



GO WITH THE FLOW

Atlantic Canada Water and Wastewater Association Newsletter

An affiliate of the American Water Works Association and the Water Environment Federation

WINTER 2012

CONFERENCE HIGHLIGHTS

Charlottetown 2012 Wrap-up

ACWWA Award-O-Rama

High Schoolers Say 'Ban the Bottle'

Blue-Green Algae



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all the other fish?



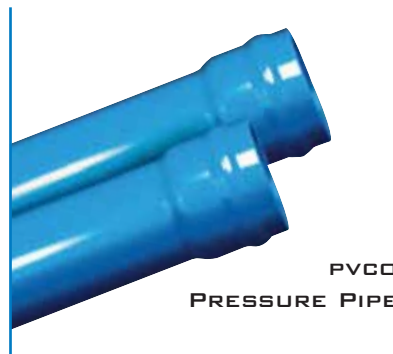
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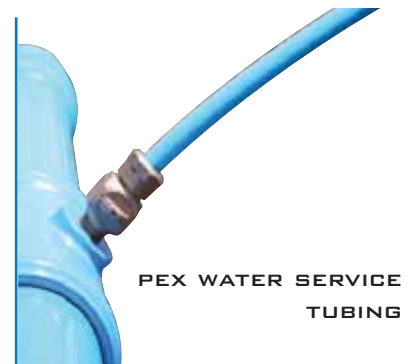
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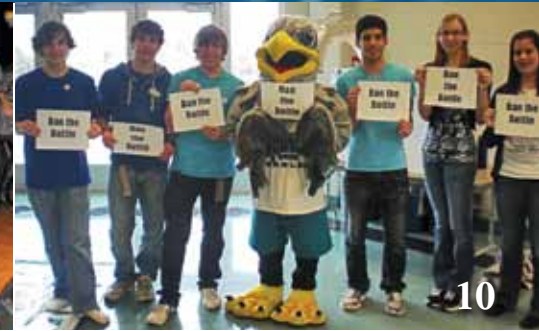
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Table of Contents



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2 Chair's Corner

2012 Conference: A great time was had by all.
by Brett Pugh, P. Eng.

3 WEF Delegate's Update

A busy Fall starts with WEFTEC.
by Gary Chew

3 AWWA Director's Report

Canada could use some more WARNING.
by Reid Campbell

4 Membership Corner

Looking for help, and a winning photo.
by John Eisnor, P. Eng.

5 CWWA Director's Report

A big 2012, to be followed by a bigger 2013.
by Roland P. Richard, P. Eng., FEC

6 ACWWA News

A slew of award winners, other conference highlights, blue-green algae research and news from Nova Scotia.

14 Best Practices Improve Storage Tank Performance and Reliability **by Mark Johnson, Kirt Ervin and Randy Moore**

20 Certification Corner

Test your knowledge of water and wastewater treatment and operations.

21 ACWWA Marketplace

Ads from your friends, neighbors and ACWWA supporters.

On the Cover: Cape Spear, located on the Avalon Peninsula near St. John's, Newfoundland, is the easternmost point in Canada and is traditionally considered to be the easternmost location in North America.

Chair's Corner

Looking back on a Great Conference by Brett Pugh, P. Eng.

Welcome to the latest edition of *Go With the Flow*. I hope you are able to make time to enjoy our magazine and find value in it. To that end, the ACWWA board is preparing for a special newsletter focus group at our strategic planning session in November. We see the magazine as an important benefit of membership and want to make it a useful resource for our members. We encourage everyone to participate in *Go with the Flow*, by submitting articles about projects in your area, highlighting the people that make these projects happen, getting involved with ACWWA committees and, of course, purchasing advertising.

We want to extend a special thank you to Craig Walker and his committee for hosting an eventful ACWWA conference in Charlottetown in October. The conference

provided a broad range of activities with record attendance for PEI. ACWWA 2012 offered a strong technical program, a diverse trade show, valuable participation from WEF and AWWA delegates, a nail-biting Top Ops competition, great entertainment, terrific food and many opportunities for networking.

All of us in the water industry, including utility managers, suppliers, contractors, academics and consultants, are here to support the operators of our water and wastewater systems. They are the ones who work tirelessly on a daily basis to provide clean water to their customers. Our systems are only as good as the people behind the scenes. This year's Silent Hero Awards were presented at the Tuesday awards breakfast to recognize outstanding contributions of water and wastewater operators in each of

the four Atlantic Canada provinces:

- Harold Power, Town of Placentia, NL;
- Terry Nelson, Halifax Water, NS;
- Mike Richard, City of Moncton, NB; and
- Allan Nisbet, North Rustico, PEI.

I am looking forward to serving the ACWWA over the next 12 months. I welcome Chris Fahie, Dillon Consulting, to the board as Member Involvement Director, and offer our support to Scott Grasman, City of Fredericton, as he takes on the dual roles of Second Vice Chair and ACWWA 2013 Conference Chair.

Please contact our Executive Director, Clara Shea (contact@acwwa.ca), or me (brett@cbcl.ca) if you have any questions about ACWWA. On behalf of the ACWWA board, we wish you a great holiday season and all the best until our next issue.

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WEF Delegate's Update



WEFTEC Just the Start of a Busy Fall by Gary Chew

Fall is past, and there's been lots of activity in the last couple of months of 2012. First there was WEFTEC. The conference was great, and there was a lot of energy around "Water's Worth It," a WEF campaign to highlight the importance of water. Also being stressed was the value of water and wastewater when job creation is concerned. There is a campaign in the US called "Water for Jobs," designed to show the politicians the importance of investment in water and wastewater infrastructure. WEF is currently working on a program for the Canadian member associations.

Also at WEFTEC, we had a great Canadian Affairs Council meeting of all the Canadian member associations. On

the table were important issues like the Canadian Stockholm Junior Water Prize, which is sponsored by the Canadian MAS, Xylem and Prominent Fluid Controls, and through the Canada Wide Science Fair. It gives the opportunity for the winner of best project related to water and wastewater to attend the Stockholm Water Prize competition in Sweden. This would be a good event for you to have a look at: These kids are the water/wastewater professionals of tomorrow. Also discussed was the relationship between WEF and CWWA, which is growing stronger every day.

Later in October, we had the ACWWA conference in Charlottetown, which was a great success thanks to Craig Walker

and his conference committee. Thanks so much to all of you! Part of that was the Top Ops competition, which, on the wastewater side, was won by Halifax Water in a tight competition that came down to the last question.

