

# AWWOA 46th Annual Operators Virtual Seminar

## Presentation Synopsis

Tue, Mar 09, 2021

9:00am

### The Real Foreman of Alberta: Lagoons to Collection Line Maintenance

#### Pre-Seminar Workshop

Increasing stress on treatment systems and the operators that run them are proving to be the norm across the industry as regulations increase. Wastewater treatment systems have issues from fat, grease and oil build up in collections lines to sludge mounds accumulating in lagoon cells to lift stations malfunctions, and non-compliant discharge of treated effluent. Updates to permits are changing treatment requirements increasing the level of efficiency required before discharge. National movements are pushing to add additional parameters to permits to remove other nutrients of concern. In order to manage and maintain a functional and effective wastewater treatment system proven techniques and system enhancements are vital to achieve the optimal level of treatment required. Obtaining the council and direction from seasoned town foreman with insight on new and traditional methods to tackle challenges, solve system failures and reach regulated treatment permits will provide valued lessons and needed training.

#### Speakers



**Jonathan Lee** Acti-Zyme Products Ltd



**William Lyons** Town of Bow Island



**Allen Schiestel** Account Manager, Acti-Zyme



**Pierre Naidier Fanfan** President, Probiosphere



**Brent Hamilton** Town of Taber

Wed, Mar 10, 2021

12:30pm

### Optimization as a Key Component of Capital Planning

🕒 12:30pm - 1:10pm, Mar 10

📍 Water Treatment Session

Water Treatment Track

Owners of potable water treatment infrastructure often find themselves in the position of having to meet rising potable water demands, while at the same time dealing with capital funding constraints. One way to approach this issue is through optimization of existing assets. Existing treatment processes can often be made to 'sweat' and produce more potable water by pushing them harder; this can mean operating filters and pre-treatment processes at higher loadings or assessing disinfection processes like UV or chemical disinfection for unused capacity, with only minor capital upgrades. The core of this approach is a stress testing program completed under controlled conditions, to prove out the processes and reveal unforeseen issues with ancillary systems and hydraulics.

This presentation includes a case study of an optimization program completed by the Town of Okotoks. The Town completed a Water Treatment Plant (WTP) upgrade in 2013 that incorporated ballasted flocculation (Actiflo®) into the treatment scheme and added an additional dual-media filtration train. In early 2020, the Town embarked on an Optimization Study as a potential means of increasing plant capacity while deferring capital investment. The study had the following objectives:

- Investigate opportunities for optimization of the existing plant, for increasing production efficiency and reducing energy consumption.
- Highlight any potential minor modifications to the existing system that could improve overall treatment reliability.

The optimization team reviewed historical raw water quality and process performance data and determined current baseline treatment capacities. The team then completed a desktop assessment to identify potential gains in capacity through optimization. Finally, full-scale stress testing was completed to verify the process capacity and identify any issues with ancillary systems. A desktop hydraulic review was completed prior to full-scale stress test to verify that higher hydraulic profile could be accommodated within existing tankage.

---

#### 🗣️ Speakers



Angelica Quiring



Dain Perrior

### Grit Happens - You Don't Know What You Are Missing

🕒 12:30pm - 1:10pm, Mar 10

📍 Wastewater Treatment Session

#### Wastewater Treatment Track

Description of Presentation: Expectations for grit system performance can often be limited. Operator dissatisfaction with grit removal systems is all too common. Conventional guidelines target removal of relatively coarse grit larger than 212 micron. In fact, many wastewater treatment plants find over 50% of their influent grit is smaller than 212 micron. In addition to targeting coarse particles, many designs do not account for slow settling grit which are impacted by irregular shape and lower specific gravity. This can lead to capture efficiencies far less than 50%. Wastewater grit is comprised of silica sand as well as various other materials that do not have a specific gravity of 2.65. Further, grit particles are not all perfect spheres and finally, grit is exposed to fats, oils, greases, and soaps in the collection system which coats the grit and changes its settling velocity. Grit systems can achieve removal efficiencies over 90% when designed with an accurate understanding of the nature and characteristics of the grit arriving at the treatment plant and how this grit actually behaves in wastewater. Advancements in grit management technology now allow 95% capture of grit  $\geq 75$  micron while producing a clean, dry output product.

#### 🗣️ Speaker



Patrick Herrick Regional Sales Manager, Hydro International

### Watermain Breaks and Repairs - Standards, Choices, Installations and Improvisations

🕒 12:30pm - 1:10pm, Mar 10

📍 D&C Sessions

#### Distribution & Collection Track

Alberta Waterworks Infrastructure has used a wide range of pipe materials in its history, and this has led to both new and aging watermains that come across differing requirements for repair. In order to properly address Operator and municipal needs, a wide range of repair products have become available depending on the situation at hand. This presentation will cover several components in terms of watermain breaks and repairs:

1. Review of AWWA C230 for repair Clamps and AWWA C219 for repair couplings and where they apply to operator needs
2. A study on the different types of breaks that can occur in watermains and what they will look like to operators
3. The types of repair materials available and the process that operators will undertake in order to select them
4. Best practices on installations for both repair couplings and repair clamps
5. Improvisations when encountering larger OD pipe breaks and the repair methods available

This presentation is designed with both new and experienced operators in mind. Highlighting the correct installation procedures for operators as well as showcasing innovations and technology that will add to operators knowledge base and capabilities.

#### 🗣️ Speaker



Derek Traquair Utility Supply (West) Corp.

## Stormwater Knows No Boundaries

🕒 12:30pm - 1:10pm, Mar 10

📍 Hot Topics Sessions

### Hot Topics Track

Many urban areas within Alberta are influenced by stormwater runoff from adjacent municipalities. The influence of creeks, upland areas and adjacent development or developing areas can impact the performance of the drainage systems. If not considered, these areas can result in flood impacts for existing or new communities into the future. The best results occur when municipalities work together to develop coordinated solutions. This paper provides examples where the Alberta Community Partnership grant was used to resolve stormwater issues at the local and regional level, including:

- What are the types of data and analysis used to identify, evaluate, and resolve flooding?
- Examples of why and how a collaborative approach can be successful in developing regional solutions.
- An overview the current best management practice and recently developed CSA standards, and how they can assist municipalities in dealing with stormwater issues, now and into the future.

### 🗣️ Speaker



David Seeliger

1:15pm

## Challenging Raw Water Study - High TOC/DOC/Algae, Take UVT from 35% to 89%

🕒 1:15pm - 1:55pm, Mar 10

📍 Water Treatment Session

### Water Treatment Track

There's no question 2020 has been a challenge in many ways, and that was no different with what Alberta operators experienced around the province and their raw water quality challenges. 2020 proved to be an extremely challenging Algae season for many raw water reservoirs and lakes around the province, with TOC/DOC increasing in the raw water and the high risk of THM/DBP's associated with this challenge.

