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2017 ACWWA Annual Conference

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Charlottetown, PEI • October 15–18, 2017

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INSIDE:

- 2017 Scholarship Competitions
- A Behaviour-Based Definition of Water Affordability
- Less Acid Rain Could Mean Treatment Challenges for Drinking Water Providers



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Acknowledge your peers, your industry, and your profession

Each year, around this time, the ACWWA initiates a search for nominations – projects, individuals, and communities who deserve recognition for achievement in the water and wastewater sector. This search is often challenging, and yields a limited number of nominations.

This isn't because there aren't an array of deserving candidates, but because we often take a complacency position or fail to act to recognize those around us who take genuine steps toward improving public health and sanitation in our region. Behind every municipality, project, and key player are examples of

technological innovation and individual effort that demonstrate how our region is evolving and maintaining a high level of service to the communities we serve.

This fall, in Charlottetown, the ACWWA will recognize individuals, projects, and operations staff who have demonstrated an exemplary commitment to the water and wastewater industry. This process cannot unfold without the involvement of our membership and submissions of nominations. I have personally had many conversations with people whom I've encouraged to make an award submission to ACWWA, and I continue to do so. The water and wastewater industry in our region contains many examples of projects and people that deserve recognition, and I encourage you to take the brief time required to complete a nomination form for a person or project as outlined in our section awards. Great news – we've recently extended the deadline for this year's nominations to mid-August!

The annual ACWWA awards nomination process includes categories such as Project of the Year, Silent Hero (operator specific), Young Professional, Contribution, and others. If you have an example of a project, person, group, or specific instance that demonstrates achievement in the water and wastewater industry, please visit the ACWWA website (www.acwwa.ca) or email contact@acwwa.ca to find more information on awards nominations. Your efforts can go a long way in providing due recognition to the people that make our region a great place to work. 

“This fall, ACWWA will recognize individuals, projects, and operations staff who have demonstrated an exemplary commitment to the water and wastewater industry.”



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An awesome experience

Welcome to the Summer 2017 edition of the ACWWA *Go With the Flow* magazine. This excellent publication continues to help connect you with the Atlantic Canada water and wastewater industry and your peers. Enjoy the read.

In mid-June, I had the opportunity to attend AWWA ACE 2017 in Philadelphia. With the completion of the conference, my three years of service as the Atlantic Canada Director on the AWWA Board has come to an end. This has been an awesome experience representing our members. This role has provided me the opportunity to:

- Bring our Atlantic Canada issues to the international stage,
- Deliver new and emerging information back to the section, and

- Network with other Canadian sections on specific Canadian issues.

The overriding conclusion that I have drawn from my term is that we are in an exciting and critically important industry and that the Atlantic Canada Section is a **STRONG** and important section within AWWA.

At the local level, our members are benefiting from a top-notch technical conference and effective educational programs. Our members participate in the **Partnership for Safe Water**; we remain strong contributors to **Water For People** and are growing our support for AWWA's **The Water Equation** program and its support for local operators, as well as continuing to embrace the **One Water** philosophy within our section.

Atlantic Canada's participation at the international level is significant,

valuable, and recognized. Through our members, we provide leadership roles in key AWWA committees/ programs such as the **Water Utility Council (WUC)**, the **Water Research Foundation (WRF)**, The Canadian Affairs Committee (CAC), and the AWWA Board. In addition, we fill many valuable roles within a variety of standards and technical committees or working groups. My thanks go out to all of you for making a real difference locally and within the full industry!

Thank you for the great opportunity to represent you on the AWWA Board and please join me in supporting our incoming Director, Graham Gagnon, as he takes on the leadership role.

Enjoy the summer, work safe, and I hope to see many of you in PEI in October. 🌊

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Non-flushable and 'flushable' labelled products

Here is a great WEF reprint for this issue of the magazine. With all the interest and issues with flushables, I want to make sure this gets out to our WEF members.

International water industry position statement on non-flushable and 'flushable' labelled products

To prevent problems with sewers, pipe and toilet blockages plus the human and environmental cost of sewer flooding and pollution, the organizations signing this statement below agree that:

- Only the 3Ps – Pee, Poo, and toilet Paper – should be flushed.
- Currently, all wipes and personal hygiene products should be

clearly marked as **“Do Not Flush”** and be disposed of in the bin or trashcan.

- Wipes labelled “Flushable” based on passing a manufacturers’ trade association guidance document should be labelled **“Do Not Flush”** until there is a standard agreed by the water and wastewater industry.
- Manufacturers of wipes and personal hygiene products should give consumers clear and unambiguous information about appropriate disposal methods.
- Looking to the future, new innovations in materials might make it possible for certain products to be flushed, if they pass a technical standard

which has been developed and agreed by the water and wastewater industry.* Preferably this standard would be developed under the banner of the International Standards Organisation (ISO).

- Key requirements for any standard include that the product:
 - a) breaks into small pieces quickly;
 - b) must not be buoyant;
 - c) does not contain plastic or regenerated cellulose and only contains materials which will readily degrade in a range of natural environments.

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CWWA activities & upcoming events

CWWA hosted its annual Window on Ottawa on June 4 to June 6. It is an excellent event with plenty of opportunities for attendees to get some face to face time with important players in our industry including Environment Canada, Health Canada, Infrastructure Canada, FCM, NRC, Public Safety Canada, AWWA, CSA, and others. I highly recommend utility members consider attending this event next year, especially if you are interested in learning more about upcoming funding and grant programs, changes to industry regulations and standards, or other current key topics related to the water and wastewater industry in Canada. The key topics discussed at this year's Window included: Climate Change, Clean Water and Wastewater Funding, Biosolids, Urban Water Management, Lead in Drinking Water, and Security and Safety.

Federal funding

CWWA has been following the \$2 billion that was announced through the Canadian Water and Wastewater Fund. The 2017 Federal Budget, released March 22, reaffirmed the infrastructure funds to roll out in Phase 2 of the plan.

Beyond just grant announcements, CWWA had called for conditions and programs that would move municipal governments toward asset management, life-cycle planning, and self-sufficiency. We are not yet clear on the conditions that may be set, but there is significant funding for community capacity building, most of these funds funneling through the FCM. We have met with the FCM on a number of occasions to consult on these programs and to assist with disseminating information to our members. I suggest you monitor for

communications on these upcoming funding avenues.

Lead in drinking water

While we were already addressing lead concerns across Canada and leading an effort to create ONE position on lead in Canada with partners at AWWA and CWN, Health Canada proposed dramatic changes to regulations on lead. They have proposed cutting permissible lead levels in half and changing the testing/sampling process. Our Drinking Water Committee provided a detailed response to the Ministry on our concerns and supported the AWWA (Canadian Affairs Committee) in their submission. While we certainly support reducing lead, we are concerned for fair, consistent sampling and for appropriate time and funds to implement such new standards.

Value of water

CWWA is participating with WEF and AWWA and others as part of the Value of Water Coalition to start to inform the public on the need for reinvestment in our utility infrastructure. CWWA assisted with editing and providing new Canadian materials to the publications for World Water Day and Water Week

Flushable wipes

CWWA, with our partners at MESUG (Municipal Enforcement Sewer Use Group), continues to be a key player in the efforts to reduce or eliminate the damages caused by wipes entering our wastewater systems.

We had initiated negotiations over the last two years with the wipes manufacturers and sellers are represented by their trade organization known as INDA, while the wastewater industry is represented by the Water Environment Federation (WEF), the National Association of Clean Water

Agencies (NACWA), the American Public Works Association (APWA) and the Canadian Water and Wastewater Association (CWWA). We were able to work with INDA toward a new Code of Practice that brings their labeling ahead significantly; efforts to amend their Guidance Document failed as we could not reach a consensus on dispersibility demands and testing verification.

Meanwhile, our effort with MESUG to develop an International ISO standard was stalled for similar reasons around dispersion and testing. From that effort has arisen an international coalition of the wastewater sector to develop an international position statement. This statement has received the official endorsement of several countries, associations, and municipalities (including many of our CWWA members). A more detailed North American and Canadian position paper is being developed to counter legal efforts by the wipes industry.

An international MOU has been announced and CWWA is to be a signatory. An appeal is being made of Canadian municipalities to contribute to the costs of creating a national standard, and CWWA will be the banker receiving and holding these funds.

National Water and Wastewater Conference

Atlantic Canada is hosting this year's National Water and Wastewater Conference and we are set for NWWC2017 in St. John's, Newfoundland, November 5-8. The program is coming together and the registration page should be up any day now. We have selected Montreal to host the 2018 conference.