For 2013, I want to issue a challenge to municipalities to get your wastewater operators to join WEF and begin taking part in all the activities and training offered by WEF. There are some terrific resources on the WEF website that could be used every day by operators, along with WE&T magazine, which has great articles and information for operators. Let's make an effort to sign some wastewater operators in your plants up so they can benefit.

AWWA Director's Report



Even In Storm's Wake, the Water Stays On, Thanks to WARNs by Reid Campbell

As I write this on the second Monday in November, water and wastewater operators in some communities in New Jersey, Staten Island and Long Island are completing their second straight week of operating in a state of emergency response. In communities all over the tri-state area, operators responded to keep water and wastewater services operating for their customers.

What is interesting to note is that while the news stories have been filled with stories of people without electricity, shelter, food, gasoline and transportation, there were few if any stories about hardship due to lack of water.

One success story of Hurricane Sandy's aftermath is the success of the WARN system network. WARNs, or Water Agency

Response Networks, are state-by-state organizations that allow for utilities to provide support to each other in times of crisis. Forty-nine US states have active WARNs. As Hurricane Sandy approached the US's Eastern Seaboard in the closing days of October, WARNs from Maine to Virginia activated to track the progress of the storm and coordinate assistance.

AWWA has been a leader in establishing the WARN system, with the AWWA Section being the lead agency in many states in establishing the WARN. The AWWA Washington office, through Emergency Response Program Manager Kevin Morley, has been at the forefront of coordinating federal assistance to utilities.

In Canada, only Alberta has a mature WARN system, and Ontario's is in its early

stages. Here in Atlantic Canada, we all understand that the possibility of a storm like Sandy is a real one in our region. Utilities should be seriously considering how a WARN can help them.

In other news, AWWA's new web site launched in early December; if you have not tried out the new site yet, please do. Information is easier to find and there have been significant improvements to the bookstore shopping experience.

I want to close by congratulating Craig Walker and his team from Charlottetown on a successful ACWWA conference. I had the pleasure of hosting AWWA Past-President Jerry Stevens, and he asked me to extend his appreciation for the tremendous hospitality extended by everyone at the conference.

Membership Corner

ACWWA Still a Membership Leader

by John Eisnor, P. Eng., ACWWA Membership Director

This past year was good for membership in ACWWA. Although we lost a large number of members, we also gained many new ones.

The 2013 AWWA Membership Summit will be held in February in Denver. Once again, ACWWA will be sending representatives to attend. This event is always beneficial and a great opportunity to find out what other sections are doing to recruit, engage and retain members.

November was Membership Appreciation Month. The Membership Committee would like to take the opportunity to thank all members for their continued support of ACWWA. Without you, there

would be no ACWWA!

If any members have co-workers or colleagues that are not members of ACWWA, please consider asking them to become members. Remember, there are recruiting incentives available to members.

An update for the 2012 AWWA Membership Challenge is shown at lower left.

As always, the ACWWA Membership Team is looking for enthusiastic individuals who have a desire to make ACWWA the leading professional association in Atlantic Canada. In particular, we are looking for individuals representing Nova Scotia, Prince Edward Island and Newfoundland and Labrador as well as representatives from various industry sectors. If you are interested in joining the committee or would like to discuss membership in general, please contact John Eisnor at johne@halifaxwater.ca or (902) 490-1930.

AWWA Membership Challenge Update			
	Prize	Objective	Status
2012 Year-End Total Student Members	\$100	16	16
New Young Professionals Recruited in 2012	\$150	11	8
2012 Year-End Total Membership	\$250	505	476

New ACWWA Members		
Name	Company	Membership
Gilles Belleau	Town of Shediac	AWWA
Phil Corkum	Public Service Commission of Bridgewater	AWWA
Stewart Day	Pure Technologies	AWWA
Alex Doiron	Ville De Tracadie-Sheila	AWWA
William Edwards	City of Saint John	WEF
Christopher Fahie	Dillon Consulting	AWWA
Tyler Gamble		AWWA
Heather Granger		AWWA
Warren Martin	Stantec	AWWA
Perry Mitchelmore	Meco	AWWA
Allan Nisbet	North Rustico Sewer and Water Utility	AWWA
Sharafimasooleh Masoumeh		AWWA
Len Van Tol		WEF
Megan Wood		WEF
Emily Zevenhuizen		AWWA

ACWWA PHOTO CONTEST

The winner of the inaugural ACWWA Photo Contest is the Cape Breton Regional Municipality Water Utility. The theme for the photo contest was fire hydrants. The fire hydrant shown in the photo is located in front of the Stella Maris Catholic Church in the historic community of Louisbourg. The hydrant is commonly known around the community as "Father Hydrant."

The theme for the next photo contest will be Sewage Lift Stations in Disguise. Get out there and get some photos of those hidden lift stations! The winning photo will be published in an upcoming edition of the newsletter.



"Father Hydrant" awaits service outside Louisbourg's Sella Maris Catholic Church.

Rules:

1. Submit a digital copy of your photo along with your name, where you work and a brief description of the photo to contact@acwwa.ca.
2. Deadline for entries is May 31, 2013.
3. Photographs should be at least 1.0 MB in size.
4. Entrants grant ACWWA the right to use and publish their photograph online, in print, or any other media, in connection with the ACWWA Photo Contest.

CWWA Director's Report

A Busy Year, Big Plans for 2013 by Roland P. Richard, P. Eng., FEC, CWWA Director

By the time you receive this issue of *Go with the Flow*, it will be 2013.... Wow!!! How time flies when you're having fun.

I want to take this opportunity to wish you a great and successful year ahead.

2012 was a very busy and productive year for CWWA. The following will provide a brief overview of the major activities and accomplishments throughout 2012, and an outlook for 2013.

The first part of the year was consumed with our search for a new executive director. The board was pleased to announce the appointment of Robert Haller as executive director in May. Robert jumped right into things at our Spring CWWA Board Meeting in Victoria, B.C., and immediately began his process for developing a new strategic plan. Robert has been doing a lot of travel across the country trying to meet members and gather input as he develops ideas to strengthen our association. His focus has been on getting to know the associated organizations and associations, its members and partners.

In addition to getting to know people, Robert has engaged them in conversations about the role of CWWA as he develops the new plan. The draft strategic plan was scheduled for presentation to the board during the November 2012 board meeting, and the outcome will be communicated in the next update.

A very special note of thanks and gratitude is extended to Duncan Ellison, who stepped in, once again, to help the CWWA in a very challenging time by bringing his passion and dedication to the association by providing incredible bridging service.