In the summer of 2020, Klearwater Equipment & Technologies, in conjunction with Lawrence Michetti of TSAG, were able to assist the Loon River First Nation overcome many of these challenges with Algae growth and general raw water quality in the region. Through a combination of jar testing and in plant trials, we were able to implement a complete overhaul of the chemical treatment program in the plant, yielding the highest treated UVT% ever produced by Loon River, and lowering the risk of THM formation during chlorination.

An ionized cupric copper based algaecide was used in the raw water holding ponds, eliminating a substantial algae bloom and increasing raw water TOC/DOC. Then, with an adjustment to the coagulant chemistry, and the addition of an organic coagulant aid, the treatment process was optimized to produce the highest quality water to date.

In this presentation we will review the specific challenges, and what was done to overcome each target parameter. Using a series of pictures of the algae treatment plan, jar tests, clarifier optimization and more, we will go through the process of taking challenging source water, and overcoming the challenge with the

right approach.

---

## Speakers



**Doug Riddell** Klearwater Equipment & Technologies



**Lawrence Michetti** Water and Waste water trouble shooter, TSAG

---

## The Importance of Operations Input - Design, Construction, and Commissioning Bonnybrook's WWTP Biosolids Dewatering Facility

🕒 1:15pm - 1:55pm, Mar 10

📍 Wastewater Treatment Session

### Wastewater Treatment Track

The biosolids dewatering facility (Dewatering Building) at The City of Calgary's (The City's) Bonnybrook WWTP provides the City with a year round biosolids dewatering solution that supports The City's strategy to provide diversified beneficial use programs for biosolids produced by The City's WWTP. The Dewatering Building produces up to 20,000 dry tonnes of dewatered biosolids annually, which are then either land applied or used as a feedstock by The City's composting facility.

This presentation will focus on the collaborative approach that was implemented during design, construction, and commissioning of the Dewatering Building by The City, Jacobs, and the construction contractor. The City's operations group was an integral member of the project team and contributed greatly to a successful project that saw construction finish ahead of schedule and on budget with buy-in by all parties. The City's operations group provided detailed input into the Dewatering Building's detailed design, Process Control Narrative (PCNs), equipment training, and commissioning plans.

Although the project was a great success, there are lessons learned, related primarily to the design phase, that we will share with the audience.

---

## Speakers



**Adrian Calcan**



**Colton Stiles**

---

## Chloramination - the good, the bad and the Operator

🕒 1:15pm - 1:55pm, Mar 10

📍 D&C Sessions

### Distribution & Collection Track

Conversion of a water distribution system from free chlorine to chloramines is more common in recent years as systems expand beyond traditional Municipal boundaries. In addition, the use of chloramines reduces the potential for formation of disinfection by-products.

The conversion of a system can be challenging unless there is an understanding of the chemistry and the chlorine curve, a good operations plan and skilled Operators to implement the changes.

In this paper we will cover:

- The chemistry behind chloramination
  - A review of the chlorine curve.
  - Why we have to think in ratios not necessarily dosage,
  - The importance of monitoring ammonia levels.
  - How to plan for the implementation of conversion from free chlorine to chloramines.
  - Creating procedures for monitoring and control.
  - Operational impacts
  - Operational experiences from the field.
- 

#### Speakers



**Grant Dixon** Associated Engineering



**Nicholai Kristel**



**Cody Kelly**

### Stormwater Management Facilities: Planning for Wet Ponds and Constructed Wetlands

🕒 1:15pm - 1:55pm, Mar 10

📍 Hot Topics Sessions

#### Hot Topics Track

Stormwater management facilities gather rainfall and runoff to mitigate impacts to downstream infrastructure and the natural environment. Wet ponds are the most common end of pipe stormwater management facility. Constructed wetlands can also be used to manage stormwater in place of wet ponds or to retrofit existing facilities. Stormwater wet ponds and stormwater wetlands have several components to meet the goals of managing water quality and quantity. This presentation focuses on how the planning process has evolved, and keys to successful design and construction.

Wet pond and constructed wetland design require an understanding of site hydrology, catchment properties and goals or targets for water quality and water quantity. A key part of the design process includes calculating flows to select and size system components. One aspect of project planning that has evolved in various jurisdictions includes consideration to mitigate climate change risk by increasing capacity to handle more significant storm events.

Constructed wetlands have gained significant popularity as a tool for managing stormwater. Stormwater wetlands are an efficient practice for pollution removal. Design criteria have evolved for wetlands as well. The establishment of vegetation zones each supporting different plants with different treatment functions, options to dissipate energy, and outlet configuration are key components to name a few. An examination of design options and their pros and cons must be tied to project goals to meet target for managing water quality and quantity.

---

#### Speakers



Kristen Andersen



Sean Nicoll

1:55pm

### Break Time

🕒 1:55pm - 2:15pm, Mar 10

📍 Break

Break

2:15pm

### Municipal Water Fluoridation Chemistry - History and Innovation

🕒 2:15pm - 2:55pm, Mar 10

📍 Water Treatment Session

Water Treatment Track

For many years municipal water fluoridation has been a highly political topic. Unlike other water treatment methods and chemicals which are essential to the safety of our drinking water, Fluoridation is not required. More than 70% of our drinking water nationwide does however choose to fluoridate, taking advantage of dental health benefits which impacts all of us and specifically our children.

For a number of years, the most widely used chemistry for municipal water fluoridation was HFSA (Hydrofluorosilicic Acid) produced as a by-product in the phosphorous mining industry mostly in the South-East United States. Over 30,000,000 kg's of 23-25% HFSA is produced in the region and used across North America for municipal water fluoridation. The problem with this source is that the HFSA produced by this process contains up to 350ppm of heavy metal contaminants, including Arsenic, Lead, Cadmium, etc. These are all contaminants we, especially in Canada, have focused on limiting and removing from our water – so why use a Fluoridation product that contains them?

In recent years, this has changed – as there is now intentionally produced HFSA available, called PURE HFSA. The product is made from pharmaceutical grade calcium fluoride, and as such contains up to 200x less heavy metal contaminants, with specified amounts under 1ppm. Since it is made intentionally it can also be made to be twice the strength (45-47%) compared to traditionally used HFSA, providing logistics and handling benefits.

In this presentation we will review the history of municipal water fluoridation in North America, Canada and specifically Alberta. We will review the impacts of these chemicals and heavy metals in the surrounding environments, and the innovation within this product line recently. We will review the economic impacts, environmental influences, and overall health benefits of PURE HFSA, which is changing the way municipalities are fluoridating, using examples of over 50 Canadian cities that have made the switch.