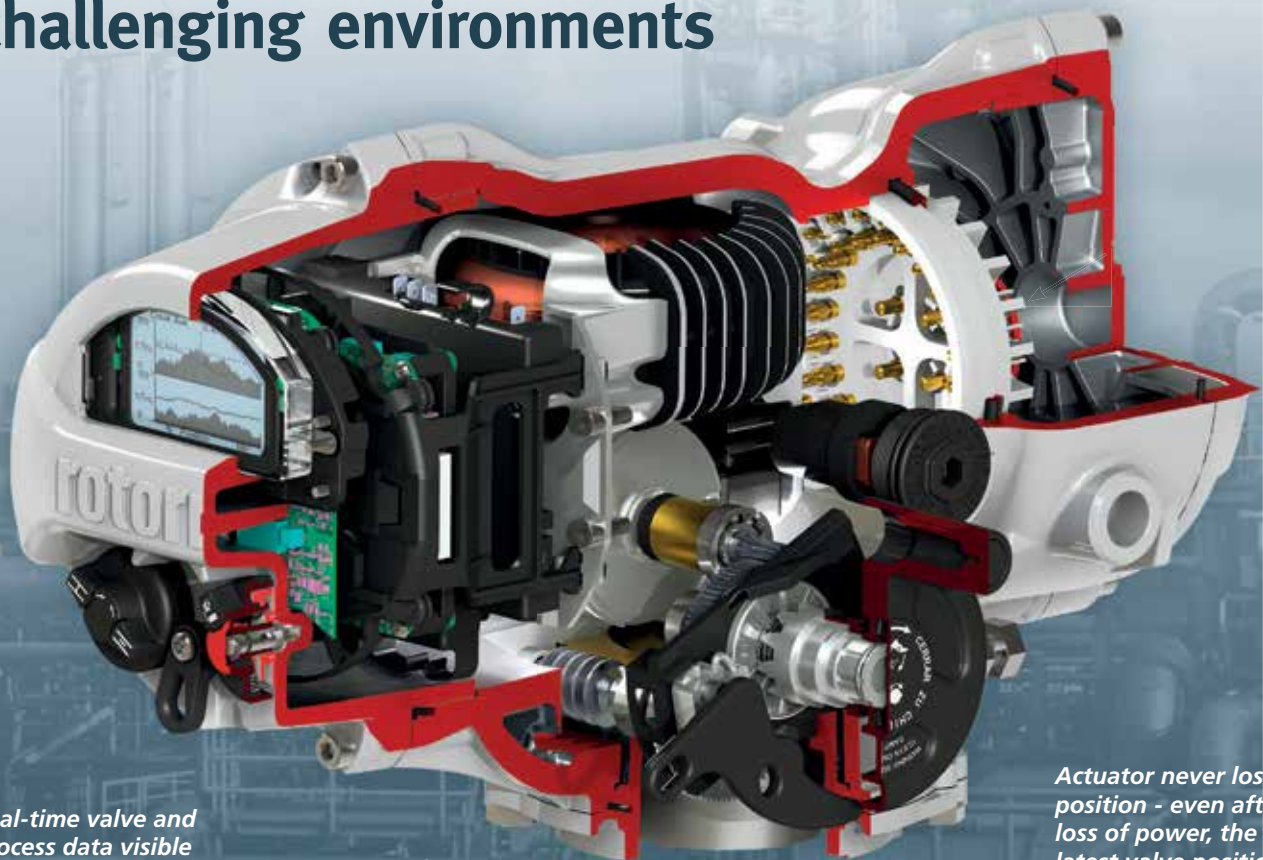
If you have any questions on CWWA activities, feel free to reach out me anytime at mbutler@dillon.ca.

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A warm welcome


A big welcome to our new members over the past few months:

Name	Company	
Hoskin Scientific		AWWA
Kyle Slaunwhite	Town of Pictou	AWWA
Laurie Steeves		AWWA
Ross Macinnis	Town of Port Hawkesbury	AWWA
Bob Pokoj	CBCI Limited	AWWA
Aaron O'Brien	University of New Brunswick	AWWA
Julia Geisler	American Water Works Association	AWWA
Ricky Williams	Village of Perth-Andover	AWWA
CBCL Limited		AWWA
Nelson Chatman	Town of Grand Falls-Windsor	AWWA
Adam Sketchley	DesignPoint	AWWA
Noah Brace		AWWA
Kate Barnes		AWWA
Jason Allen	Dalhousie University	AWWA
Carrissa Grove		AWWA
Adam Leahy	Exp Services Inc.	AWWA
Lisa Albert-Therriault	CORBO Engineering	AWWA
Trudy Gillis	Village of Baddeck	AWWA
Leili Abkar		WEF
Echologics Engineering Inc.		WEF

As of June 6, 2017,

Total AWWA members: **425** | Total WEF members: **103**

Annual photo contest

It's time to submit your photos for our 2017 photo contest, open to ACWWA members. 

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Our Family* and Water (*includes pets)





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Rules and Criteria:

1. Photo must be submitted by an ACWWA Member.
2. Photo must include water AND a family member(s) and/or pet(s).
3. Please provide first name of those in photo.
4. Unlimited submissions. Only one winning picture per member.
5. Judged by ACWWA Board.
6. Deadline for submission is September 1, 2017.
7. Submit pictures or questions to julie.stokes@moncton.ca.



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Winner of the **Silent Hero Award**, Francis Romard



1. **Job title:**
Water Treatment Operator DRC (Operations Foreman).
2. **Who do you work for?**
Cape Breton Regional Municipality.
3. **Where do you currently live?**
New Waterford, Cape Breton Island.
4. **Where did you grow up?**
New Waterford.
5. **When I'm not working, I'm...**
Watching my granddaughter Madison play sports, jogging horses, cooking, listening to music or dancing with the bride.
6. **The accomplishment I'm most proud of is...**
Being a DAD.
7. **If you could go on a road trip with any one person (living or dead), who would it be and where would you go?**
With my wife Glenda to Cheticamp.
8. **What is your philosophy on life?**
Success is getting what you want. Happiness is liking what you got.
9. **Toughest thing about your job?**
If you like your job, nothing is tough.
10. **When you were a kid, what did you want to be when you grew up?**
Never thought that far ahead.
11. **Last book you read?**
It's been a while, I'd be lying if I told you.
12. **Last movie you saw?**
Don't watch many movies, that would be another lie.
13. **What music did you listen to this morning?**
Country.
14. **Favorite TV show?**
Gold Rush.
15. **What was the best gift you ever received?**
My daughter.

16. **What's the most useless thing you ever purchased?**
A hairnet.
17. **Not many people know that I...**
I'm kind of an open book. This doesn't really apply.
18. **What is your greatest luxury?**
Chocolate.
19. **What's your favourite famous quote?**
My grandfather used to say, "Good judgement comes from experience, and experience comes from bad judgement."
20. **Describe your perfect day.**
Going to work, watching Madison play basketball, jogging the horse, talking to Kyla (my daughter), and hugging the bride.
21. **What three objects would you rescue from your burning house?**
Just the bride, everything else I can replace.
22. **Who is the most influential person in your life?**
My mother.
23. **What is your ideal vehicle?**
Not really a car guy, so horse and buggy.
24. **How long have you been a member of ACWWA?**
Not sure. 🙄

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Congratulations scholarship recipients!

We would like to congratulate our **2017 ABEA Scholarship Recipients:**

- **Jarod Fougere**, son of Chris Fougere (Xylem), will be attending Dalhousie University to study Engineering.
- **Jade Hickey**, daughter of Ashley Hickey (Aqua Data Atlantic), will be attending McKenzie College to study Media Arts.
- **Ryan Lowe**, son of Steve Lowe (Shaw Resources), will be attending Dalhousie University to study Kinesiology.
- **Kyle Price**, son of Dean Price (City of Saint John), will be attending Memorial University where he hopes to enter Pharmacology.

Good luck to all graduates and we look forward to the class of 2018. Begin preparing early so as not to miss out. See the **scholarship application** on www.ABEA.biz.

As we move closer to the 2017 Annual ACWWA Conference in Charlottetown and plans are being finalized in your municipality, remember to include the **ABEA Annual Attendance Grant** in your budgeting process. There may be an opportunity to offset your costs by submitting an application. See the **Grant Application** on www.ABEA.biz.

Plan to attend the Annual ABEA Tradeshow at the Conference, Tuesday October 17 where the exhibitors will be displaying current and innovated products to the water and wastewater industry. The Tradeshow will run from 9 am until 1 pm. See you there! It will be the largest show to date, at 88 booths. Registration is now open at www.ACWWA.ca.

The Annual Common Hospitality event will once again be held on Monday evening of the Conference, at the Old Triangle. This year we will host two musical acts – Raglan Road for the dancing crowd and the duo of Sheila MacKenzie & Norman Stewart for your easy listening pleasure. Late night pizza will be served before heading home. We look forward to greeting old friends and introducing ourselves to new ones.

Don't forget to register for the ABEA Golf Tournament being held Sunday,

Oct. 15 at Glasgow Hills Golf Resort. 10:00 am shot gun start. \$70 fee covers golf, shared cart, and range balls. Register at www.ACWWA.ca.



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Lloyd Douglas Scholarship

(2017 Competition)

The Atlantic Canada Water and Wastewater Association (ACWWA) established this scholarship in 2010 in recognition of dedicated service rendered by long-time member and tireless ACWWA supporter, Lloyd Douglas. ACWWA is a 'Section' of the American Water Works Association (AWWA) and a 'Member Association' of Water Environment Federation (WEF). ACWWA is comprised of over 550 water professionals from Atlantic Canada representing the water and wastewater industry from a number of disciplines including System Design & Consulting, Utility Management & Operations, Academia & Students, and Service Providers & Contractors. The goals of the association under its Strategic Plan are to:

- Support industry best practices
- Provide our industry with an education for the future
- Promote information exchange in the water and wastewater industry
- Conduct annual conferences
- Enhance government relations
- Increase/optimize membership
- Improve our Association's effectiveness

Number and value: Up to four awards with a value of \$1,000 each plus a one-year student membership to the American Water Works Association (AWWA) and ACWWA (one winner for each Atlantic Canadian province: NB, NL, NS, and PEI).

