



Challenge: LCBA- Walker Environmental - Biosolids upcycling

Challenge Statement/Synopsis:

Walker Environmental Group Inc. (Walker Environmental) is a wholly owned subsidiary of Walker Industries Holdings Limited (Walker Industries) – a fully-integrated multi-divisional company with over 1200 employees working across North America. Walker Environmental is seeking solutions to convert biosolids (wastewater residuals) to agricultural fertilizer and/or other beneficial end-products to help Canadian municipalities reduce emissions resulting from biosolids disposal, and provide the agricultural industry with a low carbon non-fossil fuel fertilizers. As Canada's largest fully integrated resource recovery company, Walker manages and recovers over 750,000 tonnes of organic waste annually. Through their biosolids management line of business, Walker partners with municipalities to safely manage their communities' biosolids through t facilities in Alberta, Nova Scotia, Prince Edward Island and Ontario. Walker processes over 100,000 tonnes of biosolids annually through their patented N-Viro® process. This process blends alkaline admixtures such as lime with dewatered biosolids and other organic wastes to produce valuable and sustainable agricultural fertilizers called N-Rich® – a pathogen-free farm fertilizer that meets the quality standards of the CFIA and US EPA. While N-Viro® is an efficient biosolids treatment process, Walker Environmental is looking to expand its technology and process portfolio and thereby expand their biosolids management line of business into new jurisdictions across North America. Ideal technologies would be modular and scalable; and ideal processes would require minimal admixtures.

Context:

Why is your company pursuing solutions in this space?

Biosolids are solid organic matter recovered from the sewage treatment process. Effective management of biosolids serves as a strategy for reducing greenhouse gas emissions by providing renewable energy, reducing use of fossil fuels and energy-intensive fertilizers, and stimulating carbon sequestration in soils. For instance, treated biosolids application to agricultural land reduces reliance on synthetic fertilizer, improves soil holding structure, and raises water holding capacity. By using biosolids in agricultural application, synthesis of commercial fertilizers and associated energy use is avoided.

Beneficial use of biosolids offset the carbon impact of mining and transporting mineral fertilizers from Russia, Morocco and the United States. In addition to this, beneficial reuse products are sustainable whereas some mineral fertilizers, particularly Phosphorus, are in finite supply and their costs increasing.



Biosolids not only improves soil chemical and biological fertility but because they contain substantial levels of non-degradable carbon, it can lock up carbon in the soil for longer periods. There is increasing governmental pressure to phase out disposal of biosolids at landfills and to continue to implement strict laws surrounding biosolids handling and disposal.

Walker Environmental Group Inc. (through N-Viro® Systems Canada Inc) has been sustainably providing biosolids management solutions across Canada for various municipalities since 1996. In 2007, Walker built its first merchant biosolids processing facility in Niagara in partnership with N-Viro® and subsequently purchased N-Viro® Systems Canada Inc. in 2014. Walker, along with our client partners, now process over 100,000 wet tonnes of biosolids annually using our patented N-Viro® Alkaline Stabilization technology at six facilities across Canada. Alkaline stabilization is an accepted method of treating dewatered biosolids to ensure that pathogens are eliminated. Walker is now seeking other promising treatment solutions to procure and expand its footprint into new jurisdictions.

Response Criteria:

- Walker Environmental is seeking modular and scalable solutions to convert biosolids to agricultural fertilizer and/or other beneficial end-products. Solutions can include, but are not limited to thermal conversion, drying, methanization to produce either Class A or Class B biosolids, renewable energy or other beneficial end products.
- Please note that systems that need to be integrated within the wastewater treatment plants (WWTP) will not be considered.
- List of what solutions should have/need to include, solutions that are in scope, as well as any that are out of scope for the challenge.
 - Rapid and efficient process-to-product cycle
 - End-product must meet quality standards of the CFIA (<https://fsacommittee.ca/wp-content/uploads/2021/02/CFIA-webinar-BIOSOLIDS-ppt-eng.pdf>)
 - Priority application to agricultural markets
 - Minimal admixture requirements

The Opportunity:

Why should solution providers apply to your challenge? Opportunity to enter new markets, find new customers, pitch their idea, etc. LCBA can provide language.



- Walker Environmental has received multiple exemplary Biosolids Management Awards for going beyond and raising the bar in the management of residuals and biosolids in Canada (Sarnia, Sudbury, Halifax, Niagara, Leamington, Banff). They would leverage this experience towards successful piloting and deployment of new solutions in their operation
- Walker has teamed with LP Consulting, an agricultural consulting company, since 2008 to provide technical expertise, product development and marketing of alternative waste products, including N-Rich®. Working together, we have created one of the most envied biosolid programs in North America. Our biosolid program is one of only a few programs where farmers pay for the product, trucking and application. LP has unparalleled experience in providing support to our distributors and our farm clients to ensure that they are managing these inputs responsibly yet also maximizing the value to the farmer. Walker would draw on these relationship for the successful penetration of new end-product into new geographical areas and markets.
- Selected technology providers will have the opportunity to pitch their solution during GLOBE Forum 2022.

About Walker Environmental:

Brief description of your company's operations/core business.

Walker Environmental provides critical services and infrastructure for communities to recover resources, manage waste, and contribute to a circular economy. As Canada's largest, fully integrated resource recovery business, we provides environmental solutions to both public and private sector customers, processing over 750 000 tonnes of organic materials annually into high-quality end-products, including fertilizers, mulch, compost and alternative low carbon fuels, which are sold back into the marketplace. Resources that cannot be recovered or repurposed, are safely disposed of with our environmentally-sound landfill disposal services. Walker then captures the landfill gas to use, and offer, as a substitute for natural gas or other carbon-based fuels, to fuel engines or turbines, generate electricity, or power industrial appliances such as boilers or furnaces to make heat or steam.

Walker Environmental businesses in Canada include:

- 1 - GORE® Cover Composting System, static pile and open windrow compost facility producing AA compost from SSO, food waste, digestate and yard waste. Licensed for up to 170,000 tonnes of in process waste. (Arthur, ON)



- 1 - GORE® Cover Composting System and open windrow compost facility producing AA compost from SSO, food waste and yard waste. Licensed for up to 90,000 tonnes annually. (Thorold, ON)
- Multiple leaf and yard waste open windrow composting facilities, producing soils, mulch, growing media and potting mixes. (Multiple locations across Ontario)
- 6 alkaline stabilization biosolids facilities processing over 100,000 wet tonnes/year to produce fertilizers. (Thorold, Sarnia, Leamington, Sudbury, Halifax and Summerside)
- 7 grease trap and liquid organic waste processing facilities. (Toronto, Woodstock, Ottawa, Saint-Hyacinthe, Nisku, Calgary and Vancouver) to produce feedstock for anaerobic digestion and renewable energy production
- 2 landfills with disposal capacity of 1.1m tonnes annually (Niagara Falls, ON)
- 1 - 1,000 tonne/day transfer station (Burlington)
- 4 - Multi-Mega Watt landfill gas recovery projects (Niagara, Ottawa, Winnipeg, Brandon)
- 2 - Municipal Recycling Depots (Niagara, Burlington)
- Internal Fleet of highway tractors and various types of trailers

***Only non-confidential information should be included in your response ***