

# OPERATOR DIGEST

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Quarterly Magazine of the  
Environmental Operators  
Certification Program—BC/Yukon



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# OPERATOR DIGEST

The Operator Digest is the official magazine of the Environmental Operators Certification Program.

Submissions for publication in the Digest are welcome. Please email them to the EOCP office at [eocp@eocp.ca](mailto:eocp@eocp.ca)

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## OPERATOR PROFILE

**Tina Henderson, CWP, CWWP**



### How did you become an Operator?

Previously to water treatment, I attended Northern Lights College and graduated with my Power Engineering and Gas Processing Diploma. I worked in the Oil and Gas sector as a gas plant and field operator for 10 years. Thankfully, many of the skills I obtained easily transferred into the water and wastewater treatment industry as pipes, pumps, compressors, blowers, valves, and SCADA are all the same, just the contents in which you process are different. After years of working in sour gas processing facilities in North BC, I left the oil and gas industry for health reasons and to start a family. After 7 years as a homemaker, in my late 30s, I wanted to reenter the workforce but needed a different path for work-life balance. With my previous experience and education, I was given an opportunity to run an Alpha Laval Centrifuge at a large city's level 3 Water Treatment and level 4 Wastewater Treatment Plant, of which I had zero experience. I think my ability to remain calm under pressure, use critical thinking, and my mechanical aptitude allowed me to excel in this important position and launched me into a water treatment career. I do wonder why new operators were started in that position, as it certainly was one of the most important processes in keeping both facilities operating, I embraced the challenge. I guess you either sink or swim, lol.

### How long have you been an Operator?

I've been a Water Treatment Operator for 13 years and I enjoy going to work every day. I work with an amazingly

collaborative, honest and fun team and we are all dedicated to providing the best for our community and the environment. I feel fortunate to have experienced various types of water and wastewater treatment, collection, and distribution systems all over BC and Alberta which has enabled me to gain valuable hands-on experience.

### What are your core functions?

I am still fairly new working with the City of Fort St. John, I'm finally getting settled into the normal job routine as a Water and Wastewater Lead Hand. I had many obligations to complete in Health and Safety, as well as obtaining my Backflow Tester Certification before stepping in and leading the treatment team. Now that is complete and although I am not the Senior Treatment Supervisor, I have some similar job functions and responsibilities.

### What is your typical day?

My typical day usually starts with the Treatment team talking about the expected day ahead. I supervise a small but mighty crew of five, in which I assign daily duties, offer assistance to anyone who may need it for that day, work with the OIT's and their training program and assist the metering department with their needs. I work with contractors providing orientations, discussing job plans and services.

With my Senior Supervisor, I assist in planning and preparing for upcoming projects and scheduled routine maintenance. I am involved in all aspects of treatment and maintenance throughout our water and wastewater system. We do most of our own



maintenance, I could be helping replace a belt on a blower at the lagoons, checking levels and adding chemicals to day tanks, adjusting flows on SCADA, doing preventative maintenance, laboratory duties, and housekeeping.

### **What do you most enjoy about the work?**

I absolutely love working in this specialized field and I could seriously talk about water treatment all day. Knowledge is key and I enjoy educating and answering, especially the public, their water quality and treatment questions.

Over the years I have gained more and more passion for my work, and feel very fortunate to be able to use my knowledge in helping smaller rural and local First Nation communities with their water treatment, either as a simple cover for shortage of staff, troubleshooting or treatment processes. The learning never stops, it truly is endless.

### **What are some challenges you face?**

Change, I find is the biggest challenge in any department or treatment plant. Especially here in BC as the treatment plants are rapidly evolving to improve source water protection and to meet stricter environmental guidelines. Also, population and consumption are increasing, wildfires are on the increase, and source waters are not, we have to be prepared to adjust at all times. Expect the unexpected. Innovation needs to be embraced and we need to give the public a better understanding of their community source water, the treatment systems, and their operating requirements to help conserve and protect our natural resources.

### **Can you speak of a highlight in the past year?**

Highlights of the last year for me would be starting a rewarding leadership role on an amazing team with the City of Fort St. John and obtaining my Backflow Assembly Tester Certification. I also passed my level IV Water Treatment examination after many years of work experience and courses, I am extremely honored to be an Operator Profile for EOCP Digest.

### **What advice do you have on how to have a successful Career as an Operator?**

Engage with colleges, network, and attend courses and conferences. Stay up to date with current technology, and visit other plants as much as possible. Volunteer to help other communities in need, stay humble, and STUDY!

These all have been invaluable to me too as an Operator working towards progressing in my certifications, there is an abundant

amount of equipment, processes, treatment, safety, and regulations that you need to have advanced knowledge of to reach higher levels. The struggle will be real, find your water community and engage.

### **What do you do when you're not working?**

When I'm not working, I'm raising two teenagers and enjoying all the fun stuff that goes with that. Their activities take up most of my time at the moment, but I know that won't last forever. I also volunteer at Taylor Speedway, the local racetrack as the Pit Boss. My son enjoys racing his mini stock and the racing community has helped me greatly to find a way for him to participate and be successful. I've always taught my children to give back to their community because truly, it is an extension of your family. I have my class one driver's license, I enjoy driving large trucks, so I moonlight with a bit of that. I am continuously studying and taking courses, I also enjoy the gym and travel.

### **What else can you tell us about working as an Environmental Operator?**

For me, it has been a very rewarding career. I am well able to support my family, and am grateful that I was able to find a passion within my employment. An Operator in a smaller city is the Jack of all Trades plus chemists, janitors, critical thinkers, and problem solvers. We do many duties of other skilled trades and we can sometimes feel overwhelmed, but the knowledge you will gain is priceless. Remember the easy days are ok but embrace the hard days because that is when the learning is done. I've been fortunate to have been able to obtain hands-on experience in many different water treatment facilities with various processes, within municipal, private, and contractor job scopes. Sometimes it is difficult as an Operator to obtain knowledge of multi-processes and

functions to advance in certifications, but connect by networking, visiting other treatment plants, and taking courses. It does take time, mental grit, and dedication, but you are of highest value to your community especially when emergencies strike. We are undercover first responders with a vital contribution to our communities, holding an expertise that is easily criticized by many, but truly only known by few.

### **Whom would you recognize as a mentor?**

I feel fortunate to have been able to acquire knowledge and experience from many of the Operators that I have worked with over the years. I believe you can learn something from everyone, but some truly want the best for you. When I started in this field 13 years ago, my manager at the time, Doug Renwick, was certainly one who took the time to teach me, not just how to navigate through the treatment process, but also the impacts of quality leadership, relationships, and the perceptions of others. I still reflect on many of the pep talks.

