ONTARIO'S WATER CONFERENCE & TRADE SHOW

Ontario Water Works Association
Ontario Water Works Equipment Association

🟧 Young Professionals 🟩 Fresh Ideas

TUESDAY MORNING MAY 1ST, 2018

	ASSET MANAGEMENT	CONSTRUCTION	EMERGING ISSUES	GROUNDWATER	SMALL SYSTEMS	WATER EFFICIENCY	TREATMENT	NEW TECHNOLOGY Trade Show Floor
10:00am–10:30am	City of Hamilton Approach to the Management of Critical Watermain Infrastructure *Mike Zantingh*	Construction Lessons Learned Over the Past 18 Years Resulting in "Fatter" Specifications *Brian Sahely*	Microplastics: an Overlooked Contaminant in Drinking Water *Jinkai Xue*	Water Wells and Wind Turbine Construction *Leslea McKie*	A Pilot Plant Study to Reduce Iron and Manganese *Victoria Colling*	Leverage Service Sector, Influence Market Transformation and Reduce Peak Day Water Demands *Jeremy Harris*	A QMRA Approach to Assess Different Water Filtration Technologies at the Lorne Park WTP *Ahmed Elhadidy*	Straub Tadco
10:30am–11:00am	Master Plan is Complete – Now What? *Julien Bell* *Lindsay Bowman* *Phill Lambert*	Weasel Clauses – Contractors Point of View *Taylor Dorland*	Contribution or Removal of Nitrogenous DBP Formation During Filtration *Caroline Di Tommaso*	Innovative Recharge Flow Model Analysis for the Glen Collector System in the City of Guelph *Kelsey Shaw* *Abby Spielmacher*	How Lack of a Federal Regulatory Regime Led to Pre-mature Replacement of Water Supply Infrastructure for the Whitefish River First Nation *Craig Baker* *Chief Shining Turtle (Franklin Palbomsal)*	Water Reuse Opportunities in the ICI Sector *Alicia Wind* *Bill Chihata*	Evolution or Revolution? An 18 MLD Full-Scale Trial of "MGF" Filtration Retrofit Technology at the Lorne Park WTP *Martin Gravel*	Mueller Canada
11:00am–11:30am	Structural Evaluation of a 30-Year Old Water Tower in Pelham *Matthew McGrath*	A Contractor's Perspective on How the Design, Spec, Bid, Build (Rip and Read), Process has Changed *Sean Thibeault*	Transforming Water Infrastructure Through Actionable "Smart" Insights *Mark Palmer* *Eric Palmer*	A Unique Class EA Experience - High Stakes in Getting Stakeholder Buy-in for the Port Perry Water Supply and Water Storage Class EA *Rika Law* *Natasha Lee*	Aged WTP? Sharing How a Temporary UF & UV Disinfection Rejuvenated Port Dover WTP *Negin Salamati*	How Can 9 Million Billing Records Predict Future Trends? *Joshua Ashurst* *Mirima Polga*	Filter Retrofit Design Refinement Through Pilot and Full-Scale Testing - Experience from the City of Toronto's R.L. Clark and R.C. Harris WTPs *Anna Comerton* *Gabriela Dimitrijevik*	Georg Fischer Piping Systems
11:30am–12:00pm	Case Study: Detailed Model Analysis of Critical Watermains Within the City of Guelph *Mitchell Weylie* *Daryush Esmaili*	One Specification – 4 Opinions: Panel Discussion *Zoran Filinov* *Alison Barlow* *Mike Schmied* *Mike DiLallo*	Applying Cyber Security to your W/WW Infrastructure *Stephanie Meyer* *Claudio Cuffolo* *Jason Little*	Application of Water Treatment Technologies to Achieve Sustainability of Municipal Water Systems *Saad Jasim*	Site Assembled FRP Tanks: Facilitating Replacement of Chemical Storage in Locations with Space and Entry Constraints *Mazahir Alidina*	How Guelph is Reviving the Water Conservation Conversation *Heather Yates* *Dave Kains*	Developing a Protocol for Multimedia Filter Benchmarking and Performance Evaluation *Hang Nguyen*	Compliance365

TUESDAY AFTERNOON MAY 1ST, 2018

	AUTOMATION	CONSTRUCTION	CERTIFICATION & EDUCATION	DISTRIBUTION	MANAGEMENT	UNIVERSITY RESEARCH	TREATMENT	NEW TECHNOLOGY Trade Show Floor
1:45pm–2:15pm	SCADA Network & Data Redundancy at Guelph Water: Ensuring Security of Supply for Operations and Compliance *Graham Nasby* *Derek Wong*	Electronic vs. Old School Submissions *Denise Angelakos*	W&WW Operators Ecosystem *Marcus Firman* *Sipo Ching* *Krysia Schafer*	Pilot Testing for Optimized Unidirectional Flushing in the Hamilton Distribution System *Danny Locco* *Monique Waller*	The Big Payback - Large Meter Analytics *Gareth Price*	Cyanobacteria Accumulation in DWTPs and the Value of a Fluorescence Probe for Process Control *Husein Almuhtaram*	Impact of Treatment Plant Design and Operation on Biofilter Performance *Michael McKie*	Swan Analytical / WJF Instrumentation
2:15pm–2:45pm	Implementation of Real Time Pump Efficiency and Optimization System *Adam Plumstead*	Deseronto WTP Upgrade – New Process, New Look, New Life *Appana Lok* *Kimberley Sayers*	New Watermain Disinfection Procedures in the City of Barrie *Jason Giffen* *Diane Moreau*	Leveraging GIS Technology to Optimize Water Distribution *Blair Saunders*	Water Conservation Redefined - City of Hamilton Advanced Metering Infrastructure (AMI) Pilot *Jasmine MacDonald*	Field Evaluation of Adenosine Triphosphate as an Indicator of Microbiological Water Quality Change in Subsurface Supplies *Benjamin Beelen*	A Tool to Evaluate the Performance of Partially-spent Granular Activated Carbon (GAC) for Removing Taste and Odour Compounds *Yifeng Huang*	Spectrum Communications
2:45pm–3:15pm		Mandaumin Reservoir Emergency Replacement *Mike Elliot*	OPS - The Foundation for Sustainable Infrastructure *Hilda Esedebe*	Nitrifying Nightmares and How to Avoid Them *Laura Meteer* *Liza Ballantyne*	Water Meter Customer Service Tool Partnership *David Iacocca* *Erik Nickel*	Disinfection by-product formation from the UV/chlorine advanced oxidation process *Nathan Moore*	Removal of NDMA Precursors During Drinking Water Treatment *Corinne Bertoia*	Layfield Environmental Containment
3:45pm–4:15pm	Best Practices for the Use of Reliable and Secure Private Wireless Technology for Smart Water Systems *Justin Robinson*	Best Practices & Lessons Learned from Refurbishing 5 Different Types of Steel Storage Tanks *Allan Choi*		A Tale of Two Cities: Planning a Conversion From Free Chlorine to Chloramines – Twice! *Simon Horsley*	Operator vs. Data Analyst *Kelly Stewart*	Evaluating filter performance in high quality, low turbidity, raw water for Cryptosporidium removal *Kristina Lee*	Using Fixed Bed Ion-Exchange to Enhance the Reduction of Organics *Devendra Borikar*	Troy-Ontor Inc.
4:15pm–4:45pm	Weathering the Storm & Power Outages: Guelph Water's New SCADA Tool Used by Operations to Manage Power Interruptions at Multiple Sites *Graham Nasby* *Kevin Stewart*	Filter Upgrades and Rehabilitation: What You Need to Know *Natasha Lee* *Rika Law*		Strategies to Manage Lead at the Tap to Meet the Proposed MAC of 5 ug/L - Your Available Options *Quirien Muylwyk*	Critical Customers – Who are Yours and How do You Find Them? *Ashley Bertolo* *Amy Martin*	Rapid Detection of Pollutants in Source Waters *Ye (Tyler) Yang*	Full-Scale UV/Cl2 and UV/H2O2 Trials at the Lorne Park Water Treatment Plant: Comparing Their Performance on the Degradation of Emerging Contaminants and the Formation of the Disinfection Byproducts *Chengjin Wang*	Badger Meter
4:45pm–5:15pm	Overcoming the Challenges of Process Control Upgrades in an Operating Facility *Mitesh Shah* *Tanja Lukic* *Michael Katcharovski*	Construction Lien Act Update *Sandra Burnell* *Gerard Boyle*		Move That 900mm CPP! *Brent Bouteiller*	Drinking Water Treatment Facility Optimization Program at OCWA: A Data-Driven Approach and Case Study *John Zhang*	Optimization of Current Mussel Control Strategies and Testing of EarthTec QZ as a New Control Alternative *Ian Lake-Thompson*	Genotoxicity and Emerging DBPs for Current and Historical Waters: New Metrics For Epidemiology and Treatment Optimization Studies *Liz Taylor-Edmonds*	TBA

ONTARIO'S **WATER** CONFERENCE & TRADE SHOW

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WEDNESDAY MORNING MAY 2ND, 2018

