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WEAO MAKING PROGRESS ON INITIATIVES

This issue of Influents will reach you just as you are getting back to your place of work, hopefully after a long relaxing summer, with everyone safe and sound. The Board met only once during the summer and is geared up for a busy fall as we implement the initiatives that were presented at the 2006 Conference.

Progress on initiatives......
We are in the midst of our hiring process for the executive director; a process that will go well into the fall. A committee led by Cordell Samuels will be dealing with this.

As indicated in the last issue we are committed to a scholarship program for the Association; we feel that this will be a key element in our attempts to attract newcomers to careers in our industry. In this regard we would like to develop a program that is sustainable and can grow, if and when opportunities to do so arise. Tony Petrucci is heading up the Scholarship Finance Task Force, which will investigate different models used by other associations and make recommendations to the Board in the Fall.

We will be reviewing the status of the Association in regard to being able to issue tax receipts for charitable donations. We have also set up a Scholarship Logistics Task Force, who will work with the New Professionals Committee to determine how the scholarships will be awarded, including the number and amount of the scholarships and how candidates will be selected. This task force is lead by Tim Constantine.

Ian McIlwham is reviewing how we can better recognize volunteers and their employers for their ‘in-kind’ contributions.

In keeping with our strategy “to make membership a priority” Peter Takaoka will lead efforts to work with the Member Services Committee to review its mandate and determine the most effective ways to deliver the Association’s goals.

How we stack up with our peer associations...
WEAO sent delegates to two WEFMAX meetings this year the first in Charleston, South Carolina, and the second in Montreal. WEFMAX is an acronym for Water Environment Federation Member Association Exchange, and as the name implies, the meetings are a forum for the exchange of ideas between associations. They are extremely useful opportunities for us to see how we stack-up with our peer associations and what we can do to improve.

After the WEFMAX meetings in 2005, one of which was hosted in Toronto, we decided that we needed to change the newsletter into a magazine, mainly because of the successes achieved by other Associations. This has proved to be good for the WEAO as feedback from members indicates that they are extremely happy with the magazine format.

In Charleston our strategic plan was extremely well received, in particular the Association’s recognition of the need to attract and retain new professionals in all areas of our industry. At this year’s meetings we were impressed by a number of associations who had a young professional as part of their delegation. We accordingly have taken steps to be able to do the same, see below: ‘New Face at the Board.’

One other useful interaction that we had was in relation to scholarship programs, and we learnt that in this area we are lagging behind other associations. We had discussions with New York on their model, which helped to raise some $300,000 from individuals and corporations over a 3-4 year period. This allows the NYWEA to give out over $25,000 annually in scholarships. We will be developing a program that suits the WEAO and we hope to launch this next year.

In general however, the WEAO is comparable to several similarly sized and some larger associations and in terms of budget, size of conference, permanent staff and set-up for member communications, we are well placed.

New face at the Board......
As a result of our WEFMAX discussions, I am pleased to announce that
Vanessa Chau has been appointed to the Board for a one-year term as the representative for the New Professionals. The Board decided that this was the best way to provide our new professionals with an insight into how the association works, and prepare them should they decide later in their careers, that they would like to contribute to the association at the Board level.

Stepping up to the plate.....
In response to our call for volunteers, several people have come forward - CONGRATULATIONS. You will be contacted over the next few months by committees who are looking for volunteers.

That is about it for now, I hope to see many of you at the Annual Golf Tournament.

Vincent Nazareth
R.V Anderson Associates Limited
When residents of Ontario file a request for review with the Environmental Commissioner of Ontario (ECO), Gord Miller draws on his extensive experience in environmental protection as he fields their concerns. During his 14 years with Ontario’s Ministry of the Environment (MOE), he worked with the Biosolids Utilization Committee, approved sites for land application, pushed municipalities to develop sufficient storage and verified the stabilization of biosolids in treatment at sewage plants.

“I have sniffed the air and kicked the ground where biosolids were applied,” says Miller, who performed inspections during his two stints in a northern district office in the 1980s and 1990s. Initially hired by the MOE as a junior scientist, the University of Guelph masters graduate in plant ecology eventually became responsible for all the training in the Ministry. Throughout his career, he never lost his passion for tangible improvement to environmental management in Ontario. Today, his greatest satisfaction is seeing these outcomes materialize in part thanks to his work.

First sworn in as the Environmental Commissioner in January 31, 2000, Miller is now a year into his second five-year term overseeing the implementation of the Environmental Bill of Rights (EBR). One of the most progressive pieces of environmental legislation in Canada, arguably in the world, the EBR gives Ontarians the right to participate in environmentally significant decisions made by any Government of Ontario Ministry. The ECO oversees the EBR compliance of 14 different government ministries and agencies on all areas that impact the environment, including biosolids management.

From the beginning, biosolids have had a prominent profile at the ECO. “Land application of biosolids has been widespread in Ontario,” explains Miller, “but in the past five to six years it has become quite controversial. As a result, there have been problems in obtaining approval for land application from the Ministry of the Environment.”

This situation is partly due to public concern over safety and partly due to a lack of capacity by the Ministry of the Environment to deal with the volume of requests. “That is where we have been falling down in Ontario,” says Miller. “The cutbacks to the MOE mean that there has been very little inspection and monitoring.”

Although at one time municipalities burned their sludge, because of substantial improvements involving injecting rather than spraying and spreading, many generators are switching to a land application approach. Unfortunately, this shift comes at a time when controversy is resulting in land being withdrawn. “For people who haul and apply biosolids, it’s a constant battle to find land,” notes Miller. “Good sludge that is low in contaminants and is properly applied allows for capturing the benefits of organic matter and nutrients. However, at the present time, land application is facing significant public resistance.”

Although he can describe the state of land application of biosolids in Ontario, the Environmental Commissioner is not in a position to comment on the safety of this practice or on the current risk management methods because of a recent request submitted to the ECO for a review of such practices and standards. Nevertheless, he points out that each batch of sludge from each source has its own unique nature and quality. Metal concentrations are often the basic concern. “If you have a very high metal concentration, the sludge is unsuitable for agricultural land anyways,” Miller explains.

Although incineration has declined, there is talk of municipalities building incinerators to capture energy from municipal waste, including biosolids. The new incinerators would address the lack of air pollution controls that were a problem in the past. “But incineration is really a disposal technique,” notes Miller. “You don’t look at sludge as a major source of energy because it is wet. The presence of water lowers the energy value. But material that can not be land applied has to be dealt with safely so a good incinerator is a reasonable avenue.”

However, Miller believes that there is an even better option for disposing of biosolids unsuitable for application on farmland. “There is potential for land application on non-farm land,” he explains. “That has been discussed and done on a
very limited scale but there remains a tremendous potential in mine reclamation tailings.” He notes that large expanses of mine tailings in Northern Ontario are already metal contaminated by their very nature. Some are contained in areas of land where run-off is already treated to prevent contamination and isolation precludes human exposure to pathogens, persistent organics or metals. At the same time, the tailings have a great need for organic matter to support re-vegetation.

This possibility is only one of the options the ECO has observed. Other positive developments include a technology recently developed in Ontario that decreases the viscosity of biosolids and sterilizes them to the equivalent of a US EPA Class A biosolid.

“At the moment, there is very little proactive leadership from government,” notes Miller. “The public needs to be reassured that someone is in charge, looking at these issues and understanding them. There has to be a lot of discussion about the source, nature and destination of biosolids and the public has to be fully cognizant of that.” Failing that, municipalities and haulers will continue to be frustrated by the public’s reluctance and resistance to land application of biosolids.

Miller adds that the industry also has a role to play in getting the message across. When he first started with the MOE in 1980, the Ministry was well integrated with industry associations. Having Ministry people on the executive of associations meant mixing with professionals and sharing best practices. “I don’t think you see that near as much any more,” reflects Miller. “Government is so much smaller now. They do not have the resources to get as integrated. As a result, they are not as aware of best practices and so we haven’t seen regulations and approvals keep up with changes in technology. I think the focus should be on educating government and government policy. The question is whether members of the industry realize that they have to work harder to engage the policymakers than they have in the past.”

He notes that the only way to drive change is to have standards imposed by regulatory agency. When Miller ran MOE field operations in Northern Ontario ten years ago, his office closely monitored the municipal sludge haulers. At the time, biosolids management was a cooperative effort between landowners, municipalities and regulators. “As regulators, we would get after the municipalities to ensure they had six months of storage, as well as proper aeration and handling techniques,” he recalls.

These days Miller works in Toronto but he still has close ties to Northern Ontario. Born in Timmins, he grew up in the North and now has a house in North Bay. Whenever his busy schedule allows, he takes time for canoeing, hiking and bow hunting in the wilderness he loves. At an age where some might be thinking of retiring, he sees the weekly eight hour drive home to his wife as a fair price for his high level of job satisfaction. In fact, Miller says he finds his role as Environment Commissioner to be very rewarding: “After a lifetime of working in environmental protection, there is a sense that I am really making a difference here.”

Kenneth A. Morrison, President of R.V. Anderson Associates Limited, is pleased to announce the appointment of Tom Richardson as an Associate-Director of R.V. Anderson Associates Limited.

Tom is RVA’s chief structural engineer and manager, architecture and structures, and he is based in the company’s Toronto office. He is a registered professional engineer in Ontario, with a Bachelor of Applied Science from the University of Waterloo. He has over 26 years of experience as a structural design engineer and project manager, handling diverse assignments for municipal and environmental infrastructure projects.

R.V. Anderson Associates Limited has been engaged in the provision of professional engineering, operations, and management services since 1948. The organization comprises environmental and infrastructure specialists for water, wastewater, transportation, and urban development in Canada, and internationally.

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The following are abstracts from papers presented at the 2006 WEAO Technical Symposium and OPCEA Exhibition. If you want to learn more about Residuals & Biosolids then you should plan to attend the 2007 WEAO Technical Symposium and OPCEA Exhibition at the London Convention Centre, London, Ontario, April 15 - 17, 2007. These papers will also be posted on the website at www.weao.org in the Members Only section of the Member Services tab. Grab your membership card and log on.
Abstract
The City of Toronto undertook a review of trends in the selection of biosolids management options by large cities in the developed world since many of these cities have experienced similar pressures on biosolids management as Toronto. The paper reviews available survey data and papers published since 2000 in order to discern trends, which are supported by numerous examples.

The paper will broaden the audience’s perspectives on biosolids management planning and serve as a starting point for audience members to share their experiences and identify any additional emerging trends.

Overview of current practices
First, it is useful to have a perspective on the prevalence of various biosolids management options. The most complete recent survey data include:

- A 2001 survey by the Canadian Water and Wastewater Association (CWWA) that includes responses from 523 municipalities representing 738 treatment facilities (CWWA, 2001)

The CWWA data includes responses from 49 facilities representing annual biosolids generation of 555,000 tonnes. Figure 1 indicates that most of the material is land applied, with landfill and incineration also being common management options.

Figure 2 indicates that the average amount managed by each option at each facility does not differ greatly. The predominance of land application noted in Figure 1 is due to the fact that there are many more facilities practicing land application than other options.

Figure 3 compares the Canadian data to the American, and indicates that Canadian facilities rely slightly more heavily on landfill, and slightly less on incineration and advanced treatment such as composting and pelletization.

Few Canadian jurisdictions lessen regulatory controls on biosolids that have received advanced treatment, so there is less incentive to apply these generally more expensive methods. In the U.S., advanced treatment often produces so-called Class A and/or Exceptional Quality biosolids that are subject to less stringent regulatory controls. Although landfill availability is an issue in most areas of the U.S. and some areas of Canada, other areas in Canada have available capacity (often coupled with a lack of agricultural land, such as in Northern Ontario), thus accounting for the higher reliance on landfill here. Rates of land application of biosolids (treated to so-called Class B standards) are similar for the two countries.

