New report: interim retrofit to Winnipeg's north end sewage treatment plant would help protect Lake Winnipeg

News
LWF
March 21, 2019
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On World Water Day, the Lake Winnipeg Foundation and the International Institute for Sustainable Development (IISD) are releasing a report recommending an interim retrofit to Winnipeg's largest sewage treatment plant. This retrofit could be implemented quickly and at low cost to significantly reduce the facility's phosphorus contribution to Lake Winnipeg.

Research at the IISD Experimental Lakes Area shows that phosphorus is the nutrient responsible for potentially toxic algae blooms in freshwater lakes. Winnipeg's North End Water Pollution Control Centre (NEWPCC) is currently the single largest point source of phosphorus flowing into Lake Winnipeg, a lake plagued by algae. The NEWPCC treats approximately 70 per cent of the city's wastewater, releasing an average of 600 kg of phosphorus into the Red River every single day.

Under its provincial operating licence, the City of Winnipeg must reduce phosphorus in NEWPCC effluent to 1 milligram per litre (mg/L), based on a 30-day rolling average, by Dec. 31, 2019. In 2017, phosphorus concentrations in NEWPCC effluent averaged 3.54 mg/L.

The city has committed to fully upgrading the NEWPCC. However, the project has been repeatedly delayed. On Feb. 28, 2019, city council approved a new plan to split the planned NEWPCC upgrade into three phases. Nutrient removal is the third phase and action is not projected to start before 2030. The report also explicitly states the city intends to request yet another alteration of its provincial operating licence in advance of the Dec. 31, 2019 deadline.

The retrofit being proposed by LWF and IISD uses a chemical called ferric chloride, a type of iron salt, as a phosphorus-removal agent.

The NEWPCC currently uses ferric chloride as part of its operations to reduce odour and keep pipes clean, but does not currently use it to remove phosphorus. Simply by adjusting its timing and dose, ferric chloride could be used to bind to phosphorus in order to remove it from the waste stream.

This retrofit would reduce the NEWPCC's phosphorus contribution to Lake Winnipeg by 70 per cent and bring the plant into compliance with the provincial 1 mg/L phosphorus limit. Implementing the retrofit would cost just $3 million in capital expenses and $2 million in annual operating expenses.

"Many jurisdictions throughout the Great Lakes region use ferric chloride in their wastewater treatment processes to remove phosphorus. Not only are they meeting the 1 mg/L phosphorus limit, some facilities are now voluntarily challenging themselves to meet a limit of 0.3 mg/L," says Dimple Roy, director of water management at the International Institute for Sustainable Development.

"What we're proposing is standard practice elsewhere. This is a cost-effective solution that will enable the city to meet its provincial phosphorus requirement and help protect Lake Winnipeg until permanent upgrades to the north end plant can be completed."

Average total phosphorus concentration in effluent from North American wastewater treatment facilities in 2017
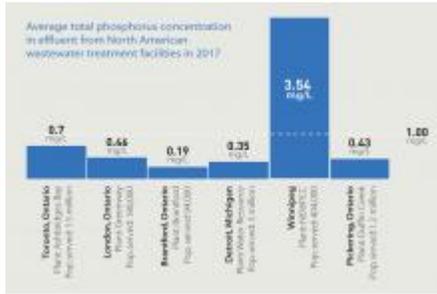
In the lead-up to Winnipeg's 2018 civic election, a [Probe Research survey](#) found nearly two-thirds of Manitoba adults (65 per cent) agree that upgrading the NEWPCC should be "a very urgent priority."

"Further delays in addressing the NEWPCC's phosphorus contribution to Lake Winnipeg are unacceptable – an urgent solution is required. We cannot wait another decade to get started," says Alexis Kanu, LWF's executive director.

"This retrofit provides a practical solution to a pressing environmental problem. It's a win-win-win opportunity – a cost-effective, evidence-based and tried-and-true solution to fulfill our responsibility to Lake Winnipeg."

World Water Day is celebrated annually on March 22.

[Read the full report](#).

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