NATIONAL CONFERENCES

CWWA hosted two important conferences during 2012:

- **National Drinking Water Conference—Kelowna, B.C.**
Oct. 21–24

- **Window on Ottawa Nov. 28–30**—CWWA's annual event, bringing together its members to host timely discussions with key federal government officials. This successful event included the CWWA's Annual General Meeting as well as two technical workshops on water and wastewater security and emergency management and climate change.

NATIONAL ROUNDTABLES ON INFRASTRUCTURE

CWWA was invited to participate as a national stakeholder representing the water and wastewater industry. Hosted by the federal minister for infrastructure,

the sessions were designed to discuss a long-term infrastructure plan. CWWA presented a clear message that was quite different from most of the other groups represented. The gist of our message was that a "plan" had to be more than a "grant program" and that we hoped to develop support programs that would lead municipalities toward self-sufficiency and end our dependency on grants. It was hoped that any future grants would recognize well-managed municipalities and not reward poorly managed communities. We suggested alternative funding programs, support for new technology and innovation and other assistance programs that

Continued on page 19



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ACWWA Conference Awards

ACWWA 2012 Award Summary

The following awards were presented at the 2012 ACWWA Conference, in Charlottetown, PEI, to recognize the contributions of some of our best and brightest colleagues, and their excellence and significant achievements in the field of water and wastewater collection, treatment and distribution.

Silent Hero Awards are presented annually by ACWWA to recognize outstanding contributions of water and wastewater operators in each of the four Atlantic Canada provinces. The recipients for 2012 include Terry Nelson, Halifax Water, NS; Mike Richard, City of Moncton, NB; Harold Power, Town of Placentia, NL; and Allan Nisbet, North Rustico, PEI.

The Laboratory Analyst Award is awarded by the Water Environment Federation (WEF) and recognizes individuals for outstanding performance. This year's recipient was Heather Daurie from the Center for Water Resource Studies at Dalhousie University, Halifax, NS.

The Young Professional of the Year Award is presented annually by ACWWA to recognize a Young Professional within ACWWA for outstanding contributions to the water and wastewater industry, and to the ACWWA Young Professionals' committee. This year's recipient was Stephanie Gora from CBCL Limited in Halifax, NS.

Stefan Furey Wins Bedell Award

Stefan Furey graduated from the Technical University of Nova Scotia in 1999 with a Bachelor's in Engineering. He worked as a consultant for seven years on water and wastewater projects before starting with Nova Scotia Environment in January 2007. Stefan is dealing with wastewater issues for the Water and Wastewater Branch. He has been involved with various projects during his time at NSE, including the development of a Provincial Water



Resource Management Strategy and administering the Water and Wastewater Operator Certification Program. Stefan is currently involved in developing Nova Scotia's implementation plan for a national Municipal Wastewater Effluent Strategy.

The Volunteer Recognition Award is presented annually to recognize outstanding contributions by an individual or a group of individual volunteers to ACWWA programs and/or the water industry throughout Atlantic Canada. This year's recipient was Dr. Jennie Rand from Acadia University in Wolfville, NS.



The Fresh Ideas program has been developed through AWWA's Manufacturers/Associates Council and the Young Professionals Committee. The top presentation is given the opportunity to compete in the Fresh Ideas poster competition at the AWWA Annual Conference and Exposition. The winner of the 2012 Fresh Ideas award was Ramona Doyle from the City of Charlottetown, PEI.

The Project of the Year-Engineering Award/Environmental Award is awarded by ACWWA to a municipality or utility and their consultant to recognize outstanding projects in Atlantic Canada.

The winner for a small utility (< 5,000 customers) was "Newfoundland Potable Water-Dispensing Units (PWDUs)"

- Newfoundland & Labrador Department of Environment and Conservation and Department of Municipal Affairs
- CBCL Limited, Halifax, NS

The recipient for large utility (> 25,000 customers) was "Eastern Wastewater Treatment Facility (EWWTF)"

- City of Saint John, NB
- CBCL Limited, Saint John, NB

The George Warren Fuller Award is awarded by AWWA and may be presented annually to a member of ACWWA for distinguished service in the water supply field. The 2012 recipient was Reid Campbell, Halifax Water, Halifax, NS.

The Arthur Sidney Bedell Award is awarded by the Water Environment Federation, and may be presented to a member of ACWWA to acknowledge extraordinary service to a WEF Member Association. This year's recipient was Stefan Furey, Nova Scotia Department of Environment, Halifax, NS.

The Ira P. MacNab Award is awarded by ACWWA and may be presented annually to a member for outstanding service to the water industry in Atlantic Canada. The 2012 recipient was Craig Walker, City of Charlottetown, Charlottetown, PEI.

Reid Campbell Wins Fuller Award

Reid Campbell was awarded the George Warren Fuller Award, the highest Section award for an AWWA member, at the ACWWA Annual Conference in October. George Fuller was a distinguished leader in the water utility field who demonstrated engineering excellence and advancing sanitation best practices for public health protection. Fuller is also credited for playing a prominent role in the transformation of AWWA from a social network to a technical association, and, as a result, positioning AWWA as a respected source of information for the broader water industry. Fuller understood what it meant to give back to his profession and the greater public good, as does Reid Campbell.

Reid joined AWWA in 1989 and has been very active in the association ever since. He has served on the leadership team of the Atlantic Canada Section, including terms as chair and conference chair, and represented the Section on the Board of the Canadian Water and Wastewater Association. He was awarded the Ira P. MacNab Award, for outstanding service to the Section, in 2008. At the national and international levels, Reid is a member of the Canadian Affairs Committee, the Water Loss Control Committee and two utility standards committees. In June of this year, he commenced his two-year term as one of AWWA's Vice Presidents.

Reid Campbell is Director of Water Services at Halifax Water, the water, wastewater and stormwater utility in Halifax. He is responsible for the operation "from source to tap" of the municipal water system, serving 350,000 people, as well as corporate-wide SCADA and process communication services. He is very active in water quality research and water loss control, which has provided him several opportunities to present at ACE, Sec-



Jerry Stevens presents Reid Campbell with the Fuller Award.

tion conferences and other events. In 2011 he was privileged to be a co-author of articles in both *Opflow* and *Journal - AWWA*.

Reid has a bachelor's degree in civil engineering from the Technical University of Nova Scotia (now part of Dalhousie University) and a master's degree in civil engineering from the University of Toronto. He is a registered professional engineer in the province of Nova Scotia.

Reid lives in Halifax with his wife, Eleanor, and their two teenage sons, David and Daniel.

Ramona Doyle Wins Fresh Ideas Award



Ramona Doyle(l) accepts award from Julie Stokes.

