Reduce, Convert, Re-Use

Township of Centre Wellington, Ontario, Canada

Lystek
Nothing wasted.
Everything to gain.

Centre Wellington takes advantage of its wastewater plant upgrade to reduce costly storage problems and convert its "waste" into a nutrient-rich, saleable biofertilizer.

ABOUT

Centre Wellington is a township in southern-central Ontario with a population of ~26,000. The township consists of two, primary urban centres; Elora and Fergus, with a number of smaller communities. **www.centrewellington.ca**

CHALLENGES

- Biosolid production had exceeded the Elora Wastewater Treatment Plant's (WWTP) processing and storage capabilities
- Limited space for the construction of on-site biosolids storage
- Costs for year-round, off-site storage and disposal were escalating
- Growing concerns about odor generation due to a new, residential development within close proximity to the WWTP

SOLUTION

- Addition of dewatering & Lystek technology as part of the WWTP upgrade project
- Production of LysteGro® a saleable, CFIA registered, Class A quality, liquid fertilizer product

RESULTS

- Easy process for existing staff to operate
- Reduced storage requirements
- Reduction of off-site odor potential
- Project completed on-time and on-budget

A TRIUMPH FOR THE TOWNSHIP

Elora is one of several communities that dot the picturesque Township of Centre Wellington. Tourists and locals alike enjoy the spectacular Elora Gorge, gentle rolling hills, and beautiful farmland. Hybrid cars and horse drawn Mennonite buggies coexist to give the region a timeless, old world charm.

Critical to the future success of Centre Wellington is the Elora Wastewater Treatment Plant (WWTP) which operates silently and completely unobtrusively within a stone's throw of a major, proposed, new condominium development and existing retail project. The WWTP refects a triumph for the community, including its local residents, staff, council members, and area growers alike.

In 2012, Township council approved a signifcant, $21.3 million project to expand the treatment plant and modify the main pumping station feeding the facility. Council saw the plant upgrade as an important opportunity to modernize the facility and transform the plant into a Resource Recovery Centre capable of converting biosolids generated in the community into a high quality biofertilizer product.

"Council saw the plant upgrade as an important opportunity"

– Colin Baker, P.Eng., Managing Director of Infrastructure Services, Township of Centre Wellington

AN EXPENSIVE STORAGE PROBLEM

The decision was motivated in part by the fact that Centre Wellington is home to a thriving agricultural community. Council wanted to continue providing local growers with nutrients while simultaneously reducing or eliminating expensive biosolids storage problems. “We had run out of space to store liquid, Class B biosolids on-site over winter,” comments Colin Baker, Managing Director of Infrastructure, for the Township of Centre Wellington. As a result, the township was forced to use an off-site contractor for storage. With biosolids production increasing due to regional growth, this was becoming a very costly problem.

“We were paying $5,000 per month to lease space at a disposal facility near Creemore,” says Baker. Plus, the annual costs for this option were not just restricted to the storage rental fee, which had to be paid year-round (whether in-use, or not) and that was also escalating at two to three times the rate of inflation. There were further costs associated with trucking and applying low-solids, Class B biosolids which had to be given away, not sold. These combined factors were not considered to be sustainable. Therefore, staff and council required a better, long term, fiscally and environmentally sustainable plan.

LYSTEK TECHNOLOGY IS PRE-SELECTED

Wellington Construction Contractors won the competitive bid to expand the treatment plant and modify the pumping station with Triton Engineering Services Limited, the Township’s Engineering firm, providing engineering design and construction management.

Lystek’s proven technology was pre-selected and specified as a mandatory part of the overall strategy to upgrade the plant’s biosolids management processes. A technology licensing agreement and operating support agreement were subsequently executed for the patented biosolids management system from the Cambridge, Ontario based company.

OTHER OPTIONS CONSIDERED

Christine Furlong, P. Eng., of Triton Engineering had considered a number of bisolids management options including anaerobic and aerobic digestion with liquid storage and dewatering with cake storage. “Lystek was selected because, when combined with an effective dewatering strategy, the process reduces typical issues associated with Class B biosolids. The net result is a substantial reduction in the volume of end product requiring disposal, as well as a smaller biosolids storage building,” says Furlong.

The innovative, multi award-winning, Lystek process utilizes a combination of low heat, alkali, and high-shear mixing. The result is a high-solid, pathogen-free, nutrient-rich liquid biofertilizer product that is registered with the CFIA (Canadian Food Inspection Agency) and recognized as a Class A biofertilizer by the US EPA (Environmental Protection Agency). This means that the customer now has a product that can be sold, (not given away), further offsetting the cost of operations over time.

STRICT ODOR CONTROL

“We also liked the fact that the process is returning organic material back to the earth and is practically, odor free,” says Furlong. Another feature is that with the Lystek process, pathogens are destroyed. This produces a Class A quality, end-product that is safer for operating staff and suitable for long-term use by growers, particularly as compared to Class B biosolids – and this renewable resource can be utilized the same as any commercial fertilizer.

The complete, fixed-price Lystek solution included turn-key design, build, and installation of all processing equipment, utilities, electrical, and PLC controls to meet the Township’s standards. In addition, the Lystek system was easy to integrate with third-party dewatering for a total, compact, easy-to-maintain biosolids management solution.

EASY TO USE

Another key requirement for the solution was that it needed to be easy to operate. “Our plant operations staff also has to look after other plants and lift stations,” says Baker. “Ease-of-operation following a training period was a key requirement,” he says. As with any new, advanced technology some training and a ramp-up period is required. However, the beauty of the Lystek system is that while it must be monitored by plant staff, the process itself is fully automated and requires minimal involvement or oversight.

SOLVING STORAGE CHALLENGES

The processing capacity of the Lystek system at the Elora plant is 5 m^3 (or 5.5 wet tons/hour) of biosolids per hour. Moreover, the Lystek process has signifcantly reduced the space needed for storage by taking the solids concentration of biosolids from roughly 3% to 15%. “It’s much easier to handle and store than a dewatered or dry product,” confrms Furlong.

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About Lystek International

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. This is achieved by transforming organic waste streams into value-added products and services, such as the patented LysteMize® process for optimizing digester performance, reducing volumes and increasing biogas production; LysteGro®, a high-value, nutrient-rich biofertilizer and LysteCarb®, an alternative source of carbon for BNR systems.