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OFFICIAL PUBLICATION OF THE WATER ENVIRONMENT ASSOCIATION OF ONTARIO

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2007 - 2008

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As you read this message, I will be 1-1/2 to 2 months into my term as President and I am again filled with awe at what previous presidents have been able to accomplish in a brief one-year period. I am reminded of the quotation that Patrick Quinn, P.Eng., the outgoing President of PEO, used in his final message recently that “we are planting acorns with the hope that our children will be able to sit in the shade.” As he lamented that he had not accomplished all he had set out to do, he noted that, as presidents with such a limited tenure, we are often simply stewards of the organization; handling the reins and keeping on course.

In coming into the office of the president, I am thankful to so many people. To the members, for having enough confidence to elect me to the position of Vice-President last year; perhaps running unopposed had something to do with it.

To the members of the Board of Directors for 2006-07, for helping me to understand the workings of the Board and how they have changed significantly since I was a Director some 15 to 16 years ago. Particular thanks go to Ian McIlwham of the Region of Durham, who has left the Board after serving his term as Director; Ian always brought a note of candor to all Board meetings.

To the Past President for the past year, Cordell Samuels of the Region of Durham, who continued to work tirelessly to advance the goals and objectives of our association. He was always available to provide fatherly guidance and to serve as a wonderful example to everyone.

To our current Past President, Vincent Nazareth of R. V. Anderson Associates Limited, who showed such great commitment and perseverance in pushing forward key points of our association’s strategic plan. He also went out of his way to coach me and prepare the way for me. I look forward to his continued guidance and assistance in 2007-08.

This year’s Annual Conference in London was a resounding success thanks to the tremendous work of John Levie of the ASI Group Limited and his able crew on the Conference Committee. Most people who have not worked directly on the Annual Conference cannot fully appreciate the commitment and hard work required of each member of the group to pull together an event where everything appears seamless. It takes a great team with a great leader and John and his crew deserve our thanks and respect. They made it look easy.

I would like to welcome Michael Albanese of H2Flow Equipment Inc. and John Duong of the Region of Halton to the Board of Directors. I look forward to working with them as they bring many years of experience in a variety of roles to their Board positions.

Congratulations are due to George Lai of the Ministry of the Environment for his election to the position of Vice-President. I look forward to working closely with George and the entire Board to make further advances in the strategic directions that have been set out over the past few years.

With regard to those strategic directions, we will continue on our course of striving to raise the profile of our association and to attract and retain members. In these endeavours, we will be able to realize the gains from the initiatives that we have taken over the recent years, including:

- Launching of Influents, our news-magazine;
- Establishment of our New Professionals Committee;
- Creation of a Board position for a New Professional;
- Expansion of the Student Chapter network; and
- Hiring of an Executive Director.

We will be continuing our attempts to arrange for regular meetings with Ministry of the Environment officials, to educate them on issues that are of interest to our members. Also, we will be trying to educate other groups and the public with respect to the areas of expertise resident within our organization and the input that we can bring to discussions on issues relating to the water environment. To this end, our new Executive Director, Catherine Jefferson, will be particularly helpful by taking a leading role in building the necessary bridges to these organiza-
To become a marginalized, irrelevant group could mean that we would have increasing difficulty in attracting and retaining members.

Many of these efforts to raise our profile and educate other organizations and the public will place an additional financial burden on our association; costs that must be offset by increasing revenues. For several years, we have spoken and written in these pages about increasing membership dues, fees for seminars, and Annual Conference fees as one strategy for increasing revenues. This will be occurring in relatively small increments; however, rest assured that we will be making the increases while keeping our eyes on the value of our products relative to similar products in the marketplace.

One may well question the need to raise our profile and educate others. One might reason that, if we reverted back to our role of transferring knowledge within our industry through our seminars and conferences, which was our primary role in the ‘old days,’ we could avoid the additional costs and, therefore, avoid all but the most modest fee increases.

I would argue that, if we remained in our familiar role, we would risk becoming marginalized in the water environment industry. Even though there is no doubt that our association is home to the best managers, designers, operators, and equipment suppliers in the wastewater industry in Ontario, whose skills and expertise are second to none, we could soon become an irrelevant group if we do not become involved in the issues of the day; issues that are seen to be of importance to the regulators and the public. To become a marginalized, irrelevant group could mean that we would have increasing difficulty in attracting and retaining members. Who would want to join an irrelevant organization?

If our membership levels decline, the quality of the seminars and conference that we have come to take for granted may be in jeopardy as, with declining membership, there would be fewer volunteers to organize these events. So you see, we simply cannot remain in our comfort zone of years gone by.

I know that this is a sensitive issue with many differing views. I encourage you to make your feelings known to us. Rest assured that your opinions will not be taken lightly. I would only ask that you reflect on the fact that, over the next 10 years, more people will be retiring out of our industry than will be entering it, according to current studies. The newcomers will have different reasons for joining our association than we had. It may be that knowledge transfer within our industry will not be a compelling enough reason to join. If we are not seen to be relevant within the broader society in Ontario, we may fail to capture the imagination of the newcomers and thus lose their revitalizing energy within our organization.

I look forward to working with all of you this year to continue to advance our association. As this will be my only message before the fall, I wish all of you and your families a safe, happy and healthy summer.
I am honoured to be WEAO’s first Executive Director, and absolutely overwhelmed by the dedication, determination and efficiency I have seen from the volunteers of WEAO’s many committees. I attended my first WEAO Conference and Operator’s Challenge and commend the organizing committee and others involved in producing an extremely interesting and informative event.

Some may wonder why WEAO needs an Executive Director, if these committees are so efficient. The truth is, WEAO has grown and developed to a point where coordination of committees, identification of ongoing activities affecting members, and developing relationships with other associations and government departments is more than volunteers can cope with. The name ‘Water Environment’ also implies that the association has the potential to encompass a wider variety of issues than in the past. Volunteers have other jobs, and are already stretched to the limit when it comes to work.

One major task for the Executive Director is to provide coordination of issues and committees to facilitate cross communication and sharing on similar or cross cutting subjects. The Executive Director will represent WEAO at meetings and in other open forums to ensure WEAO is known and valued for the combined diversity and expertise of its members. I am hopeful that my many years of experience working on similar topics from the national perspective will add value to members grappling with these issues at a provincial or municipal level of government.

There are many exciting opportunities ahead for the WEAO, as we further develop public education outreach to high schools, colleges, universities, mature students, and link these programs to new training initiatives and apprenticeship programs. The New Professionals program has expanded and will, we hope, broaden further with respect to geography and disciplines. We hope to have a greater voice in molding the Clean Water Act regulations, as they are developed and promulgated. This will occur as we strengthen ties with the Ministry of Environment, conservation authorities, Ministry of Natural Resources, Ministry of Environmental Development and Technology, and federal counterparts in the Ontario region.

WEAO has already positioned itself in a coalition of associations with common interests in infrastructure affecting our sector. This is the Ontario Coalition of Sustainable Infrastructure (see article on page 58 for more information) and includes WEAO, Ontario Public Works Association (OPWA), Ontario Water Works Association (OWWA), Municipal Engineers Association (MEA), Ontario Good Roads Association (OGRA), and the Ontario Municipal Water Association (OMWA). Thanks go to Carl Bodimeade, Vince Nazareth, Peter Takaoka and Cordell Samuels for getting this ball rolling. The Coalition will provide a stronger voice to government on issues of joint concern.

One of many tasks ahead is to encourage youth to join the variety of potential occupations within the water sector. There is everything from technical to theoretical, from office work to field work, and much more. As demographics change, it is our responsibility as an association to ensure protection of water, and to excite the younger generations about water and becoming a part of this fascinating and sometimes frustrating sector.

I challenge each of you to talk to at least one person about your work, to get them excited and interested about the water environment. It is through networking and being excited about our work that we will attract youth to fill the gap in expertise that is becoming uncomfortably real as we retire and move on to other challenges.

I would also like to use this ‘Corner’ of INFLUENTS magazine for immediate issues of interest or concern to WEAO members. This includes asking you, as members, to participate by sending in comments, new areas of interest, issues specific to your corner of the province, etc. At this time, there are two areas I would like some assistance with:

1) Identification of experts for each of WEAO’s committee topics.

When the media contacts us, or

continued on page 8
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It is our responsibility as an association to ensure protection of water, and to excite the younger generations about water.

we promote a specific issue, we would like to have an ‘experts list’ established from which to draw. These experts represent the face of WEAO’s membership and assist us in sharing our expertise. Please go to the web site and review the committees and issues. You may even wish to join a committee. But, regardless, if you have expertise, please identify yourself to that Committee Chair to help us in developing our media list of experts.

2) Encouragement to your staff and colleagues to provide us with interesting articles for *INFLUENTS* magazine and our web site. It is only when we work together that we can be truly successful.

I look forward to suggestions for editorials and other ways in which I can serve you, as members of WEAO, in the most effective manner possible.

It is our responsibility as an association to ensure protection of water, and to excite the younger generations about water.
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Similar to other successful WEAO events, the latest WEAO New Professionals Technical Seminar on Supervisory Control and Data Acquisition (SCADA) systems received an overwhelming response. Even in the shadow of one of this year’s biggest snowstorms, 35 attendants turned up to the seminar held on February 13, 2007, at the MOE Laboratories in Toronto.

At the beginning of the seminar, Peter Takaoka, WEAO Vice-President (now President), made remarks about WEAO and the Scholarship Program, which showed WEAO’s educational support and promotion of new professionals in the wastewater industry.

The seminar was presented by Winston Books from Bristol Emerson, and Bruce Li from Delcan. They each offered unique acumen in SCADA systems and applications. Winston spoke from a manufacturer’s perspective, while Bruce spoke from a consultant’s perspective. Winston and Bruce introduced the audiences to the SCADA history and state-of-the-art technology. They discussed SCADA innovations in detail and revealed what the future holds for this increasingly important SCADA system. The speakers also gave remarkable insight on practical applications and case studies of SCADA across different industries, with emphasis on the water and wastewater sector.

At the end of the seminar, Vanessa Chau, NP Chair, thanked and presented gifts to the speakers on behalf of WEAO New Professionals. She encouraged new and young professionals in the wastewater industry to participate in future events and become a member of WEAO.

Special thanks to Winston and Bruce our presenters; to Anthony Pigadoulis (City of Toronto) for arranging the event’s location; and to Patricia Osterling, Edgardo Tovilla (Delcan), and Charlie Chen (KMK Consultants) for planning and coordinating the event.

The New Professionals Committee is continuing to organize upcoming, informative events in 2007, in addition to the activities in coordination with the WEAO Student’s Chapter and the OWWA Young Professionals. These include events like the recent WEAO NP Presentation at McMaster University (March 15); and the Lakeview WWTP Site Tour (May 5).

We welcome new and young professionals in the water and wastewater industry to participate in our upcoming events.

“The WEAO NP Committee has been created to represent those WEAO members with 10 years or less of experience in the wastewater industry, or less than 35 years of age. Our primary goal is to aid in the technical and professional development of individuals entering the wastewater industry, as well as to encourage participation of New Professionals in WEAO activities.”
Currently, about 120,000 dry tonnes or 40% of the sewage biosolids produced in Ontario are being applied annually as a nutrient material on agricultural land. The remaining 180,000 dry tonnes are disposed at landfill sites or incinerated. With changing regulations for land application of non-agricultural source materials, greenhouse gas emissions, and siting for landfill sites in Ontario, plus urban encroachment on rural communities and competition for the same land by agricultural and food production sectors, municipalities are well advised to start exploring alternative management options to diversify their biosolids programs beyond the three traditional management methods.

The WEAO Residual and Biosolids Committee and the Wastewater Treatment Committee are jointly organizing this two-day seminar. Speakers from other jurisdictions have been invited to discuss and share their knowledge on how they manage their sewage biosolids in a cost-effective and sustainable manner. Day 1 will focus on regulations, economics and best management practices for using sewage biosolids in land reclamation, soil erosion and energy production projects. Day 2 will discuss innovative and emerging technologies to enhance sewage biosolids treatment, handling and quality.

A detailed program and registration form will be circulated to you shortly through the WEAO website and broadcast emails.
The Little River Pollution Control Plant is a 66,700 m³/d completely nitrifying activated sludge plant which services a population of approximately 80,000 people on the east side of Windsor and the surrounding communities. C of A monthly average compliance limits are 15, 15, 6, and 1 mg/L for SS, cBOD, ammonia nitrogen, and total phosphorus respectively. The Class IV plant is comprised of two equally rated, independently operated activated sludge systems, each having its own separate outfall into Little River, a relatively small receiving stream flowing northward into the Detroit River. Plant One aeration tanks provide semi-ideal plug flow/complete mix conditions with an average liquid depth of 3.9 metres. Total aeration basin volume is 4,936 m³. Aeration is provided by four 75 kW centrifugal blowers and ceramic fine bubble diffusers. Plant One secondary clarifiers are not equipped with scum removal mechanisms. Plant Two aeration tanks provide ideal plug flow conditions and have an average liquid depth of 5.49 metres. Aeration is provided by three 112 kW centrifugal blowers and ceramic fine bubble diffusers. Total aeration basin volume is 7,488 m³. Plant Two final clarifiers are equipped with scum skimmers. Both aeration systems incorporate anoxic selector technology.

The plant has undergone extensive computer modeling over the years in order to maximize process efficiencies and minimize energy costs. The industrial component of wastewater entering the facility continues to increase as developers locate in industrial parks on the east side of Windsor. Prior to this industrial development, the Little River Plant had never experienced any major Nocardia or Microthrix parvicella infestations.

