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WINFLUENTS

OFFICIAL PUBLICATION OF THE
WATER ENVIRONMENT ASSOCIATION OF ONTARIO

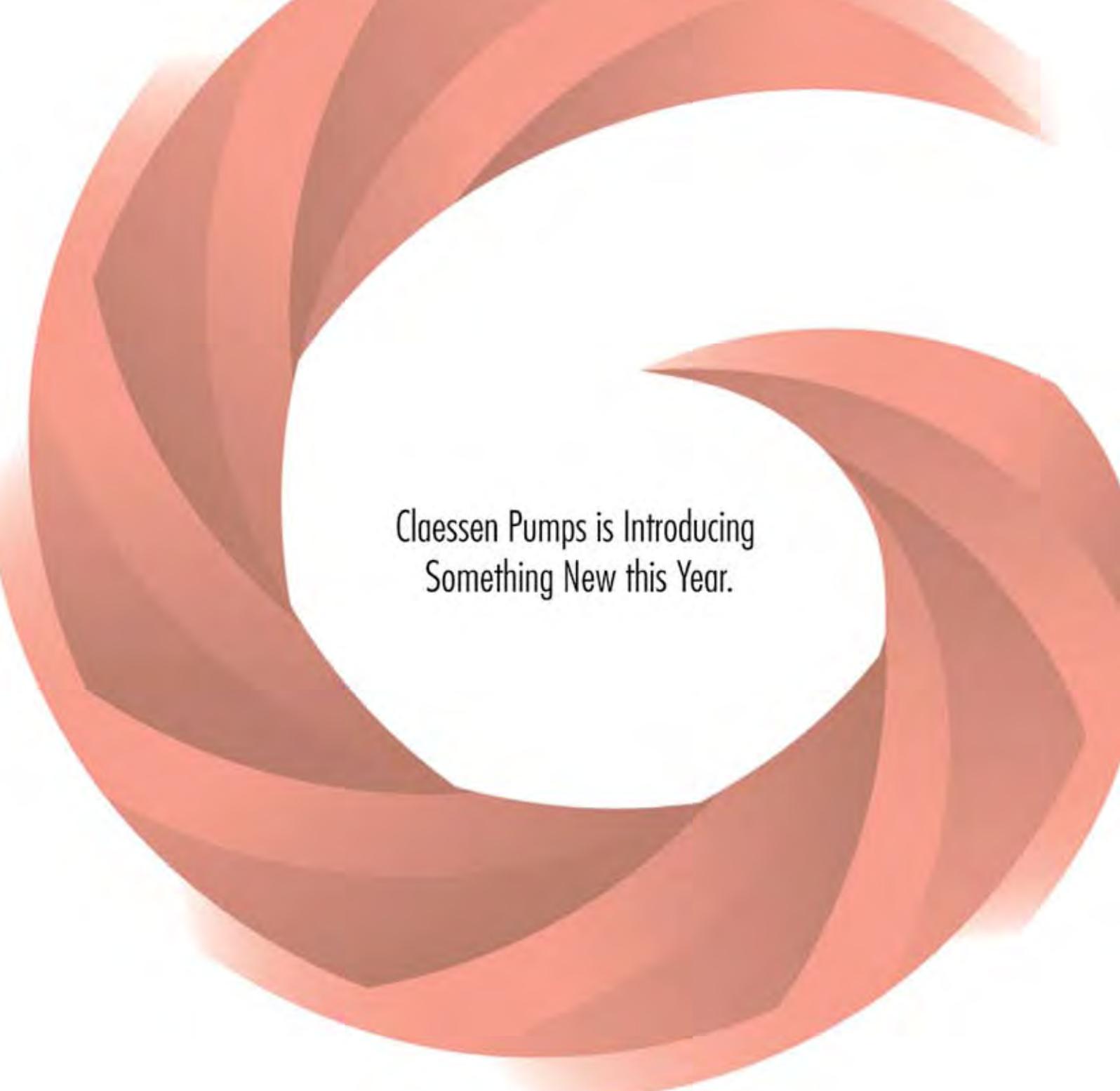
Focus on CLASS EA



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WEF INITIATES REGIONAL LIAISON PROGRAM TO FOSTER THE DEVELOPMENT OF FUTURE LEADERS



George Lai

I hope everyone has had an enjoyable and refreshing summer vacation. This summer, we experienced record-breaking rainfalls that may have caused some inconveniences, but are ecologically essential and good for the environment.

This year, the WEAO Board of Directors took a recess in July and reconvened its meetings in September. It has been fairly quiet this summer, except for the New Professionals Committee and the Member Services Committee. Actions and activities have accelerated since Labour Day.

WEAO New Professionals Committee and student chapters

As the number of university and college student chapters increases, the New Professionals Committee diligently planned and organized the first WEAO Student Chapter Leadership Forum, held at Ryerson University in Toronto on August 23, 2008. In attendance were over 30 student leaders from nine university and college student chapters.

The leadership forum provided an opportunity for the attendees to meet with student leaders from other chapters and members of WEAO, to exchange ideas and to receive important information and tools that can help to run a better student chapter.

I would like to thank Bill White of CH2M Hill Canada Ltd. and the rest of the committee members for their leadership, insight and hard work to organize and conduct

the Forum as part of a succession planning process. Also, I would like to thank Dr. Manuel A. Cuenca, Ryerson University Student Chapter advisor and other Ryerson faculty members for their great support and hospitality for the Forum. The event provided tremendous encouragement to student members who are pursuing their careers in the field of the water environment.

The Student Leadership Forum is part of an initiative under the Regional Liaison Program to assist in the formation of Water Environment Federation (WEF) member association student chapters and young professionals committees, with special attention given to the development of groups at colleges and universities. The WEF Young Professionals Regional Liaison Program promotes and encourages the WEF Students and Young Professionals Committee (SYPC) and member associations to have fully-functioning student chapters and young professionals committees which may disseminate knowledge and construct a network to aid with the aforementioned formation.

The WEF SYPC is designed to stimulate the involvement of students and young professionals in WEF. Thereby, WEF may foster the development of future leaders. The experience and leadership organized into the WEF SYPC can serve to aid in the further development of WEF SYPC, student chapters, and the attraction, development, and retention of young professionals.

Under the Regional Liaison Program, the North American section is divided into 10 regional areas based on geographical size and WEF membership. All five Canadian member associations, including WEAO, are designated as Region 10. Each region is represented by at least one member of the SYPC. Geographically, Canada is a big country, and it is not an easy task to accomplish this initiative for all the Canadian member associations in Region 10. However, WEAO has taken on this challenge. Vanessa Chau of the Regional Municipality of York has graciously agreed to serve as the liaison person to connect the student chapters and young professionals groups with the leadership of Canadian member associations as well as WEF resources needed to accomplish these goals. The Canadian Affairs Council (CAC), representing the five Canadian member associations, met at WEFMAX in Anchorage, Alaska in May of this year and agreed that WEAO will take on this role for the next two years. I would like to thank Vanessa for taking on such a liaison role and will share much of her experience in the development of young professionals and student chapters.

WEAO 2008 Scholarship Program

The WEAO Scholarship Program is now in its second year and is actively seeking applications. There are four scholarships this year, open to any student registered in a university or college in Ontario and a member of WEF/WEAO. There will be one award

of \$2,000 and three awards of \$1,000 each. The winners will be announced in early 2009.

WEAO Sponsorship Program

Finally, the WEAO Sponsorship Program has reached its implementation stage and is being rolled out in the fall of this year. I would like to thank John Duong of the Regional Municipality of Halton and the sub-committee for their hard work in developing the program. All events conducted by the WEAO will be offered for sponsorship to suppliers and consultant organizations. There are different levels of sponsorship opportunity, depending on the audience to be reached. All activities at the annual conference are also offered for sponsorship. The overall objective is to offer a package to sponsors, which gives companies an integrated marketing and promotional opportunity that positions their organization to the widest audience for their products or services. They are only required to contribute once

in a calendar year at the level or levels they choose. This allows companies to budget for this activity on an annual basis. When fully implemented, this will bring WEAO in line with other groups who raise funds in this manner both in Canada and the US.

Member Expectations Survey 2008

The Member Services Committee has been working diligently this summer to plan and develop questions for a comprehensive WEAO Member Expectations Survey in the fall. Early in the summer, all the committees were asked to provide their valuable comments, suggestions, ideas and questions to help formulate the survey. The goal of the survey is to address these three key objectives:

- 1) To evaluate the importance of various services offered by WEAO.
- 2) To obtain a measure of our performance on providing these services.
- 3) To obtain an interest level in new service(s).

The results of the survey will be compiled and used at the Strategic Planning Session later in the fall to chart the directions of the Association for the next few years.

2009 Symposium and Exhibition

The 38th Annual WEAO Technical Symposium and Exhibition will be held at the Westin Harbour Castle Hotel in Toronto, April 5-7, 2009. The planning for the 38th Annual Conference is in full swing under the direction of Conference Chair Darla Campbell of Amonavi Consulting Group Inc. Darla has been heavily involved with the Conference planning in the last few years and has held a number of important positions on the Conference Committee. I am confident that, with her dedication and experience, and the full support of the committee, she will lead a very successful Conference. ♦

George Lai
WEAO President



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Catherine Jefferson

THE CLASS ENVIRONMENTAL ASSESSMENT PROCESS

It is difficult to believe that summer is already over. It has been a very wet year – one which planners, engineers, and environmental consultants may have to consider as the beginning of extreme weather changes. This in turn will influence how one approaches storm water projects, locating of intakes and outfalls, plant treatment processes, hydraulic capacity, new policy and legislation governing water and wastewater projects, and source water protection.

One of the tools that has been available to aid in addressing potential environmental impacts (positive or negative) has been the Environmental Assessment Act (EA) at the provincial level, and the Canadian Environmental Assessment Act (CEAA) at the federal level. To reduce potential duplication and delays in assessing environmental impacts of major project types provinces and the federal government have been working through the Canadian Council of the Ministers of the Environment (CCME) to try and harmonize the processes where federal interests are involved. The major guidance tool used in Ontario has been the Municipal Class Environmental Assessment (MCEA) for municipal infrastructure projects including roads, water and wastewater. This tool provides guidance to ensuring the proponent and their consultants can undertake their assessment in a timely and efficient manner.

The Municipal Engineers Association (MEA) has acted on behalf of municipalities to develop the Class EA guidance and continues to update it as policy, legislation, technologies and environmental issues evolve. This issue of *INFLUENTS* focuses on the Class Environmental Assessment Process and I know you will find it extremely informative.

As summer fades and the fall blazes into colour, we at WEAO continue to be extremely busy hosting technical seminars, participating with other associations on Committees (e.g. OWWA/WEAO joint Climate Change Committee), Coalitions (e.g. OCSI), and joint undertakings (e.g. WEAO/OWWA joint seminar on Asset Management). John Thompson (Director), Mark Rupke (Vice-President), and I met with several staff of the Ministry of the Environment as the start of our ongoing dialogue on issues relevant to WEAO members and the Ministry. This meeting has also started the planning for a Forum to be held in late 2008/early 2009 with staff of a variety of ministries. This will hopefully become an annual event, somewhat akin to the CWWA's Window on Ottawa. The intent is to bring the various ministries with a wastewater connection (e.g. infrastructure, training, technology development, research, science, etc.) to the table to discuss common issues, and how WEAO as an association, may provide valuable expertise to planning the future of wastewater management in Ontario.

WEAO will be expanding its presence at relevant conferences and symposia by having a booth, enhancing educational materials available to us, and generally being in the face of other associations and organizations. The Children's Water Festivals are also being targeted this year by our Public Education Committee. As usual the New Professionals have been extremely active in hosting events for those members new to the Association, and encouraging students to take an interest in the wastewater sector as a career choice. This group is also trying to encourage the mentoring process through holding 'meet and greet' sessions with new and seasoned professionals. I encourage you to watch our 'Calendar of Events' for upcoming events. We are expanding this 'Calendar' to be more inclusive to give WEAO members a one-stop window for what is going on in Ontario and other places.

The new Sponsorship Program will be introduced over the next few weeks, as will a new pamphlet touting the benefits of being a WEAO member. The Residuals and Biosolids Committee is feverishly preparing for the 2009 Conference being held in Niagara Falls as well as the annual Biosolids Utilization Committee (BUC) seminar in December. Stay tuned for other great activities being planned to enhance networking and transfer knowledge and information.

Enjoy the rest of this issue of *INFLUENTS*! ♦

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JANET AMOS: AHEAD OF HER TIME

If Janet Amos could identify one theme in her career, it would be the integration of land use planning and class environmental assessments (Class EAs). Today, as an independent consultant, she helps municipalities and developers wade through the complexities of the Class EA process. “Often, my work involves helping proponents with challenges they encounter along the way,” says Amos. “Sometimes, they are not sure what options to examine or what would be the most effective approach.”

Her main focus is on the *process* of the environmental assessment. Amos has been involved mainly with the Municipal Class EA for roads, waste, transit and electricity projects. However, she also deals in individual environmental assessments and Canadian *Environmental Assessment Act* matters. She can troubleshoot the EA process and ensure that the final product is clear and meets the letter of the law in every way.

Amos was introduced to impact assessment while she was still an undergraduate at Queen’s University. In 1978, two years after the *Environmental Assessment Act* was passed, the history and sociology student found herself in a summer job writing a guideline for environmental assessments. “I lucked into this project when the *EA Act* was still brand new,” says Amos. She recalls saying to herself “this is really neat stuff – what an innovative way to use my sociology background.” In 1979, she prepared a bibliography of environmental assessments as her summer job at Queen’s. Upon graduation, she then went on to do her Masters of Arts in Regional Planning and Resource Development at the University of Waterloo.

While completing her Masters, Amos was hired as a planner by the Environment Assessment Branch of Ontario’s Ministry of the Environment (MOE), just as the

ministry was developing its municipal program in compliance with the *Environmental Assessment Act*. By 1981, the province’s approximately 800 municipalities were familiarizing themselves with the environmental assessment process and its impact on water, sewer and road projects.

At the same time, the 1980s saw the Municipal Engineers Association beginning to develop a standardized ‘Class EA’ planning process for roads, water and wastewater projects on behalf of Ontario’s municipalities. As a result, prior to constructing a new sewage treatment plant, a municipality follows such standard steps as identifying the problem, looking for alternatives, assessing the environmental impact of each alternative and consulting with the public and the appropriate agencies. For most projects, this is the end of the study process. However, if there are objections once the study is published by the municipality, the MOE can add conditions to the study or, in rare cases, can elevate a project to an individual environmental assessment, in which case the municipality would have to redo some or all of the impact assessment study.

In 1983, Amos began working for the Ministry of Municipal Affairs. Amos practiced land use planning during her seven years with the Ministry of Municipal Affairs, with the personal goal of gaining better insights into the municipal land use planning process and how that process related to water and wastewater projects.

At the Ministry of Municipal Affairs and later, working for Proctor & Redfern Engineering Limited, Amos gained invaluable insight into the planning and engineering aspects of environmental assessment. “In those days, the planners did the planning and the engineers did the Class EA,” explains Amos. “Planners and engineers were not talking, and they needed to. Most often, growth and development was effectively driving



water and wastewater projects; so it all tied back to planning. I wanted to be a bridge between those two worlds.”

In 1993, Amos joined Halton Region in a newly-created role as Environmental Approvals Coordinator, reporting to both the Planning and Public Works Commissioners. It was during her nine years with Halton Region that she became involved behind the scenes, volunteering to represent the Region on the committee charged with updating the Class EA in 1993 and again in 2000.

In the 2000 update of the Class EA, the Municipal Engineers Association introduced the integrated approach. For the first time, the Class EA formally allowed integration between the planning for infrastructure projects and land use planning. To meet the requirements of the *Environmental Assessment Act*, these processes could now be done concurrently rather than one after the other. “Integration reduces duplication of process and consultation,” says Amos. “It can save proponents time and money.”

Amos still sees her participation in creating the integrated process as one of the highlights of her career.

“Working for Halton was a fantastic opportunity,” she says, noting that, in her position, she was able to put integration into practice by working for both the planning and public works departments. “I had always envisioned working for myself one day and the opportunities became apparent as my work on the volunteer committee prompted municipalities to call me with problems related to Class EA.”

Then, in 1997, Amos was invited to speak at the WEAO Annual Conference about Master Planning and Class EA. Her presentation outlined a Halton Region case study of an approach which addressed a broad range of wastewater projects rather than just one stand-alone activity. Amos formally joined the WEAO when she struck out on her own to establish a private practice in environmental assessment in 2001.

Since then, she has been very busy. “Because the environmental assessment program is led by the municipality or developer who requires the infrastructure,” says Amos, “understanding the details of the Class EA really falls on the proponent.” Proponents consult with the MOE on technical aspects of projects such as effluent quality, outfall length and appropriate siting requirements, but there is little guidance with regard to the planning process. Amos discovered that, when municipalities or developers encountered questions during the Class EA process, the MOE staff referred them back to the approved documentation, with little interpretation or additional support.

The Class EA process can be challenging, especially for a municipality which may not be a frequent user. As a Class EA expert, Amos works with proponents and their consultants on such aspects as selecting the most appropriate Class EA schedule and planning process, determining land use and community impacts, facilitating public and agency consultation, creating notices, and ensuring all requirements of the process have been met.