Ramona Doyle was hired as the Water Conservation Program Coordinator for the Charlottetown Water & Sewer Utility in 2010. She has a degree in Environmental Studies and Anthropology from the University of Victoria in BC. Before working with the utility, she was employed as an Agri-Environmental Coordinator with Trout River Environmental Committee, where her work focused on improving water quality in farming communities. Since 2010, her goal has been to help Charlottetown reduce its water demand through conservation awareness and education.

Ramona's presentation, "Building Water Conservation Awareness," can be viewed at www.acwwa.ca/conferences/2012conf/presentations/category/44-charlottetown-water-a-sewer-utility-building-water-conservation-awareness.html.

ACWWA Conference Highlights

The Conference Committee would like to thank everyone who helped make the 65th Annual ACWWA Conference a success. We are excited to report that, counting delegates, companions, and exhibitors, we had more than 400 people.

The Conference started Sunday afternoon with a bus tour to the eastern end of Prince Edward Island with several stops along the way. The evening Meet and Greet was well attended with music provided by a local jazz ensemble.

Climatologist David Phillips gave an interesting keynote presentation to start off our Monday morning. Afterwards, while the companions were off on their own adventure, delegates chose what sessions to attend. This year, there were 33 different sessions, giving delegates a range of choices.

Congratulations to Halifax Water for winning the Top Op's in both the water and wastewater competitions. Garry Oxner, Andrew Houlihan and Colin Waddell represented water, and

Kerry-Anne Taylor, Shawn Taylor and Dan Welsey represented wastewater. The water team will represent ACWWA at ACE 2013.

After the sessions on Tuesday, delegates and companions had the opportunity to attend the trade show. The Committee was pleased to hear that the booth spaces were quickly reserved. For the first time, unmanned booths were offered and also seemed to be popular.

As a good preamble to the Down East Feast, the Water For People fundraiser consisted of eating an oyster followed by drinking a moonshine chaser from a potato. The few who were brave enough to participate survived and are now inducted into the Order of the Island. With a good feed of lobster and a night of dancing, the conference came to a close on Tuesday night.

Hope to see you in Fredericton in 2013.



THANK-YOU!!!!



Thanks to our sponsors for their financial contribution and the ones who contributed “goodies” for the delegate and companion bags. Their support of the conference makes it a well-attended success.

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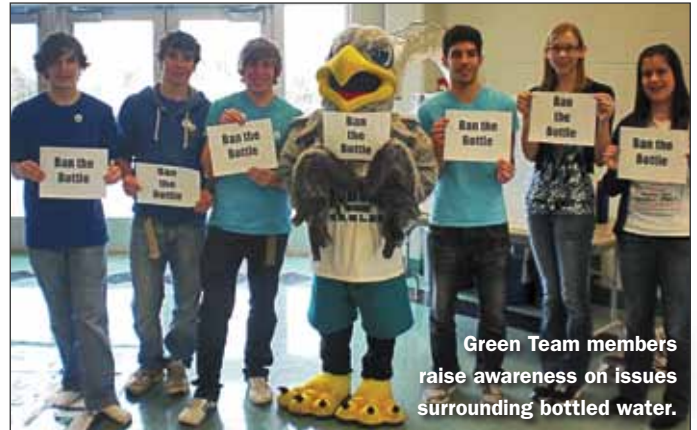


High Schoolers Say Ban the Bottle

by Kelly Peters, Green Schools NS School Engagement Team, Clean Nova Scotia

On February 17, Auburn Drive High School held an informative and fun “Water Rally” for staff, the community and students, including many from neighbouring schools. The Rally was planned and organized by the school’s Green Team, which is registered with the Green Schools Nova Scotia program (www.greenschoolsns.ca). The focus of the event was on the accessibility of clean water, water conservation and the negative effects of bottled water on the environment. To promote awareness of these water issues, the team partnered with Clean Nova Scotia, Ecology Action Centre, CUPE, the Council of Canadians and Halifax Water.

Luke Ehler, a grade twelve member of the Auburn Drive Green Team, said the Rally “gave students a chance to exercise their individual skills and passions with a focus on the bottled water theme.” Some students painted posters; others did



Green Team members raise awareness on issues surrounding bottled water.

video interviews; and Auburn’s student band opened the Rally. Grace Hamilton-Burge from Citadel High performed a moving spoken-word piece on the negative effects of bottled water on the environment.


Rally activities appealed to a broad spectrum of attendees, from students to the General Manager of Halifax Water, Carl Yates. Kara Lily, a member of the Auburn Drive Green Team, said the Rally “had lots of different activities like a [life-sized] board game, trivia and [water] taste testing station.”

Rally messages are still being promoted through the life-sized “snakes and ladders” game, created for the event by the Auburn Green Team, and on loan to schools across the province via the Green Schools Nova Scotia program.

Schools that attended the Rally were provided with kits of reusable bottles to use as incentives for similar events. The bottles were purchased with funding from the Learning for Sustainable Future’s Program, Project Flow.

The rally received extensive public attention and media coverage and was a great learning experience for all involved. As summed up by Luke Ehler, “the rally was a huge success and raised a lot of awareness for the campaign. I’m just proud of how well-received and successful the campaign to ban the bottle was.”






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New Operator Certification Policy for Newfoundland and Labrador

by Ervin McCurdy, Coordinator, Operator Training and Certification

In January, Newfoundland and Labrador Environment and Conservation Minister Terry French signed a new policy directive creating the Newfoundland and Labrador Water and Wastewater Operator Certification Program. The policy was established under the authority of the Water Resources Act, SNL 2002 cW-4.01, Section 38.

Application was then made to the Association of Boards of Certification for full regulatory membership, and we were advised in September that the ABC Board accepted our membership. This establishes the Operator Education, Training, and Certification Unit of the Water Resources Management Division, Department of Environment and Conservation, as the body responsible for operator certification in the province. Until now, operator certification in NL has been administered by ENVC through the Atlantic Canada Water and Wastewater Voluntary Certification Board.

The policy makes it mandatory for operators of Class I and higher water treatment plants and wastewater treatment plants to be certified. It also makes it mandatory for owners (municipalities, industries, etc.) of water distribution systems and wastewater collection systems serving 1,000 or more people to employ certified operators. Operators of smaller systems will be encouraged to achieve certification, as the policy will eventually extend to systems serving populations in excess of 500 people. To allow time for compliance, grandfathering provisions for existing operators will be in place as this policy is phased in over the next four years, commencing in 2013.

To help alleviate some of the operator challenges facing smaller communities, the policy establishes two new system designations:

- A facility may be designated a Very Small Water System (VSWS) if it serves a population of not more than 500 people and provides no treatment other than disinfection.
- A facility may be designated a Small Wastewater System (SWWS) if it serves a population of not more than 500 people and provides no secondary wastewater treatment.