	ASSET MANAGEMENT	AUTOMATION	DISTRIBUTION	FIRST NATIONS	SOURCE WATER		TREATMENT	NEW TECHNOLOGY Trade Show Floor
8:30am–9:00am	Developing a Knowledge Product to Support Municipal Asset Management *Trish Johnson*	Surge Suppression Technology *Will Rybnik*	What's the FUS? *Julien Bell Alyssa Kochanski*		Progress of the MOECC's Water Quantity Protection External Working Group on a Review of Ontario's Water Resources and Regulations *Simon Gautrey*		Comparison of Low Range Light Scattering and Laser Turbidimeters Performance and its Implications on Filter Performance and Operation *Ahmed Elhadidy*	KTI Limited / Sensus
9:00am–9:30am	York Region's Asset Management Approach to Rehabilitating Their Groundwater Treatment Strategy *Sandra Latorre Alec Cranmer*	Improving DBP Formation Prediction with Neural Networks *Nicolas Peleato*	Case Study: Modelling Transients using InfoSurge *Emma Thompson*		Evaluating the Spatial Distribution of Phosphorus and Total Suspended Solids in the Middle Grand River Watershed to Determine Management Priorities for Phosphorus Reduction *Thadsha Chandrakumaran*		Using CFD to Solve Quirky Hydraulic Issues at the Island WTP and R.C. Harris WTP *Vincent Laplante Shobanaa Sivaverman*	Flowpoint Environmental Systems
9:30am–10:00am	Creating a Culture of Sustainability… With Results *John Braam*	Electronic Logbooks - Improving Operational Efficiency *Michael Chrapala*	Water Transmission System Automatic Operation & Optimization *Gary Thompson*		Demonstrating the Potential Contributions of Reservoir Sediments to Enabling Algal Blooms *Amy Yang*		Implementation of Medium Pressure UV Lamps: Pros and Regulatory Challenges *Negin Salamati Maika Pellegrino*	Deep Trekker

WEDNESDAY AFTERNOON MAY 2ND, 2018

	ASSET MANAGEMENT	CLIMATE CHANGE	DISTRIBUTION	FIRST NATIONS	CROSS CONNECTION CONTROL	MANAGEMENT	TREATMENT	
2:15pm–2:45pm	Monetizing Risk to Inform Decision Making *Aman Singh Italia Ponce Vidit Aneja Imran Motala*		Monitoring Pressure Transients on a Water Distribution System as an Asset Management Tool *Michael Katz Shu Min Gao*	This session will explore the challenges faced by communities and will provide an overview of initiatives that are being taken by First Nations communities, Ontario and Canada to resolve these long standing advisories.		Optimizing Advocacy Through Coordination *Brent Marissen*	Impact of Manganese Guidelines and Regulations to Water Treatment Facilities Across Ontario *Sangeeta Chopra Angela Storey*	
	Integrating Asset Management best Practices into your Water Master Plan *Julien Bell*		Improving Fire Flows on a Budget *Emma Thompson*			Big Changes – Implementing a Project Quality Management System *Ken Campbell*	Removal of Iron and Manganese from the City of Greater Sudbury's Valley Groundwater Supply System *Hamid Salsali*	
3:15pm–3:45pm	Monetizing Risk *Craig Daly Mike Garaci*		Bypass System Eliminates Dead Ends in Water Distribution Networks *Jahangir Chowdhury*			Procuring Engineering Consulting Services… a Little Different than Buying Pencils… You Get What You Pay For *Elia Edwards*	Options for Destruction of Polyacrylamide Monomers in Drinking Water Treatment *Mazahir Alidina Gary Throne*	

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Mike Zantingh

City of Hamilton Approach to the Management of Critical Watermain Infrastructure

Stream

Asset Management

Abstract Summary

Managing critical watermains requires an active condition assessment program. The program utilized in the City of Hamilton is designed to aid in long-term planning and risk management within Hamilton's overall asset management program by establishing a baseline for critical watermain assets.

Learning Objective 1

Under Stand Condition Assessment Strategies

Learning Objective 2

Managing Critical Assets

Learning Objective 3

Risk Management

Lindsay Bowman, Phill Lambert Julien Bell

Master Plan is Complete – Now What?

Stream

Management

Abstract Summary

The Capacity Tracking Tool was developed to assist Niagara Region in the implementation of their capital program, 94 projects, by providing the ability to graphically visualize impacts of actual growth and potential growth applications on current and already allocated facility capacities; allowing for adjustment of project implementation based on needs.

Learning Objective 1

Understand how master plan recommendations are implemented

Learning Objective 2

Understand the triggers and decision process for capital upgrades

Matthew McGrath

Structural Evaluation of a 30-Year Old Water Tower in Pelham

Stream

Emerging Issues

Abstract Summary

This presentation is a case study regarding the structural evaluation of an elevated water tower in Pelham, Ontario. The focus of the presentation will be on the history of elevated water towers, structural analysis of the water tower, Point Cloud Analysis, and the risks of repurposing existing infrastructure.

Learning Objective 1

Understand the importance of proactive assessment of municipal infrastructure, as well as the limitations and requirements of the AWWA D100-11 as it pertains to conical steel tanks.

Learning Objective 2

Understand advancements in point cloud survey technology that makes it possible to assess the construction tolerance requirements in the AWWA D100-11 without draining the storage vessel and without performing a manual field survey.

Learning Objective 3

Recognize potential risks associated with repurposing existing municipal infrastructure to support loads that the structure was not originally designed for.

Mitchell Weylie, Daryush Esmaili

Case Study: Detailed Model Analysis of Critical Watermains Within the City of Guelph

Author not presenting - Sam Ziemann

Stream

Asset Management

Abstract Summary

Failure of critical watermains within the water distribution network would have significant implications on the community. Hydraulic modeling was carried out using InfoWater software accompanied by Emagin through cloud-computing to identify potentially critical pipes and develop a response plan to mitigate the potential impacts.

Learning Objective 1

Understand the consequences of a watermain break on the water distribution network.

Learning Objective 2

Utilizing cloud computing to rapidly process the consequence of watermain failure on system pressures and available fire flows.

Learning Objective 3

Quantify the impact of watermain failure on the distribution systems performance by analyzing A. Equivalent population affected, and B. Pressure analysis and the direct effect on fire flow capabilities under emergency conditions. C. .The ability to supply critical customers

Brian Sahely

Construction Lessons Learned Over the Past 18 Years Resulting in "Fatter" Specifications

Stream

Construction

Abstract Summary

This article will provide examples of construction lessons learned over the past 18 years from numerous projects and how these lessons learned were eventually implemented into specifications (and design drawings) for other projects, thus making them "fatter".

Learning Objective 1

Lessons Learned

Learning Objective 2

Construction activities

Learning Objective 3

Specifications

Taylor Dorland

Weasel Clauses – Contractors Point of View

Stream

Construction

Abstract Summary

This presentation will focus on how contractors assess and manage weasel clauses at the tender and execution stages, as well we will discuss what happens to a project when these weasel clauses are enacted and the profound impacts they can have.

Sean Thibeault

A Contractor's Perspective on How the Design, Spec, Bid, Build (Rip and Read), Process has Changed

Stream

Construction

Abstract Summary

A contractor's perspective on what we anticipate or expect to see when pursing a typical design, specification, to bid process (rip and read); and what we are encountering.

Learning Objective 1

Why it has changed and potential root causes for it

Learning Objective 2

The effects on the owner, consultant, contractors, subcontractors, and suppliers

Learning Objective 3

Some potential thoughts on how we can all better improve

Zoran Filinov, Alison Barlow, Mike Schmied, Mike DiLallo

One Specification – 4 Opinions: Panel Discussion

Stream

Construction

Abstract Summary

This "Round Table" discussion with representatives and views form owners, contractors, suppliers and consultants will exchange opinions and ideas about some issues: what is being done and why, what are impacts and benefits and are there any potential improvements that the industry could implement.

Learning Objective 1

Understand the reasons for certain Specification

Learning Objective 2

Understand the impacts the Specifications have on Contractors/Suppliers

Learning Objective 3

Draw conclusion about possible improvements

Jinkai Xue

Microplastics: an Overlooked Contaminant in Drinking Water

Authors not presenting- Sigrid Peldszus Van Dyke, Michele, Peter Huck

Stream

Emerging Issues

Abstract Summary

This talk deals with microplastic (MP) contamination. Efforts are made to identify the most representative microplastics in surface water (particularly in the Great Lakes region), the potentially suitable sample preparation and analytical methods for surface water MPs, and certain research directions on MP control in drinking water.

Learning Objective 1

What microplastics are?

Learning Objective 2

How microplastics would affect the environment and public health?

Learning Objective 3

What need to be done to control microplastic contamination?

Caroline Di Tommaso

Contribution or Removal of Nitrogenous DBP Formation During Filtration

Authors not presenting - Liz Taylor-Edmonds, Ron Hofmann, Susan Andrews

Stream

Emerging Issues

Abstract Summary

This study investigated the contribution of EPS to the N-DBP formation potential of biologically active media. To properly characterize EPS, two extraction procedures were utilized.