But, despite a growing demand for combined planning and environmental expertise, Amos is only one of a handful of independent

EA consultants in Ontario. “While the larger engineering firms have the expertise in-house, we have very few independent consultants who are experts in both areas,” she laments. The slow adoption of the integrated approach by municipalities has been a disappointment. Amos attributes this mainly to the separation of planners and engineers in municipal departments.

Meanwhile, attending WEAO conferences provides Amos with the

opportunity to meet and network with her colleagues and to learn about the technical aspects of water and wastewater projects. She says: “I really enjoy the opportunity to learn about new pilot projects, new research and new alternatives that I can share with the municipalities I encounter.” To Amos, the field of environmental assessments continues to be as interesting and exciting as when she first stumbled across it more than 30 years ago. ♦

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NEW PROFESSIONALS TOUR COURTICE WPCP



ourtice Water Pollution Control Plant (WPCP) was host to the latest New Professionals (NP) Committee facility tour

held on the morning of Saturday, August 16. Courtice WPCP is located in the Municipality of Clarington on Lake Ontario and has a design capacity of 68 ML/day (15 MIGD). This new \$98 million facility was designed by Simcoe Engineering (now Hatch Mott MacDonald), MacViro (now Genivar), and CH2M HILL. Kenaidan was the general contractor, and the three-year

construction included excavation and redistribution of 542,000 m³ of soil and placement of 35,000 m³ of concrete. The facility handles sewage from Oshawa, currently operates at 60% capacity, and is eventually slated to handle sewage from Clarington and North Whitby. Courtice is fully-staffed eight hours a day, five days a week, and requires only one operator on weekends. Apart from the plant manager, one can expect to see two operators-in-training (OIT), two maintenance operators, and a process operator during the week.

Because there was so much to see, the tour focused on the liquid train. Courtice WPCP is a conventional activated sludge

plant. Primary treatment includes aerated grit removal and front-rake climber screens, followed by rectangular chain and flight primary clarifiers. The three-pass bioreactor utilizes fine bubble aeration with an anoxic selector. The anoxic zone takes up about 10% of the overall reactor volume and is designed to remove the majority of nitrate from the return activated sludge (RAS) and improve sludge characteristics. Phosphorus removal is achieved by dosing ferrous chloride in the bioreactor after the second pass. Secondary clarification is also a rectangular chain and flight design. Chlorination with sodium hypochlorite and dechlorination with sodium bisulfite are used for disinfection. Other points of interest included on this tour were the septage drop-off location, chemical room, blowers, pumps and electrical system.

This facility was a success on many fronts: engineering and construction were within 10% of the projected budget and schedule, operations personnel are happy with the design, and stakeholders are satisfied with the outcome. Most importantly, since start-up, Courtice WPCP has met and continues to meet all compliance demands. The anticipated needs for the long-term future can be easily accommodated on-site, due to an efficient utilization of space.

Special thanks go to Mike Elliott and Steve Robson of CH2M HILL who conducted the tour in its entirety, answering many questions with their great knowledge and expertise, and conveying all information in a clear and concise manner. Thanks also go out to the 23 NPs who showed up on what was a beautiful day for a plant tour. ♦

*By Dale Jackson, ACG Technology Ltd.
NP Seminars & Plant Tour Coordinator*



Mike Elliott, CH2M HILL, speaks to the New Professionals about the treatment processes at Courtice WPCP



Mike Elliott and New Professionals outside the headworks building at Courtice WPCP



Mike Elliott explains the scum collection system on the primary clarifiers at Courtice WPCP



The New Professionals look at the aeration blowers and piping at Courtice WPCP

SUCCESSFUL TECHNICAL SEMINAR AT SHERIDAN COLLEGE



With the school year winding down, the Sheridan College Student Chapter of WEAO,

comprised of students enrolled in the Environmental Control Program, decided to hold a technical seminar event on July 24, 2008. The seminar was held in conjunction with the regular monthly meeting to promote the awareness of current technologies and issues within the water environment industry.

The day began with Troy Briggs of UMA Engineering Ltd. presenting an overview on the basics of the biological and mechanical wastewater treatment process. This ranged from an up-to-date summary of the current available technologies and wastewater treatment plant operating procedures, to basic design considerations for wastewater systems. Troy's extensive knowledge encouraged active participation.

While we enjoyed a freshly-brewed cup of coffee, along with sandwiches and snacks, our second speaker of the day, Troy Leyburne of the Region of Peel, summarized some of his work experiences, shared information on what fuels growth in the municipal engineering sector, and discussed career paths for New Professionals.

The next speaker was Alex Sandovski, of IPEX Inc., who specializes in municipal sales for PVC water main and sewer piping systems. Alex stressed that piping installed 100 years ago is now breaking down and needs to be replaced. He also mentioned that the industry is now seeing a high turnover of people due to retirement and that there will be a need for new personnel.

A presentation by Dan Hamilton, PhD candidate at the University of Waterloo followed. Dan gave the final presentation of the day on his doctoral thesis, which was very interesting and initiated many compelling questions. Dan's research indicated that current methods of determining dissolved oxygen may be inaccurate due to

typical BOD bottles preventing UV light from entering the cell. Studies on lakes in Ontario suggest that lakes may not be predominant carbon sinks as currently thought, in turn exacerbating climate warming effects caused by excess carbon dioxide.

In general, everyone who attended seemed to benefit from the event and had the opportunity to mingle, enjoy great food, and, most importantly, listen to informative presentations.

It has been very rewarding to be President of the Sheridan College Student Chapter of WEAO for the 2007-2008 chapter year. I would like to thank all those who helped organize the monthly meetings and the technical seminar event, and acknowledge all the

speakers and attendees who made the event a success.

As the Environmental Control Program at Sheridan College is an eight-month program, my role as student chapter President has now come to an end. However, since the short duration of the Environmental Control Program provides unique challenges for the succession planning of the WEAO Student Chapter, the Student Chapter Executive Committee will visit the campus at the outset of the new school year in January and assist the new student leaders to implement another successful year of the Student Chapter Program. ♦

By Radostina Vassileva, Sheridan 2007-08 WEAO Student Chapter President



Troy Briggs from AECOM presentation on biological treatment



Students from Sheridan College at the technical seminar



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STUDENT CHAPTER LEADERSHIP FORUM

WEAO STUDENT CHAPTER LEADERSHIP FORUM: A STUDENT'S PERSPECTIVE

To run a good program – a program of value and interest to students that builds leaders for the future – is the key goal of the Student Chapter Program run by the Water Environment Association of Ontario (WEAO). This was the focus of the first annual WEAO Student Chapter Leadership Forum that occurred on Saturday, August 23, 2008. The day-long event was held at Ryerson University in downtown Toronto. The very first of its kind, not only in Ontario, but for all of WEF, this Leadership Forum served as a platform to meet, interact, and share ideas and perspectives among the leaders of existing and forming student chapters. Executive Committee members from nine universities and colleges were present to make the most out of this wonderful opportunity.

After a welcome note from the organizers and an introduction to members of the New Professionals (NP) Committee, the event started off with an ice-breaker session. This fun session got rid of the initial awkwardness and opened up everyone for the discussion sessions.

Jeremy Kraemer, current NP Chair and past-president of the University of Toronto Student Chapter, shared his invaluable experiences gained running the chapter for two consecutive years. His inspiring speech provided a lot of information on overcoming the initial hurdles faced while opening a new chapter and organizing different events like plant tours, seminars, meetings, conferences, and social events to carry the chapter forward. The fruitful discussion sessions were especially

stimulating for the student executive members; relatively new student chapters like the University of Windsor learned how executives from older chapters administer their programs.

As an executive of a newly-formed chapter, I found the information on how to access WEAO and WEF resources, the role of the executive members, promoting a new chapter, student chapter budget and financial guidelines very helpful. Personally, I also liked the idea of presenting an annual report from each of the chapters. This practice will ensure the accountability of the executive members in the organization. The event focused on effective programming and planning for chapter activities. The innovative programs planned by the University of Toronto (U of T), the University of Waterloo and Sheridan College were eye openers. U of T has been unusually successful at recruiting, while Waterloo has organized successful tours and Sheridan is launching an ambitious remediation program for a stormwater management pond on the College's Davis campus. However, the spotlight of this Leadership Forum was not only on existing chapters. A step-by-step approach to launch and run a new chapter was also presented, and was helpful for the student chapters which are newly-formed or are in the process of launching.

During a mixed-chapter workshop discussion session, numerous executive members realized that various chapters deal with similar issues, while administering their agendas. Many of us felt that having an interactive platform, where ideas and views can be shared,

would be beneficial. A new 'WEAO Student Chapters' group has been started on Facebook to meet this need. It is expected that this Facebook forum will serve as the desired platform for discussion and sharing of ideas between executives across the province.

Other than this, as members of WEAO, students also get WEAO's magazine *INFLUENTS*, as well as a dedicated section of the WEAO web site. These provide news and information on upcoming events, technical seminars and success stories at student chapters.

Apart from the administrative responsibilities of a student chapter member, we also discussed the benefits of WEAO student membership. A special perk of being a student member is the scholarship program. The WEAO and WEF Canham scholarships were also highlighted. The student design competition is also an exciting learning opportunity for students to work on a team on a realistic wastewater design problem which has gained new support in Ontario. The winning team qualifies as Ontario's entry for the WEFTEC.09 design competition, and is sponsored by WEAO. All the WEF official student members enjoy free registration for WEFTEC 2008 and WEAO 2009 Annual Conference. Students will get to network extensively at both these events.

At the end of the Leadership Forum, we were able to participate in a feedback session. The NP Committee wanted to learn how effective the Student Chapter Program is and how they can improve and cater to the needs of the executive members. In my opinion, this feedback process will enable the NP Committee and the student chapters to work hand in hand, acknowledging, confronting and resolving the challenges of running a student chapter. All in all, this was a successful event. This type of event should be organized again in future to continuously boost and guide the Student Chapter Program across Ontario.

*By Beeta Saha, President,
University of Windsor Student Chapter*



Student leaders from schools across Ontario participate in group discussions



STUDENT CHAPTER LEADERSHIP FORUM A SMASH SUCCESS

Water environment professionals and student leaders from across the province gather to exchange ideas and discover new resources for a cleaner water environment.

With seven active chapters, and four more in formation, most WEF Member Associations would envy WEAO's Student Chapter Program. Maintaining the vigour of this program, however, brings its own special challenges. To reinforce this exchange and build strong links between schools, 37 leaders from across Ontario met on August 23 at Ryerson University in Toronto for the 2008 WEAO Student Chapter Leadership Forum, organized by the New Professionals (NP) Committee.

With such a vibrant and growing student chapter program, the WEF Students and Young Professionals Committee (SYPC) saw an opportunity to try out the idea of a "student chapter training day" - a conference to help student chapter leaders run better programs for their membership. Vanessa Chau, Canadian SYPC Liaison, encouraged the NPs to accept the challenge, and the Student Chapter Leadership Forum was born.

For the four chapters in development, the Forum offered seminars on forming a new chapter, resources available from WEAO and WEF, and how to tap into other resources at their respective schools. For the established chapters, there were seminars on program development, scholarships, and finance. For the organizing team, including Vanessa Chau, Annie Chan, Charlie Chen, Jeremy Kraemer, Erin Longworth, Edgardo Tovilla, and Bill White, the most important goal of the day was to get the students talking, both to share ideas with each other, and to provide feedback regarding special supports they required to run better programs. The Forum included two workshop sessions on programming, and also several mixer events.

The greatest success of the Forum was the broad representation of the WEAO student membership. The students who attended are enrolled in both undergraduate and graduate programs at universities or community colleges from Windsor to Ottawa, and from a variety of engineering and environmental programs. Despite the long distances traveled, student feedback for the Forum was universally positive that the event was worth attending.

WEAO is now organizing the student feedback from the Forum. A follow-on forum is planned for next year, and feed-

back to WEF and WEAO is being prepared to capitalize on the lessons learned.

The WEAO Student Chapter Leadership Forum was an exciting first not only for WEAO, but for WEF as a whole, and the WEF SYPC plans to use the Forum as a successful model for similar programs in other member associations across the organization.

Thank you to the organizing team, and also special thanks to Julie Vincent, the

WEAO NP and Member Services Committees, the WEAO Board led by George Lai, the Ryerson University Student Chapter, and the Ryerson University Department of Chemical Engineering. ♦

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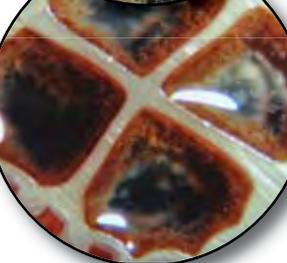
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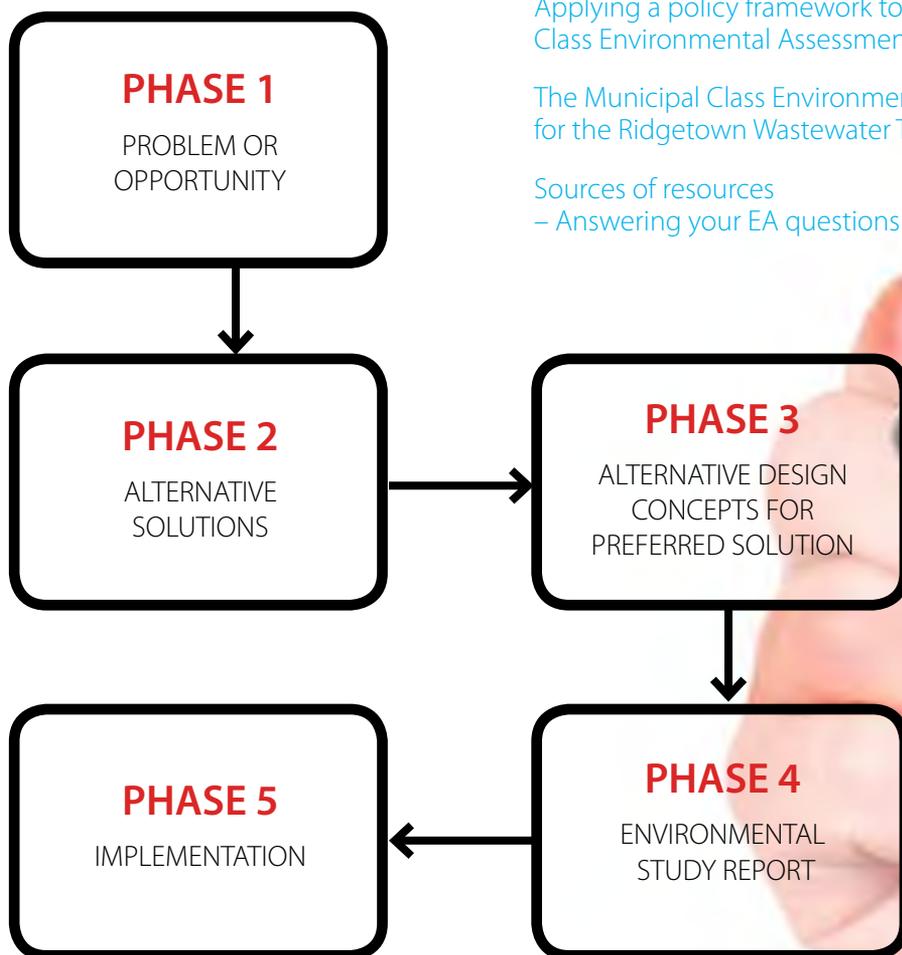


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The Municipal Engineers Association (MEA) and The Municipal Class Environmental Assessment Process

The Municipal Engineers Association of Ontario was born from a 1971 merger of the previous City Engineers Association and the County Engineers Association, which dated back to the 1940s. Through these organizations, municipal engineering leaders have a record of interacting with the Province of Ontario to represent the engineering concerns of municipalities. The earliest liaison committee was formed in the '50s with the Ontario Department of Highways (DHO) at that time before the Ministry of Transportation in Ontario (MTO). Furthermore, in 1962, there was a liaison committee created to discuss water and sewage matters with the Ontario Water Resources Commission (OWRC). This was the precursor to the later liaison committee when the Ministry of the Environment (MOE) was formed in 1971.

In 1974, the MTO were concerned about environmental effects of road projects and the MEA formed an Environmental Assessment Committee to liaise with the MTO on this matter. In 1975, the MOE enacted the Environmental Assessment (EA) Act. In that year, a committee of MEA members was formed to work with the MOE on the formulation of regulations under the EA Act.

When the EA Act first came into force in 1976, municipalities were initially exempt, but that exemption was scheduled to end in 1980. In January of 1979, the MEA Executive and members of its Environmental Assessment Committee met with MOE Minister, Harry Parrot, DDS, to impress on him the significant impact of the EA Regulations on municipalities. A flow chart for a typical municipal project over \$1million was shown to him, and the estimated costs and timing provided for compliance with the regulations. As a result of this meeting, the Minister agreed that some form of streamlining for compliance with the EA Act was needed. Therefore, in 1980, the Minister announced the approval of new environmental assessment measures that included the use of "Class" EA's as an alternative to individual EA's.

Consequently, the MEA formed the Municipal Class Environmental Assessment Task Force. Through the work of this Task Force, the MEA submit-

ted 2 Class Environmental Assessment Documents in 1982, one for Municipal Roads, and one for Sewage and Water Projects. Initially, the MOE were of the opinion that the MEA could not be the proponent of these Class EA's, but several municipalities passed resolutions and declared their support as proponents for the documents, and authorized the MEA to act on their behalf. As a result, in January of 1986, the MOE gave notice of acceptance of both Municipal Class Environmental Assessments (MCEA's). The MEA then formed a committee to implement the distribution, training, and application of these documents to satisfy the requirements of meeting the Environmental Assessment Act.