In January of 2004, both process trains began exhibiting the following signs of upset:
- Heavy dark brown foam on aeration cells
- Increasing SVI values
- Abundance of an unidentified long chain filament in the biomass
- MLSS grease content of more than 15% by weight
- Excessive amount of floating floc particles on secondary clarifiers

Because the secondary clarifiers in Plant Two are equipped with scum collectors, the suspended solids in the effluent remained within compliance limits. However, there were several SS excursions in Plant One, as the final clarifiers are not equipped with skimmers. Chlorination of the return activated sludge in Plant One was implemented and helped lower both the SVIs and levels of suspended solids in the plant effluent to within C of A limits. Chlorination was discontinued and the problem returned again after approximately three Mean Cell Residence Times (MCRTs).

Knowing that the plant had always performed well under the first three conditions, which was also confirmed by the modeling, we decided to concentrate on the substrate availability theory. As do most municipalities, we experience occasional grease problems in the plant as sewers are cleaned in the areas where fast food restaurants are located. The primary clarifiers by and large have been able to remove the vast majority of these fats, oils, and greases, thus limiting the amount of food available to the undesirable filaments in the aeration cells.

A large industrial laundry had recently come on stream and was contributing about 0.50% towards our total hydraulic loading. Samples of the laundry’s wastewater were collected and analyzed by our laboratory staff.
When we introduced grease collected from our primary clarifier scum boxes into the wastewater from the laundry, it readily dissolved. We theorized that the residual surfactants present in the discharge from the laundry were dissolving enough grease and associated LCFAs to provide adequate substrate in the aeration cells for the M. parvicella to become established.

A literature review indicated that plants in northern Europe had successfully combated Microthrix infestations by treating the biomass with poly-aluminum chloride. The actual control mechanism has not been proven, but it is thought perhaps that poly-aluminum chloride compromises the ability of the organism to use lipids by reducing the activity of extracellular enzymes (lipases), thus rendering it relatively uncompetitive against the floc formers. One of our senior operators has proposed an alternative theory in which the Microthrix organisms develop Alzheimer’s disease after prolonged exposure to elevated aluminum levels and subsequently forget to eat. I have suggested that he may wish to temper his expectations with respect to obtaining funding from the Canada Research Council in order to prove this hypothesis.

Roels et al. (2002) offered the following empirical formula to establish a dosing rate: 60/MCRT = Amount of Al³⁺ in g per kg MLSS per day.

We began dosing the RAS in Plant One at a rate of 5.0 grams of Al³⁺ per kilogram MLSS per day in mid-January of 2005 and the attached graph demonstrates how the SVIs in Plant One gradually improved as opposed to those in Plant Two, which received no treatment. Improvements are not evident immediately and the operator should be prepared to wait through a few MCRTs to see the desired effects. Plant One consistently met its C of A compliance limits during the trial and we continue to treat the RAS with Polyaluminum Chloride whenever signs of Microthrix parvicella appear. It is also our intent to retrofit the secondary clarifiers in Plant One with scum collectors.

Endnote

Jack MacRae, B.Sc., MCIC
Plant Manager, Little River Pollution Control Plant, Windsor, Ontario.

NOTE: In recognition of his contribution, Jack will receive a WEAO memory stick.
2007 Conference
AT-A-GLANCE

New Board – (L-R) John Presta, John Thompson, Don Kemp, Vincent Nazareth, Mark Rupke, Peter Takooka, Rick Niesink, Catherine Jefferson, John Duong, Tony Petrucci, Vanessa Chau, George Crawford.

Carrie and Julie Vincent staff the registration booth.

A view of the bustling OPCEA Exhibition hall floor.
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Biosolids Management Award – Mark Rupke, Phil Sidwa.

Golden Manhole Award – Cindy Toth.

Golden Manhole Award – Christine Hill.

Service Award – Cordell Samuels.

Service Award – Michael Payne.

New Professional Award – Vanessa Chau.

Peter Takaoka accepts “The Gavel” from Vincent Nazareth.

Master of Ceremonies: Ryan Connor.
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Service Award – Vanessa Chau.

Service Award – Ian Mollwham.

John Duong wins big.

John Thompson and Vince Nazareth.

Service Award – Cindy Toth.

Service Award – Darla Campbell.

Presentation by Vince Nazareth to Jim Brooker (Chairman of Ontario 5S Society) and Adam Zabinska (WEF).

Tony Petrucci and the “Prize Guys.”

Vince Nazareth shows off the new “Conference Booklet.”
The 2007 Conference has come and gone. Close to 500 delegates and new professionals registered for the Technical Program; 117 exhibitors dutifully manned their booths eager to showcase their services and wares in the OPCEA exhibition; behind a partition, 35 Operations Challenge competitors tested their mettle against each other; and a number of companions eagerly joined the activities in the Guest Program.

I would like to thank each and every attendee, exhibitor, operator, guest and volunteer who all helped to make this a very exciting and successful event. Without you, there would be no conference.

Outfall Fallout - the phrase conjures up a host of images, ideas and concerns. The theme was chosen for the 36th Annual WEAO Conference and OPCEA Exhibition, and the 2007 Conference Committee built on the theme to produce a near-record 72 presentations in 16 technical sessions, a re-tooled and vibrant Opening Session on Monday morning, a new first for WEAO with an on-site Operator Certification examination sitting, and the very popular pocket-sized Conference Program.

The conference began on a high note with the well-attended New Professionals reception following the WEAO Annual General Meeting. As in previous years, this event provided an informal social setting for those new to the field to meet and talk with ‘seasoned’ veterans outside the workplace.

The Sunday evening Ice Breaker served up a variety of food and drinks to a crowd of over 330 people, while providing a relaxing chance to network and meet old (and new) friends. After a quick walk through the Hilton lobby and facilities, it is safe to say that the catching up went on long after the food service had ended in the London Convention Centre (LCC).

The Technical Program kicked off Monday morning with the new Opening Session in the theatre room at the LCC. Three speakers made an address to the crowded theatre – Catherine Jefferson of WEAO, followed by the energetic and timely words of the City of London’s own Peter Steblin, and batting clean up was WEF President Elect, Adam Zabinski. All three speakers spoke to the challenges facing our industry, and the need to work cooperatively to achieve success in our endeavours.

The 2007 Technical Program saw 72 papers presented over the Monday and Tuesday. In keeping with the theme of the conference, the technical sessions were rounded out with the addition of a dedicated Emerging Contaminants forum and a resurrected Public Education and Government Affairs session. The Technical Steering Committee, along with the PWO, New Professionals, Collections, Government Affairs, Technologies and Biosolids committees, worked diligently to set up and manage the presentations, and should be recognized for their efforts.

The awards luncheon was condensed, and put the emphasis back on the main focus – the awards. Recognized for their contributions to WEAO over the years were:

- Michael Payne, Residuals and Biosolids Committee;
- Ian McIlwaham, Long Service 2004-2007;
- Cindy Toth, Public Education Committee and Golden Manhole Award;
- Cordell Samuels, Government Affairs Committee and Long Service 1999-2007;
- Vanessa Chau, New Professionals Committee and 2007 Outstanding New Professional Award;
- Darla Campbell, Wastewater Treatment and Technologies Committee;
- Wayne Harrison, OPCEA Exhibition Lead; and
- Terratec Environmental Inc. and The City of Toronto – Exemplary Biosolids Management Award co-winners.

The WEF award recipients recognized at the luncheon included:

- John Thompson, WEF Director 2003-2006;
- David Hein, Arthur Sidney Bedell Award Recipient (accepted by Bob Crane on behalf of David, who is still enjoying the sun and sand in Dubai); and
- Jack MacRae, William D. Hatfield Award Recipient.

The Tuesday banquet was a more jovial, relaxed evening, even with a full house to feed. Vincent Nazareth, WEAO’s outgoing President, reflected back on his tenure and the accomplishments of the past year, also noting that, as an organization, we still have a long way to go to secure our place and not simply become an aging, directionless association with little influence in our own industry.

The winner of the Golden Knob, which was more sparkly than golden this year, was Gary Burrows of the City of London. Gary worked tirelessly on the Conference Committee, not only in his role of PWO/Operations Challenge/Totally Wasted Game Show coordinator, but also helping out with Sponsorship, moving events around and coordinating the set up and tear down of the equipment near the OPCEA exhibit to provide the additional space needed for the exhibitors.

Vincent Nazareth once again took to the stage to present the Conference Chair award to John Leive, before turning the gavel of the office of WEAO President over to Peter Takaoka.

The evening would not have been complete without the presentation of the winners of the Operations Challenge – congratulations to the Sludge Hammers (1st Place) and the OCWA Jets (2nd Place). Good luck at WEFTEC.

I would like to take this opportunity to thank all the volunteers who helped out with the events at the 36th Annual Conference. The 2007 Conference Committee volunteers worked hard to ensure the conference would be enjoyable for the attendees as well as successful for WEAO.

Finally, our generous sponsors deserve thanks for helping to keep the costs reasonable, while maintaining the quality of the events.

A special thank you to our 2007 sponsors:

- **Platinum**: EarthTech
And all of our Bronze Sponsors.

I look forward to seeing everyone next year up at Blue Mountain Resorts for the 37th Annual Conference.

John Levie, ASI Group Ltd.
Conference Chair

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2007 WEAO Conference Committee

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Opening Sessions

 Taking a new approach to the traditional Keynote Address, the Monday morning Opening Session featured not one, but three speakers.

The first to take the stage and address the crowd was Catherine Jefferson, the new WEAO Executive Director. Catherine’s talk focused on her role in office as the inaugural Executive Director for the association, and promoted her practical approach and ‘open door’ (or perhaps more appropriately, ‘open telephone’) policy. She emphasized the importance of teamwork and cooperation with other similar associations in advancing the image and influence of WEAO, and working with other stakeholders in addressing pending legislation.

Catherine spoke of her career as a consultant, policy maker and researcher, as well as how she will bring the benefits of her accumulated experience to better serve as WEAO’s Executive Director.

One final task remained for Catherine at the podium – she called on Vanessa Chau and together they formally announced the winner of the New Professionals Game from the previous evening. The winners for 2007 were John Duong of the Regional Municipality of Halton, with ‘seasoned professionals’ co-winner Vincent Naza-reth of R.V. Anderson Associates Ltd.

The second address of the morning was made by the City of London’s own Director of Environmental and Engineering Services Department, Peter Steblin. Peter’s years of experience in the industry and fondness for the field shone through as he encouraged everyone in attendance to take pride in his or her area of practice – after all, sanitation systems have probably saved more lives than all medical procedures combined.

After a brief introduction to the history of sanitation and wastewater disposal, Peter spoke on the need to build on what was left to us by our predecessors and not focus on the mistakes of the past. The need to work cooperatively to find creative and economical solutions was a key theme to his talk because engineers, as he noted, have a tendency to focus on the immediate and not always look past to the bigger picture.

Above all, Peter spoke on strong partnerships and the successes they have had meeting the challenges encountered in the City of London. Peter was very clear in his statement that, as individuals and individual companies/departments, we cannot do it alone. A good partnership will produce improved results and a better end product or process. We are very fortunate to have so many talented people and technology companies to work with in our industry to help solve the issues of our population centres.

The third and final talk of the Opening Session was presented by WEF President Elect, Adam Zabinski. Adam spent many years in Westchester County, NY and focused his address on the challenges with and benefits of implementing ISO 14000 in the wastewater plants of Westchester County.

Adam spoke of difficulty in finding support for the initiative at the start, and ended with notes on the benefits and the resulting support of the County. The process involved clearly identifying the roles and responsibilities for the employees, standardizing operating procedures across the plants, improving the performance monitoring of processes and plants, and record keeping in each facility – tedious and detailed, but critical work.

The benefits to such programs should be obvious – better understanding of the process by all employees, clear and consistent written operating procedures standardized across facilities, well-defined and audited record keeping, and, ultimately, improved performance. He strongly encouraged interested utilities in Ontario to look into ISO 14000 implementation at their facilities as a step to better control and understanding.

Adam also spoke of his role in WEF, and his joy, mixed with a little trepidation, at being invited to our annual conference. As President-Elect, Adam is faced with a grueling schedule touring the North American WEF member association conference circuit, meeting and mingling with various member association delegates, and stressing the positive features of membership in the organization. In passing, Adam mentioned that the powers-that-be in the WEF organization strongly advised him that the event he did not want to miss was the annual WEAO conference. Apparently, our reputation for throwing a good party has firmly entrenched itself below the 49th parallel, and we, of course, always look forward to welcoming our WEF guests to Ontario each year.

On behalf of all delegates at the 36th Annual WEAO Conference, and the 2007 Conference Committee, I would like to thank our three keynote speakers for sharing their thoughts, words and experience with the community.

2007 Operations Challenge

London’s Convention Centre was host to the Water Environment Association of Ontario’s (WEAO) 36th Annual Technical Symposium and Ontario Pollution Control and Equipment Association (OPCEA) Exhibition. It was also host to the 17th Annual Operations Challenge, a competition that showcases the skills of wastewater professionals.

The Operations Challenge Committee (OCC) is responsible for organizing, planning and executing the Professional Wastewater Operator (PWO) Tour and Technical Program, Operations Challenge Competition, and Totally Wasted Game Show (TWGS) events at the annual conference.