---

📣 Speaker



Doug Riddell Klearwater Equipment & Technologies

## Nobleford Lagoon Upgrade - Design, Construction and Maintenance of Facility Operations

🕒 2:15pm - 2:55pm, Mar 10

📍 Wastewater Treatment Session

### Wastewater Treatment Track

In 2010, the Town (then Village) of Nobleford (Town) retained MPE Engineering Ltd. (MPE) to complete a detailed review of the existing wastewater lagoon. The study outlined areas where the existing lagoon infrastructure was deficient in meeting the Alberta Environment and Parks (AEP) Standards and Guidelines. These included a lack of the appropriate number of anaerobic cells and insufficient retention time within the facultative and storage cells. An Upgrade to the sanitary trunk main that feeds the lagoon site was also recommended.

MPE facilitated the Town's grant funding application process, including attending Minister meetings with the Town to provide technical support for their application. In 2017, the Town was awarded a grant under the Alberta Municipal Water and Wastewater Program. Design efforts began in 2019 after the Town had secured the remaining funds to proceed with the project.

During design, it became evident that the project scope was significantly more involved than the original conceptual design that was developed in the 2010 study. The Town has undergone significant growth, meaning that initial sizing for new cell construction needed to be amended. Increased cost projections would make the project unpalatable for the Town, thus MPE's design team, working with the Town, petitioned AEP to allow for implementation of a phased approach. Phase 1, which was completed in 2020, would focus on treatment - including the construction of new anaerobic and facultative cells, providing the required retention time to meet AEP requirements. Phase 2 would focus on developing additional storage capacity. Further review of storage volumes, the current volume retained within the storage cell, and the lack of any need to perform a controlled discharge all supported deferring the storage upgrade.

Construction of the project began in late 2019 and carried on through 2020. The construction staging was critical to ensure adequate treatment was always provided.

This presentation reviews the project development with a focus on final design decisions and construction activities all done with an effort to maintain operations for the Town and ensure compliance with AEP requirements.

---

### 🗣️ Speakers



Andrew Kleisinger MPE Engineering



Logan Howes Town Of Nobleford

---

## Nisku Solids Separation Pilot Project

🕒 2:15pm - 2:55pm, Mar 10

📍 D&C Sessions

### Distribution & Collection Track

In 2018, a grab sample from the Leduc County sewer flushing program was in exceedance of Alberta Capital Region Wastewater Commission (ACRWC) and Leduc County bylaw maximum limits for multiple parameters. With the sample results in mind, Leduc County conducted a pilot project during the annual sewer flushing program utilizing solids separation tanks with the goal of meeting bylaw discharge requirements. This pilot project was also conducted with the goal to help mitigate the impact of undesirable solids on the sewer collection and treatment systems. A brief overview of the sewer flushing program for the Nisku Industrial Park and the 2018 violation will be touched on. We will be discussing the process of the solids separation pilot project in 2019 as well as the pilot project in 2020. We will discuss sample results, separation results, costs associated and recommendations for the future pilot project using separation tanks.

---

### 🗣️ Speaker



Melissa Pelletier Utilities Technician, Leduc County

## A Culture of Decision Making

🕒 2:15pm - 2:55pm, Mar 10

📍 Hot Topics Sessions

### Hot Topics Track

In operating large or multisite portfolios, there are significant resource constraints which result in limited or a misallocated application of financial and time investment; this in turn, provides either unanticipated or high risk results. I will guide session attendees through the process of developing a decision making model for initiative prioritization - whether it is capital works projects, maintenance activities, continuous improvement initiatives, or potentially the day to day routines already established.

We will begin with the journey of defining operational context in the view of the customer, the levels of service and focus areas for maintenance teams and capital teams. It becomes challenging with fiscal constraints, and the charge to implement continuous improvement often doesn't result in value; how do we prevent ourselves from reacting to the latest trend or quick solution? How do we identify everything that needs to happen vs everything we want to happen?

Understanding where you are is key in being able to define how you get to where you want to be. However, prioritizing the purpose of what you do is paramount to focus efforts on activities which add value to not only the organisation but the customer, and to form a strong culture of positive support for our people. The decision making model you use and the role as a facilitator amongst the varying stakeholders and opinions is key to achieving success.

---

### 🗣️ Speaker



Nigel D'Souza Manager of Facilities Services, Simcoe Muskoka Catholic District School Board

3:00pm

## Beyond Compliance Towards Operational Excellence: A Panel Discussion on Use Cases of VeloCens™

🕒 3:00pm - 3:45pm, Mar 10

📍 Water Treatment Session

### Water Treatment Track

Monitoring for Total Coliform and E.coli at the water treatment plant and in the drinking water distribution and storage system is required as part of a source-to-tap approach to produce drinking water safe for consumption. Similarly, monitoring of indicator bacteria in wastewater treatment plant effluent is legislated and levels must be regularly reported.

Moving beyond compliance towards operational excellence requires access to a "monitoring tool box" that goes beyond current standard laboratory microbiological water tests. New tools for routine monitoring of the biological stability of drinking water in distribution systems and E.coli measurement in wastewater treatment plant effluent are being developed and tested.

VeloCens™, developed by Roshan Water Solutions, is one such tool. As a portable system with consumable testing supplies, it can be used for rapid, on-site and on-demand microbiological

detection and enumeration in water samples. It enables operators to automatically log sample collection locations and time, and analyze and report test results within 1 hour. With 18 times faster access to results, critical decision making and treatment processes adjustments can be made in near real time. Also, with sample collection and test data stored in Roshan Water's secure data center, an organization's microbiological testing information is digitally available 24/7.

Through a moderated panel discussion with several of Roshan Water's field test partners, different use cases for on-demand microbiological indicator bacteria testing will be explored, thereby enabling municipal utility operators and wastewater management operators to implement best practises beyond compliance.

---

#### Speakers



**Amirreza Sohrabi** Roshan Water Solutions



**Cory Pepper** Operations Supervisor, Alberta Capital Region Wastewater Commission



**Jennifer Lypkie** Utilities Supervisor, Yellowhead County

---

#### Successful Attachments - Get More From What You Have

🕒 3:00pm - 3:45pm, Mar 10

📍 Wastewater Treatment Session

##### Wastewater Treatment Track

Mechanical wastewater treatment plants can be expensive to upgrade, especially with regard to secondary treatment (bioreactors and secondary clarification). The most common type of biological treatment in Alberta's mechanical WWTPs is 'suspended growth', which is the basis of activated sludge processes such as sequential batch reactors (SBRs) and biological nutrient removal (BNR) systems. These systems rely on sufficient 'sludge age' to achieve treatment goals, and nitrification to remove ammonia is typically by far the most limiting sludge age for the system.