The operator certification requirements for these systems are less rigorous than for Class I systems. Exams for operators of these designations will be developed over the next several months.

The new policy also establishes a Provincial Certification Appeals Committee to be appointed by the Minister. Initial contact has been made with the appointees, although the Committee has not yet been formally structured. These measures will be put in place this year, and we will transition to the new system beginning in January.

There will be no increase in cost for the certification exam, and the transition will be seamless with no noticeable change to operators and municipalities other than a slightly revised application form, which is already in use, and a new certificate format.

The Policy for Newfoundland and Labrador Water and Wastewater Operator Certification Program can be found on the ENVC webpage, www.env.gov.nl.ca/env/waterres/regulations/policies/operator_certification.html.

Moncton Takes the Lead in Blue-Green Algae Research

by Heather Hawker, Natural Resource Program Coordinator, City of Moncton

The City of Moncton is finalizing results from a six-month study on blue-green algae, which involved testing a product (Phoslock) for the first time in New Brunswick. Early results show the product was successful, and plans are underway to do another pilot study in summer/fall 2013 involving the city's drinking water supplies.

Plans are to set protocols and sampling standards to assist other communities and municipalities deal with blue-green algae blooms. The research team working to solve this water quality issue has grown to involve several local universities (University de Moncton, Crandal University and Mount Allison); various government departments including Health, Environment and Fisheries; and local advisory groups such as Nature

NB and the Irishtown Nature Park Committee. These groups and more are all contributing to this research project in some form or another.

The City of Moncton held an open house in the park in late August, updating the public and visitors on the status of the algal bloom.

An information meeting was also held at Moncton City Hall in early fall involving all municipalities in New Brunswick that were interested in this research or were experiencing blue-green algae problems themselves. This proved very successful, and new partnerships were forged at this gathering.

More information will be shared as final detailed results become available in late December.



Report Will Help Protect Water Resources

Nova Scotia will be better able to protect water resources with a watershed assessment report released in June by the province and Dalhousie University.

Environment Minister Sterling Belliveau said the report is a first step to assess watersheds such as rivers, lakes and groundwater. The report identifies potential risks to water quality.

“Water is an important resource for all Nova Scotians,” said Belliveau. “This study meets a goal in Water For Life, our water resource management strategy, and it will help us focus our efforts on the water supplies that are at the most risk to protect them today and for future generations.”

The provincial watershed data inventory in the report is the first of its kind in Nova Scotia. The province invested \$29,000 in the Dalhousie University research project, and staff from the departments of Environment and Natural Resources participated in the study.

“What is particularly exciting about this work is, for the first time, we have a province-wide summary of watershed health,” said Shannon Sterling, assistant professor of earth science and environmental science at Dalhousie University. “The collaborations in this project have allowed us to assemble watershed information from a wide variety of sources and identify what information is still needed. This is a valuable foundation for integrated watershed management in Nova Scotia.”

The second phase of the project will gather more data that reflects the province’s good water management practices and report on the information at a local level.

To learn more about Water For Life, visit www.gov.ns.ca/nse/water.strategy/.

UPDATED GUIDELINES FOR CANADIAN DRINKING WATER QUALITY

Enteric Viruses—The guideline for enteric viruses has been updated and posted on Health Canada’s website. The guideline is a health-based treatment goal of a minimum 4-log reduction of enteric viruses. Depending on the source water quality, a greater log reduction may be required. The document is available at: www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/enteric-enterovirus/index-eng.php.

Dichloromethane— The guideline for dichloromethane has been updated and posted on Health Canada’s website. Dichloromethane is a volatile compound. The guideline is now based on multiple routes of exposure: ingestion, as well as inhalation and dermal absorption during bathing or showering. The document is available at: www.hc-sc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/pubs/water-eau/dichloromethane/dichloromethane-eng.pdf.

UPDATED GUIDELINES FOR CANADIAN RECREATIONAL WATER QUALITY

Health Canada has published *Guidelines for Canadian Recreational Water Quality: Third Edition 2012*. The document was prepared by the Federal-Provincial-Territorial Working Group on Recreational Water Quality of the Federal-Provincial-Territorial Committee on Health and the Environment. This document contains information which may be useful in terms of source water issues and recreational water use in your jurisdiction. The guidelines are available at: www.hc-sc.gc.ca/ewh-semt/alt_formats/pdf/pubs/water-eau/guide_water-2012-guide_eau/guide_water-2012-guide_eau-eng.pdf or www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/guide_water-2012-guide_eau/index-eng.php

Health Canada (2012). *Guidelines for Canadian Recreational Water Quality*, Third Edition. Water, Air and Climate Change Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. (Catalogue No H129-15/2012E)

NOVA SCOTIA MUNICIPAL DRINKING WATER TREATMENT STANDARDS UPDATED

In March, Nova Scotia Environment updated its municipal water approvals protocols. Municipal water systems are required to complete a System Assessment Report by April 1, 2013, to verify that each system is technically capable of achieving current environmental standards. The purpose of a System Assessment Report is to verify that municipal drinking water systems meet:

- current environmental standards, which are frequently updated and enhanced for public health protection;
- the minimum requirements set out in the Nova Scotia Treatment Standards for Municipal Drinking Water Systems, as amended from time to time.

A clear Terms of Reference document has been prepared to assist owners of municipal water systems prepare these reports by April 1, 2013.

The *Nova Scotia Treatment Standards for Municipal Drinking Water Systems* outline the requirements for municipal drinking water systems that use surface water, groundwater under the direct influence of surface water, secure groundwater, or purchase water from an adjoining municipality. GUDI supplies are impacted or susceptible to contamination by surface water and therefore must be treated as a surface water source.

The Municipal Water Approvals Protocols enable stakeholders to meet their individual and collective responsibilities in the delivery of safe, clean drinking water. The process

SHAPING LIVES

provides accountability and confidence in the drinking water systems in Nova Scotia. For more information, visit: www.gov.ns.ca/nse/water/municipal/waterapproval.asp.

DEDICATED WATER QUALITY SAMPLING STATIONS

Several utilities in North America have installed permanent “dedicated” sampling stations to ensure representative sampling of the distribution system water quality. The following points should be considered when locating permanent dedicated water quality sampling stations:

- For maintenance and security reasons, dedicated sampling stations can be installed inside buildings, with preference given to municipal and public buildings.
- Stations can be located outdoors and connected directly to the water main, but outdoor stations must be diligently maintained in Canada during the winter months to prevent freezing and possible damage.
- Stations must be secured and maintained by staff, and it is recommended that a sign be installed with a contact number in the event of damage or vandalism.
- Whenever possible, unmixed cold water taps should be used for sampling.