FIGURE 1 Biosolids management amounts (CWWA, 2001)
Several major drivers have shaped the recent history of biosolids management for large cities: bans on ocean disposal; increasing difficulty in siting new landfills; and, in North America particularly, the aging of multiple hearth incineration equipment installed during the 1960s and 70s.

In North America, many coastal cities began implementing land application programs in the 1980s and early 1990s at least in part in response to bans on ocean disposal, including Vancouver, New York, Los Angeles, Philadelphia, Boston, and Baltimore. These choices appear to have been made on the philosophical basis that the nutrient resources of biosolids should not be wasted, and that beneficial use is higher in the hierarchy of the “4Rs” (reduce, reuse, recycle, recover) than the potential energy recovery possible with incineration. Programs in New York, Boston and Baltimore included long distance transport of Class A product for use in Florida citrus growing areas and other agricultural areas in Colorado and Texas.

In the U.S and Canada, it has become increasingly difficult to site and permit new landfills. Therefore, utilities have been looking for means of stretching the life of existing landfills by looking for opportunities to recycle various waste materials. Biosolids have been targeted for recycling because of the nutrient value of the material. This has also been a key contributor to the increase in land application of biosolids in communities where climate and agricultural conditions make the practice viable.

The response to aging multiple hearth incinerators in North America...
has been more varied. Since close to 200 of these units remain in operation (Dominak, 2001), including those in Montreal and Toronto (Highland Creek TP), it is clear that many are being maintained and upgraded for continued operation. These upgrades include improved emissions control through the use of afterburner chambers, exhaust gas recirculation, add-on thermal oxidizers, and improved scrubbers. Atlanta GA and Green Bay WI are locations that have recently made upgrades to their multiple hearth furnaces. Others that have made repairs include St. Louis, MO, Kansas City, MO and Indianapolis, IN.

However, between 1988 and 2000, at least 11 multiple hearth installations were replaced by fluidized bed incinerators (Dangtran et. al., 2000), including those in Cincinnati OH, Minneapolis/St. Paul, MN and London, ON, and a cost analysis concluded that this is usually more economical than replacement with a new multiple hearth facility, or rehabilitation of an existing multiple hearth installation. Virtually all new installations in the last 20 years have been of the fluidized bed design, and a total of 55 installations were in service in North America in 2000 (Dominak, 2001). Fluidized bed installations in Mississauga (serving Peel Region) and Pickering (serving York-Durham) are among the largest in the North American wastewater industry, and both have made recent decisions to upgrade and expand. Cleveland, OH is considering recommendations to continue using multiple hearth incinerators, but to add capacity using fluidized bed incinerators.

Although incineration facilities are located throughout North America, there is a concentration of these facilities in the U.S. Northeast. This may be accounted for by the fact that this region is more densely populated with long winters. Both of these factors limit the viability of land application (limited access to land and long storage needs).

In addition, high population density has meant that it is feasible for some communities to serve as ‘merchant’ facilities, receiving solids from other utilities and incinerating them. These are not necessarily only large utilities. For example, the Mattabassett Wastewater Authority in Cromwell, CT incinerates solids from several neighbouring communities along with its own solids, using fluidized bed technology.

Those Northeast U.S. communities that do beneficially use biosolids on land, such as New York, Boston, and Baltimore, have resorted to drying to reduce the volume for more cost-effective transportation over long distances. Long distance transportation reduces the need for seasonal storage facilities, since the receiving sites are in more suitable climates such as Florida and Texas.

Other cities, such as Arlington, VA and New Orleans, LA, have replaced, or are considering replacing, multiple hearth incinerators with a beneficial use program, as Toronto did in the late 1990s. In addition to Toronto, three communities that have replaced multiple hearth incinerators with thermal drying facilities for the production of a pelletized Class A product were identified: Pensacola and Jacksonville, FL and Louisville KY. These projects have been justified based on a preference for beneficial use, lower on-site air emissions, and synergies with anaerobic digestion, whereby digester gas can be used to fuel the dryers, and waste heat from the dryers can be used to heat the digesters.
European Union

In Europe, although it is difficult to generalize, bans on ocean disposal led to increases in both incineration and, to a lesser extent, beneficial use, while reliance on landfill remained relatively static (Bresters, 2004). In Germany, a more landlocked country that relied less heavily on ocean disposal, significant investment in incineration was made 10 to 20 years ago, but development of new facilities has been scarce since land reclamation and landfill, particularly in the former East Germany, has recently offered adequate outlet capacity. However, a large water authority (Ruhrverband), together with a power company, has recently commissioned a fluidized bed incinerator for co-incineration of sewage sludge and secondary fuels. The facility is located on the power company’s site to improve project economics. The Hamburg WWTP implemented fluidized bed incineration in 1997 (Puchajda and Oleszkiewicz, 2005), although retained anaerobic digestion capacity for the following reasons:

- Minimization of downstream process unit sizing
- More efficient energy recovery from digester gas than from incineration, with no requirement for air pollution control equipment, and
- Availability of other management options (e.g., land application or landfill) in the event of plant failure.

Those countries with actual (Switzerland) or virtual (Netherlands and Belgium) bans on agricultural land application do not likely have landfill as a viable alternative. Bresters (2004) reports incineration of 50% of sludge in the Netherlands. In the Netherlands and Germany, the concept of regional incineration facilities is well developed, in order to achieve economies of scale. In Belgium, sludge co-incineration in the cement industry has been common, and is gaining ground in other northern European countries. In Brussels, which had a previous ban on incineration, a new fluidized bed facility is being built.

A 2002 report of the European Commission (SEDE and Andersen, 2002) reviewed scientific, technical, regulatory, economic and public acceptance factors affecting the disposal and recycling of sewage sludge. This report was undertaken in order to consider recent developments in revising the EU’s existing Sewage Sludge Directive (SSD) that regulates land application. The report identifies the following trends:

- Recent health ‘scare’ related to GMOs (genetically modified organisms or ‘Frankenfoods’), dioxins and BSE (mad cow disease) have created public perception issues and cast doubts on food safety and the ability of existing regulations and controls to minimize human exposure to potential risks. Some agrifood companies and food retailers have placed pressure on farmers to adopt low-risk practices and/or cease land application in order to protect brand image and reputations for quality and safety.

- During the 1990s, many countries, particularly in Northern Europe, adopted national regulations for agricultural land application that are more stringent than the EU’s SSD in regard to heavy metals content, organic contaminants and/or pathogens.

- In the Netherlands and Belgium (Flanders), national regulations are considerably more stringent, amounting to the virtual banning of the land application of biosolids. It is important to note, however, that the motivation for these regulations is related more to the farming community’s desire to preserve agricultural land for manure spreading and the relatively high generation rate of sewage sludge due to high population density and advanced wastewater treatment requirements, rather than concern over the potential environmental and public health impacts of the practice. Other countries where competition for manure spreading is an important issue for the farming community include Finland and Luxembourg.

- Several countries have seen the development of more stringent regulations (Denmark) or attempts to create voluntary agreements among interested stakeholders to exceed regulatory requirements (UK, Sweden, Austria, France, parts of Germany) to reduce risk and potential liability. Public debate appears to have subsided in the UK and Denmark, but farmers in France and Sweden and rural landowners in parts of Germany have not been satisfied by the protections negotiated with respect to potential risk and liability.

- In other countries, such as the UK, Ireland and Portugal, the farming community generally supports agricultural land application for economic and agronomic reasons.

- Most national governments consider the use of sewage sludge in agriculture the best economic and environmental option to deal with the increasing per capita quantities of sludge being produced as a result of increased wastewater treatment standards. Many other stakeholders have an interest in supporting this position, including:
  - The farming community, motivated by sewage sludge as a low cost fertilizer, as long as quality and liability concerns can be addressed.
  - The agrifood industry, themselves large waste sludge generators, motivated by maintaining low-cost sludge disposal routes.
  - Food retailers, who wish to keep the cost of agricultural products low, as long as concerns related to real or perceived quality issues can be addressed.
  - Private and public sector wastewater utilities, who seek to maintain low cost sludge management systems.
  - Water system ratepayers, who seek low-cost services.
  - Communities served by wastewater treatment, who wish to maintain existing sludge management systems that are both economically viable and safe in terms of health.

- Public debate surrounding sewage sludge disposal and recycling in the countries of Southern Europe (such as Spain, Portugal, Italy and Greece) has been limited, and requirements of the national regulations have remained similar to the existing SSD, rather than becoming more stringent.

The report includes recommendations for reducing constraints and encouraging the recycling of sludge, such as:

- Improve and increase confidence in sludge quality through pollution prevention (sewer use controls) and improved sludge treatment, including possible independent certification of sludge treatment processes.
- Set up guarantee funds or insurance systems in order to cover any loss of profits, damages or other costs related to the use of sludge in agriculture.
Water authorities in England and Wales were privatized in the mid-1990s, while those in Scotland remained in the public sector. Like most countries of Europe, these utilities faced two simultaneous challenges in the mid-1990s: increasing per capita biosolids generation as wastewater treatment standards increased; and, the end of ocean disposal. Reviews of year 2000 practices and 2005/06 projections (Evans, 2000 and Wallis et.al., 2000) reveal the following trends:

1. Some utilities have used fluidized bed incineration to replace ocean dumping, including:
   - Thames Water, with a population of 13 million (London), and a biosolids generation rate of 250,000 dry t/y, uses incineration to manage approximately one-third of its biosolids and generate 13 MW of energy.
   - Yorkshire Water, with a biosolids generation rate of 140,000 dry t/y, pioneered the use of modern fluidized bed incineration in the UK. Four centralized locations (including Leeds and Sheffield) have incinerators. Incineration is expected to continue to provide about 40% of capacity into the future.

2. Some utilities are seeking to diversify away from beneficial reuse and have taken steps to maintain or increase the amount managed through incineration, including:
   - North West Water, with a population of 7 million, including Liverpool, and a biosolids generation rate of 160,000 dry t/y, is expected to move from 70% agriculture/10% fluidized bed incineration in 2000 to 45%/45% by 2005/06.
   - Severn Trent Water, with a population of 10.75 million, and a biosolids generation rate of 160,000 dry t/y, plans to continue at about 25% fluidized bed incineration.
   - The West of Scotland Water Authority, serving Glasgow, with a biosolids generation rate of 65,000 dry t/y, has proposed (in 2000) a dewatering and thermal drying facility to produce fuel for co-incineration at a coal-fired power station about 60 km away.

3. Some utilities are seeking to diversify away from beneficial reuse and have taken steps to implement and/or experiment with gasification, but have experienced higher costs or greater problems than expected, including:
   - Northumbrian Water, with a population of 3.5 million and a biosolids generation rate of 80,000 dry t/y, has implemented (by 2000) about 50% gasification capacity at greater expense and problems than expected. Earlier plans to move to 100% gasification by 2005/06 had become uncertain by 2000.
   - Welsh Water, with a population of 3 million, and a biosolids generation rate of 60,000 dry t/y, has experimented with thermal drying followed by gasification, but plans are on hold following a fire.

4. Some utilities are seeking to diversify away from beneficial reuse and as of 2000 were planning to investigate and/or implement gasification, including:
   - Anglian Water, with a population of 5.5 million, including Cambridge and Boston, and a biosolids generation rate of 140,000 dry t/y, was at about 80% reuse in agriculture but expected to be using gasification for about a third of their capacity by 2005/06.
   - Wessex Water, with a population of 2.5 million and a biosolids generation rate of 50,000 dry t/y, were early converts to thermal drying in the mid-80s, and had about 50% in beneficial use at that time. At the end of ocean dumping (2000), they had about 80% in beneficial reuse but were hoping to diversify and reduce this reliance to about 30% through implementation of some ‘other’ technology by 2005/06, hopefully gasification.

