



## The obstruction of a raw water supply line requires an emergency intervention at the Jean-Perreault water treatment centre in the town of L'Assomption using a PFM 1150 flotation module and a BS 2250 Flygt pump.

The pride of Quebec's drinking-water treatment plants, the plant in the town of L'Assomption has been adhering to the drinking water excellence program since 2000. After major upgrades to its drinking water installations similar to those in the towns of Laval, Pointe-Claire, Buckingham, and others, the L'Assomption system has the following characteristics:

Technical data	
Start-up	2 000
Population served	16 000
Towns serviced	L'Assomption, St-Sulpice and Le Gardeur
Average flow/day	8 000 m <sup>3</sup> /day
Average design flow	23 600 m <sup>3</sup> /day
Maximum design flow	35 000 m <sup>3</sup> /day
Potable water reserves	2 800 m <sup>3</sup>
Generator set	750 kW emergency generator



### The challenge

The L'Assomption River was rising and carrying large amounts of debris, including sand, gravel, and tree branches that slow down both the uptake of water and the pumping station that feeds the water treatment centre through a conduit supplying raw water. At 6:00 a.m., operator Luc Beauchemin advised Christian Sauvageau, manager of the environmental health service, that the raw water conduit had been completely obstructed, which also prevented the water treatment centre from maintaining its optimal output.

### The emergency plan

Rapidly and throughout the entire morning, the staff of the water treatment plant, assisted by Yvon Harnois, an entrepreneur in process mechanics with MSC Réhabilitation, tried unsuccessfully to unblock the conduit. During this time, the water treatment centre supplied the public from the drinking water stored in its reservoirs. The level of stored water dropped very rapidly because of the early hour (strong demand) and the plugging of the conduit, which caused continuous

decreases in pressure from 80 lbs. to 70, 60, and 50 lbs., ultimately ending at 40 lbs. of pressure, the minimum threshold needed to protect the drinking water distribution network. At no time was there any interruption in the distribution of drinking water, and no boil advisory was issued.

### The solution

Prior to this emergency situation, Mr. Sauvageau, the plant manager, had been in touch with Mouloud Aouaz of ITT W&WW to discuss a temporary pumping system capable of bypassing the water intake. The obvious choice was a floating pumping system composed of an 88 hp Flygt BS 2250 pump with a 432 impeller for pumping water out of the river at a rate of 5000 gpm; this would be mounted on a PFM 1150 flotation module and connected either to the raw water reservoir or to the raw water outlet pipes with Kwik-Lok rapid-attachment hardware.



1150 PFM flotation module and the BS 2250 Flygt pump in the process of being installed.

*Engineered for life*

While waiting for the arrival of the temporary pumping system, preparations were made for its installation, and some alternative activities were undertaken by the plant manager in collaboration with the municipal authorities of the town of L'Assomption.

For this purpose, a crane was mobilized to lower the pump into the river, and appeals were made to the municipality of St-Sulpice and the town of Repentigny with regard to the opening and closing of their conduits; at the same time, Mr. Sauvageau informed Michel Doré, director of the fire alert service, that the situation was getting worse and that the support of pump trucks would be needed to refill the raw water tank at the pumping station in order to keep the water reserves from getting any lower and maintain them at an acceptable level.



Town pump trucks called in as reinforcements.

Before the local residents went home for the day, the police service issued a public warning about watering restrictions and the need to minimize use of drinking water.

The pumping system was operational at about 6:00 p.m. with the pump installed in the river and ready to replace the raw water pressure pumps in the event that the 42" water supply conduit remained blocked by sand or other types of debris.



On Thursday, April 24, 2008, at 10:45 p.m., Mr. Sauvageau received a call from operator Normand Parisien informing him that the raw water conduit was once again blocked! Mr. Sauvageau went to the site with operator Luc Beauchemin to try to effect a rapid unblocking, but without success. From that moment on, until the additional unblocking maneuvers planned for the morning of Friday, April 25, the only supply of water coming into the plant was from the pump installed in the river.

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After determining that the suction of the raw water pump was buried under 15 feet of sand and gravel, the ITT W&WW pumping system was connected to the raw water supply conduit to continue to feed the plant with the help of a flexible hardware system with a high-pressure rapid attachment; this made it possible for the plant to continue normal operations.

At the time this case study was published, the pump installed in the river on Friday, April 25, 2008, was still feeding directly into the plant without passing through the raw water tank. It should be noted that while this was happening, the drinking water supply continued to be of excellent quality according to the standards of excellence of the AWWA (American Water Works Association).

The lesson to be learned from this is that the ITT W&WW BS 2250 system with PFM 1150 floater is a system that any town or municipality could call upon in an emergency for the purpose of ensuring the continuity of its drinking water service without compromising the quality of the water being distributed.

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*Please note that a white paper of this case study is available upon request.*

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