A location suitability/characterization survey is a vital tool when selecting sampling sites and should include a number of criteria such as: accessibility, security, distribution system layout (e.g. near the end of a pressure zone or closed valves, close to branch connections, etc.), history of water quality or maintenance problems at the proposed site, and whether site represents a specific sector (e.g. residential, commercial, industrial or institutional).



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Shown here is Isla, step-daughter of Jamal, one of our valued employees in Atlantic Canada



Distribution

Mark Johnson is director, metropolitan water operations and maintenance, Massachusetts Water Resources Authority (www.mwra.com), Boston. Kirt Ervin is vice president, water quality, and Randy Moore is vice president, market development, Utility Service Co. (www.utilityservice.com), Atlanta.

Water storage tanks are the most visible part of a distribution system, but they often receive the least attention. A properly designed tank asset management program, along with a well-planned sampling and monitoring program, provides a comprehensive approach to both tank asset and sustainable water quality management. **BY MARK JOHNSON, KIRT ERVIN, AND RANDY MOORE**

BEST PRACTICES IMPROVE STORAGE TANK PERFORMANCE AND RELIABILITY

***Editor's Note:** Based on a series of AWWA webcasts, this is the first of three articles on important distribution system issues. This article details sustainable best practices for storage tank operations and maintenance. Next month's article will discuss various methods for cleaning water mains. The final article will provide operations and maintenance options for complying with the US Environmental Protection Agency's Stage 2 Disinfectants and Disinfection Byproducts Rule. To order the original webcasts, visit www.awwa.org/webcasts and click on the Webcast Library link. Also, check out the complete lineup of upcoming webcasts.*

MANY WATER SYSTEM owners and managers don't realize the financial investment they have in their storage tanks. Like all distribution system assets, storage tanks require routine inspection and maintenance. Operation and maintenance (O&M) best practices improve system performance and reliability and enhance water quality and sustainability.

The first step is to inspect tank conditions. AWWA Standard G200-09, Distribution Systems Operation and Management, defines three types of inspections—routine, performed weekly; periodic, performed annually; and comprehensive, performed biannually or when preparing rehabilitation specifications.



Components of effective tank condition assessment include (clockwise from top left) security, coating, sanitary, and structural conditions.

Distribution

ASSESSMENT CONSIDERATIONS

A comprehensive inspection is required to develop a tank asset management program. An effective tank condition assessment should thoroughly review sanitary, safety, security, structural, and coating conditions. It's important to document your findings with color photographs or videos.

Standards and Resources. A tank should be viewed through the lens of current AWWA and Occupational Safety and Health Administration (OSHA) standards. Any deviations from those standards should be noted. For example, the requirements of AWWA Standards D100-11, Welded Carbon Steel Tanks for Water Storage, and D102-11, Coating Steel Water-Storage Tanks, should be used to assess welded steel storage tanks.

Another good reference for condition assessment is AWWA's *Steel Water Storage Tanks: Design, Construction, Maintenance, and Repair*. Many state regulatory agencies also provide guidance, such as the Missouri Department of Natural Resources technical bulletin, "Inspection of Water Storage Facilities," and the Massachusetts Department of Environmental Protection (Mass DEP) "Public Water Supply Monthly Storage Tank Inspection Log."

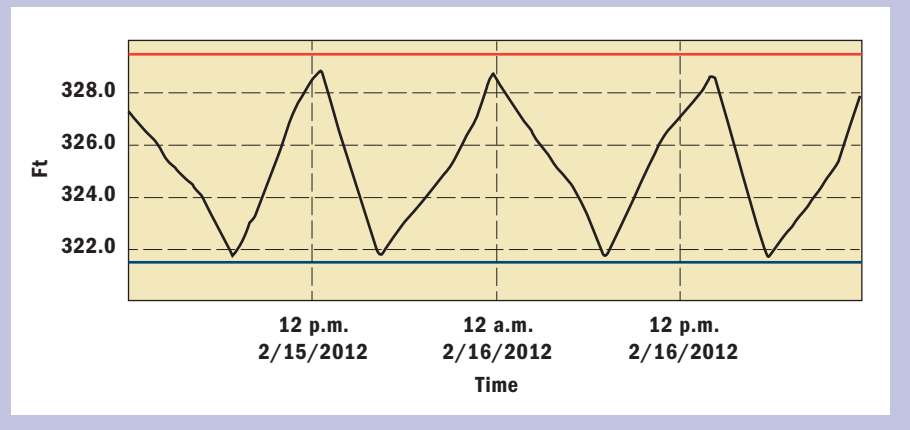
Maintenance. When the condition assessment is complete, you can develop a scope and sequence of maintenance needs that can be the basis for developing an asset management program.

Why does an asset management program represent an O&M best practice? The answers can be found in AWWA Manual of Water Supply Practices M42: *Steel Water Storage Tanks*:

- A good, comprehensive preventive maintenance program can extend the life of an existing tank indefinitely.
- Many thousands of dollars can be saved and complaints from citizens can be eliminated if a planned approach to tank maintenance is adopted.
- Why have a maintenance program? The answer is simple: Preventive maintenance has been, and always

Figure 1. Typical MWRA Tank Cycling

Water in storage tanks should be turned over about every 2.5 days to minimize water age and maximize water quality—about 40 percent daily turnover in tank volume.



will be, less expensive than crisis maintenance.

A properly designed comprehensive tank asset management program will include ongoing provisions for maintaining a tank's sanitary, safety, structural, security, and coatings components. Maintaining the tank as an asset directly affects water quality. When considering a triple bottom-line approach, an effective comprehensive tank asset management program represents a sustainable approach that equally considers economic, environmental, and social benefits.

SUSTAINABLE OPERATIONS

Operational best practices require water system operators to stay on top of a few key aspects. For starters, operators should ask themselves:

- When did we last visit the tank site? Do we have and use a routine inspection checklist when we visit the site?
- How much water moves in the tank each day?
- When were the sanitary, safety, security, structural, and coating conditions last inspected as part of a comprehensive tank evaluation?
- When were the normal chlorine residual, disinfection by-product, and tank levels last checked?

- Have we checked the tank for thermal and chemical stratification?

- Are we prepared for emergency response scenarios, such as a large main break or security breach?

Maintaining optimal water quality throughout a distribution system is best accomplished by monitoring the turnover rates, mixing process, and water quality of each water storage tank. Doing so maintains the lowest water age and highest water quality. Various reports and studies provide guidance on these topics, including a series of white papers published by the US Environmental Protection Agency, particularly "Finished Water Storage Facilities."