Professional Wastewater Operator Technical Program

PWO Tour

It was another great year for the PWO Tour and Technical Session. On Sunday, April 15, we boarded the bus headed for our first stop – Trojan Technologies. Our hosts graciously showed us their state of the art research and development facilities, including the Microbiology Lab, Environmental Contaminants Pilot Lab, Lamp and Ballast Lab, and hands-on Training Facility. Thank you to all the staff at Trojan and especially to Allan Gates and Melissa Bekker for coordinating our visit.

Next, it was off to the City of London’s Adelaide Pollution Control Plant, where city staff, consultants and suppliers were anxious to discuss projects in which they had been involved. Scott Burn presented the 2300 m³ glass fused steel tank used for sludge storage that Greatario was contracted to design/build. Construction took place in 2005 and, once the foundation was
installed, the tank was built in only three weeks.

We then moved into the new Waste Activated Sludge (WAS) Thickening Facility, where Neil Awde and John Armistead from Earth Tech gave us a quick tour. The facility was commissioned in March 2006 and has improved efficiency by reducing WAS trucking to the Greenway Pollution Control Centre and by eliminating the previous co-settling of WAS in the primary clarifiers.

Ed Broeders from H2Flow spoke about the three IPEC Rotary Drum Thickeners installed for the thickening of WAS. Each thickener is rated for a feed rate of 27L/sec to thicken the sludge to a minimum of 4% solids. Jean-Pierre Lalonde of SNF Canada Ltd. provided a brief demonstration of the polymer supplied to the rotary drum thickener. Bob Kuzyk and Louise Hollingsworth were in attendance to show us around the Pumping Station that RV Anderson Associates Limited designed. The substructure of the station extends 14 m below grade with a dry well and two-compartment wet well. Four vertical solids-handling, centrifugal pumps are sized so that, with variable frequency drives, a wide range of flows can be lifted into the plant.

A big thank you goes out to all the presenters, attendees and to our silver sponsor, Trojan Technologies.

– Carrie Brunet, Niagara Region

The 2300 m³ glass fused steel tank.
The PWO Technical Session took place on Monday, April 16. Our first speaker, Brian Gildner, is the Manager of the Certification and Training Section with the Ministry of the Environment. In this role, Brian is responsible for the delivery of the operator certification program for drinking water and wastewater operators, including overseeing the contract with the Ontario Environmental Training Consortium. Brian gave us an overview of the Wastewater Operator Training and Certification requirements as outlined in O.Reg 129/04. We learned how the recommendations from the Walkerton Inquiry have affected wastewater legislation, as well as the requirements and responsibilities for an Operator in Charge (OIC) versus an Overall Responsible Operator (ORO). The presentation also outlined the annual training requirements for wastewater operators and wrapped up with a comparison to the drinking water training and certification regulation which are currently much more stringent.

Next was Katharine Hall, who is a Certification Officer with the Drinking Water Management Division of the Ministry of Environment. Over the past two years, one of her primary responsibilities within this position and has been developing a new database (WWOCS – Water/Wastewater Operator Certification System) which allows operators the ability to register for examinations and certification online. The development of this system has improved workflow and helped ensure the integrity of the data being collected and stored. Katharine’s presentation included screen shots of the database which gave us a first hand look at what to expect when we log on. Operators will have access to their own training and certification information and will be able to double check and update their own records. The Ministry assured us it is committed to maintaining all clients’ privacy, as stipulated in the Freedom of Information and Protection of Privacy Act.

Operations Challenge Meet and Greet

Monday evening provided an opportunity for the competitors, coaches, OCC members, volunteers, and special guests to socialize and network during the annual Operations Challenge Meet and Greet. The event included a power point presentation consisting of past competition highlights and a special welcome from Catherine Jefferson, WEAO Executive Chair, who was especially impressed with the event music.

The Meet and Greet was also an excellent opportunity to recognize and thank the numerous sponsors and long time supporters of the Operations Challenge tradition. Thanks to our event silver sponsors: Kemira, SNF Canada Ltd. and Veolia Water. Bob Crane (Veolia Water) and J.P. Lalonde (SNF) were on hand to give the competitors encouragement in the competition. Also thanks to London Hilton for allowing us to use the Carleton Salon.

The Meet and Greet also gave us the opportunity to thank our supporters who raise funds to help the winning teams travel to the WEFTEC competition, which is in San Diego, California this year.

Special thanks go to OPCEA (Mark Reeves), PWO SE Region (Steve King) and PWO SW Region (Bill Clark) for their support of Operations Challenge teams in the North American competition and the presentation of funds for WEFTEC 2007.

During the design and construction of WWOCS, a Privacy Impact Assessment was completed and security features have been put into place to ensure that all client information, which is private, is protected as such.

In keeping with the hands-on theme from last year, our final speaker brought in several models of wastewater samplers on which participants could practice. Ken MacDonald from Can-Am Instruments Ltd. gave a brief presentation on wastewater sampling, which included why different types of samples are taken, various methods for taking samples, and the importance of proper storage of samples. Participants were then rotated through the various stations set up throughout the room and given an opportunity to try the equipment. The samplers ranged from the most basic model to more complex units.

Thank you to all the speakers and participants who took part in making this year’s session a success. Hope to see you next year!

– Carrie Brunet, Niagara Region
The 36th annual WEAO Technical Symposium and OPCEA Exhibition marked the 17th consecutive year for the Operations Challenge Competition. The tradition of Operations Challenge began in Niagara Falls, Ontario in 1991. Through the dedicated efforts and support of numerous individuals, agencies, municipalities, service providers and equipment suppliers, the Challenge has been nurtured and developed over time.

**Laboratory Event**

BOD – No, this is not an acronym for team members. BOD – Biochemical Oxygen Demand was the challenging lab test performed by this year’s competing teams.

The BOD determination is an empirical test in which standardized laboratory procedures are used to determine the amount of oxygen needed by bacteria to stabilize the wastewater. Sound difficult? You bet. Teams had to perform this test in just 15 minutes. Steady nerves and hands were definitely a requirement for this event.

First, an unknown sample was analyzed for pH, using a YSI pH Meter. Then various dilutions of seed and sample were aliquoted, along with a blank and a standard. With steady hands, the competitors filled 10 BOD bottles with dilution water and recorded initial Dissolved Oxygen readings using a YSI Dissolved Oxygen Probe and Meter. Finally, using their great math skills, the teams had to calculate and report the BOD result in mg/L. Time penalties were awarded for improper use of the meters, overfilling the bottles and incorrect calculations, to name a few.

Congratulations to all the teams for a job well done. Your hard work and dedication definitely showed in this difficult event.

Thank you to the Laboratory Event Sponsors Anachemia Science, Cleartech Industries, Fisher Scientific, Delta Scientific and VWR International. Also, a thank you to the OCC volunteers and judges for the Laboratory Event, Paula Bustard, City of London; Wendy Rammler; Janet Haynes, City of Ottawa; Lana Williams, Aboriginal Water & Wastewater Association of Ontario; and OCC Assistant Coordinator Pam Vircik, City of Hamilton.

The top three teams in the Laboratory Event were: 1) Sludge Hammers, 2) OCWA Jets, and 3) Flush Waters.

*Lab Event Coordinator Norma Linkiewicz*

**Process Control Event**

Of the five Operations Challenge Competition events, the Process Event is likely the least understood by the majority of individuals reading this article. Conducted in a classroom setting during the afternoon on the day prior to the other four events, the Process Event is far removed from the Operations Challenge centre stage.

It is not a spectator event and the attendees are comprised of competing team members and judges only. In striking contrast to the other four events, the tools for the Process Event are dramatically less animated and consist of paper, pencils and a (non-programmable) calculator.

On the surface, the Process Control Event may appear straightforward and simple. The challenge: answer 120 multiple choice questions and four situational operation problems (132 question elements in total) characteristic of those found on operator certification examinations. One has to understand the full scope of this event to develop an appreciation of the challenge that the Process Event presents. The examination questions are selected from the complete syllabus of wastewater collection and wastewater treatment from A to Z. All four members of the competing teams must participate in the examination. No reference material of any kind, including formula, is provided or permitted when writing the exam. A maximum time limit of 30 minutes to complete the exam is imposed. A challenge indeed, when one considers the subject matter involved and that the 30 minute time limit translates to 54.5 seconds to answer each question.
Bearing in mind the main objective of the Operations Challenge is to provide a forum for the demonstration and advancement of knowledge and skill, the 2007 Process Control Event was a resounding success. All the competing teams finished the exam within the specified time allotment. The marking of the exams posted the largest hurdle to date, as the teams were all very close to each other and the exams needed to be triple checked for scoring accuracy. The teams should all be commended for their expert process knowledge and clear concise understanding of our industry and how it operates.

Thank you to the Process Control Event sponsors Eramosa Engineering, Endress & Hauser, General Chemical, Hydromantis Inc and Troy-Ontor Inc. Without our sponsors’ generous donations the Operations Challenge would not happen.

Thank you to the OCC members, volunteers and judges who stuck out the tense, stay awake judging and marking of the process exam.

The top three teams in the Process Control Event were: 1) Sludge Hammers, 2) Crap Shoot, and 3) OCWA Jets.

Again, congratulations to all of the competitors. You are to be commended for your preparation and performance.

– Process Control Event Coordinator Ron Turner, Region of Halton

Safety Event

The Safety Event was once again an exciting and energetic demonstration of the competitors’ knowledge and skill in performing a confined space rescue. Excellent performances were turned in by all of the competing teams. 2007 was once again another success.

Attention to detail is most important in this fast-paced demonstration event. The judging staff closely observes adherence to safe work practices and methods. Competitors must evaluate a confined space for entry, assemble a rescue system, install ventilation, enter using personal protective equipment, rescue a 60 kg full body mannequin (victim), move the victim to a safe location, simulate activation of a deluge shower system, and disassemble and store all equipment. All the while the stopwatch is running!

Thank you to the Safety Event sponsors: CH2MILL, Fibergate, IBI Group, Syntec and Team Industrial.

Thank you to the volunteers who judged the Safety Event: Bruno Michlits, City of Toronto; Dave Spiller, Region of Durham; Angelo Marcoccia, City of London; Dennis Reed, City of London; Perry Rose, City of London; and OCC Safety Event Coordinator Paul Bongelli, City of Toronto.

Weighing an approximate 1.1 tonnes, and comprised of over 50 different sections, the Safety Event platform with a 5 m x 5 m surface area is a challenge in itself. A special thanks to everyone involved in the mobilization and demobilization of the Safety Event equipment.

The top three teams in the Safety Event were: 1) Sludge Hammers, 2) Dung Beetles, and 3) The Highlanders.

The Collection Event

The Collection Event is another physically and mentally demanding challenge. Competitors are required to demonstrate the installation of a 100 mm sewer service connection to a PVC sewer pipe and the installation and setup of a SIGMA 900 programmable automatic sampler.

The Collection Event takes a great deal of team coordination and timing. The connection is made live, with water constantly flowing through the PVC sewer pipe section. Speed is an important consideration, but so is effectiveness. Once teams complete the event, the judging staff check the installation for water tightness. The ‘wet’ PVC pipe is allowed to fill to an overflow point when a discharge valve is closed and the pipe section is pressurized to 21 kPa. Time penalties are assessed for any leakage that occurs within 30 seconds.

The installation, programming and operation of the SIGMA 900 automatic sampler is also judged. The withdrawn sample is evaluated to ensure that the sampler’s programming is correct and that an accurate volume of sample was withdrawn.

Every three years, we can expect a surge of water onto the trade show floor and we were not disappointed this year!

Thank you to the Collection Event sponsors: Can-Am Instruments, Direc-trik Inc., IPEX, and RV Anderson.

Thank you to the volunteers who judged the Collection Event: Dave
The Pump Maintenance Event is a test of skills required by a maintenance/operating team in response to a lift station pumping outage. Based on the scenario that one of two fixed duty pumps in a sewage pumping station has failed, a team has been called upon to perform routine maintenance and setup of a trailer mounted Godwin Dri-Prime® Model CD100M four inch diesel driven pump as a backup.

This year’s event was once again a great success. With few changes to last year’s procedures, the pump maintenance event was faster than ever due to the teams’ familiarity with the event and the high level of competition. The Pump Maintenance Event takes a great deal of memorization and attention to detail as well as physical strength to complete. Each team must perform more than 40 tasks in a specific order to finish successfully, while at all times working with safety in mind. For the approximately six and a half minutes, teams take to perform the assigned tasks, the action is non-stop!

The Operations Challenge Pump Maintenance Event could not have taken place without the support of our sponsors: R.M.S. Enviro Solv Inc., Archer Technical Equipment Inc., and Metcon Sales and Engineering Ltd.

The Pump Maintenance event is very difficult to judge given its speed and the complexity. Thanks to Judges: Ted Follest, Region of Durham; Chuck Hudsonroder, Region of Durham; Melanie Hobbs, Assistant Coordinator, City of Brockville; Tony Gisitch, City of Toronto; Eldon Wallis and Scott Carter, City of Windsor. – John Rammler

The top three teams in the Pump Maintenance Event were: 1) Sludge Hammers, 2) Dung Beetles; and 3) Flush Waters.