Kevin Sutter is a very experienced Level IV Water Treatment Operator who I can count on for knowledge in any treatment situation, at any time. I have always appreciated his candor and the fact I can ask him the dumb questions and not feel silly, lol.

### **Anything else you would like to add?**

Don't be afraid to ask questions and don't be afraid of failure, they are both ok. Learn from it all and you will find that most water treatment operators are passionate and eager to share their experiences and knowledge. Involve yourself in health and safety, embrace innovation, search for logical resolutions, and work with integrity. Remember, always do your due diligence; it's your duty to protect public health and safety and to safeguard against negligent environmental impacts on life's most natural resource.



# MESSAGE FROM THE CEO



I am Roger Nopper, the new Chief Executive Officer of the EOCP. I am blessed to be working with an excellent Board of Directors and experienced staff, in an industry that is so vital to the well-being and health of BC residents.

I have been in the position for about two months now, as of the date of publication of the Operator Digest. It has been an interesting time familiarizing myself with the organization, Board, staff and stakeholders.

Since beginning my position, I have been involved in updating the EOCP Employee, Financial, Governance, Communications, Marketing and Branding policies; meeting and building relationship with our stakeholder organizations such as WPI, BCWWA, CWWA; working through the projects that the Board has assigned to me: Membership Survey, CRM Upgrades, IT resources, stakeholder relationships, developing a new format for facilities identification and education requirements for certification.

The EOCP staff: Kim Eames (Director of Operations), Stephanie Hall (Exam Specialist), Heather Reynolds (Administrative Specialist), and Jenni Green (Technical Specialist) have been working diligently for the EOCP. As the workload has increased for the Team, we are seeking to hire a qualified candidate for an Administrative Support position. Also, we are currently evaluating whether we need support in other areas such as event management, public relations and marketing.

The EOCP was well represented at the Water Professional International (WPI) conference held in New Orleans 14-17 January. EOCP Board Chair Natasha Cvenkel, Director of Operations Kim Eames and I attended the Conference. EOCP Director Mike Firlotte became the incoming Board Chair of the WPI, EOCP and WPI Director Rob Fleming was also in attendance at the conference. I wish to congratulate Mike Firlotte on becoming the new Board Chair of the WPI. It is exciting to see our two organizations working so closely together for the betterment and benefit of the profession.

One of the main themes of the conference was how Artificial Intelligence (AI) could have an impact on industry and profession. AI is becoming more and more advanced in its capabilities, and how can we use this technology to further enhance the EOCP administration and operations in support of membership.

Another major announcement at the conference was the introduction and rollout of new WPI exams and scoring/scaling methodologies to more accurately reflect the knowledge, math and skills requirements for each exam.

As we begin the new year, my objectives are:

- To develop the new Strategic and Operational Plans for 2026-2030, in consultation with the Board, team and other stakeholders.



## Public Works Association of BC

### Women in Public Works

Friday, March 7, 2025

REGISTER:

<https://pwabc.ca/event/women-in-public-works-2025/>

In honor of International Women's Day, join us for a dynamic event focused on accelerating action and empowering women in public works. This year's theme, Accelerate Action, celebrates the bold women leading the charge in infrastructure, engineering, construction, and community development worldwide. Together, we'll explore how women are breaking barriers, driving innovation, and creating lasting change in public works.

Whether you're an industry professional or an advocate for gender equality, this event offers a unique opportunity to connect, learn, and amplify the voices of women who are shaping the future of our communities. Come be part of the conversation and help pave the way for a more inclusive and resilient tomorrow!



- To review several CRM tools to improve the usability and service to membership. We have had several demonstrations on several tools that are available.
- To create an outreach program to introduce and increase the profile of the EOCP and the profession and industry to students, newcomers, indigenous and other interested individuals who wish to explore the opportunities available.
- To increase the membership of the EOCP by reaching out to the communities and facilities that should be certified and have certified members operating them.
- To build and maintain good working relationships with other industry organizations, government departments and stakeholders.
- To identify and propose alternate business streams
- To work with the team to organize the annual AGM and operators' conference.
- To advocate for the EOCP in different public and private sectors arenas.
- To ensure that my team has the necessary knowledge, skills and training to do their jobs effectively and expand their career opportunities.
- To provide advice and recommendations to the Board of Directors on their strategic directions for the EOCP.

We have launched the membership survey and look forward to analyzing the results to improve the EOCP service delivery and support to our membership. On a side note, the BC Government has recently announced funding for the Community of Merritt wastewater treatment plant.

"Safeguarding the wastewater treatment plant in Merritt and upgrading the Voght Street flood-mitigation pumping station. The pumping station will feature backflow prevention technology to help manage high river flows and protect the community from flooding."

Emergency Preparedness Fund (CEPF) through the Disaster Risk Reduction-Climate Adaptation (DRR-CA) stream.

Please be aware of the EOCP Conference in September 2025, in Richmond BC.



**Roger Nopper**  
CEO



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## DETAILED SUMMARY OF THE BC DRINKING WATER ANNUAL REPORT 2022-2023

### Introduction

The Annual Report of Activities under the Drinking Water Protection Act (DWPA) in British Columbia (BC) for the fiscal year 2022-2023 provides a comprehensive overview of the province's efforts to ensure the safety and quality of drinking water. This report is a regulatory requirement under Section 4.1 of the DWPA, mandating the Provincial Health Officer (PHO) to summarize key activities, trends, and challenges related to drinking water protection across BC.

This report marks the first edition using a new simplified reporting framework, introduced to provide clearer insights into drinking water governance, compliance, monitoring, and enforcement. The report is part of an ongoing effort to improve transparency and align drinking water protection measures with the Declaration on the Rights of Indigenous Peoples Act (DRIPA), ensuring greater Indigenous participation and recognition of water rights.

Key stakeholders involved in this report include:

- Provincial Health Officer (PHO)
- Regional Health Authorities
- Ministry of Health (HLTH)
- Ministry of Water, Land, and Resource Stewardship (WLRS)
- BC Centre for Disease Control (BCCDC)
- Environmental Operators Certification Program (EOCP)

The 2022-2023 report highlights significant progress, persistent challenges, and ongoing efforts in monitoring, compliance, emergency preparedness, water quality testing, advisory management, and Indigenous water governance. Additionally, it sheds light on the climate change impact on water systems, emerging contaminants, and the need for enhanced workforce capacity and data collection infrastructure.

### Overview of Water Systems in British Columbia

BC's drinking water systems are categorized based on their size and operational complexity. The report distinguishes between small and large water systems, as well as bulk water haulers that provide potable water delivery.