5. All utilities plan to retain diversity through some level of beneficial reuse, but virtually all are including Class A products to improve public acceptance and program diversity.
RECENT TRENDS

It is clear that the 1980s and 90s were times of significant change in biosolids management, and the ‘ripple effects’ of these changes continue through to the present. Important recent trends include:

• Operators of cost-effective beneficial use programs that rely primarily on Class B biosolids, such as Edmonton, Seattle, Chicago and Oakland, recognize the pressures to move to a Class A product in order to address public perception concerns, and some have taken steps to include some Class A processes. This lesson was learned the hard way in Los Angeles, where outlying Counties that once received most of the City’s biosolids enacted ordinances banning the land application of Class B biosolids in the late 1990s, forcing an upgrade of digestion processes to produce Class A product. However, this move to Class A may not be sufficient to maintain the Los Angeles beneficial use program. Local politicians for Kern County, CA, which is the prime recipient of Los Angeles’ Class A biosolids, are discussing legislation that would enable local county governments to prevent the use of any biosolids products generated from outside the county. This could severely impact Los Angeles’ program if it comes to fruition. The recent certification of the Los Angeles biosolids program to the National Biosolids Partnership (NBP) Environmental Management Systems (EMS) standard (NBP, 2006), however, appears to have brokered a peace for the moment.

• Operators of Class A programs, such as Milwaukee, Houston, Fort Worth, Boston, New York City, Philadelphia and Vancouver continue to pursue diversification of their outlets through aggressive marketing, in order to mitigate the potential impacts of market shifts. In other words, they are learning not to put all their eggs in one basket if at all possible. For example, in the early 1990s, Houston marketed most of its heat dried Class A product in Florida. The arrival of product from the cities of the U.S. Northeast, however, flooded the market and resulted in a price drop of over 50% during the 1992 to 1995 period. A re-focusing of the marketing effort has meant that more than 50% of the product is now marketed in Texas. In addition, Houston is now considering implementation of a composting program for its smaller plants to further diversify outlets.

• Despite these hurdles, the U.S. EPA expects beneficial use to increase, landfilling to decrease and the use of incineration to remain relatively static over the 2000 to 2010 period (U.S. EPA, 1999).

• The National Biosolids Partnership (NBP) is a joint effort by the U.S. Environmental Protection Agency (U.S. EPA), the Water Environment Federation (WEF) and the Association of Metropolitan Sewerage Agencies (AMSA). In 1998, NBP began a process to develop, evaluate and promote standards for biosolids Environmental Management Systems (EMS). The NBP EMS incorporates the principles of the ISO 14001 standards, and includes an additional requirement for certified agencies to consult with affected stakeholders and communities. More than 80 agencies are participating, and large urban centres certified in the 2003 to 2005 period include Denver CO, Fort Worth TX, Seattle WA, Los Angeles CA and Washington, DC. Participants have noted that considerable resources are required to develop and implement an EMS, especially in terms of staff time, but also cite improvements in:
  - Internal communication
  - Management practices
  - Program economics
  - Environmental performance
  - Regulatory compliance, and
  - Stakeholder and public relationships.

• A parallel biosolids EMS effort was launched in Ontario in 2001 (Helka and Chauvin, 2005) with the formation of a Technical Steering Committee including representation from Ministry of the Environment (MOE), Ministry of Agriculture and Food (OMAF), the Ontario Federation of Agriculture, and the federal Great Lakes Sustainability Fund. The Cities of Hamilton and Ottawa, and the Regional Municipality of Halton represented biosolids generators. Non-governmental organizations were also invited to participate, including Pollution Probe, the Centre for Lake and Water Stewardship and the Canadian Institutes for Public Health.

• The increase in beneficial use appears to be slowing in Europe, favouring a continued increase in incineration where the scale of operations results in favourable unit costs (generally above approximately 25,000 tonnes of dry solids per year) (Bresters, 2004). Many of these installations, including examples in Scotland, The Netherlands, Belgium and Germany, feature co-incineration of dewatered biosolids, and even Class A products such as compost and pellets, at power stations and in cement kilns. Ash recycling in asphalt and cement is also more common in Europe.

• More stringent air emissions regulations are anticipated in the U.S., which may result in additional multiple hearth upgrades or replacements with fluidized bed designs, and/or require additional emissions control equipment for existing and new facilities (Welp, 2002).

• Biosolids processes may become more integrated, largely to improve energy recovery from the biosolids, and to limit the need for external energy sources for biosolids processing. For example, digester gas may be used to heat thermal dryers, waste heat from incineration of a portion of the biosolids may be used to thermally dry another portion, as is currently practised in Montreal, or waste heat from incineration may be used for energy production (Welp, 2002).

SUMMARY

Summary information about biosolids management programs in various large North American communities is provided in Table 1, grouped by the trends discussed earlier.
### TABLE 1

Summary of biosolids management programs in other large North American Communities

<table>
<thead>
<tr>
<th>Community</th>
<th>Scale of Operation</th>
<th>Biosolids Management Options</th>
<th>Comments</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver BC (GVRD)</td>
<td>71,000 dry t/y</td>
<td>40,000 dry t/y of Class A “Nutrifor” product recycled in:</td>
<td>Negative media coverage using misinformation has hampered program activities.</td>
<td>GVRD, 2002</td>
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<td></td>
<td></td>
<td>Mine reclamation (48%)</td>
<td>Program goals include establishing public acceptance.</td>
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<td>Ranch fertilization (47%)</td>
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<td></td>
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<td>Soil products, silviculture, gravel pit reclamation (5%)</td>
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<td></td>
<td>Remaining amounts stockpiled in lagoons at 2 treatment plants</td>
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<tr>
<td>Victoria BC (CRD)</td>
<td>0 dry t/y</td>
<td>Current Sludge Management Plan calls for land application, primarily in the forest sector, with</td>
<td>BC MOE required submission of the Sludge Management Plan on March 31, 2005</td>
<td>Kelly et. al., 2005</td>
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<td></td>
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<td>agriculture and urban uses as secondary outlets</td>
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<tr>
<td>New York City NY</td>
<td>1,200 wet tons per day</td>
<td>Private sector contracts for 4 options:</td>
<td>Land application to rangeland in Colorado (170 wet tons per day) continues to achieve public</td>
<td>Scharp, 2001; NYC website, 2005</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thermal drying (42%)</td>
<td>acceptance through pro-active regulatory compliance, liaison with elected officials, farmers</td>
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<td></td>
<td></td>
<td>– EnviroGro Technologies facility in The Bronx, nation-wide sales of pellets, but most in</td>
<td>and the media, remote application sites and local program management with the authority to</td>
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<td></td>
<td></td>
<td>Florida citrus industry</td>
<td>make decisions.</td>
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<td>Land application (37%)</td>
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<td></td>
<td></td>
<td>– range land in Texas and Colorado</td>
<td></td>
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<td></td>
<td></td>
<td>Composting (13%)</td>
<td></td>
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<td></td>
<td></td>
<td>– facility in Pennsylvania</td>
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<td>Alkaline stabilization (8%)</td>
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<td></td>
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<td>– facility in New Jersey</td>
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<tr>
<td>Los Angeles CA</td>
<td></td>
<td>On-site advanced digestion to produce Class A biosolids for land application</td>
<td>Large number of existing digesters (~40) allowed operators to re-configure flow and conditions</td>
<td>Haug et. al., 2002 NBP, 2006</td>
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<td></td>
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<td>to achieve advanced digestion. Now certified under the NBP EMS.</td>
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<tr>
<td>Boston MA</td>
<td>23,000 to 33,000 dry t/y (70 to 100 dry tons per day)</td>
<td>New England Fertilizer plant produces fertilizer pellets, with most shipped by rail to</td>
<td>NBP website, 2003</td>
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<td></td>
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<td>fertilizer blending facilities in the south, southeast and midwest. Remainder is</td>
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<td></td>
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<td>packaged in bags and sold as “Bay State Fertilizer” to the local horticultural market.</td>
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<tr>
<td>Philadelphia PA</td>
<td>55,000 dry t/y (166 dry tons per day)</td>
<td>Anaerobic digestion produces Class B product</td>
<td>Class B agricultural land</td>
<td>Toffey et. al., 2002</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Centralized dewatering station 72-acre composting facility produces Class A product</td>
<td>application is most cost effective. Composting facility required retrofitting with odour</td>
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<tr>
<td></td>
<td></td>
<td>Products are used in agricultural land application, reclamation of coal mining lands and sand</td>
<td>control systems. Flexible and diverse outlets required to maintain price competition.</td>
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<td></td>
<td></td>
<td>and gravel operations, and are marketed commercially as “EarthMate” Landfill as contingency</td>
<td>Continual improvement is a key to success. Public support must be continually cultivated and</td>
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<td></td>
<td></td>
<td>(~25%)</td>
<td>and never presumed.</td>
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<tr>
<td>Hamilton ON</td>
<td>14,000 dry t/y</td>
<td>Agricultural land application of anaerobically digested dewatered biosolids</td>
<td>An EMS has been implemented to help build a sustainable and publically-acceptable beneficial</td>
<td>Heika and Chauvin, 2005</td>
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<td></td>
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<td>use program including a Local Implementation Team (LIT) overseen by a peer review committee</td>
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<td></td>
<td></td>
<td></td>
<td>(Agricultural and Rural Affairs Committee). External stakeholders are also consulted.</td>
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</tbody>
</table>

**Communities implementing land application programs following bans on ocean disposal**
<table>
<thead>
<tr>
<th>Community</th>
<th>Scale of Operation</th>
<th>Biosolids Management Options</th>
<th>Comments</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arlington VA</td>
<td>9,300 dry t/y</td>
<td>Agricultural land application of dewatered and lime stabilized Class B biosolids Supported by field storage sites and contingency landfill</td>
<td></td>
<td>Slattery et al., 2003</td>
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<tr>
<td></td>
<td>(10,200 dry tons/year)</td>
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<tr>
<td>New Orleans LA</td>
<td>14,000 dry t/y</td>
<td>Considering dewatered biosolids as a feed-stream to off-site fertilizer manufacturing</td>
<td>Beneficial use takes advantage of regulatory incentives and operational economics, while a value added product mitigates legal liabilities.</td>
<td>Mack et al., 2003</td>
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<tr>
<td></td>
<td>(42 dry tons per day)</td>
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<tr>
<td>Pensacola FL</td>
<td>6,300 dry t/y</td>
<td>Fluidized bed drying facility with odour control system</td>
<td>Drying advantages include beneficial use, reduced on-site air pollution emissions, decreased monitoring and record keeping requirements and good odour control capability.</td>
<td>Hoener et al., 2002</td>
</tr>
<tr>
<td></td>
<td>(19.1 dry tons per day)</td>
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<tr>
<td>Jacksonville FL</td>
<td>14,000 dry t/y</td>
<td>Rotary drum drying technology with odour control system</td>
<td>Drying advantages include beneficial use product, reduced on-site air pollution emissions, reduced landfill dependency</td>
<td>Hoener et al., 2002; Blanton et al., 2003</td>
</tr>
<tr>
<td></td>
<td>(43.2 dry tons per day)</td>
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<tr>
<td>Louisville KY</td>
<td>51,000 dry t/y</td>
<td>Rotary drum drying technology with odour control system</td>
<td>Project included phase-out of odour generating thermal conditioning units</td>
<td>Hoener et al., 2002</td>
</tr>
<tr>
<td></td>
<td>(155 dry tons per day)</td>
<td></td>
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<tr>
<td>Minneapolis/</td>
<td>66,000 dry t/y</td>
<td>Fluidized bed incineration Lime stabilization (contingency only)</td>
<td>Improved air emissions quality. Regulator required contingency lime stabilization to handle 30% of production, but this system has not been used.</td>
<td>Borghesi et al., 2003; Puchajda and Oleszkiewicz, 2005</td>
</tr>
<tr>
<td>St. Paul MN</td>
<td>(200 dry tons/day)</td>
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<tr>
<td>London ON</td>
<td>1650 m3/d</td>
<td>Centralized fluidized bed incineration serving 6 treatment plants Landfill as contingency</td>
<td></td>
<td>City of London website, 2003</td>
</tr>
</tbody>
</table>

