



***Celebrating Municipal Excellence***  
**Nomination Form**

*Deadline: 4:00 p.m. on Wednesday, September 9, 2015*

Nominee Contact Information	
<b>Name of municipality/ municipalities being nominated:</b> <small><i>(please include the names of all partner municipalities)</i></small>	City of North Battleford
<b>Contact Name:</b>	Stewart Schafer
<b>Telephone #:</b>	306 445 1735
<b>Mailing Address:</b>	1291 101 <sup>st</sup> St (PO Box 460) North Battleford, SK S9A 2Y6
<b>E-mail Address:</b>	<a href="mailto:sschafer@cityofnb.ca">sschafer@cityofnb.ca</a>
<b>Name of Nominated Practice or Project:</b>	Lystek Biosolids
<b>Date of Project or Practice Initiation:</b>	February 2014
<b>Date of Project or Practice Completion:</b> <small><i>(If ongoing, please indicate)</i></small>	December 2014
	Ongoing: <input type="checkbox"/>

Nominator Contact Information	
<b>Name:</b>	Jim Puffalt
<b>Organization:</b>	City of North Battleford
<b>Position:</b>	City Manager
<b>Mailing Address:</b>	1291 101 <sup>st</sup> St (PO Box 460) North Battleford, SK S9A 2Y6
<b>Telephone #:</b>	306 445 1727 or 306 445 1700
<b>E-mail Address:</b>	<a href="mailto:Jpuffalt@cityofnb.ca">Jpuffalt@cityofnb.ca</a>

*Please remember when filling out your nomination that winning practices are posted in the Best Practices Library, so be sure to include all information that may be helpful to others if it were to be used as a reference or resource.*

## The Practice

1. What was the issue that inspired the nominated project or practice?
2. What has this project or practice done to address the issue?

1. The City of North Battleford had been disposing of biosolids from the Wastewater Treatment Plant (WWTP) in the main pit of the Waste Management Facility (WMF). As part of the City's Permit to Operate Sewage Works, the City had to have in place a Water Security Agency (WSA) authorized and approved sewage works biosolids treatment and disposal process. The process had to be constructed and operated in accordance with any applicable WSA standards, permits to construct and good engineering practices. The process had to be in operation no later than November 1, 2015.  
Other issues associated with this disposal method included increased odor complaints from residents located downwind of the WMF. Additional concerns were the handling of the materials by the WMF staff and the problems of trying to properly cover the material. Finally, the transportation of the biosolids to the WMF was taking the plant operators away from their primary duties of operating the WWTP.
2. This involved implementation of a patented and proven, Canadian technology that is able to transform biosolids, which have historically been viewed as a nuisance "waste" material into a quality controlled, Canadian Food Inspection Agency (CFIA) registered, liquid bio-fertilizer with a range of beneficial uses such as agriculture, sod farming, horticulture, remediation and more. The product is trademarked as LysteGro. It is stored in a lined and covered storage reservoir prior to being sold to end users such as farmers, etc.

## The Process

*This section should be the longest and most detailed part of your nomination. Include enough information so that a municipality interested in applying the same project or practice can follow your steps.*

3. Indicate who had a direct role in this project or practice:  
 Municipal Council  
 Municipal Administration  
 Other
4. What was the role of the municipal council and/or municipal staff in this project or practice?
5. Were other groups were involved in developing this project or practice? If so, who were they and what role did they play?
6. What resources were involved?
7. How was the project or practice developed?

3. Municipal Administration
4. Council approved the project based on recommendations made by Administration. Administration issued an RFP with a submission deadline of January 2014 and reviewed all submissions before making recommendations to Council.
5. Lystek International Inc. was the lead on this Design-Build-Turnover (DBT) project. . They provided the patented process, engineered drawings and acted as the Prime Contractor for the project. In addition AECOM was also hired as the City's engineer to provide additional oversight and to develop the Saskatchewan stamped drawings for the handling and storage of the finished fertilizer.
6. The City Administration and the wastewater treatment plant staff assisted with the development of the drawings to meet the requirements for the processing of the biosolids.
7. The City of North Battleford was looking for an economical biosolids management solution which would function reliably in extreme cold and a prolonged winter climate. The preferred process would have to function well with the relatively small amount of biosolids generated at the WWTP and to the satisfaction of the CNB engineers, WWTP operators, WSA, and the SMOE. Three RFPs were received and evaluated against the following criteria: :
  - That the proposed treatment process would convert the wastewater treatment plant (WWTP) biosolids into a Class A fertilizer (or equivalent).
  - That the process be acceptable to the Saskatchewan Water Security Agency (WSA).
  - That each proposal should estimate the capital and operating costs for the treatment process including any costs required to modify the existing WWTP.
  - That each proposal should include capital costs, commissioning and training services, as well as provide ongoing operational support for a five-year period, after commissioning.
  - That the awarded firm selected to construct the process for treating the biosolids, would enter into a cost share/profit contract with the city to market the Class A (or equivalent) fertilizer.

