.7 ^{GM}	NA
Total Coliforms	CFU/100mL	<1	75	<1 ^{GM}	0
MINERALS					
Calcium	mg/L	41.7	42.2	42.0	NA
Potassium	mg/L	0.8	1.2	1.0	NA
Sodium	mg/L	8.2	10.7	9.5	200
ORGANICS					
Trihalomethane	mg/L	0.0007	0.060	0.034	0.1
OTHER					
Free Chlorine	mg/L	0.3	1.3	0.7	NA
pH	pH	7.0	8.3	7.6	6.5 - 8.5(AO)
Temperature	°C	6	23	11	15(AO)
Turbidity	NTU	<0.1	0.6	0.6	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

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.	2012 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	0.0004	0.0004	0.0004	0.01
Barium	mg/L	0.013	0.013	0.014	1.0
Boron	mg/L	0.009	0.015	0.012	5.0
Chromium	mg/L	0.0015	0.0015	0.0015	0.05
Cobalt	mg/L	0.00001	0.00002	0.0001	NA
Copper	mg/L	0.009	0.021	0.015	≤1.0(AO)
Iron	mg/L	0.012	0.018	0.016	0.3(AO)
Lead	mg/L	0.0003	0.0003	0.0003	0.01
Magnesium	mg/L	17.8	18.5	18.2	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	11.1	11.3	11.2	NA
Thallium	mg/L	<0.00001	<0.00001	<0.00001	NA
Tin	mg/L	<0.0001	<0.0001	<0.0001	NA
Titanium	mg/L	<0.001	<0.001	<0.001	NA
Uranium	mg/L	<0.0004	<0.0004	<0.0004	NA
Vanadium	mg/L	0.0030	0.0041	0.0036	NA
Zinc	mg/L	0.007	0.007	0.011	≤5(AO)
Zirconium	mg/L	<0.0001	0.0001	<0.0001	NA



OPERATIONAL EXCELLENCE

Our employees demonstrated operational excellence by meeting or exceeding French Creek’s 2012 targets through regular maintenance, evaluations as well as system improvements documented in this report. Preventive maintenance activities included:

- Unidirectional flushing (UDF) in the spring of 2012 to remove sediment and deposits from the water distribution system.
- Annual inspection and maintenance of all fire hydrants to ensure fire protection standards are met.

CAPITAL PROJECT HIGHLIGHTS

Our expertise in managing utilities was demonstrated in 2012 through a number of capital projects that were completed or were in progress. They include:

- Continued development of six new wells to the system.
- An ongoing project to replace 1,000 old water meters with meters that are easier to read. Seventy-three were exchanged in 2012. About 600 in total have been replaced so far.

CUSTOMER CARE AND COMMUNITY

CUSTOMER CARE

Our customer care philosophy is integral to how we operate in the French Creek area. We understand the importance our customers place on reliable water services.

EPCOR employees are available to answer customer questions, are committed to resolving customer concerns and provide 24-hour emergency service. A variety of information on French Creek's water supply, including ways to reduce water use in the 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: the Parksville Beach Festival Society, the Canadian Open Sand Sculpting Competition; the Fire and Ice Street Festival; and the Pacific Salmon Foundation Oceanside Dinner and Auction.

EPCOR employees in French Creek support the United Way. Employee donations are directed to 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.
- Developing customer newsletters to inform customers about operational updates, efficiency tips and water quality information.

COMMUNITY ADVISORY PANEL

French Creek's Water Community Advisory Panel (CAP) brings together people representing a variety of viewpoints within the community to share information around a common interest in drinking water. The volunteers usually meet three times a year and sit on the panel for a two-year term.

The CAP serves as a forum for EPCOR to share information and receive stakeholder input on emerging issues, including water efficiency, legislative and technological changes, pricing, customer care and groundwater issues. In this way, companies such as EPCOR can hear first-hand from a wide variety of representative voices in a community.



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OFFERS AN
EXTENSIVE LIBRARY
OF RESOURCES
TO HELP YOU
SAVE ENERGY AND
CONSERVE WATER
AROUND YOUR
HOME OR SMALL
BUSINESS.**

NEW WATER RATES ENCOURAGE CONSERVATION

On October 31, 2011, EPCOR filed an application with the B.C. Comptroller of Water Rights for water rates to cover the period January 1, 2012 to December 31, 2014. The proposed water rates support the cost of providing water services to residents and maintaining and upgrading the system.

On March 28, 2012, the Comptroller approved the water rates for 2012-2014. The approved water rates for 2012-2014 are based on a new rate design, which is intended to encourage efficient use of water in the community. Customers will pay a monthly fixed charge plus a variable charge for each cubic metre of water used beyond the base level consumption of 15 cubic metres per month. The new rate design reflects a uniform variable rate structure and replaces a declining variable rate structure where variable rates decreased with increasing consumption levels.

SAFETY AND ENVIRONMENT

People are at the heart of everything EPCOR does — and protecting the public and making sure our employees and contractors stay safe every day is a priority. Our people in French Creek are part of the community. Working in concert with customers and the environment comes naturally to us.

- We achieved zero lost time incidents in 2012.
- Our commitment to safety is reinforced through monthly safety meetings along with numerous safe work plans, tailgate talks and worksite inspections.
- We met all internal Safety Key Performance Measures for leadership, hazard management training and monitoring.
- We reviewed the Emergency Response Plan quarterly and conducted an annual update.

Safety upgrades and training addressed in 2012 included:

- Training in hazard recognition for operators.
- First aid, fall protection and Workplace Hazardous Materials Information System (WHMIS) training for all operators.