The original MCEAs were updated in 1993 and 1994. Then, in 1996, the MOE amended the Environmental Assessment Act and gave notice to the MEA that approval of the existing Municipal Class EA's would expire at the end of three years. Submission of an updated document would be required for a new approval. After some discussion, it was agreed that MOE would assist the MEA to have the Municipal Class EA's updated by a private consultant under the direction of a joint steering committee.

As a result, the previous two MCEA documents were re-written into a single Municipal Class EA with specialized provisions for roads, water, and wastewater projects. Approval for the revised Municipal Class EA was given in 2000, and the MEA has provided training courses in the use of the renewed document. In addition, the MOE has required the MEA to develop a monitoring program with annual reports on the use of the MCEA.

Since that time, the MEA have ongoing discussions with the MOE on the use of the MCEA. Amendments have been under development with some MOE assistance to include provisions for Transit projects. Otherwise Transit projects would be forced to undergo an individual EA process for all undertakings with a cost greater than \$3.5 million (Major Amendment Part 2 required following the provisions of a Schedule C MCEA consultation process and Ministerial approval). Progress was made, with

submission of this amendment in August 2007 and with approval of all recommendations in September 2007. This was a timely approval to complement the provincial government's 'Move Ontario' program with its Transit focus. Some ongoing process loose ends remain with the MOE's approach towards Transit EA's, but these will be worked out.

Of particular significance for WEAO members are the improvements in the 2007 MCEA with respect to Water and Wastewater projects. The improved 2007 MCEA has eliminated most of the earlier problems that resulted from the creation of 'double jeopardy' situations where EA requirements triggered a technical review of impacts that were then subject to the same review for C of A (Certificate of Approval) purposes. For the 2007 MCEA, the MEA was able to get reductions in the EA requirements in most cases for activities that were subject to C of A processes.

The maintaining of the Municipal Class Environment process is a significant priority for the MEA, and its Municipal Class Environment Committee is strongly supported in its ongoing discussions with the MOE, monitoring of use, and development of new updates. In addition, the MEA takes its obligation seriously regarding the distribution of the MCEA, development of the instructional training program, and provision of training courses on an annual basis for those implementing the MCEA.

To date in 2008, almost 600 people have been trained on the updated MCEA. In addition, over 1,000 copies of the revised 2007 document have been ordered through the MEA's 'print on demand' on-line order process. In addition, some 55 organizations maintain an on-line subscription to freely view and print excerpts from the document on-line. Further information on the 2007 MCEA can be obtained by contacting the MEA website at www.municipalengineers.on.ca and clicking on the red MCEA oval.

Prepared from the archives of the MEA by Dave Shantz, P.Eng. Executive Director Municipal Engineers Association



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Environmental Assessment of water and wastewater projects in ONTARIO

By Amber Saltarelli, Environmental Planner, B.A.



The Ontario *Environmental Assessment Act (EAA)*, passed in 1975, was the first legislated environmental assessment process in Canada. Over the last 33 years, the environmental assessment (EA) process has evolved to be more open and participative and more widely applied in the province of Ontario.

The purpose of the *EAA* (last amended in 2006) is to provide for the protection, conservation, and wise management of Ontario's environment. Ontario's *EAA* defines "environment" in broad terms to include natural, social, cultural, built and economic factors as follows:

- air, land or water;
- plant and animal life, including human life;
- the social, economic and cultural conditions that influence the life of humans, or a community;
- any building, structure, machine or other device or thing made by humans;
- any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities; or,
- any part or combination of the foregoing and the interrelationships between any two or more of them.

As such, the EA process provides a rational planning process, whereby proposed undertakings are assessed based on identifying potential negative and positive effects on the environment and developing appropriate avoidance/mitigation/compensation/enhancement measures to either eliminate or reduce adverse effects on the environment. An important part of this process is developing an appropriate set of criteria that takes into consideration each aspect of the environment and determines how potential effects are to be measured.

Class EA process

In Ontario, the EA process is used by municipalities to plan for municipal infrastructure projects and to deliver municipal infrastructure and servicing in an environmentally sustainable manner. To this end, the intent of the EA planning process is to promote sound environmental planning and decision-making by considering alternative solutions, assessing the potential effects and benefits of certain projects on the environment, and minimizing potential adverse effects through mitigation measures.

Under the *EAA*, the proponent of a project or undertaking is required to apply to the Minister of the Environment (MOE) for approval to proceed with a project. However, not all undertakings subject to the *EAA* need to go through the environmental review process. There are some groups or ‘classes’ of projects which are:

- carried out routinely; and
- have predictable and mitigable environmental effects.

Projects or undertakings that fall into these categories do not warrant an Individual Environmental Assessment (IEA). Instead, these types of routine projects follow the Class EA process, which is a relatively more streamlined planning process in comparison to the IEA process. Currently, there are a total of 10 Class EAs that have been approved by the MOE in Ontario (e.g., Municipal Class Environmental Assessment, Class Environmental Assessment for Provincial Transportation Facilities, Class Environmental Assessment for Minor Transmission Facilities, etc.) that cover routine activities or ‘classes of projects’ such as municipal servicing, highway construction and maintenance, and, other public-sector activities. These approved Class EAs set out the planning process to be followed for proponents to satisfy the requirements of the *EAA*.

Provided that the approved process is followed, projects carried out under the Class EA process are essentially ‘pre-approved’ by the MOE. Therefore, the proponent does not need to apply for and obtain a separate approval under the *EAA* for these types or ‘classes’ of projects.

‘Nuts and bolts’ of the Class EA process

The Class EA planning process includes the following key principles and primary requirements, each of which is associated with five main study phases:

- identify the problems and opportunities (associated with Phase 1);
- carry out public consultation early in and throughout the process (associated with all phases);
- consider a range of reasonable alternative solutions/design concepts (associated with Phases 2 and 3);
- assess the potential effects of the alternatives on all aspects of the environment (associated with Phases 2 and 3);
- evaluate the alternatives with respect to their advantages and disadvantages (associated with Phases 2 and 3);
- determine a preferred alternative or solution/design concept (associated with Phases 2 and 3);
- provide traceable, clear documentation on the planning process followed (associated with Phase 4); and
- implementation (associated with Phase 5).

Water and wastewater projects

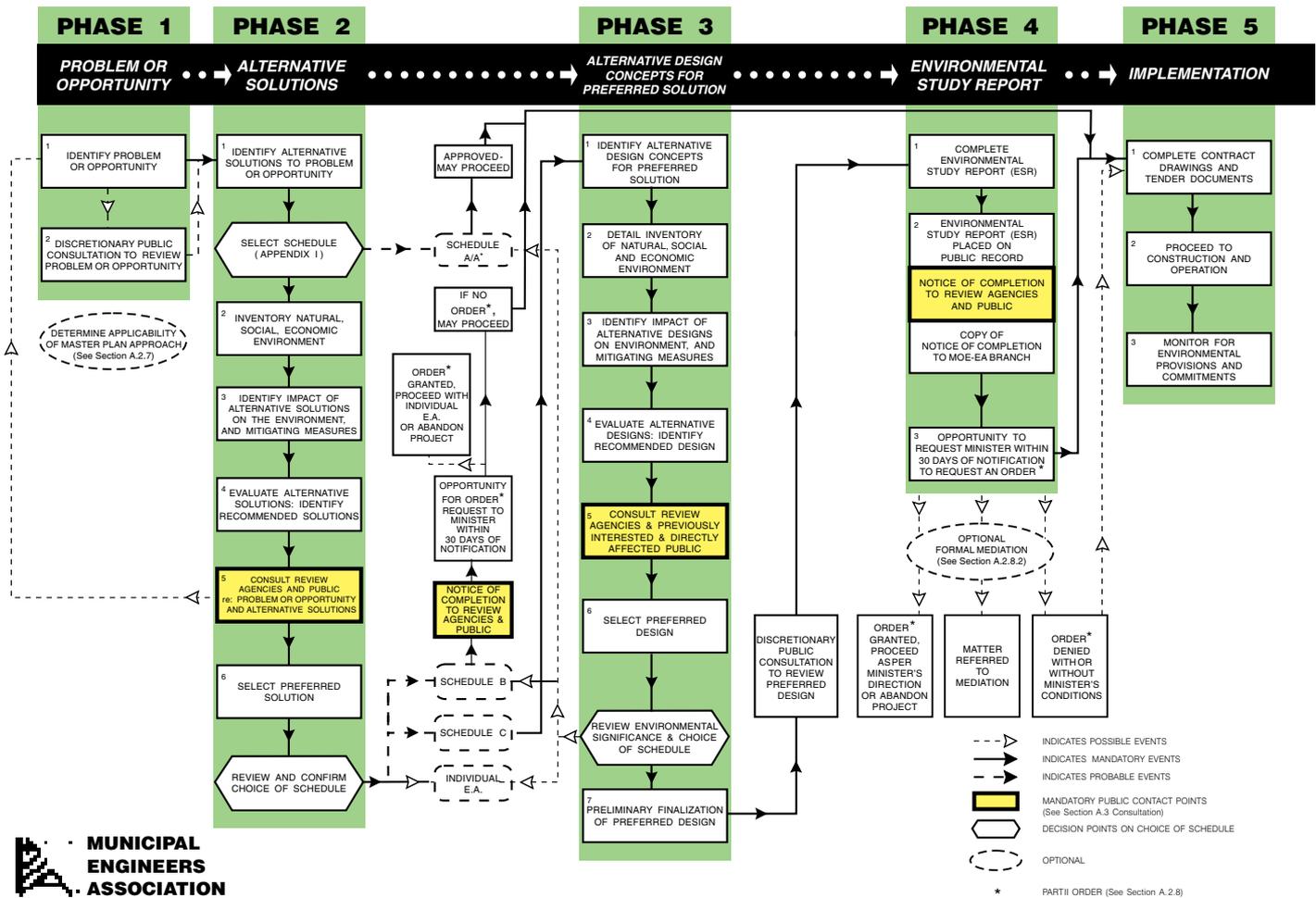
Planning the design and construction of water and wastewater projects by Ontario municipalities is carried out under the Municipal Class Environmental Assessment process. Municipalities apply the Class EA process to a variety of water and wastewater plans and projects, including Master Plans, servicing plans, new infrastructure developments, expansions and upgrades (e.g., water and sewage mains, collection and distribution systems, water well fields, water storage facilities, wastewater treatment facilities, etc.). While the Municipal Class EA document sets out the minimum requirements for good EA planning, it is up to the proponent to identify the specific needs of a given project and how potential issues and concerns are to be addressed in the planning context. With this in mind, there are four different types of project ‘schedules’ defined in the Municipal Class EA that are intended to accommodate various levels of project complexity.

- **Schedule A projects** – projects that are limited in scale, have minimal adverse environmental effects, and include a number of municipal maintenance and operational activities (e.g., normal or emergency operational activities, expand/refurbish/upgrade sewage treatment plant including outfall up to existing rated capacity where no land acquisition is required).
- **Schedule A+ projects** – the purpose of Schedule A+ is to ensure some type of public notification for certain projects that are pre-approved under the Municipal Class EA (e.g., retire a water facility which would have been planned under Schedule A or Schedule A+ of the Municipal Class EA for its establishment, installation or replacement of standby power equipment where new equipment is located in an existing building or structure).
- **Schedule B projects** – projects that have the potential for some adverse environmental effects. Schedule B projects generally include improvements and minor expansions to existing facilities (e.g., establish new or expand/replace existing water storage facilities, establish, extend or enlarge a sewage collection system and all works necessary to connect the system to an existing sewage outlet where such facilities are not in an existing road allowance or an existing utility corridor).
- **Schedule C projects** – projects that have the potential for significant environmental effects. They must proceed under the full planning and documentation procedures specified in the Class EA document. Schedule C projects generally include the construction of new facilities and major expansions to existing facilities (e.g., construct new water system including a new well and water distribution system, construct new sanitary or combined sewage retention/detention facility at a new location).

Because different undertakings can vary in complexity, level of public concern, stakeholder interests, extent of potential adverse environmental effects,

EXHIBIT A.2 MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS

NOTE: This flow chart is to be read in conjunction with Part A of the Municipal Class EA



etc., the EA process should be tailored to adequately address the relevant issues. For example, recent experience with the Schedule C Class EA for the proposed expansion of the Duffin Creek Water Pollution Control Plant in Durham Region suggests that there is a growing expectation from the public and regulatory authorities that, for very large scale, complex projects, the information to be included in the ESR should be at a level of detail much greater than that normally included in an ESR. In this case, there was an expectation from the MOE that the Class EA be undertaken at a level necessary to secure a Certificate of Approval (C of A). Normally, a C of A application requires very detailed information including, among other things, a preliminary engineering report and/or a design brief.

Notwithstanding this, there is a

provision under the EAA that allows an opportunity for the Minister to review the status of a project under the Class EA process. Members of the public, interest groups and review agencies may request the Minister to require the proponent to comply with Part II of the EAA (which addresses individual EAs) before proceeding with an undertaking. Essentially, a Part II order provides stakeholders with a mechanism to request that a certain project be assessed as part of an Individual EA planning process, which involves preparation and approval of a Terms of Reference (T o R), consideration of alternatives to and alternative methods of carrying out the undertaking, and more intensive stakeholder consultation. In general, IEAs are more lengthy and involve a more rigorous level of assessment. Unlike undertakings that

are pre-approved under the Class EA process, the proponent must obtain EAA approval from the MOE in order to proceed with the proposed undertaking under the IEA process.

This was exemplified by the Part II order requests received by the Minister in relation to a number of York Durham Sewage System (YDSS) wastewater projects. For example, York Region initiated a project in accordance with Schedule 'B' of the Municipal Class EA in October 2001, for obtaining EAA approval for expanding the existing York-Durham Sewage System (YDSS) Southeast Collector Trunk Sewer (SEC) within York Region, to accommodate the additional sanitary sewer flows projected from future growth as allowed for in York Region's Official Plan. On October 1, 2004, the Minister formally notified York Region

Continued on page 22.

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“The majority of water and wastewater projects undertaken in accordance with the Municipal Class EA process proceed without elevation to an IEA process.”

that the MOE had received submissions requesting that an Individual EA be prepared for all remaining unfinished sections of the YDSS, including the SEC. As a result, pursuant to subsection 16(1) of the *EAA*, the Minister ordered York Region to comply with Part II of the *EAA* for the SEC project and carry out an Individual EA. As a result, the Southeast Collector IEA is the first of its kind in Ontario, that is, the first sewage servicing project that is being planned under the IEA process (as opposed to a Class EA).

In addition, some Part II order requests result in approval conditions being imposed on the project by the MOE that must be satisfied by the proponent before it can proceed. This was the case for the proposed Wainfleet

Water and Wastewater Servicing Project in the Township of Wainfleet, Niagara Region. After following the prescribed provincial requirements set out in the *EAA*, the Class EA documentation was submitted to the MOE in July 2005. On September 25 2006, the MOE advised that the Region and Township may proceed with the Wainfleet Water and Sewer Servicing Project, subject to conditions. To address issues raised in stakeholder correspondence during the Class EA process and to satisfy public concerns, the Minister requested that additional studies be undertaken to address the following issues: cost criteria used to evaluate alternatives, the potential social impact of the project, potential effects to the natural environment within the proposed right-of-way,

consultation with the public and areas of archaeological potential.

In general, the majority of water and wastewater projects undertaken in accordance with the Municipal Class EA process proceed without elevation to an IEA process, provided that the proponent has fulfilled the requirements of the approved process, undertaken a traceable decision-making process, and been responsiveness to stakeholder concerns and issues.

Over the last 20 years in Ontario, the Class EA process has facilitated the planning and construction of water and wastewater projects based on consideration of alternative solutions and designs, identifying potential effects on the environment, and developing mitigation measures to address potential adverse effects. The EA process is an iterative one, allowing the most advantageous solution to be identified based on the evaluation of alternatives and consideration of feedback from stakeholders. Although intended to be a streamlined process, Class EAs can and should be adapted to address projects that are more complex in nature and/or contentious so that due consideration is given to natural, social and cultural issues and stakeholder concerns. Furthermore, the application of the Municipal Class EA process is continually monitored to ensure changes in existing legislation and policies are reflected and formal reporting on its effectiveness is undertaken every five years to the MOE. The Class EA process will undoubtedly continue to evolve in future years and maintain its relevance as an important planning tool for water and wastewater infrastructure in Ontario. ♦

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Amber Saltarelli

BA, Environmental Planner

– Amber is an Environmental Planner with AECOM. Her project experience is primarily related to provincial and federal environmental assessment and approvals for provincial highways, transit, municipal roads, and wastewater infrastructure in Ontario. For the past three years, Amber has been involved in EA planning and project co-ordination for the Southeast Collector Trunk Sewer Individual Environmental Assessment. She is a provisional member of both the Ontario Professional Planners Institute and Canadian Institute of Planners, and a member of the Project Management Institute.