Tenure: One year (non-renewable)

Eligibility: An applicant shall

- be a Canadian citizen or permanent resident of Canada;
- be registered as a full-time student at a university in Atlantic Canada;
- have successfully completed at least one year of postsecondary education; and
- intend to pursue a career related to the water or wastewater industry.

Fields of study: University degree in engineering/science

Assessment criteria:

- Academic record after at least one year completion of postsecondary education (30%);
 - Statement/essay (60%); and
 - Work experience and extracurricular activities (10%).
- Preference will be given to a candidate with a demonstrated interest in working in the water or wastewater treatment sectors.

Application:

The application shall include

- a short biography, a recent photo, and contact information including name, phone number, mailing and email addresses;
- a 500-word statement or essay of the applicant's interest, knowledge and future goals in the water/wastewater industry together with applicable work experience or extracurricular activities;

- a description/list of planned future studies; and
- supporting documents including i) an official transcript completed to date, and ii) a copy of passport (the page showing your name, nationality and place of birth), citizenship/PR certificate or birth certificate.


The Scholarships Committee **accepts only electronic applications**, which should be received via email by **October 20, 2017**. Scanned copies of the supporting documents are required.

Apply to:

Dr. Bing Chen, Chair of ACWWA

Scholarships Committee
Faculty of Engineering and Applied Science
Memorial University of Newfoundland
St. John's, NL, Canada, A1B 3X5
Email: bingchen05@gmail.com

Selection:

Selection will be based on the principle of open and equal opportunity and carried out by the Scholarships Committee. The award winners will be announced in the following February. 



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Craig Kelman & Associates Scholarship (2017 Competition)

As the publisher of *Go With the Flow*, the official publication of the Atlantic Canada Water and Wastewater Association, Craig Kelman & Associates has a deep appreciation for the readers and members of ACWWA whose task it is to ensure that water taken from and put back into our precious mother earth is clean and safe for the people, animals, and plants whose very existence depends upon it. To demonstrate their admiration and respect for the association, its members and the water industry as a whole, they have established a yearly educational scholarship of \$500 to be funded through a percentage of advertising sales generated in *Go With the Flow*.

Number and value: One yearly cash award with a value of \$500 plus a one-year membership to the American Water Works Association and ACWWA.

Tenure: One year (non-renewable)

Eligibility: An applicant shall

- be a Canadian citizen or permanent resident of Canada;

- be registered as a student in an Atlantic Canadian community college, institute of technology, or other institution in a water/wastewater operations program; and
- intend to pursue a career related to the water or wastewater industry.

Assessment criteria:

- Academic record in last year of study (20%);
- Statement/essay (60%); and
- Work experience and extracurricular activities (20%).

Preference will be given to a candidate with a demonstrated interest in working in the water or wastewater treatment, collection, or distribution sectors.

Application:

The application shall include


- a short biography, a recent photo, and contact information including name, phone number, mailing and email addresses;
- a 500-word statement or essay of the applicant's interest, knowledge and future goals in the water/wastewater industry together with applicable work experience or extracurricular activities;

- a description/list of planned future studies; and
- supporting documents including i) a transcript showing courses completed in the last year of study, and ii) a copy of passport (the page showing your name, nationality and place of birth), citizenship/PR certificate or birth certificate.

The Scholarships Committee **accepts only electronic applications**, which should be received via email by **October 20, 2017**. Scanned copies of supporting documents are required.

Apply to:

Dr. Bing Chen, Chair of ACWWA Scholarships Committee
Faculty of Engineering and Applied Science
Memorial University of Newfoundland
St. John's, NL, Canada, A1B 3X5
Email: bingchen05@gmail.com

Selection: Selection will be based on the principle of open and equal opportunity and carried out by the *Scholarships Committee*. The award winners will be announced in the following February. 



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Mr. Mark Whalen, Manager Controls and Automation, Pennecon. Energy Technical Services
mwhalen@pennecon.com






The One AWWA Operator Scholarship

The **One AWWA Operator Scholarship** is funded through the support of AWWA's The Water Equation Campaign and the Atlantic Canada Water and Wastewater Association.

Purpose of award:

AWWA's The Water Equation Campaign and the Atlantic Canada Water and Wastewater Association will award the **One AWWA Operator Scholarship(s)** in the amount up to \$2,000 for Water Operator training and education.

Scholarship award can be used for certification/licensure, two-year water related associate degree, technical school program, professional training program, books and manuals, and operator-related conferences.

Each scholarship recipient will receive a one-year AWWA Operator membership.

Eligibility/guidelines:

- Applicant must be a current water operator or seeking to enter the water operator profession.
- Applicant must be pursuing an Operator's License or Certification,

two- or four-year degree related to the water operator profession, or professional development.

- Disbursement of the funds will be made directly by the Section to the financial office of recipient's college, university, or technical school.
- Items related to books, manuals, conferences, professional development courses, and other eligible expenses will be reimbursed to recipient upon presentation of eligible receipts.
- Applicant must reside or work within the geographical boundaries covered by the sponsoring Section.
- Acceptance of scholarship constitutes permission to use recipient's name and scholarship story for purpose of promotion.

Application process:

Deadline/selection/presentation

The Scholarships Committee **accepts only electronic application**, which should be received via email by **November 10, 2017**. Scanned copies of supporting documents are required. Letters of recommendation may be mailed directly to the PO Box listed below and postmarked by the application deadline.

Apply to:

The One AWWA Operator Scholarship Committee
Atlantic Canada Water and Wastewater Association (ACWWA)
PO Box 28141, Dartmouth, NS, B2W 6E2
Email: contact@acwwa.ca

See application form on page 24.

Selection: Selection will be based on the principle of open and equal opportunity and carried out by an ACWWA selection committee. The award winners will be announced the following December.

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The One AWWA Operator Scholarship

APPLICATION

Applicant Information

Name: _____

Address: _____

Phone: _____

Email: _____

Employment Information

Employer: _____

Address: _____

Phone: _____

Current Position: _____

Number of Years at Job: _____ Operator Level: _____

Member of AWWA: Yes No

Veteran: Yes No

How you will use the scholarship funds

- | | |
|---|---|
| <input type="checkbox"/> 2- or 4-year Water Operator Related Degree | <input type="checkbox"/> Professional Development Program or Conference |
| <input type="checkbox"/> Technical School | <input type="checkbox"/> Books and Manuals |
| <input type="checkbox"/> Operator Certification or Licensure | |

Attach the following to this application form:

- One-page essay of career objectives and how this scholarship will enhance your ability for professional development and bring value to the water industry.
- Résumé
- Two letters of recommendation/reference

Certification

I certify that the information included in this application is true and complete to the best of my knowledge and I grant permission to AWWA's The Water Equation Campaign and sponsoring Section to release my name and award for promotional use.

Signature: _____

Date: _____

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Conference Highlights

10.15.17

SUNDAY

10:00am ABEA Golf Tournament at Glasgow Hills Resort and Golf Club
1:00pm - 4:30pm Young Professionals Seminar
2:00pm - 5:00pm Charlottetown - Great Things Happen Here Tour
5:00pm - 7:00pm Young Professionals Mixer
- Merchantman Fresh Seafood & Oyster Bar
7:30pm Meet and Greet Reception

10.16.17

MONDAY

7:30am Breakfast available - Continental
8:30am Conference Opening
- Fuller/Bedell/MacNab Awards ceremony
- Keynote Address: Speakers Dr. Edward MacDonald & Dr. David Sabapathy
10:00am - 11:30am Technical Sessions
11:00am Companion Program (Lunch/East Coast Art Party) – meet in hotel lobby
12:00pm (noon) Annual General Meeting Luncheon
1:30pm - 3:00pm Technical Sessions (Demos)
3:30pm Top Ops Competitions (Water & Wastewater)
5:00pm Water for People Fun Run Walk
5:00pm Dine on your own – Enjoy the restaurants of Downtown Charlottetown
9:00pm ABEA Hospitality Night at The Old Triangle Pub with Raglan Road Band

10.17.17

TUESDAY

7:30am Breakfast available - Continental
8:00am ACWWA Best of the Best Taste Test
9:00am - 1:00pm ACWWA / ABEA Tradeshow / Luncheon
11:00am Companion Program (Rum Runner Tour/Lunch) – meet in hotel lobby
1:30pm - 4:30pm Technical Sessions
6:30pm Down East Feast and Entertainment

10.18.17

WEDNESDAY

8:00am Awards Breakfast - Buffet
9:30am - 11:00am Technical Sessions

Annual Golf Tournament



Glasgow Hills Resort and Golf Club

"A four star rated course by Golf Digest and listed in the top 70 golf courses in Canada from the readers of The Globe and Mail. The course takes full advantage of the elevation changes by offering stunning panoramic views of the PEI countryside, River Clyde and Gulf of St. Lawrence in a truly extraordinary setting."

With that in mind, we welcome you to join us for our Annual Golf Event being held on October 15, 2017 and sponsored by the ABEA, and its individual members.

Tee times commence at 10:00 am, with a shotgun format.

\$70.00 (Green fees, shared cart & range balls)
+ tax

Put your team together, or we will be pleased to place you with a group – all ability levels welcome. Rental clubs are available for an additional fee (arrangements to be made directly with the course)

Please note that only those registered by August 15, 2017 will be guaranteed "swag".