### Key Statistics:

- The number of permitted drinking water supply systems under the DWPA increased from 4,968 in 2021/22 to 5,240 in 2022/23.
- 93% of these systems are classified as small water systems, but the majority of BC residents rely on large local government-managed water systems.
- The largest number of permitted water systems were recorded in:
  - Interior Health (38%)
  - Northern Health (27%)
  - Island Health (20%)
- Bulk Water Haulers: 221 permitted bulk water hauler trucks operate across BC, an 8% increase over 2022. These trucks are essential for areas without centralized municipal water services.

### Challenges Identified:

- Growth in the number of small water systems presents operational and compliance challenges, especially in rural areas.
- Unregulated water systems continue to be discovered, often requiring reclassification or new permitting.
- Interior Health has the largest number of small systems, leading to difficulties in ensuring uniform compliance.

### Water Quality Compliance and Monitoring

Ensuring the safety of drinking water is a key public health priority. Monitoring compliance with bacteriological, chemical, and physical parameters is crucial to detecting and mitigating potential health risks.

### Key Findings:

- 95,572 drinking water samples were submitted for testing in 2022/23, reflecting an 8% increase from the previous year.
- Compliance rates for large water systems remained high at 85%, while small water systems struggled with compliance.
- Key chemical exceedances were observed for manganese, arsenic, lead, uranium, and nitrates.
- Bacteriological monitoring showed a stable number of positive E. coli reports, despite increased sampling efforts.

### Significant Exceedances:

Contaminant	Exceedances at Source	Exceedances at Tap
Manganese	187	105
Arsenic	90	31
Lead	17	18
Uranium	17	14
Nitrate	9	6
Disinfection By-products	N/A	23

*Manganese levels remain high due to stricter health-based guidelines introduced in 2019, making previously acceptable levels non-compliant.*

### Challenges Identified:

- Small systems struggle with monitoring due to financial and operational constraints.
- Inconsistent reporting and outdated data systems limit accurate tracking of water quality trends.
- More stringent Canadian Drinking Water Guidelines are contributing to increased advisory issuance.



## Drinking Water Advisories: Increase in Warnings

A drinking water advisory is issued when the safety of water is compromised due to microbial, chemical, or physical contaminants. The report notes a record number of advisories, particularly affecting small systems.

### **Key Findings:**

- As of March 31, 2023, there were 864 active advisories, an 8% increase over 2022, marking the highest recorded number ever.
- Types of advisories issued:
  - Boil Water Notices (81% of all advisories)
  - Water Quality Advisories (15%)
  - Do Not Use/Consume Notices (4%)
- 73% of advisories lasted over 18 months, and 46% persisted for over five years.

### **Challenges Identified:**

- Small water systems (97% of all advisories) continue to face long-term compliance issues.
- Operational and financial limitations prevent many small systems from resolving their issues quickly.
- Climate change and increasing drought conditions may be contributing to advisory increases.

## Workforce & Inspection Shortages

The workforce responsible for drinking water protection in BC is facing significant shortages. While 52.65 full-time equivalent (FTE) positions were filled in 2023, 17.8 positions remained vacant, mainly in Northern Health.

### **Key Workforce Challenges:**

- Shortage of certified water system operators, particularly for small and remote systems.



- Increased workload on existing officers due to the rising number of advisories and inspections.
- Need for additional training programs to certify new operators and support small system compliance.

## Climate Change & Emerging Threats

Climate change is increasingly affecting drinking water quality and availability. The 2022 drought conditions and wildfires resulted in reduced water levels and potential contamination risks.

### **Key Climate Change Impacts:**

- More frequent and prolonged droughts leading to water shortages and quality deterioration.
- Wildfire-related contamination affecting source water quality.
- Extreme weather events increasing the risk of system failures.

### **Recommendations for Resilience:**

- Improve emergency preparedness for water systems.
- Enhance collaboration between government agencies, First Nations, and local authorities to manage risks.

## Indigenous Water Rights & Governance

The report acknowledges the importance of Indigenous governance and calls for increased collaboration between First Nations and the province.

### **Key Acknowledgements:**

- Recognition of First Nations' historical governance and legal rights over water resources.
- Commitment to aligning the DWPA with the BC Declaration on the Rights of Indigenous Peoples Act.
- Highlighting the disparities in drinking water safety for Indigenous communities, particularly those under federal jurisdiction.

### **Recommendations:**

- Co-develop strategies for water management with First Nations.
- Support Indigenous-led water stewardship programs.

## Future Steps & Recommendations

To address ongoing water safety challenges, the report outlines key future initiatives:

- Implementation of the Environmental Health Information System (EHIS) by Spring 2025.
- Expanding support for small water systems through training and funding.
- Enhancing inspection capacity to reduce long-term advisories.
- Increasing alignment between drinking water governance and Indigenous rights.

This report underscores the urgent need for action to ensure clean, safe, and reliable drinking water for all BC residents, while addressing climate, workforce, and governance challenges.

Annual Report of Activities  
under the  
*Drinking Water Protection Act*  
in BC  
2022 to 2023



# MATH FOR OPERATORS: BOD LONGFORM

By Graeme Faris

The test for Biochemical Oxygen Demand (BOD<sub>5</sub>) has been a benchmark test in wastewater treatment for well over a century due to its ability to act as a surrogate for the degree of organic pollution in water.

In 1898 the British government established a Royal Commission on Sewage Disposal to investigate methods of treating sewage that was being discharged to the river Thames in and around the city of London. Arising from their work was a need to measure the concentration of biodegradable organic material in the water. It was soon realized that directly measuring organic material was difficult but measuring the amount of oxygen consumed by microorganisms as they metabolized the organic material was much easier.

The test for biochemical oxygen demand came into use in 1908 and its parameters were standardized in 1912 as a test carried out in a darkened incubator over five days (±6 hours) at a temperature of 20 °C (±1 °C) in a 300 mL BOD bottle. BOD values are typically expressed in mg/L.

Legend has it that 5 days was chosen as the incubation period because no river in England takes more than 5 days for its water to travel from the source to the sea.

## **Biochemical Oxygen Demand (BOD<sub>5</sub>) – Unseeded**

When calculating the BOD of a sample which has not been disinfected (i.e. one with viable microorganisms) a relatively simple formula is used. The formula for calculating an unseeded BOD sample is:

$$\text{BOD, mg/L} = \frac{(\text{DO}_{\text{initial}} - \text{DO}_{\text{final}}) \times 300 \text{ mL}}{\text{Sample volume, mL}}$$

A 25 mL sample of effluent had an initial DO of 6.2 mg/L and a final DO of 4.1 mg/L. Calculate the BOD of the sample.