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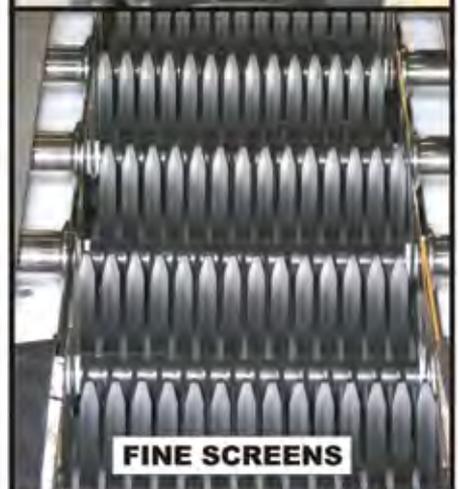
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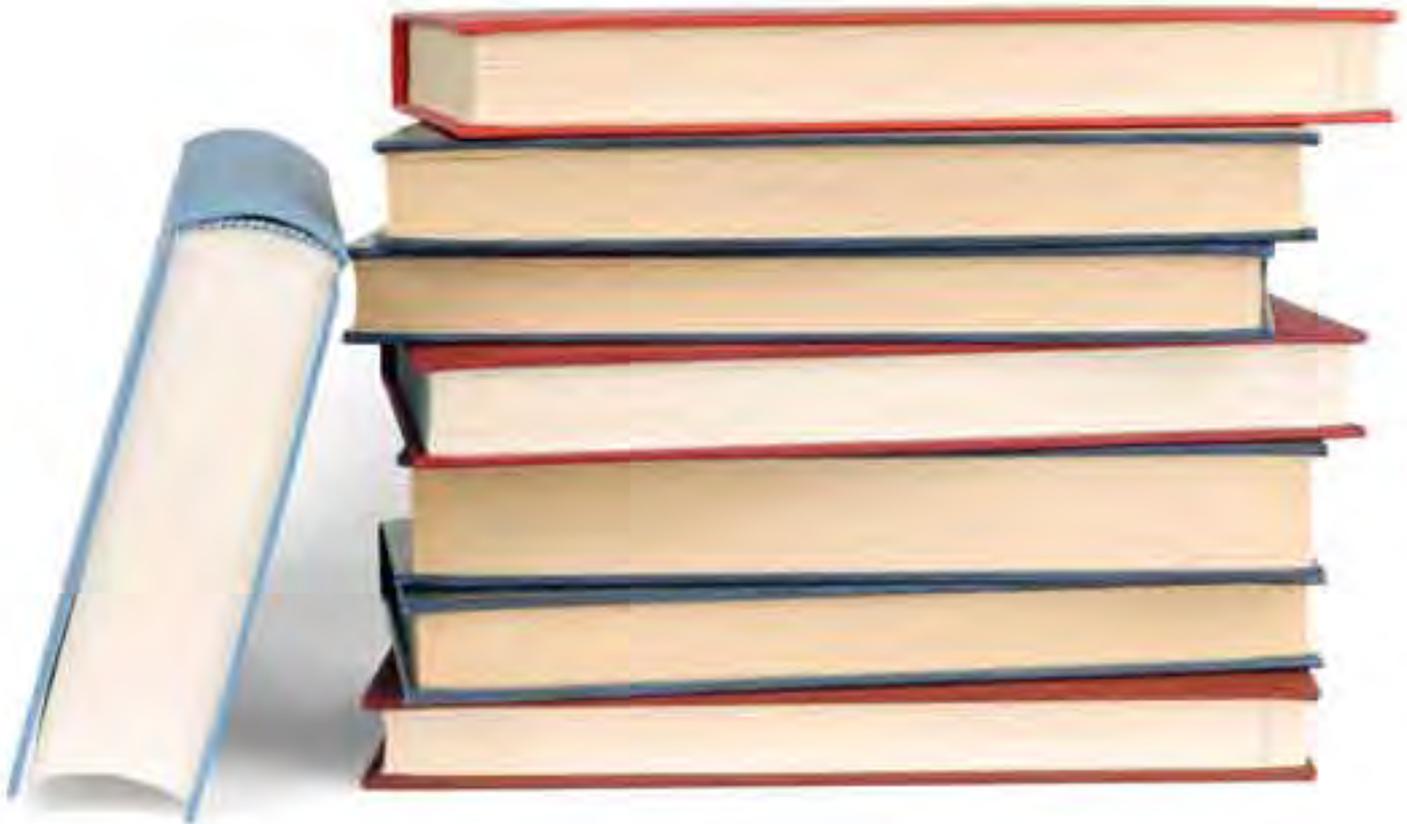
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LESSONS LEARNED

through experience with the Municipal Class Environmental Assessment process in Ontario

By Dianne C. Damman, MA, MCIP, RPP

Introduction

One of the purposes of this special issue of *INFLUENTS* is to reflect on successes and experience gained to date with the Municipal Class Environmental Assessment (EA) process, particularly with respect to its application to water and wastewater projects. The focus of this article is on lessons learned through experience with the Municipal Class EA process in Ontario.

The following are key lessons learned, from an EA practitioner's perspective:

- retain the right consulting team;
- avoid a 'cookie cutter' approach;
- conduct an open and transparent process;
- engage the public and stakeholders early on in the process;
- know who the agency players are;
- understand potential federal EA requirements; and
- consider mediation in situations where an impasse has been reached.

Further details on these lessons learned, follow. All are intended to increase the likelihood of an efficient and successful EA process.

Retain the right consulting project team

A key to the success of the Class EA process is retaining a team that has the appropriate experience and skill set. In addition to the traditional engineering disciplines (civil, environmental, transportation), it is essential that the project team have expertise and experience in EA process, stakeholder consultation, and social and community impact assessment. A land use planner will also be able to assess the current and planned land uses in the project study area and determine

“A key to the success of the Class EA process is retaining a team that has the appropriate experience and skill set.”

potential land use impacts resulting from the project.

If there is the potential for the project to trigger the Canadian *Environmental Assessment Act (EAA)*, someone with expertise in federal EA requirements and undertaking *EAA* assessments should be retained. An understanding of *EAA* requirements and how they can potentially be coordinated with the Municipal Class EA process is important for projects which are subject to both requirements.

Avoid a ‘cookie cutter’ approach

While the Municipal Class EA outlines provisions that must be adhered to, these should be viewed to be the minimum requirements. Each project should be evaluated on its own merits and an appropriate assessment process should be developed based on considerations such as magnitude of the project, environmental setting, potential for environmental effects that can not be readily mitigated, and level of public interest and concern. For example, a project with considerable public interest and concern will likely require a more extensive public consultation program with more focused consultation tools.

Similarly, projects for which there are many alternatives will likely require a greater effort in terms of their evaluation. More robust evaluation techniques, appropriate for the range of alternatives under consideration, may need to be applied.

Conduct an open and transparent process

An open and transparent process is key. Given that the Municipal Class EA is a public process, it is essential that it be conducted in a manner that is understandable and that relevant

and appropriate project information is available for public review in a timely manner.

One way to increase public access to project documentation is to post relevant items on a project web site. This can potentially be an effective tool to make project information available to a range of stakeholders. An important element of conducting an open and transparent process is to provide concise, complete and understandable information at key points in the study process.

Another key to conducting an open and transparent Class EA process is demonstrating how public comments have been addressed in the EA documentation, and showing the extent to which the preferred alternative, its final design and any mitigation, monitoring and follow-up measures have met the EA objectives and/or those of the public and other stakeholders.

Engage the public and stakeholders early on in the process

In order to achieve effective consultation, there is a need to ensure that all those who are interested in the project have the opportunity to participate throughout the assessment process. A proactive approach to public and stakeholder consultation, particularly for complex and controversial projects, should be adopted. One goal of this approach is to identify issues early on in the process so the technical work plans incorporate provisions to address the issues, as appropriate.

Another goal of early engagement is to foster relationship building with stakeholders so that, ideally, when and if there are difficult issues to address, there is a greater likelihood that the lines of communication will be open so that the issues can be discussed.

Know who the agency players are

Provincial regulatory and review agencies play a key role in the Municipal Class EA process. It is important to know who the key agency players are and to have an understanding of their mandates and information requirements.

Also, federal departments may have legislative or regulatory responsibilities. It is equally important to have someone on your project team who knows who the federal players are and who has knowledge of *EAA*. Table 7.2 in the Municipal Class EA is a useful reference, outlining expert federal authorities and their potential areas of interest.

Provincial and federal agencies can be an important source for baseline data. In addition, some agencies have developed standards, protocols and guidelines that should be considered when undertaking a Class EA. Other agencies have documented best practices that could be applied to a wide range of water and wastewater projects. The development of a working relationship with these agencies has proven to be important to the efficient conduct of Class EAs.

Understand potential federal EA requirements

EAA is ‘triggered’ where a federal authority: is the proponent for a project; provides financial assistance to a project; leases, sells or disposes of land to enable a project to be carried out; or issues a permit, authorization, approval or licence under a piece of legislation that is included in the *Law List Regulations* under *EAA*, for the purpose of enabling a project to proceed. Table 7.1 in the Municipal Class EA provides helpful information on

identifying potential *EAA* triggers for municipal projects.

It is important to understand that *EAA* applies to the federal government, not a municipal proponent. When *EAA* is triggered, it is the responsibility of the federal government to ensure that an EA is conducted for a project. While the preparation of this EA may be delegated, the federal government is responsible for making the decision in respect of a project (i.e., whether to provide funding, whether to issue a

permit or authorization) and will have certain documentation requirements.

Municipal proponents should understand that there are some specific requirements under *EAA* that are not inherent in the Municipal Class EA process, including the requirement to address cumulative environmental effects, malfunctions or accidents, changes to the project that may be caused by the environment and all project phases (i.e., construction, operation, decommissioning).

The document entitled *Federal Information Requirements for Municipal Class EA Projects* provides a primer on *EAA*, a summary of key differences between *EAA* and Municipal Class EA requirements and a section on federal information requirements. This document can be found on the Fisheries and Oceans Canada web site at:

http://www.dfo-mpo.gc.ca/regions/central/pub/muni-clas-on/index_e.htm

Consider mediation in situations where an impasse has been reached

Section A.2.8.4 of the Municipal Class EA contains a provision for formal mediation. However, mediation can be considered as a mechanism to resolve stakeholder issues when other efforts to resolve issues have not worked. A third party can be retained to conduct the mediation, with the focus on getting beyond positions and identifying issues that can be dealt with by the proponent. A key is to understand what the real issues are in order to gain an appreciation of whether they can be addressed in the technical work undertaken as part of the Class EA.

Mediation will only achieve positive results if all parties are willing to 'come to the table' and participate in an honest and open manner. In conducting mediation, it is important to have the appropriate stakeholder representatives at the table.

Summary

These are only a handful of lessons learned. No doubt our body of knowledge will continue to evolve as we move towards a goal of increased efficiencies and effectiveness in the conduct of Class EAs in Ontario. ♦

Dianne Damman is the Principal of D.C. Damman and Associates and is an EA practitioner with extensive experience in conducting federal, provincial and municipal EAs, as well as the development and implementation of public and agency consultation programs. Ms. Damman is an active member of the Ontario Association for Impact Assessment. She can be reached at 519-745-9227 or ddamman@kw.igs.net.



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PROFILE



Ontario Association for Impact Assessment

Tomasz Wlodarczyk, M.E.S., Director, Ontario Association for Impact Assessment

The Ontario Association for Impact Assessment (OIAA) is a forum for advancing innovation, development, and communication of best practice in impact assessment through the exchange of ideas and experiences among its members, and with other organizations with compatible interests. The OIAA promotes development of local, provincial, national and global capacity for the application of impact assessment in which sound science and full public participation provide a foundation for equitable and sustainable development. OIAA is an affiliate of the International Association for Impact Assessment (IAIA).

OIAA seeks to:

- improve the practice of impact assessment to better meet the needs of the 21st century, particularly with respect to its use as a tool for achieving sustainable development objectives;
- develop partnerships with other organizations and institutions involved in impact assessment;

- enhance multi-disciplinary cooperation in impact assessment; and
- expand professional development opportunities for impact assessment practitioners.

The OIAA addresses a full spectrum of impact assessment, including its environmental, social, cultural, health, safety and economic aspects. Our members are experts regarding the federal and provincial Environmental Assessment (EA) processes. Our membership is diverse, and, at any given time, may include managers, engineers, planners and consultants from the private sector; managers, officials, scientists and analysts from the public sector; public interest advocates; lawyers; health professionals; educators and researchers; students; and interested citizens.

Members of the **Water Environment Association of Ontario (WEAO)** can benefit from OIAA membership by interacting with a wide range of practitioners involved

in impact assessment. Our members have extensive experience with Individual EAs and Class EA processes, at the federal and provincial levels.

OIAA activities and services include:

- organizing events that focus on important developments in the field of impact assessment;
- promoting research and training in impact assessment;
- promoting public understanding of impact assessment;
- encouraging the development of refined approaches and methods for integrating impact assessment into society's planning, decision-making, and management processes; and
- contributing – on behalf of members – to public policy discussions related to the role of impact assessment in Ontario and Canada.

Please visit the newly designed OIAA web site (www.oiaa.on.ca) for more information about our organization, its mandate and activities. ♦



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APPLYING a policy framework to Municipal Class Environmental Assessment studies

Lisa DeAngelis, Senior Project Manager - Infrastructure Planning, Halton Region
and Udo Ehrenberg, Manager of Infrastructure and Source Water Planning, City of Hamilton

Most of us are familiar with the old adage ‘measure twice, cut once.’ If you were to ask policy planners what this meant to them, they would say “plan twice, implement once.” Thus, planners are quite familiar with the notion of taking the time in the early stages of a project to prepare ‘policies’ or ‘guiding principles’ to set the framework for subsequent decision-making. By setting up a context in the initial stages of a program or project that has been endorsed or approved by the decision-making body, i.e., municipal council, the deliverables will reflect a common understanding of the boundary conditions. Thus, it is unlikely that the outcome would be challenged if the policy framework reflects the sentiment of the decision makers of the day leading to a smooth transition to implementation.

Does this tool have an application in the Municipal Class Environmental Assessment (EA) planning process? We sometimes lose sight of the fact that the Municipal Class EA study process is a bona fide planning process. It follows

the classic Rational Comprehensive Model process with steps that include:

- problem/opportunity identification;
- goals/objectives – framework established;
- data collection/analysis;
- key issues identified;
- alternative solutions created/tested;
- preferred alternative selected;
- implementation; and
- monitoring/evaluation.

Thus, if development of a framework is an instrument in ‘classical’ urban/land use planning processes, then could it be a tool available to practitioners of the Municipal Class EA process as well? The answer is a resounding “yes” and an example of its application is the City of Hamilton’s *Water and Wastewater Master Servicing Plan and Class Environmental Assessment Study, 2006*.

In 2002, the City of Hamilton embarked on an ambitious program to develop a comprehensive growth management plan to address growth

to 2031, known as the Growth Related Integrated Development Strategy (GRIDS). The City’s first master plans for water/wastewater, transportation and stormwater were being undertaken as separate studies, but in a coordinated fashion with and informing the GRIDS growth plan.

The water and wastewater master plan team, which included AECOM (formerly KMK Consultants) developed, through a consultative process, a policy framework to set the stage for the identification of alternative servicing solutions. Recognizing that the city had complex water and wastewater systems, including a large combined sewer system, a multitude of permutations and combinations of reasonable/feasible alternative servicing strategies were possible. However, to ensure that the number of potential options was manageable and that the regulatory requirements had been addressed, a number of policy statements were developed.

Policy statements reflected the current regulatory arena, as well as comments/

input from key regulatory agencies and stakeholder groups. The framework incorporated a number of regulatory statutes such as the *Greenbelt Protection Act*, *Safe Drinking Water Act*, *Provincial Policy Statement*, and *MOE Procedure F-5-5*, as well as industry best practices. These were captured and condensed into a number of high level principles to ensure key requirements were not overlooked.

The framework was then presented to the Public Works, Infrastructure and Environment Committee and, when subsequently endorsed by Council, set the stage for the servicing strategies in the master planning process. A key benefit to undertaking this ‘upfront’ planning was that all stakeholders had a common understanding of the principles which formed the foundation for the subsequent plan.

The preliminary preferred servicing strategy was presented to the Public Works, Infrastructure and Environment Committee in September, 2006, with few questions/concerns, and the City of Hamilton’s Water and Wastewater Master Plan was completed in November, 2006. The plan followed the provisions for the master plans in Appendix 4 of the Municipal Class Environmental Assessment (Municipal Engineers Association, 2000). The master plan utilized approach #2, which provides a level of detail to address the first two phases of the Class EA process. Thus, the requirements for all Schedule B projects were fulfilled. During the preparation of the plan, the project team referred back to the Council endorsed policy statements to guide the options and to address queries.

Recently, the Municipal Engineers Association has updated and released an amended version of the *Municipal Class Environmental Assessment* (amended in 2007). C.1.1 Key Considerations included, among other factors, a provision for consideration of land use planning objectives such as the *Provincial Policy Statement*, Places to Grow, Official Plans, etc. Summarizing these key considerations in a policy framework is an efficient methodology to ensure that none of the requirements are overlooked in the identification of alternatives.

Most project managers would agree that the success of a project hinges on whether or not it was thought out well from the beginning. Likewise, practitioners of the Municipal Class EA process would agree that the initial work in defining and identifying the problem/opportunity statement is key to ensuring that the preferred solution arising from a study addresses the proponent’s needs. Giving consideration to the development of a policy framework to guide that process is also a tool that has been utilized in the traditional urban planning process and has been successfully applied to master planning, as demonstrated through the City of Hamilton’s Water and Wastewater Master Plan. Providing guiding principles which have been subjected to a consultative process and endorsed by the municipality’s authoritative body, ensures that key considerations have been summarized and that stakeholders have a common understanding of the underlying foundation upon which the study outcomes were built. ♦

**Excerpt from City of Hamilton Staff Report PW05050
City of Hamilton Water and Wastewater Master Plan Policy Paper – April 15, 2005**

“The City of Hamilton shall not permit partial servicing for new development.”