Learning Objective 1

Understand the relationship between EPS (quantity and composition) and ATP.

Learning Objective 2

Determine whether EPS contributes to the N-DBP formation potential of biologically active media samples as well as of biofilter effluent.

Learning Objective 3

Determine the role of filter operation strategy on the presence and composition of EPS in biofilter media as well as in biofilter effluent.

Mark Palmer, Eric Palmer

Transforming Water Infrastructure Through Actionable "Smart" Insights

Authors not presenting -Martin Rydlo, Kerri McDonald

Stream

Emerging Issues

Abstract Summary

The goal of our presentation is to communicate how the project will harness, combine and implement new "Smart" homeowner water management systems with Low Impact Development (LID) practices. Together, they will provide life cycle benefits to municipal infrastructure. Finally, the project approach is transferable to any other municipality in Canada.

Learning Objective 1

Understand how "Smart" water technologies can complement conventional utility planning and management practices.

Learning Objective 2

Learn how local private-public-partnerships can be effectively implemented at the community level and with strong community engagement.

Learning Objective 3

Understand how this unique project can also create co-benefit opportunities for the community at large including environmental, economic and social. To learn more please visit www.collingwoodpilotproject.com

Stephanie Meyer, Claudio Cuffolo, Jason Little

Applying Cyber Security to your W/WW Infrastructure

Stream

Emerging Issues

Abstract Summary

Cybersecurity is an emerging issue facing W/WW utilities. How big an issue is it? How do you get council support? How do you address it? Where does physical security fit in? Understanding how cybersecurity fits in with the DWQMS, lessons learned and developing a remedial roadmap is key for success.

Learning Objective 1

Understand how cyber security fits within current legislation

Learning Objective 2

What lessons can you take from the Region of Peel's security program

Learning Objective 3

Cyber security is an active on-going activity that requires investment

Leslea McKie

Water Wells and Wind Turbine Construction

Stream

Groundwater

Abstract Summary

Data collected before, during, and after wind turbine construction activities allows conclusions to be made about the impact of wind turbine construction on local groundwater wells.

Learning Objective 1

Understand the relationship between wells and turbine construction

Learning Objective 2

Relate turbidity and other water quality trends observed in domestic wells to causes.

Learning Objective 3

Understand monitoring requirements for this wind turbine construction project with respect to local groundwater.

Kelsey Shaw, Abby Spielmacher

Innovative Recharge Flow Model Analysis for the Glen Collector System in the City of Guelph

Stream

Groundwater

Abstract Summary

The City of Guelph had a need to develop a model to characterize the important climatic and operational factors impacting the performance of the Glen Collector water supply and river water recharge systems. These models are used to better understand and protect this system and provide justification for future enhancements.

Learning Objective 1

Determine the efficiency of a recharge system directly attributed to the recharge pump infrastructure. Quantify the impact of upgrading and extending a recharge system to maximize the supply of water to the existing groundwater collection system by redistributing the recharge of the water in the area.

Learning Objective 2

Quantify the impact of hydrological conditions on a collector system performance under: natural conditions (recharge pump off) and augmented conditions (recharge pump on).

Learning Objective 3

Develop a relationship to create a performance model that can determine: total annual flow, peak annual flow, and timing of peak flow.

Rika Law, Natasha Lee

A unique Class EA experience - High stakes in getting stakeholder buy-in for the Port Perry Water Supply and Water Storage Class EA

Authors not presenting - Zoran Filinov, Rich Tindall, Beata Golas

Stream

Communication & Public Affairs

Abstract Summary

Although the Municipal Class EA process mandates a certain number of public consultation points, it is important to assess and implement additional consultation initiatives as required. For the Schedule C Port Perry Water Class EA, the project team proactively conducted additional public consultation initiatives to bring the project to completion.

Learning Objective 1

Carefully identifying the necessary stakeholders for a Class EA project

Learning Objective 2

Strategizing and formulating a stakeholder consultation plan

Learning Objective 3

Watch for signs, listen and revise the plan as required

Saad Jasim

Application of Water Treatment Technologies to Achieve Sustainability of Municipal Water Systems

Stream

Management

Abstract Summary

The water source for the City of White Rock, BC has elevated level of Manganese and Arsenic Fund for an Arsenic and Manganese Water Treatment Project for the City's water system. Research was conducted to evaluate the efficacy of the best technology to reduce Arsenic and Manganese concentration in water.

Learning Objective 1

Understand the potential technologies to reduce Arsenic and Manganese in water

Learning Objective 2

The advantage of collaboration with academic institutions, municipal water systems, government and private sector

Learning Objective 3

The importance of following available opportunities for funding to municipal water systems to build and upgrade water infrastructure

Victoria Colling

A Pilot Plant Study to Reduce Iron and Manganese

Authors not presenting - Devendra Borikar, Laura Zettler, Souleymane Ndiongue, Gregory Bak, Stephen Burnett, Desmond Verasammy

Stream

Treatment

Abstract Summary

The Walkerton Clean Water Centre completed a pilot plant study that investigated the reduction of iron and manganese using a community's source water with elevated levels. Iron was easily removed regardless of experimental conditions, but manganese was only effectively removed under certain conditions.

Learning Objective 1

Participants will be able to learn about the pilot plant processes, findings and lessons learned from the pilot testing studies.

Craig Baker, Chief Shining Turtle (Franklin Paibomsai)

How Lack of a Federal Regulatory Regime Led to Premature Replacement of Water Supply Infrastructure for the Whitefish River First Nation

Stream

Small Systems

Abstract Summary

How the lack of a Federal regulatory regime led to the premature recapitalization of water supply infrastructure for the Whitefish River First Nation.

Learning Objective 1

The obstacles First Nations face in obtaining water supply infrastructure funding for their communities.

Learning Objective 2

How poor design criteria can seriously negatively impact the design life of a small water supply system.

Learning Objective 3

How First Nation capacity building is tantamount for the successful operation of their water supply systems.

Negin Salamati

Aged WTP? Sharing How a Temporary UF & UV Disinfection Rejuvenated Port Dover WTP

Authors not presenting - Bob Fields, Thomas Rapley

Stream

Treatment

Abstract Summary

Aged water infrastructures, such as Port Dover WTP, are not normally designed with redundancy of critical process components or bypass capabilities and therefore are facing challenges such as assets failure at similar times. A detailed phasing plan, including temporary treatment, was implemented to facilitate the upgrades to this WTP.

Learning Objective 1

Challenges faced with aged infrastructures

Learning Objective 2

Potential solutions to extend the life of aged WTPs

Learning Objective 3

Importance of detailed short and long-term planning for aged WTPs

Mahazir Aladina

Site Assembled FRP Tanks: Facilitating Replacement of Chemical Storage in Locations with Space and Entry Constraints

Authors not presenting - Jinbo Yang, Maika Pellegrino, Michelle Albert, Nafiur Rahman, Nathan Braund

Stream

Treatment

Abstract Summary

Lindsay WTP needed to replace the coagulant tanks, but site assembly was required due to limited access of the historic building, along with an outdoor temporary system during construction. Despite unique challenges encountered with the site assembly, Lindsay WTP is now successfully equipped with 2 new FRP tanks.

Learning Objective 1

Be informed of options available for tanks in locations with space and entry constraints

Learning Objective 2

Be aware of the unique challenges with site-assembled FRP

Learning Objective 3

Temporary Systems

Jeremy Harris

Leverage Service Sector, Influence Market Transformation and Reduce Peak Day Water Demands

Stream

Water Efficiency

Abstract Summary

As governments and the private sector focus efforts on water efficiency and green infrastructure, there will be an increased demand for trained professionals that can address non-potable outdoor water use and stormwater management. Landscape professionals with the technical expertise and marketing strategies will be best positioned to address this demand.

Learning Objective 1

How the landscape industry can be leveraged to influence market transformation

Learning Objective 2

Potential for reduction in peak water demand through efficiency and lot level stormwater management

Learning Objective 3

How other municipalities can become partners in Fusion Landscape Professional Training and Certification Program

Alicia Wind, Bill Chihata

Water Reuse Opportunities in the ICI Sector

Stream

Water Efficiency

Abstract Summary

The presentation will focus on water reuse opportunities and sub metering locations to help conserve water. Water reuse opportunities are typically more expensive to implement and challenging to get approved by senior management. Few selected examples will be discussed in more details

Learning Objective 1

Common examples of water reuse in ICI sector

Learning Objective 2

Basic economics of water reuse applications

Learning Objective 3

How to overcome water reuse challenges

Joshua Ashurst, Miriam Polga

How Can 9 Million Billing Records Predict Future Trends?

Stream

Distribution

Abstract

This paper will describe how the Region utilized millions of consumption records to determine the right criteria to use to predict future non-residential flows, include appropriate buffer and consider system leaks and other non-revenue consumptions and demonstrate the appropriateness of the existing design criteria through a review of historical consumption.