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Canadian Water and Wastewater Association

National Water and Wastewater Conference

in conjunction with the Canadian Association for Water Quality's National Symposium on Water Quality Research

November 5-8, 2017
St. John's Convention Centre, Newfoundland
www.nwwc2017.ca

Technical Program

10.16.17

MONDAY

	10:15AM - 10:45AM	10:45AM - 11:15AM	11:15AM - 11:45AM
TECHNICAL SESSION: A1 <i>MODERATOR:</i> ARCHIBALD	Emerging Issues with Lead: A Canadian Perspective <i>Graham Gagnon, Dalhousie University</i>	Culture Shift: The Challenges of Developing a Comprehensive Lead Service Line Replacement Program While Minimizing Impacts to Public Health <i>Reid Campbell, Halifax Water</i>	Improving Lead Digestion Techniques in Drinking Water Samples <i>Zewen Zhang, Dalhousie University*</i>
TECHNICAL SESSION: A2 <i>MODERATOR:</i> CAMPBELL / CARTIER	REGEN: Next Generation Solutions in Decentralized Wastewater Treatment <i>Mike Deighan, Island Water Technologies</i>	Hawkesbury: First HYBAS Plat in Canada <i>Bradley Young, Veolia Water Technologies*</i>	A Compact, Efficient and Expandable Title 22 Treatment System for Small Water Systems <i>Peachie Maher Hytowitz, Amiad Water Systems</i>
TECHNICAL SESSION: A3 <i>MODERATOR:</i> LANGEVIN / TILLEY	Nitrate Monitoring and Management Strategies for the Village of Port Williams <i>Jess Younker, Acadia University*</i>	Assessment of the Role of Low Impact Development on Groundwater Recharge using Coupled Models <i>Eva Mooers, Dalhousie University</i>	Storm Water Management: Underground Storage at the Moncton Event Centre <i>Philippe Losier, Soleno</i>
	1:30PM - 2:00PM	2:00PM - 2:30PM	2:30PM - 3:00PM
TECHNICAL SESSION: B1 <i>MODERATOR:</i> ARCHIBALD	Geizer 1589 Reservoir Rehabilitation <i>Kevin Healy, Halifax Water*</i>	Managing a 100 Year Old Cast Iron Pipeline for Another 100 Years - City of Hamilton Case Study <i>Cameron White, Pure Technologies Ltd.</i>	Modernization of the Chatham Water Distribution System <i>Darren Row, City of Miramichi</i>
TECHNICAL SESSION: B2 <i>MODERATOR:</i> CAMPBELL / CARTIER	Wastewater Pumps with Integrated Intelligence <i>Kristel Zaman, Xylem Inc.</i>	3D Scanning of Combined Sewer Overflow Structures <i>Heather Miller and Kevin Brown, Halifax Water</i>	Maintenance Hole Rehabilitation <i>Kevin Bainbridge, Robinson Consultants</i>
TECHNICAL SESSION: B3 <i>MODERATOR:</i> LANGEVIN / TILLEY	Leveraging Wastewater Intensification Growth Studies to Enhance Long Term Strategic Infrastructure Planning <i>James Jorgensen, GM BluePlan Engineering</i>	You Have Funding! Now What? <i>Stephen Matthews & James Blackwood, COLLIERS PROJECT LEADERS & Town of Gander</i>	Geotextile Dewatering Systems <i>Paul Saulnier and Kevin Bossy, Scotia Tech Fluid Services Ltd.</i>

* Fresh Ideas presenters are a first time Young Professional participant at the ACWWA section conference presenting a water related topic, and will be considered for the Fresh Ideas program that has been developed through AWWA's Manufacturers/ Associates Council and the Young Professionals Committee. The top presentation selected from this group of presenters will be given the opportunity to compete in the Fresh Ideas poster competition at the AWWA Annual Conference and Exposition (ACE 2018) in Las Vegas, Nevada, representing the Young Professionals of ACWWA. Along with complimentary conference registration provided by the ACE 2017 organizing committee, ACWWA will provide the winner with a stipend to assist with travel costs to the conference.

10.17.17

TUESDAY

1:15PM - 1:45PM

1:45PM - 2:15PM

2:15PM - 2:45PM

TECHNICAL SESSION: C1

MODERATOR:
ARCHIBALD

Year in Review and What's New at Water Research Foundation

*Jennifer Warner,
Water Research Foundation*

Chemistry of Chlorine and Chlorine Monitoring

*Randy Turner,
Swan Analytical USA*

Improving Lead Digestion Techniques in Drinking Water Samples

*Zewen Zhang,
Dalhousie University**

TECHNICAL SESSION: C2

MODERATOR:
CAMPBELL / CARTIER

Use of Membrane Adsorbent Bioreactor (MABR) Technology for the Removal of Phosphorus in Municipal Wastewater Systems

*Sadman Soumik,
Dalhousie University*

Mill Cove WWTF UV Upgrade

*Robert Gillis,
Halifax Water*

Inactivation of E.coli by UV Light Emitting Diodes: A Review and Initial Steps for Implementation in Rural Communities in Nunavut

*Carolina Ontiveros,
Dalhousie University**

TECHNICAL SESSION: C3

MODERATOR: LANGEVIN / TILLEY

AWWA C502 Fire Hydrants - Common Repairs

Mike Duguay, Clow Canada

3:00PM - 3:30PM

3:30PM - 4:00PM

4:00PM - 4:30PM

TECHNICAL SESSION: D1

MODERATOR:
ARCHIBALD

Lessons Learned Mapping Critical Pressure Pipelines - City of Ottawa Case Studies

*Cameron White,
Pure Technologies Ltd.*

Water Header Pressure Controls

*Edward Scott,
Rockwell Automation*

Automated Flushing Technology Advances Water Quality

*Jeff Jensen,
Mueller Canada*

TECHNICAL SESSION: D2

MODERATOR:
CAMPBELL / CARTIER

Ammonia Permits and Lagoons: Atlantic Canada's WWTFs and the Options Available for Beating Limits

*Martin Hildebrand,
Nexom*

Eliminating Ammonia Toxicity from Lagoon Effluents at Temperatures as Low as 1 degC

*Bradley Young,
Veolia Water Technologies**

Using Cloth Disk Filters for Phosphorus Removal: Lessons from Sundridge, Ontario

*Martin Hildebrand,
Nexom*

TECHNICAL SESSION: D3

MODERATOR:
LANGEVIN / TILLEY

Capital Planning and Inventory Tool: Asset Management of Wastewater Pumping Stations

*Kyle MacIntyre,
Dillon Consulting Ltd.**

Asset Management - A Case Study Comparing Submersible and Above Grade Lift Stations

*Micheal Tuel,
Smith and Loveless*

Installation of Annular Seals to Prevent Clogging of Transfer Pipes With Slurry Material

*Stephen Bradle,
Winters Instruments*

10.18.17

WEDNESDAY

9:30AM - 10:00AM

10:00AM - 10:30AM

10:30AM - 11:00AM

TECHNICAL SESSION: E1

MODERATOR:
ARCHIBALD

Using Lake Sediment to Predict Future Treatment

*Dewey Dunnington,
Dalhousie University*

Freshwater Mussels Serving our Nation: The Unsung Heroes of Potable Water Filtration in Canada

*Anthony Mazzocca,
CBRM*

Tree-specific Effects of Canopy Passage on Acidity and Electrical Conductivity of Rainwater in CBRM Watersheds

*Anthony Mazzocca,
CBRM*

TECHNICAL SESSION: E2

MODERATOR:
CAMPBELL / CARTIER

Smart Sewers: an Emerging Strategy for Modern Canadian Cities

*Ali Ahmadi,
University of Prince Edward Island*

Corporate Flow Monitoring Program

*Heather Miller,
Halifax Water*

Using a Flow Analysis Tool to Better Understand the Performance of a Wastewater System

*Bryan Bortolon,
GM BluePlan Engineering*

TECHNICAL SESSION: E3

MODERATOR:
LANGEVIN / TILLEY

Water Act for PEI

George Somers, PEI Department of Communities, Land and Environment

Managing Water Supplies through the Drought of 2016

*John Eisnor,
Halifax Water*

Environmental Risk Assessments: New Brunswick Implementation of the CCME Canada-wide Strategy for the Management of Municipal Wastewater Effluent

Scott Lloy, NB Department of Environment & Local Government

ACWWA Conference Registration

PART 1 – CONFERENCE ATTENDEE GENERAL INFORMATION

FIRST NAME		LAST NAME		ORGANIZATION	
MAILING ADDRESS				CITY	
PROVINCE	COUNTRY	POSTAL CODE		AWWA MEMBERSHIP NUMBER	
PHONE		FAX		WEF MEMBERSHIP NUMBER	
REGISTERED COMPANION/SPOUSE			EMAIL ADDRESS		
Check box if you would like to be added to the ACWWA email list <input type="checkbox"/>					
Sector <input type="checkbox"/> Utility <input type="checkbox"/> Supplier <input type="checkbox"/> Contractor <input type="checkbox"/> Consultant <input type="checkbox"/> Student <input type="checkbox"/> Academic <input type="checkbox"/> Regulator <input type="checkbox"/> Other					