The other type of mechanical biological treatment available is called 'attached growth', which is used by rotating biological contactors (RBCs), membrane aerated biofilm reactors (MABRs) and moving bed biofilm reactors (MBBRs). Attached growth systems don't care about sludge age because the organisms stay in the system for long periods of time attached to a surface.

What if you could get the best of both worlds by combining attached and suspended growth technologies? You can, and it's called integrated fixed film activated sludge (IFAS). IFAS can be easily retrofitted into existing suspended systems, often by simply adding material with the right kind of 'surface' into the existing bioreactor. This can significantly increase plant capacity at minimal cost and with no additional footprint or civil infrastructure requirements.

This presentation describes IFAS technology, including presenting case studies of Canadian WWTPs where it is currently operating. It describes the O&M requirements of IFAS in detail, which doesn't take long because there are hardly any!

---

#### Speaker



Chris Howorth

## Methodologies and Standards for Installing HDPE to Reduce Risk

🕒 3:00pm - 3:45pm, Mar 10

📍 D&C Sessions

Distribution & Collection Track

### 🗣️ Speaker



David Sparks

## Finding Silver Linings During Covid-19 Through Collaborative Virtual DCS Operator Training

🕒 3:00pm - 3:45pm, Mar 10

📍 Hot Topics Sessions

Hot Topics Track

The City of Calgary utilizes a DeltaV Distributed Control System at their Bonnybrook Wastewater Treatment Plant for the critical operation of every process area. The safety and process availability of the Bonnybrook plant depends largely on the operations department and it was identified in 2017 that an Operator Training System (OTS) would provide an affordable and effective training program for operations personnel. The current installation of the DeltaV OTS is based exactly on the Bonnybrook plant's DeltaV system hardware and infrastructure, utilizing virtualization.

Historically, Spartan Controls and the City of Calgary collaborate on developing detailed training scenarios for each process area at Bonnybrook and then software is used to run simulation logic for each of the training scenario cases and graphics screens are built for each process area. Now, with the challenges brought along by the global pandemic, the City of Calgary operations team needed to pivot to continue their successful operator training program by working with Spartan Controls to develop customized training to be hosted virtually.

This virtual training program has been so valuable, that the City is considering implementing lasting changes that could exist long after Covid-19 is in the rearview mirror. Consider joining this collaborative presentation by the City of Calgary and Spartan Controls to learn about the value of this new virtual training model.

### 🗣️ Speakers



Anupreet Thukral Automation Engineer, Spartan Controls



Sandra Kotch City Of Calgary

4:00pm

Thu, Mar 11, 2021

9:40am

### Drinking Water and Wastewater Prosecutions: Practical Tips for Operators to Ensure They Never Have to See a Prosecutor

🕒 9:40am - 10:30am, Mar 11

📍 Guest Speaker

**Special Presentation**

Far too many Alberta water and wastewater treatment operators have ended their long term careers working for municipalities sitting in criminal courtrooms. Too many water and wastewater treatment operators have incurred too much stress and headache as a result of being investigated and often fired, had to pay too much to criminal defence lawyers, spent too much time serving jail sentences (even if they can sometimes be served in the community instead of a real jail), and spent too much time reporting to probation officers for too long. So many of these people, never even sought to bear the heavy responsibilities of being a water or wastewater treatment operator when they applied to work for their local municipality. Sadly, for most of these people, their failures to follow the rules regarding environmental regulatory legislation resulted in their first and only time sitting in a criminal Court – all usually because they slacked off at their job and cut some corners. We will discuss:

1. the real world consequences that environmental offenders have had to face following being charged;
2. the dangers of accepting below standard work or fitting in with poor safety/environmental work culture because the same has always been okay in a given municipality;
3. what to expect and do when Environmental Protection Officers attend a worksite;
4. how water and wastewater treatment can potentially harm so many people so severely that even small breaches often result in prosecutions; and
5. the best ways to try to make sure that you never have to see a prosecutor.

---

🗣️ Speaker



**Craig Kallal** Environmental Prosecutor, Specialized Prosecutions Branch, Alberta Crown Prosecution Service

10:30am

### Community Resilience & Disaster Recovery

🕒 10:30am - 11:30am, Mar 11

📍 Guest Speaker

**Special Presentation**

In May 2016, the Regional Municipality of Wood Buffalo, Alberta experienced the largest natural disaster in Canadian History. The 2016 Horse River Wildfire forced the evacuation of 88,000 people, destroyed over 2,500 dwellings, and had an estimated combined direct and indirect monetary impact of \$8.9 billion. Our entire Region was affected. Our residents, businesses, and families struggled to understand the consequences and how to rebuild their lives. NOR-EX Engineering was contracted to lead and plan our Region's recovery from this unprecedented disaster. They provided direct leadership of the newly formed Municipal Recovery Task Force, a dedicated embedded recovery planning team, and expert disaster recovery knowledge and advice. Over a 13-month period, NOR-EX Engineering capably navigated the complexity of this unprecedented disaster recovery. They demonstrated exemplary collaboration with elected officials, senior public servants, and key regional and provincial stakeholders. They not only addressed the immediate and long-term consequences of the wildfire but actively promoted increased resiliency and build back better principles at the Regional level. NOR-EX's leadership, planning, policy advice, and critical thinking were instrumental to our Region's recovery from the 2016 Horse River Wildfire." ...  
Comments by Mayor Melissa Blake - Regional Municipality of Wood Buffalo

🗣️ Speaker



Dana Woodworth

11:30am

**Lunch & Trade Show - POWER HOUR**

🕒 11:30am - 12:30pm, Mar 11

📍 Virtual Trade Show

**Lunch - Trade Show - Power Hour**

Browse the Trade Show and win great prizes!

12:30pm

**Treatment Flexibility and Why it Matters: A Small Community WTP**

🕒 12:30pm - 1:10pm, Mar 11

📍 Water Treatment Session

**Water Treatment Track**

The Hamlet of Joussard, in Big Lakes County, is a growing community on the south shore of Lesser Slave Lake. M2

Engineering worked closely with the operations team in Big Lakes County to design a new water treatment plant to

serve the growing community and provide operator flexibility. The new water treatment plant finished construction in 2019 and provides a robust and resilient treatment system with treatment and production capacity

flexibility.

This presentation will examine the design and implementation of the new water treatment plant in the Hamlet of

Joussard. The presentation will review the challenges and successes of the project and provide examples of how

the engineering design team worked to provide a solution with flexibility to suite source water quality and community demands. An operating perspective will be shared from Big Lakes County operators.

Key topics to be discussed include:

· Treatment Technology Tools: the new water treatment plant was designed with flexibility to adjust various treatment systems to target the changing source water quality. Examples include: flexibility for enhanced coagulation, percentage of filtered effluent that flows through the RO membranes, and blending capability of

RO permeate and filter effluent.