**Communities replacing multiple hearth incinerators with beneficial use programs**

**Communities replacing multiple hearth incinerators with fluidized bed incinerators**
<table>
<thead>
<tr>
<th>Community</th>
<th>Scale of Operation</th>
<th>Biosolids Management Options</th>
<th>Comments</th>
<th>Reference</th>
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</thead>
<tbody>
<tr>
<td><strong>Communities upgrading and expanding fluidized bed incinerators</strong></td>
<td></td>
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</tr>
<tr>
<td>Mississauga and Brampton ON (Peel Region)</td>
<td>44,000 dry t/y</td>
<td>Incineration using FBI with energy recovery Ash is stockpiled in on-site lagoons</td>
<td>Biosolids management strategy completed in 2003</td>
<td>KMK, 2003</td>
</tr>
<tr>
<td>York and Durham Regions ON</td>
<td>38,000 dry t/y</td>
<td>Incineration using FBI Ash is recycled to cement industry</td>
<td>Biosolids management plan completed in 2005</td>
<td>KMK, 2005</td>
</tr>
<tr>
<td>Cleveland OH</td>
<td>47,000 dry t/y (107,000 wet tons per year, @48% solids)</td>
<td>Incineration using both MH and FBI Ash is landfilled Supported by contingency landfill</td>
<td>Incineration is safe, reliable and cost effective Investigating beneficial use options for ash</td>
<td>Dominak and Stone, 2003</td>
</tr>
<tr>
<td><strong>Communities upgrading “Class B” beneficial use programs to “Class A”</strong></td>
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</tr>
<tr>
<td>Edmonton AB</td>
<td>20,000 dry t/y</td>
<td>Agricultural land application of Class B product since 1979 (NutriGold) Co-composting with organic stream of municipal solid waste since 2000 Additional biosolide / wood chips composting capacity added in 2002</td>
<td>Agricultural land application costs have been increasing due to longer haul distances Agricultural land application (NutriGold) has dropped to about 5,000 dry t/y since the start of composting in 2000, from about 15,000 dry t/y for most of the 1990s. Co-composting facility was purchased by the City from the utility sector contractor (Trans Alta) in 2001. NutriGold will be continued at least until future composting plans are developed.</td>
<td>Yee and Bittner, 2005</td>
</tr>
<tr>
<td>Edmonton AB</td>
<td>40,000 wet t/y</td>
<td>Composting (Quebec): 82% Landfill cover: 10% Agricultural land application: 8%</td>
<td>Agricultural land application was suspended by City Council late in 2001, leading to composting, but was reinstated late in 2004 Implementing Best Management Practices and EMS as part of Ontario demonstration project.</td>
<td>Petti, 2005</td>
</tr>
<tr>
<td>Seattle WA</td>
<td>24,000 dry t/y (130,000 wet tons per year, @20% total solids)</td>
<td>Dryland wheat farms (31%; $15-$25/acre) Hops and orchards (27%; $35 - $60/acre) Private forest (11%; future timber revenues) Public forest (11%; future timber revenues)) Compost “GroCo” (7%; $1 / wet ton)</td>
<td>Success factors include public private partnerships with public accountability, strong third party alliances and spokespersons, market-driven planning, development of application equipment, continued cost avoidance, revenue from every biosolids user, intergovernmental cooperation, multi-pronged communications, and high standards for project management (exceeding regulatory requirements). Program has moved past public acceptance to public demand. Now certified to NBP EMS standard.</td>
<td>Newlands and Leonard, 2000 NBP, 2006</td>
</tr>
<tr>
<td>Chicago IL</td>
<td></td>
<td>Lagoon storage of mechanically dewatered biosolids, now followed by air drying using mechanical agitation to produce Class A product at 60 to 65 percent solids for local agricultural land application.</td>
<td>Dewatering and drying results in Class A products and increases effective storage capacity of lagoons and drying cells Considering thermal drying in order to allow lagoons to be used for other purposes (combined sewer overflow management).</td>
<td>Tata et. al., 2002</td>
</tr>
<tr>
<td>Orange County Sanitation District CA</td>
<td>73,000 dry t/y</td>
<td>Agricultural land application of dewatered Class B biosolids</td>
<td>Current biosolids management planning is using a dynamic economic model to compare processing needs and impacts and economics of various Class A products.</td>
<td>Roxburgh et. al., 2005</td>
</tr>
</tbody>
</table>
## Communities upgrading “Class B” beneficial use programs to “Class A”

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<th>Community</th>
<th>Scale of Operation</th>
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<th>Comments</th>
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<tbody>
<tr>
<td>Oakland CA (East Bay Municipal Utilities District)</td>
<td>11,000 dry t/y (60,000 wet tons per year, @21% total solids)</td>
<td>Centrifuge dewatering followed by agricultural land application or landfill alternative daily cover</td>
<td>Considering a regional composting or heat-drying facility in a public- or public-private partnership to increase economies of scale and facilitate product sales and distribution. Flexible options and phased implementation are required to deal with future uncertainty.</td>
<td>VanderMarck et al., 2002; McCormick et al., 2000</td>
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</table>

## Communities enhancing marketing and diversifying outlets for “Class A” beneficial use programs

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<th>Scale of Operation</th>
<th>Biosolids Management Options</th>
<th>Comments</th>
<th>Reference</th>
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<tbody>
<tr>
<td>Hampton Roads VA (HRSD)</td>
<td>9 WWTPs 10,000 tons ash/y</td>
<td>Land application Compost (Nutri-Green®) Incineration with ash recycling</td>
<td>Goal is to recycle biosolids in a beneficial, cost-effective, environmentally sound and publicly acceptable manner. R&amp;D used to develop new options, such as thermal drying pilot in 2000.</td>
<td>HRSD website, 2002</td>
</tr>
<tr>
<td>Milwaukee WI</td>
<td>36,000 dry t/y (40,000 dry tons per year)</td>
<td>Fertilizer pellet manufacturing (Milorganite®) – bagged products for the horticultural market and bulk product for the fertilizer blending industry</td>
<td>Commercial production began in 1926. Important markets continue to be golf courses, sports fields, parks and other professional grounds. Stuff with scientific expertise in agronomy, turf grass and soils support production, analytical and sales/marketing areas.</td>
<td>MMSD website; Milorganite website</td>
</tr>
<tr>
<td>Houston TX</td>
<td>54,000 dry t/y (162 dry tons per day)</td>
<td>More than 90% beneficially used Distribution and marketing of heat dried material (Hou-Actinite®) since the 1930s Land application of lime stabilized or aerobically digested material</td>
<td>Flexibility as key to the program. City undertakes numerous efforts to ensure cost-effectiveness: facility compliance assurance, training, response to proposed regulations, ongoing updates to the Master Plan and developing and maintaining public acceptance</td>
<td>Hyare et al., 2002</td>
</tr>
<tr>
<td>Fort Worth TX</td>
<td>33,000 dry t/y (100 dry tons per day)</td>
<td>Private sector contract for dewatering, post lime stabilization to produce a Class A, Exceptional Quality (EQ) product, followed by agricultural land application</td>
<td>100% beneficial use rate achieved, with a waiting list of application sites, and landowners paying $10/acre Public acceptance activities include video and publications, conservative application practices, notice of application schedules and re-scheduling to minimize community impacts (schools, churches, etc.) Now certified to NBP EMS standard</td>
<td>McMillion and Rockers, 2002 NBP, 2006</td>
</tr>
</tbody>
</table>

### References

Los Angeles Goes to Full-Scale Class A Using Advanced Digestion. 16th Annual Residuals and Biosolids Management Conference, 2002.


Also, Proceedings of the 1st Bioenergy Summit: Charting the Future Direction of Bioenergy Technologies, August 14 to 16, 2003, Tulane University, New Orleans, Louisiana.

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The Niagara Falls Wastewater Treatment Plant serves the rapidly developing City of Niagara Falls which has a booming tourist industry. It is the largest plant within the Region and is a unique one of this size (70,000 m³/d) that uses rotating biological contactors (RBC) as a secondary treatment process.

The Region of Niagara, who owns and operates the Plant, developed a Region-wide biosolids management strategy to avoid challenges related to liquid biosolids transfer and storage and to reduce volume that is land applied.

As a first step, the Region decided to process 25% of the Regional biosolids production using the N-Viro alkaline stabilization process, which is owned and operated by an outsourced private entity. The Region made a commitment to deliver dewatered biosolids cake to the N-Viro Facility. Two dewatering projects were initiated to meet this commitment. One of the dewatering facilities was recently constructed and commissioned at the Niagara Falls Wastewater Treatment Plant.

Due to the unique process of the plant and limited experience regarding the dewaterability of the RBC sludge, a careful approach in selecting the dewatering machine was taken. Two pilot tests of different manufacturer’s centrifuges was carried out. These tests yielded excellent cake dryness and low polymer consumption. The tests were described in detail in a paper presented at WEFTEC Biosolids Conference in Salt Lake City, Utah. (Stephenson et al.). In addition a comprehensive study about centrate return impact on plant operation was carried out including impact modeling. The study indicated that the plant should be able to handle it, provided a centrate equalization tank was constructed to ensure continuous feed rather than loading only during high flow daytime hours.

Based on the pilot test results, a full scale facility was constructed and commissioned in the summer of 2005. It consisted of digested sludge storage, feed pumps, one centrifuge, dry polymer handling system (with provisions to hook up emulsion polymer supply), cake conveying system, and truck loading bay. Numerous bench tests to select a dry polymer were carried out and the Region purchased three types of preferred polymer from two major suppliers to test them in full scale operation. Initial operation of the facility routinely achieved high cake dryness of 40%.

Following commissioning, numerous tests were conducted to address plant process upsets that were attributed to the dewatering operation and in particular, centrate return that contained polymer residual. Following additional field tests and lab analysis, a different type of polymer (emulsion v/s dry) was tested. This approach resulted in successful operation of the dewatering facility with no process upsets at the plant. Some reduction in dewatering machine performance was initially observed as a result of emulsion v/s dry polymer. The dosage and brand is still being optimized with promising results.

The full scale experience corroborated the pilot results showing excellent dewatered solids concentration, near 40%, and normal conditioning polymer dosages. The high concentration reduces trucking costs to the N-Viro process and will reduce overall alkaline stabilization costs due to the higher solids and lower water content.

The presentation will offer both technical and cost benefit results.
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Le Centre Sheraton Montréal November 20th - 23rd, 2006

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INTRODUCTION
The Nonquon River Water Pollution Control Plant is a seasonal discharge aerated lagoon system located in the Community of Port Perry in the Township of Scugog in the Region of Durham. It consists of six (6) storage cells and two smaller aerated cells. The lagoons discharge continuously to the Nonquon River from October 15 to May 15. During the spring and summer the discharge to the river is stopped and sewage is stored in the lagoons. The purpose of this project is to remove and utilize on agricultural land and/or the removal and alternate disposal of the sludge, sediment and weed growth that has accumulated in the bottom and side slopes of Cell No. 1.

LAGOON CELL DIMENSIONS AND DETAILS
Lagoon cell No.1 was initially put into service in 1972 and has never been cleaned. Cell No. 1 is approximately 500 meters long by 130 meters wide and during normal operation has an estimated volume capacity of 105,000 m³. There is cattail growth covering approximately 40% of the surface area. The bottom elevation is 260.000 m.

SCOPE OF WORK
Lagoon cleaning includes clearing and grubbing of vegetation, excavating biosolids, removal and disposal of vegetation and biosolids off site. The semi-solid material to be removed from the cell floor and berm sidewalls will be well stabilized and should be suitable for application on agricultural land. In the case that the material cannot be applied to land, the Contractor is requested to submit an alternate disposal site. All loads must be tarped prior to transport to the final destination.

The Contractor must ensure that the original bottom elevation is achieved within the tolerance of +/- 0.10m. The lagoon cleaning shall not be considered complete until the Region has checked and verified the post-construction record lagoon cleaning elevations.