Water Age. Water age is managed by normal turnover of a tank's stored water and daily water level fluctuations. The Water Research Foundation published a report, *Maintaining Water Quality in Finished Water Storage Facilities*. The study recommends water in storage tanks be turned over about every 2.5 days to minimize water age and maximize water quality. This turnover rate translates to a 40 percent daily turnover in tank volume. If water storage tanks aren't being turned over every 2.5 days, the operating range should be increased. Figure 1 illustrates typical cycling of a Massachusetts Water

Sustainable operational best practices to maintain water quality involve routine site visits to sample and monitor the storage tanks.

Resources Authority (MWRA) water storage tank.

Tank Mixing. If tank cycling isn't adequate to maintain water quality, tank mixing can achieve optimum water quality. Mixing can also help minimize water age and eliminate stagnant zones in the tank. Tank mixing can also be enhanced by more aggressive or turbulent flow into the tank. The amount of water can be calculated for a storage tank and depends primarily on the volume of water flowing into the tank and the fill pipe's inlet diameter. Temperature should also be considered when determining how effectively water mixes in a storage tank. The following is the formula for determining mixing success:

- $Q/d > 11.5$ at 20°C
- $Q/d > 17.3$ at 5°C

Where:

Q = flow into the tank in gpm

d = the inlet pipe diameter in ft

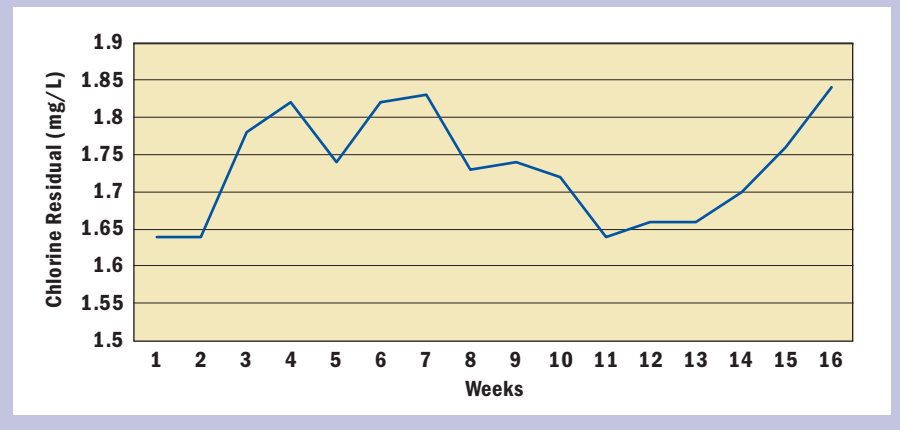
MWRA PROCEDURES

MWRA personnel used the turnover rate and mixing process formula to evaluate the tank mixing process. Calculated turnover rates were determined to be 1.3–2.4 days, or daily rates of 40–77 percent. The mixing values were determined to be in excess of Q/d values. Water age and water quality can be confirmed through weekly water quality samples taken at each water storage tank.

Many utilities are installing active mixing systems in their storage tanks as another way to improve water quality and achieve homogenous water chemistry. Active mixers mix continuously; passive mixers mix only when a tank is filling. In climates with freezing winter temperatures, active mixers can prevent ice damage to the tank or its coatings. A tank should be cleaned of sediment and biofilm before a mixer is installed, and chemical cleaning may be necessary, because biofilm and iron/manganese deposits

Figure 2. Chlorine Residual Data, December 2011–March 2012

MWRA personnel sample tanks once a week to assess chlorine residual. A 1.0-mg/L threshold level is used to determine if operational changes should be made.



can't be cleaned with high-pressure washing alone.

Sampling. To confirm water quality, MWRA personnel sample each tank every Monday. After crews confirm water is leaving the tank (to ensure they're getting a representative sample), they test for chlorine residual and send the sample bottles to the lab for bacteria testing. Results are plotted and monitored by operations and quality assurance staff members. A threshold level of 1.0 mg/L is used to assess water quality and to determine if operational changes—such as increasing the amount of water that moves through the tank—should be made. Figure 2 shows weekly chlorine residual data for an MWRA 20-mil gal water storage tank.


Routine inspections are conducted during the weekly sampling. Mass DEP has developed a monthly inspection form and checklist to help operators track regular tank sampling and inspection.

Poll questions from a recent AWWA webcast regarding water storage tank operation and maintenance revealed that the frequency with which the utilities participating in the webcast sample their tanks ranged from 45 percent (weekly) to 29 percent (never). An additional 17 percent of the respondents reported sampling their tanks monthly.

BEST PRACTICES

AWWA Standard G200-09 recommends best management practices for all facets of a water distribution system. All water system operators should become familiar with this standard. Section 4.3.1, Treated Water Storage Facilities, summarizes the basics regarding tank operation, inspection, maintenance, and disinfection.

Subsection 4.3.1.3 states, "The utility shall have a written inspection program outlining frequency, procedures, and maintenance of records. The inspection program shall include such features as routine (daily/weekly), periodic (monthly/annually), and comprehensive (3–5 years) inspections." The standard recognizes various recommendations related to tank inspections, as well as overall operation, and provides a framework with which utilities can develop their own programs.

Tank asset management, which includes routine tank inspections, provides a sustainable approach to maintaining the asset and represents a sustainable best practice for water quality management. Sustainable operational best practices to maintain water quality involve routine site visits to sample and monitor the storage tanks, cycling and turning over tanks, active mixing, and regular cleaning to remove biofilm and accumulated sediments. 



Tower Road Dam & Reservoir Project, Turtle Creek, NB



PURPOSE

To increase reservoir storage and safe yield of the Greater Moncton Water Supply in order to accommodate future growth.

HISTORY

The Turtle Creek Water Supply is now 50 years old. In 1997 gates were added to the spillway to maximize the storage of the first reservoir. The Tower Road Dam & Reservoir was always part of the long-term water supply strategy, and now that the service population has exceeded 100,000 people, it is time to expand the supply.