PART 2A – DELEGATE REGISTRATION

Full Conference Delegate – Includes all Meals On or Before Sept. 15, 2017	<input type="checkbox"/> Member – \$475	<input type="checkbox"/> Non-Member – \$525	\$
Full Conference Delegate – Includes all Meals After Sept. 15, 2017	<input type="checkbox"/> Member – \$575	<input type="checkbox"/> Non-Member – \$625	\$
Companion/Spouse Program – Includes all Meals	<input type="checkbox"/> Member/Non-Member – \$275		\$
Student (Includes Meet & Greet, Lunches, Awards Breakfast and Trade Show)	<input type="checkbox"/> Member/Non-Member – \$100		\$
Monday Full Day Pass (Includes AGM Lunch and ABEA Hospitality Reception)	<input type="checkbox"/> Member – \$250	<input type="checkbox"/> Non-Member – \$275	\$
Tuesday Full Day Pass (Includes Trade Show & Lunch and Down East Feast)	<input type="checkbox"/> Member – \$250	<input type="checkbox"/> Non-Member – \$275	\$
Tuesday 1/2 Day Trade Show Pass (Includes Trade Show Lunch)	<input type="checkbox"/> Member – \$125	<input type="checkbox"/> Non-Member – \$150	\$
Register before September 1 and be entered for the early bird draw			Part 2 – Subtotal
			\$

PART 2B - DELEGATE MEALS & ACTIVITIES NOT INCLUDED WITH REGISTRATION

Sunday, October 15		Please indicate attendance by checking box	
Golf (transportation not included)	Shirt: S__ M__ L__ XL__ XXL__	___ @ \$70 =	\$
Tour – Charlottetown – Great Things Happen Here; Birth of the Nation, Water Supply & Resource Recovery		___ @ \$15 =	\$
Honorary Islander		___ @ \$10 =	\$
YP Workshop – Registration is free – please indicate if you are attending		Yes	No
Tuesday, October 17			
Down East Feast – Included in Delegate/Companion Registration Fees	Additional Tickets ___ @ \$100		\$
Please indicate meal choice for Down East Feast for Delegate/Companion	Loebster ___	Chicken ___	Beef ___
Please describe any dietary restrictions or other special needs you may have			Part 2 – Subtotal
			\$

PART 3A – TRADE SHOW BOOTH RENTAL & EXHIBITOR REGISTRATION

Booth Rental (Max 3 Booths & 2 People/Booth)	ABEA Member – ___ Booths @ \$500	Non-Member – ___ Booths @ \$850	\$
EXHIBITOR'S NAME	EXHIBITOR'S NAME	EXHIBITOR'S NAME	
EXHIBITOR'S NAME	EXHIBITOR'S NAME	EXHIBITOR'S NAME	
Extra Booth Exhibitor Registration (includes Meet & Greet, ABEA Hospitality Reception and Trade Show Lunch)	ABEA Member – ___ @ \$75	Non-Member – ___ @ \$100	\$
EXHIBITOR'S NAME	EXHIBITOR'S NAME	EXHIBITOR'S NAME	
			Part 3 – Subtotal
			\$

PART 3B - EXHIBITOR MEALS & ACTIVITIES NOT INCLUDED WITH REGISTRATION

Sunday, October 15			
Golf (transportation not included)	Shirt: S__ M__ L__ XL__ XXL__	___ @ \$70 =	\$
Tour – Charlottetown – Great Things Happen Here; Birth of the Nation, Water Supply & Resource Recovery		___ @ \$15 =	\$
Exhibitor Booth registration <u>does not</u> include the full conference or meals. To attend full conference, register as a Delegate in Part 2			

Monday, October 16			
Pick-up Continental Breakfast	Exhibitor ___ @ \$25	\$	
Annual General Meeting Luncheon	Exhibitor ___ @ \$60	\$	
Tuesday, October 17			
Pick-up Continental Breakfast	Exhibitor ___ @ \$25	\$	
Down East Feast	Exhibitor ___ @ \$100	\$	
Please indicate meal choice for Down East Feast	Lobster ___	Chicken ___	Beef ___
Wednesday, October 18			
Awards Breakfast	Exhibitor ___ @ \$35	\$	
Please describe any dietary restrictions or other special needs you may have		Part 3 – Subtotal	\$


PART 4 - TOP OPS COMPETITION REGISTRATION				
Top Ops Team Registration	<input type="checkbox"/> Water	<input type="checkbox"/> Wastewater	___ Team @ \$50.00	\$
To complete team registration contact Trent Brewer at (506) 460-2066 or trent.brewer@fredericton.ca			Part 4 – Subtotal	\$


PART 5 – FEES	
Subtotal	\$
Life Members deduct \$100.00	\$
HST 15% (869 924 910 RT2)	\$
Water for People Fun Run/Walk _____ @ \$25.00	\$
Total Amount Due	\$

PART 6 - PAYMENT OPTIONS			
Choose payment method. Complete as appropriate.			
<input type="checkbox"/> Cheque	<input type="checkbox"/> Money Order	<input type="checkbox"/> Visa	<input type="checkbox"/> Mastercard
Please make cheque or money order payable to "ACWWA Conference", Box 28142, Dartmouth, NS B2W 6E2			
CARD HOLDER NAME			
CARD NUMBER		EXPIRY	
SIGNATURE			
Fax: 902-435-7796 or Email: contact@acwwa.ca		EMAIL ADDRESS	
WHEN PAYING WITH A CREDIT CARD AN EMAIL ADDRESS IS REQUIRED FOR A RECEIPT TO BE ISSUED			

Wastewater Management







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Guelph
519-763-0713

2017 ACWWA & ABEA Tradeshow

The 2017 Trade Show will be held Tuesday morning, October 17, 2017, beginning at 9:00 am, offering 88 booths – our largest Trade Show to date!

This popular event provides the equipment suppliers an opportunity to showcase their products and services, and delegates the opportunity to network with both participants and colleagues.

Prepare to be introduced to the latest technologies and services available to the Waterworks Industry.







The Trade Show will offer lunch, as well as the ABEA attendee gift – where our mandate is to support our local artisans.


Allow time to explore and engage... there is something for everyone, and more.



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Conference Hotel Information

The conference will be held at the Conference Centre adjoining the Delta Hotels Prince Edward located at 18 Queen Street in downtown Charlottetown.

A special conference room rate of \$199 to \$219 plus taxes per night is in place until September 15. Reservations can be made using the link on ACWWA's website www.acwwa.ca or call 902-566-2222.



Please reserve your room by September 15 to receive the special conference rate. Be sure to tell the hotel reservation desk that you are in the ACWWA block rate.



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Should water suppliers provide a lower level of service and allow households to customize their own level of service?

A behaviour-based definition of water affordability

By Anna Robak, PhD (Econ), PEng
Director Whole of Life Asset Management
Opus International Consultants (Canada) Limited, Fredericton NB

At the World Water Congress in Cancun in June, the theme was “Bridging science and policy.” Its aim was to establish new international policies on water management in order to meet the United Nations Development Programme’s Sustainable Development Goals (SDGs). Based on conference discussions, panels of experts will recommend international policy changes that will be distributed to international institutions that have an interest in water, including the OECD, the World Bank, and UNESCO.

Two recommendations under consideration came from our Atlantic Canada-based research team. They are:

1. **Consider “household customisation” of potable water supply services as a complementary service delivery model** to the traditional, centrally-supplied service. The implication is that water suppliers don’t have to provide the complete, desired level of service themselves.
2. **Change the definition of water affordability** to include the costs of averting behaviours –

the purchases and behaviours households make in order to customise the quality of their service – rather than just the water bills.

The research on which these recommendations are based was undertaken in New Zealand, but the other research that’s out there suggests we could see similar results in Canada. By investigating households’ averting behaviours, the research showed that nearly half of New Zealanders spend money customizing their potable water supply services.

This came as a surprise, in a developed country that has a reputation for being clean and green. The average New Zealand household spends \$180 per year customizing their water supply – and poor households spend up to 45% more. It would appear that a level of service that’s lower than what people want represents a large economic burden – \$180 million to the New Zealand economy annually – but only if it would be cheaper to increase the level of service centrally than to ‘customise’ level of service at household level.



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This question suggests that household expenditures should be considered as a complementary service delivery model – that is, when we consider cost and level of service, we should consider not only water bills and the level of service provided by the water supplier, but the total cost, which includes people's purchases and behaviours, and the level of service they experience, which incorporates those averting behaviours.

THE BACKGROUND

Water utilities are facing pressure to make water services more affordable. But this is a paradox, when you consider the current state of ageing infrastructure; more stringent regulations; and the need to invest to protect against climate change; resilience. The water supplier really has three options:

- Pass the costs on to the consumer
- Maintain costs, but allow level of service to reduce
- Do something different

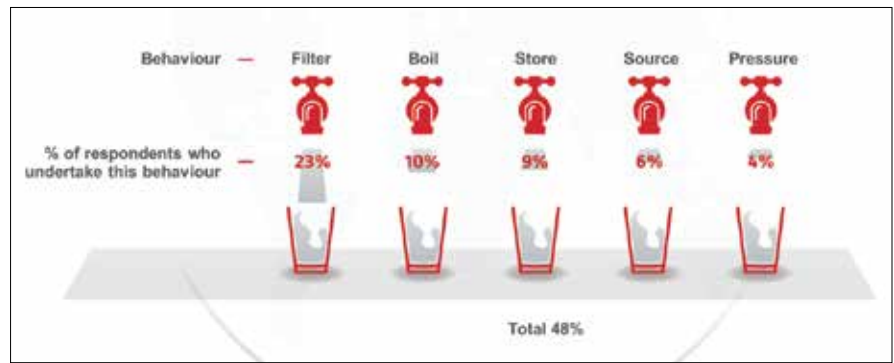


FIGURE 1

The 'something different' could be about new stakeholders paying for important outcomes to the wider economy. So the aim of this research was to first identify all important impacts of potable water supply systems. This was important because a municipality, and in fact an entire nation, has a range of goals they want to meet. If we can understand the impacts of a potable water supply investment on all those goals, the right interested parties could come together to fund improvements to our systems.