PROJECT DEVELOPMENT
The Region issued the Request for Proposal in October 2004. Proposal was evaluated by the Region’s team and recommended to award the work to Wessuc Inc. in May 2005. Wessuc Inc. mobilized in June 2005 to commence the project. The removal of the biosolids from the lagoon cell was completed by mid August 2005. The biosolids are currently stored in three filter bags and are to be land applied in October 2005.

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SUN SHINES ON ST. GEORGES AS SHOVELERS SWAP STORIES

By Peter Takaoka, R.V. Anderson Associates Ltd.

As has become the norm, the day was warm and sunny on May 30, 2006 when the Select Society of Sanitary Sludge Shovelers gathered at St. Georges Golf and Country Club in West Toronto to meet old friends and to formally induct three new members to the august Society.

Thirty-four people attended the luncheon organized by Erv McIntyre with his usual efficiency. Before sitting down to a sumptuous meal, the attendees mingled and renewed acquaintances catching up on news and sharing stories of incidents that occurred long ago. With many members not having met since the previous luncheon or perhaps longer, there was much news to share and the socializing threatened to delay the luncheon and the business at hand.

Following the meal, three worthy WEAO members who had given so generously of their time and efforts over many years to serve the organization were formally inducted into the Select Society. The inductees for 2006 were: Rosanna DiLabio, Heinz Held and Phil Sidhwa. The honorary inductee was Lynn Orphan, past President of WEF who had attended the recent WEAO Annual Conference in Toronto.

Unfortunately, our venerable Influent Integrator, Geoff Scott, was unable to attend and preside over the ceremony so Peter Laughton conducted the proceedings with the customary pomp and circumstance.

Chairman Jim Brooker extended his thanks to David Hein, Sandy Pickett and Steve Black who had assisted him in publishing the 5S Newsletter in the spring of 2006. He also noted that, over the course of time, our Society had accumulated a cash surplus in the order of $500. He proposed that this money could be donated to the WEAO to be used to support their charity of choice. This met with agreement from the assembled members.

Peter Nicol noted the passing of James W. MacLaren during the past year. An article on Jim appeared in the most recent issue of the 5S Newsletter.

After the business had been attended to, the group sat back and were entertained and illuminated by a speech delivered by Jack Norman. Jack had not attended the luncheon recently since he and his wife had taken up residence in Mexico over the past 7 years. He described his life in the west-central highlands of Mexico in a town outside of the state capital of Guadalajara, a city of 8 million people. He noted that the area was the ‘silicon valley of Mexico.’

Jack allowed that, although he found the life very enjoyable and the people very friendly, ‘it would not be for everyone.’ He said that he had learned to be patient and to be in tune with ‘Mexican time’ in his dealings with the locals. He also extolled the virtues of the local medical facilities saying that a CAT scan could be had without the lengthy delays encountered in Ontario.

Jack’s presentation was well-received and everyone in attendance felt that the gathering had been graced with his presence. Everyone went their separate ways looking forward to next year’s luncheon.

L-R Peter Laughton, Heinz Held, Rosanna DiLabio and Phil Sidhwa.

ABS is one of the world’s largest manufacturers of submersible pumps, dewatering pumps, submersible mixers and fine bubble aeration equipment for the municipal and industrial wastewater market.

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Contact: Jason Goldberg, P. Eng
E-mail: jason.goldberg@absgroup.com
www.absgroup.com
An innovative boat is the key piece in saving the Region of Durham a lot of money now, and well into the future.

In the Golden Horseshoe, east of Toronto, the Region of Durham encompasses 2,590 sq. km., with a population over 525,000. The Region’s diverse landscape of woods, headwaters, rolling farmland, and lakes is also home to municipalities such as Oshawa, Whitby and Ajax.

At a boat show in January 2006, Durham’s Peter Chaput approached Ted Collins of Custom Boat Works by Stanley with an interesting request: Could his company produce a 20-foot boat capable of dispensing 3,000 lbs of liquid chemicals into the Region’s three large lagoons? More importantly, could it be produced within a $50,000 budget?

The Region wanted to have a large tank of chemicals on the boat’s deck and gravity-feed liquid from the tank into the lagoon. Then, in a novel touch, the outboard motor’s propeller would mix the chemical into the lagoon water.

Custom Boat Works decided the idea could work and that a flat bottom barge would fit the bill. The hull was built of 1/4” aluminum plate with the sides and floor made of 3/16” plate. Stringers and frames were 1/4” and welded to the hull’s bottom in a honeycomb shape. The stringers are 12” apart and run the length of the boat; while the frames are 12” apart and go from port to starboard. A flat non-skid floor was then welded to the frames. The project was well underway when they had another request. Could bow steps be added so our operators could easily board the boat. The request was granted.

The portable tank has a capacity of 1,000 litres and sits in the center of the barge in a welded frame for added stability. There is a 4” filler opening at the top and a 2” ball valve discharge at the bottom. A reducer connects the discharge opening to a 1” clear plastic line running along the floor to the transom, where it meets a T-fitting that forms two lines. These lines are attached to two 2” through hull fittings with shut-off valves. To allow the chemical flow, the operator simply opens the shut-off valve on the tank and the two shut-off valves on the transom, and drives around the lagoon (while the prop mixes the dispersed chemical).

The average municipal lagoon has a depth of between 5’ to 7’ and under full load the boat has a draft of only 18”, making it adaptable to almost any pond or lagoon.

In five short months, at its test run on Lake Simcoe, the barge exceeded expectations. Not only that, it was produced for under $40,000 – well within the Region’s budget and considerably less expensive than the $200,000 tanker truck previously used to ferry chemicals to a motor boat carrying small tanks.

A result of Durham’s good fortune is the fact that municipalities throughout North America can now enjoy the same success. Custom Boat Works has everything in readiness to mass-produce the chemical barge.

If you would like more information on how this lagoon waste management innovation could benefit your municipality, contact Ted Collins at 705-732-1712 or Collins@vianet.ca.
PROMISED REFORMS TO ONTARIO’S APPROVALS PROCESS COULD EASE WAY FOR WASTE MANAGEMENT INITIATIVES

OVer the years, municipal waste managers have registered plenty of complaints about Ontario’s environmental assessment (EA) process. It is too costly. It takes too long. It is overly complex and duplicates other planning requirements. With Michigan working overtime to close its borders to our solid wastes, many municipal planners see EA bottlenecks as the single greatest impediment to making Ontario self-sufficient in terms of waste disposal.

However, some regulatory relief may be on the way. Following the detailed recommendations of a multi-stakeholder advisory panel submitted in March 2005 - and at least one aborted attempt at reform that did not pass muster at the Cabinet table - Ontario’s Ministry of the Environment has finally announced its intention to amend the EA process. The MOE promises that the reforms will “make it easier to navigate and enable major infrastructure projects... to proceed more quickly.”

While the proposals are still short on detail, the promised changes could unblock the approvals pipeline for many stalled waste management projects and help close the ever growing gap between waste generation totals and the available disposal capacity. Environment Minister Laurel Broten insists the reforms will “make it easier to navigate and enable major infrastructure projects... to proceed more quickly.”

Municipal groups have long argued that compared with other critical infrastructure elements - including electrical energy generation, water and wastewater management, and transportation - waste management undertakings are “subject to the most stringent approvals requirements” under Ontario’s statutory and regulatory regime.

Earlier this year, the Association of Municipalities of Ontario, the Association of Municipal Recycling Coordinators and the Municipal Waste Integration Network recommended, in a joint submission to the MOE, that waste management projects be classified according to their potential environmental impacts in order to ensure ‘the appropriate level of assessment and review’ under the Environmental Assessment Act and the Environmental Protection Act. They say that a new regulation - similar to the Electricity Projects Regulation (O. Reg. 116/01) - would support this kind of Class EA approach for both public and private sector projects.

While it is not planning any formal amendments to the EA Act itself, the MOE says it will draft a new waste regulation that will standardize the EA process based on the type, size and environmental impact of projects. It will also publish a new Code of Practice to improve the guidance provided to both proponents and the public on its regulatory requirements and the Ministry’s expectations under the Act.

A Ministry spokesperson calls EA a “proponent-driven process” and says the new Code will work to “eliminate confusion and false starts,” and help the public contribute to the EA process in a more meaningful way. To this end, the Ministry is drafting “clear, consistent standards and principles so that EAs are complete and correct.”

The draft waste regulation will be circulated to industry and municipal stakeholders for discussion this summer and MOE plans to post it on the Environmental Registry for public comment sometime this fall. MOE is still working on the Code of Practice, and it will not be available for general review until the fall. According to the Minister, changes will not take effect for at least six months, but given the significant drafting and public consultation required, 18 months seems more likely.
Groups call for integrated plan

The municipal groups have also asked the MOE to draft an integrated waste management strategy for the province that would map out the infrastructure needed to undertake the necessary prevention, diversion, recycling and composting, resource recovery, energy-from-waste and landfill activities. Such a strategy would permit proponents to show how their projects fit into a pre-approved waste management blueprint without needing to rehash all the alternatives yet again.

While the Ministry has yet to act on this recommendation, it has started to ease the approval restrictions on a number of components that would be key to any future integrated waste management strategy. In January, it exempted from both the EA Act and from the hearing requirements of sections 30 and 32 of the EPA, a demonstration-scale project that would gasify municipal waste and produce electricity. Plasco Energy Group will be permitted to construct and operate the 85 tonne-per-day plant in Ottawa’s Nepean Landfill for up to two years. The project is still subject to all other Ministry approvals, including the Certificates of Approval for air and waste management.

Then in July, the MOE posted on the Environmental Registry a series of proposed regulatory amendments to facilitate waste recycling, the use of alternative fuels, and implementation of new and emerging waste management technologies. Written comments on the proposals are due by September 18, 2006. The package of amendments would:

1. permit the production of ethanol and biodiesel from organic wastes and their use as alternative fuels without first obtaining approval under Part V (Waste) of the EPA (note, other EPA approval requirements, such as for air emissions, will remain unchanged);
2. allow wood waste combustor sites to combust any quantity of wood waste as a fuel or fuel supplement without approval under section 27 of the EPA;
3. provide a streamlined waste approvals process under Part V of the EPA for pilot and demonstration sites for new and emerging waste management technologies, including energy-from-waste technologies (the exemption would apply to projects with a maximum capacity of 75 tonnes per day of municipal waste for up to five years);
4. remove the Part V approval requirements for facilities handling a much expanded list of exempted wastes (including waste paints, printed circuit boards, certain smelter wastes and end-of-life electronics) under Regulation 347; and
5. exempt the use of waste glass or asphalt in the construction of walkways, roads or parking areas from the approval requirements of sections 27, 40 and 41 of the EPA.

The proposals will go a long way to streamlining the assessment and approvals process for ‘greener’ technologies that promise to take a bite out of Ontario’s waste generation totals. In particular, the pilot plant exemption for new and emerging technologies should allow waste managers to compile the emission and operating information they will need to eventually obtain full approval under the EA Act. It seems that after years of frustration and complaint, municipalities are finally getting some of the tools they will need to tackle Ontario’s unresolved waste management problems.

JULI ABOUCHAR is certified by the Law Society of Upper Canada as a Specialist in Environmental Law, and a partner at Willms & Shier Environmental Lawyers LLP. She can be reached at jabouchar@willmsshier.com.
The WEAO chose to attend two WEFMAX meetings this year, the first in Charleston, South Carolina and the second in Montreal, Quebec.

A summary of key parameters for the associations represented at both WEFMAX meetings is shown in Table 1. The WEAO is at par with Associations who have similar membership numbers, and our budget, number of paid staff and conference attendance compare well. The majority of Associations already have scholarship programs in place. New York is one of the more successful associations in this regard and has generated a scholarship fund that pays out $19,000 annually. Following the meetings Janice Jijina (NYWEA’s Executive Director) provided us with a description of their approach to fund raising and how the scholarships are awarded. We will be reviewing this over the next few months as we develop our own program.