Totally Wasted Game Show

First instituted in 2000, the Totally Wasted Game Show (TWGS) is a fast-paced and friendly competition fashioned after a popular television game show. This year’s contestants were:

‘TEAM 1’
L-R Martin Doyle, Troy-Ontor Inc; Mark Rupke, City of Toronto; Dave Dutchak, City of Thunder Bay

‘TEAM 2’
L-R Elvio Zaghi, Stantec Consulting Ltd.; John Fitzgerald, City of London; Paul Howard, City of London

‘TEAM 3’
L-R Heinz Held, SEW-Eurodrive Company of Canada Ltd.; Catrhaire Brethour, SGS Environmental Services; Al Robdrup, Ontario Clean Water Agency

‘TEAM 4’
L-R George Crawford, CH2M Hill; Jeff Rodgers, Greatario Engineered Storage Systems; Wade Hunt, Region of Durham

The Bonus Round was added during last year’s event and played a major role this year as the ‘home team,’ consisting of three London area members, won the TWGS with the correct Bonus Round answer. Congratulations to Paul Howard, Elvio Zaghi and John Fitzgerald!

Thank you to the Totally Wasted Game Show sponsors, R.V. Anderson, CH2MHill Canada, Cancoppas Limited and Troy-Ontor. Also, thank you to our scorekeeper Janet Haynes, City of Ottawa, our Emcee Rhonda Harris, and TWGS Coordinator Wayne Key, GE Zenon.
Rhonda Harris was the recipient of the Key Supporter Award for her continuous support of the Operations Challenge throughout the years. Many thanks Rhonda for all you do to help our committee.

Thank you to all the members of the Operations Challenge Committee. Without your hard work, the competition would not run as smoothly as it does. Hope to see you at Collingwood!

Finally, special recognition and thanks is extended to the numerous agencies and municipalities who, as employers, have supported the Challenge and provided time away from regular duties for these individuals to become engaged.

**Key Supporter Award**

The ‘Sludge Hammers’

The ‘OCWA Jets’

The ‘Highlanders’

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Gary Burrows  
2007 Operations Challenge Committee Chair

Photography  
Ian Smith

Media and Public Relations Coordinator, Operations Challenge Committee
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Two very deserving winners
By Cheryl Parisien

William D. Hatfield Award

Jack MacRae, plant manager of the Little River Pollution Control Plant in Windsor, is modest and humble about receiving the William D. Hatfield award.

The award is in honour of William D. Hatfield, superintendent of the Deacatur, Illinois Sanitary District, president of the Central States Sewage Works Association from 1944-45, and president of the Water Environment Federation from 1958-59. The award is presented to a wastewater treatment operator who exhibits outstanding performance and professionalism.

“I was very surprised when I got the call I had been nominated,” he says. “It is nice to be recognized, but I have a great staff who are very professional. There is no way I could be recognized without their support.”

MacRae’s plant was the first municipally managed plant in Ontario to get ISO 14001 accreditation, and it was done with the plant’s own staff, rather than consultants. MacRae is quick to thank others for the plant’s success.

“I want to thank Lou Romano, former director of pollution control, Kit Woods, present director, and John Faust, former chief chemist for their excellent leadership and commitment to encouraging their staff to reach their full potential.”

MacRae’s dedication to the industry is reflected in his involvement in it. Aside from his regular work, he teaches at St. Clair College, and ‘takes a vacation’ from his job with Windsor to travel the province and train others, including First Nations communities. He was part of Watershed 2000 and went to Sao Paulo, Brazil with an Environment Canada contingent to help set up new wastewater plants.

He also derives great satisfaction from his job. “It sounds simple, but when you go to the headworks of the plant and see how dirty the water is, then go to the end and see tertiary-quality effluent, you can see the improvement,” he says. “Doing it as economically as possible to give the taxpayer good value creates a lot of job satisfaction. It is a good line of work.”

Teaching the professionals of tomorrow is also fulfilling. “Young people are very environmentally conscious and seeing their enthusiasm is very satisfying.” With such a well-rounded career and commitment to the industry, it is easy to see why Jack MacRae was honoured with the William D. Hatfield award.

Arthur Sidney Bedell Award

The Arthur Sidney Bedell Award is named after the second president of the Water Environment Federation, who served the New York Sewage and Industrial Wastes Association (now known as the New York Water Environment Association) for many years. The award recognizes professionals who serve their association with dedication and personal commitment.

David Hein fits the bill. With many years of volunteer service on a number of committees, it is clear that his dedication is unwavering. He began volunteering in 1994 on the conference committee. “Little did I know what was in store for me,” says Hein. He served on the committee for five years, and chaired the 2000 conference.

Also in 2000, Hein was elected to the board of directors. He continued to advise the conference committee in 2001, and stepped in when the then chair, Heinz Held suffered a heart attack. He stood in as chair until Held was well enough to resume the role.

Hein was honoured with the Platinum Knob, the only recipient to date. The Golden Knob has been bestowed on a member of the conference committee who has shown extra effort. Because Hein served on the committee for so many years, the 2002 conference chair, Rossana Diabio, created a special platinum award to reflect his exceptional work.

Hein also chaired the special events committee, emceeing the annual golf tournament, and chaired the WEFTEC Great Canadian Icebreaker subcommittee, an event hosting 200 to 300 people each year.

After completing his term as director, Hein became vice president, then president. He was involved with the Canadian affairs committee. He also chaired the government affairs committee. He helped develop guidelines for emergency infrastructure planning in the event of a disaster with the Ministry of Environment.

Hein recently moved to Abu Dhabi and is assistant department manager with Cansult Mansell | AECOM, working in the infrastructure group. “I am amazed at the ambitious undertakings of developers and the sheer size of projects, which are not in the millions but billions of dollars,” he says. He and his wife, Lynn, enjoy having the opportunity to travel to places like Egypt or India for the weekend, and are happy to escape winter for a while.

Even though Hein now lives overseas, he still volunteers as the 55 Society newsletter editor. Not even an ocean can keep Hein from working for his association.
The grand finale of the Monday Awards Luncheon at the Annual Conference has traditionally been the induction of new members into the Select Society of Sanitary Sludge Shovelers, the 5S Society for short. This year was no exception as Jim Brooker, Chairman of the Ontario 5S Society, presided over the festivities; ably assisted by Peter Nicol of CH2M Hill Canada Limited.

What was unusual was the length of time available to complete the business at hand. As Jim pointed out, the luxury of having 22 minutes was somewhat daunting. Unfortunately, our venerable pH 7, Geoff Scott, was not able to attend. No doubt, he would have been able to do justice to the time and cause the emcee, Ryan Conner of CH2M Hill Canada Limited, a suitable degree of anxiety.

This year, the inductees were: Michael Albanese of H2Flow Equipment Inc., David Spiller of the Region of Durham, and George V. Crawford of CH2M Hill Canada Limited. Each was presented with ‘temporary’ plastic shovels to be worn proudly until the official induction ceremony to be conducted at the annual 5S Luncheon on June 5, 2007. In keeping with tradition, the visiting WEF representative, President-Elect Adam Zabinski, received his Ontario 5S shovel also.

It should be noted that one cannot apply for membership to the Society; one must be ‘selected’ on the basis of outstanding and meritorious service above and beyond the call of duty to the Association. Selection bestows the accolade of ‘elevation on the official shovel to the highest ridge on the sludge bed, with the title of Select Sludge Shoveler, and all the honour, atmosphere, perquisites and dignity pertaining thereto’.

The inductees for this year certainly fulfill the requirements for selection. Michael Albanese is an incoming Director of our Association; however, he has devoted himself to advancing our organization through his long involvement with the OPCEA and the equipment exhibition at the Annual Conference. More recently, he has contributed greatly as a member of and Chair of the Special Events Committee. David Spiller has contributed to the success of the Operations Challenge Event at the Annual Conference through his hard work and dedication over many years. George V. Crawford, a second generation Shoveler, has contributed greatly to the advancement of our Association through his many years of work on several Committees and more recently as Director and now WEF Delegate. Each of these worthy inductees deserves our congratulations and our respect.

On a more somber note, Jim noted the recent passing of two esteemed Sludge Shovelers: George B. Crawford and Brian Leclair, Ph.D.

Having completed the business at hand, the Awards Luncheon was adjourned early for the first time in living memory, with the inductees looking forward to the official induction in June.

– Peter Takaoka, P.Eng., R.V.
Anderson Associates Ltd.

Select Society showcases Stellar Shovelers
First WEAO Symposium Session on Membrane Bioreactor Technology – Session Planned for Success

This year, WEAO’s Wastewater Treatment Technology Committee decided to designate an entire session to Membrane Bioreactor (MBR) Technology. This decision was made in recognition of the increasing number of MBR applications in Ontario, and growing interest in this innovative technology for enhanced biological nutrient removal, improved effluent quality, and its potential use to retrofit existing wastewater treatment plants.

Dr. Frenkel, P.Eng. of Kennedy/Jenks Consultants (a San Francisco-based US company) opened the session with a presentation titled “MBR: From Piloting to Large Plant Design Concepts”. In his presentation, Dr. Frenkel provided a comprehensive overview of the MBR Technology, and the results of a unique large-scale pilot study recently completed at the Honolulu Wastewater Treatment Plant in Hawaii (USA). Pilot MBR units from five suppliers were tested on raw wastewater, primary effluent, and high-strength heat treatment centrate recycle stream. The presentation included descriptions of the pilot testing procedure, explanations of the operation and maintenance issues being evaluated, discussions of the operation and maintenance findings, and identification of important factors in ‘scaling up’ pilot findings for large full-scale facility design.

George Crawford, P.Eng. of CH2M HILL Canada in the paper “Enhanced Biological Phosphorus Removal with Membrane Bioreactors” provided an excellent review of the challenges of achieving enhanced biological phosphorus removal (EBPR) and nutrient removal in general in a membrane bioreactor environment. George noted that the keys to any BNR system are to make the most use out of the readily biodegradable substrate in the raw wastewater and also to prevent the ingress of electron acceptors into unaerated zones (i.e. oxygen into anoxic zones and nitrate into anaerobic zones). The high recycle flows from the membrane zone back to the bioreactor zone (typically four times the influent flow) coupled with the high dissolved oxygen concentration (typically 6 mg/L) makes BNR much more challenging in an MBR environment. George presented a number of innovative process schematics, all of which are being used at full-scale, to combat the known challenges of the high recycles in MBR systems.

Olav Natvik, P. Eng. of Stantec Consulting Ltd. and Richard Todd, P.Eng. of the City of London presented paper “Why MBR at the Oxford WPCP in London? - An Overview of Factors Favoring MBR Retrofit at Oxford PCP”. The focus of the paper was to review the key factors that lead to the selection of an MBR process over a conventional activated sludge process followed by filtration during the upgrade of the Oxford Pollution Control Plant to a capacity of approximately 10,000 m³/d, including the need to meet stringent effluent limits, particularly a low monthly limit of total phosphorus (< 0.5 mg/L) and summer total ammonia (< 1.0 mg/L).

Tim Constantine, P.Eng. of CH2M HILL Canada Limited provided a summary of the pilot testing work that has been done to date with...
membranes at the Woodward Avenue WWTP for the City of Hamilton. The City is currently carrying out an 8-month pilot test of an innovative MBR process that may assist them in meeting their long-term goals for wastewater management. In his presentation titled “Pilot Test Results for 500 MLD Tertiary Nitrification MBR in Hamilton, Ontario”, Tim noted that the process involves operating the MBR on non-nitrified secondary effluent at a sufficient solids retention time to promote biological nitrification. Operating in this manner is believed to have significant advantages including increased membrane flux by operating at very low mixed liquor concentrations (i.e. typically less than 1,500 mg/L compared to 10,000 mg/L which is typical of conventional MBR systems). Preliminary results show excellent performance in terms of conventional parameters (e.g. ammonia, phosphorus, etc.) while also indicating that increases in membrane flux may be possible by operating on secondary effluent.

The MBR Session was concluded by a presentation of Heather M. Brewer, P. Eng. of Conestoga-Rovers & Associates. In her presentation “Expansion With Membrane Biological Reactor (MBR) To Address Site Constraints And Improve Effluent Quality”, Ms. Brewer presented results of an investigation to apply MBR technology at a full-scale wastewater treatment facility located in the Municipality of Middlesex Centre. The project included consideration of alternatives within the context of a Class Environmental Assessment (EA) and provides a basis for upgrading considerations of MBR technology to other municipal facilities.

In summary, the MBR Technology Session was very successful, drawing high attendance (exceeding 80 people per presentation on average), and many positive comments. The committee will keep this topic high on its agenda and will consider one or two day Seminar/Workshop as interest grows. If you have any comments or suggestions, please contact Valera Saknenko, Chair of Wastewater Treatment and Technologies Committee, at vsaknenko@rvanderson.com.

– Valera Saknenko and Tim Constantine, WEAO Wastewater Treatment and Technologies Committee

WEAO Annual Conference
GUEST PROGRAM
LONDON 2007

The Guest Program this year was, once again, a lot of fun as well as educational. Monday, after breakfast together, we all boarded the limousine with our driver. Our adventure was off to Sparta. We shopped at some small shops in the town and then enjoyed a lunch at a tearoom located in the woods at Pinecroft. After lunch, we did some more shopping and sightseeing. In St. Thomas, we stopped to visit the statue of Jumbo, the elephant that was killed by a train while the circus was in town in 1885. On Tuesday, we all met once again for breakfast. Then it was off to Lambeth to express our creative side with a scrap-booking workshop. Once our creative efforts were finished being tested, we headed to Covenant Garden Market for some lunch. The afternoon was left as free time for the ladies. I hope to see you all next year in Collingwood.