To avoid taking for granted which attributes were most important to people, as most previous studies had done, a revealed preference technique was used to ask people which purchases and behaviours they were undertaking to improve the quality of water service in their homes. That approach resulted in a wider range of important impacts than we've previously seen.

The dynamic online survey yielded a large number of responses: 1,917 water supply customers from around New Zealand. They described their perceptions about the quality of their water services. They also revealed whether they had any equipment or undertook any behaviours related to their potable water supply. And they told us WHY they used that equipment or behaviour. Previous research, which has largely used telephone or mail interviews, hasn't had this dynamic aspect that allowed researchers to ask lots of follow-up questions. The reason helped people anchor their responses to something they were already doing, and explain why in their own words. And this approach resulted in new outcomes of water supply systems that are not typically considered.

THE RESULTS

The analysis showed that almost half of New Zealanders (48%) undertake an averting behaviour of some kind to improve the quality of their drinking water service (Figure 1).

This large proportion suggests that the state of even developed country water supply systems is causing a large economic burden. To estimate this economic burden in New Zealand, the cost of each averting behaviour was

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Bad	\$207	\$160	29%
Could be better	\$189	\$167	13%
Excellent	\$219	&169	30%

FIGURE 2

estimated, and this added up to \$184 per household per year. The single largest expenditure was on boiling water, at \$74 per household per year.

It turned out that what was driving this expenditure was largely the taste and odour. An econometric model was run to shed light on what else was driving these averting behaviours. The results showed that lower-income households were more likely to boil their water, while higher-income households were more likely to filter. The analysis suggested that over the course of a year, boiling is much more expensive, when you account for people's value of time. So lower-income families were being more burdened by the quality of their service than higher-income families. To test if this was because lower-income families received a poorer service, expenditures were compared for lower- and higher-income households perceiving the same quality of service. The results showed that even when they perceived the same quality, lower-income families spend between 13 and 45% more than higher-income families for the same perceived level of service.

What is still undetermined is if this difference between lower- and higher-income households is because lower-income households:

- can't afford the upfront costs of purchasing a new filter? If so, lower-income families need financial assistance to make the purchase.
- don't understand that in the long term, the costs of boiling are higher?

- don't value their time, and they consider the cost of boiling just to be the cost of the kettle and power consumption?

These questions need to be answered.

In the meantime, it's clear that the economic burden of water services in New Zealand is significant, and some research suggest that it may well be similar in Canada. The question is whether this burden could be efficiently mitigated through centralised improvements to water supply systems – or whether the household-level customisation is in fact more economically efficient.

Regardless, household customisation should be considered a genuine complementary service delivery model, and the definition of affordability should incorporate these household expenditures. Only then can we begin to deliver truly affordable and equitable water services.

Anna presented this paper at the World Water Congress in May, representing Atlantic Canada, and we agreed that this topic would appeal to ACWWA members. Anna's paper and five others were debated in a special session on international water quality policy and will form the basis for a policy briefing that will be published by the International Water Resources Association and distributed to policy makers, water managers, and leaders in the water sector globally. 🌊



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YP update

The YP Committee is an active group that offers engaging networking and volunteering opportunities for members of the ACWWA who are relatively new to the water and wastewater industry. The group is made-up of engineers, researchers, operators, and technical sales people.

Please contact Brad McIlwain (bmclwain@cbcl.ca) if you are interested in becoming more involved with ACWWA, would like to announce an event in an upcoming YP Update, or have any questions about the YP Committee.

ACWWA YP Seminar at 2017 ACWWA Annual Conference

All YPs who are planning on attending this year's Annual Conference are encouraged to sign-up for the YP Seminar, which is being held from 1:00 pm to 4:30 pm on the opening day of this year's conference, Sunday, October 15, 2017.

The interactive event will feature several presentations from industry leaders on a range of topics related to the water and wastewater industry. It will also provide an excellent opportunity to meet other members of the industry. The program is being developed for a wide target audience, including researchers, operators, engineers, administrative staff, and technical sales staff.

The event will feature networking and skill-building exercises. Everyone who attends will also be given a ticket for a complimentary drink at the YP Mixer, which is being held at the Merchantman Fresh Seafood & Oyster Bar. The YP Mixer begins shortly after the Seminar, and is within a short walking distance from the conference venue.

The Seminar is open to all YPs attending the Conference and is covered under the registration fee. Just be sure to sign-up for the event on the Conference registration form, so organizers are aware in advance of how many will be attending. More details about the Seminar lineup will be sent out in the next few weeks. If you would like to learn more about the event, please contact Brad McIlwain.

Water For People Annual Softball Tournament



Start getting your team together, it's (nearly) time to play ball! The Annual Water For People Softball Tournament is in its final stages of planning. It is expected to be held in late July in Dartmouth, NS. If you are interested in fielding a team, contact Water For People Chair, Sean MacIsaac (seanmacisaac@dal.ca) for more details.

ACWWA Scholarship applications are now available online

The applications for three scholarships presented by the ACWWA are now available online. Application deadlines are as follows:


- Lloyd Douglas Scholarship – October 20, 2017
- Craig Kelman & Associates Scholarship – October 20, 2017
- “The One” AWWA Operator Scholarship – November 10, 2017

More information about the scholarships and application requirements can be found on

ACWWA's Scholarships webpage, at <http://acwwa.ca/scholarshipcommittee/82-acwwa-scholarship.html>.

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Register today for upcoming ACWWA training courses that interest you. You can register or learn more about the courses by going to www.acwwa.ca/courses/courseschedule.html.

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- **Wastewater Collection Level I & II**
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- **Water Treatment Level I & II**
Halifax, NS
September 26–29, 2017
- **SCADA**
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October 19, 2017
- **Water & Wastewater Fundamentals**
Halifax, NS
October 24–25, 2017
- **Wastewater Treatment Level I & II**
Moncton, NB
November 6–9, 2017
- **Water Distribution Level I & II**
Moncton, NB
November 20–23, 2017
- **Lift Stations and Forcemains**
Halifax, NS
November 28, 2017 



Spotlight on AWWA's Resource Communities

In our last feature, we highlighted some important lead resources from AWWA and beyond. AWWA's Lead Resource Community (<https://goo.gl/RfsOX2>) continues to be a great place to find current guidance and essential resources on the impacts from and the solutions to lead exposure from drinking water.


AWWA's Resource Communities are not just limited to information on lead, though; these collaborative communities that integrate current resources, tools, and learning opportunities are available for a wide variety of water topics, including:

- Asset Management
- Backflow Prevention & Cross Connection Control
- Climate Change
- Customer Service
- Cyanotoxins
- Desalination
- Drought
- Emergency Preparedness
- Groundwater
- Health Effects
- How Water Works
- Legionella
- Membrane Process and Technology

- Reuse
- Small Systems
- Source Water Protection
- Stormwater
- Wastewater
- Wastewater Collection Systems
- Water Conservation
- Water Loss Control

Resource Communities provide a collection of the most up-to-date information on each topic. Resource lists are comprehensive and focused, making it easy to quickly access relevant regulatory information, policy statements, press releases, research projects and reports, peer-reviewed publications, and more. Resource Communities also tend to highlight upcoming AWWA events such and conferences and webinars.

Have topics that you would like to see highlighted by the ACWWA Technical Knowledge Committee? Contact Committee Chair, Amina Stoddart, at amina.stoddart@dal.ca.

And remember, content from our Lunch & Learns is always available by visiting the Technical Knowledge Committee on YouTube (<https://goo.gl/DStnFz>). 

"AWWA's Resource Communities are not just limited to information on lead, though; these collaborative communities that integrate current resources, tools, and learning opportunities are available for a wide variety of water topics."



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Less acid rain could mean treatment challenges for drinking water providers

Authors: Lindsay Anderson, Wendy Krkosek, Amina Stoddart, Benjamin Trueman, Graham Gagnon

Background

Since the late 1970s, policymakers in Canada and the United States have been working to reduce acid rain, a phenomenon that is known to cause environmental harm particularly in lakes, rivers, and forests. The effects of acid rain have been widely observed in surface waters throughout eastern Canada, where natural buffering capacity (e.g., alkalinity) is low, resulting in loss of fish populations and elevated levels of aquatic aluminum.

