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Wastewater reactor turns sewage into money

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EDMONTON - New equipment has given the City of Edmonton another way of turning sewage into money.

The city already makes money by selling compost made partly with the sewage sludge from the bottom of its wastewater settling ponds at Clover Bar. Now, a potent fertilizer called phosphorus is also being pulled out of the water left in the ponds.

Phosphorus can trigger unhealthy algal blooms in rivers and lakes. The province set a limit for phosphorus discharge in wastewater in 2005. The city must remove most of it before pouring any treated wastewater back into the river.

Until now, the phosphorus removed at the Gold Bar wastewater treatment plant was sent back to the Clover Bar settling ponds, said Abdul Mohammed, the plant's superintendent of engineering services. If it didn't settle into the sludge, it would return again to the treatment plant.

But, phosphorus also sticks to pipe walls in a layer called struvite. This layer can constipate piping systems, leading to reduced system capacity and higher operating costs. Mohammed said it costs $100,000 a year to clean the pipes.

A new reactor from a Vancouver-based company called Ostara Nutrient Recovery Technologies Inc. strips phosphorus and ammonia out of wastewater. It was installed in May and has so far exceeded expectations, said both Mohammed and company president Phillip Abrary.

It has managed to remove 80 to 90 per cent of the phosphorus and 10 to 15 per cent of the ammonia in the wastewater. The city wanted the reactor to remove at least 75 per cent of the phosphorus for it to be a worthwhile investment, Abrary said.

The phosphorus that is removed makes a high-quality fertilizer, he added. The company claims maintenance and capacity cost savings and fertilizer revenue make up for the cost of a reactor (between $2 million to $4 million, depending on size) within three to five years.

The reactor currently being tested treats 20 per cent of the city's wastewater, but Mohammed said there is interest in eventually buying more reactors to treat all of the wastewater.

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