Learning Objective 1

Use Billing Records to Establish Consumption Trends by Land Use

Learning Objective 2

Identify Non-Revenue Water by Pressure Zone to Target Initiatives

Learning Objective 3

Evaluate Correlation Between ICI Account Age and Water Consumption

Heather Yates, Dave Kains

How Guelph is reviving the water conservation conversation

Stream

Water Efficiency

Abstract Summary

Given the current climate of water conservation burnout, municipalities need to rethink customer engagement. WHAT do customers want to know, WHY do they behave certain ways, HOW do they want to be reached? Find out what Guelph learned through research and engagement in the development of its latest communications strategy.

Learning Objective 1

See the value of market and academic research toward establishing effective messages and identifying tools and tactics to engage and influence water users with respect to conservation and efficiency behaviours.

Learning Objective 2

Glean practical insight from Guelph's experience on this project including benefits and possible improvements of the process, and insights into people's preferences for communication.

Learning Objective 3

Understand Guelph's revised approach for educating and engaging water users in desired water conservation and efficiency behaviours for wise water use.

Ahmed Elhadidy, Martin Gravel

A QMRA Approach to Assess Different Water Filtration Technologies at the Lorne Park WTP

Authors not presenting - Brian Sahely, Teodor Kochmar

Stream

Treatment

Abstract Summary

QMRA is a useful tool to quantify risks associated with water treatment. The updated Health Canada QMRA model was applied to an "MGF" full-scale trial, conventional GAC/Sand filters and submerged UF membranes at Lorne Park WTP to assess their risk levels and the effect of membrane LRV drop over time.

Learning Objective 1

Understand how QMRA models can be used to assess deterioration of existing treatment barriers and risks associated with any maintenance activities

Learning Objective 2

Understand the risks associated with monitoring membrane integrity monitoring

Learning Objective 3

In depth understanding of LRV decay at a full scale membrane facility since commissioning

Martin Gravel

Evolution or Revolution? An 18 MLD Full-Scale Trial of "MGF" Filtration Retrofit Technology at the Lorne Park WTP

Authors not presenting - Brian Sahely, Ahmed Elhadidy, Teodor Kochmar

Stream

Treatment

Abstract Summary

In 2017, the Region of Peel began an 18 MLD full-scale trial at Lorne Park WTP of Suez Water's "MGF" filtration retrofit technology. A first of its kind, the goals were to develop how conventional filtration could be easily replaced and improved with a similar and solely gravity-based technology.

Learning Objective 1

Understand the effort that was undertook to implement a new approach on a large scale trial from all sides (construction, operation, regulation)

Learning Objective 2

Know the benefits and disadvantages of this conventional filtration alternative

Learning Objective 3

Think about the possibilities of the future advancement of this new approach

Anna Comerton, Gabriela Dimitrijevik

Filter Retrofit Design Refinement Through Pilot and Full-Scale Testing - Experience from the City of Toronto's R.L. Clark and R.C. Harris WTPs

Authors not presenting - Liza Ballantyne, Erik Lepik

Stream

Treatment

Abstract Summary

Overview of the benefit of pilot- and full-scale testing in filter retrofit and upgrade design with case studies from two recent City of Toronto upgrade projects at the R.L. Clark and R.C. Harris WTPs that demonstrate the opportunities for increased filer productivity, improved performance and reduced residual volumes.

Learning Objective 1

Introduce pilot- and full-scale testing approaches to assist with refining filter retrofit and upgrade design

Learning Objective 2

Introduce filter and backwash optimization strategies used to improve filter productivity and performance while reducing residual volumes

Learning Objective 3

Introduce design and construction criteria and considerations for filter retrofit and upgrade initiatives

Hang Nguyen

Developing a Protocol for Multimedia Filter Benchmarking and Performance Evaluation

Stream

Treatment

Abstract Summary

Media filters are a key element in most WTPs which makes it essential to periodically monitor their condition and performance. Filter benchmarking and performance evaluation have been applied to the newly upgraded media filters at the Lakeview WTP to assess filter condition and ensure that their performance meets expectation.

Learning Objective 1

Filter benchmarking protocols

Learning Objective 2

Filter optimization techniques

Learning Objective 3

Filter performance criterias

Graham Nasby, Derek Wong

SCADA Network & Data Redundancy at Guelph Water: Ensuring Security of Supply for Operations and Compliance

Stream

Automation

Abstract Summary

SCADA systems are vital for both operations and regulatory compliance. Due to requirements outlined in O.Reg. 170, SCADA systems must meet very high uptime requirements, including logging data every 5 minutes. This talk provides insight into how Guelph Water added network redundancy and data-logging redundancy to its SCADA system.

Learning Objective 1

Learn about options available to implementing redundant SCADA network connections.

Learning Objective 2

Understand the challenges involved with implementing a redundant network solution that will automatically switch to a backup network in the event of an outage.

Learning Objective 3

Learn about best practices when it comes to implementing redundant data logging technologies.

Adam Plumstead

Implementation of Real Time Pump Efficiency and Optimization System

Authors not presenting - Matt Spitzig, Michael O'Meara

Stream

Water Efficiency

Abstract Summary

By implementing online pump efficiency monitoring the Region hopes to provide the supporting information required to be able to make intelligent decisions regarding pumping operations and schedule proactive maintenance for their assets in an effort to improve the overall efficiency of their W/WW operations and ultimately reduce their operating costs

Learning Objective 1

Implement online pump efficiency monitoring

Learning Objective 2

Understand how others are using efficiency data to optimize W/WW system operation

Learning Objective 3

Take a proactive approach to pump maintenance using smart data vs. reactive based on failure

Justin Robinson

Best Practices for the Use of Reliable and Secure Private Wireless Technology for Smart Water Systems

Stream

Automation

Abstract Summary

Many water and wastewater facilities have legacy communications infrastructure and in some cases some facilities do have communications infrastructure. We will consider best practices for implementing a wireless network and look at strategies to migrate from legacy wireless networks to next generation smarter wireless networks.

Learning Objective 1

Understand the key components in building wireless infrastructure for smart water systems

Learning Objective 2

Understand the basics of wireless technology

Learning Objective 3

Understand the basic components of security for wireless technology

Graham Nasby, Kevin Stewart

Weathering the Storm & Power Outages: Guelph Water's New SCADA Tool Used by Operations to Manage Power Interruptions at Multiple Sites

Stream

Automation

Abstract Summary

It's imperative that during storm events, operators know exactly which facilities have power and which do not. Guelph Water has added real-time SCADA communications to monitor power feeds, generators, transfer switches, and UPS's at 35 facilities. Operators now use a single SCADA screen to decide what order to visit/check sites.

Learning Objective 1

Gain Familiarity with the key types of status information from power system equipment.

Learning Objective 2

Learn about how power status information can be logically and compactly arranged on a SCADA screen to provide situational awareness.

Learning Objective 3

Learn about best practices when it comes to adding SCADA monitoring for generators, transfer switches, UPS (uninterruptable power supplies), and power status relays.

Shah Mitesh, Tanja Lukic, Michael Katcharovski

Overcoming the Challenges of Process Control Upgrades in an Operating Facility

Stream

Automation

Abstract Summary

Discuss the PLC/HMI programming and vendor's control system integration challenges encountered during the design and construction of the Dewatering Process Upgrades project at the City of Toronto Highland Creek Treatment Plant, and the successful implementation and seamless integration of the upgraded process control system.

Learning Objective 1

Provide information on some key PLC/HMI system integration challenges and how to overcome during the design and construction stages

Learning Objective 2

Provide information on potential issues dealing with the vendor's package control

Learning Objective 3

Improve overall coordination during the design and construction stages for successful implementation of the process control system

Denise Angelakos

Electronic vs Old School Submissions

Stream

Construction

Abstract Summary

Submissions ask for so much information in terms of breakouts, and as contractors we are left with a very limited time to piece it all together. Is this the best practice? How have/will these requirements change with electronic submissions? Do electronic submissions help streamline the process for a contractor?

Learning Objective 1

The process involved in closing a job and submitting a tender from a contractor's perspective

Learning Objective 2

The examination of the life of a contractor on a typical closing day

Learning Objective 3

Advantages and disadvantages of e-submissions versus traditional closed envelope/paper submissions

Appana Lok, Kimberly Sayers

Deseronto WTP Upgrade – New Process, New Look, New Life

Stream

Construction

Abstract Summary

The Deseronto WTP requires a significant overhaul of the plant process under limited funds and a tight schedule. A phased construction sequence was planned to allow continuous production while the plant transitions into a new life in the same building structure.

Learning Objective 1

Upgrade a water treatment plant to be more resilient to raw water challenges and unexpected equipment failure

Learning Objective 2

Plan a phased construction sequence to meet cost, space, schedule, and operational constraints

Learning Objective 3

Overcome limitations imposed by the existing treatment system

Mike Elliot

Mandaumin Reservoir Emergency Replacement

Stream

Construction

Abstract Summary

This presentation intends to speak to the construction sequencing that led to the successful disinfection and commissioning of the new Mandaumin Reservoirs and watermain connections, all while keeping the existing facilities operational. The works had to be completed under strict funding schedule restrictions, and with minimal impacts to the existing system.