Known: DO<sub>initial</sub> = 6.2 mg/L, DO<sub>final</sub> = 4.1 mg/L, Sample volume = 25 mL

Insert known values and solve:

$$\text{BOD} = \frac{(\text{DO}_{\text{initial}} - \text{DO}_{\text{final}}) \times 300 \text{ mL}}{\text{Sample volume, mL}} = \frac{(6.2 \text{ mg/L} - 4.1 \text{ mg/L}) \times 300 \text{ mL}}{25 \text{ mL}} = 25.2 \text{ mg/L}$$

## **Biochemical Oxygen Demand (BOD<sub>5</sub>) – Seeded**

Occasionally an operator will need to calculate the BOD of a sample which has been disinfected and contains no viable microorganisms. In this case the sample needs to be “seeded” with a small aliquot of wastewater with a known BOD concentration. Two calculations are needed in this case.

The formula for calculating the seed correction in mg/L is:

$$\text{Seed correction, mg/L} = \frac{\text{BOD of seed stock, mg/L} \times \text{Volume of seed stock, mL}}{\text{Total Volume of BOD bottle, 300 mL}}$$





The formula for calculating the seeded BOD is:

$$\text{BOD, mg/L} = \frac{(\text{DO}_{\text{initial}} - \text{DO}_{\text{final}} - \text{Seed correction}) \times 300 \text{ mL}}{\text{Sample volume, mL}}$$

Calculate the seeded BOD5 in mg/L given the following data:

$\text{DO}_{\text{initial}}$ : 8.6 mg/L  
Seed stock sample: 5 mL

$\text{DO}_{\text{final}}$ : 3.2 mg/L  
Seed stock BOD: 95 mg/L

Sample size: 30 mL  
Total diluted volume: 300 mL

Step 1 – Calculate the seed correction in mg/L

$$\text{Seed correction, mg/L} = \frac{\text{BOD of seed stock, mg/L} \times \text{Volume of seed stock, mL}}{\text{Total Volume of BOD bottle, 300 mL}}$$

$$\text{Seed correction} = \frac{95 \text{ mg/L} \times 5 \text{ mL}}{300 \text{ mL}} = 1.58 \text{ mg/L}$$

Step 2 – Calculate the seeded BOD

$$\text{BOD, mg/L} = \frac{(\text{DO}_{\text{initial}} - \text{DO}_{\text{final}} - \text{Seed correction}) \times 300 \text{ mL}}{\text{Sample volume, mL}}$$

$$\text{BOD, mg/L} = \frac{(8.6 \text{ mg/L} - 3.2 \text{ mg/L} - 1.58 \text{ mg/L}) \times 300 \text{ mL}}{30 \text{ mL}} = 38.2 \text{ mg/L}$$

Some final thoughts:

Where possible, choose sample sizes that divide into 300 to produce a whole number, e.g. sample sizes of 5, 10, 25, and 30 mL. This makes the math a little easier.

Where possible, choose sample sizes that will produce a dissolved oxygen demand of at least 2.0 mg/L and will result in a final dissolved oxygen level of at least 2.0 mg/L. This will ensure that you are working within the best accuracy range of your dissolved oxygen meter.

## The Online Help Centre for BC Small Water Systems

Find technical advice and self-help tools to help you deliver safe drinking water. Covers topics on treatment, regulations, operations, maintenance, water quality monitoring, emergency response planning and much more.

[smallwatersystemsbc.ca](http://smallwatersystemsbc.ca)



# 10 EASY PIECES... FOR IMPROVING MEETINGS

By Roger Nopper

## 1 Deal in Sound Bites:

The limit of any person's attention is about 8 seconds, unless you keep them engaged. Use the Headline Technique, which is to give the broad picture of your idea within an 8-10 second span, and then, add the detail during the time when people are less likely to be listening attentively.

## 2 Manage Listening:

The attention of normal human beings in meetings drifts *in* and *out* according to their individual motivation. You can manage your listening better by taking notes on what you are hearing that is directly on the subject (the *in* part of listening during the meeting) and what you are hearing that is *outside* of the subject of the meeting (the *out* part of the meeting).

## 3 Assess Your Meeting:

Always, always, always take two minutes at the end of each and every meeting and assess three things that went well and one thing to improve for the next meeting. Then, make one person in the room accountable for implementing that improvement (not always the Chair or the CEO).

## 4 Make Your Agendas Actionable:

Your agendas should not only contain the content items for the meeting, but the process and expected outcome for each of them, for example, an agenda item that might say: "The latest OHA recommendation to Boards" should also say: "Decision required on adoption".

## 5 Control Your Own Blather:

Resist the urge to comment on every item, especially if you have the bad habit of commenting at length. Rather, set up a competition among the meeting participants for brevity and use "code" expressions for when the discussion is deteriorating into too much detail ("We're in the weeds, folks"), or when the same point is getting to be repetitive ("We've flogged this one long enough, people").

## 6 Set and Respect a Time Standard:

Set the time standard for your meeting, for example, 2 hours separated by one 5-minute break. Then, structure the meeting so that highest priority items appear first and lowest last. End the meeting 5 minutes before the elapsed time and take 2 minutes to assess your meeting. The other 3 minutes is "slack" time and is taken up with participants getting up from the board room table, chatting and making comments to each other, and leaving the meeting room.

## 7 Do Away with Side Meetings:

Simply refuse to engage with side meetings, not only because they are rude (which they are), but also because valuable information is lost to two important people in the room when a side conversation goes on.

## 8 Manage Cell Phones:

Simply decide on a policy for cell phones: some groups don't allow them in the meeting room; others tolerate them to be on vibrate mode; and virtually all agree that having them ring during a meeting is a definite no-no. A good middle ground is to turn cell phones off for the length of the meeting, aimed at ensuring that you are not contributing to your own inattention any more than is necessary.

## 9 Prepare:

It is essential to prepare for meetings. It is, in fact, *part of the job*. If you choose to be a participant in a meeting, then you must also choose to do the work. Lack of participant preparation is one of the key impediments to effective meetings.

## 10 Who Drives Change:

Effective meeting behaviours need to be driven from individual motivation, rather than that of the group. Change is much more certain if each participant of the meeting decides to adopt the behaviour rather than having to impose a protocol.



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# **2025 BCWWA ANNUAL CONFERENCE & TRADE SHOW**



**Victoria, BC | April 27 - 29, 2025**

## **JOIN US FOR BC AND YUKON'S PREMIER WATER EVENT!**

We are pleased to bring our 53rd Annual Conference & Trade Show to BC's capital city of Victoria! Meet with over 1,000 attendees who work in water, sewer and stormwater systems from across BC, the Yukon and beyond. The conference hosts over 80 presentations, panel sessions, technical tours and one of the largest trade shows of its kind in western Canada.