Environmental achievements included:

- Ongoing work to eliminate use of surface water from the French Creek stream as a supplement to well water during the heavy-use summer months. As outlined elsewhere in this report, this work consisted of drilling new wells to increase the community’s groundwater capacity. It was anticipated that the use of surface water could be discontinued in the summer of 2013, except for emergencies such as a house fire.
- We worked to minimize surface water withdrawals in 2012 and used less than permitted under its water withdrawal licence.
- No reportable environmental spills occurred in 2012.
- We completed our annual update of the Environmental Assurance Plan.



**CORPORATE KNIGHTS
MAGAZINE NAMED EPCOR
ONE OF THE 50 BEST
CORPORATE CITIZENS
IN CANADA FOR 2012.**





WHAT'S AHEAD

ENVIRONMENT

- We plan to eliminate the need to draw surface water (except possibly for emergencies such as a fire) from French Creek by summer 2013 by putting extra new wells on line. This will help protect and enhance the watershed and aquatic life by allowing more water to remain in the creek.
- We will work towards our target of achieving a record of seven years with no reportable spills.

QUALITY ASSURANCE

- For any surface water used, we will continue to implement Vancouver Island Health Authority's (VIHA) Surface Water Treatment Policy. The policy requires EPCOR to use additional treatment of its surface water supply for disinfection. EPCOR has determined that a more prudent and cost-effective strategy is to replace surface water with additional groundwater supply from additional wells.
- We will continue ongoing monitoring of French Creek's water supply with regular maintenance of laboratory equipment and 24/7 testing procedures to ensure water quality.
- We will continue to promote ongoing cross-connection awareness with customers and local government. A cross-connection is a real or potential connection between the drinking water supply and any source of contaminant.

OPERATIONAL EXCELLENCE

- We will encourage 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. The Senior Operator currently has Level 4 Water Treatment Certification, the highest level available. The other Operator achieved Level 3, the second highest available certification. The Operations Manager has Level 2 in Water Treatment and Level 3 in Water Distribution.



CAPITAL

Our planned investments for the 2012-2014 period are required to improve system reliability and meet ongoing maintenance requirements. They include:

- Well development and rehabilitation. 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.
- Water treatment plant upgrades.
- An additional greensand filter will be installed at the Drew Road Water Treatment Plant. This will ensure sufficient treatment capabilities for the additional water as new wells come on line.
- Standby generator installation at both reservoirs to increase fire protection in the event of a power outage.
- Water main upgrades.
- Distribution system leak detection.
- Meter replacements to ensure water system reliability and efficiency.

SAFETY

- We will continue our commitment to EPCOR's Safety Program, ensuring the safety of staff and the public at large.
- We will work to achieve seven years with a no lost-time accident record.
- We will annually update the Emergency Response Plan.

CARE AND COMMUNITY

Our employees will continue to monitor, track and follow-up on all customer inquiries and concerns.

We will continue to communicate regularly with our customers to increase awareness of French Creek's water supply and the importance of using water wisely.

We will continue to work with the Community Advisory Panel (CAP) to gain members' valuable input on issues that impact customers. These issues include water efficiency, groundwater use, environmental issues, legislative and technical changes, communication methods, rate changes and community support.

We are pleased to continue to support programs and organizations providing more of the essentials that enhance the quality of life in the communities we serve. EPCOR is a strong supporter of the United Way and has raised over \$4 million for the organization since the first fund-raising campaign in 1996. We also recognize employees who volunteer in their community by providing a Helping Hands Grant to a charitable service organization that they recommend.



**WATER QUALITY
EXCEEDS THE
AESTHETIC
OBJECTIVES SET
OUT BY HEALTH
CANADA.**

THE FRENCH CREEK WATER SYSTEM

WATER TREATMENT

In 2012, French Creek obtained its drinking water primarily from a total of 15 active wells in four well fields. These aquifers provide good-quality drinking water. The water is chlorinated before it enters EPCOR's seven storage reservoirs.

One well field contains higher amounts of iron and manganese. If left untreated, the minerals could potentially cause staining of plumbing and laundry and affect the taste of the water. EPCOR constructed a greensand filtration plant at Drew Road in 2008 to deal with these aesthetic issues. The treatment plant removes up to 95% per cent of the total iron and manganese from the source water. As a result, water quality exceeds the aesthetic objectives set out by Health Canada.

These objectives, known as the Guidelines for Canadian Drinking Water Quality, require that iron levels do not exceed 0.3 mg per litre. French Creek's average iron levels in 2012 were far below that at less than 0.01 milligram (mg) per litre. A milligram is equal to one thousandth of a gram.

In the same way, the Health Canada objective for manganese in drinking water is 0.05 mg per litre. In 2012, the average concentration of manganese in French Creek's water was much lower at less than 0.005 mg per litre.

In addition to the well water, the use of some surface water was still required in 2012 to meet higher summer demand. EPCOR worked throughout the year to reduce reliance on surface water by building additional wells.

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 + 3 and the second operator is certified as a Class III + 2 Water Treatment Operator.



WATER DISTRIBUTION

The system consists of: seven water storage reservoirs, 15 active wells; a booster station pump house; 30 km of AC, PVC and polyethylene piping, 19 air and/or vacuum release valves and 367 mainline valves.

- Fire protection service is provided to the residents by means of 160 fire hydrants.
- Water service in the area is metered. This means that customers are only charged for their actual water consumption.

Our staff has served the French Creek area since the privately-owned water utility was purchased by EPCOR in May 2006. EPCOR French Creek employs four full-time employees. Additional technical support is available through EPCOR's water professionals in British Columbia and more than 800 staff in EPCOR Water Services.

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