Adam Zabinski (WEF Vice-President), who attended both meetings, provided some insight into the WEF’s on-going deliberations in regard to the membership model for utilities and corporate membership, which is anticipated for release at WEFTEC 2006. Adam also indicated that the travel requirements for the key officers of the Federation has become quite onerous. As a result, consideration is being given to increasing the group of WEF representatives who visit the MA annual conferences, to lessen the load on the President, President-elect, Vice-President and Past President.

Adam also reported that, following a review by a special task force, WEF has decided not to retire the Safety and Occupational Health Committee, and are now looking for representation from the Member Associations. If you are interested please forward your name to Julie Vincent.

Both meetings had a lively discussion in regard to the occasional overlapping roles of WEF and AWWA, and the potential merits and demerits of the two organizations coming closer together. From WEF’s perspective this is something that will have to come from members through their respective associations.

Both meetings were extremely informative and each had their own brand of fun. The Montreal meeting also presented an opportunity for the Canadian Affairs Council to meet. Key points of the discussion included:

- Canadian Stockholm Junior Water Prize
- Biosolids Management Conference in Moncton (June 2007)
- Update on Federal issues by Duncan Ellison
- Report on Water for People by Tony Petrucci.

Vincent Nazareth
R.V. Anderson Associates Limited
Table Comparing Various Canadian and US MAs

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*N/R = not reported

**706 WEAO/505 WEF

L-R: Julie Vincent (Executive Administrator), Cordell Samuels (Past President) and Vincent Nazareth (President) in Charleston, SC.

L-R: Rick Niesink (Director), Don Kemp (Director), Tony Petrucci (WEF Director), Peter Takaoka (Vice-President), Cordell Samuels (Past President) and Vincent Nazareth (President) in Montreal.
In 2001 the Federal Government passed The Personal Information Protection and Electronic Documents Act, which was fully implemented on January 1, 2004. Although some provinces have passed their own privacy legislation, Ontario has not, and therefore, the federal legislation applies.

The purpose of the Act is “to establish, in an era in which technology increasingly facilitates the circulation and exchange of information, rules to govern the collection, use and disclosure of personal information in a manner that recognizes the right of privacy of individuals with respect to their personal information and the need of organizations to collect, use or disclose personal information for purposes that a reasonable person would consider appropriate in the circumstances.”

As an organization that requires collection of personal information for us to be able to keep in touch with members and to carry out our operations, the WEAO has operated since 2004 with draft guidelines pertaining to protection of privacy. The Act requires us to:

- obtain the clear consent of an individual before you collect, use or disclose personal information about that individual
- use the information only for the purposes for which you have consent
- protect the information from unauthorized access and use
- keep the information up to date and correctly filed so that decisions are based on correct information
- destroy information when you no longer need it for the original purpose and
- implement accountability mechanisms in your organizations to ensure compliance with the above.

The Board has consulted with Counsel and expects to finalize and adopt a Privacy Policy by September. Accordingly, WEAO’s policy will be available for review on the Association’s website by the end of September. Please make sure that you review the documents and if you have any concerns please communicate them to Julie Vincent at the WEAO office (Tel.: 416-410-6933 or by email at weao@weao.org).

Vincent Nazareth
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- Stormwater Pumping Stations

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- Membrane Batch Reactors for Wastewater

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- Wastewater

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- Heat Exchangers
- Digester Roofs & Mixing
- Gas Safety Equipment
- ATAD

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- Centrifuges
- Belt Presses / Gravity Belt Thickeners
- Membrane / Plate & Frame Presses
- Rotary Presses / Thickeners
- Sludge Dryers

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- Sludge Cake Pumps
- Shafted/Shaftless Screw Conveyors
- Truck Loading / Receiving Stations
- Storage Hoppers / Silos / Bunkers
- Storage Discharge Systems (Sliding Frames and Gravity Discharge Systems)

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WHERE WATER IS TOXIC:
Water For People’s Work In West Bengal

In West Bengal, India – a densely populated, desperately poor, primarily rural area – tens of millions of people have no choice but to drink groundwater contaminated with high concentrations of arsenic that far exceed World Health Organization limits. Hundreds of thousands of people in the region have already been diagnosed with chronic arsenic poisoning, with millions more thought to be at imminent risk.

Arsenic, at high doses, kills quickly and surely; chronic poisoning, however, takes much longer, and brings with it a catalogue of horrifying side effects: melanosis (dark spots on chest, back, limbs, and gums); wart-like skin eruptions on hands, feet, and body which often develop into skin cancer; enlargement of kidneys, liver, and spleen, which can in turn lead to the development of malignancy; disorders of the gastrointestinal, circulatory, and nervous systems.

Death, when it comes, is a blessing.

Arsenic is a naturally-occurring compound found in water in many parts of the world – including areas of the United States. What makes the situation in West Bengal a crisis, however, is the large number of people – some thirty-four million – living in the area and relying on this contaminated water for drinking and cooking, and the more than one million using it as a primary water source.

This reality is further complicated by the fact that arsenic is difficult to detect by means other than water quality analysis and testing (as it’s odourless and colourless), and the extreme poverty of the region means that appropriate medical care is neither available nor sought until it is too late.

Arsenic in the West Bengal’s water was first noted in the 1980s when shallow tube wells were being heavily promoted as a safe alternative to the contaminated, untreated...
surface water in the region that was causing widespread illness in the population, but it took more than a decade for the dilemma to become widely known.

Water For People has been active in the region since 1996, supporting both arsenic-removal and arsenic-migration technology development for use in rural areas. Partnering with Bengal Engineering and Science University, which had developed activated alumina arsenic-removal units for both domestic and well-head use, Water For People has, in the past ten years, financed the installation of more than 100 of these units, dramatically impacting the lives of more than 20,000 individuals.

In areas where Water For People has installed these units, incidence of arsenic poisoning have dropped dramatically, while the number of people living healthier, more productive lives has increased.

The issues in West Bengal, like those in most of the countries in which Water For People works, have ultimately simple solutions: identify the source of the problem and treat it with appropriate, simple technologies. In West Bengal, the area most affected by arsenic contamination covers more than 18,000 square kilometers and is home to more than 30 million people. Regional studies have indicated that many of the people in the region are already in late-stage chronic arsenic poisoning.

While Water For People’s intervention is working – by building capacity, village by village, to meet and overcome the threat – there is much more to be done. Permanent office space has been provided in West Bengal by Nalco, and full-time, in-country staff hired, to oversee this vital work. Water For People, in partnership with local non-government and government agencies, and the affected communities themselves, is undertaking a targeted regional approach to eliminating arsenic in West Bengalese drinking water.

At every step of the process, the community is involved – in planning, placement, and installation of the arsenic removal units, in determining water needs, and having a voice for future planning. Without investment of community members in finding appropriate long-term solutions, the sustainability of the project is in doubt.

Sustainability is the goal of Water For People – to create, in the developing world, lasting and real solutions to water and sanitation issues. In every region in which we work, we seek local partnerships with government, social agencies, private sectors, and, where appropriate, educational institutions – like the Bengal Engineering and Science University – to create a sustainable, viable operation, using local technology and expertise, that will serve user communities for many years to come.

In many cases, Water For People’s projects have an impact well beyond improved health – in local economic development, in family life, and in educational and work opportunities for women and girls.

As a country sponsor, the Water Environment Association of Ontario (WEAO) is an important partner in Water For People’s work in the developing world. We, and the communities we serve, are very appreciative of the difference you are making by empowering hope and opportunity in some of the poorest regions of the world.

Many thanks!

Cheryl Denomy, General Manager
Water For People – Canada

From information provided by John Kayser, Communications Manager, Water For People – Denver, Colorado
The Regional Municipality of Halton, located in the Golden Horseshoe, was incorporated in 1974 by the Province of Ontario. The Golden Horseshoe is an urbanized area, located around the western end of Lake Ontario in southern Ontario, Canada and extends from the Niagara Falls region at the eastern end of the Niagara Peninsula, west to Hamilton and east across the northern edge of Lake Ontario to Durham Region.

The Region serves more than 400,000 residents in the City of Burlington and the Towns of Halton Hills, Milton and Oakville. Halton covers over 232,000 acres of land (967.0 square kilometers), including a 25 km frontage onto Lake Ontario and is becoming one of Canada’s fastest growing areas.

Halton has a diverse population: over 83% of Halton’s population considers English to be their mother tongue, followed by French, Italian, Portuguese, German, and then Polish. It is also home to over 14,000 businesses, and this number is increasing by over 5% per year.

Halton Regional Council is the policy-forming and decision-making body for Halton Region. It includes the Regional Chairman and 20 Councillors elected for a three-year term representing each of the Region’s four Local Municipalities. Through Council’s direction, Halton continues to meet the needs of its residents through the delivery of cost-effective, quality programs and services, including water and wastewater; Regional roads and planning; ambulance; waste management; public health; Ontario Works (formerly social assistance); children’s and seniors’ services; social/non-profit housing; heritage programs; emergency management and business development.

The largest wastewater treatment facility in Halton is the Burlington Skyway Wastewater Treatment Plant. This prestigious plant, located on 1125 Lakeshore Road in the City of Burlington, is one of seven wastewater treatment plants owned and operated by Halton Region where sewage is collected, cleaned and returned to the environment. Since its inception in 1962, this plant has been representative of Halton’s proactive approach of planning for growth while providing essential wastewater treatment services for Burlington residents.

**THE BURLINGTON SKYWAY WASTEWATER TREATMENT PLANT**

**LOCATION:** City of Burlington, Ontario, Canada  
**NUMBER OF EMPLOYEES:** 13  
**CURRENT SERVICED POPULATION:** 162,473  
**FLOW:** 118 Megalitres (ML) of wastewater per day
In the beginning

By the beginning of the 20th Century, Halton's development had become tied to the growth of the 'Golden Horseshoe' and planning soon became a critical factor in the urbanization of formerly rural areas. After World War II, Halton entered into a period of prosperity and rapid growth, especially in the Aldershot and West Burlington areas of the City of Burlington.

To accommodate Halton's economic and population growth, in 1962, Halton began construction of the Burlington Skyway Wastewater Treatment Plant. When the plant opened its doors in 1964, it included an extended aeration plant with total oxidation and secondary treatment and had a design capacity of 14,000 m³/d. By 1968, the plant operated as a modified (extended) total oxidation plant. Four tanks operated as aeration tanks, and two as temporary WAS digesters. The capacity also increased to 27,000 m³/d.

In 1973, the capacity further increased to 36,000 m³/d and by 1975 the plant operated as a conventional activated sludge plant with anaerobic digestion. In 1976 the plant was further expanded to 90,000 m³/d in order to accommodate flows from the surrounding communities -- Elizabeth Gardens and Drury Lane.

Improving the Skyway Plant

Protecting and safeguarding Halton’s water supply is critical given Halton’s responsibility for water and wastewater services. That’s one reason why Halton partnered with the Bay Area Restoration Council (BARC) which seeks to revitalize the Hamilton Harbour and its watershed. In 1995, Halton Region initiated a formal optimization program for its water and wastewater treatment facilities. This involved retrofitting key elements of the plant to meet the needs of a growing population and to improve the environmental quality of the wastewater released into Hamilton Harbour.

The modifications were multi-faceted and included installing a flow-splitting device to more effectively distribute flow to secondary clarifiers, enhancing the ferric chloride application system to improve soluble phosphorus removal, installing temporary polymer dosing equipment to enhance final effluent quality, raising the level of the secondary process bypass weir to accommodate more flow through the secondary treatment train, and retrofitting the secondary clarifier sludge removal scrapers to spiral scrapers to encourage nitrification.

Through Skyway’s optimization program, in concert with a dedicated and knowledgeable operations staff, Halton was able to significantly decrease discharges of phosphorus and ammonia resulting in a reduction of nutrient loading to Hamilton Harbour and improved water quality. Recently BARC recognized Halton for meeting, and often exceeding, the Remedial Action Plan for Hamilton Harbour final targets for effluent quality. Effluent is the treated liquid coming out of Halton’s wastewater treatment plants and Halton’s effluent quality is one of the cleanest in North America.

