



# Ecoprocess™ SBR

## Sequencing Batch Reactor



✓ CASE STUDY

### INVESTING IN THE FUTURE OF OUR COMMUNITIES!

#### Project: Upgrade of the aerated lagoons of Saint-Cyrille-de-Wendover, QC, CAN

Located within five kilometres of Drummondville, the rural municipality of Saint-Cyrille-de-Wendover is home to over 4,500 people. The village includes several isolated residential areas along the Saults River and several streams.

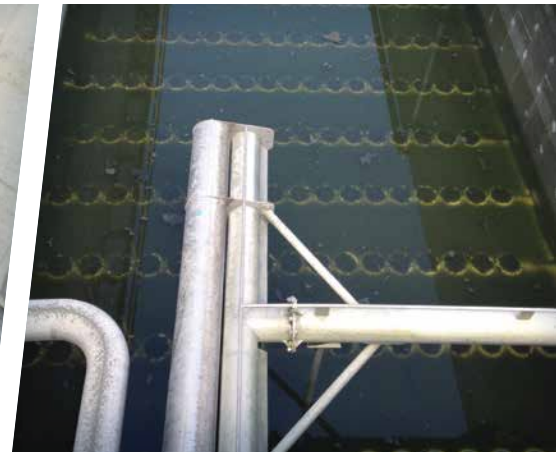
#### Facts

For many years, aerated lagoons had been used to treat the municipality's wastewater, a technology widely used in Quebec for municipal applications. During the aerated lagoon-based process, wastewater is discharged in large artificial lagoons and flows through successive lagoons through natural gravitation. The process thus requires an extensive retention time.

In 2010, the municipality observed that the existing lagoons would soon reach their maximum processing capacity, i.e., approximately 500 m<sup>3</sup> per day. The municipal council needed to quickly upgrade its system and two options were available: adding new lagoons or select another treatment process.

#### Challenge

As part of its upgrade project, the municipality sought to include a station to treat the sludge generated by septic tanks on its territory and by the regional county municipality (RCM). Given the objective of reducing its ecological footprint, the municipality hesitated to add new lagoons as they typically require considerable ground space. The municipality therefore opted for an alternative solution.



## Solution

Among the solutions offered by the Consultants S.M. specialized firm, the Ecoprocess™ SBR technology developed by Premier Tech Aqua (PTA) was found to be the most promising. Designed to process up to 1,800 m<sup>3</sup>/d, the SBR technology provided the municipality with considerable leeway to ensure its future development. The technology's high level of performance, meeting the effluent norms, also offered the municipality the advantage of treating in a single day the same volume of water that would have taken several weeks to process with the aerated lagoons.

The project consisted of building two treatment systems at the location occupied by lagoon no. 2 of the original wastewater treatment station. The first treatment system collects the wastewater from the municipal system and the second one is used to process the sludge generated by septic tanks. The project included the decommissioning of lagoon no. 2, work on the existing building, the construction of a second building, the reconstruction of the end pipe and related work, including the upgrade of the nearby main pumping station.

Commissioned in the fall of 2014, the first step of the project was the pouring of concrete reservoirs as per the specifications provided. Once the building was constructed, PTA delivered the necessary equipment for the SBR reactor, which the contractor installed during the winter.

The treatment system includes a pumping station, a grease trap, two Sequential Biological Reactors, an equalization lagoon and a UV disinfection system. A SBR sludge storage tank and a tank to store the sludge from the septic tanks were also added.

Each bioreactor is equipped with fine bubble diffusers, submersible sludge pumps as well as PTA's SwingCarter™ floating decanters designed to collect water at the surface of the tanks by draining it by gravity into the receiving environment.

In 2015, PTA supervised the commissioning of the bioreactor by first proceeding to a dry inspection, then a clear water test and a final inspection conducted once wastewater had begun entering the system.

The Ecoprocess™ SBR technology offers an ecological and extremely reliable alternative. Also compact, the bioreactor now occupies about eight times less ground space than new lagoons would have.

The automated system installed has been integrated in various municipal installations across North America. Using a simple and well-designed control panel to facilitate maintenance operations, users also benefit from ongoing technical expertise from global leader Premier Tech Aqua.

## Results

The bioreactor currently treats 600 to 700 m<sup>3</sup>/d with a high degree of efficiency.

### Performance of the Ecoprocess™ SBR process

Parameters	Screened water plus filtrate of processed sludge	Effluent norms
BOD <sub>5</sub>	198 mg/L	15 mg/L
TSS	122 mg/L	15 mg/L
Total phosphorous	—	<1 000 CFU/100 mL
Fecal coliforms	12 mg/L	1 mg/L

## Advantages

- Sturdy and highly efficient system, capable of meeting the municipality's future needs while still reducing its ecological footprint.
- Experienced team of process engineers and technical advisors providing expert support and advice before, during and after the system's commissioning.

The Ecoprocess™ SBR wastewater treatment system of the municipality of Saint-Cyrille-de-Wendover was commissioned in summer 2015 and has provided stable performances that meet the effluent norms ever since.



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