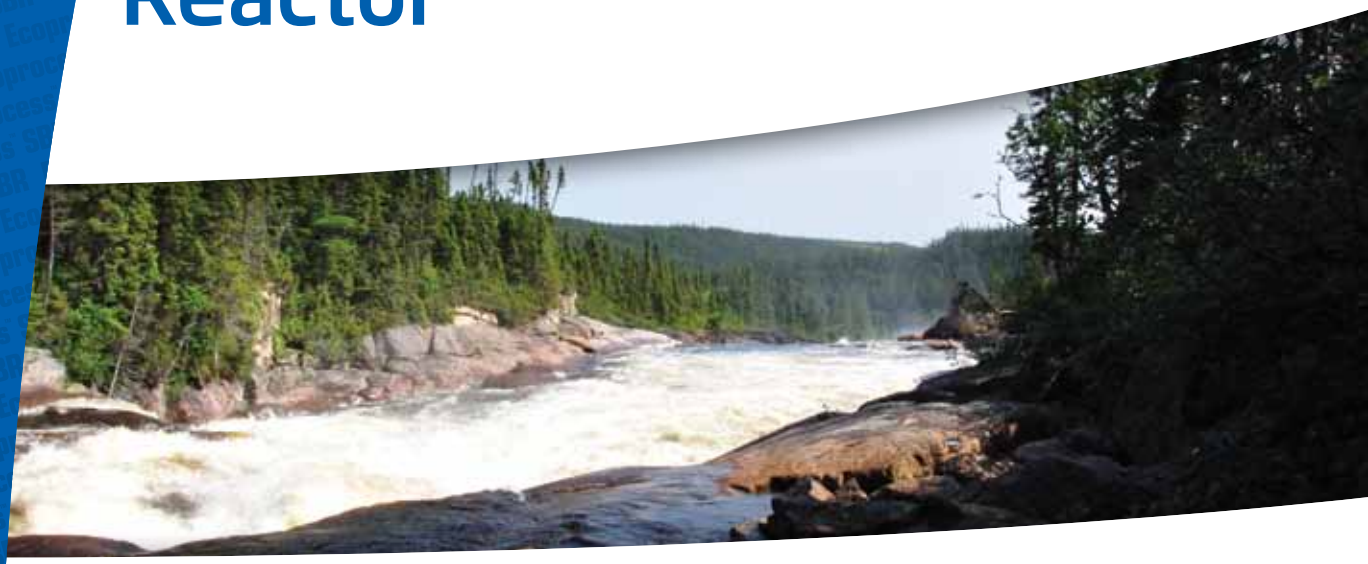
Ecoprocess™ SBR

Case Study

Sequencing Batch Reactor



Customer: Romaine River Complex, Hydro-Québec, QC, Canada

The province of Québec has a widespread hydraulic resource. Hydro-Québec, a major leader in sustainable development, is working to develop and expand this natural heritage. By giving special attention to hydroelectricity, a renewable energy source, Hydro-Québec is meeting current needs, ensuring the preservation of our environmental heritage and producing energy for the new generation.

Facts

The Romaine River Complex is currently the largest infrastructure project in Canada. With the vision of sustainable development, Hydro-Québec must comply with stringent effluent criteria regarding the disposal of treated wastewater. Hydro-Québec has installed a wastewater treatment system that could not only comply with the required treatment performance levels, but also provides a provisional and temporary structure to protect the environment.

Challenges

Hydro-Québec and AXOR Inc. gave favourable support to treatment solutions showing the following advantages:

- **Superior performance** — A technology that easily meet 25/25 $CBOD_5$/TSS, with a disinfection system for final disposal in the river.
- **Flexibility** — A structure that is easy to be dismantled and to be reused to preserve the integrity of an ecological sensitive environment.
- **Ease of operation** — A part-time Hydro-Québec operator with remote monitoring capability.

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Solution

The Romaine River complex project was implemented in two phases. The first phase had to treat the wastewater generated by approximately 900 workers, which represented 68 000 gal/day. At the beginning, AXOR had studied the possibility of reusing the Ecoprocess™ SBR system sold in 2004 by PTA that had been used at the Peribonka Camp. After a verification of the system, it was refurbished and installed at Romaine River site in March 2010. PTA proceeded to the start-up of the first phase.

The second phase of the Romaine River complex, installed in August 2010, involved two activities: 1) the reuse of the two existing BioSequencers™ of phase 1 as equalization tank, and 2) the addition of four reservoirs to be used as Ecoprocess™ SBRs, two for each train.

This new PTA - developed strategy brings reliability to the treatment process, and handles the seasonal and daily fluctuations of hydraulic and organic loads. It also ensures an effluent that complies with the stringent local discharge criteria. This innovative, turn-key solution system developed by PTA makes for a flexible system that can be dismantled and reused. The system is completely automated and remotely controlled.

Results

The Ecoprocess™ SBR uses well adapted technologies, resulting in a dramatic reduction in the concentration of pollutants as carbon, nitrogen and phosphorus. The results generated by this flexible solution are excellent.

Parameters	Performance
$CBOD_5$	25 mg/L
TSS	25 mg/L

Advantages and prospects for the future

- The effluent quality meets the required environmental standards, which will contribute greatly in protecting the environment.
- The system's flexibility will make it possible to reuse the components at future work camps set up by Hydro-Québec, and also increase the treated volume in the event of a growing worker population.
- The work camp has been operational since August 2010 and PTA technologies will serve the Romaine River complex for the next 4 to 5 years.

"The system works very well and the follow-up is simple to do!"

Stéphane Leroux
Follow-up Supervisor,
Romaine River Work Site

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