The submission from Lystek involved the installation of a low cost, low heat, patented, thermal hydrolysis processing system. This system could be retrofitted into the City's existing biosolids management building without major renovations or major changes to the WWTP process. The system could also be designed to be monitored on the WWTP's SCADA without major expense. A lined and covered product storage reservoir was designed and constructed to hold and protect the end fertilizer product between usage cycles. The total system would not require the city to hire any additional staff or purchase any additional, heavy equipment as the system would be fully automated and only need to operate for a few hours a day. In addition, the offer from Lystek was to provide a total, "turnkey" solution that includes marketing and sales of the finished fertilizer product

(LysteGro) as well as operational support for the initial, five year period. This agreement also features a revenue sharing contract between the City and Lystek.

The City chose the Lystek proposal for a number of reasons. First, it would be able to meet the Dec. 1, 2015 deadline set out by the WSA. Second, it would meet the city's tight capital and operating budget constraints. The processing system could easily be retrofitted into the city's biosolids management building with little to no disruption to existing infrastructure or its operations. It also did not require the city to hire any additional staff or require existing staff to have any special skills to operate.

## The Results

8. What effect did this project or practice have on the community?
9. Was a formal evaluation done after the project or practice was completed?
10. Describe any challenges faced.

8. This project has had a positive effect on the community. Biosolids are no longer required to be transported from the Wastewater Treatment Plant for disposal at the Waste Management Facility. This reduces transportation costs and reduces GHG emissions, The system is fully enclosed which means odors at the WWTP are reduced and the material, that has always had inherent value is no longer "wasted", but is being beneficially utilized instead, The City now has a long-term, reliable and sustainable biosolids management plan that is in line with the 2011 guidelines set out by the CCME (Canadian Council of Ministers of the Environment) and that contributes to the overall movement towards a "circular economy". Also, because the raw material does not require dewatering to the same degree as before (15% as opposed to 20%) the city is already realizing cost savings in its use of polymer. Finally, the agreement between the city and Lystek includes a unique, revenue share agreement that is expected to continue to grow, over time. This revenue will help the City to further offset costs operational costs thereby making this program both fiscally and environmentally responsible.
9. The project is just in its first, full year of operations and has yet to be fully evaluated. However, there have already been a number of positive impacts as noted in point #8 immediately above. Plus the level of interest in the end product (LysteGro) from area producers is already significant, and growing. This is only expected to increase (as it has in other markets) and as the city and Lystek work together to conduct crop and soil studies to demonstrate the value and success of the LysteGro fertilizer product in Saskatchewan.
10. An important challenge that was faced during this process was getting Approval to Construct from the Water Security Agency. This project is very different from the types of projects the WSA usually handles. The WSA had questions and concerns about the Lystek system, mostly because this is the first of its kind in Saskatchewan. The situation is complicated by the fact that the finished product will fall under federal regulations, not provincial regulations. Another challenge was the construction of the covered storage lagoon. The challenge was to provide the WSA with the information they needed to be able to issue a Permit to Construct.



## Lessons Learned

11. What lessons were learned and what would you recommend doing differently?  
Remember, all nominations will become part of the Best Practices Library, so be sure to include specific information.

This project is still new, there haven't been any issues to date with it. The most important lesson was having the operators who would be working with the system involved from the beginning and throughout the project helped to prevent problems. Their input influenced the design, so that it fit and worked in the designated space. This also meant that the operators understood and were familiar with the system once it was in place.

Please submit your completed nomination package to:

**E-mail:** [awards@municipalawards.ca](mailto:awards@municipalawards.ca) or

**Fax:** Attn: Saskatchewan Municipal Awards Program, 306-798-2568; or

**Mail:** Saskatchewan Municipal Awards, Room 1010 – 1855 Victoria Avenue, Regina, SK S4P 3T2

**Contact:** Phone No. 306-525-4398

*Thank you for submitting a nomination for the 2015 Saskatchewan Municipal Awards.*



Figure 1: Sludge building before being retrofitted with Lystek system



Figure 2: Lystek System



Figure 3: Lystek Storage Lagoon unfinished with Wastewater Treatment Plant in background.