- Debbie Crane

Guest Program visiting Jumbo the elephant in St. Thomas.
Focus on
CHANGE MANAGEMENT

GENERATION Y

Challenge and Opportunity
Many employers appear quite frustrated by the newest entrants to the labour force. These workers seem profoundly different and, it has been said, they have a weak work ethic, lack commitment, perceive themselves to possess knowledge beyond their experience, and harbor unreasonable expectations regarding position, income and career advancement. In many ways, they seem to exhibit a ‘Maturity Gap.’

Who are these new workers and what do they really want? Are employers doomed to be frustrated by them forever, or does this situation present an opportunity for establishing a strategic advantage?

Who Is Generation Y?
Demographics provide the first insight. The Baby Boom Generation was born between 1947 and 1966. Generation Y, born between 1980 and 1995, are children of the Baby Boomers. (Boom, Bust & Echo, David Foot) As with every generation, Generation Y manifests a number of common characteristics, some which are unique to this cohort.

Before this profile is described, a word of caution. There are grave risks in developing any profile. Generalizing from the individual or individualizing from the general is sloppy thinking and most often is outright wrong. A profile is useful to the extent that it portrays a cohort at the extreme, solely as a reflection point for robust analysis and deliberation.

What are Generation Y’s life experiences?
As children of the Baby Boomers, Generation Y has received unprecedented attention, protection and programming. They have been inundated with material things from birth, particularly electronic and digital goods. Their parents have been their strongest advocates and want to be their best friends. They have been sheltered from failure.

- First digital generation
- Cellphone, iPod, laptop computer, and electronic games are givens
- Not allowed to play outside for fear of being kidnapped
- All activities are programmed and scheduled
- Parents are chauffeurs
- Parents are ‘best friends’
- Never told ‘no’
- School system altered to eliminate ‘failure’ to avoid scarring the child

- Parent (usually mom) stands in registration line with child at college
- Parent (usually mom) complains to the school about marks
- Parent challenges employer regarding performance review
- Parent confronts employer regarding dismissal situation

What are the values and behaviours of Generation Y?

- Lack a concept of fear
- Lack a concept of failure
- Ethically incomplete
- Assume invincibility and superior performance
- Used to being involved in ‘adult decision making’
- Short attention span
- Believe they are proficient at multitasking
- Digital communication and engagement
- Sense of entitlement
- Focused on their careers
- Want more than merely a ‘job’
- Want the organization to be connected to the community and make a contribution
- Question everything
- Want constant feedback
- Live with parents indefinitely

Generation Y

In the workplace
Generation Y enters the workplace better educated than previous generations. They arrive expecting to be treated as unique individuals with a great deal to offer to the organization. They come with a belief that they know more than they actually do about most things, including the world of work. They are supremely confident in their abilities.

Generation Y employees may not be patient in sitting through a ‘traditional orientation’ to the company and the job. Their preference is to have information presented in a digital, self-paced, interactive format – an approach with which they are quite familiar.

They are looking for immediate connections – between themselves and the people around them; between their values and those of the organization; between their immediate needs and the ‘offer’ in joining the organization. Generation Y also expect their organization to provide them with opportunities to participate in activities that will contribute to Corporate Social Responsibility and Sustainability, as well as to their own personal development.

From their first day, Generation Y is ready and willing to start questioning everything. “Why do you do that?” “Why do you do it that way?” “Why can’t I try it my way?”

The probing is insistent and unrelenting. Remember, they have immense confidence in their abilities and personal failure is unknown. The manner in which employers manage this situation will determine the commitment and longevity of these new employees.

Engagement and retention
Retention of Generation Y employees already is and will continue to be a significant challenge for employers. This also varies by sector, organization and region. If Generation Y employees do not like what they are told or the working environment falls short of their expectations, they will not hesitate to quit, in the belief that there are better opportunities elsewhere. Their parents’ willingness to allow them to reside with them indefinitely, further exacerbates this situation.

In order to retain Generation Y employees, astute organizations will be deliberate and methodical in evolving and supporting an environment that encourages open communication, provides experiential opportunities and engages employees in identifying, analyzing and solving problems, and exploiting opportunities. Coaching and mentoring are needed to reinforce this process of engagement, in order to capture the enthusiasm and commitment of Generation Y employees, and solidify retention. (See Article: THE GROWING SHORTAGE at www.diamondmanagementinstitute.com) It also should be noted that Generation Y’s loyalty tends to be to the individual, not to the organization.

More than ever before, it is necessary for managers to know their employees – their likes, dislikes, values, goals, behaviours -- and to create situations where ‘the needs of the individual are aligned with the needs of the organization,’ in order to create an emotional connection between the employee and his or her work, and the organization.

Concurrent with this approach, managers will need to nurture higher personal standards and greater maturity in Generation Y employees. They will need to help undo some of the characteristics of Generation Y. This delicate process is situational and calls for sensitivity and dexterity on the manager’s part. It demands a practiced art.
It is ironic that Boomer Employers will need to re-mould Generation Y – the children shaped by Boomer Parents.

The opportunity provided by Generation Y

Generation Y will definitely frustrate many employers who will experience an ongoing cycle of costly recruitment, with corresponding weak retention. The time and resources expended in this ‘churning of employees’ will come to be seen as yet another cost of doing business, even while performance, quality and productivity are eroded.

This ultimately will prove to be an unsustainable structure for managing a business, unless the organization can develop cost-effective and innovative approaches to recruitment, orientation and training for a low-retention workforce.

Another considered approach will see organizations evolving their culture to embrace and accommodate the aspirations of Generation Y and other employees. Responsibility and authority will become more distributed. By doing so, these organizations will be able to harness the creativity and energy of Generation Y to its own benefit. Employers who overcome these challenges will continue to search out innovative solutions to strengthen the connection with their Generation Y employees. They will apply as much rigour and resources to engaging their workforce on a daily basis, as they currently apply to their budgeting processes, for instance.

It has been noted that Generation Y employees arrive at the workplace asking many questions and challenging basic assumptions. Managed properly, these new workers have the potential to unlock enormous gains for the organization. By exploiting Generation Y’s propensities, both the individual and the organization can realize significant and meaningful success. The Toyota Motor Company provides vital insight.

“The auto maker’s success is based on the Toyota Way, an intense focus on quality and continuous improvement and a dedication to questioning the company’s own assumptions ....... People who think deeply about problems, are challenging basic assumptions, are always looking very creatively for solutions, are really trying to understand deeply what the problem is.” (The Toyota Way, Jeffrey Liker)

Organizations should not be viewed as static entities. They need to be perceived as dynamic and evolutionary, where opportunities for continuous improvement, work enhancement and productivity improvements abound. The Toyota example exemplifies an attitude and approach that ‘institutionalizes’ these concepts.

Generation Y individuals manifest many characteristics that could support and extend the re-organization of work and the positive outcomes of capitalism. In particular, exploring the potential for Corporate Social Responsibility and Sustainability are two areas that resonate strongly with these new workers. The choice is to capture this opportunity or lose to the competition. (See Article: SUSTAINABILITY at www.diamondmanagementinstitute.com)

These are strategic considerations that require thoughtful planning, organizing, training, and implementation. They go to the very heart of every organization. They are the new leadership challenge. Managers need to develop enhanced processes, modify their style and delegate in new ways in order to ‘connect’ with the Generation Y workforce.

In pursuing this strategic approach, organizations and managers may be embarking on an unfamiliar journey. Practitioners of Culture Change and Leadership Development can provide critical assistance in helping to create a work environment that satisfies the values and characteristics of Generation Y employees and challenges their aspirations.

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Perspective
Organizations must deal with many competing pressures in managing and maintaining their workforce: work-life balance or imbalance and the repercussions related to productivity, differing generational characteristics and expectations, and the looming employee shortage, among many others. There is an urgent need for employers to have an intimate understanding of these issues, what they mean to your municipality or business, and how to address them, or risk success.

It should be understood that organizations are faced with managing generational differences within the workforce that, in the not too distant past, have not been as pronounced as they are now. Our newest generations coming into the workforce, ‘X’ (born 1961-1974) and ‘Y’ or ‘Millennial’ (1975-2002), each have very different characteristics and expectations.

Generations are shaped by history and events, technological advances, social changes, economic conditions and popular culture. For many employers, as veterans (prior to 1946) or baby boomers (1946-1964) or even as Gen Xers, their frames of reference are very, very different from those of the newest generation. (Note: The dates linked to the definition of these generations differ between social scientists and the dates noted herein are just a general indication of the time period attached to each generation.)

Today’s young people have characteristics that may not be what employers traditionally expect, but they can offer outstanding potential by focusing on the many positive aspects. Although caution should be applied to generalizations, many young people are technologically advanced, team players, smart, with a greater acceptance of change, culturally diverse, optimistic with high expectations, and goal and achievement oriented. (To find relevant references, search the internet for ‘managing X, Y or Millennial generations. There is abundant data, information and recommendations presented for consideration.)

The important message to take away from all of the research on managing across generations is that employees everywhere look for proof that they are valued. These employees want managers to tell and show them that they are important, as they are. Especially with the new generations, it is desirable to work for someone who builds recognition into everyday situations and for an employer who supports inherent recognition in the way employees are treated, for who they are and the work that they do. It is wise to pay close attention to what employees need and help them meet those needs. More and more employees are looking for challenges, an opportunity to grow, intellectual stimulation and learning opportunities to promote career and personal advancement.

Employers are currently facing the challenge to work effectively by managing their workforce successfully all the while trying to accommodate the differ-
ent knowledge, experience, supervisory, management and leadership training and development needs across the four generational spread that exists in today’s workforce. There is a clear need to promote internal customer service— to value and respect employees. This may seem a little extreme to those cautious about the day to day economy or bottom line pressures, but... with the Baby Boomers moving rapidly towards retirement age (not lured into working past 65 years even with the ‘retirement’ of the mandatory retirement age), there will be a massive ‘leaving’ of the workforce by up to 50% depending on the age profile of a workforce within five or so years.

**Town of Oakville**

To prepare for the expected exodus of senior management it is critical to evolve the existing workforce, develop leadership and skills, and promote intra-organizational understanding. It is advantageous to sponsor managerial, supervisory and key individual staff through a leadership development process more formally to augment the experiential learnings gained on-the-job. We cannot wait for these leadership skills to develop over time and to function efficiently with the looming skilled, knowledgeable employee shortage.

An organized, strategic approach is required for leadership development as well as technical management skills training for managers and supervisors to set up succession planning and optimizing the current and future organizational performance.

Training can provide the support for development of the hard or technical skills such as municipal finance and budgeting, purchasing, key software systems, staff recruitment, and in general, how to apply corporate policies and procedures. The Town conducts employee surveys in order to assess needs and establish training courses for hard skills and administrative and technical knowledge. Training helps get our jobs done efficiently.

Development describes the acquisition and enhancement of the softer skills or competencies such as strategic thinking, critical analysis, leadership, performance management, leading versus doing, communication, etc. Development helps move the organization, as a whole, forward strategically.

Town senior management has participated in leadership development components with the Niagara Institute for the last several years to enhance organizational performance. A leadership development program is now being formulated to extend to managers, supervisors and individuals to address the key competencies of successful leadership.

Program development considered elements such as the identification and validation of core leadership competencies, assessment of the organizational culture, best practice research, comparative analysis with other organizations, ‘metrics’ to measure the impact of the program and cost effectiveness, a 360° assessment tool, and a modular leadership program with components on core leadership competencies.

Core leadership competencies include strategic thinking, enhancing team performance, influential communication, designing and executing to plan, fostering accountability, leading and managing change, adaptability and creating strategic value all to support personal leadership skill development. The Town is entering into a partnership with SheridanCorporation Learn and Development Network of Sheridan College, handily located in Oakville, to deliver the program created specifically for the Town.

The ‘Building Effective Leaders’ initiative will involve staff in 360° assessments, with participation in customized modules. It is expected that the program will engage over 120 Town of Oakville, Oakville Public Library and Oakville Fire Department staff in this exceptional leadership development process over the next two years. The program launch event is in mid-May 2007 to promote the unique opportunity for selected staff to stretch their abilities and learn new skills that will not only help them excel in the job, but in life as well.

The program reflects the needs of our cross-generational workforce with special attention to fully developing the leadership potential of the managerial and supervisory strata as a critical facet of succession planning. As an employer striving to be a ‘preferred employer,’ the Town of Oakville is embarking on this innovative, engaging, customized program to attract, recruit, retain and motivate the current staff and younger generations in the highly competitive job market. The efforts will realize enhanced individual, group, team and organizational performance and, importantly, build a greater pool of well qualified applicants for senior positions. The program underpins the necessary ‘life-long learning’ process that any competent workforce needs to be effective in our constantly changing environment making this an exciting time for staff at the Town of Oakville. ✨

Elizabeth Bourns, BA, MPA, CHRP
Director, Human Resources
Cindy Toth, B.Sc., Dipl. EST (IHE)
Director, Environmental Policy
Town of Oakville
A LOOK AT DURHAM’S EXPERIENCE IN IMPLEMENTATION OF A COMPUTERIZED MAINTENANCE MANAGEMENT SYSTEM

A fter two less than ‘success-ful’ previous attempts at implementing a computerized maintenance management system across its water and wastewater facilities, the Regional Municipality of Durham embarked on another attempt in 2002.

