Wednesday
May 9, 2007
50 Cents

Suffolk News-Herald
Celebrating life in all 430 square miles of Suffolk

New technology helps businesses and environment

By Ashley McKnight-Taylor
Staff Writer

A Suffolk wastewater treatment plant recently participated in a pilot study to find ways to recycle more waste material and create an environmentally-friendly fertilizer.

The Hampton Roads Sanitation District's Nansemond wastewater treatment plant off College Drive in North Suffolk teamed up with Ostara Nutrient Recovery Technologies Inc., of Vancouver, British Columbia, to test a new technology that converts phosphorus and nitrogen from wastewater to create a new fertilizer.

The experiment began in October and finished in March. William Balzer, plant manager, said it worked as it was supposed to from day one, creating perfect little pellets of fertilizer.

"It's an innovated technology. It's so simple, it's almost stupid, but it's not," he said.

Here's the gist of what happens:

Wastewater flows from municipal pipes to HRSD's system of pipes and pump stations to nine treatment plants, the Nansemond plant being one of them. The plant operates around the clock, every day of the year, treating the wastewater by removing nutrients, such as phosphorus. Ultimately, solids are separated from the liquids and either incinerated or dumped in landfills. The liquids are reprocessed back through the system.

This is a continuous cycle, and the problem is that the liquids take up some 25 to 50 percent of the plant's capacity, and in time can clog the pipes when they combine with magnesium to form a concrete-like compound called struvite (the same thing of which kidney stones are made).

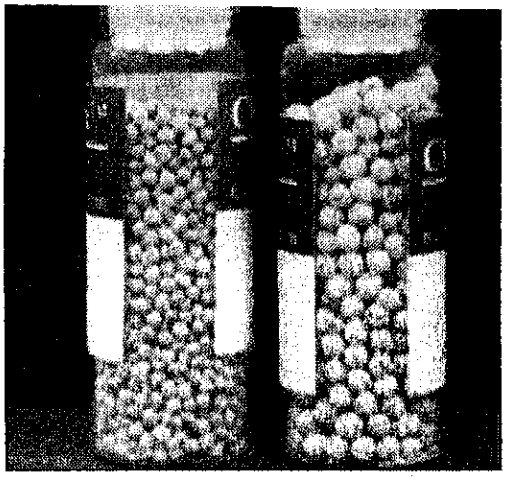
To fix this, an Ostara plant, called a reactor, was added to the treatment system, and the nutrient liquids were diverted to this reactor. The reactor processed the nutrient-rich liquids and recovered phosphorus and ammonia — and converted them into a fertilizer (brand name Crystal Green).

Phillip Abrary, president and CEO of Ostara, said the conversion is done through a series of chemical reactions, with no bacteria or complex machinery. Basically, they add magnesium and a caustic chemical to the phosphorus and other nutrients and stick them in a large tube similar to a blender. Upward moving fluids keep the materials suspended and cause them to continually bump into each other and eventually turn into crystallized pearls. The larger pearls or pellets fall to the bottom, where they are removed.

The pellets are the fertilizer, Abrary said. "It's a very simple concept."

And it is a cost-effective way to reduce the amount of nutrients they handle at the plant, Balzer said.

While the initial cost of a reactor facility can range from $2 million to $4 million, ultimately treatment plants can save money because they will have lower maintenance costs and increased capacity (saving them from having to build other plants as the population grows).



Crystal Green, a new, environmentally-friendly fertilizer, can be made in pellets of various sizes. **Ashley McKnight-Taylor/Suffolk News-Herald**

Technology: Turns waste into environmentally-friendly fertilizer

Continued from Page 1A

The environmental benefits are wide-reaching. An overabundance of phosphorus in lakes, streams and ocean causes excessive algae growth, according to a press release. The source for much of this phosphorus is agricultural runoff from other fertilizer.

Crystal Green is different because its combination of nitrogen, phosphorus and magnesium dissolves slowly over a nine-month period. It's safe for the environment because it does not leak into the water table, Abrary said.

Though engineers at the plant still are analyzing the data from the pilot program, the first commercial-scale plant will begin operating soon in Edmonton, Alberta, Canada, and a new pilot project started in Portland, Ore., recently. As many as 400 plants in North America and 500 in Europe could be potential customers, Abrary said.

Currently, the fertilizer is being used in a trial at Bennett's Creek Wholesale Nursery, Inc., and could become a viable fertilizer option for other area nurseries, he said. Other potential uses for Crystal Green include turf grass, golf courses, high value food crops (such as berries and tree fruits) and salmon habitat enhancement.

ashley.taylor@suffolknewsherald.com

Phillip Abrary, president and CEO of Ostara, left, and William Balzer, manager of the Nansemond Wastewater Treatment Plant, dig into a barrel full of Crystal Green fertilizer pellets. **Ashley McKnight-Taylor/Suffolk News-Herald**