· Plant Production Turn-Down Ratio: Jousard sees large water demand fluctuations between seasons. The new

water treatment plant was designed to allow systems to be turned off during winter months when water demands are reduced. This allows for systems to be cleaned and maintained during low flow months before

high demands return in the summer.

· Media Filters Paired with RO Membranes (compared to microfiltration membranes): the Jousard water treatment plant uses RO membranes for organics polishing downstream of a dual media filter. This is different

from a lot of RO plants that have microfiltration membranes upstream of the RO membranes. A conventional

water treatment plant upstream of the RO membranes offered the operators a level of familiarity with other

facilities in the County and reduced the overall complexity of the facility while offering the same level of treatment.

· Organics Removal Performance: a detailed jar testing program was conducted during conceptual design of the Jousard water treatment plant. Demonstration testing completed during construction has proven that that conventional treatment system is effectively removing a significant percentage of dissolved organics from

the water which has allowed for a higher blend ratio, reduced operating costs, and reduced water losses.

---

#### Speakers



Jackie Mykytiuk



Ian Willier Utilities Manager, Big Lakes County



Devin Prazak

### Johnston Canyon In-Situ Wastewater Treatment – Protecting the Park for Future Generations

🕒 12:30pm - 1:10pm, Mar 11

📍 Wastewater Treatment Session

#### Wastewater Treatment Track

The Johnston Canyon Campground in Banff National Park operates seasonally between May and September, and consists of 132 campsites, five washroom buildings, including two with showers, an operations kiosk and sanitary dump station. In 2018, Parks Canada began undertaking a major infrastructure upgrade project within the campground which along with replacing all underground utilities, included the complete replacement of the sanitary collection and wastewater treatment systems which

were known to be reaching the end of their useful lives and beginning to fail. As part of the overall project, the relocating of the operations kiosk and sanitary dump station provided the opportunity to eliminate their respective existing septic tank/leach pit installations and tie those sanitary services into the main campground systems to simplify operations. This had the consequence of increasing flow to the campground wastewater treatment system.

The design process was quickly complicated as a geotechnical investigation identified the in-situ soil conditions be very poor and it was discovered the assumed campground existing septic field had actually been replaced with a wood leach pit approximately 40 years ago. The issue with the soil conditions is fairly common in the mountains, where coarse soil conditions would at one time have been highly sought after for leach pit installations, but often do not meet even the minimum requirements for current soil based treatment requirements. Compounding the issue further, were Parks Canada's strict development boundaries and environmental considerations, the topography of the site, and significant existing infrastructure, which all significantly limited the options for wastewater treatment options. Furthermore, the relatively short campground operating season, and Parks Canada's limited operational capacity were other critical considerations in the design.

AE worked with Parks Canada through a detailed options analysis and decision making process and provided the detailed design for the final option chosen for the site. Despite the numerous advantages associated with mechanical systems, Parks Canada opted to use a soil based treatment system to simplify operations/operating costs and avoid treatment issues associated with seasonal start up and fluctuations in flow. An in-situ soil based treatment system is ideal for the campground as it requires minimal ongoing maintenance, is reliable, and is able to provide a consistently high level of treatment given the nuances of the site. Traditional in-situ wastewater treatment systems however require good soil characteristics and are typically relatively small in nature; the Johnston Canyon campground system is relatively large and built in an area with far from ideal ground conditions.

The presentation will discuss the nuances associated with replacing existing wastewater treatment systems with ones which meet the current provincial Standards of Practice, and the decision making and design process used specifically for the Johnston Canyon campground wastewater treatment system. This included exploring more advanced passive treatment systems, completing treatment of in-situ soils to make the site usable, as well as navigating the regulatory challenges of a system this size in federal jurisdiction.

---

### Speakers



**Anne Bridgman** Process Engineer, Associated Engineering



**Matthew Whalen** Technical Services Coordinator, Parks Canada Agency

## The History of Valve Insertion & Its Future

🕒 12:30pm - 1:10pm, Mar 11

📍 D&C Sessions

### Distribution & Collection Track

With aging infrastructure, there are bypassing and inoperable valves located in key municipal infrastructure. Live valve insertions to avoid shutdown and minimize risk is becoming a necessity throughout North America.

Historically, the common method of temporarily isolating a pipe by means of linstopping and cutting in a traditional valve was the most viable option. While linstopping is a practical solution in some situations and the only solution for large diameter piping, valve inserts are taking over. With the evolution of technology and ease of installation, limited excavation costs, along with not having the "zero" flow

requirement as with line stopping, valve inserts are the wave of the future.

Deciding which valve insert is right for your system can be a daunting task. With four valve insertion manufacturers on the market and within them offering different methodologies, and another one coming this spring there will be up to ten very different valve inserts to choose from.

We would like to take you on a guided tour through all the different valve inserts available. We'll discuss the

1. methodology of a Valve Insert and how it works
2. history and conception of the Valve Insert
3. differences between the installation methods and how it may affect your infrastructure
4. valves themselves and the differences between them / pros and cons of each one
5. industry misconceptions and concerns

At the end of the presentation, you will have a good understanding of what a valve insert is, as well as be able to make your own informed decision on which valve insert is right for your infrastructure needs.

---

#### Speaker



**Brandon Pater** Pacific Flow Control Ltd

### The Softer Side of Asset Management – Level of Service and Risk

🕒 12:30pm - 1:10pm, Mar 11

📍 Hot Topics Sessions

#### Hot Topics Track

Asset Management can be a very technical exercise. Inventories of assets. Conditions of assets. Degradation curves to predict failure. It all appears very well organized and logical. When you pull the curtain back, however, it can be anything but regimented – in fact, it is the subjective decisions that can have the most impact on costs.

Individual governance decisions on what Levels of Service to offer to your community and stakeholders can have significant impacts on both short- and long-term costs. These decisions can have far reaching influences on what Risks face the organization. These outcomes are intertwined and influence each other – and are often the most difficult to impress on our elected officials.

This presentation will cover how a water utility can view and describe its services using a structured approach recognizing the Strategic, Technical and Operational dimensions. Furthermore, we will cover how as a utility operator you can begin to describe your Level of Service Activities (along a spectrum) using objective descriptors connected to residual Risk and short term costs. Using this method, a utility operator can ensure that they are supporting their elected officials with a range of options that allow them to intentionally set a level of Service, acknowledge residual risk, and understand the resultant cost.

Finally, with the Levels of Service and Activities documented, we will outline an approach that operators can follow to begin to tell the story about how they are efficiently operating their system and be able to do that in a transparent and meaningful way.