What constitutes a successful implementation? Consider the following definitions taken from well known dictionaries:

1. The favourable or prosperous termination of attempts or endeavors
2. The achievement of something desired, planned or attempted
3. An event that accomplishes its intended purpose

What is the common theme – reaching a desired, positive outcome? What is the missing assumption – that the desired outcome is completely defined and understood by all participants? Why the distinction? Consider the following common themes collected from organizations that have attempted the implementation of a computerized maintenance management system:

1. Many organizations have turned to CMMS as a means to improve maintenance productivity with disappointing results
2. Utilities which recently implemented CMMS appear to be experiencing difficulty in obtaining well-defined and good quality maintenance reports to assist in utility management
3. Most utilities that have implemented a CMMS agreed that even though their computer system was operating, there was still quite a lot of work to achieve a complete implementation
4. Many systems fall short of expectations soon after implementation because they have been badly defined or seem to rely upon a work management program

Why the disappointing results? I would suggest the root cause of not achieving the desired state is a result of a lack of attention to the people side of the process (i.e., what the change is all about).

There is an abundance of change management literature and strategies available today. However, there is no magic formula or consistent template that can be uniformly applied to all implementation projects. At the Region of Durham, we followed the steps outlined below in order to ‘successfully’ implement our organizational change:

1. Analyze the organization and its need for change
   Change implementers should understand how an organization operates. With respect to our efforts, the Plant Operations Group elected a core team to lead the implementation process and work with the consultant to map out a strategy. Core team membership was a cross section that included plant management through maintenance staff. An analysis of maintenance categories was developed to assist in prioritizing subsequent work orders. Our categories included: regulatory (Certificate of Approval or other regulation driven), health and safety, environmental, production eventually effected, production unaffected and immediate loss. While more categories could have been selected or developed, we felt that this selection would cover 99% of our work activities.

2. Create a common direction-path for success
   The core team focused on workflow, documentation of work, cost tracking and Preventive Maintenance (PM) creation. These were the identified, initial deliverables of the implementation. Completion of
these deliverables would allow for future efforts to be undertaken in an organized fashion. We defined how our staff would fit into the requirements of the CMMS with our chief maintenance operators (CMOs) serving in the role most commonly referred to as ‘planner.’ On the surface, this appeared to be the most logical approach in that our CMOs were already directing the day-to-day activities of the maintenance operators. Success was initially considered to be achieved when the field data collection on the assets was completed, preventative maintenance tasks were developed and triggered, and plant staff were documenting all work performed within the CMMS. Future requirements under consideration include switching to activity-based from discrete work orders, implementing inventory and asset management modules, etc.

3. Craft an implementation plan

The plan is best kept simple with recognized milestones. Overly ambitious plans, unless well resourced, tend to result in many tasks being only partially completed, which, if left undone, contribute to a sense of frustration among staff and lead to a sense of another ‘failed effort.’ Our initial effort focused on inventory of entities, creation of PMs and cost allocation tracking. At various times, and even today, we have been pressured to add on inventory and purchasing modules which, while needed, cannot be undertaken until our initial efforts have been refined. Staff using the current system is aware of its shortcomings, and to focus on a new task without addressing the ‘known’ deficiencies noted by the users would lead to comments similar to those noted in the introduction.

4. Develop enabling structures

Enabling structures can range from corporate help desks, development of user manuals, continuing workshops, refresher training, etc. Such efforts should be well conceived and resourced to ensure a smooth transition. Our initial implementation strategy was to have the various CMOs handle most of the day-to-day activities of the CMMS. However, it soon became apparent that these individuals, while willing, were simply too valuable in daily efforts to devote all the time required. In response to this observation, the Region created CMMS (and ISO) support CMOs to assist in the technical, ongoing development of the system and provide continued training to staff.

We perform user-based audits with users throughout the system. We ask them what they ‘like,’ what they ‘detest,’ and what would make their use of the system easier given that it is here to stay. During this process, we are honest and upfront, stating that not all suggestions will be implemented, but all will be considered. We have found that many users have provided realistic suggestions for improvement that, in turn, have been welcomed by all users. For example, one common theme was the cumbersome approach to searching the hierarchy for the specific entity. Our initial efforts required several steps to find the required asset (assuming the
entity identifier was not known to the user). In response to this difficulty, one user suggested the creation of specific short cuts to areas of functional responsibility, thus reducing search time dramatically. This approach led to the creation of custom cabinets that could be configured or tailored to the individual’s requirements (i.e., the ‘homepage’ for the Duffin WPCP Instrumentation CMO would short-cut directly to this functional area, rather than to a ‘higher level,’ Duffin Creek WPCP plant database).

5. Line up continued political sponsorship

While the CMMS change effort was ‘achieved,’ the Region needs to continue to formalize its use, reporting, updating and performance among its staff to ensure the system matures and evolves along with constantly changing operational and management demands (i.e., new regulations, budgetary pressures, asset management, etc.). The use of key performance indicators (KPIs) to supplement our business case during the budget review process and their integration into our performance measurement system requires further refinement. Firm establishment of these objectives will further promote staff use and enhancement of the CMMS.

6. Reinforce and institutionalize change – reaching the desired outcome via a continuing journey

While our initial efforts ensured the grass roots maintenance expectations (work flows and cost tracking) requirements were, for the most part, addressed, total project ‘success’ remains to be fully achieved as additional business drivers (i.e., integration with asset management philosophy and work activities) have since developed. We now recognize that this will always be the case. Thus, our change efforts, while initially focusing on one goal, must be adaptable to enable our CMMS to be configured to meet those needs. Continued organizational support from senior management, ongoing system auditing (to ensure data integrity) and refining the integration of external data handling (minimizing duplication of data entry) are all goals to be met in the immediate future.

Brad Dobson is a Project Superintendent within the Durham Region Plant Operations Group. The CMMS is one of his areas of responsibility. Brad can be reached at brad.dobson@region.durham.on.ca
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Membrane Systems for Water/Wastewater
- Potable Drinking Water (Giardia / Cryptosporidium Removal)
- Membrane Batch Reactors for Wastewater

Ultraviolet Disinfection
- Potable Drinking Water Disinfection
- Wastewater

Anaerobic Sludge Digestion
- Heat Exchangers
- Digester Roofs & Mixing
- Gas Safety Equipment
- ATAD

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

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

Sludge Disposal
- Cannibal “no sludge” Process
- Fluid Bed & Multi-Hearth Incineration
- Class “A” Bioset Sludge Stabilization Process

Pumping Systems
- Open / Enclosed Archimedes Screw Pumps
- Submersible Pumps / Mixers
- Grit Pumps
- Axial Flow Pumps
- Screenings Pumps

Package Plants for Water and Wastewater

Sequencing Batch Reactors
- Decanters

Plant Retrofits / Mechanical Refurbishments and Spare Parts for all Products
The risk of noise-induced hearing loss is often ignored until too late because:

- hearing loss causes no pain
- workers may feel discomfort and pain from excessive noise, but not from the hearing loss
- the loss can occur gradually, so that exposed workers do not notice until significant damage has occurred

Once damaged, hearing cannot be restored. Damaged hearing can affect job performance, health and productivity.

**Identifying Areas with High Noise Levels**

If background noise makes it difficult to carry on a conversation at arms length, then the noise levels in that area probably exceed safe levels.

**Common Noise Sources**

Some common sources of noise in the municipal sector or plant environment are:

- compressors, centrifuges pumps
- ventilation fans, blowers
- heavy equipment such as grass cutters, brushers, tractors
- tools (e.g. oxy-acetylene welding torches, pneumatic nail drivers)
- machinery powered by compressed air

The following table summarizes the duration of exposure limits in the new regulation:

<table>
<thead>
<tr>
<th>Sound Level (in db(A))</th>
<th>Duration (hrs/24 hr day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>83.2</td>
<td>12</td>
</tr>
<tr>
<td>84.0</td>
<td>10</td>
</tr>
<tr>
<td>85.0</td>
<td>8</td>
</tr>
<tr>
<td>86.2</td>
<td>6</td>
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<tr>
<td>88.0</td>
<td>4</td>
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<tr>
<td>89.3</td>
<td>3</td>
</tr>
<tr>
<td>91.0</td>
<td>2</td>
</tr>
<tr>
<td>92.3</td>
<td>1 1/2</td>
</tr>
<tr>
<td>94.0</td>
<td>1</td>
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<tr>
<td>97.0</td>
<td>30 min</td>
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<tr>
<td>100.0</td>
<td>20 min</td>
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<tr>
<td>101.8</td>
<td>10 min</td>
</tr>
<tr>
<td>104.8</td>
<td>5 min</td>
</tr>
<tr>
<td>111.8</td>
<td>1 min</td>
</tr>
<tr>
<td>114.8</td>
<td>30 sec</td>
</tr>
</tbody>
</table>

To view the changes to the legislation, please access the following link on the e-laws website: [http://www.e-laws.gov.on.ca](http://www.e-laws.gov.on.ca).

**Monica A. Szabo**  
- Municipal Health and Safety Association

**Scott McKay**  
- Industrial Accident Prevention Association

Members of the WEAO Environmental, Health, Safety & Security Committee
twenty-one enthusiastic participants attended a Problem-Solving Workshop held on April 18, 2007 at the London Convention Centre. Hany Jadaa and David Korhonen, LEXICON Environmental Consulting Services Inc., facilitated the workshop. The primary objective of the workshop is to provide participants with a framework for solving problems, while stressing the importance of a team approach. The workshop uses innovative knowledge-transfer skills to create a highly interactive and motivating atmosphere – ideal for learning. While working through case studies that focus upon the activated sludge process, attendees are expected to utilize the problem solving techniques taught during the day. Although the workshop reviews aspects of process knowledge, it is not intended to provide comprehensive instruction on the activated sludge process.

The course curriculum, which has recently been upgraded and enhanced by Hany Jadaa and David Korhonen of LEXICON Environmental, received high praise from the operators in attendance. Participants received a copy of the revised student workbook and a certificate of attendance, and they are eligible to receive 0.65 CEUs.

The Problem-Solving Workshop will be presented in Sudbury on October 10, 2007. For more information, contact John Thompson at john.thompson@region.durham.on.ca.

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Call for Articles

Readers are invited to submit articles for inclusion in future issues of *Influents*, the official publication of the Water Environment Association of Ontario (WEAO). The articles should be approximately 500-2,000 words in length and should not be ‘advertorial’ in nature.

The topics must be of general interest to the WEAO membership and may cover such things as operation and maintenance tips, industry projects, proper application/selection of equipment or processes, industry news, innovative technology and so on.

The articles should be forwarded to Emil Cocirla, WEAO Communications Committee Chair for consideration. The selection of the articles for inclusion in *Influents* is at the sole discretion of the WEAO Communications Committee. The Committee also reserves the right to edit the article as necessary, for clarity, brevity or unseemly commercialism.

Notwithstanding the foregoing, getting your article published in *Influents* is a very good way to gain credibility in the Ontario marketplace and stand-out among your peers.

To submit an article, please include the following info:
- Your Name
- Organization
- Article Topic and Synopsis

Please include a title and brief description (50-100 words) of the proposed topic.

You may also write in with suggestions of topics for future articles as well. You may also write in to request that we seek an article on a particular subject of interest to you or your organization. All suggestions should be sent to Emil Cocirla, WEAO Communications Committee Chair at: emil@can-am.net.

By submitting an article, photo or a combination thereof, you are giving permission for the submitted materials to be printed in whole or in part.

Call for Plant Profile Submissions

Are you proud of your plant and the professionals who operate and maintain it? Let the world know!

For more information contact John Thompson at john.thompson@region.durham.on.ca

Submitting Photos

When submitting photos, please try and send them as high resolution as possible (300 dpi minimum) and in .tif or .jpeg format. Photos should not be placed in a word document, downloaded from the internet or in a power point presentation.
The Niagara Regional Science and Engineering Fair, held on Saturday March 24, 2007, was a wonderful opportunity for students from grade 5 through high school to demonstrate and present their remarkable science projects. Again this year, I was pleased to be able to take part in judging all projects related to the water environment to select this year’s recipient of the WEAO award.

There were several water-related projects in the juvenile (grades 5 and 6) and junior (grades 7 and 8) categories, ranging from measuring the effectiveness of various filtration media on removing debris from water, to evaluating methods for cleaning up oil spills.

I was impressed with the efforts of MacKenzie Wiers, a grade 5 student from Colonel John Butler school, on her project Can a Heat Source Sterilize Water. MacKenzie learned how to do her own microbiological lab work to assess the effects of sunlight on various sources of water.

Sydnie Fiocca, a grade 7 student from Lady of Fatima school, also did a great job to help promote awareness of water conservation and efficiencies through her project Every Drop Counts. Sydnie measured water use by a number of different showerheads in determining whether the Enbridge TAPS Program water efficient showerheads conserve water and save money.

After contemplating these and other terrific projects, my recommendation for the WEAO award was a project named Unplugged by Zacharey Ward and Neal Traynor, grade 8 students at St. Nicholas school. These two boys were intrigued by media reports from Great Britain that the use of luxury toilet paper was causing clogging in the plumbing system in hotels. This led them to speculate on possible impacts of varying quality of toilet paper on the wastewater treatment system. Through this work, they interviewed George Bis of the Region of Niagara (and WEAO Biosolids Committee member), to better understand the processes involved. They also undertook research using the www.wef.org web site. They showed great enthusiasm and creativity with the toilet paper timeline that unrolled from a toilet paper holder, and with the chronology of the development of the toilet presented on an opening toilet seat.

At the Awards Ceremony held on April 4, 2007, Cindy Toth, Past-Chair of the WEAO Public Education Committee was pleased to present the WEAO award to Zachery and Neal. Congratulations to both.

