Business Edge
ALBERTA BUSINESS NEWS - WITH AN EDGE

12 / 22 / 2005 - Vol. 5, No. 44 - **Edmonton/North Edition**

UBC spinoff turns wastewater into 'gold'

Edmonton first customer for new fertilizer

By Laura Severs - For Business Edge
Published: 12/22/2005 - Vol. 2, No. 26

Alberta's liquid sewage could soon become liquid gold for a B.C. startup firm.

Ostara Nutrient Recovery Technologies Inc., a University of British Columbia (UBC) spinoff company based in Vancouver, has already landed its first customer in Alberta, and is hoping to capitalize on a global market that it estimates is worth at least $1 billion.

As many as 400 municipalities in North America and 500 in Europe - the company's two target markets - are potential customers for the Ostara process.

Using what's being described as cutting-edge technology, an Ostara reactor removes pollutants from liquid sewage and recycles them into an environmentally safe commercial fertilizer. That fertilizer, dubbed Crystal Green, will be marketed as a slow-release product to garden centres and nurseries and to large end-users such as parks and golf courses.

Photo courtesy of Ostara

Ostara CEO Phillip Abrary, holding a container of Crystal Green, stands with chief technology officer Ahren Britton in front of the reactor that converts liquid waste into the fertilizer.

"The technology is quite ahead of anything else out there," says company president and CEO Phillip Abrary.

The Ostara reactor, he says, reduces and eliminates operating costs associated with the maintenance of clogged pipes, pumps and other equipment at wastewater treatment plants while allowing the plants to generate revenue from an environmental byproduct - the fertilizer.

The expertise and equipment was developed at UBC over a five-year period.

This past fall, Abrary and his partners signed a licensing agreement providing royalty and ownership rights in Ostara to UBC.

At about the same time, talks were being held with the City of Edmonton, which resulted in the city becoming Ostara's initial client.

The Edmonton project, approved by Edmonton city council in late November, begins with a $150,000 pilot plant that will start up in early 2006 at the Clover Bar compost facility as part of the city's wastewater treatment process.

If all goes well, a $1-million commercial plant will be built in Edmonton in 2006-2007 to treat 20 per cent of the plant's liquid-waste stream.

Eventually, five commercial reactors, each at a cost of about $500,000, could be bought to treat the plant's entire liquid- waste stream.

"We're very excited about (the initial phase) and I'm glad the council supports our partnership with Ostara," says K.C. Er, director of the Gold Bar wastewater treatment plant.

"We are one of the top wastewater treatment plants in North America. We have always positioned ourselves to make sure we have the best method of treating our environment, so we have been experimenting with the biological nutrient removal (BNR) treatment process."

Er adds the plant has been successfully treating its wastewater using the BNR process for a number of years and no other plant has done that for as long.

But BNR, using the bacteria in the wastewater to digest and remove the nutrients - ammonia and phosphorous - has some drawbacks, notably creating clogged pipes.

"We have been having some problem with struvite (crystals consisting of phosphorous, ammonia and magnesium) and what happens is that our liquid waste stream contains

these three chemicals," says Er. "And when they crystal coat the diameter of the pipe, it eventually reduces the (effective) diameter so that reduces the operational efficiency for our treatment facility. Annually, we're spending $100,000 cleaning the struvites."

Ostara just happened to be in the right place at the right time, with Edmonton already looking for a way to solve the problem.

"We weren't thinking of this technology, we were thinking of something else, but this one has a lot of merit to it," adds Er, noting that it could be a win-win situation for both the environment and the city. The city would gain royalties from the fertilizer and it would no longer need to spend money to clean struvites from its pipes.

Edmonton will receive a royalty of $50 per tonne. Approximately 1,000 tonnes of phosphorus will be removed from the waste stream during the pilot project and converted into Ostara-brand Crystal Green fertilizer every year, with Ostara and the city sharing the fertilizer revenues.

To make sure the system will meet Edmonton's needs, it has been tested on a smaller scale at the Greater Vancouver Regional District's Lulu Island wastewater treatment plant and at the City of Penticton's advanced wastewater treatment plant.

Er doesn't doubt Ostara's technology, but rather points out that temperatures and the concentration of the city's wastestream are different. "The pilot testing is to see if the technology can be successfully used in the Edmonton environment."

Ostara is also planning to move forward with another pilot project, this one in the United States at Chesapeake Bay, surrounded by the U.S. states of Maryland and Virginia, and Washington D.C.

"They have a phosphorous content that is five times higher than Edmonton, so there is a significant difference," says Abrary. "We need to first scope out how it should be implemented and then design and build the commercial reactors."

But unlike in Edmonton, there is no deal signed and delivered yet.

"In Virginia, we're in the negotiation process. We hope to commence (the pilot project) in June 2006. So far every indication is it's going to happen but we don't have the paperwork to support that yet," says Abrary.

However, once these two pilot projects are completed, Ostara hopes to get future sales off the ground without the need for such extensive pre-testing.

"Today, we're taking a half reactor and doing a proof of concept for these early adopters ... and once they're satisfied, then we would proceed with the industrial-scale facility," says Abrary. "We're using a mini- reactor as a means of creating comfort in the industry. We'll address any initial risk and it will teach us a lot of things, as we're doing a gradual scale up. If things don't work we'll know why."

(Laura Severs can be reached at laura@businessedge.ca)