PROJECT

Construction of a 20-meter-high by 1.0-kilometer-long dam across Turtle Creek at Tower Road to create a 250-hectare reservoir. The project will double the storage capacity and increase the safe yield by 50%. With future gates added, the combined storage will accommodate a population of 175,000. Major components include:

- 1) Diversion tunnel (4 meter diameter by 180 meters long)
- 2) Earth Dam
- 3) Overflow spillway
- 4) Roadway & bridge
- 5) 250-Ha. Reservoir

COSTS

- Dam - \$30 million
- Reservoir - \$3 million
- HADD & Wetland compensation - \$3 million
- Land, engineering & other- \$7 million
- Total \$43 million

MAJOR PLAYERS:

Engineers/Project Managers:

- R.V. Anderson & Assoc. Ltd. – prime consultant
- Amec Environmental - environmental
- Gemtech Ltd. - geotechnical

Contractors:

- Dam & Associate Structures: Gulf Operators Ltd., Saint John, NB
- Reservoir Clearing: R. McLain, Antigonish, NS

Funding Partners:

- Federal Building Canada Fund – \$10 million
- Provincial - \$10 million
- City of Moncton - \$23 million

CHALLENGES

- Environmental approval, permitting and compliance
- Working next to stream with downstream water intake
- Schedule around spring freshet and storm events

PROGRESS

- Overall - 40% complete
- Tunnel (95%)
- Grout Curtain (75%)
- Spillway (50%)
- Earth fill (30%)

COMPLETION

- Construction - scheduled for November 2013
- Final Commissioning 2014

MATERIAL STATS:

- Concrete: 15,000 cubic meters
- Earth fill: 360,000 cubic meters
- Rock: 100,000 cubic meters
- Excavation: 150,000 cubic meters
- Clearing: 250 Hectares

Water For People Report

The 2012 Annual Conference was once again a tremendous success for Water For People. Our events were well attended and we had excellent contributions to the silent auction. Our combined efforts raised over \$11,000 in direct donation to development programs. This is a recognizable impact and is founded on the continued support of the City of Moncton, who once again provided a \$5,000 donation. Significant contributions from CBCL Limited and ABEA also demonstrated the commitment of our industry to this worthwhile and related cause. The conference in PEI featured a “Spudding-In” ceremony, which raises a challenge for next year’s conference in New Brunswick. Thanks to all who helped out!

Water For People is always developing new initiatives and fundraising campaigns. Check out the website or Facebook for regular updates, or follow Water For People on Twitter. Water For People just completed its fiscal year update and is happy to report that the total projected fundraising goal for committees was surpassed by over \$200,000 through support in both the US and Canada. There are also new IMPACT Tours being arranged in 2013 in Guatemala, Malawi and India. These tours are nomination-based and funded in part by the participant. If you know of a deserving candidate who would be interested in a country program tour with Water For People please contact mikec@cbcl.ca before Nov. 30.

CWWA Director's Report

Continued from page 5

could help municipalities develop long-term asset management programs and long-term financial plans. Our submission is available at www.cwwa.ca.

Meanwhile, the CWWA has established their own Infrastructure Task Group to develop direction and a position for CWWA.

ADVOCATE ROLE

To advance our advocacy role and to be a more effective voice for water and wastewater in Canada, CWWA sees the need to align more closely with the regional water and wastewater associations and the Canadian memberships within AWWA and WEF. We will continue to strengthen these relationships, all in an effort to strengthen the national water and wastewater industry voice across Canada.

TOPICS OF CONCERN

At our Spring Meeting in May, the CWWA board identified three major topics of common concern across the country:

Operator Certification: The board established an advisory task group to consider the issues around operator certification and what role the CWWA can play to promote greater standardization of process and to ensure members can meet their regulated requirements with appropriately certified staff.

Infrastructure Funding: The board struck an advisory task group to study the concerns of our utility members faced with aging and/or noncompliant infrastructure.

Biosolids: There appears to be growing concern across Canada on the issue of biosolids and new legislation regarding their reuse and disposal. Our Biosolids Committee will review what role the CWWA can play in supporting its members and conveying information to assist in educated decision-making.

PROPOSED 2013 ACTIVITIES

- **National Wastewater Management Conference**—In partnership with the

Canadian Association for Water Quality, CWWA will host its biennial wastewater conference March 6-8 in Hamilton, Ont. In addition to presentations on the new Wastewater Systems Effluent Regulations, we hope to hear more from the Canadian Water Network at this event on the national research agenda on municipal wastewater and biosolids, the work undertaken and accomplished by the CCME Task Group on Biosolids, wastewater and biomass as well as renewable energy sources, etc.

- **Asset Management Workshop**—CWWA is working with the Canadian Network of Asset Managers in hopes of hosting an International Workshop focussing on water and wastewater

assets. If we can do this, it will be in May 2013 in conjunction with ISO technical committee meetings being held in Calgary.

- **Water Efficiency and Energy Conference**—Everyone is talking about the nexus between water and energy. CWWA's new Energy and Water Efficiency Committee is working closely with the Canadian National Water Efficiency Network to coordinate a national dialogue. This event is just in the initial planning stages, but is targeted for October.

Should any other information be required on CWWA activities or initiatives, please don't hesitate to contact me directly at r-richard@gmsc.nb.ca, or visit the CWWA website at www.cwwa.ca.

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Certification Corner



Excerpted from the September 2010 issue of *Opflow*, published by AWWA. Reprinted by permission. For more information and references, visit www.awwa.org.

WATER

- 1. What percent is 34,411 of 74,818?**
 - a. 34.411 percent
 - b. 45.993 percent
 - c. 74.818 percent
 - d. 217.42 percent
- 2. Copper sulfate is used in surface water reservoirs to control**
 - a. emergent weeds.
 - b. algae.
 - c. mosquito larvae.
 - d. snails.
- 3. Recarbonation basins are used to stabilize water after**
 - a. filtration.
 - b. disinfection.
 - c. softening.
 - d. coagulation.

WASTEWATER

- 1. Septic conditions are caused by**
 - a. fungi.
 - b. molds.
 - c. anaerobic bacteria.
 - d. hydrogen sulfide accumulation.
- 2. Secondary clarifiers are usually located after**
 - a. the primary clarifier.
 - b. an anaerobic digester.
 - c. a biological process.
 - d. preaeration.
- 3. During normal flows, grit should be removed from the grit channel**
 - a. every 6 hours.
 - b. every 8 hours.
 - c. every 12 hours.
 - d. on a daily basis.

ANSWERS

Water: 1. b, 2. b, 3. c Wastewater: 1. c, 2. c, 3. d

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ATLANTIC CANADA WATER & WASTEWATER ASSOCIATION

YOUR VOICE

WATER'S WORTH IT™

The Water Environment Federation is committed to spreading the word about the importance and value of water and the work you do every day.

You are vital to this effort, and we appreciate the feedback you provided to help us develop the campaign. Stay tuned to www.WatersWorthIt.org for exciting things to come and to learn more about how you can be a voice for water.

Tell a friend, tell a neighbor, tell the world what water's worth to you.