Allan Choi

Best Practices & Lessons Learned from Refurbishing 5 Different Types of Steel Storage Tanks

Stream
Construction

Abstract Summary

Municipalities are faced with many choices when deciding to refurbish their existing water storage tanks: selection of coating systems, mitigation of construction impacts, structural and life-safety upgrades, and operational improvements. This presentation will provide constructed examples and cost impacts from the recent refurbishment of 5 different styles of steel tanks.

Learning Objective 1

Present the challenges of refurbishing existing water storage tanks: selection of coating systems, mitigation of construction impacts, selection of structural upgrades/reinforcements, addition of life-safety systems, and operational improvements.

Learning Objective 2

Present as-constructed examples and costs from the recent refurbishment of 5 different styles of steel storage tanks, including: composite elevated tank, spheroid elevated tank, welded standpipe, riveted standpipe, and multi-leg sphere.

Learning Objective 3

Present best practices for assessing existing conditions prior to construction, solutions to mitigate construction impacts when refurbishment water storage tanks, and lessons learned from recent projects.

Natasha Lee, Rika Law

Filter Upgrades and Rehabilitation: What You Need to Know

Author not presenting - Zoran Filinov

Stream

Construction

Abstract Summary

Filtration is a fundamental step in the water treatment process, but filter failures happen...This paper discusses planning and implementing upgrades of existing filters, particularly underdrains, in municipal water plants. Various case studies will explore reasons for upgrades, design and construction considerations (e.g. hydraulic issues, underdrain selection, construction sequencing etc.).

Learning Objective 1

Signs of filter and underdrain failure

Learning Objective 2

What to be mindful of when designing for filter rehabilitation

Learning Objective 3

What to be mindful of during the construction phase of a filter rehabilitation project

Sandra Burnell, Gerard Boyle

Construction Lien Act Update

Stream

Construction

Abstract Summary

Construction Act, Bill 142 has become the buzz of the industry. This new Act, which is intended to modernize the way we do business in the Ontario Construction Industry, introduces new rules associated with construction liens and trusts, imposes a prompt payment regime and introduces a real time dispute resolution process.

Marcus Firman, Sipo Ching, Krysia Schafer

W&WW Operators Ecosystem

Stream

Certification & Education

Abstract Summary

The vision of a self-sustaining equilibrium Ecosystem for Water Operator Certification will be discussed. Operators, trainers and policy makers will benefit from an integrated training, competency and compliance management platform which will improve efficiency and economic benefits of the ecosystem as a whole.

Learning Objective 1

W&WW Operators Ecoystem

Learning Objective 2

Innovation of the training and certification management

Learning Objective 3

Benefits of a cloud-based solution

Jason Giffen, Diane Moreau

New Watermain Disinfection Procedures in the City of Barrie

Stream

Certification & Education

Abstract Summary

Our OWWA presentation will be focusing on our requirements for the new watermain disinfection procedure relating to the by-pass assembly and what problems the City of Barrie has come across (safety concerns) & the outcome in which we feel have resolved most of our problems.

Hilda Esedebe

OPS - The Foundation for Sustainable Infrastructure

Stream

Certification & Education

Abstract Summary

OPS was created to harmonize the numerous specifications in use by Ontario municipalities and to eliminate any duplication of effort and material by standardizing, all resulting in significant financial benefits in terms of infrastructure investments. This presentation provides the background on OPS, its benefits and updates from the OPS community.

Learning Objective 1

The background on the OPS

Learning Objective 2

The benefits of the OPS to Ontario municipalities and organizations

Learning Objective 3

Important updates from the OPS community

Danny Locco, Monique Waller

Pilot Testing for Optimized Unidirectional Flushing in the Hamilton Distribution System

Authors not presenting - Richard Giani, Peter Nikolica, Andrew Hill, Melinda Friedman

Stream

Distribution

Abstract Summary

The City of Hamilton conducted a unidirectional flushing pilot test to identify optimal flushing conditions for the Hamilton Distribution System, as a preparatory activity prior to the implementation of corrosion control. Results and outcomes from step-velocity trials will be discussed, including identified optimal flush velocities and lessons learned.

Learning Objective 1

Understand the benefits of distribution system flushing.

Learning Objective 2

Understand the importance of using the right flush velocity to achieve flushing objectives.

Learning Objective 3

Understand how a unidirectional flushing program is developed and how optimal flush velocities are identified.

Blair Saunders

Leveraging GIS Technology to Optimize Water Distribution

Stream

Distribution

Abstract Summary

The Town of Newmarket used Geographic Information Systems (GIS) to assist with drinking water system optimization. GIS heat maps were developed to evaluate maintenance activities and the overall system performance. In addition, GIS has been used as a tool to develop operational maintenance programs and enhance asset management.

Learning Objective 1

GIS heat maps improve the ability to analyze water quality trends spatially throughout the distribution system.

Learning Objective 2

The development, implementation, and evaluation of operational maintenance programs are made more efficient and effective through the use of GIS maintenance playbooks.

Learning Objective 3

The spatial display and analysis capabilities of GIS enables more informed decision making on infrastructure maintenance and replacement programs, resulting in an enhanced asset management program and improved water quality.

Laura Meteer, Liza Ballantyne

Nitrifying Nightmares and How to Avoid Them

Stream

Distribution

Abstract Summary

A significant nitrification event occurred in October 2016 at the City of Toronto and York Region. An overview of lessons learned including the development of a water quality monitoring program and response plan will be provided.

Learning Objective 1

To understand conditions that promote the occurrence of nitrification

Learning Objective 2

To develop a nitrification monitoring program.

Learning Objective 3

To understand what actions can be taken to prevent and/or control a nitrification event.

Simon Horsley

A Tale of Two Cities: Planning a Conversion From Free Chlorine to Chloramines – Twice!

Authors not presenting – Dan Hammann, Marina Kopytkovskiy

Stream

Distribution

Quirien Muylwyk

Strategies to Manage Lead at the Tap to Meet the Proposed MAC of 5 ug/L - Your Available Options

Stream

Distribution

Abstract Summary

With regulatory changes proposed for lead in both Canada and the US, drinking water systems need to prepare for more stringent compliance. Learn about the strategies and lessons learned from water systems across North America to reduce lead exposure as low as reasonably achievable.

Learning Objective 1

Learn about the latest trends in lead service line replacement program design

Learning Objective 2

How to assess your risk and create a timeline for compliance

Learning Objective 3

Understand how to use chemical treatment and lead service replacement together to meet the proposed MAC

Brent Bouteiller

Move That 900mm CPP!

Authors not presenting - Steve Saxton, Luke MacDonald, Paul Eldridge

Stream

Distribution

Abstract Summary

The design of the City of Brantford's new administration facility would situate the new building over a 900 mm diameter CPP watermain. This main needed to be moved to facilitate the construction of the new building. This paper will discuss the process of design and construction of the new watermain.

Learning Objective 1

Increase knowledge of CPP design aspects

Learning Objective 2

Increase knowledge of CPP installation

Gareth Price

The Big Payback - Large Meter Analytics

Stream

Distribution

Abstract Summary

The 80-20 rule now applies. With a traditional fixed based system the utility has to purchase then deploy an entire network before understanding how this will benefit them. With advancements in both battery and cellular technology a utility can visualize usage without the onerous costs or technical requirements.

Learning Objective 1

Attaching a cellular transmitter to your existing water meter

Learning Objective 2

15 minute meter data within 24 hours... starting now

Learning Objective 3

KPI's that can assist the utility in understanding system concerns

Jasmine MacDonald

Water Conservation Redefined - City of Hamilton Advanced Metering Infrastructure (AMI) Pilot

Stream

Water Efficiency

Abstract Summary

In the Carlisle community, the summer water demand increases by over 160% compromising the fire water storage. By way of an Advanced Metering Infrastructure (AMI) pilot program, Hamilton Water will be able to provide more accurate and responsive consumption information to assist the City and customers in managing water use.

Learning Objective 1

Understand how AMI provides more accurate and responsive water consumption information to assist the City and customers in managing water use.

Learning Objective 2

Learn how to effectively roll out an AMI pilot Project.

Learning Objective 3

Understand what this pilot project means for the future of the City of Hamilton and how it can apply to other communities considering AMI for water conservation initiatives.

David Iacocca, Erik Nickel

Water Meter Customer Service Partnership Between Alert Labs and the City of Welland

Stream

Water Efficiency

Abstract Summary

Customer service expectations are becoming increasingly challenging for Cities to meet. Since the current metering equipment for many Municipalities is not conducive to improvements to the level of service, Staff can seek out other complimentary customer service tools (innovative technology) and programs to help.

Learning Objective 1

Help their customers reduce unnecessary water usage thus promoting conservation and environmental sustainability

Learning Objective 2

Offer customers an inexpensive, yet highly effective, tool they can use to manage their water usage on a minute-by-minute basis

Learning Objective 3

Better manage water meter related billing disputes

Kelly Stewart

Operator vs. Data Analyst

Stream

Treatment

Abstract Summary

I have watched different generations come and go over thirty years in the Water/Wastewater Industry while noticing young, smart individuals full of talent and potential fail to use their senses and intuition to become the best at what they do.

