

# Development of a Biosolids Master Plan

By Louise Hollingsworth and Bob Kuzyk

Municipal wastewater treatment plants generate liquid and solid discharges that have to be managed in an environmentally responsible way. In the past, attention focused on the liquid: effluents discharged to watercourses. Legislation, regulations and effective facilities and operating procedures have evolved in this regard. In the case of solids management, the same level of attention to the protection of human health has been applied, but changes in the rules have started to appear in recent years.

Evaluating the current and anticipated applicable laws, regulations, and guidelines in the municipal, provincial, or federal jurisdiction is an important consideration in the development and implementation of a biosolids management program.

Regulation of biosolids in Ontario has historically been handled under the *Environmental Protection Act* and the

*Ontario Water Resources Act*. Although these remain key legislations for compliance and regulation of waste management and sewage treatment approvals, there is new legislation, the *Nutrient Management Act* (NMA), which was passed on June 27, 2002. The NMA is intended to regulate all land-applied nutrients in Ontario, including biosolids.

Land application of biosolids is regulated under Part V of Ontario's *Environmental Protection Act*, and Ontario Regulation 347. The Ministry of the Environment currently approves the spreading of biosolids or non-agricultural wastes through the Ministry of the Environment Land Application Program. The Ministry is currently reviewing this program.

Municipalities or contractors must apply to the Ministry of the Environment's Regional Offices for a Certificate of Approval for an "organic soil-conditioning site." Certificates of approval

usually contain site-specific conditions and require compliance with general standards set out in Regulation 347. Before issuing an approval, the Ministry staff may inspect proposed sites to make sure that they meet the standards.

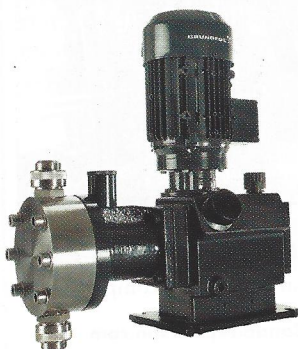
The Ministry also uses the "Guidelines for the Utilization of Biosolids and Other Wastes on Agricultural Lands," issued in March 1996, to evaluate the suitability of sites. The guidelines state: "The use of biosolids and other waste materials must be of benefit to crop production or soil health." Furthermore, they require that "such use shall not degrade the natural environment or cause any degradation in drinking water supplies."

Farmers who plan to use biosolids on their land also submit an application to the local Ministry of the Environment District Office. These applications must be accompanied by an analysis of the soil for each field on which biosolids will be used, including levels of nutri-



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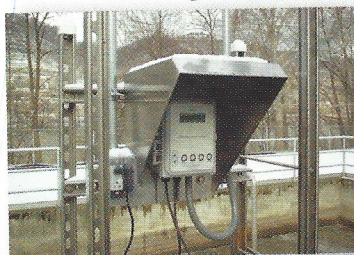
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ents like nitrogen and potassium, as well as heavy metals. Maps of the proposed sites must show the sites' proximity to homes, wells and waterways, the land slope and soil permeability.

A generator of nutrient wastes, such as a municipality, who chooses to land apply biosolids is required to prepare a Nutrient Management Strategy (NMS), which "sets out an environmentally acceptable method for managing all prescribed materials generated at an agricultural or non-agricultural operation."

While the practice of putting biosolids to beneficial use, particularly in applications to agricultural land, has taken place for decades without documented adverse effects to human health or the environment, the public has become concerned and is now questioning the safety and sustainability of biosolids management programs. This concern has prompted the inclusion of public consultation efforts into the development of biosolids management initiatives. Learning what concerns there are early on, makes addressing them a part of the planning process which results in a better overall project.

Legislation is also in place to govern other products of biosolids. For example, if biosolids are transformed into a fertilizer product, as they are at the EnViro Plant in Sarnia, they become governed by regulations laid out in the *Fertilizer Act*. The *Fertilizer Act* is administered by the Federal Department of the Environment.

Another example of applicable legislation is found if biosolids are incinerated, as they are at the Greenway Waste Water Treatment Facility in London. During incineration the process is governed by the *Air Management Act*, which is administered by the Ministry of the Environment. The ash produced, if intended for landfill, will then have to meet the municipal landfill regulations in place before being allowed to be land filled.

Guidelines that apply to biosolids management have been developed within the "InfraGuide" of Canada. These "Best Practices" present the culmination of many hours of experts in the field research and recommendations. The "Best Practices" for biosolids management is an advantageous process to apply. The goals of the established best practices in the InfraGuide are:

- compliance with regulatory requirements;

- improved biosolids quality;
- improved odour management;
- improvements in safety;
- wider public acceptance;
- improved cost effectiveness; and
- sustainability.

Through the collection, review, evaluation and application of the current and anticipated laws, regulations, and guidelines in the municipal, provincial, or federal jurisdictions, the consultant assures their chances of realizing goals akin to those established as "best" in the Canada InfraGuide. The time taken

to do a full review of all contributing factors means that in the long term the client ends up with a sound biosolids management plan that anticipates the growing level of attention that biosolids are now receiving by governments and by the public.

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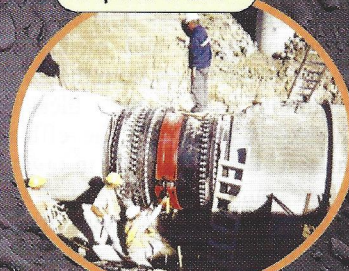
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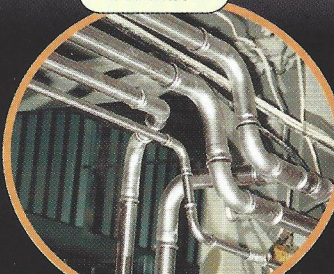
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