### **HIGHLIGHTS:**

- Full Education Program featuring expert speakers and industry leaders.
- Two-day Trade Show with top companies and industry suppliers.
- Keynote from Geoff Green, educator, social entrepreneur and adventurer.
- Technical and cultural tour visits, hands-on challenges and activities.
- Opportunities to network and collaborate with peers.
- Collect 1.2 CEUs for attending education sessions (subject to approval).
- and much more!

**REGISTER TODAY!**

**[bcwwaconference.org](https://bcwwaconference.org)**





Exterior of the Micro Hydro Project, nestled in the hills of the Peace River Valley

# THE CITY OF FORT ST. JOHN MICRO HYDRO PROJECT

By Ryan Harvey

The City of Fort St. John Micro Hydro Project stands as a remarkable example of innovative energy production, showcasing how municipalities can harness renewable energy from unexpected sources. Located in northeast British Columbia, Fort St. John is known as the "Energetic City" for its young population and rich history in energy development and resource extraction; this project aligns with the community's forward-thinking approach to sustainability.

Completed in 2016, this cutting-edge hydro-generating station captures the energy potential of gravity-driven sewer effluent discharged from one of the city's treatment facilities. By leveraging the natural flow of liquid downhill, the project team installed a turbine, ensuring the energy produced could be fully recognized and fed back into the grid.

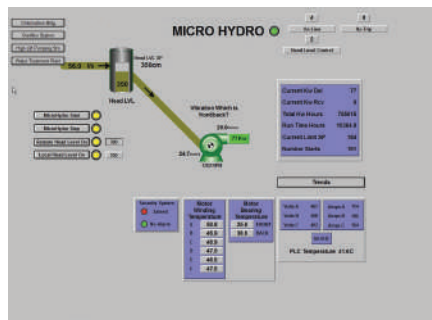
At the heart of the project is a 100-kW turbine, along with a generator, advanced control systems, and an 800-meter-long, 300 mm diameter penstock installed alongside the existing discharge pipe. The project optimizes power generation from the effluent flow by taking full advantage of the natural topography with sophisticated controls to maintain consistent head pressure to the turbine. The facility is housed in an 8.6 m x 6.6 m concrete block building, including a control room, a turbine/generator room, and all necessary mechanical, electrical, and control systems. Notably, this was the province's first 100 kW net metering installation, with all generated power being fed directly into the BC Hydro grid.

The generator produces 100 kW of power, equivalent to approximately 780 MWh annually - enough to supply electricity to around 70 homes. In 2016 alone, the project generated roughly \$70,000 in revenue for the city. Funded entirely through grants, the \$1.46 million reduces the City's carbon footprint while serving as a model for other communities seeking innovative ways to integrate renewable energy into their infrastructure.

The following YouTube links summarize the system well.

[https://www.youtube.com/watch?v=Tm\\_dI3lXlqw&t=34s](https://www.youtube.com/watch?v=Tm_dI3lXlqw&t=34s)

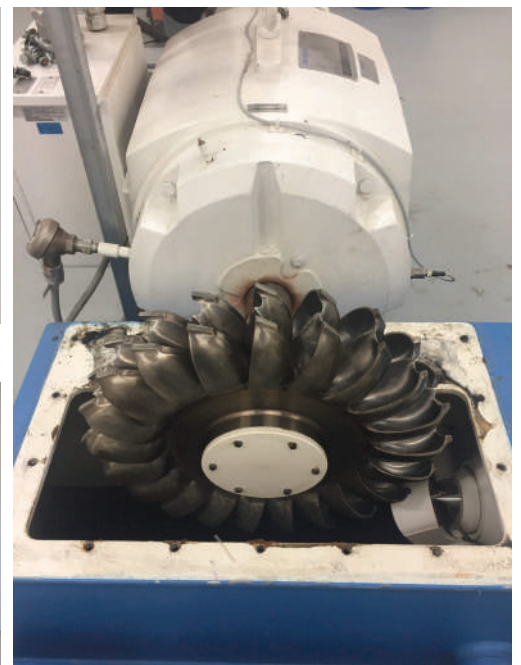
<https://www.youtube.com/watch?v=sPhzRIjipQ>



Screen Shot of SCADA



Micro Hydro Project turbine and generator



A 100-kW Turbine



# MID-PERIOD REMINDER: CONTINUING EDUCATION REQUIREMENTS FOR EOCP OPERATORS

By Heather Reynolds

We're halfway through the 2024-2025 reporting period, and it's time to check in on your Continuing Education Units (CEUs). Staying on top of your training isn't just a box to tick—it's your ticket to being a top-notch, certified operator who keeps our water and wastewater systems running smoothly.

As we approach the midpoint of the reporting period, it's crucial to stay on track with your requirements. We wanted to take this opportunity to remind you of the rules and expectations for CEUs and their allocation to your profile.

Operators can upload items directly to their profile using **ACTION > Add Course Taken** and uploading a document as proof of attendance. This can be a course completion certification, transcript, or wallet card confirming training attendance. Just make sure the item contains your **Name**, the **Course Title**, and the **Date** of training

## CEU Requirements by Certification Type

- **Level I-IV Certificates:** Operators must complete 24 hours (2.4 CEUs) of approved training every two years. If holding multiple certificates, a minimum of 25% (0.6 CEU) of training must be in each field.
- **SWS or SWWS Certificates:** Operators must complete 12 hours (1.2 CEUs) of approved training directly applicable to their certificates. If holding both, 25% (3 hours) of training must be in each field.
- **BWD Certificates:** Operators must complete 6 hours (0.6 CEUs) of approved training directly applicable to the certificate every two years. If holding multiple certificates, 3 hours (0.3 CEUs) must be in BWD.
- **BWS Certificates:** Operators must complete 12 hours (1.2 CEUs) of approved training directly applicable to the certificate every two years.



## ENVIRONMENTAL OPERATOR TRAINING



## SMALL WATER SYSTEMS CORRESPONDENCE COURSE NOW AVAILABLE!

- All courses are taught by certified operators who are currently working in the field.
- Save money by scheduling a course at your location.

**Contact us to schedule a course:**

[jamesonwater.com](http://jamesonwater.com)

250.882.0796

[jamesonwater@gmail.com](mailto:jamesonwater@gmail.com)

## General Rules and Notes

- Core CEUs: Directly applicable to the job functions and knowledge requirements for a specific utility type.
- Related CEUs: Relevant to the industry as a whole but not directly applicable to specific job functions.
- Operators cannot receive credit for completing the same course within the same 2-year reporting period.
- CEUs for courses cannot be split among multiple reporting periods; the whole value of a course applies to the same reporting period.
- CEUs are not awarded for writing exams or self-study.
- Operators can 'catch-up' on CEUs if behind, but surplus CEUs do not carry forward to future periods.
- Operators with multiple certificates are not required to complete the full number of hours for each certificate but must ensure that 25% of the requirement applies to each certificate held.
- Failure to meet CEU requirements or pay annual dues will result in a 'not certified' status until requirements are met.