---

#### Speaker



**Dorian Wandzura** Senior Advisor, Stantec

1:15pm

## Optimizing the Filter Ripening Period

🕒 1:15pm - 1:55pm, Mar 11

📍 Water Treatment Session

Water Treatment Track

Filter Operators are well aware that after restarting a backwashed filter there is a period of elevated turbidity or particle counts. The duration of the elevated turbidity or particle counts is commonly known as the filter ripening period. The duration of the filter ripening period can vary from a few minutes to a few hours.

Addressing, understanding and optimizing filter ripening is very important as, according to AWWA research, the filter ripening period can be responsible for more than 90% of particles passing through a filter during a filter run.

This presentation will discuss the following:

- Why is there a turbidity or particle count spike when a filter is restarted after backwashing?
- Does the duration of the turbidity or particle count spike vary between water treatment plants?
- What can be done to shorten the duration of the 'filter ripening' period?
- What is Extended Terminal Subfluidization Wash (ETSW)?

This presentation will be based on data and observations collected from numerous filter audits and pilot filter studies.

---

🗣️ Speaker



David Hambley AWI (Anthratech Western Inc.)

## Developing Biogas Emergency Response Training During a Pandemic

🕒 1:15pm - 1:55pm, Mar 11

📍 Wastewater Treatment Session

Wastewater Treatment Track

Gas Room 1 at Gold Bar WWTP was constructed in 1985 and alone accounts for 77% of the estimated fire and explosion risk on-site. In July 2017, there was a biogas release incident in Gas Room 1. An investigation was conducted, and to address safety concerns, operational and engineered changes were implemented immediately. When I took the position of training coordinator in October 2019, I was tasked with mitigating remaining safety risks via training, and I started working with a technical trainer to develop a course called Emergency Gas Room Entry. This new course would teach operators how to reduce the risks associated with responding to biogas releases in both Gas Room 1 and 2 by following an updated Emergency Response Plan, and also set the stage for evaluation of true operator competency in this topic. In 2020, COVID concerns paused course development, and progress on two new capital projects at Gold Bar related to the biogas system and the decommissioning of Gas Room 1 looked to render our new training course obsolete. However, due to uncertain circumstances surrounding the capital project implementation scope and timeline and receiving approval to return to work on-site again in June, work on the course development continued. Course development and pilot testing with various stakeholders were completed by the end of October, but complete roll-out to shift operators is TBD due to new restrictions. This presentation will discuss the biogas release incident, Emergency Response Plan, Emergency Gas Room Entry course, and projects to replace Gas Room 1. It will also explain why the course and the development of competency-based training is still valuable for operators, despite the eventual Gas Room 1 replacement.

---

🗣️ Speaker



Dagny Sanche Operations Training Coordinator, EPCOR

## Rural Water Co-ops in Alberta

🕒 1:15pm - 1:55pm, Mar 11

📍 D&C Sessions

### Distribution & Collection Track

In 2020 rural water coops were surveyed in order to identify the issues facing water coops in Alberta.

The Alberta Federation of Rural Water Coops Ltd. (AFRWC) serves over 100 of the 170 cooperatives in the Province. The AFRWC's objective is to advocate on behalf of its members for reliable supply of safe drinking water for domestic use, as well as agricultural needs, a reasonable price.

The survey results were enlightening and provide a current picture of the issues that rural water coops are facing:

- While rural water co-ops are diverse, short planning horizons of most co-ops means many are equipped to handle the imminent integrity risks of aging facilities.
- Rates in small systems are difficult to compare. There is disparity in rate design. The importance of valuing volunteer hours in cost analysis is needed to bridge gaps in rate comparisons.
- One size doesn't fit all. Survey data, be it from sourced or purchased water systems, and the number of connections needs to be considered in pending updates to Drinking Water Guidelines for "small systems."

Some of the most insightful and colorful learnings are in the candid "other comments" feedback from members. Recommendations for next steps for Coops will be tabled.

Insights learned from this survey of rural water coops will be useful to both water coops and other small system operators including small towns, hamlets, rural municipalities, provincial and national park campgrounds and other non-municipal regulated water systems.

---

### 🗣️ Speakers



Jordan Hollman Postdoctoral Researcher, University of Calgary



Gary Houston

## Inflow and Infiltration Monitoring of an Industrial/Business Park in Leduc County

🕒 1:15pm - 1:55pm, Mar 11

📍 Hot Topics Sessions

### Hot Topics Track

Leduc County and WSP undertook an Inflow and Infiltration (I/I) monitoring program for the 2019 and 2020 seasons for the industrial/business park hamlet of Nisku. The program sought to determine the magnitude of I/I within the basin, characterize the sources, and develop mitigative solutions. Managing I/I in a large scale industrial context presents interesting challenges and opportunities as compared to the residential context. Additionally, prairie climatological characteristics presents challenges for the operation of a monitoring program. This presentation will cover both the operational and technical aspects of the I/I program.

## 📣 Speakers



**Joshua Maxwell** Team Lead, Water Resources, Municipal Engineering, Infrastructure, WSP Canada Inc.



**Erin Gallagher** Leduc County

## 1:55pm

### Break Time

🕒 1:55pm - 2:15pm, Mar 11

📍 Break

**Break**

## 2:15pm

### The Digital Plant - Change the Way You Run Your Plant

🕒 2:15pm - 2:55pm, Mar 11

📍 Water Treatment Session

**Water Treatment Track**

As industry moves to the digital age, we in the water and wastewater industry need to follow the trend. Our industry has been slow to change in many aspects:

Data – We need to look past the process variable.

Data – Is our data secure?

Data – Is our data correct?

Data – Are we ready to use the cloud?

Maintenance – Do maintenance when it is really needed, not just for the fun factor

Maintenance – Can we make it safer?

Maintenance – Can we make it cheaper?

Maintenance – Can we do it remotely?

Planning – Can we plan for the future with what we are buying today?

Planning – Can we make it simpler?

This workshop will take a look at how modern instrumentation can address the topics mentioned above. We will discuss the data available from the field instruments and how we can collect it, confirm it and use it to change the way we do business. We will talk about the change to digital communication, advantages and challenges.

We will look at how new instruments can help us with our maintenance challenges. We will show some real-world examples of “condition-based maintenance” vs time-based maintenance. We will discuss the movement towards remote monitoring and troubleshooting of instrumentation and how we can make maintenance cheaper.

As we move towards the digital plant we need to plan for our journey into the future. We will discuss the idea of the digital world vs the older analog world. As we all know, once we move to a digital platform we may limit our options for instruments and software. Everyone with a Smartphone knows this, “do I go Android or IOs?”. We will discuss how manufacturers are looking to move from proprietary software to more open platforms.