Patty Quackenbush, P.Eng.
Earth Tech Canada Inc.
You think writing certification exams is difficult... try developing them.

Ontario’s drinking water and wastewater certification program is based on a model provided by the Association of Boards of Certification (ABC). ABC is an association whose membership consists of over 80 certifying authorities from across Canada and the United States, who certify over 150,000 water and wastewater operators.

Operator certification exams are a vital part of the certification program. They are used to confirm an operator’s knowledge in a broad range of topics, including operating processes and equipment, water chemistry, safety, and legislation. As part of its membership with the ABC, the Ontario Ministry of Environment (MOE) has access to the ABC’s question bank of approximately 6,000 water and wastewater operator certification exam questions.

The Ontario water and wastewater certification exams are made up of ABC questions as well as Ontario specific safety, regulatory, and process questions that represent the knowledge requirements of the province’s operators. All mathematical questions are converted to the metric system.

The certification questions and exams are revised every few years by a volunteer committee of operational experts from throughout the province. The peer committee reviews each question in the exam bank for readability, grammar, fairness, validity, and technical accuracy. New exam question are developed for topic areas where there is a shortage of questions.

The certification exams are then set to reflect the competencies identified in the ABC/Ontario Need-to-Know guides. These guides were created to help operators, trainers, and supervisors determine what topics appear on the certification exams. The guide breaks each exam into numerous topics and indicates the level of knowledge required for each topic.

The final step of the exam revision process is to send the new exams for an out-of-province external review for final validation. Once a new exam has been implemented, questions in one topic area are routinely replaced with other approved question in that topic area.

The MOE is currently in the final stages of implementing a revised Operator-in-Training (OIT) exam. The new OIT exam will be available to Ontario operators in spring 2007.

Later this year, the province will undertake the process of reviewing and revising the existing Wastewater Collection (WWC) examinations. The MOE is looking for volunteers to assist in this exam revision. Volunteers will preferably hold a WWC Class 3 or Class 4 licence and will have 10 or more years of experience, including operator-in-charge experience, in wastewater collection. Volunteers will be required to attend a two-day workshop in Toronto. If you are interested in volunteering, please contact Agnes MacKillop, Certification Officer, by email at agnes.mackillop@ontario.ca or by phone at 416-212-7455.

Written & Submitted by:
Agnes MacKillop, Certification Officer
Education & Outreach Branch
Ministry of the Environment
OPCEA TRADESHOW WORKS FOR OUR MEMBERS

The 2007 edition of the annual OPCEA Tradeshow, held in conjunction with the WEAO Annual Technical Symposium, was again the premier venue to market equipment and services to the Ontario municipal wastewater treatment market. The Technical Symposium attracted a good cross section of consultants, operators, municipalities and regulatory personnel from across the province, which assured OPCEA exhibitors of a quality audience.

The London Convention Centre offered abundant exhibit space and superior access for move-in and move-out. For the first time in recent memory, no member companies were refused based on space availability.

Once again, move-in and move-out went smoothly, as did all aspects of the show, thanks to the efforts of OPCEA Directors Wayne Harrison and Rob Anderson, who were responsible for organizing the exhibition.

2007 OPCEA GOLF TOURNAMENT ‘SOLD OUT’

The 2007 edition of the annual OPCEA Golf Tournament is upon us once again. The tournament, held at the Kleinburg Golf and Country Club, is again sold out. Apparently, the membership has concluded that last year’s deluge on the 13th hole was an aberration and we will return to our usual perfect weather this year.

The 2006 tournament attracted a capacity crowd of 252 golfers, with a shotgun start on 27 holes. The team scramble format makes the tournament fun for golfers of all skill levels.

Watch for a report on the 2007 tournament in the next issue of Influents.

OPCEA ANNUAL GENERAL MEETING – 2007

OPCEA held its Annual General Meeting at the Delta Meadowvale Hotel on February 13, 2007. Redir Obaji presided over his last meeting as President and passed the gavel to Mark Reeves, who takes the helm for 2007-08.

The new board of directors is as follows:

President – Mark Reeves,
Can-Am Instruments Ltd.
Vice President – Brian Allen,
Indachem Inc.
Past President – Redir Obaji, ABB Inc.
Treasurer – Heinz Held,
SEW Eurodrive Co. of Canada Ltd.
Directors:
- Brian Gage, Aqua Technical Sales Inc.
- Wayne Harrison, Siemens Water Technologies Canada Inc.
- Rob Anderson, H2Flow Equipment Inc.
- Greg Jackson, ACG Technology Ltd.
- Steve Davey, Environmental Science and Engineering Magazine
- Frank Farkas, SPD Sales Ltd.
Executive Administrator – Kelly Madden, OPCEA

TONY AND VANESSA TAKE THEIR SHOW ON THE ROAD

This year’s guest speakers were Vanessa Chau of York Region and Tony Petrucci of CH2M Hill. Their informative presentation explained the Region’s new approved suppliers list and its implications for OPCEA members. The presentation was of particular value to those member companies who were unable to attend the series of information sessions that were provided by the Region in recent months. For those who were unable to attend the AGM, information on the approved suppliers list is available on the York Region website http://www.york.ca/standards/

CALL FOR ARTICLES

Once again, OPCEA members are encouraged to submit articles of general interest to the readership of Influents. If you have an article dealing with the application of new technology in the wastewater field, we want to help you get it published in the pages of Influents. Send your article to opcea@opcea.com. The article will be reviewed by the WEAO Communications Committee for inclusion in a future issue.

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s a result of Canada’s constitutional division of powers, the federal and provincial governments have overlapping jurisdiction over the environment. Water pollution is one of those areas of shared jurisdiction. Until recently, provincial and federal law applied different legal tests to determine when water becomes impaired.

Tests for water impairment

In Ontario, the two primary statutes for prosecuting water pollution offences are the provincial Ontario Water Resources Act (OWRA) and the federal Fisheries Act.

The key pollution prohibition of the OWRA, section 30(1), makes it illegal to cause or permit the discharge “any material of any kind into or in any waters or on any shore or bank thereof or into or in any place that may impair the quality of the water…”

On the other hand, the primary pollution prohibition of the federal Fisheries Act, section 36(3), makes it illegal to deposit “a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water.”

The Fisheries Act defines “deleterious substance” to include substances that “if added to any water, would degrade or alter ... the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water…”

To put things in the simplest light, for a successful prosecution, the Crown needs to show that water is or may be “impaired” under the OWRA and “rendered deleterious” under the Fisheries Act. The meaning of these words has been much debated. Although the provincial and federal statutes target the same harmful activities, until recently, the two statutes had different enough wording to lead to a higher standard of
proof for the OWRA charges, making these charges easier to defend.

**Fletcher v. Kingston (City)**
The Ontario Court of Appeal underscored that the Fisheries Act charges are easier to prosecute and harder to defend in the 2004 decision of Fletcher v. Kingston (City). In this case, the City of Kingston and its Director of Environmental Services and Engineering faced multiple charges under s. 36(3) the Fisheries Act in respect of leachate high in ammonia emanating from a former landfill into the Cataraqui River.

Local residents, environmentalists and the MOE worked together to prosecute. Some of these charges were laid privately by a citizen, Janet Fletcher, others by the MOE.

During the 25-day trial, the City argued that the test for impairment under the OWRA should also apply to charges under the Fisheries Act.

The case of R. v. Inco Ltd. established the OWRA test to be applied to determine whether a discharge “may impair the quality” of the water. For substances that are not inherently toxic (such as ammonia), the Crown must prove that the discharge would impair the actual water to which it was discharged in order to secure a conviction under the OWRA. A defendant can consequently avoid conviction by showing that the receiving water would not have been impaired because of factors such as the rate and concentration of release and/or the characteristics of the receiving waters.

By comparison, the focus of the Fisheries Act is whether or not a substance is deleterious when added to any water, regardless of the actual effect on the receiving waters. This was a much lower evidentiary burden than under OWRA at the time. In the Kingston case, the discharge was lethal to laboratory-raised test fish in a pail of clean lab water. The defendants argued that the result might have been different if the test was conducted on fish from the area of the discharge, and using samples of the receiving water. However, the Court found that the lab test was enough for conviction.

This does not mean that considerations such as nature, quantity and concentration of the discharge are completely irrelevant for prosecutions under the Fisheries Act. Rather, the Court indicated that such considerations can be a possible form of proof that a substance is deleterious.

Applying the easier-to-prove Fisheries Act test, the Court upheld the trial court’s convictions against the City and its Director of Environmental Services and Engineering.

In this case, the private prosecution “bounty” provisions of the Fisheries Act applied. Where a person launches a private prosecution, as Ms. Fletcher did against the City of Kingston, the court can order that up to half of the fine is paid to that person. In this case, even though the Crown took over the prosecution, Ms. Fletcher received half of the fine revenue. There is no equivalent provision in the OWRA.

**Recent amendments to the OWRA**

After the Kingston decision, as part of the Bill 133 crackdown on spills, the Ontario government amended the OWRA’s “deemed impairment” provisions. As a result, OWRA charges are significantly harder to defend. The amendments “lower the bar” for proving impairment by deeming that water is impaired where material that is discharged:

- causes or may cause injury to or interference with any living organism that lives in or comes into contact with the water, or soil or sediment that is in contact with the water
- causes or may cause injury to or interference with any living organism as a result of it using or consuming the water, soil or sediment that is in contact with the water, or any organism that lives in or comes into contact with the water or soil or sediment that is in contact with the water
- causes injury to or interference with any living organism (in diluted or undiluted form), according to a generally accepted toxicity test
- may cause injury to or interference with any living organism in any water.

These deemed impairment provisions include “all water, including the water of any water, watercourse or other waters.”

There is now a great deal of overlap between an offence under the OWRA and one under the Fisheries Act. There are no reported cases on the new deemed impairment provisions so it remains to be seen how they will alter the Inco test for impairment, or whether the test for both statutes is now essentially the same.

**What you need to know**
The Kingston case illustrates that municipalities – and even municipal employees – can be liable to criminal prosecution for discharges into water. This, of course, includes treated wastewater effluent.

With the recent amendments to the OWRA, it is now easier to be convicted of impairing water quality under that statute. Conceivably, MOE officers or private citizens could see “interference” to fish from discharge samples sent to labs for testing, while the harder fish in natural receiving water conditions are not suffering. This could be the basis for a conviction.

Municipalities are advised to incorporate a strategic laboratory effluent sampling program to monitor and identify any potential problems before they come to the attention of the regulator, and a due diligence program to bring wastewater discharge into compliance. As part of a due diligence program, municipalities should ensure that they have a system for evaluating and responding to complaints from residents and environmental groups.

3. Para. 74.
4. Sections 1(3)-(5).

By Juli Abouchar and Raj Bharati of Willms & Shier Environmental Lawyers LLP.
PREPARING TO FILL “BIG SHOES”

Last November, I attended the Canadian Water and Wastewater Association (CWWA) Windows on Ottawa Conference for the first time. Even though I was an observer, I was allowed to sit in on all aspects of the meeting, including those of the Board, to get a flavour of what my new duties would soon be as WEAO’s CWWA Representative. I was impressed with the CWWA and its endless activities that further the interests of Canada’s public sector municipal water and wastewater services and their private sector suppliers and partners. On behalf of the Water Environment Association of Ontario (WEAO) Board of Directors and the CWWA, I would like to thank the Town of Oakville’s Cindy Toth for her service as WEAO’s CWWA Representative over the past three or so years. I have some big shoes to fill as incoming CWWA Representative.

Here are a few of the many activities CWWA was engaged in during the first quarter of 2007:

- The CWWA Board was actively engaged in addressing a number of policy issues such as forming a Canadian National Committee for International Water Association (IWA).
- Solicitations for support of the proposed Canadian Biosolids Partnership were sought in January from provincial Ministers who had not responded to the previous Call for Support. In late March, a proposal was sent to stakeholders in the Partnership to proceed with projects and to plan on meeting in June.
- CWWA held its successful 2nd National Wastewater Management Conference in Edmonton, February 26-27. This conference focused in on the emerging national framework for municipal wastewater effluents, the proposed model Sewer Use By-law in a pre-Conference Workshop February 25, and examined emerging issues, science and current US initiatives.
- On March 1, comments were submitted to Canadian Council of Ministers of the Environment (CCME) on the proposed MWWE Strategy, as prepared in consultation with the Wastewater and Stormwater Committee, and the model Sewer Use By-law, as prepared by the Sewer Use Task Group.
- An implementation plan for fats, oils and grease management was discussed and is being pursued by the FOG Working Group.
- Meetings of the HACCP Project Team continued to develop technical annexes for surface water, ground water, treatment and distribution and storage phases of drinking water supply production.
- Comments were provided to Health Canada on the proposals for two new water quality parameters.
- Proposals were sent to Environment Canada Minister in March on the benefits of banning the import and sale of toilets flushing at levels above 6 L and on the many environmental benefits that biosolids can provide if they are properly produced and if appropriate strategies are developed to encourage it.
- The CWWA was represented at a Workshop on Pharmaceuticals and Personal Care Products, March 6-7, and reiterated the concerns that these are largely non-treatable substances in effluent and, therefore, controls at the source and use points have to be considered by senior level governments.
- CWWA’s Board established governance positions on corrections to the CWWA By-Laws necessary for them to be registered, formed a Canadian National Committee of IWA with the Canadian Association on Water Quality, worked on National Operator Certification Programs, participated in the ECO Canada National Steering Committee on Operator Certification, and established a fee structure for 2007. The Board meets next on May 14-15 in Whitehorse, Yukon Territory. In addition to its normal business, the focus of the meeting will be to complete a comprehensive review of the policy ends of the association.
- Parliamentary Committee activities were monitored with respect to progress on a number of legislative amendments and Bills in process. Some of the more pertinent governmental activities that would interest WEAO members include the outcome of the Canadian Environmental Protection Act (CEPA) 1999 five-year review, C-250 Canadian Safe Drinking Water Act, and Bill C-315, an Act to provide for the harmonization of environmental standards throughout Canada.
• CWWA submitted a brief to the CEPA Parliamentary Committee concerning the need for a new intermediate classification of substances as being environmentally harmful (rather than toxic or destined for virtual elimination) to overcome the public perception difficulties of being identified with discharging ‘toxic’ substances such as ammonia. The brief also expressed concern for the paperwork burden created by the large number of requests for information and reporting being issued under the Act (e.g., the Environmental Emergency Regulations and the National Pollutant Release Inventory).