Learning Objective 1

To Highlight the need for a new type of training

Learning Objective 2

To get young Operator's interested in learning the skills they need

Learning Objective 3

To start a discussion with Senior Management on issues that will be coming

Kelly Stewart

Operator vs. Data Analyst

Ashley Bertolo, Amy Martin

Critical Customers – Who are Yours and How do You Find Them?

Stream

Management

Abstract Summary

Understanding who our most critical customers are is important to ensure these customers are notified during water distribution infrastructure maintenance. Using criteria to rank all of their customers on a priority basis, the City of Guelph has developed a notification procedure and a database of our identified critical customers.

Learning Objective 1

Use the regulations and their own criteria to create their own Critical Customer Database.

Learning Objective 2

Develop communication plans for enrollment in a database for critical customers.

Learning Objective 3

Establish their own procedures for notifying critical customers.

Jianping (John) Zhang

Drinking Water Treatment Facility Optimization Program at OCWA: A Data-Driven Approach and Case Study

Authors not presenting - Sangeeta Chopra, Brad Hoover

Stream

Treatment

Abstract Summary

OCWA has initiated a Facility Optimization Program (FOP) in 2017 at the selected treatment facilities. The program focused on using a data-driven approach to support process quantification, and pinpoint the process bottlenecks. This paper will present details of the technical approach. A case study will be provided.

Learning Objective 1

Understand OCWA's FOP program

Learning Objective 2

Opportunities to discuss plant optimization technologies

Husein Almuhtaram

Cyanobacteria Accumulation and Cyanotoxins in DWTPs

Authors not presenting - Yijing Cui, Ron Hofmann, Arash Zamyadi

Stream

University Research

Abstract Summary

Cyanobacteria and cyanotoxins were quantified across the treatment train of four Ontario DWTPs. The results show that cyanobacteria and some toxins are present in the sludge and filter beds at higher concentrations than in the raw water. This accumulation presents a risk of undetected toxin release inside the plants.

Benjamin Beelen

Field Evaluation of Adenosine Triphosphate as an Indicator of Microbiological Water Quality Change in Subsurface Supplies

Authors not presenting - Alex Ho Shing Chik, Caitlin Wong, Maria Mesquita, William Anderson, Monica Emelko

Stream

University Research

Abstract Summary

Representative and monitoring program relevant samples are necessary for understanding subsurface microbiological water quality changes. Adenosine triphosphate was investigated as a sensitive and rapid indication of microbial water quality change. Analyzing ATP concurrently with other parameters throughout well purging provides insight for developing strategies for assessing microbiological risk.

Learning Objective 1

Identify ways to integrate ATP assays into microbiological water quality sampling protocols

Learning Objective 2

Understand the benefits and limitations of ATP assays

Learning Objective 3

Be able to interpret ATP measurements from subsurface supplies

Nathan Moore, Shelir Ebrahimi, Yanping Zhu

Disinfection by-product formation from the UV/chlorine advanced oxidation process

Authors not presenting - Ron Hofmann, Susan Andrews

Stream

University Research

Abstract Summary

UV/chlorine is a promising advanced oxidation process but little information exists on the possibility of toxic by-product formation. This project aims to identify the effects of UV/chlorine on DBP formation and toxicity to give the water industry greater confidence in the suitability of this novel technology.

Learning Objective 1

Discern conditions where UV/chlorine is more efficient than UV/hydrogen peroxide

Learning Objective 2

Outline the DBPs and toxicity resulting from UV/chlorine compared to chlorine or UV alone

Learning Objective 3

Discuss possible trends between operational parameters, water characteristics, DBP formation, and toxicity

Kristina Lee

Evaluating filter performance in high quality, low turbidity, raw water for Cryptosporidium removal

Authors not presenting – Liza Ballantyne, Dave Scott, Revathy Vattukkalathil, William Monica Emelko

Stream

University Research

Abstract Summary

Combinations of tools for rapid operational feedback to ensure optimal chemical pre-treatment and signal changes in water quality passing through filters (which may signal changes in particle reduction capacity) are being investigated and integrated with quantitative microbial risk assessment.

Learning Objective 1

Quantitatively describe the critical role of chemical pre-treatment for effective removal of (oo)cysts by chemically-assisted filtration

Learning Objective 2

Develop protocols for evaluating (oo)cyst removal by chemically-assisted filtration, particularly for low turbidity source waters such as Great Lakes-based systems

Ye (Tyler) Yang,

Rapid Detection of Pollutants in Source Waters

Authors not presenting - Nicolas Peleato, Robert Andrews, Raymond Legge

Stream

University Research

Abstract Summary

A real-time fluorescence monitoring system has been shown to rapidly detect the presence of several pollutants in source waters. Rapid detection during periods of high impact on source waters could better inform water treatment operations and source water protection efforts.

Learning Objective 1

How fluorescence spectroscopy and associated analysis methods work

Learning Objective 2

The ability for these methods to detect transient impacts of pollutants

Learning Objective 3

How real-time impact detection could better inform water treatment operations

Ian Lake-Thompson

Optimization of Current Mussel Control Strategies and Testing of EarthTec QZ as a New Control Alternative

Author not presenting - Ron Hofmann

Stream

University Research

Abstract Summary

Quantification of current mussel infestation levels and re-evaluation of management. Testing of EarthTec QZ for determining mussel control efficacy. Assessing interactions between EarthTec QZ and water treatment parameters and processes.

Learning Objective 1

Determine if their current mussel control regime should be re-evaluated

Learning Objective 2

Judge if EarthTec QZ may be suited as an alternative chemical treatment

Learning Objective 3

Understand the effects/impacts of Earthtec QZ usage on a treatment system

Michael McKie

Impact of Treatment Plant Design and Operation on Biofilter Performance

Authors not presenting Susan Andrews, Robert Andrews

Stream

Treatment

Abstract Summary

This four-filter pilot study evaluated continuous and cyclical (~12 hours on/off) biofiltration at varying empty bed contact times (EBCTs). Continuous operation and longer EBCT improved DOC (~5%) and disinfection by-product precursor (~10%) removal. Cost-benefit analyses will incorporate these results to optimize operation with respect to water quality and operating expenses.

Learning Objective 1

Identify possible filter operating conditions based on plant design

Learning Objective 2

Characterize biofiltration performance using multiple parameters

Learning Objective 3

Evaluate water quality to determine optimal treatment performance

Yifeng Huang

A Tool to Evaluate the Performance of Partially-spent Granular Activated Carbon (GAC) for Removing Taste and Odour Compounds

Author not presenting - Zhijie Nie

Stream

Treatment

Abstract Summary

Laboratory-scale column tests together with a predictive model were used to estimate the remaining bed life of GAC for removing geosmin and MIB. Comparison of predicted results to those of pilot-scale tests have shown that the tool provided close estimation of T&O breakthrough.

Learning Objective 1

To understand the mechanisms of GAC exhaustion

Learning Objective 2

To learn a new technique to measure the degree of GAC exhaustion

Learning Objective 3

To learn different scenarios of application of this technique

Liz Taylor-Edmonds

Removal of NDMA Precursors During Drinking Water Treatment

Author not presenting - Corinne Bertoia

Stream

Treatment

Abstract Summary

This study investigated the impact of biofiltration on NDMA formation in chloraminated waters. NDMA FP tests were performed at various sampling depths using direct chloramination. Biofiltration provided significant removal of NDMA precursors after 45cm of filter depth. Relationship between NDMA and dissolved oxygen, pH and biomass density will be explored.

Learning Objective 1

Elucidate the relationship between filtration and the presence of NDMA FP in finished drinking water.

Learning Objective 2

Investigate continuous vs cyclical filter operation to establish an optimal operation strategy for the removal of NDMA precursors.

Learning Objective 3

Determine the link between disinfection with direct chloramination and NDMA formation in finished water.

Devendra Borikar

Using fixed bed ion-exchange to enhance the reduction of organics

Authors not presenting - Jeff Avedesian, Laura Zettler, Luc Léonard, Denis Dolbec, Michel Plourde, Souleymane Ndiongue

Stream

Treatment

Abstract Summary

A town in Northern Ontario uses enhanced coagulation to reduce high levels of organics in their source water. Using a fixed bed ion-exchange system after filtration resulted in an additional 68% reduction in DOC. An additional 85 % reduction (THMs level to 22 µg/L) in trihalomethane formation was also observed.

Learning Objective 1

Participants will gain knowledge on using ion-exchange processes for organic reduction.

Learning Objective 2

Participants will learn about the relationship between organics and THM formation.

Learning Objective 3

Participants will gain insight on the changes of water quality following the use of ion exchange.