“Provision of municipal water and wastewater servicing shall be considered a priority for growth areas within the City of Hamilton.”

“The City of Hamilton shall ensure that the design of water and wastewater infrastructure recognizes the potential for growth beyond the time horizon of the official plan.”

“The City of Hamilton shall maintain sufficient reserve capacity in its water and wastewater infrastructure and facilities to provide operational flexibility and meet potential changes in service conditions.”

“The City of Hamilton shall meet the Hamilton Harbour Remedial Action Plan (RAP) initial loading objectives and work towards the refinement and achievement of the final stage loading objectives.”

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The Municipal Class Environmental Assessment for the **RIDGETOWN** Wastewater Treatment Plant Project

Rob Bernardi, P. Eng., Facilities & Systems Manager, Chatham-Kent PUC

Introduction

The Community of Ridgetown is located within the Municipality of Chatham-Kent, Ontario, and relies on the Chatham-Kent Public Utilities Commission (C-K PUC) for its drinking water supply and wastewater treatment. The C-K PUC operates 10 wastewater treatment and collection systems, six water treatment and distribution systems, and two stand alone water distribution systems within the municipality. Currently, the C-K PUC treats Ridgetown's wastewater at a facultative

lagoon facility that was constructed in the early 1970's and was upgraded in 2002 to the New Hamburg Process. Although the system has been recently upgraded, this step was always seen as an interim measure (with a service life of no more than 10 years) until a more permanent solution could be found.

Class EA interface with the Master Plan

In May 2000, a Water and Wastewater Master Plan was completed for the entire municipality. This study was in accordance with the Class Environmen-

tal Assessment (EA) process for a master plan, including consultation with review agencies and the public. The report identified problems with both capacity and effluent quality with the existing system in Ridgetown and recommended conversion to the New Hamburg Process to address these issues in the interim.

In 2001 the C-K PUC embarked on the design and upgrade to the existing system (construction was completed in 2002). Although the upgrade improved the effluent quality, it did not add sufficient storage volume or provide consistent disinfection.

The C-K PUC planned to revisit the Ridgeway system in three to five years; however, an opportunity for funding through the Canada Ontario Municipal Rural Infrastructure Fund (COMRIF) was approved. This allowed the C-K PUC to advance this project in 2007.

The C-K PUC retained Associated Engineering Ltd. and Dillon Consulting (formerly Todgham & Case Associates Inc.) to complete the Class EA, detailed design and contract administration. This project was a Schedule 'C' under the Municipal Class EA (2000) guidelines. The existing Master Plan deals with the need and justification as well as the development of a preferred alternative and satisfies Phases 1 and 2 of the Class EA process.

Identification and mitigation of issues

In 2000 a Master Plan for Water and Wastewater identified capacity and quality issues and in 2002 an interim measure was undertaken to extend the service life. Ongoing monitoring of the facility has revealed there are five major limitations to the existing system:

- Effluent *E. coli* limits have been exceeded (possibly due to water-fowl fouling the filter beds).
- Lagoon effluent storage capacity is fully utilized during wet, cold winters with insufficient freeboard.
- The full storage capacity of Cell 1 cannot be fully utilized in the present configuration.
- Cell 3 cannot be drained as fast as was intended during design due to a problem with hydraulics.
- The filter bed freeboard is insufficient and limits operation of the effluent pump station.

Due to capacity constraints and effluent quality, the decision to upgrade and expand the plant would have to be made. This tied in conveniently with the COMRIF program that was being offered at the time.

Options considered

The first alternative considered was to expand the existing lagoon based system. The land constraint posed an issue with expansion as well as liability with deep bodies of water and limiting capacity in the future.

“Factors that were rated under the natural criteria included environmentally sensitive areas, woodlands, air quality, impacts that can be mitigated, and impacts that cannot be mitigated.”

The large surface area of the lagoons cools the effluent in the winter making the removal of ammonia more difficult and costly. The modifications to the treatment system should be designed to discharge year round rather than seasonally to eliminate the risk of storing large volumes of effluent during winter months.

Based on these and other issues, other alternatives for a more compact mechanical treatment technology would need to be investigated.

Associated-Dillon concluded that the treatment objectives could be reached by using a fixed film, suspended growth or hybrid secondary treatment stage.

Evaluation criteria

A comprehensive rating system was developed in conjunction with the C-K PUC, the public, interested parties and review agencies. An evaluation matrix was put together to rate specific factors in categories such as natural environment, socio-economic, financial, technical and if the alternative addresses the identified problem.

Factors that were rated under the natural criteria included environmentally sensitive areas, woodlands, air quality, impacts that can be mitigated, and impacts that cannot be mitigated. Under the socio-economic criteria, factors that were rated included parks or recreational areas, construction impacts on residents and businesses, odours and noise, construction impacts on traffic, impact to property values, and impact on heritage sites. The financial criteria rated for capital cost, property cost, and maintenance/operational cost. The technical criteria had factors for rating such as constructability, design, and maintenance/operations issues.

The final criteria used was if the alternative addresses the identified problem. All the alternatives being rated would address the identified problem.

Public meetings

A notice of study commencement was filed in March of 2007 and advertised in the local newspapers and mailed to review agencies and key stakeholders. Having satisfied Phase 1 and 2 of the Class EA with the Water and Wastewater Master Plan that was completed, one more public meeting was to be held. The notice of a public information centre (PIC) was again advertised and mailed out in early April 2007 and the public information centre was held in late April.

The environmental assessment process, the treatment process selection and alternative locations for a mechanical treatment plant were presented at the PIC. At the PIC, there were several questions with respect to clarifying information; however, no written comments or concerns were submitted.

Discussion with stakeholders

In line with the Municipal Class EA Planning and Design Process, public and stakeholder consultation took place. Appropriate agencies, First Nations communities and interested and affected parties were contacted during the Class EA process.

One of the main stakeholders in this potential project was the Lower Thames Valley Conservation Authority (LTVCA). Upon review of the proposed work, they were asked to be kept informed of the progress. The LTVCA as well informed the project team that the drain where the outlet



for the plant would be a Class C (warm water baitfish) system thereby requiring approval by the LTVCA (on behalf of the Department of Fisheries and Oceans).

Further discussions, meetings and correspondence occurred between the project team and the LTVCA to discuss the work that was being proposed near the drain. The introduction of a new out-fall being proposed would have to meet all the mandatory requirements. The LTVCA in conjunction with the Department of Fisheries and Oceans, asked for additional measures to be implemented when performing work in the drain.

Final solution

The Environmental Study Report (ESR) completed by Associated-Dillon would satisfy requirements under Phase 4 of the Class EA. The ESR highlighted the preferred design to be a continuous flow activated sludge process. This process has a proven track record and can be easily expanded for future capacity increases at the plant. The notice of study completion was filed in early June 2007. With no issues raised by the public or other stakeholders, the Class EA could now proceed into the implementation stage (Phase 5).

Total capital project cost for the Ridgetown WWTP is \$16.4 million. The rated capacity of the new plant will be increased to 2,347 m³/day up from 1,537 m³/day for the existing lagoon system (average daily flow). The implementation stage (construction) began in August 2008 with the anticipated completion in December 2009. ♦

(Excerpts and information taken from the June 2007 ESR prepared by Associated Engineering Ltd./ Dillon Consulting Limited.)



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SOURCES OF RESOURCES

– Answering your EA questions

By Louise Hollingsworth, St. Clair Region Conservation Authority

The big question of an environmental assessment may be finding a solution to the big problem, yet so many other smaller questions need to be answered first when completing a Municipal Class EA, especially for a wastewater facility. Knowing where to find the answers, before you have to hire a subcontractor (like a ‘terrestrial biologist’ for instance) can save time and money.

One of the best places to start is with the local Conservation Authority (CA). There you can find the Authority with jurisdiction over the area in question. You will also find more than just the floodplain line, as many have that ‘terrestrial biologist’ on staff. Often, CAs have agreements with other bodies like the Department of Fisheries to administer their concerns. You can find which watershed you are working in through Conservation Ontario, CA’s provincial umbrella.

<http://conservation-ontario.on.ca/>

Historical data on a receiver stream is often accessible from the Ministry of Natural Resources. Much of their efforts in stream monitoring were curtailed in the early 1990s, although information for the 30 years up to then is accurate and obtainable.

Most times, the Ministry of the Environment (MOE) seems like just the regulator in an EA process, posing questions that need to be addressed. Regardless, the MOE holds the key to a plethora of background material and, with the right approach, will often assist by providing, if not real data, then leads to experts in the areas you can consult.

<http://www.gov.on.ca>

If you are finding you have to dig deeper, the university most local to the site in question can also be of great help. Sometimes, something as straight forward as a call to the Geography Department can uncover the answer



Benthic invertebrate studies are currently being carried out by many CAs in Ontario. These studies are excellent indicators of prevailing conditions of the aquatic environment and are often used in determining the suitability of a stream as a receiver.

for which you were looking. When you need an individual to do a particular study, the university can provide some great leads.

Getting the information you need to answer the small questions may require hiring help and spending some money. Still, many of the small questions can be answered by the folks who have been looking at similar

questions. The goal of the EA process is to have the best solution. As long as those small questions get answered, we can reach that goal. ♦

Louise Hollingsworth is a long-time environmental consultant, advocate and educator working out of London, Ontario. She can be reached at Louhollingsworth@hotmail.com

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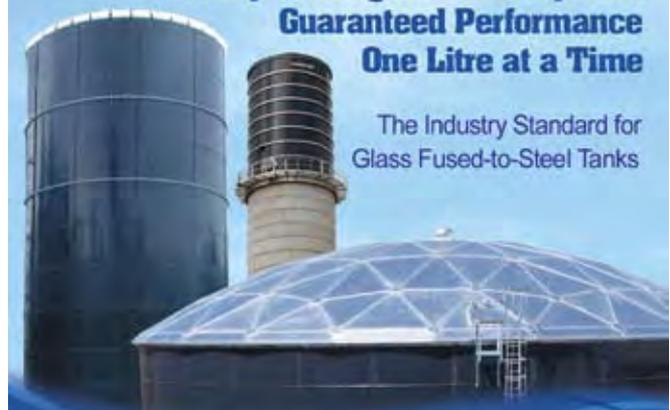
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NAVIGATING THROUGH THE MAZE OF ASSET MANAGEMENT

It is no longer a shock to anyone that we have been living in a myopic world when it comes to reinvesting our dollars towards water and wastewater infrastructure. The same can also be said for other municipal infrastructure such as roads, buildings, bridges, etc., but we will leave that for another day. The purpose of this article is not to regurgitate the same statistics of the infrastructure-funding shortfall in Canada, Ontario or the municipality in which I work. What I would like to do is present to you a fresh idea on asset management, one that may lead you through the maze of asset management overload.

Based on the numerous requests and an explosion of interests in asset management, a committee was formed within WEAO earlier this year, consisting of public and private sector professionals. The objective of the committee is to promote, educate and provide a forum for information exchange, when it comes to asset management and sustainability practices in the water environment industry. Asset management is not just about data inventory, technology, condition assessment, or reinvesting levels. Asset management is about meeting expectations with the amount of funding available and maintaining sustainability into the future.

When I first got involved in asset management, I thought it was an interesting and important side of the wastewater collection and treatment system. I was excited and read up on what asset management is, including the now defunct InfraGuide manuals. That was a really good start. However, I wanted to

know more, especially with what other municipalities are doing and how I can apply what I learned to my own situation. So I attended a number of workshops and conferences relating to asset management. I soon found out that this field is as wide as the open fields of the prairie farmland. There were condition assessment workshops, software workshops, Geographical Information Systems (GIS) seminars, and infrastructure funding conferences, all with the asset management stamp. However, one thing was common with all these events, they were great to attend, but the information was difficult to apply.

Now, don't get me wrong, the topics were very interesting and the speakers did a fabulous job, but I left most events with a lot of information in my head and not too much in my workbook. I was constantly wondering, how could I put the pieces together, and how could it be applied to my own organization? How many of you have left a seminar or conference feeling the same way? Well, this is what the Asset Management Committee is trying to avoid.

In conjunction with OWWA, the Asset Management Committee is organizing a seminar on November 13, 2008 at the Venetian Banquet Hall. This will be the first of a series of workshops on asset management. The plan is to provide a venue in which organizations can share their asset management experiences with other organizations and learn from each other's successes and failures.

In the first workshop, we will outline a framework of an asset management program, with speakers from local cities and municipalities, as well as a speaker from the City of Calgary. Attendees will gain an understanding of where their organization is with respect to the

framework, how they are doing compared to other organizations, and what they need to do in order to advance to the next step. The main message is that there are others who were in the exact same position as you are in right now. What words of wisdom can they pass along? Throughout my relatively short career in asset management, I have found that many speakers and attendees of a seminar want to share more information and their experiences with each other, but may not know where to start or what issues are of interest to everyone.

Future workshops will build upon the information gathered from the first workshop, and will be focused on each component of the framework. The plan is to delve deeper into each component, bring in the best practices within the industry, and share each other's information and experiences. The interactive and information sharing theme of the initial workshop will remain the same throughout the series of workshops. The goal at the end of each workshop is for you to take something tangible back to your organization and share, implement, or initiate tasks so that, at each of the subsequent workshops, there may be something to report back to the group of attendees regarding your organization's successes, obstacles or failures.

For full details of this upcoming asset management workshop, please visit the WEAO web site at www.weao.org. Inquires regarding the committee can be directed to:

John Duong, M.Eng., P.Eng.
Supervisor of Infrastructure Management
Regional Municipality of Halton
905-825-6000, x7961
john.duong@halton.ca ♦



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SECOND ANNUAL 25-YEAR SERVICE AWARDS



One of the greatest strengths of an organization such as WEAO is its members, who provide

continuous support of its goals and initiatives. Each year, WEAO recognizes members with 25 or more years of service at a 25-year service award luncheon. This event is an important way to recognize WEAO members for their lifelong commitment to WEAO and the environment. The second annual 25-year service award luncheon was held on April 23, 2008 at the Grand Chalet Restaurant in Milton.

The following six honourees were acknowledged at the luncheon for having achieved a quarter century of continuous service: George Aldworth, Jacob Dick, Dr. Glynn Henry, Dale Murray, Dr. G. Elliott Whitby, and Henry Jakubiec. In recognition of their service, honourees were presented with a special blue pin and certificate

to commemorate the occasion. These were presented by WEAO Past President Peter Takaoka and WEAO Past Vice-President George Lai. Congratulations to those honored at this year's event.

Because of the support of its members, WEAO continues to work towards its strategic initiatives. George Lai highlighted the key milestones achieved by the organization over the past year, which included more specialty seminars given by different technical committees, increased revenue from *INFLUENTS* magazine, an update of the Constitution and By-laws, as well as an increase in the number of student chapters and implementation of scholarship programs to students.

Looking towards the future, George Lai spoke about one of the key challenges facing our industry – an aging workforce. Based on the 2006 census by Statistics Canada, for the first time, there are as many workers over the age of 40 as there are under 40. In 2006, there were 1.9 Canadians between the ages of 20 and 34 entering the workforce for

every person between the ages of 55 to 64 leaving. In comparison, in 2001, there were 2.7 replacements for every person leaving, and, 25 years ago, it was 3.7 replacements. As such, we need to be able to attract and maintain students and new professionals to the water field. Seasoned professionals can and are encouraged to play a key role in this regard.

The New Professionals Committee is keenly interested in attracting seasoned professionals to their events. Seasoned professionals are encouraged to attend the events or speak at the monthly meetings. This exchange has proven to be mutually rewarding, as those with long-term service to the industry share their knowledge, and new professionals have the opportunity to learn more about the industry and develop their skills.

The 25-year service luncheon was supported by the Member Services Committee. Special thanks to Julie Vincent and Carrie Vincent for their hard work in the organization of this event. ♦

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AMERICANA: MARCH 17-19, 2009

RÉSEAU environnement will hold its 8th edition of the AMERICANA International Environmental Technology Trade Show and Conference from March 17 to 19, 2009 at the Montreal Convention Centre. Recognized as one of the most important events of its kind in North America, this year's AMERICANA will play host to more than 10,000 participants, 400 exhibitors and 150 speakers from Québec, Canada and more than 60 countries worldwide.

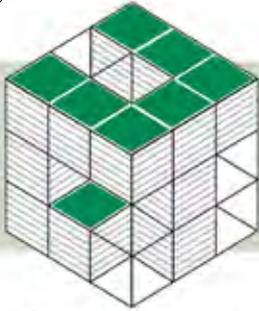
AMERICANA is a first-class platform to promote technical, scientific and commercial exchanges. This conference is constantly seeking high-quality multidisciplinary international scientific speakers. For every edition, the Trade Show brings together a large number of exhibitors.

Nearly 40% of the participants are decision-makers – CEOs, presidents or professionals with decision-making power. Also, over 30% of the participants work for various levels of government, including municipalities. Participants from every sector of the environmental industry are present: water, solid waste, environmental management, air and climate change, soil remediation and groundwater, sustainable development, renewable energy, etc.

Created in 1995 and held every odd year, AMERICANA is organized by RÉSEAU environnement. For more information or for registration, please visit: www.americana.org



NOTE: RESEAU Environmental is the WEF Member Association in Quebec.