During this workshop, we will also look at the use of the “cloud” for data collection, information gathering and process optimization. This will be a good change for participants to discuss “what IIoT (internet of things) means to them and their operations and business. Are we ready to maybe skip the traditional

methods of getting information from instruments (4-20 mA to PLC to SCADA), and go directly for instruments to the cloud and then into SCADA?

The goal of the workshop will be to examine new instrumentation technologies available to the industry, discuss how we can use these advances and have an open dialogue about the future.

---

🔊 Speaker



Dean Rudd Endress+Hauser Canada Ltd

---

### Maximizing WW Lagoon Performance with Bioaugmentation

🕒 2:15pm - 2:55pm, Mar 11

📍 Wastewater Treatment Session

Wastewater Treatment Track

Many prairie communities rely on lagoon systems to treat their wastewater so it can be safely released into the environment. If functioning properly, these systems deliver treated water that meets all regulatory standards that will not negatively impact the receiving watershed.

Over time a number of factors can impact the efficiency of lagoon systems, including:

- population growth beyond the designed capacity of the system
- changed inputs due to the addition of industry that increase the nutrients in the influent entering the system
- difficulty maintaining microbial communities in the cells due to increased prevalence of sanitizer (quats, bleach, etc) in residential, commercial and industrial wastewater
- accumulation of organic sedimentation in lagoon cells leading to lower cell volumes and reduced treatment capacity

Through pretreatment in collection systems and lift stations and direct treatment in lagoon cells, the efficiency of the over system can be greatly improved. The utilization of probiotics (live bacterial cultures) and biocatalysts (enzymes & micronutrients that improve microbial performance) can optimize the performance

of lagoon systems resulting in:

- improved nitrification
- reduction in BOD and TSS
- a decrease in algal blooms
- reduction in exiting sludge levels and future slide accumulation rates
- improved overall effluent quality

This presentation will demonstrate how operators can while reducing the frequency of costly mechanical sludge removal and reduce the risk of noncompliance with regulatory requirements.

---

🔊 Speaker



Dennis Greenhow Business Development Manager - Wastewater, Algae Control Canada

---

### Diagnose-Advise-Treat. A Process to Rehabilitate Manholes

🕒 2:15pm - 2:55pm, Mar 11

📍 D&C Sessions

Distribution & Collection Track

Across the Country, manholes are aging and deteriorating at a rapid rate. Left unrepaired, at street level

these manholes can cause safety concerns, vehicle damage, and potentially expensive and inconvenient replacement efforts. Below ground, damaged manholes can dilute sewage, increase sewage volumes, back up sewage and make wastewater treatments more inefficient. Bottom line, although an unseen asset from a public perspective the deteriorating manholes below play a very important role in ensuring the system remains operational.

The challenge for municipalities is the selection of the appropriate rehabilitation method based on the specific needs of the asset weighing in the consequences of doing something versus doing nothing.

To simplify the selection of the appropriate manhole rehabilitation method this presentation will break down the process into three categories, Diagnose, Advise and Treat (D.A.T.).

A diagnosis of the problem needs to be defined. Is the problem a; structural behaviour (requiring an increase of structural capacity), hydraulic behaviour (requiring flow enhancement or infiltration abatement) or environmental behaviour (reduction of exfiltration of sewage to adjacent ground).

With the selection of the appropriate behaviour leads to advise; do we Repair, Renovate or Replace. In the following sections, each family of techniques is briefly described including an overview of the main characteristics, conditions of application, advantages and disadvantages, and relevant standards.

Repair consists in the rectification of local anomalies (point repair).

- 🔧 Repair by injection polyurethanes.
- 🔧 Repair by applying trowelled material.
- 🔧 Repair with internal mechanical devices.
- 🔧 Repair with adjustable grade rings, sealed manhole frame and covers.

Renovate consists of in situ manhole repair (placing a pipe within a pipe).

- 🔧 Lining with polymers, SIPP.
- 🔧 Lining with cementitious products, CCCP.
- 🔧 Lining with Cured in Place, CIPP.

Replace involves the construction of a new manhole (rip out and replace).

- 🔧 Open cut construction.

Treatment, selecting the right contractor or internal municipal crew with the history and skills required to complete the project safely, on time and on budget.

---

## 🗣️ Speakers



**Glenn Votkin** infraStruct Products and Services



**Dan Leger** infraStruct Products and Services

## Managing Stormwater Reservoirs to Improve Water Quality and Reduce Resident Complaints

🕒 2:15pm - 2:55pm, Mar 11

📍 Hot Topics Sessions

**Hot Topics Track**

Stormwater reservoirs can be troublesome for municipal employees tasked with their management. Stormwater ponds are primarily designed to reduce flooding by retaining water and slowing flow into receiving watersheds. A secondary purpose is to act as a nutrient sink. But residents often believe that stormwater ponds are primarily designed as water features in their communities.

Most residents have the expectation that their stormwater pond should function more like a lake and less like a wetland. But source water inputs are often nutrient-rich and can contain other contaminants that, over time, lead to chronic poor water quality. Unsightly algae and duckweed blooms and the smell of organic decomposition usually top the list of resident complaints.

The nutrient sequestration capacity of stormwater reservoirs is finite. What were initially intended as flood mitigation tools and nutrient sinks often ends up as a net contributor of nutrients to receiving waterways and lakes. Restoration of these water bodies to their original status can involve costly mechanical dredging. Strategies and tools to improve stormwater function and reduce resident complaints exist. In this presentation, Ray will discuss some of the more effective options available to stormwater managers and how to determine which ones are appropriate in each specific situation.

---

 Speaker



Ray Menard Algae Control Canada

3:00pm

### Filtralite - Expanded Clay Media

🕒 3:00pm - 3:45pm, Mar 11

📍 Water Treatment Session

Water Treatment Track

Ceramic filter medias are made from expanded clay to create engineered structures that offer significant long-term benefits over conventional media such as sand and anthracite. Ceramic medias have a much higher porosity which will extend run lengths, reduce backwash volumes, increase filter flux rates, and improve the overall performance of your water or wastewater facility.

Ceramic filter medias can be visualized as small hard pieces of open ceramic sponge, full of internal pores of different sizes. The open structure provides an exceptionally high porosity compared to conventional filter-media with superior capacity for solids capture. Solids are trapped in the pores, while water can pass straight through the body of the media particle. The result is that ceramic medias have a much lower initial head loss than sand and anthracite as well as a slower head loss build-up. The flow and volumes needed for backwashing are reduced due to the low specific weight. Replacing traditional media with ceramic significantly increases filter loading/flow rates while maintaining turbidity limits and water quality. The pores of Filtralite are smaller than the spaces between sand grains so the media also traps cyanobacteria and reduces the number of small particles escaping the filters by a factor of ten or more.