Bill C-250 is an Act to ensure safe drinking water throughout Canada (Canadian Safe Drinking Water Act). It would establish national Standards for safe drinking water qualities, provide for a National Committee to oversee provincial adherence to them, and enable the federal government to declare a provincial legislation to be equivalent. This Private Members Bill was reintroduced from the 2006 Session, and has received 1st Reading only. It is unlikely to proceed. CWWA is monitoring its status. In the event it should proceed to Committee, CWWA would submit a brief to the Committee.

Bill C-315 is an Act to provide for the harmonization of environmental standards throughout Canada. This Private Members Bill was introduced in May 2006, and has remained on the Order Paper ever since. It would require the Minister to consult with the provincial Ministers and to form a committee of experts that would advise on the means of creating greater harmony in environmental standards. CWWA does not expect this Bill to proceed since it would replicate what is already being done through CCME, but continues to monitor it.

• The Draft International Standards (DIS) of the proposed to the ISO TC 224 Standards have been accepted. These cover the management and assessment of water and wastewater services, and, in particular, the development of performance indicators for services to customers (WG 2), water supply services (WG 3), and wastewater services (WG 4). The next stage is the Final Draft International Standards (FDIS), expected to be released in June of 2007. The decision on the FDIS for member ISO countries is simply YES, or NO with comments. It is expected that the vote will be YES, and the Standards will be issued for potential national adoption.

Some dates to keep in mind:

Moving Forward – Wastewater Biosolids Sustainability – June 24-27, 2007 This combined event will consist of the 4th National Organic Residuals and Biosolids Management Conference, the 23rd Eastern Regional Symposium on Water Quality Research, and the 2007 IWA Specialty Biosolids Conference. CWWA will expect the members of its Biosolids Technical Committee to also meet in Moncton. It is hoped that some announcement of the Canadian Biosolids Partnership may be made.

13th Canadian National Drinking Water Conference and Policy Forum – October 1-4, 2008 The venue has been selected and the Program Technical Committee will be formed in mid-2007.

Window-on-Ottawa - November 2006 Watch for more information in the coming months.

In summary, this article is only a snapshot of the many activities on which the CWWA is currently working. I hope to learn more at my first official Board meeting this month in Whitehorse. I look forward to continuing to serve the WEAO Board as CWWA Representative over the next few years.

Rosanna DiLabio, P.Eng.
CWWA Representative
Praxair Canada Inc.

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Fax: 905-293-9774
E-mail: sales@spdsales.com
he AWWA Research Foundation and WERF sponsored the study *Succession Planning for a Vital Workforce in the Information Age* under the AWWA Research Foundation subject area ‘Efficient and Customer Response Organization.’

The researchers surveyed 410 of the largest water utilities in the WaterStats database and 160 utilities that are WERF subscribers. Four contract operators were included in this survey. The average employee age was 44. Approximately 22% of the employees are eligible to retire in the next five years and 35% in the next 10 years. Positions most likely to be impacted by retirement include plant operators, distribution/collection, field maintenance, administrative (non-management), line supervisors, meter readers, engineers and maintenance.

The surveyors make the following key observations:
- A large number of ‘Baby Boomers’ are retiring in the next 10 years.
- Many of these individuals have worked for their employers for over 24 years.
- Because of this long tenure, employees tend to rely on work patterns developed over many years of working together rather than written procedures.
- When these employees leave their employment, they will take important knowledge with them. Knowledge that is required everyday as well as knowledge required during a crisis.
- Some of these people are managers who will be difficult to replace because of the lack of succession planning.
- Their replacements require a different set of skills because of changes in regulations and technology.
- The individuals required to replace retiring staff are scarce and in high demand.

Although there is an ample supply of people looking for work, the concern is that there is an insufficient supply of workers with the right set of skills and experience. Utilities will have to compete to attract these individuals to their organizations.

Because the transition towards a more technical workplace is occurring at the same time as the exodus of the ‘Baby Boomers,’ the news is not all bad. Organizations can ‘right size’ their organizations without resorting to layoffs. New employees with the required skill set bring new ideas and fresh enthusiasm to their organizations. As well, utilities faced with these challenges have improved their internal training procedures and put in place knowledge retention strategies.

With change comes new challenges. Utilities will have work hard to become ‘the employer of choice.’ This will require a larger investment in training. It will also require a fundamental shift in the culture of many organizations to increase the diversity of their workforce. Utilities will have to work hard to attract talented employees from all sectors of society, including visible minorities and women.

The report outlines how each organization should assess its situation. An ‘at risk organization’ is one with:
- a higher than average age workforce;
- many long-tenured individuals in key positions;
- low training levels;
- reliance on paper-based documentation; and
- limited succession planning or lack of knowledge management.

To assist utilities in the development of action plans, this report addresses a number of issues including:
- Becoming an Employer of Choice
- Training
- Succession Planning
- Becoming a Right-sized Organization
- Knowledge Management
- Diversity

The report makes five recommendations:
- Utilities should develop and implement workforce plans as soon as possible.
- Utilities need to increase and upgrade training provided or required of their employees.
- Utilities need to find ways to become more attractive employers to female applicants. Some of the approaches include offering more flexible work schedules, sensitivity training and more active recruitment of female technical personnel.
- Utility managers need to make knowledge management an important part of their management arsenal. In this case, knowledge management means taking steps to find best practices and methods and disseminate throughout the organization.
- Training will become an area of vital concern as the workplace becomes more regulated or high tech.

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The objective of the Summit was to discuss whether an umbrella organization of associations could assist in coordinating and strengthening common initiatives in public and government affairs.

The participants overwhelmingly felt that a summit-type organization was needed. Such an organization could assist in discussions with provincial Ministries (e.g., MPIR, MOE, MTO, MMAH) and address the multiple challenges addressed by all groups. The organization could help its constituent associations receive information, share ideas and pool resources when preparing briefs on issues of common interest.

Attendees determined that the mission of the organization will be ‘Safe and Sustainable Infrastructure’. Further, the goals of the organization will be:

- to provide professional advice relating to infrastructure, and promote reasonable, workable legislation relating to that subject;
- to facilitate the sharing of information among member organizations and coordinate their approaches to common issues; and
- to be an authoritative and professional voice on infrastructure matters; government should count on it for sound advice.

It is intended that the organization maximize dialogue between groups and not become bureaucratic. Consequently, it will be an ad hoc, issue-based, umbrella organization. The organization will vet and prioritize issues using the resources of the membership, which range from technical specialists to municipal political representatives. The organization will convene task forces and also meet at least twice yearly. It is anticipated that other (non-founding) groups will be approached to participate as relevant issues arise.

The new organization will initially be managed by a Management Committee. One individual from each of the founding organizations will be part of the committee. There will be a rotating Chair, Vice Chair and Secretary. The following individuals were selected as initial officers of the organization:

- **Chair:** Paul Smeltzer
- **Vice-Chair:** Carl Bodimeade
- **Secretary:** Sheila Richardson

Initial tasks for the Management Committee included determining a name for the new organization and starting communication activities. The Management Committee proposed the name of the new organization to be the Ontario Coalition for Sustainable Infrastructure (OCSI) and prepared a submission to the Board of each of the participating organizations requesting their formal approval for the creation of OCSI. The formation of OCSI has been endorsed by the Boards of all six organizations.

The inaugural meeting of OCSI took place on March 20, 2007, and was attended by representatives of the six organizations. During the meeting, issues on which OCSI should focus were reviewed. A communications strategy to promote the formation and role of OCSI was also discussed.
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<td><strong>June 12</strong></td>
<td>Residuals &amp; Biosolids Committee, WEAO Office, Milton, 9:30 a.m.</td>
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<td><strong>June 20</strong></td>
<td>Septage Seminar, Ramada Inn, Milton</td>
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<td><strong>June 20</strong></td>
<td>Board Meeting, R.V. Anderson Offices, 9:30 a.m.</td>
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<td><strong>June 24</strong></td>
<td>ITT &amp; Water For People Golf Classic, Lionhead Golf &amp; Country Club, Brampton</td>
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<td><strong>June 28</strong></td>
<td>Water For People Canada Committee, U of T, Galbraith Bldg., Room 117, 6:00 p.m.</td>
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<td><strong>JULY</strong></td>
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<td><strong>July 12</strong></td>
<td>Communications Committee Meeting, Town of Oakville’s office Trafalgar Rd., Oakville, 10:00 a.m.</td>
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<td><strong>July 17</strong></td>
<td>Board Meeting, R.V. Anderson Offices, Toronto, 9:30 a.m.</td>
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<td><strong>July 26</strong></td>
<td>Water For People Canada Committee, Conference Call, 6:00 p.m.</td>
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<td><strong>AUGUST</strong></td>
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<td><strong>Aug 3</strong></td>
<td>Submission Deadline for INFLUENTS</td>
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<td><strong>Aug 23</strong></td>
<td>Water For People Canada Committee, Conference Call, 6:00 p.m.</td>
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<td><strong>SEPTEMBER</strong></td>
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<td><strong>Sept. 7</strong></td>
<td>INFLUENTS Release Date</td>
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<td><strong>Sept. 11</strong></td>
<td>Residuals &amp; Biosolids Committee, WEAO Office, Milton, 9:30 a.m.</td>
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<td><strong>Sept. 14</strong></td>
<td>Public Education Committee, WEAO Office, Milton, 10:00 a.m.</td>
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<td><strong>Sept. 18</strong></td>
<td>Board Meeting, R.V. Anderson Offices, Toronto, 9:30 a.m.</td>
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<td><strong>Sept. 19</strong></td>
<td>Stormwater Seminar, Ramada Inn, Milton</td>
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<td><strong>Sept. 20</strong></td>
<td>WEAO Annual Golf Tournament, Shawneeki Golf Club, Noon</td>
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<td><strong>Sept. 25</strong></td>
<td>PWO Southeast Region Conference, Legion Hall, Kingston, ON, 8:00 a.m.</td>
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<td><strong>Sept. 27</strong></td>
<td>Water For People Canada Committee, U of T, Galbraith Bldg., Room 117, 6:00 p.m.</td>
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<td><strong>OCTOBER</strong></td>
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<td><strong>Oct. 1-2</strong></td>
<td>Residuals &amp; Biosolids 2-day Conference, CCIW Facility, Burlington</td>
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<td><strong>Oct. 10-11</strong></td>
<td>PWO Northern Ontario Conference, Sudbury, 8:00 a.m.</td>
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<td><strong>Oct. 10</strong></td>
<td>Problem Solving Workshop, Sudbury, 8:00 a.m.</td>
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<td><strong>Oct. 13</strong></td>
<td>GREAT CANADIAN ICEBREAKER, SAN DIEGO, 7:00 p.m.</td>
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<td><strong>Oct. 13-17</strong></td>
<td>WEFTEC 07®, San Diego Convention Center, San Diego, California</td>
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<td><strong>Oct. 19</strong></td>
<td>Public Education Committee, WEAO Office, Milton, 10:00 a.m.</td>
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<td><strong>Oct. 23</strong></td>
<td>Board Meeting, R.V. Anderson Offices, Toronto, 9:30 a.m.</td>
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<td><strong>Oct. 25</strong></td>
<td>Water For People Canada Committee, Conference Call, 6:00 p.m.</td>
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<td><strong>NOVEMBER</strong></td>
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<td><strong>Nov. 2</strong></td>
<td>Submission Deadline for INFLUENTS</td>
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<td><strong>Nov. 7</strong></td>
<td>PWO Southeast Region Conference, Chatham, 8:00 a.m.</td>
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<td><strong>Nov. 20</strong></td>
<td>Board Meeting, R.V. Anderson Offices, Toronto, 9:30 a.m.</td>
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<td><strong>Dec. 22</strong></td>
<td>Water For People Canada Committee, U of T, Galbraith Bldg., Room 117, 6:00 p.m.</td>
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<td><strong>DECEMBER</strong></td>
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<td><strong>Dec. 7</strong></td>
<td>INFLUENTS Release Date</td>
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<td><strong>Dec. 11</strong></td>
<td>Board Meeting, TBA</td>
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<td><strong>Dec. 14</strong></td>
<td>Public Education Committee Followed by Christmas Luncheon, WEAO Office, Milton, 10:00 a.m.</td>
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<td><strong>Dec. 20</strong></td>
<td>Water For People Canada Committee, TBA, 6:00 p.m.</td>
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