Ecoprocess™

Case Study

Sequencing Batch Reactor (SBR)

Customer: Municipality of Cardinal, ON, Canada

Facts

The Regulations for water and wastewater treatment in Ontario entered into many changes over the last few years. Under new regulations, Ontario municipalities have to comply with much stricter discharge standards.

Casco Inc., the first corn refining operation in Canada, located in the Township of Edwardsburg, had been supplying the municipality with sewage and drinking water for many years. In 1995, due to the expansion of the municipality, the capacity of Casco to provide sewage and potable water had reached its limit. As such, the municipality of Cardinal had no other choice but to build their own wastewater treatment plant.

Challenges

The municipality of Cardinal investigated possible treatment solutions offering the following:

- **High performance** — A technology that can handle typical diluted municipal sewage with BOD_5 of 80 mg/L during dry flow conditions and ensure less than 1 mg/L phosphorus concentration at all times
- **Flexibility** — A technology that can show stable performance in response to high peak flows (four times the average daily flow, and up to five times during hourly peak flows)
- **Ease of operation** — A treatment system that is designed for a small municipality and that it ensures low operation costs

TECHNOLOGIES PREMIER TECH

PREMIER TECH AQUA

Solution

Premier Tech Aqua (PTA) designed an Ecoprocess™ SBR treatment plant and provided most of the process equipments needed for this high performance solution. The engineering system was designed and provided by The M.S. Thompson Rosemount Group. The plant started up in 1997 and is now being operated by the environmental services of Edwardsburgh-Cardinal Township.

The solution consists of two SBR reactors designed to treat 800 m^3/day and to handle typical diluted municipal sewage with BOD_5 as low as 80 mg/L. Furthermore, during wet weather flow conditions, the system can handle continuous peak flows evaluated at four times the average daily flow, and up to five times during the hourly peak flows.

Results

Since it has been started-up in 1997, Cardinal's Ecoprocess™ SBR has been challenged with Zero Discharge by the municipal authorities of Ontario (the goal of Zero Discharge means that no wastes are discharged, where everything is recycled and no pollutants are being discharged into the environment). Ecoprocess™ SBR is a fully controlled technology, allowing for the elimination of environment offensive components: carbon, nitrogen and phosphorus.

This flexible solution has generated more than satisfactory results – even if the influent quality had to be increased during the last 15 years, the system handled these changes without compromising its high levels of performance.

Overall, this Ecoprocess™ SBR treatment plant is providing:

- A high performance treatment solution – even in peek flows and temperature variations
- A self performing system – no adjustments to be made
- A strong technical and operation support from PTA

Parameters	Objective	Compliance	Actual
BOD_5	15 mg/L	25 mg/L	3.0 mg/L
TSS	15 mg/L	25 mg/L	7.2 mg/L
Total Amonia	4 mg/L	—	1.8 mg/L
Total Phosphorus	< 1.0 mg/L	1.0 mg/L	0.1 mg/L

Benefits and Perspectives

The effluent quality produced by the Ecoprocess™ SBR solution exceeds the expectation of Province of Ontario. The system capacity allows a lot of flexibility for the municipality in case of population demographic growth and, furthermore, changes in the influent quality (more gray water, oils, grease, etc).

« The Ministry of Ontario sent an expert to see our Ecoprocess™ SBR because they did not believe our performance results! »

James E. Grant
Chief of Operations, Environmental Services,
Township of Edwardsburgh/Cardinal

« Ecoprocess™ SBRs meet and often exceed treatment level requirements and clients are always happy! »

Marco V.Vincelli
Senior Environmental Engineer,
M.S. Thompson Rosemount Group

PREMIER TECH AQUA

1 800 632-6356
418 862-6642
pta@premiertech.com
PREMIERTECHAQUA.COM