Meeting Future Needs

In spring 2000, Halton Region began construction on the upgrade and expansion of the plant in order to accommodate an increased design capacity of 118,000 m³/d. This expansion was required to accommodate growth in the Region, and to provide upgraded treatment of the wastewater, based on new, strict guidelines established by the Ontario Ministry of the Environment.

In response to concerns regarding the usage of chlorine for the disinfection of wastewater effluent and its potentially harmful by-products, Halton decided to cease the usage of chlorine for disinfection and move to disinfection with Ultra Violet (UV) light at the Skyway facility. Many of Halton’s other wastewater treatment plants employ UV disinfection with all seven of Halton’s wastewater treatment plants to be converted within the next few years to UV disinfection.

Awards

- In 1998, Halton Region was rewarded with an Implementation Award from the Harbour Restoration Council for Skyway’s total phosphorus reduction.
- In 1999, the Bay Area Restoration Council presented Halton with a Remedial Action Plan Implementation Award for significant contributions to improving the water quality of Hamilton Harbour.
- In 2001, Halton was recognized for its groundbreaking work with a Peter J. Marshall Municipal Innovative Award from the Association of Municipalities of Ontario for Skyway’s Waste Treatment Plant Optimization.
- In 2004, Environment Canada recognized Halton’s Skyway plant for its activities in pollution prevention.

Skyway Today

Today, this plant provides wastewater treatment for the all residents in the City of Burlington, servicing an area of 10,000 hectares (25,000 acres), with a current population of 162,473 and a projected population of 176,750 by 2016. Through Council’s direction and the professionalism and dedication of staff, Halton Region continues to provide residents with safe, clean drinking water while also developing infrastructure that is appropriate to Halton’s needs and making strategic investments to maximize efficiency and environmental quality. With a capacity of 118,000 m³ of wastewater a day, this new plant not only treats enough wastewater to fill 120 Olympic swimming pools per day, it also demonstrates Halton’s leadership in planning to accommodate growth while meeting one of Halton’s strategic goals to optimize new and existing infrastructure and investigate innovative solutions to meet future needs.

Sherry Persaud, Communications Specialist, The Regional Municipality of Halton

CALL FOR PLANT PROFILE SUBMISSIONS

Are you proud of your plant and the professionals who operate and maintain it?

LET THE WORLD KNOW!

Send us your PLANT PROFILE and, if selected, we will showcase it in an upcoming issue of INFLUENTS.

For more information contact: John Thompson at john.thompson@region.durham.on.ca
On May 31, 2006 the 15th annual OPCEA GOLF TOURNAMENT was held at the KLEINBURG GOLF CLUB. This year a record 252 members and their guests golfed and enjoyed an excellent dinner. Unfortunately Mother Nature decided 13 holes were enough when lightning and rain ended play. A total 47 OPCEA member companies participated in this event.

A special thanks to Heinz Held, Mark Reeves, Rob Anderson and Ross Humphry who manned the registration desk and organized the prize tables.

Water For People Canada raised over $900 in OPCEA’s name selling raffle tickets and wrist bands.

The Syntec Process Equipment Ltd. foursome of Bob Wright, Mark Sey mour, Joe Perrotta and Charles Ritner won the scramble format tournament with a low score of 65.

HOLE IN ONE CANADA INC. sponsored three closest to the pin holes and awarded prizes for Landing on the Green, Closest to the Pin, Within 4ft Square and Hole-In-One.

The OPCEA GOLF COMMITTEE would like to thank the Companies who sponsored gifts on each of the 27 holes.

**WINNERS OF THE SPONSORED HOLES**

<table>
<thead>
<tr>
<th>Winner</th>
<th>Sponsor</th>
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<td>Graham Simpson</td>
<td>John Meunier Inc.</td>
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<td>Jim Brooker</td>
<td>ACG Technology Ltd.</td>
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<td>Vince Nazareth</td>
<td>ENV Treatment Systems Inc.</td>
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<td>Romi Lat</td>
<td>Pro Aqua + Shadack Ltd.</td>
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<td>Frank Cosentino</td>
<td>Summa Engineering Ltd.</td>
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<td>Carlo Viola</td>
<td>Indachem Inc.</td>
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<td>Steve Nutt</td>
<td>H2Flow Equipment Inc.</td>
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<td>Jack Camman</td>
<td>Troy-Ontor Inc.</td>
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<td>Josh Hamilton</td>
<td>N-Viro Systems Canada Inc.</td>
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<tr>
<td>Bill Bridge</td>
<td>Neo Valves</td>
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<tr>
<td>Anita Smith</td>
<td>Environmental Science &amp; Engineering Magazine</td>
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<td>Ted Benson</td>
<td>Cancoppas Limited</td>
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<td>John Michalofsky</td>
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<td>John Cerniuk</td>
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<td>Jim Stanley</td>
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<td>Dan Chauvin</td>
<td>Cleartech</td>
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<td>Matt Ballaban</td>
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<td>Harry Rodzoniak</td>
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<td>Frank Li</td>
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<td>Vince Plautz</td>
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<td>Mark Maki</td>
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<td>Troy Briggs</td>
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<td>Bob Wright</td>
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<td>Tony Petrucci</td>
<td>Floval Equipment Ltd.</td>
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**HOLE IN ONE CANADA INC.**

Closest to the Pin winners of a David S. Reid rain suit and Wendel Clark hockey stick:
- Frank Cosentino
- Dan Chauvin
- Vince Plautz

Winner of the SAAB Canada Deerhurst Inn Getaway package:
- Brent Peterson

**WATER FOR PEOPLE CANADA**

Winners of the $100 raffle:
- Vince Nazareth
- Bill Borlase
OPCEA MEMBER
JOB POSTINGS

OPCEA member companies are encouraged to take advantage of the job posting area of the website. This service is free with your membership. Simply e-mail your job posting to Kelly Madden. The postings will remain on the website until you ask to have them removed.

2007 OPCEA TRADESHOW RULES

OPCEA Tradeshow rules will be vigorously enforced next year. Increasingly, our member companies are bringing heavy and/or very large exhibits to the show venues. As the venues are not equipped with the proper materials handling equipment to safely move and place these exhibits, there is an unacceptable risk that exhibitor personnel or venue staff could be injured, resulting in liability exposure to OPCEA, the venue and WEAO.

Exhibitors are reminded that the weight limit for exhibit materials is 50 kg. This means that no part of your exhibit may weigh-in above that weight. Exhibit backdrops are to be a maximum of 8 ft. high by 8 ft. wide and must not impede the sight lines of neighboring booths. For full exhibit rules contact the OPCEA office.

OPCEA MEMBER DIRECTORIES AVAILABLE

The directories are handy for sourcing suppliers of various products and services and would be useful to operators and consultants, particularly New Professionals. If you would be interested having some OPCEA member directories available for distribution at an upcoming event, please contact OPCEA Executive Administrator Kelly Madden at 705-725-0917 or e-mail opcea@opcea.com.

WE WOULD LIKE TO HEAR FROM YOU

OPCEA members are invited to submit articles of general interest for inclusion in the OPCEA News section of INFLUENTS. We don’t need any “unpaid advertising”, however we are interested in new technology, application advice and industry news. If you have something to share, please submit it to Greg Jackson, OPCEA Communications Director, via e-mail. The e-mail address is greg@acgtechnology.com. Your submission will be considered for inclusion by the WEAO Communications Committee, whose decision is final.
Jeremy Kraemer, a Ph.D. candidate at the University of Toronto and WEAO student member, placed second in this year’s WEF Canham Graduate Studies Scholarship competition. First place went to Andrew Gronewold, a Ph.D. student at Duke University. The scholarships, which honour the former Water Environment Federation’s executive director Robert Canham, have provided recognition to outstanding graduate students in the water environment field since 1987. For his excellent qualifications Jeremy received $1,500 USD and a 1-year extension to his WEF and WEAO memberships.

Applicants for the award must be WEF student members and complete an application process that includes their university transcripts, a summary of academic and practical experience in the environmental field, and a detailed statement of degree objectives and career goals. Three letters of recommendation are also required.

Jeremy’s application focused on his professional interest in sustainability. “We have to think of wastewater as a resource, not simply a waste requiring treatment. The water and organic matter in wastewater are valuable resources, and sustainable wastewater treatment is simply the means by which we can recover those resources.” Jeremy says he has tried to accomplish this goal through his research on anaerobic wastewater treatment. His research contributions are exemplified by his publications in peer-reviewed journals on fermentative hydrogen production, nutrient recycle from advanced sludge digestion, and anaerobic membrane bioreactors.

In addition, Jeremy has worked for Waterloo Biofilter Systems and CH2M HILL, acted as a consultant to private industry and the City of Toronto on anaerobic treatment, and is currently a teaching assistant for a first year engineering design course. Jeremy has been a member of WEAO and WEF for five years already, having joined during his final year of undergraduate studies. During his student career (now 10 years at the University of Toronto), he initiated and organized the Environmental Industry Lecture Series and a day-long seminar for graduate students on membrane technology for water and wastewater treatment. He is also the founding president of the University of Toronto WEAO Student Chapter, having obtained official WEF recognition and spearheaded WEAO funding for the chapter. He is also active in the New Professionals committee.

Jeremy says “he would like to thank Professor David Bagley from the University of Wyoming, Tim Constantine from CH2M HILL, and Craig Jowett of Waterloo Biofilter Systems for providing great reference letters.” He would also like to thank WEF for having a scholarship that recognizes graduate students for their work in the water environment field.

Contributions to the scholarship fund may be made to recognize and honour dedicated WEF members. A contribution in 2004 provided for second place awards in 2005 and 2006. Currently, all additional contributions have been used so only one award will be given in 2007.
WATER, WASTEWATER AND ODOR TREATMENT EQUIPMENT

AERATION INDUSTRIES
AISS-02 High Speed Surface Aspirators,
AISS-02 High Speed Splasher Aerators,
UNISYSTEM Extended Air Package Plants,
MICROFLOAT Induced Air Floation Units

ALLIED-LOCKE INDUSTRIES
Non-metallic chain,
Complete line of rectangular clarifier products

AQUIONICS
UV systems for potable water using high efficiency,
medium pressure bulbs in pre-packaged reactors

ASHBROOK CORPORATION
AQUABELT Gravity Belt Thickener,
KLAMPRESS Belt Filter Press,
WINKLEPRESS High Pressure BFP,
STRATA SAND continuous backwash Sand Filters,
SBB PLUS Sequencing Batch Reactors,
TOMOE High Speed Centrifuges

BIOWAY AMERICA INC.
Biofilters for biosolids gas emission control using
vertical or horizontal beds with inorganic media

CARTER PUMP
Single & Duplex Raw Sludge Plunger Pumps,
Pneumatic Ejector Sludge Transport Systems

CDS TECHNOLOGY
Stormwater High Rate & Media Filtration Systems,
CSD Treatment & Screening,
BNR Packaged Plants

CENTRISYS CORPORATION
High Speed Sludge Decanter Centrifuges
for Sludge Thickening and Dewatering

CRETEX
Sewer infiltration seals

ELLIS CORPORATION
Inclined Plate Lamella Clarifiers,
Coalescing Oil / Water Separators

EPIC INTERNATIONAL
Archimedes Screw Lift Pumps

FUJI
Ozone Systems for water and wastewater

HI-TECH ENVIRONMENTAL INC.
Circular clarifier mechanisms - centre feed or
peripheral feed in standard scraper or RAPID
Sludge Withdrawl collectors,
Trickling Filters, DAF & sludge thickeners

KOCHE MEMBRANE SYSTEMS
Ultra Filtration for potable water,
MBR Membrane Bio Reactors for wastewater

MABAREX INC.
VISTEX Forced Vortex Grit Chamber Systems,
OXI-REX Iron / Manganese Removal System

RAMCO CORPORATION
MAT Submerged Turbine coarse Aeration System

ROBERTS FILTER
PACER Package Treatment Plants,
INFINITY continuous gravity filter Underdrains,
ARIES Air Scour System

STANFORD SCIENTIFIC INTERNATIONAL
Fine bubble membrane, disc & tube diffusers for
complete aeration systems

UNISORB CANADA LTD.
Activated Carbon Odour Control Systems,
Air & Gas Purification Systems & Media

WARMINDER FIBERGLASS
FRP Parshall Flumes, Palmer Bowlus Flumes,
Weirs, Baffles, Housing Enclosures & Vessels

WTP EQUIPMENT CORP.
Front Cleaned Mechanical Bar Screens,
Deep Well Heavy Duty Mechanical Bar Screens,
Mechanical Fine Screens,
In-channel & packaged Conveyor Screens for
wastewater, septage & digeste screening,
Screenings Dewatering Presses,
Shaftless and Shafted Screw Conveyors,
Grit Classifiers,
Scum & Sludge Collectors
ENHANCING PUBLIC UNDERSTANDING OF THE NEED FOR WATER AND WASTEWATER INFRASTRUCTURE IMPROVEMENTS

Much of the water and wastewater infrastructure in the United States was built nearly a century ago for a much smaller population. Today, utilities must service expanding communities and meet new regulatory requirements using aging, overburdened systems, and shrinking budgets.