## Exemptions

- The Continuing Education Requirements do not apply to:
  - Operator-in-Training certificates
  - Operators obtaining a new certification within a reporting period (except for reciprocity cases).

## Conclusion

Continuing education ensures operators remain well-trained, current, and capable of maintaining facilities responsibly and professionally.

Staying current with CEU requirements is essential for maintaining certification and ensuring the safety and reliability of water and wastewater facilities. If you have specific questions about your requirements, please reach out to our office – we are always happy to assist!

Asset Integrity for

## WASTEWATER TREATMENT

- *Belzona has designed a wide range of solutions that combat operational challenges: erosion-corrosion, chemical attack and abrasion problems that result in increased operational costs.*
- *Belzona's cold-applied systems have proven to help wastewater treatment plants improve their operation by eliminating replacement costs and decreasing the risk of unscheduled shutdowns.*

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# WPI CONFERENCE AWARDS



EOCP is please to congratulate EOCP Director, Mike Firlotte, on being the recipient of the prestigious "Jess Jones Award in Excellence". This award is presented to a volunteer who demonstrates outstanding service to the association. He was given the award at a ceremony held at the WPI conference in New Orleans in January 2025.



*Paul Bishop, (L) presenting Mike Firlotte (R) with the Jess Jones Award in Excellence.*

## Subject Matter Experts for Course and Instructor Reviews

**Thank You to Our Existing SMEs!** We extend our heartfelt thanks to our current SMEs for their dedication and expertise. Their contributions as employers, engineers, and professionals in the field are invaluable in maintaining EOCPs standards of recognized courses.

They play a crucial role in determining whether a course is core or related to their area of expertise and they provide valuable insights and ensure the quality and relevance of courses. They also help shape the future of water and wastewater operations education.

### JOIN THE TEAM!

The EOCP is currently seeking Subject Matter Experts (SMEs) in Water/Wastewater Operations to review courses, instructors, and training organizations submitted to EOCP. This is a voluntary role, and it is only done online through the EOCP CRM.



If you are passionate about shaping the future of water and wastewater operations education and consider yourself an 'expert' in your field(s), we want to hear from you! Join us as an SME and make a difference in the industry. Reach out to Heather at [hreynolds@eocp.ca](mailto:hreynolds@eocp.ca) today and be a part of something impactful and rewarding!





# RECONNECT, SHARE RESOURCES, AND FOSTER COMMUNITY DISCUSSIONS WITH EOCP

By Heather Reynolds

As we mark just over a year of using Hivebrite, our community engagement platform, it's the perfect time to reconnect, share valuable resources, and foster meaningful discussions within our community.

You can access the 'Community' feature from your EOCP CRM profile. From there, you can:

- **Reconnect with Your Peers** - Community offers a seamless way to reconnect with fellow members. Whether you've been a part of our community for years or are new to the industry, now is the time to rekindle old connections and forge new ones.
- **Share Valuable Resources** - Our Operators thrive on the sharing of knowledge and resources. The "Community" section makes it easy to upload and access a wealth of information. From study tools and industry reports, to best practices and discussions, the platform can be your go-to resource hub. Don't hesitate to contribute your own materials and benefit from the collective wisdom of our community.
- **Engage in Community Discussions** - One of the most powerful features of 'Community' platform is its ability to facilitate vibrant discussions. Join forums and discussion groups to share your insights, ask questions, and engage in meaningful conversations. Whether you are looking for advice, collaboration, or simply want to stay informed about the latest trends, there's a place for you in our community.
- **Discover Employment Opportunities** - Stay updated with the latest job postings shared within our community. Don't miss out on these opportunities within our network to further your career.

Get Started Today!

If you have not yet explored the 'Community' feature, now is the perfect time to dive in. Let's strengthen our connections, share resources, and engage in enriching discussions. Together, we can build a more connected and resourceful community.