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More information will follow.

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WATER BUFFALOS RIDE AGAIN

THIRD ANNUAL 'RIDE WITH PURPOSE;' ATLANTA, GEORGIA, JUNE, 2008

Submitted by Don Hoekstra, Don Hoekstra Project Management Services

It was a gray, cool and windy day as I left the Niagara Region to attend the AWWA Annual Conference (ACE) in Atlanta, GA. I was (once again) traveling by motorcycle as part of the Water Buffalos 'Ride With Purpose' to raise money and awareness for Water For People. The plan was for all riders to meet in Knoxville, TN on the evening of June 5, and to travel together on to Atlanta. This year, there were riders from AZ, PA, ND, IL, IN, OH, VA, MA, and Ontario. After introductions, a meal, and some rest in Knoxville we headed out toward Georgia. The first item on the agenda for the day was to ride the 'Tail of the Dragon' at Deals Gap. This famous stretch of road is along the Tennessee and North Carolina state line, and boasts 318 curves in 11 miles quite an adrenaline rush. We also rode the Cherohala Skyway route which took us through some amazing areas of the Smokey Mountains. Friday ended in Cartersville, GA where we enjoyed the southern style hospitality of our local host and fellow Water Buffalo, Gene Kamp.

Saturday morning saw a short (but HOT) ride into Atlanta, and the start of our official duties including attendance at the AWWA board meeting, the Water For People board meeting, and a receptions for donors hosted by the Water For People board and staff. Each of the Buffalos also volunteered in the Water For People booth on the trade show floor. A new feature this year was the presence of a brand new 2008 Harley Davidson motorcycle, which had been provided to the Buffalos at cost by the dealer in Cartersville. The Harley attracted a lot of attention, and we sold raffle tickets to win the bike on the final day of the exhibition. The Water Buffalos enjoyed a great success this year by bringing in \$49,000.00 in sponsorships, pledges, and corporate donations. We also sold all 500 of the raffle tickets, which yielded an additional \$25,000.00. The winner of the

motorcycle donated the bike back to Water For People, so the likely result is that we will have broken the \$80,000.00 mark by the time the bike is sold and all of the money is counted.

I would like to thank those individuals and companies who sponsored me on this ride, and also those who already support Water For People in other ways. For those of you who have yet to find a way to get involved, I would encourage you to visit the Water For People web site (www.waterforpeople.org) or to contact the WFP committee at WEAO. For those of you who may be motorcycle enthusiasts, I would heartily recommend that you consider joining the Water Buffalos for the fourth annual 'Ride With Purpose' to the 2009 AWWA Annual Conference in San Diego, CA.

For additional information about the 'Ride With Purpose,' the Water Buffalos, and sponsorship opportunities, please feel free to contact me or visit the 'Ride With Purpose' website. ♦

dhoekstra6@msn.com

www.ridewithpurpose.com



Don Hoekstra and fellow 'Water Buffalos'.



Corporate Announcement

R.V. Anderson Associates Limited is pleased to announce the election of R. Tom Richardson as a Director of the company.

Tom received his Bachelor of Applied Science from the University of Waterloo and is a registered professional engineer in Ontario, with over 27 years of experience as a structural design engineer and project manager.

He recently served as the firm's Project Manager for the Burloak Water Purification Plant Intake Tunnel, which received the 2008 Award for Engineering Project of the Year, Innovative Category, presented by the Ontario Society of Professional Engineers Engineering Week Committee and the Hamilton Engineering Institute.

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CALL FOR NOMINATIONS

6TH ANNUAL AWARDS FOR EXEMPLARY BIOSOLIDS MANAGEMENT

Recognizing Excellence in Biosolids Management

The Water Environment Association of Ontario (WEAO) biosolids management award recognizes biosolids practitioners who go beyond normal requirements and 'raise the bar' in the practices of managing biosolids.

Objective

The objective of the awards program is to promote excellence in biosolids management in Ontario

Categories

Two awards categories recognize excellence for small (<5 dry tonnes per day) and large (>5 dry tonnes per day) biosolids generators. Within these categories, the awards will recognize excellence on the basis of contributions in one or more areas that include operating projects, technology development activities, research activities, and public acceptance activities.

Nominations

A nomination package, available on the WEAO web site, must be submitted to WEAO for an organization to be eligible for an award. Nominations may be prepared by the proponent or by other supporting organizations such as engineers, consultants, and agronomists. Submission guidelines, the requirements for nomination and the evaluation criteria can be obtained from the WEAO web site (www.weao.org).

Award Recognition

The awards will be announced at the WEAO Annual 2009 Conference at the Westin Harbour Castle Hotel in Toronto, Ontario and will consist of a certificate and a plaque.

The WEAO will also publicize the award-winning projects in the WEAO *INFLUENTS* magazine.

The deadline for submission of nominations for 2009 is Friday, January 16. Use this as an opportunity to get some good publicity for your biosolids management program. ♦



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FAREWELL TO MAE GROVE

It was with sadness that I learned that Mae Grove had passed away on January 15, 2007 in her 94th year. It was at the Markham Hospital after a 10-day stay due to congestive heart failure. Many of us did not have the pleasure of meeting Mrs. Grove or knowing much about her.

From the history books of the WEAO, it is known that, in 1932, Dr. Albert E. Berry called a meeting, which resulted in the formation of the Canadian Institute on Sewage and Sanitation in 1933. The Institute later became affiliated with the US-based Federation of Sewage Works Associations (later known as the Water Pollution Control Federation).

In 1961, the name of the Canadian Institute on Sewage and Sanitation was changed to the Canadian Institute on Pollution Control (CIPC). Although quite separate entities, the Canadian Section AWWA and the CIPC shared both office space and secretarial staff in Toronto, through what was known as the Water and Sanitation Secretariat. It was guided by Dr. Berry and ably administered for many years by Mae Grove.

From an article in the *Windsor Press*, October 25, 1966, we learned that Mrs. Grove was the executive secretary of the CIPC. She was interviewed by the *Windsor Press* because, for the past 20 years, she had been working in an all male field of water pollution control. She admitted that "I feel more at home with a crowd of men than with a crowd of women."

The four-day conference of the CIPC at the Cleary Auditorium was in full swing and Mrs. Grove was the only woman working among the 600 male delegates. Four years prior to the confer-

ence, she had started lining up speakers, conference facilities, hotel accommodation and meeting dates, and working from then on arranging advance publicity, luncheons and dinners. Following the Windsor conference, Mrs. Grove was off to Montreal, where she was asked to attend and lend a hand with the Resource Ministers of Canada Conference.

Mrs. Grove was so experienced at handling the 'behind the scenes' work at large conferences that she considered the smaller one-day area conferences of the Canadian Section of the American Water Works Association "a holiday." Mrs. Grove was also secretary of the Canadian Section of the AWWA and she attended the area conferences which were held in the spring and fall throughout Ontario.

Mrs. Grove got into the field of work after her husband was killed in World War II. She began working for the Ontario government and was assigned to the Sanitary Engineering Division of the Ontario Department of Health, headed by Dr. Albert E. Berry. She was Dr. Berry's "Joe girl" (a term she preferred to 'Girl Friday'). Dr. Berry was the Secretary Treasurer of the CIPC.

Mrs. Grove was also an ardent fan of the Toronto Maple Leafs and had season tickets to the games. In October 1966, she predicted that, even though the Leafs have a "new young team coming up," she would see her team in the playoffs. (Editor's note: Mrs. Grove must have been in the stands cheering her Maple Leafs when they won the Stanley Cup in the spring of 1967.)

Mrs. Grove was the first female to be inducted into the Ontario Select Society of Sanitary Sludge Shovelers. For her long service with the PCAO, she was honored with an award when she attended the WEAO conference. I had the distinct



Mae Grove and Jim Brooker - 5S Award
courtesy of Steve Davey, ES&E Magazine

honour to meet Mrs. Grove prior to the annual awards luncheon. She said she had many stories about the time she spent working with Dr. Berry. I wish we had had the time to hear more of her stories. I will always remember Mrs. Grove being apprehensive about not being able to wear her shovel to the Awards Luncheon, since she had misplaced it a few years earlier. Jim Brooker presented her with his shovel as a replacement at the annual luncheon on April 22, 2002, and Mrs. Grove received a standing ovation from all those in attendance.

After this brief encounter with Mrs. Grove, we lost touch with her. She was on the mailing list of the 5S society and received the annual newsletter until a few years ago, after she broke her hip and was relocated from her Barrie home to Sunrise Assisted Living in Markham, where she enjoyed all the activities and outings even though she became too accustomed to her wheelchair.

Mrs. Grove had a place in Clearwater, FL where she spent the winters until she broke her hip. She still wanted to winter there, but her Canadian medical coverage would not allow this. This was very hard on her, as she looked forward to spending as much time as possible with her family which had relocated from Toronto to Florida.

Her family consisted of her only daughter Dianne Widlicka, her two granddaughters, Natalee Gleiter (husband David) and Stephanie Buchanan; and two great grandchildren, Chelsea Gleiter and Garrett Gleiter.

Mrs. Grove was very devoted to water and sanitation long before it was popular, and with Dr. Berry they did so much. We will miss her inspiration. ♦

David Hein
Editor 5S Newsletter

ERV MCINTYRE MADE HIS WATER MARK

*“And time remembered
is grief forgotten.”*

- Algernon Charles Swinburne



he water industry lost one of its true characters this summer with the passing of Cecil Ervan “Erv” McIntyre. Erv passed

away peacefully on August 2, 2008 at Credit Valley Hospital in Mississauga, Ontario.

Born in the Northern Ontario village of Hornpayne in 1936, Erv, like most Canadian youngsters, grew up playing road hockey and ice hockey. His local gang used to stickhandle, pass and shoot whatever was available – pucks, tennis balls, horse droppings and even rubber balls doused with lighter fluid and set aflame (probably for the night games).

Early in his Grade 11 year, Erv’s family moved to Burlington. The move was hard on the teenager until he found a hockey team, at which point the new city began to feel like home.

Soon, Erv moved on to the University of Toronto where he earned a Masters in Sanitary Engineering (1961). For two summers during his university career, Erv worked on construction projects in Baie Comeau, Quebec, where he befriended a young man who would go on to become a Prime Minister of Canada – Brian Mulroney.

Coming out of university, Erv signed on as a professional engineer with the Province of Ontario. This was the beginning of a career that lasted over 30 years and included stints with

the OWRC, MOE and Interim Waste Authority.

Looking back on his career in a feature story he wrote for the 5-S Society, Ontario Chapter newsletter in 1999, Erv recalled that when he started with the Province, there were zero sewage treatment facilities in Ontario municipalities and little or no such facilities at any pulp or steel mill either. He made this point to counter claims by those who swear that our waterways were cleaner decades ago.

Erv’s first job was with the District Engineers Section of the Sanitary Engineering Division of the OWRC. He carried out inspections of waterworks and sewage treatment plants three times per year throughout one-quarter of the province.

After a brief time on the job, the OWRC sent all the ‘new boys’ back to university to obtain a Master degree in Public Health Engineering. (The OWRC paid each of the employees half their salary, or \$200 per month, plus their tuition.)

In 1974, following a departmental reorganization, Erv and his family moved to Kingston, headquarters of the newly named Southeastern Region. Erv recalled traveling home in his VW Beetle from opening a new sewage treatment plant in Merrickville (near Smith Falls) when he collided with a cow. Of course, at the staff Christmas party a few months later, he was presented with the CEM (Cow Elimination Management) Trophy, which occupied a treasured place on his mantle even after retirement.

In 1977, Erv was transferred to Sudbury, where he ended up working closely with the mining industry and its efforts to improve its various treatment facilities in the region.



*Erv McIntyre (left) with Jim Brooker
at a recent 5S lunch.*

Another transfer in 1982 sent Erv on to Toronto as a member of the Approvals and Project Engineering branch. His first assignment was the appeal of the Whitchurch Stouffville landfill site. In Erv’s words, “These were heady years, with a grant budget in excess of \$200 million annually; and at most times we had construction in excess of \$400 million annually going on.”

In 1990, a crown agency was formed (Interim Waste Authority or IWA) with a mandate to find three landfill sites for the Greater Toronto Area. A staff of 12, including Erv, began an exhaustive search for the trio of sites. Just as the hearings were to take place in 1993, the government changed, the process was terminated and the responsibility for landfill sites was returned to the municipalities. This was to be Erv’s last major project as he retired at the end of 1993.

In summing up his career for the 5-S Society newsletter, Erv stated, “One constant rings out – the wonderful people I worked with, for, and sometimes against. The fellow employees, the consultants, the suppliers, the contractors, the lawyers, planners, politicians, lobby groups and media all were interesting people who made the work a pleasure.”

It is probably safe to say none were more interesting than Erv McIntyre. He will be sorely missed.

Erv leaves behind his wife of 45 years, Jill, three children (John, Joleen and Gordon) and their spouses, and six grandchildren (Taylor and Hayley McIntyre, Maggie and Andrew Chalk, and Natasha and Desmond McIntyre). Memorial donations may be made in Erv’s name to the Kidney Foundation of Canada. ♦

TEAMWORK DEFINES THE SLUDGE HAMMERS



When the Durham Region puts together its annual team for the Operators Challenge,

the greatest skill members bring to the group is their commitment to teamwork. It is a skill they hone every day in their various positions at the Region's wastewater treatment plants and one they practice at every training session as they prepare for the competition.

That ability to work together effectively and efficiently paid great dividends this year, as Durham's Sludge Hammers came away with first prize at the WEAO Operators Challenge in Collingwood. "Our strength came

from working together as a team and learning from each other's mistakes," says Wade Hunt, a Duffin Creek Maintenance Operator who joined the Sludge Hammers in 2004. "I like the competition, the challenge. With joining, it helped me achieve my licenses for wastewater, because of the studying we had to do."

Although the five members agree that the Process Control Event – 120 multiple choice questions and four situational operational problems – is their least favourite part of the competition, the team still managed to snag third position in this event. Hunt preferred the Safety Event. "That is what I would apply in a real environment if I had too," he says, adding that, as yet, he has never had to perform a rescue. His daily work involves repair and rebuilding pumps, as well as diagnosing and fixing operating problems.

For Jamie Gratrix, the newest member of the team, the Challenge's Pump Maintenance Event was the most enjoyable. "We each have our own talents," he explains, "but, in this event, we really have to come together and understand what the other members are doing." As a Maintenance Operator on Duffin Creek's liquid side for the past five years, Gratrix duties include the lab as well, experience that came in handy for performing a BOD test during the Laboratory Event.

"He has an excellent grasp of plant processes and valued trouble shooting abilities," says Jeff Lang, the team's coach. With the Region since 1974, Lang worked as a plant operator for many years before becoming plant foreman. In 2000, he became supervisor of four plants in the Region.

"The team does a lot of hands-on practice on the equipment to improve



(L-R) Craig Dignard (Captain), Wade Hunt, Jeff Lang (Coach), Noah Dorland, Jamie Gratrix.

their times and accuracy,” says Lang. “They work well together as a team, with lots of spirit. Each member brings his or her own strengths/ideas to the table and it creates a lot of lively discussions.”

“Everybody is always learning something new from the events,” he adds. “Also, the interaction between the teams from other areas is great. You find out that you are not alone out there. They all have issues and challenges, and it is a good source of information about all aspects of the plants. Often, at these events, you can meet the designers of your plant and get some insights about why things were constructed in a certain manner. It can help you in solving process matters.”

Noah Dorland notes that participating has given him the opportunity to learn more about the lab and process. “I joined the Sludge Hammers when one of the old members retired three years ago,” he recalls. “I have always enjoyed being part of a team.”

Since its inception 12 years ago, the team has seen a number of different faces. As one team member retires, a new face is brought in, along with a fresh perspective on the events. “We try to match each individual team member’s skills and strengths to tasks in the events that we feel they will excel at,” says Craig Dignard, the captain of the team. “We also have lots of fun practicing and competing.”

The fun quotient came into play when Dignard and his wife Sharon came up with the name Sludge Hammers one night when they were brainstorming to replace the old name ‘Flush in the Pan.’ The wives of the team members are affectionately called the Sludge Bunnies and they are great supporters of the team.

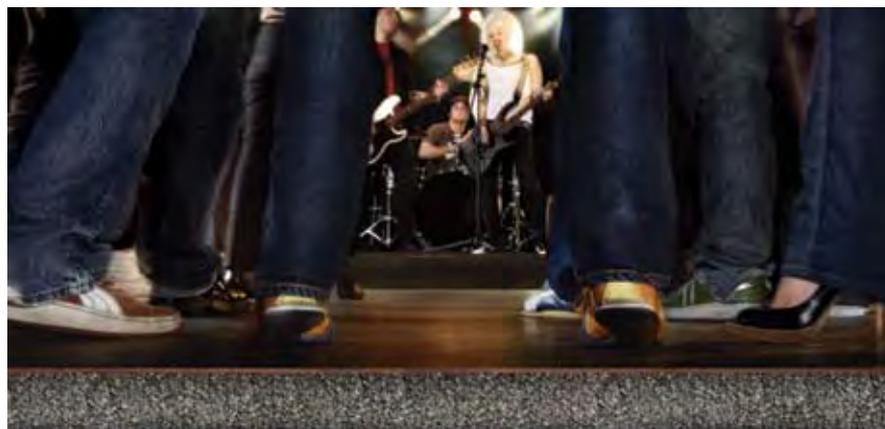
The Region of Durham is also a great supporter, Dignard points out, adding that the support of Commissioner of Works Cliff Curtis and Director of Environmental Services John Presta has played a key role in the success of the Sludge Hammers. “They provide us with the necessary equipment and training hours needed to compete year after year,” he explains. As a maintenance operator since 1991, Dignard is busy

with responsibilities that include plant maintenance, operations, lab duties, and trouble shooting of plant systems.