The U.S. EPA reports that without significant investment in this infrastructure, water pollution levels could deteriorate to those observed in the 1970’s by the year 2016. Current cost projections for the necessary investments in water and wastewater infrastructure in the U.S. range from $485 billion to $1.2 trillion over the next 20 years.

In addition, the level of investment by federal and state governments in water and wastewater infrastructure has declined dramatically. In many cases, current utility rates paid by customers do not reflect the true cost of service.

To help the public better understand this issue and learn how they can help, the Water Environment Federation has launched a public education program called Water Is Life, and Infrastructure Makes It Happen™. Designed as an ongoing grassroots effort, the program's goal is to show the value of water and wastewater infrastructure and the importance of investing in its long-term stability.

The program consists of a full suite of materials and tools, including informational brochures, media kits, talking points, fact sheets, promotional materials, and sample press releases that address the following topics:

- The value of water in sustaining and enhancing life.
- The role of water infrastructure in delivering clean, safe water to our homes and businesses.
- The role of wastewater infrastructure in conveying and cleaning water and safely returning it to the environment to be used again.
- The importance of water and wastewater infrastructure as a valuable community asset and the need to address the current backlog of investment.

Thirteen utilities and seven WEF Member Associations across the U.S. are currently piloting this program within their communities with successful results. The City of Tulsa, Oklahoma utilized Water Is Life, and Infrastructure Makes It Happen™ to educate city council members on the need for increased user rates. In Pima County, Arizona, Wastewater Management Division managers used the program to build strong partnerships with local officials and will be bringing the program to their state legislature later this year. In Columbia, Georgia, 30-second television spots reach a broad audience with messages about reinvestment needs.

You can learn more about Water Is Life, and Infrastructure Makes It Happen™, and how to engage your community in a dialogue on water and wastewater infrastructure at www.WaterIsLife.net. WEF members can download fact sheets, talking points, public presentations and more at no cost, or purchase promotional materials like buttons, bookmarks and bill stuffers.

Pilot utilities and WEF Member Associations will be sharing their experience with this program at a special session of WEFTEC 06 on Tuesday, October 24 from 8:30am – 12:00pm. For more information, or to register for WEFTEC, visit www.weftec.org.

Water Is Life, and Infrastructure Makes It Happen™ is part of a US nationwide water and wastewater infrastructure education effort spearheaded by WEF in cooperation with a National Advisory Committee of like-minded water organizations and corporations.

Information in this article was obtained from the following reports, available at www.WaterIsLife.onet


About WEF

Founded in 1928, the Water Environment Federation (WEF) is a not-for-profit technical and educational organization with members from varied disciplines who work toward the WEF vision of preservation and enhancement of the global water environment. The WEF network includes water quality professionals from 76 Member Associations in 30 countries. www.wef.org
A New Level of Thinking

A new energy is flowing at DELCAN Water. We have always been at the forefront of providing government and corporate clients in Canada and around the world with the highest level of engineering expertise and services.

Now, DELCAN Water offers even broader capabilities with the establishment of DELCAN IWS (Intelligent Water Systems), which offers leading edge design and implementation of automation, network and information management systems; expertise that complements DELCAN Water's established reputation for engineering services. DELCAN Water also benefits from even greater global resources with our new alliance to DELCAN Water (DHV Netherlands). DHV is an international leader in water technologies having provided integrated solutions to over 1,000 plants worldwide.

Contact us today and learn more about how you can benefit from the new ideas that are flowing at DELCAN Water.
regular feature of INFLUENTS, Certification News provides current information about the provincial operator certification program. If you have any questions regarding the certification program please submit them to John Thompson at john.thompson@region.durham.on.ca. John will forward your questions to Brian Gildner, Manager of Certification, Training and Client Services at the M.O.E., and coordinate a timely response to these and other commonly asked questions in future issues of INFLUENTS.

What is the difference between an Overall Responsible Operator (ORO) and an Operator-in-Charge (OIC)?

The owner or operating authority must designate an ORO, and must also designate one or more operators as OIC for the subsystem they operate. These are two different roles, although they can be performed by the same operator.

The ORO has overall operational responsibility for the system. The operator designated as ORO must hold a certificate equal to or higher than the class of the facility. There can only be one ORO designated at any given time/shift. If there is more than one operator holding the proper level of certificate, a different ORO can be appointed for different shifts. The ORO is not required to be on site, but must be available to act in the event of an operational emergency. The ORO may be ORO for more than one subsystem at the same time.

The OIC typically makes the day to day operating decisions, and instructs other operators on system procedures. The operators designated as OIC must have the same type of certificate as the facility but it can be a lower class of certificate than the facility. There can be more than one operator designated as an OIC at any given time. The OIC typically works on site given the nature of their responsibilities, but could be off site if process control is remote. Usually, an OIC is only OIC for one subsystem at the same time.

An Overall Responsible Operator would be considered an Operator-in-Charge.

In order to secure a Class III or IV certificate, the operator must have a specific number of years of experience as an OIC, to ensure that they have gained the specific operating experience and responsibilities reflected in the duties of an OIC.

For further information, please review Guideline 5.1.


Regulation 129/04 requires the owner of the wastewater facility to “designate” an Overall Responsible Operator. How does the owner designate the ORO?

“Designate” under Ontario Regulation 129/04 and the Safe Drinking Water Act does not have a specific legal definition, unlike some other provincial legislation. To designate an ORO the owner must identify this individual in a way which will be clear to other operators, to the ORO him/herself and to a Ministry of the Environment inspector if required. This may be achieved in a number of different ways, including, documenting ORO designation on the operating log, as part of the job description or in a memorandum.

More information on wastewater operator certification may be found at the Ontario Environmental Training Consortium’s website www.oetc.on.ca or by calling (905) 796-2851.

By John Thompson, Regional Municipality of Durham

CERTIFICATION NEWS

A

By John Thompson, Regional Municipality of Durham

Tell us about your process troubleshooting SUCCESS STORIES.

Share experiences and lessons learned with your peers.

We are looking for operator initiated solutions to process upsets, not big dollar engineered fixes.

Send us your SUCCESS STORY and, if selected, we will showcase it in an upcoming issue of INFLUENTS.

Authors of SUCCESS STORIES featured in INFLUENTS will receive a WEAO memory stick in recognition of their efforts.

For more information, contact John Thompson at: john.thompson@region.durham.on.ca
The Water Environment Association of Ontario, the pre-eminent organization of wastewater professionals in Ontario with a membership of over 1200 engineers, managers, academics, operators, regulators, and equipment suppliers, invites applications for the position of Executive Director. Reporting to the WEAO Board of Directors, the successful candidate will assist in strategic planning activities to implement the WEAO’s vision, goals, and priorities.

In this part-time position, the Executive Director will represent the WEAO and will be responsible for initiating and maintaining communications with all levels of government, various agencies and non-governmental organizations, the media, members and potential members.

Relevant attributes for this position include: senior management experience with an understanding of issues related to the water environment; highly developed ability to articulate, motivate and lead; demonstrated ability to deal effectively with elected officials, government staff, peers, non-governmental organizations, the media and the public; sensitivity, judgment and discretion.

Experience at a senior level in a provincial government setting would be an asset.

For additional information concerning the position, please visit www.weao.org/executivedirector.

Interested individuals are invited to submit a letter of interest with a detailed resume addressed as noted below by facsimile or e-mail no later than Friday, October 13, 2006.

All submissions will be considered by the WEAO Board of Directors; however, only those candidates selected for an interview will be contacted directly. The WEAO Board of Directors would like to thank in advance all applicants for their interest in this very important position.

Water Environment Association of Ontario
Att: WEAO Board of Directors
Re: Application for Position of Executive Director
Fax: (416) 410-1626
Email: weao@weao.org
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<th>Company</th>
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<td>ABS Pumps Corp.</td>
<td>905-670-4677</td>
<td><a href="http://www.abspumps.com">www.abspumps.com</a></td>
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<td>Associated Engineering</td>
<td>416-622-9502</td>
<td><a href="http://www.ae.ca">www.ae.ca</a></td>
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<td>Aqua Treatment Technologies</td>
<td>905-327-4571</td>
<td><a href="http://www.aqua-tt.com">www.aqua-tt.com</a></td>
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<td>Astoria-Pacific International</td>
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<td>Canadian Water Network</td>
<td>519-888-4567</td>
<td><a href="http://www.cwm-rce.ca">www.cwm-rce.ca</a></td>
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<td>Cancoppas Limited</td>
<td>800-595-0514</td>
<td><a href="http://www.cancoppas.com">www.cancoppas.com</a></td>
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<td>C.C. Tatham &amp; Associates Ltd.</td>
<td>705-444-2565</td>
<td><a href="http://www.cctatham.com">www.cctatham.com</a></td>
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<td>CH2M Hill Canada</td>
<td>416-499-9000</td>
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<td>705-431-8585</td>
<td><a href="http://www.claessenpumps.com">www.claessenpumps.com</a></td>
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<tr>
<td>ClearTech</td>
<td>800-387-7503</td>
<td><a href="http://www.cleartech.ca">www.cleartech.ca</a></td>
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<td>Conestoga-Rovers &amp; Associates</td>
<td>800-265-6102</td>
<td><a href="http://www.CRAworld.com">www.CRAworld.com</a></td>
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<td>Corix Water Systems</td>
<td>800-500-8855</td>
<td><a href="http://www.corix.com">www.corix.com</a></td>
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<td>Custom Boat Works</td>
<td>705-732-1712</td>
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<td>Davis Controls</td>
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<td>DELCAN Water</td>
<td>905-943-0500</td>
<td><a href="http://www.delcan.com">www.delcan.com</a></td>
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<tr>
<td>Eckel Industries of Canada</td>
<td>800-563-3574</td>
<td><a href="http://www.eckel.ca">www.eckel.ca</a></td>
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<td>ENV Treatment Systems Inc.</td>
<td>416-503-7639</td>
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<td>Flowserve Canada Corp.</td>
<td>905-856-8568</td>
<td><a href="http://www.flowserve.com">www.flowserve.com</a></td>
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<td>Gerry Bushett Enterprises Ltd.</td>
<td>866-286-5931</td>
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<td>Giffels Associates Ltd.</td>
<td>800-567-8918</td>
<td><a href="http://www.giffels.com">www.giffels.com</a></td>
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<td>Grundfos Canada</td>
<td>905-829-9533</td>
<td><a href="http://www.grundfos.ca">www.grundfos.ca</a></td>
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<td>H2Flow Equipment Inc.</td>
<td>905-660-9775</td>
<td><a href="http://www.h2flow.com">www.h2flow.com</a></td>
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<td>ITT Flygt</td>
<td>514-695-0100</td>
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