# From demo to full-scale operation

City of Guelph, ON





"The City of Guelph wanted a new biosolids processing technology that would take us well into the future"

Kiran Suresh, Former Plant Manager of Wastewater Services

### ABOUT

The City of Guelph is located in Southwestern Ontario in Wellington County, along the Grand and Speed Rivers. www.guelph.ca

#### CHALLENGES

- Increasing quantity of biosolids due to population growth and rising costs of landfill disposal
- On-site biosolids composting operations failing to meet regulatory requirements and causing operational burden

#### SOLUTION

The City of Guelph participated in Lystek's first demonstration of the Lystek THP technology, leading to a commercial-scale deployment of Lystek THP at the WWTP, providing these benefits:

- Lystek demonstration exceeded the specified performance objectives
- Commercial-scale implementation allows for on-site production of a biosolids fertilizer (Class A quality) product, regulated by the Canadian Food Inspection Agency (CFIA)

## RESULT

- Diversification of biosolids management program
- Production of a fertilizer from biosolids, exceeding the requirements for biosolids application to agricultural land



#### **KEY METRICS**

Population Served: 140,000
WWTP Rating: 64,000 m<sup>3</sup> / day (16.9 MGD)
Lystek THP Processing Footprint: 74 m<sup>2</sup> (800 ft<sup>2</sup>)
Lystek THP Module Size: 2 x LY6 (1.2 dry tons / hr)
Feedstock: Municipal biosolids (anaerobically digested)





Guelph is a mid-sized City in Southwestern Ontario that is rapidly growing as a result of its diversified economy and proximity to the Greater Toronto Area.

The only wastewater plant in the City produces approximately 20,000 tonnes of biosolids (~20% solids) annually. As an innovative and leading "green" city, Guelph

had invested early in composting technology for treatment of its biosolids at the WWTP. However, the composting program was unable to meet changing regulatory requirements for land application of biosolids in the early 1990s.

In 1996, the City developed a new Biosolids Management Master Plan to develop a strategy that would be "economically viable, meet regulatory requirements, able to be maintained in the long term and that is supported and endorsed by stakeholders and, ultimately by City Council." "We wanted a new biosolids processing technology that would take us well into the future," says

"We liked the fact that Lystek is a standalone technology with a small footprint that does not interfere with the general plant processes,"

Tim Robertson, Division Manager of Wastewater Services Kiran Suresh, the former Plant Manager of Wastewater Services.

Around the same time, Lystek THP was in its infancy in a microbiology laboratory at the nearby University of Waterloo. In 2002, the City entered into an Agreement with Lystek to implement a demonstration project at the WWTP. One Lystek Module was installed at the end of the solids treatment train, treating a portion of the solids at WWTP. The pilot project demonstrated the ability of Lystek THP to transform cake biosolids into a fully pumpable 14-17% solids liquid product that meet the CFIA's requirements for a fertilizer (Class A biosolids).

As a result of the successful pilot project, in 2008, the City approved an ownership and operating agreement, delivering Lystek its first commercial installation. Continued pilot work demonstrated that re-feeding Lystek-processed biosolids to the anaerobic digesters improved biogas yield by more than 40% and increased volatile solids reduction by more than 35%. This full-scale demonstration was the beginning of the LysteMize process and technology.

The City has leveraged the Lystek THP technology to produce a CFIA regulated fertilizer from biosolids. "The addition of the

state-of-the-art Lystek solute on to our wastewater treatment plant operations is playing a vital role in contributing to our goal of being a progressive industry leader in biosolids management," confirms Suresh.

Lystek has continued to provide management and operations support services to the City of Guelph since the pilot project first began in 2002, and also receives biosolids from the City at its regional facility, the Southgate Organic Material Recovery Centre as another sustainable management option.



# **About Lystek**

Lystek is a leading provider of Thermal Hydrolysis solutions for the sustainable management of biosolids and organics. The multi-use, award-winning Lystek system reduces costs, volumes and GHG's by converting municipal and industrial wastewater treatment facilities into resource recovery centers. The technology transforms organic waste streams into value-added products and services, such as the patented LysteMize<sup>®</sup> process for optimizing digester performance, reducing volumes and increasing biogas production; LysteGro<sup>®</sup>, a high-value, nutrient-rich fertilizer and LysteCarb<sup>®</sup>, an alternative source of carbon for BNR systems.

# Lystek