Just like his fellow team-members, he works mostly under the public radar. Then, once a year, thanks to the Operators Challenge, hundreds of spectators catch a glimpse of these important activities. “Most members of the public do not know that we exist, what we do, or the daily challenges that municipalities face

in the treatment of sewage,” says Coach Lang. “I think it is great that the operators of all the treatment plants in the province have a chance to be recognized for the excellent jobs they do.”

On October 21 and 22, the Sludge Hammers were one of two teams to represent Ontario at the WEFTEC Operations Challenge Competition in Chicago, Illinois. ♠



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ABORIGINAL CONSULTATION DURING CLASS ENVIRONMENTAL ASSESSMENTS



onsultation with Aboriginal peoples is often a major component in project and infrastructure planning and environmental assessment.

Significant delays, major cost and community consequences are the result, where the legal obligations are inadequately implemented. Municipalities involved in water and wastewater infrastructure developments need to understand the Aboriginal consultation obligations set out in Class Environmental Assessments, and further described by the Courts.

Environmental Assessment Act

Environmental Assessment (EA) in Ontario is a decision-making process defined by the Ontario *Environmental Assessment Act (EAA)*.¹ The purpose of the *EAA* is stated in section 2. The purpose is to provide for the betterment of the people of Ontario by the “protection, conservation, and wise management” of the environment. The EA process requires that environmental problems, opportunities and alternatives be considered in the initial planning process for the project or undertaking.

The *EAA* requires proponents to consult widely with all persons who are ‘interested.’ According to the Ministry of the Environment (MOE) *Code of Practice for Consultation* in Ontario’s Environmental Assessment Process², Aboriginal persons and communities

are automatically included as interested persons. The *Code* provides guidance on identifying and consulting with Aboriginal persons and communities.

The term ‘Aboriginal’ means First Nations, Métis and Inuit peoples and communities.

In addition, some of the approved Class Environmental Assessment documents and related guidance materials provide specific recommendations on Aboriginal consultation in the context of the particular Class EA project.

What are Class EAs?

Certain groups or classes of projects that are carried out routinely and have predictable and mitigable environmental aspects do not need to go through the full EA review and approval process. These are known as Class Environmental Assessment (Class EA) undertakings, and are described in Part II.1 of the *EAA*. Class EAs are established when a proponent (such as the Ontario Municipal Engineers Association) submits terms of reference to the MOE, has them approved, and submits a Class EA that is approved by the MOE. Various Class EAs cover routine infrastructure activities related to highway construction and maintenance, forest management activities, conservation authority work, transit and other public sector activities.

The Class EA sets out a standardized planning process for undertakings covered by the Class EA. An individual proponent who follows the planning process and procedures set out in the

approved Class EA, including public consultation, is exempt from the full EA approval process. No formal EA approval is required for that undertaking, unless the Minister makes a ‘bump-up’ order under s. 16 of the *EAA*. Bump-up orders are rare, and usually result when an undertaking raises significant concern or may have more environmental impacts that are usual for that Class.

Ten approved Class EAs

There are currently 10 approved Class EAs including:

- ◆ Municipal Class EA;
- ◆ Class EA for Provincial Transportation Facilities (expired August 19, 2008 – Ontario Power Generation must now follow O. Reg. 116/01 or Class EA for Waterpower Projects, if approved);
- ◆ Go-Transit Class EA;
- ◆ Class EA for Modifications to Hydro Electric Facilities;
- ◆ Class EA for Minor Transmission Facilities;
- ◆ Class EA Process for Management Board Secretariat and Ontario Realty Corporation;
- ◆ Class EA for Remedial Flood and Erosion Control Projects;
- ◆ Class EA for MNR Resource, Stewardship and Facility Development Projects;
- ◆ Class EA for Provincial Parks and Conservation Reserves; and
- ◆ MNR’s Class EA Approval for Forest Management on Crown Lands in Ontario.³

💧💧 An individual proponent who follows the planning process and procedures set out in the approved Class EA, including public consultation, is exempt from the full EA approval process. 💧💧

We have limited our discussion below to the Municipal Class EA, as it applies to municipal water and wastewater infrastructure projects. It provides a process with varying levels of intensity, depending on the potential environmental impact of the type of project.

Municipal Class Environmental Assessments

The Municipal Class EA was approved under the EAA for municipal infrastructure projects including roads, water and wastewater projects. Projects undertaken under the Class EA are classified in terms of activity and potential for environmental impact:

- ◆ **Schedule A:** These are pre-approved projects that involve normal or emergency operational and maintenance activities with minimal environmental effects requiring no consultation.
- ◆ **Schedule A+:** These projects require the public to be advised prior to project implementation.
- ◆ **Schedule B:** These projects address improvement and minor expansions to existing facilities with some adverse environmental effects. They require a screening process, including consultation with those who may be affected.
- ◆ **Schedule C:** These projects involve new facility construction and major expansions to existing facilities. They must follow the environmental assessment planning process

outlined in the Municipal Class EA, including consultation with those who may be affected.

The Municipal Class EA is neither an all inclusive checklist nor a detailed 'how to manual for consultation during project planning and design. Mandatory consultations with interested persons are required at Phase II – consideration of alternative solutions, Phase III – alternative designs for the preferred solution, and Phase IV – environmental study report.

The consultation requirements in the Municipal Class EA are a minimum only. Proponents are to tailor the consultation plan to address the needs of each specific project and the identified stakeholders. Additional consultation will be required for controversial, lengthy or complicated projects. Contact with the MOE, Ministry of Aboriginal Affairs, and Indian and Northern Affairs is to be sought where Aboriginal persons and communities are identified as interested persons under Municipal Class EA projects.

Aboriginal consultation is an essential part of Class EAs

The Class EA guidance documents identify minimum mandatory public consultation requirements. Proponents of undertakings are required to develop a public consultation plan that identifies potential stakeholders and special requirements, the level of consultation,

appropriate means of contact, and the general timing of contact prior to a project receiving approval.

As noted above, consulting with Aboriginal persons and communities is intrinsic to the planning process under a Class EA.

Consultation is intended to:

- ◆ identify concerns;
- ◆ identify relevant information, guidelines, policies and standards;
- ◆ facilitate the development of a list of all required approvals, licences or permits;
- ◆ provide guidance to proponents about the preparation of terms of reference and Class EAs;
- ◆ ensure that relevant information is shared about the proposed project;
- ◆ encourage the request for further information and analysis early in the Class EA process; and
- ◆ enable the Ministry to make a fair and balanced decision.⁴

A typical Class EA planning process will indicate specific mandatory points of contact. These contact points should be considered a minimum level of effort for a proponent to undertake. Additional contact with interested persons or concerned groups will be required where the project is controversial, lengthy or complex.

Consultation with Aboriginal persons and communities is required by all 10 Class EAs.



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Potentially affected Aboriginal communities are encouraged to participate during the preparation of any new Class EA and in the planning and implementation of specific Class EA projects. Proponents need to consult with potentially affected Aboriginal communities in order to:

- ◆ identify any issues and concerns that may effect the Aboriginal communities during the preparation of the terms of reference and the Class EA;
- ◆ outline the Aboriginal and treaty rights and claims with clarity;
- ◆ focus on the scope and nature of the Aboriginal and treaty rights and claims being asserted and the nature of any infringement;
- ◆ suggest modifications that may address the Aboriginal communities' concerns, focussing on matters directly related to the project or Class EA associated with the project; and
- ◆ consider ways to reach a mutually satisfactory solution.⁵

Level of consultation required

Where the potential to infringe upon existing and asserted Treaty and

Aboriginal rights triggers the Crown's duty to consult under section 35 of the *Constitution Act*, 1982,⁶ the Crown may delegate its duty to consult to proponents. The Class EA process is effectively such a delegation, and proponents will need to understand and apply the case law surrounding the duty to consult.

Proponents will be required to determine the level and extent of consultation required and how the consultation should be undertaken.

The duty to consult is grounded in the 'honour of the Crown,' which denotes the seriousness of the obligations. The Supreme Court in *Delgamuukw v. British Columbia*⁷ stated that section 35 places an obligation on the Crown to consult with those possessing Aboriginal rights that are tied to land where these rights will be affected by alternate use of the land. This obligation also exists in every case where Aboriginal title and rights have not been definitively proven, but merely asserted.⁸

The scope of the required consultation will vary with the circumstances of each case. The scope of consultation is dictated by the proposed project/activity, the strength of the established or

asserted Aboriginal right or title held by the Aboriginal group, and the potential adverse impact of the project on that right or title.

The scope of the duty lies on a spectrum with, at one end, a weak claim and no serious impact requiring limited level of consultation to, at the other end, a strong *prima facie* claim where serious adverse impact is likely to occur.

It is important to understand that:

- ◆ the nature, scope and content of the duty to consult and accommodate varies with the circumstances and the project being undertaken;
- ◆ meaningful consultation requires the Crown/proponent to listen with an open mind to what the Aboriginal persons and communities have to say;
- ◆ there may be an obligation to make changes to the Class EA process or project based on information obtained during consultation with Aboriginal persons and communities;
- ◆ accommodation requires a process of balancing interests; and
- ◆ responsiveness is the key element of both consultation and accommodation.⁹

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Who to consult

The Chief and Council of the closest Indian Reserve is the place to start. However, consultation does not stop there. The views of traditional chiefs, elders and harvesters are all important to understand.

Proponents should be mindful that traditional territories, treaty areas, or areas of rights are extensive and may overlap. It may be insufficient to consult only with Aboriginal communities with reserve lands in the vicinity of the proposed project.

Proponents must make good efforts to engage Aboriginal communities identified as interested persons. At a minimum, the proponent will be required to contact the identified Aboriginal communities; provide the Aboriginal communities with the requisite notices under the Class EA; provide the Aboriginal communities with notification of open houses and public meetings; provide project documentation for review and comment; and offer any information as requested by the Aboriginal communities.¹⁰

Cemeteries Act

The *Cemeteries Act*¹¹ also triggers Aboriginal consultation, where human remains or artifacts are discovered during any project, including Class EA projects.

The *Cemeteries Act* requires that, where human remains or artifacts are found, the proponent must negotiate acceptable means of dealing with the human remains or artifacts with the Aboriginal community or First Nation that is geographically or culturally most affiliated with the human remains and artifacts.

Many municipalities have developed protocols and procedures to follow when consulting with Aboriginal communities over artifacts. Their successful experiences and relationships can be built on for the Class EA consultation process. ♦

References and suggested resources

- ♦ Ontario Ministry of Environment web site - www.ene.gov.on.ca/envision/ea/index.htm
- ♦ Code of Practice: Preparing, Reviewing and Using Class Environmental Assessments in Ontario (Draft, August 2007)

- ♦ Code of Practice: Consultation in Ontario's Environmental Assessment Process (June 2007)
- ♦ Code of Practice: Preparing and Reviewing Environmental Assessment in Ontario (Draft, August 2007)
- ♦ Municipal Engineers Association. Municipal Class Environmental Assessment, October 2000, as amended in 2007 (Approved by Order-in-Council no. 1923/2000)

End notes:

- 1 *Environmental Assessment Act*, R.S.O. 1990, c. E.18.
- 2 Code of Practice: Preparing, Reviewing and Using Class Environmental Assessments in Ontario (Draft, August 2007) (Class EA).
- 3 Parent Class EA List, http://www.ene.gov.on.ca/envision/env_reg/ea/english/General_info/Parent_Class_EA_List.htm
- 4 Code of Practice: Class EA at page v.
- 5 Code of Practice: Class EA at page 11 – 12.
- 6 *The Constitution Act, 1982*, being Schedule B to the *Canada Act 1982* (U.K.), 1982, c. 11.
- 7 *Delgamuukw v. British Columbia*, [1997] 3 S.C.R. 1010 (S.C.C.).
- 8 *Haida Nation v. British Columbia (Minister of Forests)*, [2004] 3 S.C.R. 511 (S.C.C.).
- 9 Code of Practice: Class EA at page 25.
- 10 Code of Practice: Class EA at page 68.
- 11 *Cemeteries Act (Revised)*, R.S.O. 1990, c. C.4.

By Juli Abouchar, Partner and Environmental Law Specialist certified by the Law Society of Upper Canada, and Jacquelyn Stevens, Associate Lawyer with masters degrees in geology and environmental law and policy. Willms & Shier Environmental Lawyers LLP



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EF is redeveloping its website, including a whole new look for our home page, improved navigation, and exciting new features to better help members 'Access Water Knowledge.' Phase I of this project (the preliminary redesign) includes a new 'Water Hero' section on the home page, complete with photos and brief bios of our wonderful members who work so hard every day to clean the world's water.

Recognizing these unsung Heroes of clean water will help tell the story of the vital role WEF members play in protecting public health and the environment. It is your opportunity to recognize your peers, and we really need your help to make it happen.

Please send names, titles, and email addresses of anyone you would like to highlight as a Water Hero to waterheroes@wef.org. Any folks you have nominated for various awards (not necessarily actual winners) would be great to include, please send us those names and we will take it from there.



In fact, we will contact your nominees and ask them for photos and permission to highlight them on the home page. Thanks in advance for any of your nominations, and for all you do to keep our waters clean.

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SEPTIC TANKS AND DECENTRALIZED WASTEWATER TREATMENT SYSTEMS

Pat Coleman, PhD, P. Eng, AECOM



A septic tank is a buried, watertight container, which normally accepts wastewater from a single dwelling. Septic tanks can be made from concrete, polyethylene or fiberglass. Current tanks have two compartments, while older tanks may only have one. Solids settle to the bottom of the tank, forming a

sludge layer, while oil and grease float to the top, forming a scum layer. Septic tanks are horizontal flow reactors where aerobic, facultative and anaerobic organisms perform complex biochemical processes, which may take two to three years to mature. Septage (digested sludge from the bottom of the tank) is removed and taken to a regional treatment plant or treatment facility.

Septic tanks provide primary settlement and sludge digestion to over 26 million homes in the United States and to over 30% of homes in Ontario. The septic tank forms the backbone of many onsite and decentralized wastewater treatment systems. They are robust, cost-effective and rely on natural processes.

The Water Environment Research Foundation (WERF), as part of the research program that grew out of the *Baltimore Charter* (http://www.ndwrcdp.org/userfiles/Balto_Charter.pdf) has identified research gaps in our understanding of this technology, which has been in use since the early 1900s. The WERF report entitled *Factors Affecting the Performance of Primary Treatment in Decentralized Wastewater Systems (2008)* took a fresh look at the existing body of work to establish what is known, what is not known and what future research may be warranted.

The design, construction, installation and maintenance of septic tanks are determined by prescriptive regulations and standards. This is because, for the most part, these systems are not monitored. The view is that, if we cannot

determine if something is properly maintained and operated, we should ensure that what is installed will at least perform with minimal maintenance.

The path of least resistance is to follow these standards and not challenge the regulator. When these systems start to have an impact on the environment, the normal approach taken by the engineering community is to abandon the septic tanks, connect the homes to sewers and convey the wastewater to a central treatment plant. However, there may be four other possible solutions which may be more sustainable, but are difficult to adopt because of the regulatory and engineering perception:

- integrated regional management of individual onsite systems;
- up-to-date or innovative septic tank designs;
- more advanced onsite systems (e.g., Waterloo Biofilter); and
- conveyance of septic tank effluent through small diameter sewers to a central treatment plant (e.g., septic tank effluent pump (STEP) or septic tank effluent gravity (STEG) systems).

In the 1997 *Response to Congress on Use of Decentralized Wastewater Treatment Systems*, the US EPA recognized this limitation by stating that, with the technology now available, adequately managed decentralized systems can protect public health and the environment, as well as provide long-term solutions for the nation's wastewater needs.

The issues surrounding decentralized systems are discussed in numerous WERF reports including:

- *Promoting Equitable Consideration of Decentralized Wastewater Options (2007)*;
- *Overcoming Barriers to Evaluation and Use of Decentralized Wastewater Technologies and Management (2007)*;
- *Long Range Planning for Decentralized Wastewater and Stormwater Research: Workshop Summary (2007)*; and
- *Analysis of Existing Community-Sized Decentralized Wastewater Treatment Systems (2008)*.

These reports identified four barriers to the use of decentralized systems:

1. engineer's financial reward for using centralized systems;
2. engineer's lack of knowledge of decentralized systems;
3. unfavourability of the regulatory system for decentralized systems; and
4. lack of systems-thinking applied to wastewater systems.



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The WERF report on septic tanks is one of the many steps being taken by the engineering community to address these concerns. What WERF and others are finding is that the design and operating data on these onsite systems is scarce. Most work done to optimize septic design has been based on single residential homes. The data on their use at larger facilities such as highway rest areas, residential clusters, and recreational areas is scarce. Some of the research that has been done is flawed because the septic tanks were seeded with sludge from wastewater treatment plants and not allowed to develop the ecology that occurs in the field.