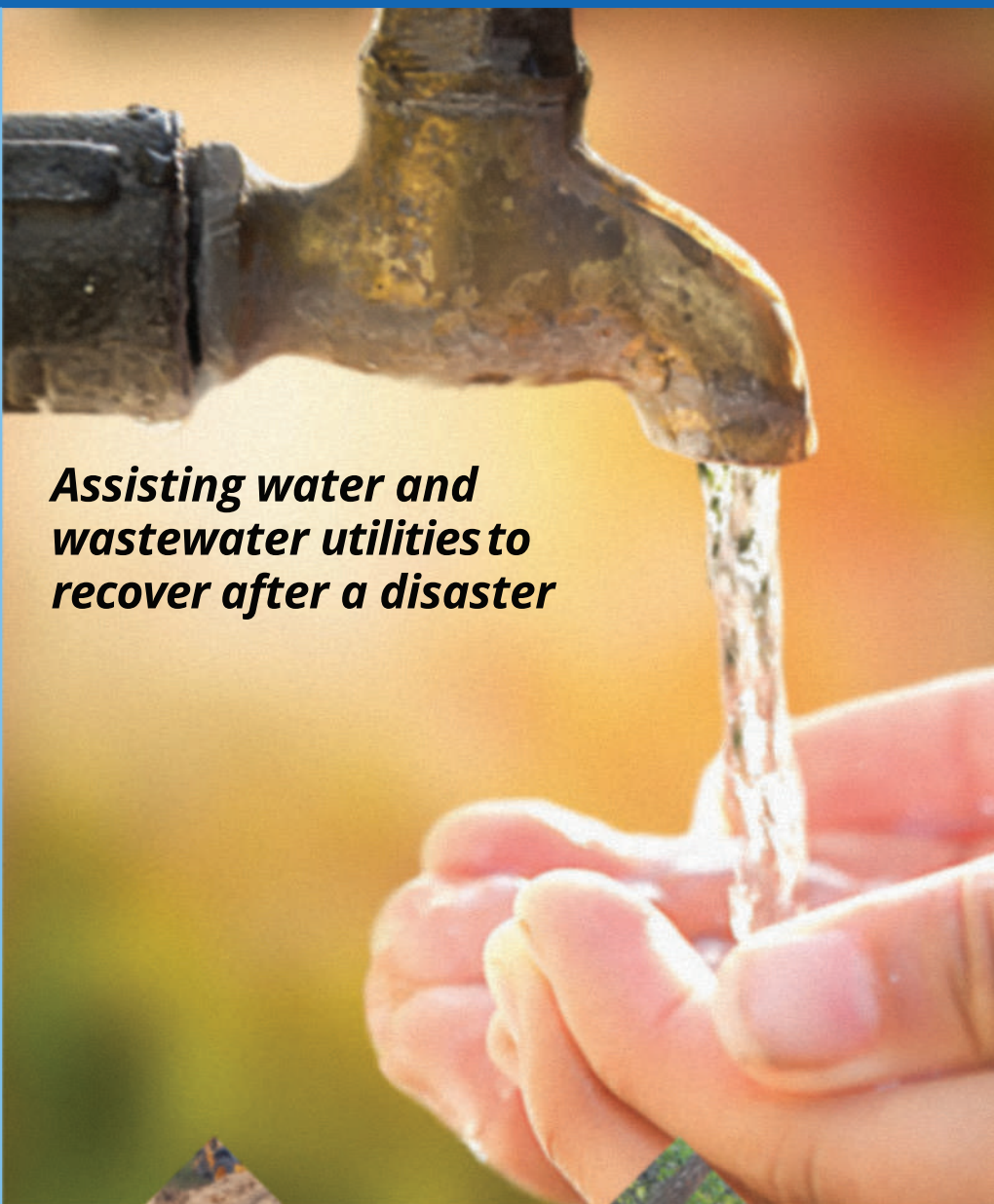


**EOCP**  
Environmental  
Operators  
Certification  
Program

**JOIN OUR  
COMMUNITY!**

Participate in discussions, ask questions about exam preparation, discover daily news, see job postings, and more!

Visit [community.eocp.ca](https://community.eocp.ca)



***Assisting water and  
wastewater utilities to  
recover after a disaster***





# Tired of fatberg cleanups costing millions each year?



NSF

Nonfood Compounds  
Program Listed: L2  
Registration #NF153686

100%  
Operator  
Safe

## Bioaugmentation for the Professional Operator. Eliminate Grease and Sludge at the source.

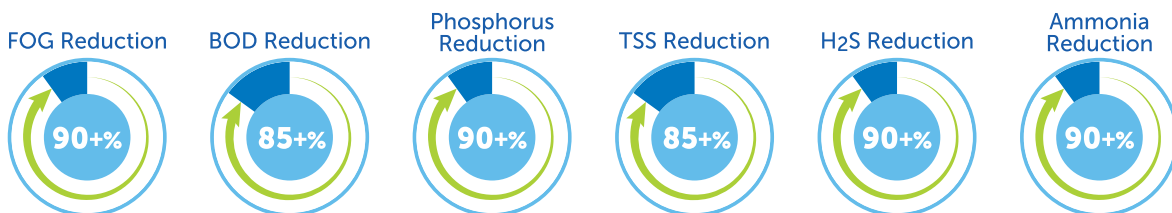
Waste Go is a proven on site formulation of bacteria and enzymes. This powdered blend, when activated with water, digests solid waste, sludge, fats, oils and grease. Not an emulsifier! Waste Go solves the problem where there is a problem.

Waste Go is nature's own way of recycling all organic waste back to plant food and it's NSF Certified as safe for use in all food prep and production areas. An industry first!

## Treat. Perform. Save.

Waste Go can keep your lifts and lines clean of all organic debris including fats, oils, and grease. It's also excellent for rejuvenating lagoons, increasing their capacity, and adding decades to their life spans.

Waste Go has been proven to achieve average reductions of:



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# STATISTICS

October 1st - December 31st, 2024



# EOCP

Environmental Operators  
Certification Program

## EXAM STATISTICS



**412** exams  
taken

**116** exam  
sessions

## FACILITIES



**62** facilities  
added or  
upgraded

## CONTINUING EDUCATION UNITS (CEUs)

**1,331** Operators  
submitted CEUs

**2,405** CEUs earned

## DEFINITIONS

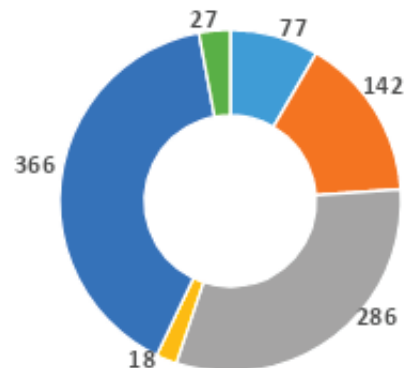
<b>WT</b>	Water Treatment
<b>WD</b>	Water Distribution
<b>WWC</b>	Wastewater Collection
<b>WWT</b>	Wastewater Treatment
<b>OIT</b>	Operator In Training
<b>BWD</b>	Bulk Water Delivery
<b>BWS</b>	Building Water System
<b>SWS</b>	Small Water System
<b>SWWS</b>	Small Wastewater System
<b>SCS</b>	Stormwater Collection System
<b>MU</b>	Multi Utility

## OPERATOR CERTIFICATIONS

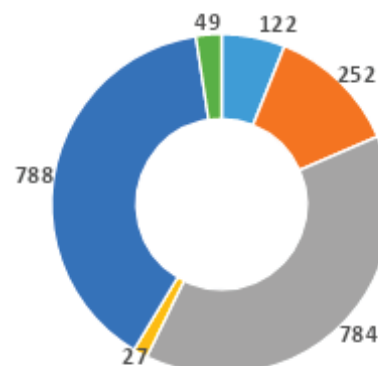
- MU II
- MU I
- IV
- III
- II
- I

## OPERATOR CERTIFICATIONS

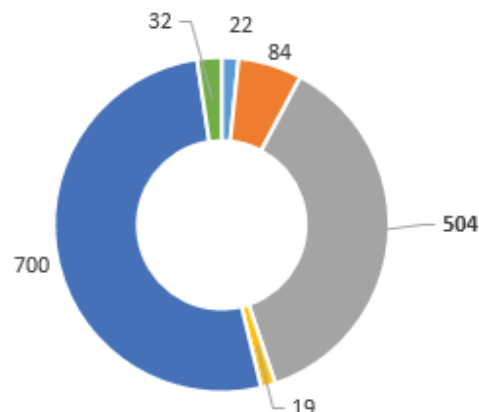
### WT OPERATOR CERTIFICATIONS



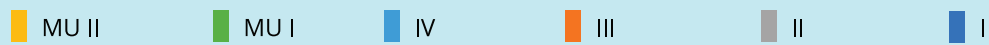
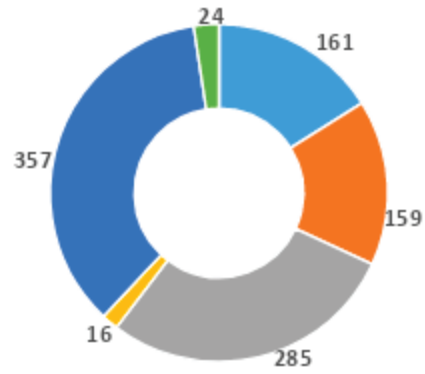
### WD OPERATOR CERTIFICATIONS