Since the implementation of various policies, programs, and strategies to control acid rain, total annual SO_x emissions have decreased by over 60% for the period between 1990 and 2014.¹ This is expected to increase as Canada prepares to phase out coal-fired power entirely by the year 2030.²

As acid rain continues to decrease, lakes elsewhere are beginning to show signs of recovery from acidification, as evidenced primarily by increasing pH. In other words, lakes are slowly recovering to their pre-acidified state, or are becoming “healthier” from an ecological standpoint, as evidenced by improved fish stocks in lakes that were previously acid-damaged.³ The phenomenon of recovery from acidification is well studied in parts of Europe that were previously exposed to chronic acid rain, including Scandinavia and the United Kingdom, as well as in areas of northeastern United States and in Ontario, where researchers have observed significant increases in lake

pH as a result of reduced acid rain levels over the past number of decades. In addition to increasing pH, one of the most common in-lake responses to recovery from acidification is increasing natural organic matter (NOM) concentration. Elevated NOM concentrations in surface waters throughout the northern hemisphere have been reported in areas that were previously exposed to chronic acid rain because organic matter dissolves more easily as the acidity of rain decreases. For example, between 1990 and 2004, many surface waters throughout Europe and North America have experienced increases in dissolved organic carbon (DOC) concentration of 0.15 mg/L/year or greater.⁴



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“This work demonstrates a need for further studies on lake recovery from acidification in Atlantic Canada. It also highlights the importance of robust source water quality monitoring, particularly in terms of NOM concentration, as DOC and colour are the source of many problems in drinking water treatment, including the formation of disinfection by-products.”

Even so, the impact of recovery from acidification on drinking water treatment is not well understood. In order to understand the impact of reduced acid rain on lake water quality and subsequent drinking water treatment operations, we analyzed historical water quality and operational data for two water supplies (Pockwock Lake and Lake Major) operated by Halifax Water over the period between 1999 and 2015. Both of these lakes have been impacted by high levels of acid rain that has been decreasing continuously since the mid-1980s as evidenced by significant reductions in sulfate deposition (a widely used indicator for acid rain).⁵ Two case studies detailing the evidence for lake recovery in Halifax Water supplies, and the implications for water treatment are provided below.

Pockwock Lake – Halifax, Nova Scotia.

Pockwock Lake is the water supply for the J.D. Kline Water Supply Plant (JDKWSP), which has an average daily flow of 85 million liters per day (MLD). The JDKWSP, commissioned in 1973, underwent conversion from direct filtration (i.e., no clarification step before filtration) to direct biofiltration through removal of prechlorination in 2013. The pH in Pockwock Lake increased significantly over the time period studied as the average annual pH increased from 5.2 in 2004 to 5.6 in 2015. We also looked at the occurrence of “low pH” events (days where the pH < 5) in Pockwock Lake, because a pH above 5 is critical for sustaining fish habitat in Atlantic Canadian lakes.⁶ In 2005, there were 162 days where pH was < 5 in Pockwock Lake, and from 2010 to 2015 there were only 7 days in total that had a pH < 5. As mentioned previously, increasing NOM concentration is also common in lakes undergoing recovery from acidification. Historically, Pockwock Lake was considered to have low colour and the JDKWSP direct-filtration plant was designed based on this. In 1999, there were 179 days where the colour was <15 TCU (the aesthetic

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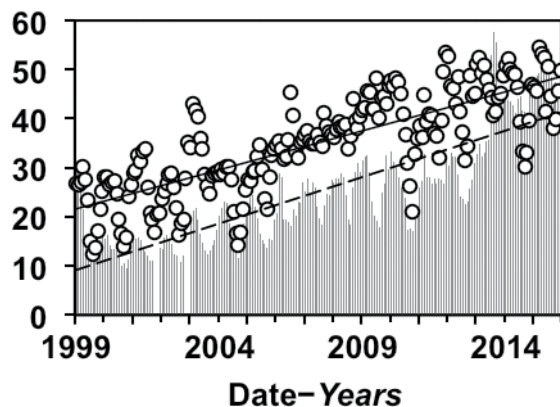


Figure 1. Monthly mean color in Lake Major and corresponding alum consumption at the Lake Major Water Supply Plant since commissioned in 1999. Circles denote lake water colour (TCU), columns denote alum dose (mg/L). Solid line represents approximation of linear trend for colour, dashed line represents approximation of linear trend for alum dose. Adapted from “Lake Recovery Through Reduced Sulfate Deposition: A New Paradigm for Drinking Water Treatment” by Anderson, L.E., Krkosek, W.H., Stoddart, A.K., Trueman, B.F. and Gagnon, G.A., Environ. Sci. Technol., 2017, 51 (3), pp 1414–1422.

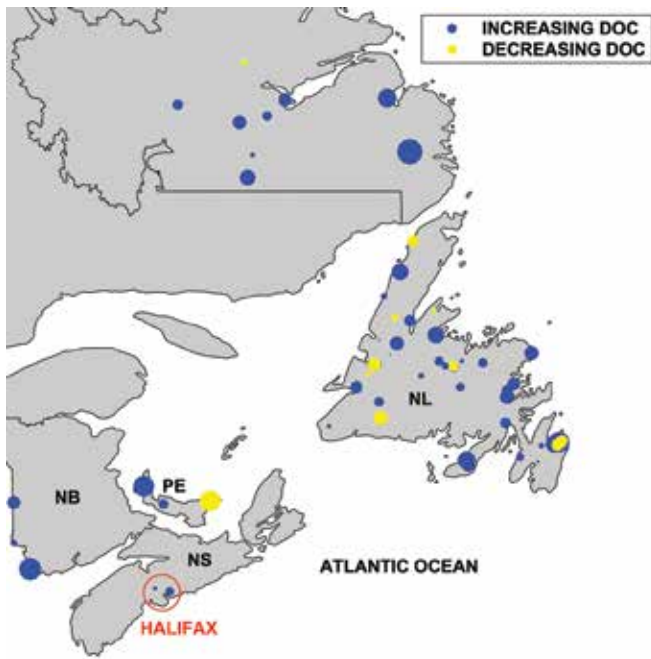


Figure 2. Change in dissolved organic matter concentration for Atlantic Canadian surface water bodies. Point size is proportional to the magnitude of the linear trend between 1990 and 2013. Adapted from “Lake Recovery Through Reduced Sulfate Deposition: A New Paradigm for Drinking Water Treatment” by Anderson, L.E., Krkosek, W.H., Stoddart, A.K., Trueman, B.F. and Gagnon, G.A., *Environ. Sci. Technol.*, 2017, 51 (3), pp 1414–1422.

objective for colour in the *Guidelines for Canadian Drinking Water Quality*) in Pockwock Lake, and only 43 days in 2015. Furthermore, average colour concentrations in Pockwock Lake have nearly doubled over the period from 1999 to 2015. Accordingly, one would expect that treatment operations at the JDKWSP would be affected by such increases in NOM concentration in Pockwock Lake.

In the past few years, the JDKWSP has experienced reduced filter run times, as well as the need to increase their alum dose to 12 mg alum/L after consistently dosing at 8 mg alum/L for the last 35 years. Direct filtration treatment plants are commonly used to treat high quality surface waters with moderate to low colour (≤ 20 TCU), and low total organic carbon (TOC) (< 4 mg/L). TOC concentrations in Pockwock Lake have increased from 2.4 mg/L in 1999 to 3.4 in 2015, whereas colour concentrations have increased from 12 to 21 TCU over the same period. Consequently, the treatment system at the JDKWSP is approaching the upper thresholds (i.e., ≤ 20 TCU, < 4 mg/L) for direct filtration in terms of both colour and TOC, which has been shown by the need for increased aluminum sulfate (alum) dosage and shorter filter run times.

Lake Major – Dartmouth, Nova Scotia

Lake Major is the water supply for the Lake Major Water Supply Plant (LMWSP), which is a 45 MLD conventional filtration plant (commissioned in 1999) with upflow

clarification. Like Pockwock Lake, we evaluated historical water quality data to understand whether Lake Major was showing signs of recovery from acidification. The average annual pH increased from 5.3 in 1999 to 5.4 in 2015 for Lake Major, and although this change was small in comparison to Pockwock Lake, the increase in annual pH was significant because of the size of the data set. Like Pockwock Lake, we also evaluated the frequency of low pH events in Lake Major. In 2002, there were 153 days where pH was less than 5 in Lake Major; whereas for the period between 2010 and 2015, there were less than 10 days in total when the pH was lower than 5. Changes in NOM concentration in Lake Major during the study period were substantial. For example, from 1999 to 2015 the colour concentration in Lake Major doubled, while the TOC concentration increased by approximately 1 mg/L. In 1999, the year the LMWSP was commissioned, there were 70 days when colour concentration in Lake Major was < 15 TCU, and in 2015 there was only one day where colour was < 15 .

The LMWSP has also faced treatment difficulties associated with increasing NOM (e.g., colour and TOC) concentration in Lake Major as average coagulant dosages at the LMWSP increased substantially since the plant was commissioned in 1999. For example, between 2000 and 2015, the average alum dose at the LMWSP increased by nearly 4x (12.9–49.5 mg/L) (Figure 1). The rate of increase for alum dosing at the LMWSP was also nearly identical to that of colour in Lake Major. Other factors that contribute to coagulant demand such as water temperature and turbidity were eliminated as the main drivers for the increase in alum dosing at Lake Major.

What does this mean for water utilities in Atlantic Canada?

The changes in water chemistry associated with lake recovery from acidification as described above are not isolated to the Halifax region. We analyzed DOC data from Environment Canada’s Freshwater Quality Monitoring and Surveillance Program and found that since the early 1990s, other surface waters throughout Atlantic Canada have also been experiencing increasing organic matter concentrations (e.g., DOC) (Figure 2). Furthermore, there were more instances of increasing DOC in these surface waters than there are decreasing. Accordingly, other utilities in Atlantic Canada could be faced with similar challenges as Halifax Water, such as increased coagulant demand and/or reduced filter run times. Ultimately, the phenomenon of lake recovery from acidification may cause water treatment plants to approach their expected design lifetime sooner than planned, potentially resulting in expensive adaptations to treatment. This is particularly true for older plants that were designed based on surface water quality that was influenced by high levels of acid rain, characterized by low colour and pH.