Septic tanks cycle organic carbon through settling to the sludge layer and subsequent resolubilization. A portion of the organic carbon is biologically transformed in the tank supernatant. In warmer countries such as Brazil, Columbia and the Middle East, where the sewage is warmer, UASB septic tanks are used to remove a large fraction of the chemical oxygen demand prior to aerobic treatment of the supernatant. One UK water company is currently piloting a technology developed for temperate climates to see if the same approach can be used to reduce the energy consumption in colder climates.

In the septic tank, nutrients such as nitrogen and ammonia are converted into a soluble form and pass to the septic field. The current estimate is that 6% of the phosphorus entering the sensitive Lake Simcoe system is being leached from septic tile fields. It is situations like these that led to the development of centralized treatment of septic tank effluent.

In order to improve the design and performance of septic tanks, WERF researchers argued that we need a better understanding

of how the tanks are sized, the location of baffles within the tank, the relationships between hydraulics and settling, controls over wastewater discharges (e.g., use of garbage grinders), intermittent and surging flows, changes in temperature over the four seasons (e.g., spring turnover), addition of biochemical enhancers, when and how much solids to remove from the tank, how to monitor performance, and the choice of the best construction and installation techniques. We also need to evaluate options to the conventional septic tank including meander, laminar flow, closed conduit tanks, UASB and Imhoff tanks. WERF researchers also argued that we need to look at the use of remote monitoring and integrated management of these systems.

The WERF report includes a database of over 550 relevant references and 20 research priorities. These priorities cover three areas: (1) overall system performance, (2) performance as a function of wastewater characteristics, and (3) oversight and operation (e.g., capital and operating costs). These priorities are complimentary to those identified in the companion WERF report entitled *Influent Constituent Characteristics of the Modern Waste Stream from Single Sources: Literature Review (2007)*.

The goal of this work is to develop a manual that will equip engineers and others to evaluate and design decentralized systems using septic tanks, a manual similar to the WERF report *Small-Scale Constructed Wetland Treatment Systems: Feasibility, Design Criteria and O&M Requirements (2006)*. ♦

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THE BALTIMORE CHARTER FOR SUSTAINABLE WATER SYSTEMS

Water is at the heart of all life. In the past, we built water and wastewater infrastructure to protect ourselves from diseases, floods, and droughts. Now, we see that fundamental life systems are in danger of collapsing from the disruptions and stresses caused by this infrastructure.

New and evolving water technologies and institutions that mimic and work with nature will restore our human and natural ecology across lots, neighborhoods, cities, and watersheds. We need to work together in our homes, our communities, our workplaces, and our governments to seize the opportunities to put these new designs in place.

Our group of scientists, engineers, environmentalists, government officials, manufacturers, and members of the private sector are part of the solution. We have both the opportunity and obligation to participate with others on this task of transforming how we think and act in relation to water.

We commit to implementing more sustainable water systems by expanding uses and opening new markets for small-scale treatment processes, advancing research on micro-biological and macro-ecological scales, inventing new technologies based on nature's lessons, creating new management and financial institutions, reforming government policies and regulations, and elevating water literacy and appreciation in the public.

SIGNATORIES:

This Charter was signed on March 15, 2007 by participants in a long-range planning workshop convened by the Water Environment Research Foundation (WERF). This workshop followed the international conference, Water for All Life: A Decentralized Infrastructure for a Sustainable Future, which met from March 12-14 in Baltimore, Maryland, USA. The conference was convened by the National Onsite Wastewater Recycling Association, International Water Association, and WERF.



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Future *INFLUENTS* Themes

Use of Computer-based Models in Wastewater Treatment

Computer-based models are widely used in the design of sewerage systems and wastewater treatment plants. Sewerage models are now used to track pollutants through the sewerage system, as well to design real time control systems. Two Ontario-produced process modeling products are used worldwide to design wastewater treatment plants. Computational fluid dynamics are being used to predict mixing and resolve complex hydraulic problems. Odour dispersion modeling is playing a larger role in design and environmental approval. This issue will showcase how each type of model is now used in our industry in Ontario.

Energy (Winter 2008)

Wastewater is often seen solely as a pollutant when, in reality, it is also a resource. This issue will showcase energy conservation, production of energy from biogas, and the role sewage treatment plays in global warming. The issue will also look at projects that have met Leadership in Energy and Environmental Design (LEED) certification.

Methods of Delivery

The most common method of delivering municipal infrastructure projects is consultant lead design. However, there are other models that are used, depending upon client requirements and the availability of project funding. This issue will look at these alternative methods of delivery and highlight key projects. These methods include Private-Public-Partnership (P3), Design-Build, and Design-Build-Operate. The issue will also look at alternative client-consultant-contractor relationships such as Framework Agreements, which are widely used in the UK. In addition, this issue will look at the use of Performance-based Specifications.

Small Systems and Rural Ontario

This issue will focus on challenges faced by onsite systems and treatment plants that serve less than 1,000 people. It will discuss advances in onsite treatment, the impact of septic tanks on lake environments, and the treatment of septage. This issue will also showcase wastewater treatment plants that serve either small communities, commuter communities or holiday communities.

Made in Ontario

This issue will celebrate wastewater treatment equipment and software products that were developed Ontario. The issue will contain articles on these products, describing how they were developed and the issues faced by their developers in bringing them to market. We want to demonstrate the importance of this sector to Ontario's economy and reputation.

Compounds of Emerging Concern

Scientific research indicates that the production, use, and disposal of numerous substances that offer improvements in industry, agriculture, medical treatment, and common household conveniences may have potentially adverse effects on human health and the environment. Present in the environment at low levels, these compounds of emerging concern (CEC) have recently been the focus of media attention and public concern. Only recently have researchers created analytical tools to detect CECs at very low levels, and there is a lack of knowledge regarding the occurrence, possible impacts, and levels of exposure that may affect the health of humans and wildlife. Over the last decade, research has expanded our understanding of the issue, but more is needed. This issue will explain what these compounds are, current thinking on their impact on the environment, and how the treatment of wastewater treatment may change to reduce this environmental risk.

WEAO Communications Committee



Carl Bodimeade

OCSI COMMENCES DISCUSSIONS WITH GOVERNMENT

The Ontario Coalition for Sustainable Infrastructure (OCSI) brings together the combined resources of six well-established organizations to work toward sustainable infrastructure in Ontario. The Coalition comprises:

- Water Environment Association of Ontario (WEAO) 
- Ontario Public Works Association (OPWA) 
- Ontario Water Works Association (OWWA) 
- Ontario Municipal Water Association (OMWA) 
- Municipal Engineers Association (MEA) 
- Ontario Good Roads Association (OGRA) 

The mission of the Coalition is promotion of the ‘Safe and Sustainable Infrastructure.’

The biggest news from OCSI is that we had what will hopefully be our inaugural meetings with the new Ministry of Energy & Infrastructure

(MEI) and the Ministry of Municipal Affairs and Housing (MMAH) in July. Luckily for us, the planets were aligned and Wayne Stiver, Catherine Jefferson and I managed to meet with MMAH in the morning and MEI in the afternoon of the same day – no mean feat given everybody’s busy schedule.

At the MMAH we met with Minister Watson’s head of staff, and some of the Minister’s senior policy advisors and staff members. MMAH were very interested in OCSI, who we are and our position on key infrastructure issues. A few subjects which came up during our meeting were ‘Places to Grow’ and the Greenbelt, funding programs (particularly the needs of small municipalities and their ability to respond to new programs) and PSAB 3150’s ability to act as a foundation for full asset management. It was agreed that there should be continuing dialogue between OCSI and MMAH policy advisors and staff.

The MEI representatives with whom we met were two key staff, they being the Assistant Deputy Minister responsible for Policy and Planning and the Manager for Environmental Policy. PSAB 3150 again raised its head during our meeting and again there was agreement that it is a commendable initiative, but it seems to be regarded by some as an accounting exercise rather than a useful building block towards full asset management. We all agreed that communicating the advantages and methods of asset management to elected officials can be a challenge as it can be a dry subject. However, they are very important



stakeholders and we must use the right terminology and language to get our points recognized by them.

Other subjects that were raised and on which there were good discussions were the role and responsibilities of MEI (still being finalised at the time of our meeting), the challenges faced by smaller municipalities, climate change, stormwater and CSO’s, and Bill 175. On the latter, MEI through its predecessor ministries have done a lot of consultation and feel that it has provided them with a good read on what their next steps should be – stay tuned. One of the issues that is apparently high on Minister Smitherman’s agenda is the economics of water and wastewater systems. They were pleased to hear that OCSI can act as a conduit between MEI and our constituent organisations, and so can combine and consolidate all of our organisations’ positions and concerns. It was a very useful and encouraging meeting, and there is a willingness on both sides to ensure the dialogue continues.

Representatives that we met at both ministries participate in the Provincial-Municipal Fiscal and Service Delivery

Review working groups. Their insights on both this and the recent Canada Builds funding announcements, which so far has largely been associated with transportation initiatives, will be of interest to OCSI's members and we will continue to report on these.

In my opinion, one of the things that impressed MEI and MMAH were the number of individuals and organisations that OCSI represents through its constituent organisations:

- MEA – 585 members from 104 municipalities
- OGRA – 422 municipalities, 24 First Nations, 248 corporate members
- OMWA – 193 municipalities, representing 7 million drinking water consumers
- OPWA – 580 members
- OWWA – 1700 members
- WEAO – 1200 members

This is both strong representation for Ontario's infrastructure sector and a great resource for the provincial government to draw upon when developing new programs or legislation.

OCSI is continuing with the networking connections we have already established and I recently met again with representatives of the Residential and Civil Construction Alliance of Ontario (RCCAO) to discuss items of mutual interest. I am also pleased to report that Cliff Curtis, Chair of the Regional Public Works Commission of Ontario (RPWCO), accepted our invitation to attend the OCSI meeting held on September 26. This enabled Cliff to meet the members of OCSI and discuss how RPWCO and OCSI can cooperate.

A concern that was raised in a recent OCSI meeting was that the subsurface infrastructure beneath roads must also be considered when funding programs for transportation rehabilitation are put in place. For our infrastructure systems to be sustainable, the surface transportation infrastructure (roads, bridges, etc.) and the subsurface infrastructure beneath (water, sewer, etc) have to be viewed and managed holistically as a single system. For example, if for whatever reason road and subsurface infrastructure projects are not coordinated and only the road is rehabilitated, then the newly installed road pavement may later have to be torn up prematurely to replace the aging subsurface

infrastructure below. Therefore OCSI wrote a letter to Premier McGuinty, with copies to the Ministers of Energy & Infrastructure, Municipal Affairs & Housing, and the Environment, expressing that management and rehabilitation of both surface and subsurface infrastructure must be carried out in a planned and structured manner if precious resources for infrastructure renewal are not to be wasted.

Through this regular column, I will keep you informed of OCSI's activities and developments in Ontario's infrastructure sector. If you have any questions or comments on OCSI, or would like any copies of our brochure, please do not hesitate to contact me at ocsi@ogra.org or carl.bodimeade@hatchmott.com. ♦

Submitted by Carl Bodimeade, Chair, OCSI



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CALENDAR OF EVENTS

NOVEMBER 2008

- Nov. 11** Residuals & Biosolids Committee, WEAO Office Milton 9:30 a.m.
- Nov. 12** Govt. Affairs Committee R.V. Anderson 9:30 a.m.
- Nov. 13** Joint WEAO/OWWA Asset Management Seminar Venetian Banquet Centre, Concord 8:00 a.m.
- Nov. 14** Public Education Committee WEAO Office, Milton 10:00 a.m.
- Nov. 18** Board Meeting CH2M HILL 9:30 a.m.
- Nov. 19-21** 15th A.D. Latornell Conservation Symposium Nottawasaga Inn, Alliston
- Nov. 20** Odour Control & Management Seminar Best Western, Milton 8:30 a.m.
- Nov. 20** WFPC Committee 4:00 p.m.
- Nov. 21** Submission Deadline for *INFLUENTS*

DECEMBER 2008

- Dec. 3** Professional Development Committee
- Dec. 3-5** CWWA Window On Ottawa Ottawa
- Dec. 9** Residuals & Biosolids Committee, Followed by Luncheon, WEAO Office Milton 9:30 a.m.
- Dec. 10** BUC/WEAO Information Day Holiday Inn, Barrie 8:00 a.m.
- Dec. 12** Public Education Committee WEAO Office, Milton 10:00 a.m.
- TBA** Board Meeting TBA
- Dec. 18** WFPC Committee 4:00 p.m.
- Dec. 31** *INFLUENTS* Release Date

JANUARY 2009

- Jan. 13** Residuals & Biosolids Committee, WEAO Office Milton 9:30 a.m.
- Jan. 14** Govt. Affairs Committee R.V. Anderson 9:30 a.m.
- Jan. 20** Board Meeting CH2M HILL 9:30 a.m.

FEBRUARY 2009

- Feb. 10** Residuals & Biosolids Committee, WEAO Office Milton 9:30 a.m.
- Feb. 17** Board Meeting CH2M HILL 9:30 a.m.

MARCH 2009

- Mar. 10** Residuals & Biosolids Committee, WEAO Office Milton 9:30 a.m.
- Mar. 11** Govt. Affairs Committee R.V. Anderson 9:30 a.m.
- Mar. 17** Board Meeting CH2M HILL 9:30 a.m.
- Mar. 17-19** AMERICANA 2009 Palais des congres de Montreal

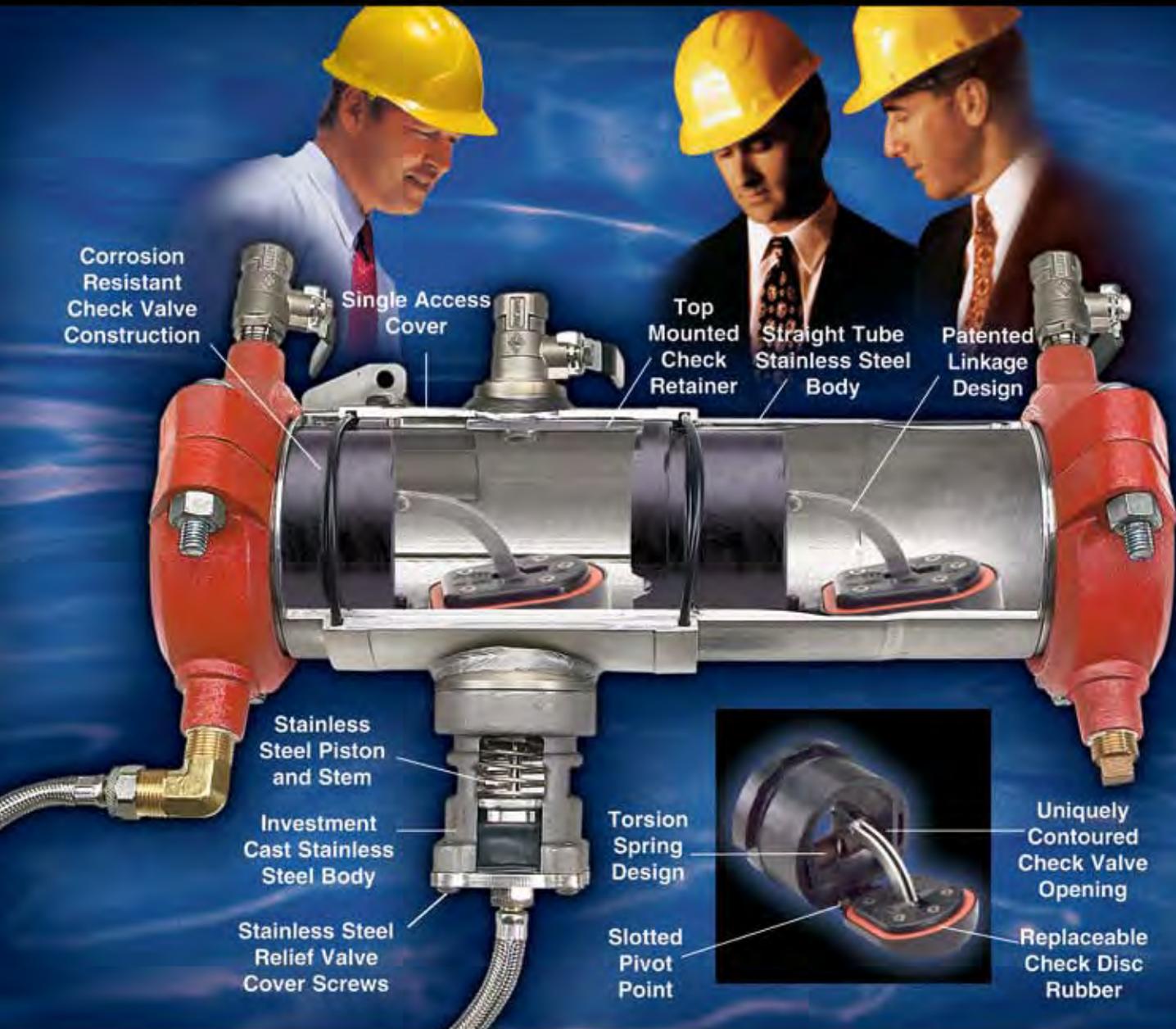
APRIL 2009

- Apr. 5** Board Meeting Westin Harbour Castle Hotel, Toronto 9:30 a.m.
- Apr. 5** WEAO AGM Westin Harbour Castle Hotel, Toronto
- Apr. 5-7** 38th Annual Technical Symposium & Exhibition, Westin Harbour Castle Hotel, Toronto'



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Aerial view of the Welland WWTP which was featured in the Spring 2008 issue of *INFLUENTS*

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