Ceramic media is applicable in all instances where sand or anthracite is used in potable, industrial or wastewater applications. It is a direct replacement of the existing media, without any additional engineering or capital cost. In other words, you do not have to change underdrains or other structural components. In new builds, utilization of ceramic media can reduce filter footprints by 30 - 50%.

In short, Ceramic medias are a simple, incredibly durable, low-risk technology that can save large volumes of water, increase plant capacity, and are NSF 61 certified for potable water production.

---

 Speaker



Kelsi Holzer

### Aerobic Granular Sludge - Innovative Wastewater Treatment Solution

🕒 3:00pm - 3:45pm, Mar 11

📍 Wastewater Treatment Session

Wastewater Treatment Track

A research partnership in the Netherlands led to the development of the first technology to apply aerobic granular sludge (AGS) in a full-scale wastewater treatment plant. With more than 15 years of international operational experience, there are now nearly 80 full-scale AGS plants in operation or under construction worldwide.

The AGS system inherently creates proper conditions to develop and maintain a stable granule population. The process does so without the use of external carriers; instead, the granule backbone is formed by the EPS biopolymer produced by bacteria present in the sludge. The granules enable the system to better withstand toxic shocks and fluctuations compared to conventional systems.

A layered microbial community develops around the granule structure enabling multiple treatment processes to occur within the granular biomass simultaneously. These include enhanced biological phosphorus removal as well as simultaneous nitrification/denitrification allowing plants to meet biological nutrient removal (BNR) standards. The granule backbone is also resilient against upsets allowing for a quicker return to normal microbial activity following an event.

Due to the characteristics of the granular biomass and enhanced settling properties of AGS, the system can be designed to operate at a MLSS concentration of 8 g/L. This contributes to a significantly shorter settling time. Because all treatment processes and clarification occur within a single tank, there is no need for secondary clarifiers, selectors, separate compartments, or return sludge pumping stations. This all contributes to a compact and efficient biological treatment process.

AGS is an ideal technology for wastewater treatment plants in North America looking to increase capacity, retrofit or upgrade existing plants, expand with a limited footprint, and/or achieve BNR. To validate the technology in North America, a full-scale demonstration facility has been in operation and multiple pilots commissioned across the U.S. since 2018. The first commercial installation in North America began operation in January 2020 in Foley, AL.

This presentation will cover the advantages of the aerobic granular sludge technology and provide performance data from various plants, including the demonstration facility in Rockford, IL and the Wolf Creek WWTP.

---

 Speaker



**Paula Dorn** Process Engineer, Aqua-Aerobic Systems, Inc.

### Radars for Lift Stations

🕒 3:00pm - 3:45pm, Mar 11

📍 D&C Sessions

**Distribution & Collection Track**

Lift stations are an integral part of an underground collection system designed to bring wastewater from all constituents served within a municipality to the wastewater treatment plant. Lift stations are used to raise the wastewater, usually multiple times, during its route to the WWTP.

Utilizing multiple pumps means additional wear and maintenance if the control of the pumps is not done effectively including run dry protection. This requires not only a suitable control scheme but also an effective level measuring device that can continuously measure even in the presence of fats, oils and greases commonly known as FOG. Other factors affecting the measurement are foam from soaps and cleansers, along with the buildup of sediment and grit.

Attendees will walk away with new information to help them solve the problems mentioned above utilizing cost effective non-contacting radar. They will also be provided with information regarding installation methods and simple diagnostics to verify the sensor is performing correctly. Stand alone controllers will also be presented to provide the latest technology used for pump control and usage trending.

---

 Speaker



Steve McCuskey Municipal Industry Manager – North America, VEGA Americas

## Wastewater Surveillance - Testing for Covid 19 in Sewage

🕒 3:00pm - 3:45pm, Mar 11

📍 Hot Topics Sessions

### Hot Topics Track

WTS Rentals, a division of Centurion CRS, in partnership with Discovery DNA, looks forward to sharing with AOWWOA seminar attendees our wastewater surveillance initiative used for detecting the SARS-CoV-2 virus (Covid-19) in raw sewage.

Our presentation will give an overview of wastewater surveillance including: how it has been used in the past and why it is being used for detecting Covid-19. This will be followed by a summary of the recent findings analyzed from an Alberta municipality and a remote work camp. We conclude that community level wastewater surveillance testing is an important compliment to the symptomatic and 'close contact' testing currently taking place in Alberta.

### 🗣️ Speakers



Martin Sellar Voll



Dr. Dustin Hittel

Fri, Mar 12, 2021

9:30am

## AWWOA Incident Safety Awareness Workshop

🕒 9:30am - 12:30pm, Mar 12

📍 Friday Workshop

### Special Presentation

AWWOA in collaboration with the Regional Municipality of Wood Buffalo have developed this three-hour workshop to educate water & wastewater industry on the hazards of chemical handling in our industry. The workshop will review and share insights into an incident that occurred at the RMWB water Treatment Plant. The lessons learned from this incident will assist operators in all areas of the water and wastewater industry have a better understanding of their legal obligations to prepare, prevent, report, and apply timely corrective actions.

#### **Part I Outline** (90 minutes)

##### **Incident Re-cap and Review**

Regional Municipality of Wood Buffalo Presentation

##### **Leading up to the Incident (15 min):**

Work environment/ location

Work task description

Related procedures, risk assessment information and staff competency

Safety related items: i.e Personal Protection Equipment, Safety Data Sheets etc...

##### **Incident Description (20 min):**

Description of how the incident occurred

Incident impacts: i.e. personnel, plant, environment etc...

**Incident Response (25 min):**

Steps taken to contain/ mitigate incident

Emergency response actions and procedures

Testing performed

Steps taken to communicate incident

Regulatory reporting and follow-up

**Incident Debrief (30 min):**

Outcomes and review process

Lessons learned:

-Additional staff training, awareness and competency

-Procedural changes made to prevent future occurrences

-Updates to the Water Safety Plans

**Part II Outline (90 minutes)**

**Risk Assessment and Incident Prevention**

AWWOA Presentation

**Introduction (15 min):**

Incident video

Properties and exposure limits of Chlorine Gas

Purpose of the presentation

**Risk Assessment (25 min):**

Describing what risk is

Using a risk matrix to determine risk levels (probability X consequence)

Risk identification and risk categories

Risk register as a tool to record risk

Risk control strategy including corrective actions (SMART)

Risk management plan

**Hazard Assessment (25 min):**

Hazard assessment legislation

Types of hazard assessments (formal, work scope and field level)

Conducting a Job Hazard Analysis (JHA)

**Controls to Manage Risks and the Prevention of Incidents (25 min):**

Training and competency

Checklists for critical tasks

Safe work procedures

Contractor management

Incident investigations