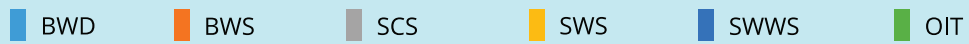
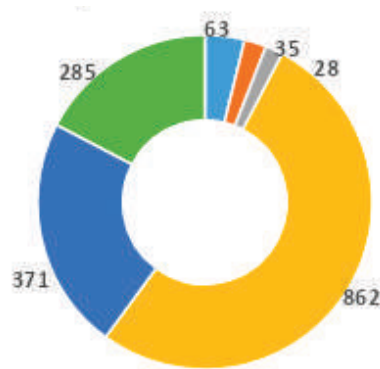
### WWC OPERATOR CERTIFICATIONS



### WWT OPERATOR CERTIFICATIONS

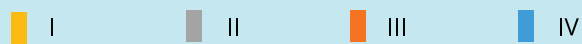
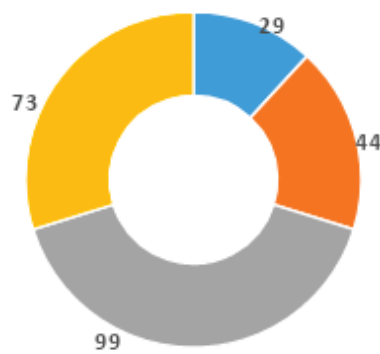


### OTHER OPERATOR CERTIFICATIONS

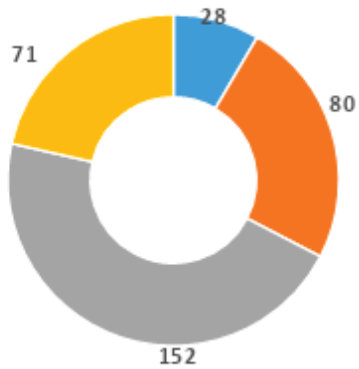


### FACILITY CLASSIFICATION

#### WT FACILITY CLASSIFICATIONS

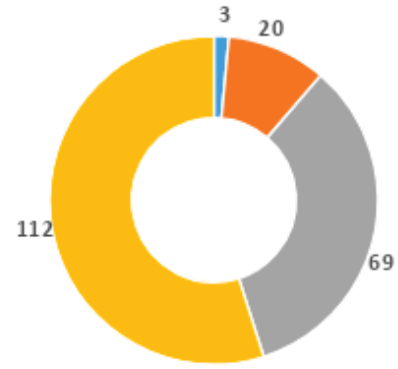


WD FACILITY CLASSIFICATIONS



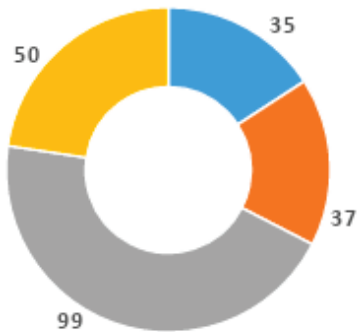
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WWC FACILITY CLASSIFICATIONS



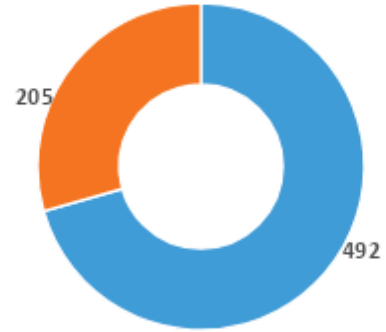
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WWT FACILITY CLASSIFICATIONS



I II III IV

SMALL SYSTEMS CLASSIFICATIONS




SWS SWWS

CEUs can be added to your profile by choosing [Action > Add Course Taken](#) under the learning column. Alternatively, you can forward your course completion certificates to [eocp@eocp.ca](mailto:eocp@eocp.ca).

Check your Operator status by logging into your profile at <https://crm.eocp.ca>. Choose ACCOUNT to see if your 2025 dues have been paid and LEARNING STATUS / CEU to see if your CEUs are up to date.

If your profile shows a , this means you haven't paid your 2025 dues and/or submitted sufficient CEUs.

If your profile shows a , your 2025 dues are paid, and you've met the CEU requirements for the 2022-2023 reporting period.

We are midway through the current CEU reporting period, it ends December 31, 2025. If you haven't already met your CEU requirements for the 2024 – 2025 reporting period, please look for training opportunities from your preferred training providers, or look for options in the EOCP CRM at: <https://crm.eocp.ca/ManageCourses>.



# EOCP2025 22<sup>ND</sup> TO 24<sup>TH</sup> SEPTEMBER 2025



## MEET TANYA STEELE THIS YEAR'S EOCP CONFERENCE KEYNOTE SPEAKER



Tanya is a professional trainer, safety advisor, and co-host of the Safety Debris podcast. She has received various awards and recognition such as: Professional Leadership Award for Women and an Educational Leadership Award. Over the years, she has gained many designations including: CSO(R), NCSO, CHSC, CSP.

She is an expert in Joint Health & Safety Committee training, educating, and rejuvenating company meetings to make them more effective, fun & collaborative. In 2018, Tanya and Paula started "What If One Educates" to train other leaders on how to train their workers more effectively, with the concept that one person can make a difference in one person's life and possibly save that life.

### IN-PERSON CONFERENCE AND EDUCATION SESSIONS

Strengthening Operators:  
Innovating for a Sustainable Future



## EOCP2025



# SAVE THE DATE!

22<sup>ND</sup> TO 24<sup>TH</sup>  
SEPTEMBER 2025

## IN-PERSON CONFERENCE AND EDUCATION SESSIONS

Strengthening Operators:  
Innovating for a Sustainable Future



# EOCP2025

**2025 CONFERENCE**  
**STRENGTHENING OPERATORS:**  
**INNOVATING FOR A SUSTAINABLE FUTURE**  
**#EOCP2025**



Join us for the 2025 EOCP Conference and Education Sessions, featuring top-notch training by industry leaders and offering up to 1.2 CEUs. We're thrilled to introduce our new venue and an expanded trade show.

Mark your calendars—registration opens on April 15, 2025. This event will be held in-person.

Comments from 2024 Attendees:

"I would like to commend the EOCP office staff for a great job with the conference. It was very informative and well planned."

"Always fun to attend in person"

"That was awesome!"

"Great conference as usual! Great food, great people and I am proud to be a part of this organization"



# EOCP

Strengthening Operators:  
Innovating for a Sustainable Future



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TF 1.866.552.3627

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