This work demonstrates a need for further studies on lake recovery from acidification in Atlantic Canada. It also highlights the importance of robust source water quality

monitoring, particularly in terms of NOM concentration, as DOC and colour are the source of many problems in drinking water treatment, including the formation of disinfection by-products. Although the extent of lake recovery from acidification is still unclear, a science-based approach for projecting water quality under various scenarios is needed in order to determine potential treatment solutions. In the meantime, drinking water providers that draw from surface water supplies should pay close attention to historical trends in water quality parameters such as pH, alkalinity, and NOM including TOC/DOC, colour, and ultraviolet absorbance (UV254).

This is an unofficial adaptation of an article that appeared in an ACS publication. ACS has not endorsed the content of this adaptation or the context of its use. To read the peer-reviewed article on this story please visit the following link: <http://pubs.acs.org/doi/abs/10.1021/acs.est.6b04889>.

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Support and funding for a Canadian standard for flushable consumer products

Source: www.cwwa.ca

All of us in the wastewater sector understand the harmful impact that so-called flushable products have on our municipal wastewater systems. From additional maintenance, to equipment damage, to clogs and system failures to contamination of sludge, this issue is costing Canadian municipalities over \$250 million each year. The inappropriate labeling of products and counter-education of our customer's needs to be addressed. Currently, there are no standards, regulations or official definitions for the use of the term 'flushable.' A solution is needed that supports jobs and free trade, but not at the expense of our wastewater systems. MESUG and CWWA have combined forces to address this situation for Canadian utilities, but we need your support.

MESUG, the Municipal Enforcement Sewer Use Group, is a non-incorporated group of municipal enforcement professionals working together to address common issues regarding sewer use in Canadian municipalities. MESUG spearheaded this effort to bring awareness and then invited CWWA to be a partner to assist with financial administration and national/international outreach. CWWA, the Canadian Water and Wastewater Association, is a registered not-for-profit corporation that serves as the national professional association for our municipal sector. Together, MESUG and CWWA have been working on this issue for a few years, and working at it from various angles.

An ISO (international standard) initiative was commenced in 2014 by Canada through ISO's Technical

Committee (TC) 224. Considerable progress was made on the development of a Technical Specification regarding the quality and characteristics of products that might be considered 'flushable' and how products, flushable and non-flushable, might be clearly labeled. This international committee consisted of both utility representatives as well as those in the wipes manufacturing industry. This work was nearing completion when it was halted by a challenge from the manufacturers concerning test methods.

Over the same timeframe, INDA, the US-based trade association for non-woven products, sought collaboration

with the major North American wastewater associations (CWWA, NACWA, WEF, and APWA), to review and improve their voluntary Code of Practice and their Guidance Document for Assessing Flushability (GD3) of their products. A task group of wipes industry and municipal utility representatives worked to develop a more stringent fourth edition of the INDA Guidance Document – GD4, but this work halted by the end of 2016 when the manufacturers failed to accept proposals for new tests and pass/fail criteria provided by the wastewater associations.



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INDA and the utility associations did however come to agreement on a new voluntary Code of Practice with better guidelines for labeling of any product that could likely be flushed – although we did not agree that any products could be considered flushable yet. You can obtain the new Code of Practice at: <http://www.inda.org/code-of-practice-download/>.

So this leaves us with the original question of “what is flushable?” With the suspension of the ISO work and collaboration with INDA failing, the wastewater associations joined together to form the International Water Services Flushability Group (IWSFG). This informal coalition put together a position statement on non-flushable and flushable labelled products which is now supported by wastewater services in 25 countries and by over 300 stakeholders. You can see the position statement and the entire list at [http://www.cwwa.ca/pdf_files/International%20flushability%20statement_INT_ALL%20\(UK%20NGO's\)%20LR%20.pdf](http://www.cwwa.ca/pdf_files/International%20flushability%20statement_INT_ALL%20(UK%20NGO's)%20LR%20.pdf). The IWSFG is also developing a flushable product standard that would be acceptable to wastewater services.

How you can help

Any developed standard (whether international or North American) would require adoption within Canada, as a Canadian Standard, to be enforceable. The ISO and continuing IWSFG work has paved the way, and saved much time, on the development of a Canadian national standard. However, funding is required to continue this work and move us forward toward the implementation of a standard into legislation.

We are requesting Canadian wastewater utilities to contribute to a common fund for the development, adoption and implementation of a Canadian Standard for ‘Flushability.’ Previous quotes from standards associations estimate a cost in the range of \$150,000 over 18 months to develop a Canadian standard. Additional funds would be required to support lobbying efforts and the process to have such a voluntary standard adopted as an enforceable regulation. Given that the annual cost to Canadian utilities for responding to inappropriately

flushed products is assessed at \$250 million, the cost-benefit ratio of this investment is clearly evident.

Show your leadership by adding your logo to the Canadian Wastewater Statement on Flushables

Please contact Kara Parisien at CWWA for support information: Kara Parisien, CWWA Communications, (613) 747-0524 ext. 4 kparisien@cwwa.ca

Payments are to be made to the Canadian Water and Wastewater Association with a note to direct funds to flushable standard campaign.

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Contact Account Receivable Clerk Louisa Spina for payment details, electronic banking, invoices and receipts.

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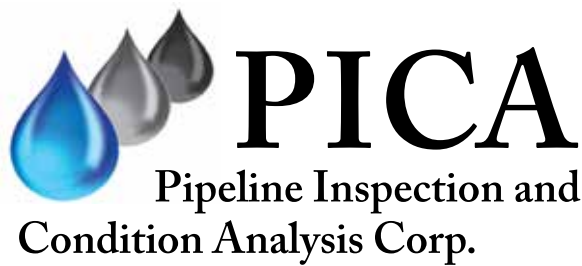


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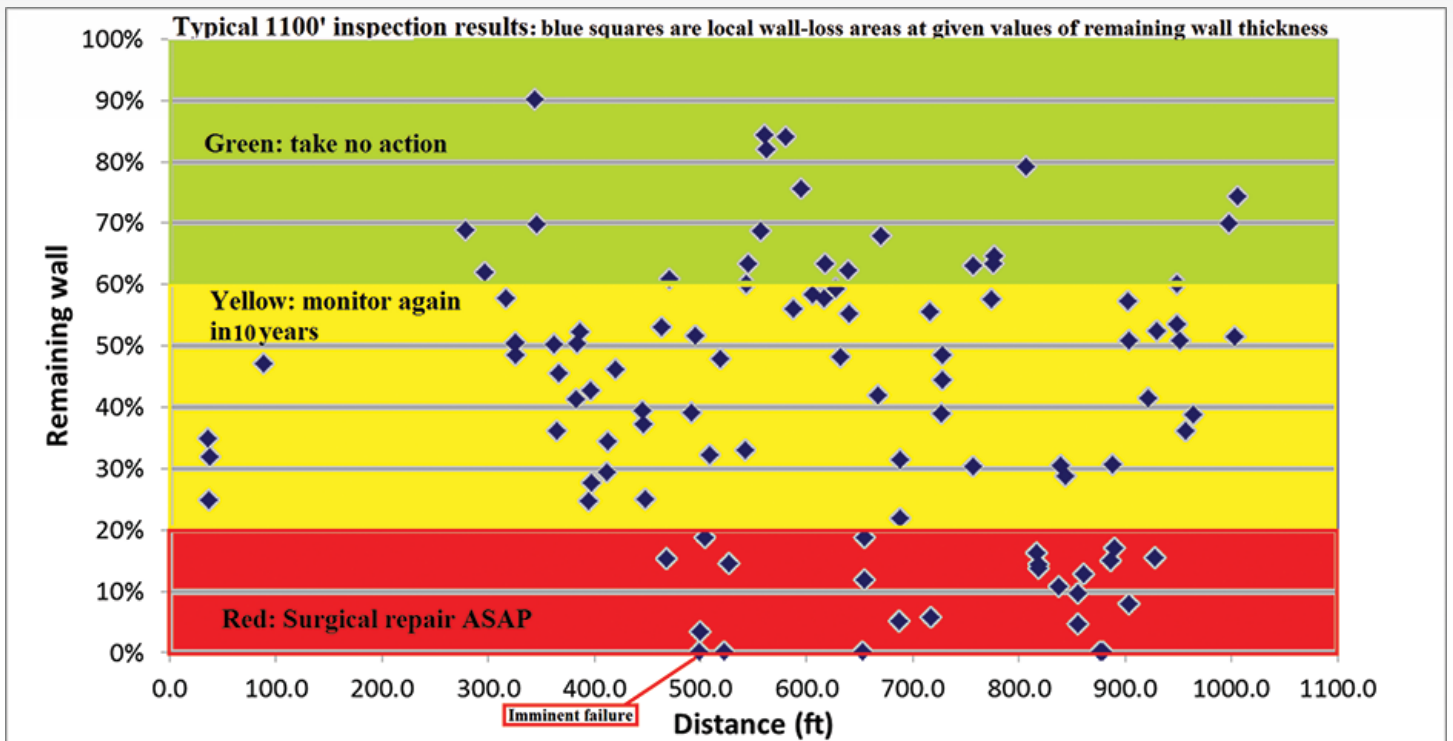
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