Chengjin Wang

Full-Scale UV/Cl2 and UV/H2O2 Trials at the Lorne Park Water Treatment Plant: Comparing Their Performance on the Degradation of Emerging Contaminants and the Formation of the Disinfection Byproducts

Authors not presenting - Ron Hofmann

Stream

Treatment

Abstract Summary

The full-scale trials of the UV/Cl2 and UV/H2O2 processes were conducted to study their efficiency in degrading caffeine and sucralose and the formation of the disinfection byproducts. The results indicated that UV/Cl2, as the alternative to UV/H2O2, needs to be assessed water-specifically and compound-specifically.

Learning Objective 1

to understand how pH, UV power levels, oxidant doses impact the performance of the UV/Cl2 and UV/H2O2 on the removal of sucralose and caffeine.

Learning Objective 2

to quantify the contribution of the OH radical, direct photolysis, and the reactive chlorine species to the overall performance of the AOPs.

Learning Objective 3

To estimate the formation of the disinfection byproducts in the two AOPs.

Liz Taylor-Edmonds

Genotoxicity and Emerging DBPs for Current and Historical Waters: New Metrics For Epidemiology and Treatment Optimization Studies

Stream

Treatment

Abstract Summary

The protective benefits of disinfection far outweigh the low associations between DBP exposure and cancer risk rates. Nonetheless, the impact of lifetime exposures to DBPs on human health is important to water providers. This study aims to identify DBPs that drive toxicity in finished waters.

Learning Objective 1

Quantify the concentration of regulated and emerging disinfection by-product (DBPs) of finished waters and frame results in terms of lifetime DBP exposure

Learning Objective 2

Determine the impact of alternate treatment strategies, such as enhanced coagulation, on DBP speciation and concentration

Learning Objective 3

Understand relationships between the formation of regulated and emerging DBPs and genotoxicity response

Trish Johnson

Developing a Knowledge Product to Support Municipal Asset Management

Author not presenting - Lesley Herstein

Stream

Asset Management

Abstract Summary

WaterTAP is working to develop knowledge products to enhance municipal understanding of Life-Cycle Costing (LCC) and build municipal capacity to integrate LCC into infrastructure planning to achieve long-term affordability. This presentation will provide an overview of the LCC knowledge products and how they are building municipal capacity.

Learning Objective 1

Understand the importance of incorporating life-cycle costs into water infrastructure planning.

Learning Objective 2

Learn how to account for life-cycle costs when planning for water infrastructure needs.

Learning Objective 3

Learn how to build municipal staff and council appreciation for life-cycle costing.

Sandra Latorre, Alec Cranmer

York Region's Asset Management Approach to Rehabilitating Their Groundwater Treatment Strategy

Stream

Asset Management

John Braam

Creating a Culture of Sustainability... With Results

Stream

Management

Abstract Summary

This presentation will review the application of the Sustainability Framework (Policy and Planning, Financial Tools and People) in the context of developing and achieving financial sustainability of the Water and Sewer Systems at the City of London.

Learning Objective 1

Understanding the importance of financial sustainability as it relates to water system management

Learning Objective 2

Recognizing the tools required to develop and implement a financial sustainability plan

Learning Objective 3

Lessons learned from London's experience implementing a financial sustainability platform for water, wastewater and stormwater

Will Rybnik

Surge Suppression Technology

Stream

Automation

Abstract Summary

Any cable coming out of the cabinet is susceptible to overvoltage due to lightning, induction, or other power surges. We will describe the Surge Suppression technology to prevent damage to control, instrumentation and communications equipment. These tools will help you design systems with higher availability and prevent downtime.

Learning Objective 1

Identify source of overvoltage

Learning Objective 2

Understand surge protection principles

Nicolas Peleato

Improving DBP Formation Prediction with Neural Networks

Authors not presenting Raymond Legge, Robert Andrews

Stream

Treatment

Abstract Summary

The prediction accuracy of regulated DBP formation in treated water was significantly improved through use of fluorescence spectroscopy coupled with neural networks. Fluorescence measurements can be used to provide real-time measurements and greater control over treated water DBP concentrations without the potential need off-line testing.

Learning Objective 1

DBP formation is variable based on composition, not only concentration of organic matter

Learning Objective 2

Demonstrates how full spectrum fluorescence methods allow for better representation of chemical makeup

Learning Objective 3

Introduction to how DBP prediction accuracy is improved via modelling with neural networks

Michael Chrapala

Electronic Logbooks - Improving Operational Efficiency

Stream

Management

Abstract Summary

With Logbooks, operators can record daily operation information, view a prioritized task list, and access critical shift change information. We will discuss using Electronic Logbooks to drive more consistent processes, capture expertise in an electronic knowledge base, and minimize shift handover risk.

Learning Objective 1

Inherit issues with Paper Logbooks

Learning Objective 2

Benefits of moving logbooks to an electronic platform

Learning Objective 3

Electronic Logbooks as a compliance tool

Alyssa Kochanski, Julien Bell

What's the FUS?

Author not presenting - Lindsay Bowman

Stream

Distribution

Abstract Summary

There are a variety of methods to determine the fire flow needs. This presentation presents benefits and drawbacks of each methodology, and outlines a potential streamlined approach which municipalities can utilize to help clarify, simplify, and standardize this process.

Learning Objective 1

Understand how fire flow criteria a determined

Learning Objective 2

Understand how fire flow criteria a determined

Learning Objective 3

Have an understanding of current industry trends

Emma Thompson, Sam Ziemann, Daryush Esmaili

Case Study: Modelling Transients using InfoSurge

Stream

Emerging Issues

Abstract Summary

Transient conditions are a significant cause of failure in water distribution systems. Hydraulic modelling was carried out using InfoSurge to predict the effect of transient operations on a municipal system, and to optimize controls for mitigating the impacts.

Learning Objective 1

Understand the cause and effect of transient conditions on water distribution systems.

Learning Objective 2

Identify best practices for collecting and inputting transient device data including: a.Pipe wave speed b.   Pump surge data c.   Valve surge data d.   Surge protection devices

Learning Objective 3

Determine methods for model calibration and hydraulic analysis using InfoSurge. Understand techniques used to optimize operational controls and mitigate the effect of transient conditions within a water distribution network.

Gary Thompson

Water Transmission System Automatic Operation & Optimization

Author not presenting – Alnoor Allidina, Jacek Błaszczyk, Henry Polvi, Rose Hosseinzadeh

Stream

Distribution

Learning Objective 1

Understand the need and opportunities available for optimized water transmission management

Learning Objective 2

Understand the methodology of intelligent / optimized water transmission (distribution) control systems

Learning Objective 3

Understand the need and benefits (results) of optimized distribution system operation (financial, environmental and operational)

Simon Gautrey

Progress of the MOECC's Water Quantity Protection External Working Group on a Review of Ontario's Water Resources and Regulations

Stream

Source Water Protection

Abstract Summary

In 2017, the MOECC gathered stakeholders and water scientists together to form "The Water Quantity Protection External Working Group" to review the state of water resources in the province and consider updates to regulations. The co-chair of the Group will present an update on the progress of this group.

Learning Objective 1

Update on potential changes to Ministry regulations about groundwater and surface water

Learning Objective 2

Seeking feedback from OWWA membership on proposed changes

Thadshayini Chandrakumaran

Evaluating the Spatial Distribution of Phosphorus and Total Suspended Solids in the Middle Grand River Watershed to Determine Management Priorities for Phosphorus Reduction

Authors not presenting - Michael Stone, Nandita Basu, Monica Emelko

Stream

Source Water Protection

Abstract Summary

This study focuses on the Grand River, Canada's largest tributary to Lake Erie, to characterize urban point and nonpoint source phosphorus (P) and sediment along an urbanized river reach by using existing hydrometric and water quality data so that future P load reduction measures may be effectively targeted and implemented.

Learning Objective 1

Recognize various commonly-used pollutant load estimation methods available to estimate loads from gauged watersheds.

Learning Objective 2

Identify any relationships that exist between land use and phosphorus yields in an urbanized reach of the Grand River.

Learning Objective 3

Identify any relationships that exist between land use and phosphorus yields in an urbanized reach of the Grand River.

Amy Yang

Demonstrating the Potential Contributions of Reservoir Sediments to Enabling Algal Blooms

Author not presenting - Kirsten Müller, Mike Stone, Monica Emelko

Stream

Source Water Protection

Abstract Summary

Taste and odor events occurring in water supply from Glenmore Water Treatment Plant (WTP) are likely due to biological activity in Glenmore Reservoir. Experiments were conducted to determine if sediment, and associated nutrients with sediment such as phosphorus, are driving biological activity in Glenmore Reservoir.

Learning Objective 1

Understand associated nutrients with sediment

Learning Objective 2

Apply knowledge of nutrients that can contribute to biological activity

Learning Objective 3

Apply a systems approach to source water protection

Ahmed Elhadidy

Comparison of Low Range Light Scattering and Laser Turbidimeters Performance and its Implications on Filter Performance and Operation

Authors not presenting - Martin Gravel, Brian Sahely, Teodor Kochmar

Stream

Treatment

Abstract Summary

Turbidity is a key parameter for monitoring filter performance. Turbidity measurement is simple, however, with recent advances in turbidimeters such as laser-based turbidimeters it is important to assess the differences among the different types of turbidimeters and understand how they may affect filter performance and impact operational decisions and regulations.

Learning Objective 1

Understand differences between the two different types of turbidimeters existing in the market now and how this is affecting filter performance

Learning Objective 2

Understanding the benefits and challenges that would come with upgrading their existing light scattering turbidimeters with new laser turbidimeters

Learning Objective 3

Understand the differences between conventional media filter and the new "MGF" filtration retrofit product

Vincent Laplante, Shobanaa Sivavarman

Using CFD to Solve Quirky Hydraulic Issues at the Island WTP and R.C. Harris WTP

Stream

Treatment

50 Word Abstract Summary for the Program

CFD is a powerful investigative tool that can be used to find low cost solutions to unique hydraulic issues. This presentation will discuss the CFD modelling recently completed to prevent disturbance of filter media at the Island WTP and resolve an ammonia mixing issue in the R.C. Harris WTP reservoir.

Negin Salamati, Maika Pellegrino

Implementation of Medium Pressure UV Lamps: Pros and Regulatory Challenges

Stream

Treatment

Abstract Summary

City of Trail WTP is implementing Medium Pressure UV disinfection system to comply with current B.C. Drinking Water Objectives. Since current EPA validation protocol is based on monochromatic lamps, the design was challenged by the Ministry of Health from several aspects, e.g. type of lamp, dose strategy, UVT, and surrogate.

Learning Objective 1

Application of Medium Pressure UV Lamps

Learning Objective 2

Regulatory Challenges

Learning Objective 3

Upgrading existing WTP to comply with current regulations

Aman Singh, Italia Ponce, Vidit Aneja, Imran Motala

Monetizing Risk to Inform Decision Making

Stream

Asset Management

Abstract Summary

The Region of Peel undertook a project within their Water Planning Group to develop a risk-based approach to establishing capital projects / programs for their Water Transmission systems in order to develop a defensible and consistent approach to establishing short, medium and long-term capital projects / programs.

Learning Objective 1

7-step analysis to risk assessment

Learning Objective 2

Monetize risk to optimize effective decision making

Learning Objective 3

Support development and prioritization of business case justification for investments

Craig Daly, Mike Garaci

Monetizing Risk

Stream

Management

Abstract Summary

This paper will discuss how to approach the process of developing an overarching monetized rise framework for addressing the dangers and threats apparent to utilities in planning for capital expenditures or shortfalls while also providing some details on how individual processes might be modelled.

Learning Objective 1

Understanding and quantifying risk

Learning Objective 2

Developing a risk framework

Learning Objective 3

Making predictions

Michael Katz, Shu Min Gao

Monitoring Pressure Transients on a Water Distribution System as an Asset Management Tool

Stream

Asset Management

Abstract Summary

This presentation will review an implementation of a system-wide transient pressure monitoring study to identify the sources and impacts of system operations on a distribution system. It will provide concrete examples of site selection, monitoring configuration, engineering structural analysis of the results, and incorporation into the asset management program.

Learning Objective 1

Understand causes and impacts of pressure transients

Learning Objective 2

Implement a pressure transient monitoring study

Learning Objective 3

Use a pressure transient monitoring study as part of an asset management program

Emma Thompson

Improving Fire Flows on a Budget

Author not presenting - Sam Ziemann

Stream

Distribution

Abstract Summary

The City of Guelph has dedicated budget to the improvement of fire flows in the distribution system. Utilizing the City's hydraulic model, 15 projects were developed and prioritized to improve the water systems ability to deliver fire flow in older areas of the City of mainly cast iron watermains.

Learning Objective 1

Understanding the areas of concern in a distribution system utilizing a hydraulic model and discussions with Operations staff.

Learning Objective 2

Project focus was water driven with the purpose of prioritizing projects that provided the greatest benefit for greatest area of need.

Learning Objective 3

Development of project prioritization through evaluation of impacts on distribution system such as; a. Increase in fire flows. b. How many people are positively impacted. c. Are we replacing pipe that is suspect, ie watermain breaks, age, material.

Jahangir Chowdhury

Bypass System Eliminates Dead Ends in Water Distribution Networks

Stream

Distribution

Abstract Summary

In water network, stagnation occurs due to installation of pressure separation valve between two pressure zones, a part of the pipe upstream and downstream remains stagnant for an indefinite period of time. Bypass system eliminates environmental hazard and water wastage. Bypass line automatically controlled by a solenoid valve and timer.

Learning Objective 1

Water stagnation occurs due to installation of pressure separation valve

Learning Objective 2

Bypass system eliminates environmental hazard and water wastage.

Learning Objective 3

Bypass line automatically controlled by a solenoid valve and timer.

Brent Marissen

Optimizing Advocacy Through Coordination

Stream

Communication & Public Affairs

Abstract Summary

Water and wastewater systems optimization is common from an engineering perspective, but tends to be less of a consideration for softer approaches such as advocacy, which have a significant impact on operations. This presentation will identify the benefits of a coordinated approach and how to leverage this powerful tool.

Learning Objective 1

Understand the benefits of a coordinated approach.

Learning Objective 2

Understand how to apply this in their own municipalities.

Learning Objective 3

Identify opportunities for inter-municipal collaboration.

Ken Campbell

Big Changes – Implementing a Project Quality Management System

Stream

Management

Abstract Summary

This presentation discusses challenges in today's consulting business, project delivery approaches R.V. Anderson Associates Ltd. used in the past, and why the QMS approach was selected to transform project delivery for the future. The presentation covers QMS basics, key principles in the RVA scheme, and lessons learned through its implementation.

Learning Objective 1

Know the basic principles of a Quality Management System (QMS)

Learning Objective 2

Understand how the QMS approach can be applied to various situations to bring about positive changes.

Learning Objective 3

Be aware of some pitfalls, and best practices associated with implementing a QMS or any other major procedural change within an organization.

Elia Edwards

Procuring Engineering Consulting Services… a Little Different than Buying Pencils… You Get What You Pay For

Stream

Management

Abstract Summary

Utility owners face increasing scrutiny which transcend to the procurement of engineering services. Poor engineering design and delivery will cost taxpayers. This presentation will share experiences of balancing the pressures of procurement and capital delivery processes. Scope definition, procurement models, contractual language, and alternative delivery models will also be discussed.

Learning Objective 1

Understand the challenges being faced by the utility owners striving to balance the pressures of procurement of engineering services and delivery of major capital infrastructure from the owner, consultant and legal perspectives.

Learning Objective 2

Understand related matters including the definition of scope of services, the procurment models used to engage consulting services including QBS, the contractual language within engineering consultant agreement, and alternative models for delivering capital projects including progressive design build (PDB) and construction management at risk (CMAR).

Learning Objective 3

Better understand the pros and cons of the above topic and consider alternative ideas/approaches when procuring engineering consulting services and delivering capital projects.

Sangeeta Chopra, Angela Storey

Impact of Manganese Guidelines and Regulations to Water Treatment Facilities Across Ontario

Stream

Treatment

Abstract Summary

Health Canada is proposing a new treatment guideline for Manganese, including a new maximum acceptable concentration (MAC) and a more stringent aesthetic objective (AO). We will explore the impact of this change to water treatment facilities across Ontario it is adopted at the provincial level.

Learning Objective 1

Understand emerging changes in guidelines and regulations associated with manganese in water.

Learning Objective 2

Understand the sources of manganese and treatment options

Learning Objective 3

Understand the impact to treatment associated with the proposed Health Canada MAC and AO for manganese if adopted by the Province of Ontario.

Hamid Salsali

Removal of Iron and Manganese from the City of Greater Sudbury's Valley Groundwater Supply System

Stream

Groundwater

Abstract Summary

The City of Greater Sudbury (CGS) identified elevated levels of iron (Fe) and manganese (Mn) within the Valley groundwater supply well systems as the cause of consumer complaints and fouling of pump house instruments and equipment. The study will discuss the Fe/Mn treatment study and results.

Learning Objective 1

Understand basic iron and manganese removal chemistry

Learning Objective 2

Understand the industry's standard iron and manganese removal practices in terms of operation, limitations and other design considerations

Learning Objective 3

Recognize which treatment processes are the most appropriate based on raw water characteristics and existing treatment infrastructure

Mazahir Alidina, Gary Thorne

Options for Destruction of Polyacrylamide Monomers in Drinking Water Treatment

Author not presenting - Andrew Rousek

Stream

Emerging Issues

Abstract Summary

Bench testing of supernatant from a water treatment plant undertaken to determine efficiency of using KMnO4 and H2O2 in the destruction of polyacrylamide monomer. Results proved that destruction was possible, but had complications such as potential of adding additional manganese to raw water and practicality of introducing such a process.

Learning Objective 1

Appreciate new methods of dealing wth polyacrylamide monomers

Learning Objective 2

Identify potential issues that may arise in supernatant recycling in water treatment

Learning Objective 3

Issues with incorporating a new chemical into the treatment train